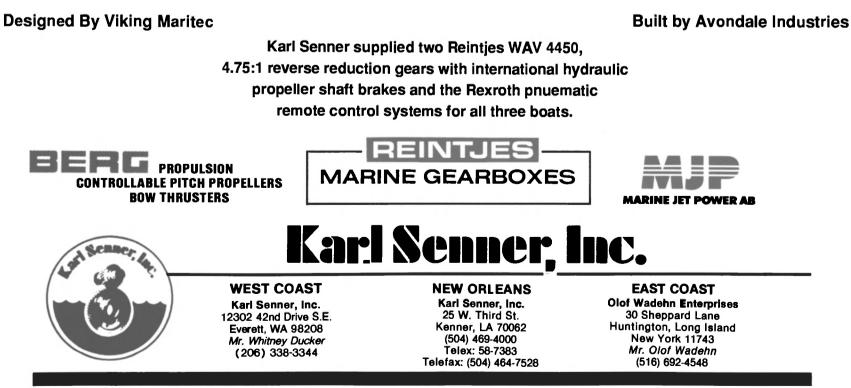


KARL SENNER, INC ... WHEN ONLY THE BEST WILL DO



... For the Karen K. (shown above) and her two sisters, owned by National Marine, Inc.



Circle 291 on Reader Service Card

Some of us wanted to run a photo of each of the 300 vessels we've built.

But cooler heads prevailed.

When your enthusiasm for shipbuilding knows no bounds, it's easy to get carried away.

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For more than 35 years Gladding-Hearn has produced exceptional commercial vessels. And pioneered the demanding technology of high-quality marine construction.

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to integrate aesthetic and practical functions with brilliant engineering. Not to mention custom detailing and passenger comfort.

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Dependability is the true test of any vessel. To reach that goal requires fastidious attention to detail. A Gladding-Hearn hallmark.

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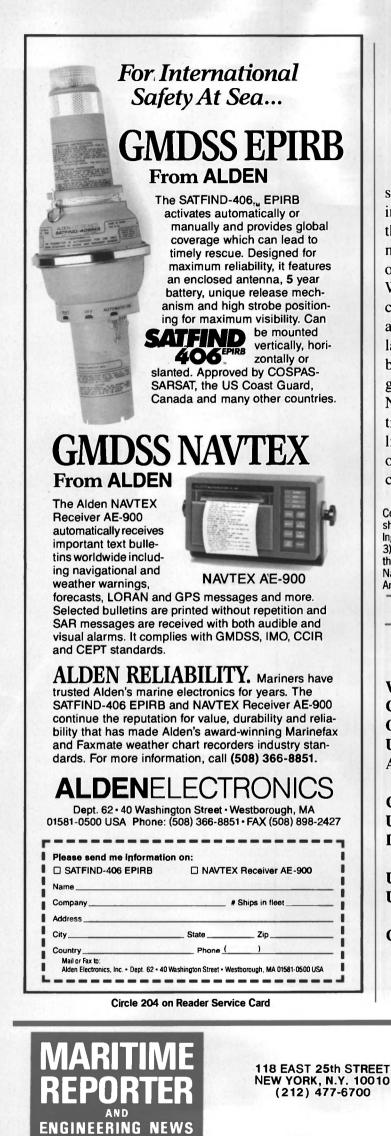
And, of course, a unique vision that pinpoints the cutting edge of world-class shipbuilding.

For more information about our company and a copy of our brochure, "Vision", call 508-676-8596.

Or if you prefer, write to Gladding-Hearn Shipbuilding, The Duclos Corporation, One Riverside Ave., Box 300, Somerset, MA 02726.

Discover how our experience can make nice profits part of your vision.

GLADDING-HEARN SHIPBUILDING



ON THE COVER

1992 World Yearbook

Annually incorporating insightful articles and reports examining the latest trends, forecasts for the future, and vital statistics in the marine industry, this 1992 version of MARITIME REPORTER's World Yearbook is one of the most comprehensive to date. Additionally, tables and graphs detail the latest vessel construction levels in both the shallow-draft and oceangoing market, as well as the U.S. Naval and worldwide rig construction sectors. The most up-to-date listings of the U.S.-flag and U.S.owned foreign-flag fleets are included as well.

Cover photos, from top: The P&O luxury cruise ship Regal Princess, built by Fincantieri of Italy; an Ingram Barge pushboat; the USS Kearsage (LHD-3) recently christened at Ingalls Shipbuilding; and the Edison Chouest icebreaking research vessel Nathanial B. Palmer, delivered this year by North American Shipbuilding.

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4

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SPD 10.5 KT RNG 45.5 7 NM BRG 327° WPT 0025	STD NEXT INT SYS ALM DISP ARE GAL FUT NAV DATA V SV ALMN TIME ZOOM CLR V EST ENT

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We could. But we wouldn't. Because cutting costs would mean cutting corners. And that's not the way we do things at Furuno.

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Link up our nav receivers with other Furuno marine electronics to create the All-Furuno Bridge.



LC-90 Mark-II Loran





Miami Plans To Expand Passenger Operations

A plan to substantially expand the Port of Miami's passenger operations from Dodge Island to the mainland were announced recently by Carmen Lunetta, Miami's Port Director.

The new facilities are to be con-

structed on a tract of land adjoining the Dodge Island bridge and on 19 areas of Bicentennial Park. According to Mr. Lunetta, between \$20 million to \$30 million will be spent on enlarging the existing deep water slip adjoining the turning basin, which will allow docking facilities for four cruise ships with 1800 passenger capacities.

Alongside each slip two glass-walled terminal buildings will be

constructed, along with restaurants, underground parking, small shops and U.S. Customs facilities, all totaling \$80 million.

While the plan is still awaiting approval from the Miami City Commission, a large number of commissioners are reported to be in favor of the proposal.

A 30 to 50 year lease for the new facility is being requested by Mr. Lunetta from the city, with im-

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provements to be underwritten by port revenues.

Norway Plans To Spend \$31 Billion On Offshore Sector Over Next 5 Years

It has been reported that Norway is expecting to spend about \$31 billion on its offshore gas and oil industries over the next five years. There are about 21 different developments which could be made, primarily in the northern North Sea.

It is predicted that offshore production will rise in the future which would indicate the need for developing the oil fields in the North Sea.

New Maritime Agreement Between U.S. And Russia

Warren Leeback, the U.S. Maritime Administrator, recently signed a new "memorandum of consultation" with the Russian Federation on behalf of the United States, updating the 1990 maritime agreement with the Soviet Union. The new agreement is designed to allow increased port access between both countries and to ensure closer cooperation in compiling trade statistics.

After the demise of the Soviet Union, it became necessary to revise the five-year bilateral agreement and to sign a new pact with Russia. A recent **Bush** Administration

decision to permit Russian ships to visit U.S. ports that were previously restricted due to American military activity has been codified in the new agreement.

Seven days prior to the date of proposed entry, requests must be submitted for consideration before Russian ships may enter the ports of: New London and Groton, Conn.; Port Canaveral, Port St. Joe, Panama City and Pensacola, Fla.; Kings Bay, Ga.; Port Hueneme, Ca-lif.; San Diego; Charleston, S.C.; Hampton Roads, Va.; Honolulu, Hawaii; and Portsmouth, N.H. Entry into Russian Federation ports that were similarly closed to U.S. shipping will also be granted once they are opened. submitted for consideration before

once they are opened.

The new agreement also estab-lishes an ad hoc U.S. and Russian group that will meet to "improve the quality and timeliness of data on the carriage of bilateral cargo." Because of the lack of accurate statistical data, an estimate of U.S.-flag liner volume contained in the agreement will remain at the 1991 level, 120,000 long tons.

To facilitate U.S. trade with the Black Sea region, the Maritime Administration is also interested in the newly independent nation of Ukraine.



High-performance Amercoat 385 is the most versatile marine epoxy you can use—inside or outside

Whether you need to line a tank or protect a few acres of deck, Amercoat[®] 385 multi-purpose epoxy coating is the high-performance, cost-effective solution for marine applications.

VOC-compliant Amercoat 385 forms a tough, abrasionresistant film that is an excellent barrier to corrosion. It adheres strongly to bare steel, coated steel, stainless steel, aluminum, galvanizing, inorganic-zinc silicate coatings and concrete, as well as other substrates. And because Amercoat 385 also adheres to intact old paint and tight rust, it can significantly cut your preparation time and expense.

Highly resistant to most chemicals, Amercoat 385 is ideal for many aggressive environments. As a tanklining, Amercoat 385 is suitable for petroleum fuels, sewage waste, alkaline and salt solutions and a variety of chemical cargoes. It can be immersed in both salt water and fresh water at temperatures up to 140° F

Amercoat 385 is also available in an inhibitive pigment formula, 385P that offers enhanced protection without added lead.

Ameron's Amercoat 385 multi-purpose epoxy coating provides highperformance protection both topside and down in the cargo tanks

User-friendly Amercoat 385 can be applied by various spray methods to produce a smooth, fast-drying film. You can overcoat it with a wide range of topcoats, including polyurethanes and acrylics.

For more information about versatile Amercoat 385, contact the Ameron Marine Coatings Division, 201 North Berry Street, Brea, CA 92622; (714) 529-1951; Fax (714) 529-8287.



Circle 207 on Reader Service Card

UK-Australian Joint Venture To Bid On Minehunter Project

The shipbuilding and engineering groups Vosper Thornycroft Limited (VT), of the United Kingdom, and Transfield, of Australia, are teaming up in a bid to win the contract for the Royal Australian Navy (RAN) Minehunter Coastal Project. The pairing of VT and Transfield was finalized in readiness for the RAN's Request for Proposal (RFP), issued on 1 May 1992.

VT is one of the world's leading designers and builders of fiber reinforced plastic (FRP) minehunters, such as the Royal Navy's Sandown Class Mine Countermeasure vessel. Australia's premier naval shipbuilder, Transfield, offers a complete range of project management, systems engineering, naval construction and repair and integrated logistics support services to the RAN and Royal New Zealand Navy.

The two companies combined have extensive experience in the most modern minehunting technology and feel confident that they possess the ability to deliver high levels of Australian and New Zealand Industry Participation (ANZIP) at competitive prices and quality standards.

VT's managing director, Martin Jay, said: "We welcome the finalizing of this agreement with Transfield, which we feel sure will strengthen the opportunities for both companies in securing this prestigious contract from the RAN."

Circle 32 on Reader Service Card

MarAd Implements New Program To Support Using U.S.-Flag Ships

The Maritime Administration has implemented a new program which was designed to help U.S.-flag carriers by providing market leads and encouraging both foreign and domestic shippers to give preference to U.S. vessels. The program also issues certificates of appreciation to thank importers and exporters for shipping their goods aboard U.S.flag ships.

flag ships. **Robert E. Martinez**, deputy maritime administrator, recently issued certificates of appreciation to the following companies based in New York, New Jersey, Connecticut and Colorado: North American Logistics Services; A-P-A- World Transport Corp.; Bozoyan Export Inc.; Union Carbide Corp.; Phibro Energy Inc.; Daniel F. Young Inc.; Pan American Container Corp.; Adolph Coors Co.; Cyprus Copper Co.; Houston Satellite Systems Inc. and International Business Machines Corp.

Renk Tacke TNT System Installed On Megayacht

The TNT gear system developed by Renk Tacke has been installed aboard the megayacht, Away. This is reported to be the first use aboard a luxury yacht.

The Away, constructed by Ugo Codecassa S.p.a., of Viareggio, Italy, was built for an Italian industrialist. The vessel is 162.7 feet long and has a beam of 30.5 feet. Two diesel engines power the vessel, each developing 1,380 kw. Maximum speed is 18.1 knots, and cruising speeds range from 15 to 17 knots. The TNT system allows both pro-

The TNT system allows both propeller shafts to be driven by one of two engines through the use of a bevel gear drive which connects both the port and starboard gear units. At half power a speed of 16.2 knots can be achieved. The system reportedly allows for more economical operation of the vessel.

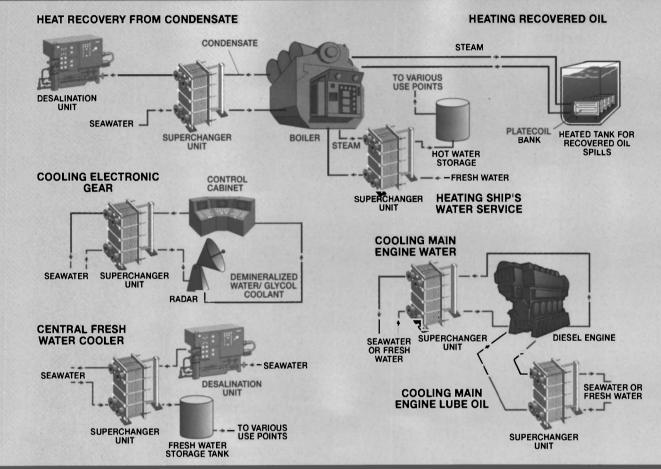
The TNT gear system has been installed aboard several supply ships.

For more information about the TNT gear system,

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Maritime Reporter/Engineering News

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



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

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

Superchanger units can be equipped with titanium plates which offer the best resistance to corrosion and erosion when exposed to seawater. Intermixing or cross-contamination of hot and cold liquids is virtually impossible. Low fouling rates reduce cleaning requirements for Superchanger units, that are designed for easy maintenance. They can be cleaned-in-place by backflushing, or quickly disassembled by hand, cleaned and put back in operation.

Platecoil[®] prime surface heat exchangers offer optimum temperature control. A Platecoil bank-in-tank unit provides wide interspaces for effectively passing solids while efficiently heating seawater containing oil from spills.

Platecoil bayonet heaters provide a large amount of efficient primary heating surface in a single unit for maintaining desired temperatures in storage tanks. These heaters help promote convection currents for better heat transfer rates and tank temperature uniformity. Platecoil suction heaters provide immediate heating for pumping oil out of tanks.

Tranter plate-type heat exchangers can be supplied in full compliance with codes and specifications as required by the ABS; the U.S. Coast Guard; shock testing per MIL-S-

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and ASME U stamp per Sec. VIII Div. 1. With over 50 years of heat transfer problem solving experience, Tranter is uniquely poised

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Christopher Cole Named Trinity Marine's Inland River Sales Representative

The Trinity Marine Group recently named **Christopher M. Cole** inland river sales representative. Mr. **Cole** will be responsible for barge and towboat sales for the U.S. inland rivers and coastal waterways.

Bob Kenny, Trinity's senior vice president, inland operations, said: "The appointment of Mr. **Cole** is part of a plan to integrate barge and towboat sales activities into Trinity's overall marketing strategy. Trinity is a full line supplier of barges and boats for the inland rivers. We are applying our experience in the design and construction of thousands of barges and boats to meet the needs of dry cargo and liquid cargo carriers. Chris' experience fits perfectly with our objectives. He has extensive knowledge of barges, their cargoes, and the tow boats required to move them."

Trinity Marine Group consists of 11 shipyards, two are dedicated to barges, and all but one can build barges and towboats. Trinity is currently building three towboats, one of which is the 241-foot Mississippi, the new flagship of the Army Corps of Engineers.

Barge fabrication facilities dedicated to the inland rivers are located at Brownsville, Penn., and Madisonville, La. Other facilities capable of building boats, barges and other marine equipment for inland operators are located in New Orleans, Lockport, and Gretna, La., Moss Point, and Gulfport, Miss., and Beaumont, Texas.

For further information describing the services and facilities provided by the Trinity Marine Group,

Circle 3 on Reader Service Card

PacOrd Awarded Repair Contract For NOAA Ship McArthur

PacOrd Inc., a subsidiary of SPD Technologies, was recently awarded the prime contract for dockside repairs aboard the NOAA ship McArthur. This award marks the fourth such project for PacOrd under a diversification of services program that has reportedly broadened the firm's service base to include U.S. Navy and commercial maritime systems repair and overhaul.

NOAA provides ships for scientific projects which require underway, at-sea platforms. The McArthur repair project will include asbestos abatement, hull, mechanical and electrical repairs. The ship's auxiliary engines will also be modified, as well as replacing and rerouting piping systems and overhauling the ship's cranes and winches.

PacOrd has completed previous repair contracts on the McArthur in

June, 1992

1989, 1990 and 1991, in addition to a similar contract for the NOAA ship Discoverer in 1990.

Comsat Appoints Bourdon Manager, Customer Service

Richard Bourdon was recently appointed manager, customer service, for Comsat Mobile Communications. He will be reporting to **Edward G. Ryznar**, vice president, maritime sales.

Mr. Bourdon will coordinate the company's customer service functions for its maritime and land mobile operations. He will also be responsible for the U.S. and foreignbased technical force and the company's global service representative program.

Comsat Mobile Communications, a division of Comsat Corp., provides maritime, aeronautical and international land mobile services to customers around the world. Comsat Corp. represents the U.S. in the 64member Inmarsat and the 122-member International Telecommunications Satellite Organization (Intelsat).

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

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\$1.5 Million Navy Contract Won By Harris

Harris RF Communications, of Rochester, New York, was awarded a \$1.5 million contract from the U.S. Navy Space and Naval Warfare Systems Command (SPAWAR) for a quantity of AN/URC-94(V) radio sets. If additional options are awarded, the entire contract value may rise to \$17 million, according to Harris.

Providing both short and longrange communications in a compact package, the AN/URC-94(V) is a versatile radio widely used throughout the Navy and other branches of the armed forces. For short-range communications the radio uses lowband VHF-FM and HF-SSB for longrange links. The AN/URC-94(V) is fully compatible with existing Vinson and Parkhill wideband and narrowband secure voice systems.

Harris RF Communications

Group is a major innovator in the design, manufacture, installation and support of advanced HF, VHF, UHF radio equipment, COMSEC equipment, digital video imaging transmission systems, turnkey systems and networks.

The Harris Corporation is primarily focused on electronic systems, semiconductors, communications and office equipment with worldwide sales in excess of \$3 billion.

For free literature on Harris's AN/ URC-94(V) and other equipment and services,

Circle 18 on Reader Service Card

Beth Steel Wins \$3 Million Contract For RRF Ship Deactivation

The U.S. Maritime Administration (MarAd) has awarded a \$3,032,784 contract to Bethlehem Steel Corp., Sparrows Point, MD, for the deactivation of the Ready Reserve Force (RRF) breakbulk vessel Cape Johnson.

The deactivation work includes repairs that are necessary to meet classification society specifications and regulations. Maintenance work to ensure that the vessel can be rapidly activated in the event of a future national emergency will also be performed. The work is expected to be completed within 70 calender days.

Layberthing Contract Awarded To NY Shipyard For 2 RRF Ships

New York Shipyard, Brooklyn, NY, was awarded a contract by the U.S. Maritime Administration (MarAd) to provide layberthing services for the Ready Reserve Force (RRF) vessels Cape Clear and Cape

Today's decisions must be the right

Right in cost. Right in reliability.

Cost-effective, year-in, year-out,

■ Safeguard your decisions with CLA-VAL...the name that stands for

ones for tomorrow.

the best in valves.

You just can't beat

forty years of experience.

Rugged. Dependable. Cod. The 1-year contract, with four 1-year options requires the shipyard to provide berthing, electric power, water and telephone service. The value of the contract for both ships for the full 5 years is \$1,403,200.

For free literature describing the facilities and services available from New York Shipyard,

Circle 40 on Reader Service Card

Farrell Lines Appoints E.S. Binnings As Agent In 10 Southern States

Farrell Lines has appointed E.S. Binnings as an agent for 10 southern states in the U.S. The new agent's responsibilities will be sales and intermodal services in Texas, Louisiana, Alabama, Mississippi, Arkansas, Oklahoma, New Mexico, Colorado, western Tennessee and western Florida.

ACR Has More EPIRBs Aboard More Vessels Across More Oceans Than All Our Competitors Combined.



When an angry sea turns into towering mountains of water, the last thing you want to doubt is your Emergency Position Indicating Radio Beacon (EPIRB). ACR leaves no doubt. From recreational to commercial beacons, every ACR unit has to meet our own rigid standards before it goes to sea. Standards that exceed those of worldwide marine authorities. That's why ACR is the most-selected EPIRB for commercial, military and recreational vessels throughout the world. But there's another, more important reason for having ACR EPIRBs aboard: They've saved more lives than all the others com-

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Circle 221 on Reader Service Card

Boats & Barges



The new New York City Fire Department SES fireboat John P. Devaney being lowered into the water at Textron Marine Systems.

Textron Awarded \$181.4 Million For LCACs; Readies First SES Fireboat For NYC

Textron Marine Systems in New Orleans, La., recently received a \$181.4 million U.S. Navy contract for the construction of 12 Landing Craft, Air Cushion (LCAC) vehicles. The contract is an option to an existing contract and brings the total number of LCAC awarded to Textron Marine Systems to 69.

On the commercial side, Textron Marine Systems is preparing to deliver the first of two Surface Effect Ships (SES) fireboats to the New York City Fire Department. The vessel is currently undergoing tests and is expected to be delivered July 4, three months earlier than expected. The fireboat John P. Devaney will take part in the Tall Ship Celebration in New York Harbor.

Talking about the recent Navy contract, **John J. Kelly**, president of Textron Marine Systems, said that it would help ensure a stable work force is maintained into early 1996 and will continue to keep the company positioned for further growth. Additionally, this award represents the Navy's commitment to maintain modern amphibious forces.

Textron has successfully used its knowledge of military SES technology and applied it to the commercial sector.

"TMS fire and rescue boats are an example of civil applications of military-developed technology," said Mr. Kelly.

TMS is also expanding its domestic production capacity to manufacture water commuter craft to speedily and efficiently ferry passengers from Long Island Sound, Hudson River and New Jersey shore facilities to New York City. It is hoped this service will be in effect in the

June, 1992

near future. For free literature detailing the

boatbuilding capabilities of Textron Marine Systems,

Circle 99 on Reader Service Card

Pressure Builds To Support Submarine Shipyards

Congressional pressure and Pentagon support are behind a new effort to assist U.S. builders of nuclear submarines and maintain related critical defense technologies.

For example, Secretary of Defense **Dick Cheney** recently said in a speech in New York that the Pentagon may have to make investments to ensure that certain elements of current technology are available for future nuclear-powered submarines.

future nuclear-powered submarines. **Donald Yockey**, the Acquisition Chief of the Department of Defense, also recently stated in a white paper outlining the military's new research priorities and procurement rules that essential nuclear submarine propulsion technology would be difficult to maintain without special federal assistance.

Some of the options being examined by the Navy and the Pentagon to assist builders outlined in the white paper are:

—Stepping up the development of the next generation attack submarine;

—Increasing funding for Los Angeles Class attack submarine to extend production;

—Expanding some of the Navy's ship overhaul accounts;

-Increasing research and engineering efforts in order to maintain a skilled base of personnel and suppliers;

—Procuring millions of dollars' worth of components for an additional aircraft carrier to be built by Newport News Shipbuilding in the late 1990s.

Congress recently voted to save a second Seawolf Class sub. The vessel would be built by the Electric Boat Division of General Dynamics, which is currently constructing the first of the class.

However, the Bush Administration has not dropped its opposition to building a fleet of Seawolf Class submarines.

Navy Oiler Christened At Avondale Shipyards

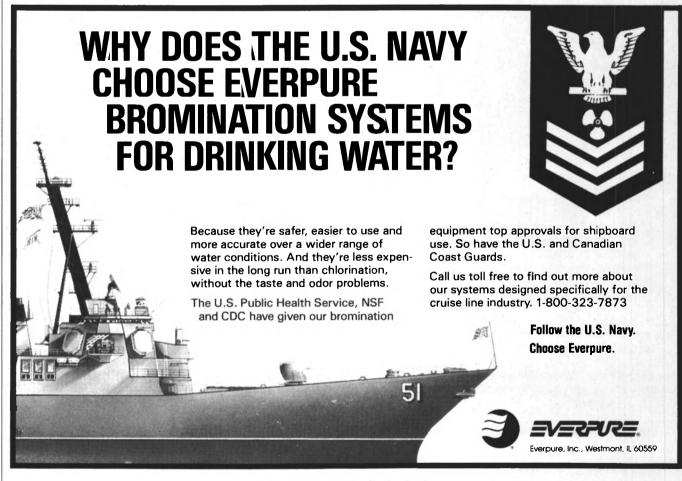
The 12th in a series of 16 Navy fleet oilers under construction at the Shipyards Division of Avondale Industries was recently christened in Avondale, La.

Named the USNS Tippecanoe (T-AO-199), the 40,700-long ton ship has a length of 677.5 feet, beam of 97.5 feet and draft of 36 feet when fully loaded. The Tippecanoe can hold 7.56 million gallons of oil and her speed is 20 knots.

Upon her completion next year, the Tippecanoe will join her sister ships in the Military Sealift Command's Naval Fleet Auxiliary Force (NFAF). The 44-ship NFAF consists of several different types of vessels including: oilers, combat stores ships, oceangoing tugs, ballistic missile resupply ships, ocean surveillance ships, a fleet stores ship and an ammunition resupply ship.

For free literature detailing the shipbuilding services of Avondale Industries,

Circle 101 on Reader Service Card



Circle 350 on Reader Service Card

Amoco Announces CATS Riser Platform Jacket Successfully Installed

Amoco has announced that the installation of the jacket on the Central Area Transmission System riser platform has been successfully completed. The platform is located in the North Everest gas field about 140 miles east of Aberdeen. The conventionally-braced steel jacket was manufactured by Highlands Fabricators. It was then towed to the site and installed by Saipem, an installation contractor.

The platform will be the central location for the North Everest and Lomond gas fields, both of which are operated by Amoco. UIE and RGC of Scotland are manufacturing the jackets for the platforms located in both gas fields.

Lykes Bros. Announces Top Management Changes

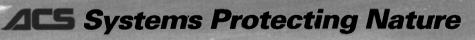
Lykes Bros. Steamship Co., Inc. has announced that **Robert J. Brennan** will be retiring at the end of this month after being with the company for 50 years.

the company for 50 years. Mr. **Brennan** joined the company in 1942 and his most recent position was executive vice presi-



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dent in charge of Lykes' conventional services division. Upon Mr. Brennan's retirement, Mac G. Bulloch Jr. will become senior vice president of conventional services, and Ralph Kreuger will become senior vice president in charge of operations.

Mr. **Brennan** was a part of the group that formed Interocean Steamship Co. in 1982, and with the Lykes family helped purchase Lykes Bros. Steamship Co. from the LTV Corp.

Shell Oil's Marine Department Meets ISO 9000 Standards

Shell Oil Company recently announced that its marine department was the first major U.S. oil company marine organization to meet the international standards for quality assurance called ISO 9000.

The International Organization for Standardization (ISO) was started in order to develop standards which companies could use as a prerequisite for the quality management process. ISO 9000 standards have been adopted in more than 40 countries around the world.

The marine department at Shell is responsible for arranging safe and environmentally sound tanker and barge transportation to and from the company's refineries and terminals.

The British Standards Institution awarded Shell's certification earlier this year. The registration certifies Shell Marine's services of inspecting, clearing, chartering and scheduling vessels, inspection and approval of dock facilities and emergency response.

Crowley Maritime Enhances Services To Puerto Rico

Crowley Maritime Corporation has announced that it is increasing the amount of weekly sailings in its Ro/Ro barge service between Jacksonville, Fla., and San Juan, Puerto Rico, from two to three.

The RO/RO barges will be sailing from the Talleyrand terminal in Jacksonville every Tuesday, Thursday and Saturday. Transit time will be approximately five days.

Crowley's service between Lake Charles, La., and San Juan will be cut from a 10-day transit time to eight days. Service from Mobile will be cut, but the company will provide transportation options for shipments to move through Jacksonville or Lake Charles.

Crowley Maritime is one of the world's most diversified marine transportation providers, offering liner services throughout the western hemisphere and marine contract transportation and industry-related services worldwide.

For more information on the services available from Crowley Maritime,

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> After a new-generation Henschel ship announcing system was successfully tested on board the USS Abraham Lincoln during Operation Desert Storm, the next challenge was to adapt the system for use on older carriers in the fleet.

The result: a system offering improved performance, higher reliability and lower maintenance costs. It also eliminated the overloads, shorting and obsolete parts problems that plagued older shipboard announcing systems. It's another example of how systems technology from SPD companies meets the challenge of doing more with less in demanding times. So when you're thinking about next-generation shipboard systems, for fast response on a tight budget, think Henschel. *That's our job.*



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June, 1992

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Propulsion Update

New Electric Propulsion Drive Developed By ABB Stromberg, Kvaerner Masa-Yards

Marketed For Offshore, Passenger, Icebreaking Vessels

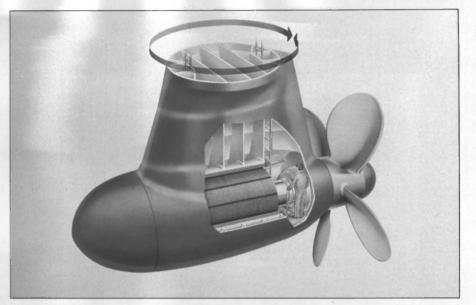
Exceptional maneuverability, low noise and vibration levels, and flexible machinery layout are among the advantages reported to be offered by a new high-power azimuthing electric propulsion drive recently introduced in Finland.

Jointly developed by Kvaerner Masa-Yards (KMY), Finland's largest shipbuilder, and ABB Stromberg Drives (ABB), the world's leading supplier of electric AC propulsion and power plants for ships, the new propulsion system is called the Azipod.

Unveiled at an international press conference at the KMY Arctic Research Center (MARC) at Toukola, just outside of Helsinki, the Azipod is an electric propulsion system self-contained within a pod, incorporating an air-cooled electric motor which directly drives a fixedpitch propeller. The AC synchronous motor located inside the pod is controlled by a cycloconverter, with full torque available in either direction over a speed range of 0 to 200 rpm.

Inherent in the system's design is the elimination of a long tailshaft, since the shaft is actually located within the pod. This increases the space available in the vessel for cargo or passengers, while offering the ship designer more flexibility in arranging the engines. Additionally, the use of rudders, transverse stern thrusters, CP propellers and reduction gears are not required with the Azipod system.

Rotating through a full 360 degrees, the Azipod, which will be available in power ranges up to 20 MW, is able to provide maximum thrust in ahead, astern, or to the side. According to KMY and ABB, both members



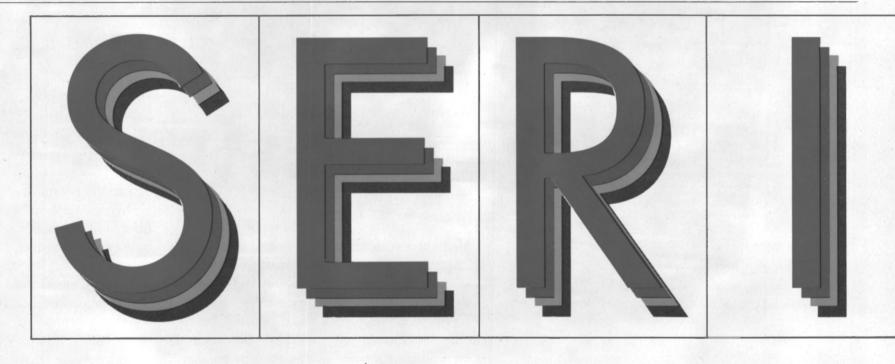
Artist's conception of the new Azipod azimuthing electric propulsion drive jointly developed and introduced by Kvaerner Masa-Yards and ABB Stromberg Drives.

of large worldwide industrial groups, the compact unit offers excellent maneuverability at slow speeds or dynamic positioning operations, conditions encountered on tight or congested waterways, or in offshore, arctic and harsh environments.

For increased operational safety, a crash reverse can be initiated either by reversing the propeller speed from ahead to astern, or by rotating the Azipod unit around its vertical axis, maintaining a high propeller

speed.

To power the Azipod, a combination of prime movers can be selected to ensure that they run close to optimum efficiency, with adequate combustion and improved fuel consumption and increased service intervals as a result. This greatly reduces emissions of nitrogen oxides, an extremely important consideration in light of the current tighting of environmental air quality regulations. The compact Azipod unit with a





ie: Suezmaxes The Suezmax will enter shipbuilding history as a classic. And Astilleros Españoles' place in history will be that of one of the pioneers of Suezmaxes. In the last four years alone we have delivered six Suezmax sisterships to five owners from four countries with another five ships for five owners from four countries underway. Now we build our Suezmaxes with double fixed-pitch propeller can be operated under constant hydrodynamic conditions, resulting in excellent efficiency and low dynamic impacts.

Maintenance and servicing of units larger than 4 to 5 MW can be performed without drydocking, since a worker has adequate space to enter the Azipod. Plans are underway to develop a smaller unit that can be removed from the bottom of the vessel for servicing without drydocking.



The prototype 1.5 MW Azipod electric propulsion drive on the supply vessel Seili. The Azipod will be offered in power ranges up to 20 MW.

KMY and ABB envision the Azipod to be especially well suited for offshore, icebreaker, passenger, research, pipe- and cable-laying, and naval vessels.

A prototype 1.5 MW Azipod unit was installed aboard a 140-foot Finnish Board of Navigation icebreaking supply vessel, the Seili, in August 1990. The prototype has successfully accumulated over 1,500 operating hours.

In model demonstrations in the MARC's test basin, the Azipod unit performed well during simulated icebreaking conditions. The MARC is well known for its research and experience in the product development of icebreakers, specialized vessels and other cold weather environment structures.

With the introduction of the Azipod, KMY and ABB continue a long-time working relationship. Since the early 1950s, ABB has been supplying electric propulsion and power plants for half of the world's icebreakers and 30 special-purpose vessels built by KMY.

Over 60 passenger ferries and cruise vessels built since the 1960s by KMY have been equipped with ABB electric power plants and automation systems.

AC/AC power plants and the Cyclo propulsion system were introduced by KMY and ABB as a new technology as early as 1983, with installations totaling about 348 MW. Recent installations include the five Carnival Cruise Line 70,000-grt megaliners ordered from KMY.

For free literature detailing the new Azipod electric propulsion drive from Kvaerner Masa-Yards and ABB Stromberg Drives,

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U.S.-Flag Cruise Ships Can Now Offer Gambling 'Cruises To Nowhere'

Gambling and gaming devices are now allowed onboard U.S.-flag ships, thanks to the Flower Banks National Marine Sanctuary Act, signed into law recently by President **Bush**.

The provision was originally a separate bill introduced by **Gene Taylor** (D-Miss.) and attached to H.R. 3866 by the Senate last year. U.S. ships on "cruises to nowhere" now have the same rights to offer gambling while at sea that foreignflag cruise ships have always enjoyed. Under the bill, individual U.S. states retain the power to prevent gambling onboard ships that operate within their waters.

Several companies have already begun to take advantage of the new legislation. Continental Coast Line, Inc. (CCL), of California, is seeking financing to build two 2,500-passenger cruise ships featuring casinostyle gambling between San Francisco and Los Angeles.

Dining, dancing and gaming would also be offered on board four new U.S.-flag, 256-foot, SWATH passenger vessels that McDermott Marine Construction, of Morgan City, La., and Ft. Lauderdale, Fla.based Swathtech are planning to construct.

New Hagglunds Business Unit For Marine, Aerospace And Defense Markets

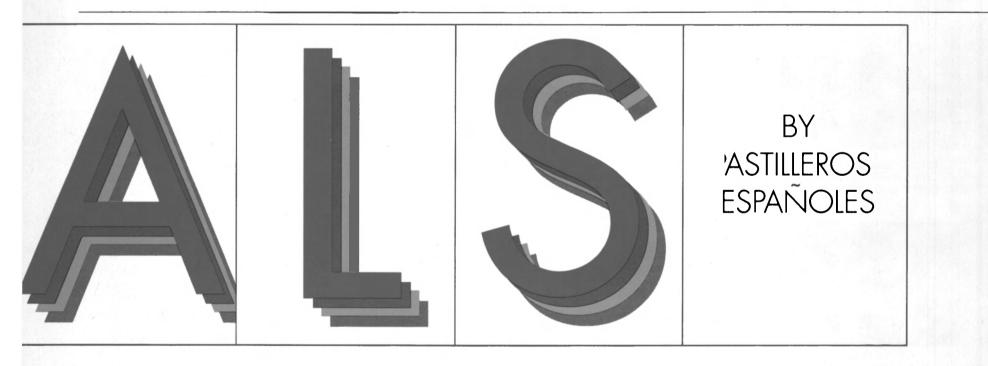
The fluid power manufacturer Hagglunds Denison, of Marysville, Ohio, has created a new business unit called the Marine-Aerospace-Defense Group to better focus on its marine and government markets.

marine and government markets. John A. Moran, vice president of marketing, said that the reorganized function, which includes sales, service and support, will be headed by Marine-Aerospace-Defense & Product Support Group director **Richard A. Norris.**

Both gentlemen also announced that the company had doubled its product warranty to all its customers, including those in marine and defense.

For additional information,

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The Shipbuilders of Spain

June, 1992

Marine Electric Systems **Gets License From ELDEC** To Market Products

A license agreement was signed recently between Lynwood, Washington-based ELDEC Corporation and Marine Electric Systems, of Clifton, New Jersey, under which Marine Electric Systems will manufacture and market a line of ELDEC's marine proximity switches.

ELDEC specializes in proximity sensing devices for harsh environments and has developed the licensed line specifically for marine

Privately held Marine Electric Systems has been servicing the marine and rail industries for 50 years and offers a broad range of engineering and manufacturing capabilities. The ELDEC switch will be the company's first proximity sensor and is expected to be a part of an alarm system now being developed by the company.

For free literature on the proximty sensing devices produced by ELDEC.

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For additional information regard-



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ing the services available from Marine Electric Systems,

Circle 20 on Reader Service Card

John Crane Marine **Acquires Marine Seals** Area Of Waukesha Bearing

John Crane Marine International, of Buffalo Grove, Illinois, recently announced that it has acquired the Marine Seals department of the Waukesha Bearing Company.

The Waukesha seals operation will be integrated into John Crane's headquarters by August 1, 1992. The newly combined capabilities will allow the company to offer a full range of stern, rudder and bulkhead seals.

The organization is supported by a worldwide service team dedicated to providing the highest level of industry service.

For free literature describing the complete line of John Crane Marine products,

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IMO To Hold Talks **On Code For Shipping** Nuclear Fuel At Sea

At a recent meeting held by the International Maritime Organization's (IMO) maritime safety committee, it was decided to safety committee, it was decided to establish a working group to deter-mine if regulations should be made for shipments of nuclear fuel at sea. The group will be made up of representatives of the IMO mari-time safety committee, its marine environment protection committee

environment protection committee

and the International Atomic En-ergy Authority (IAEA). The decision to establish this group came after the environmental organization Greenpeace claimed that existing packaging of nuclear materials was not adequate enough to guarantee the safety of containers in the event of an accident.

The working group will meet to discuss the establishment of a code at the IMO maritime safety committee's next session, December 7-11, 1992.

NY Port Leaders Fear Loss of Navy Repair Jobs

Recent reports from port leaders in New York have indicated that, even though a Navy homeport was established in Staten Island, ex-pected Navy repair work may be going to Philadelphia instead.

The Navy recently opened up repair contract competition to firms along the entire East and Gulf coasts, creating a real possibility that the Philadelphia Naval Shipyard may become New York's largest competitor.

Reports indicate that some shipyard work has already gone to Phila-delphia resulting in job losses in the New York area.

Maritime Reporter/Engineering News

Circle 213 on Reader Service Card

Singmarine Receives Shipyard Contracts From China And Vietnam

Aluminum Craft (88) Pte Ltd., the Singapore-based subsidy company of Singmarine Industries, a division of Keppel Corporation, recently won 2 shipbuilding contracts for the construction of passenger ferries for China and a shiprepair contract from Vietnam to refurbish an anchor handling vessel.

The Guangdong Province Donguan City Humen Hong Kong/ Macau Passenger Ferry Co. has or-dered a 35-meter (114.8-foot) catamaran ferry with a 30-knot service speed from

Aluminum Craft. Costing S\$6 million (approximately US\$3.2 million), the catamaran will accommodate 250 passengers and 10 crew, will be fully air-conditioned and have 2 VIP lounges on the upper deck.

A second South China transportation company is having a 28-meter (91.84-foot), 138-passenger monohull ferry built by Aluminum Craft for S\$3 million (approximately US\$1.6 million). The ferry's 28knot service speed will be developed by 2 marine diesel engines, generat-ing a total output of 1,700 kW.

Both vessels will be classed and surveyed by the China Classifica-tion Society (ZC), and should be delivered in the first quarter of 1993. The ferries will operate between Hong Kong and Guangdong, South China.

Singmarine's major shipbuilding and shiprepair arm, Singmarine Dockyard & Engineering Pte Ltd., won its third repair contract from Vietsov Petro, a Vietnam/Soviet joint-venture oil company, for the refurbishing of the anchor handling vessel Lam Son 01. The work will involve overhauling the vessel's engines and repairing the bow thruster, tail-shafts, piping and machinery. For additional information re-

garding the services available from Singmarine Group,

Circle 31 on Reader Service Card.

Bergesen Receives 2 New LPGs From NKK

Tokyo-based NKK Corp. has recently delivered the second and third ships in an order for 4 multipurpose liquefied petroleum gas (LPG) carriers from Bergesen DY A/S of Norway

One of the world's major LPG operators, Bergesen will receive the last of the 4 vessels in November 1992, according to NKK.

The 2 LPGs delivered to the Norwegian company were the 56,945dwt Berge Captain and the Berge Clipper of 48,120 dwt. All 4 of the LPGs constructed at

NKK's Tsu City, Japan, shipyard will have the capability to transport a variety of liquefied gases, including propane, anhydrous ammonia,

June, 1992

naptha, butadiene and propylene. For additional information about the shipyard services available from NKK Corp.,

Circle 29 on Reader Service Card

Three U.S. States Planning **Own Vessel Inspections**

The states of Texas, California

and Washington have all announced that they intend to institute their own vessel inspection programs. These programs could go beyond the U.S. Coast Guard rules for inspections.

Texas has already passed legislation which permits state officials to board vessels entering Texas's territorial waters, and it is the only state to have done this so far. California and Washington have passed legislation which require investigation of the Coast Guard's spill prevention and ship inspection rules. If results indicate that the states would benefit from their own inspections then the laws which have been passed would come into effect.

According to reports, the conflict between states and the Coast Guard is growing and the legality of the individual inspections is still uncertain.

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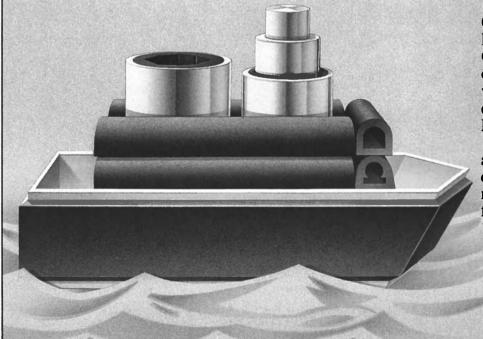
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Low Freight Rates & Higher Standards Send Monthly Scrappings Up

A continuing slump in international freight rates along with higher ship chartering quality standards have persuaded more shipowners to scrap their vessels, according to a report from the shipbrokering firm of Howard Houlder & Partners, Ltd., of London.

The report indicated that shipbreakers purchased 18 tankers, dry bulk and combination carriers totaling 1.5 million deadweight tons in April, as opposed to 910,000 dwt in March and even less at the beginning of the year. A total of 48 vessels have been

A total of 48 vessels have been sold for scrap this year, amounting to 3.2 million dwt, compared to 90 ships of 4.5 million dwt over all of 1991. Altogether, 30 tankers have been sent to the breakers yard this year, versus 38 in the previous year. Part of the increase in tanker demolitions can be attributed to tightening international standards on tanker operations in response to environmental concerns. As a result, charterers are more inclined to seek newer tanker tonnage that meets these standards and reduces their liability, forcing older vessels out of the market.

However, despite the increase in scrappings, low scrap prices and the high price of new ship construction are forcing many shipowners to keep vessels in service that would normally have been withdrawn by now. The average age of the world merchant fleet is almost 13 years old, with more than 50 percent of the international tanker fleet at least 15 years old, creating an urgent need for new ship tonnage.

High labor costs and an expanding economy have almost eliminated Taiwan from the shipbreaking market, after accounting for almost 45 percent of world ship scrappings in 1985.

Crowley Offers To Donate Cranes To Port Everglades

Crowley Maritime Corp. has offered to transport, refurbish and install two cranes at no cost to the Port Everglades Authority. The cranes would be installed at the port's Southport container terminal.

At the present time there are three existing container cranes at the terminal and three more are scheduled to be delivered sometime around the end of the year.

Crowley has operations at Southport, which presently functions as a roll-on, roll-off terminal. The company offered the two cranes to the port authority because Sea-Land is considering moving to Southport, and Crowley feels that, even with the addition of the new cranes, they may not always have access to the cranes. The conditions which Crowley would impose are that they would have first rights to the cranes but that other lines could

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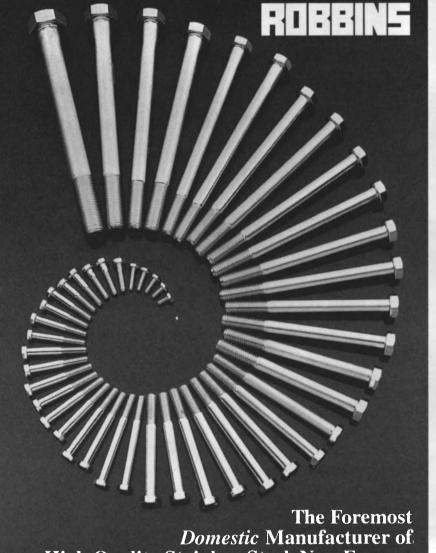
The new cranes are being built by Samsung Cos. of South Korea and will have a total cost of about \$24 million.

Freight Rates Surge For VLCCs And ULCCs

Recent freight rates for VLCCs and ULCCs have surged, with the increase in demand for oil shipments from the Middle East reported to be the cause.

However, it is possible that the recovery may not last because of the large number of vessels arriving in the Persian Gulf.

Where earnings were previously severely depressed, some owners have now reported that their daily earnings have more than doubled. These increases are mainly focused on VLCCs and ULCCs. Owners of smaller tankers are still reporting depressed levels.



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and cost down. Randy Rust Secretary of Treasurer Westport Shipyard

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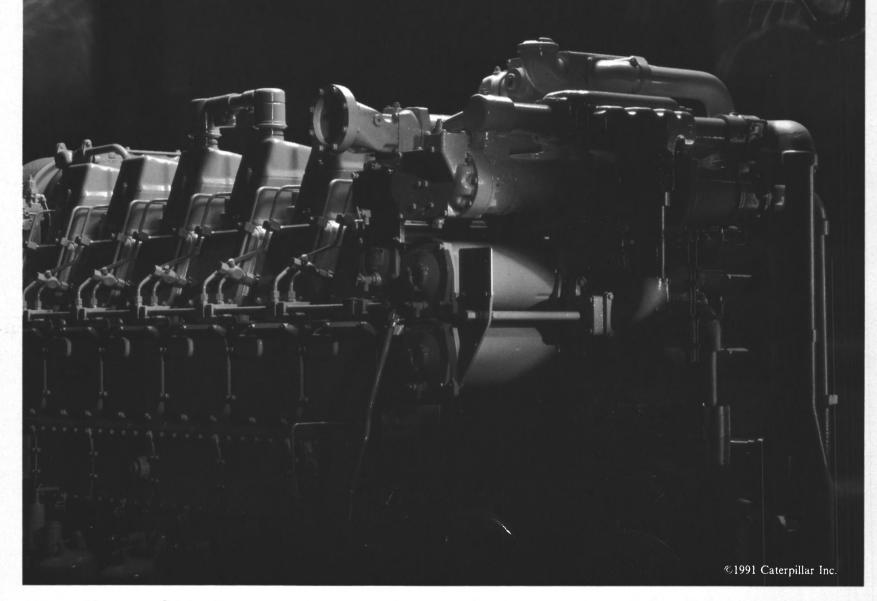
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Circle 222 on Reader Service Card

Boats & Barges

Fire/Rescue Boat Launched By Trinity for Brazil

Equitable Shipyards, Inc., New Orleans, a subsidiary of Trinity Industries, Inc., has launched the 106foot by 24-foot fire/rescue boat Governador Fleury. The emergency response vessel is the first of two identical boats being built by Trinity for Engineering Equipment Co., Inc., Downers Grove, Ill., for use in Sao Paulo, Brazil.

Each powered by two Detroit Diesel 16V92TA diesel engines, the boats will each have two 4,000-gpm fire pumps, two 2,000-gpm underwharf fire moniors, two 2,000-gpm forward deck monitors, two 1,300gpm aft deck monitors, a deck crane, and a 75-foot telescoping ladder with a 1,000-gpm fire monitor.

Governador Fleury and its sister ship Commandante Cianciuli, will also have a diver's decompression chamber, air compressors for divers, a diver's/rescue platform, a small dispensary, and a superstructure spray mist system to keep the crew and vessel safer in close firefighting situations.

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The Governador Fleury, the first of two fire/rescue boats being built by Equitable Shipyards, Inc., being launched.

John Dane III, president of the Trinity Marine Group, which in-

Rochem To Provide Water Supply Systems For Two Ferries

Rochem Marine of Genoa has entered into an agreement with Grandi Traghetti, a Grimaldi Group company and one of the largest ferry operators in Italy, to provide reverse osmosis desalination equipment for two new passenger/car ferries being built by Nuovi Cantieri Apuania S.p.A. of Italy.

ries being built by Nuovi Cantieri Apuania S.p.A. of Italy. Each of the 30,000-grt vessels will have a complement of 1,450 passengers and 150 crew, which requires that there always be a constant supply of water. In a proposal recommended by Rochem, and accepted by the owner, each of the ships would be fitted with two double bottom tanks, both with a 200-ton capacity. The tanks would be filled with clean sea water during each voyage for use while in port.

The Rochem sea suction system will be transferred to the double bottoms while in port so that water production can continue to operate at full capacity without clogging the system with silt or sand during docking procedures. With the system the vessel is reported to be freed from dependence on shoreside facilities and the size of the production unit is reduced by 25 percent to allow for lower operating expenses.

allow for lower operating expenses. Each of the vessels will have two Rochem Model 8100 DISC-TUBE 150S systems, both of which will provide 150 tons of water per day without the requirement of pre- or post-treatment. The patented system is reported to provide a method of flow management which allows for a higher performance rating and incorporates a cleaning process which can return the equipment to an optimum operating condition. According to Rochem, the system has proven its reliability aboard all types of vessels, ranging from submarines to cruise vessels.

For free literature detailing the reverse osmosis desalination equipment from Rochem,

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cludes Equitable, said: "This contract reflects our experience in building numerous emergency response vessels. Some are small single mission boats, some are multipurpose like the Governador Fleury, and others are very sophisticated like the twelve 208-foot oil spill response vessels we are building for the Marine Spill Response Corporation."

vessels we are building for the Marine Spill Response Corporation." The Trinity Marine Group, Gulfport, Miss., is owned by Trinity Industries, Inc., Dallas, Texas. In addition to Equitable Shipyards, Inc., other shipbuilding companies in the group are: Helter Ma-

In addition to Equitable Shipyards, Inc., other shipbuilding companies in the group are: Halter Marine, Inc.; Moss point Marine, Inc.; Gretna Machine & Iron Works, Inc.; Aluminum Boats, Inc.; HBC Barge Inc.; Trinity-Beaumont, Inc.; and Trinity Marine-Gulfport, Inc.

For free literature detailing the shipbuilding services of the Trinity Marine Group,

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Russian Organizations Help IDB Introduce New Services In CIS

IDB Communications Group, Inc., Houston, Texas, a leading supplier of specialized telecommunications services, recently announced the introduction of new joint service offerings with both the Russian Satellite Communications Company (RSCC) and Morsviazsputnik.

The agreements for private line, public telephone and mobile voice and data communications services between the U.S. and the Commonwealth of Independent States (CIS) are expected to aid further business development in the region by U.S. oil and energy companies and other industries.

The announcements were made by Edward Cheramy, president of IDB; Jon Klein, vice president and general manager of IDB Aero-Nautical; Valeriy Bogdanov, president of Morsviazsputnik; and George Sapov, technical director of RSSC.

An exclusive agreement between IDB and RSCC provides for private line and public telephone and data communications between the U.S., the CIS and the Baltic States using the Russian Statsionar 5 satellite. RSSC, a Russian State company, operates domestic and international ground earth stations and teleports.

The agreement between IDB and Morsviazsputnik provides for a full range of mobile satellite communication services using the Inmarsat satellite system from within the CIS. Morsviazsputnik, a Russian State company, operates major coast earth stations as the Russian Signatory to Inmarsat, supporting the mobile communications of maritime and land mobile users are provided through the company's IDB Aero-Nautical (IDB-A) unit.

For free literature detailing the communication services of IDB,

Circle 95 on Reader Service Card

High Rates For North Sea Supply Vessels

A large number of recent North Sea rig movements have made rates for rig support vessels hit new record levels

Sun Oil recently paid over \$29,000 a day to charter the anchor handling tug supply (AHTS) vessel Maersk Pacer to move the rig Glomar Arctic 3 in the U.K. North Sea, brokers reported. In the same rig move, the AHTS Far Sword was chartered for \$26,600 a day.

During a recent week-long period, Shell Oil company carried out four rig movements and had six vessels on spot market charters, while British Petroleum chartered four vessels to conduct four rig moves.

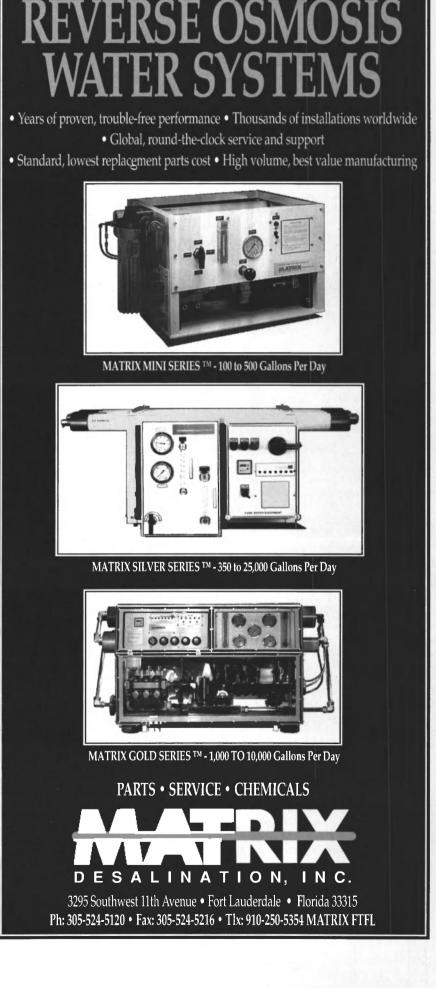
In the southern North Sea, jackup rig movements have also resulted in heavy chartering.

Brazil's Transroll And Sea-Land Extend Port Service Agreement

Sea-Land Service Inc., of Edison, N.J., and the Brazilian shipping company of Transroll Navegaco SA have agreed to extend their joint service agreement to several additional Atlantic seaboard ports, as a result of increased market demand. The partnership, known as Transroll/Sea-Land Joint Service, recently began a regular service between Baltimore and the Brazilian port cities of Imbituba and Itajai.

Under the extended agreement, the Transroll/Sea-Land Joint Service will now operate between the U.S. ports of Baltimore, Port Elizabeth, N.J. and Jacksonville, Fla to the Brazilian ports of Imbituba, Rio Grande, Itajai, Rio De Janeiro and two stops in Santos





Production At AESA's Manises Engine Plant Surpasses 1991 Levels

Spanish shipyard Astilleros Espanoles's (AESA) engine plant of Manises, in Valencia, is set to deliver 10 engines totaling 194,000 hp this year, which is slightly in excess of 1991's delivery performance level of 9 engine units of 190,640 hp.

of 1991 such very performance level of 9 engine units of 190,640 hp. Although AESA holds a Sulzer license, all of the 1992 deliveries are MAN B&W two-stroke engines.

Included in the '92 engine production output are two of the largest diesels ever ordered from Manises. Both diesels are 70,000-hp 12-cylinder K90MC-S engines that will generate 100 MW in a barge-mounted power plant to be located at Mindanao, the Philippines.

While not on order this year, Manises produced two Sulzer ninecylinder RTA76 engines for Mauritius and Lanzarote last year for stationary power applications.

Manises has an overall production capacity of 300,000 hp per year, with this year's engine output expected to make 1992 the second consecutive year of growth since completions fell from 220,200 hp (17 engines) in 1989 to 173,800 hp (10 units) the following year. Next year will see the continued

Next year will see the continued reorganization and robotisation of welding lines, according to Manises.

Nassco Optimistic Regarding Future Commercial Work

San Diego-based National Steel and Shipbuilding Company (NASSCO) continues to be the only United States shipyard to have received a commercial order for a deepsea merchant vessel since 1984.

The R. J. Pfeiffer, a containership ordered by Matson Navigation, San Francisco, is the last commercial vessel on order from Nassco. The \$129 million vessel, named after Matson's chairman, is currently conducting sea trials and will be delivered in June.

The containership was ordered by Matson to satisfy the Jones Act requirements for its service between the U.S. West Coast and Hawaii, which left the company with no other choice than to order the new ship from a U.S. shipyard.

Nassco also built the Exxon Mediterranean (ex-Exxon Valdez) and its sistership the Exxon Long Beach, which along with three Sea-Land containerships delivered by Bay Shipbuilding, of Wisconsin, in 1987, were the last vessels built in U.S. shipyards with government aid.

Being one of only two U.S. shipyards having recent commercial shipbuilding experience, Nassco believes it will be at an advantage when it comes to securing future work.

A strong Navy orderbook helped Nassco to fill the gap after the delivery of the Exxon Long Beach in 1987. Today the yard is building three replenishment tankers for the Navy, with another on order and negotiations underway for an additional vessel.

As well as the assistance that the Jones Act has provided the yard, Nassco is also looking towards the Oil Pollution Act of 1990 (OPA90) for help in winning future commercial orders.

With the International Maritime

Organization's (IMO) decision to support double-hull tanker construction, OPA90 is having a significant influence on world shipbuilding.

A design for a 40,000-dwt doublehull product tanker is being marketed by Nassco to win some of the new tanker construction business. According to Nassco, because the design is intended for serious production it would incorporate costsaving features.

The shipyard's president, Rich-

ard Vortmann, was quoted recently as predicting that 20 to 25 new tankers would be ordered from U.S. shipyards between now and 1997.

Once European Community subsidies are eliminated, Nassco will be able to compete equally with northern European shipyards, according to Mr. **Vortmann**.

For free literature about the shipyard facilities and services offered by Nassco,

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Service Marine Expands Vessel Repair Operations

Service Marine Industries, Inc., of Amelia, La., is expanding its repair capabilities with the installation of a gas-freeing facility and the establishment of an aluminum crew boat repair capability, according to president, Terry Fricky.

The new gas-freeing facility,

which will include a 1 million cubic foot capacity nitrogen purging fa-cility, will be used by Service Marine to remove gas from Liquid Petroleum Gas (LPG), product, propane and butane barges. Both facilities will meet all EPA and DEQ clean air requirements. As part of this new capability, the company has also increased the length of its large drydock to 200 feet and its lifting capability to 2100 tons.

Mr. Fricky said that Service Ma-

rine will have the closest gas-freeing facility in the immediate area and will provide operators with convenient gas and fuel barge repair service along their tow routes.

The shipyard's new aluminum repair facility will be overseen by Joe Prejean, who with over 28 years of experience in the construction and repair of aluminum boats will be the yard foreman in charge of all aluminum boat repairs.

Tom Hensley, vice president of

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 //Ol/ (Printer)
- -VDU/Printer -Telephone Set
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 NCH-329 Remote Controller
- NKG-52 Printer NRE-76 Guard Receiver
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 NRD-230 HF MSI Receiver
 JRE-60A EGC Receiver
- NMB-265A EGC Decoder

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marketing, also reported that Service Marine is working on a 210foot, 1200-passenger, four-deck casino boat for Harrah's Joliet, Illinois location to be delivered in January 1993.

For free literature describing the facilities and services available at Service Marine's shipyard,

Circle 39 on Reader Service Card

Georgia Port Authority Gets Approval For Port Improvements

The Georgia Ports Authority (GPA) has received \$350 million from the Georgia State General Assembly to begin its broad-based Focus 2000 Savannah River port improvement scheme that is scheduled to be completed at the end of the decade.

The initial phase of the \$86 million project calls for a \$43 million deepening of the Port of Savannah channel to 42 feet from the current 39 feet, allowing the facility to accommodate the next generation of large containerships. Part of the dredging will be paid for by the fed-eral government, which will reimburse the GPA.

As a result of the redevelopment scheme, the GPA predicts that waterborne commerce at its facilities will increase from last year's \$4.3 billion to \$6.6 billion in the year 2000. This would represent a growth in earnings of \$1.3 billion, compared to \$865 million last year.

For the state of Georgia, it is estimated that tax revenues generated by the GPA's public port terminals would increase to \$173 million from \$112 million in 1991.

Ian-Conrad Bergan Names Scherger US Sales Manager

Jack Scherger has been appointed to the newly created post of U.S. sales manager by Ian-Conrad Bergan, Inc., of Gulf Breeze, Fla., to service the U.S. tank barge fleet.

"The volume of our U.S. business has increased significantly in the last year or so and it was obviously time to bring in someone to help us handle this growing market seg-ment," said Christian Bergan, the company's vice president.

Mr. Scherger has 30 years of experience as a marine engineer, beginning with his graduation from the U.S. Merchant Marine Academy, in Kings Point, N.Y.

Founded in Norway in 1975, Ian-Conrad Bergan, Inc., has operated as a U.S. corporation since 1980. As Bergan Tank Control, the company designs and manufactures control systems for the marine industry, specifically for overfill protection and VOC control. There are currently over 6,000 Bergan alarm units in operation throughout the world. Bergan's international sales are handled by sales representatives in 17 locations in Europe and the Far East.

For free literature about the line of products available from Ian-Conrad Bergan, Inc.,

Circle 44 on Reader Service Card

Firefighting System By Diversified Technologies **Tested At Wyle Laboratories**

The firefighting equipment de-veloped by Diversified technologies of Alexandria, Va., recently under-went First Article Testing at Wyle Laboratories of Huntsville, Ala.

The equipment tested consisted of a self-contained, skid mounted diesel-driven pump set, water cannons, water/foam nozzles, foam sending devices, and a hydraulic-drive submersible pump. The system had is able to deliver 3,000 gallons per minute (gpm) at 175 pounds per square inch gage (psig). Powered by a 2,500 psig hydraulic power unit, the submersible pump can deliver 330 gpm at 140 psig.

The equipment can also be an off-ship firefighting system which is capable of delivering high pressure water or foam solutions at rates exceeding 3,000 gpm and dis-tances over 250 feet. Designed to operate from the deck of a vessel of opportunity, the pump set reportedly can achieve a rated capacity against a suction lift of 20 feet. The dimensions of the pump are 8 feet long by 4 feet wide by 5 feet high

and weighs about 7,000 pounds. The firefighting equipment was subjected to a pump and delivery flow demonstration following each environmental test. These tests reportedly verified the unit's ability to continuously meet or exceed 3,000 gpm at 150 psig nozzle pressure at a distance of 250 feet with a suction lift of 20 feet.

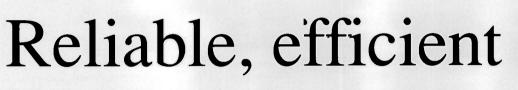
For further information about the firefighting equipment by Diversified Technologies,

Circle 72 on Reader Service Card

For further information about Wyle Laboratories,

Circle 73 on Reader Service Card

Bisso Completes Load Out Of Shell Oil Platform



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Circle 343 on Reader Service Card



Using a unique three-bar spreader system the derrick barges Cappy Bisso and Lili Bisso, of Bisso Marine Company, load out Shell Oil's 960-ton production module for the BUD platform M.P. 252 "A.

Shell Oil's 960 ton production module for the BUD platform M.P. 252 "A" was successfully loaded out re-cently by Bisso Marine Company, New Orleans, and Versabar, Inc., of Harvey, La., using the D/B Cappy Bisso (700 tons) and D/B Lili Bisso (600 tons) from Lafitte Welding, Inc., of Lafitte, La., and a 3 spreader bar system supplied by Versabar.

Because the eccentric center of gravity of the module caused one of the derricks to be overloaded, a unique innovation was adopted which made use of diagonal slings that transferred part of the load from one derrick to the other. In effect, this created an inverted truss system that balanced the load between the two derricks

According to Bisso, this may have been the first application of its kind in the heavy lift industry.

For free literature describing the facilities and services available from Bisso Marine,

Circle 43 on Reader Service Card

WORLD SHIPBUILDING

World Order Book Hits 13-Year High At 43 Million GT

Tankers Account For Just Over 50 Percent Of Tonnage

Despite the Gulf War, a worldwide economic recession and the uncertainty surrounding new environmental legislation, as of the end of last year, the world shipbuilding order book stood at its highest level since 1977, topping the 43 million gross ton mark. It is the fifth consecutive year that the order book

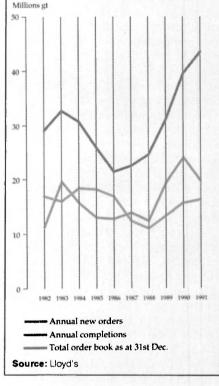
has risen.

Lloyd's Register reported that there were 1,355 ships totaling 15.9 million gt under construction worldwide, with 1,175 ships of 27.3 million gt not commenced at the end of 1991. Over 86 percent of the 43.2 million gt world order book is scheduled for delivery by the end of 1993, with new orders totaling 5.9 million gt during the 4th quarter of 1991.

Tankers accounted for 50.8 percent, bulk carriers 19 percent and general cargo 16.5 percent of the total order book.

Last year, 19.9 million gt of new ships were ordered, a fall of over 4.1 million gt from the 1990 figure. This

	1	OTAL	Percentage		TOTAL	PREVIOUS YEA
WHERE BUILT	No.	Gross Tonnage	Of World Tonnage	Deadweight Tonnage	No.	Gross Tonnage
ARGENTINA	8	7,542	0.05	6,792	8	5,342
AUSTRALIA	17	21,396	0.13	15,234	20	26,935
AUSTRIA	5	12,445	0.08	13,180	1	2,489
BANGLADESH	2	479	0.00	550	-	
BELGIUM	8	8,127	0.05	8,642	6	58,381
BRAZIL	6	230,659	1.43	372,794	7	256,350
BRUNEI	2	473	0.00	682	_	_
BULGARIA	9	59,629	0.37	82,324	10	80,213
CANADA	9	5,350	0.03	733	11	3,409
CHILE	8	3,546	0.02	3,524	14	6,668
CHINA, PEOPLE'S REPUBLIC OF*	35	309,823	1.92	473,746	46	366,826
CHINA, REPUBLIC OF (TAIWAN)	11	513,764	3.19	895,403	10	667,220
COLOMBIA	_	_	0.00	_	1	276
CZECHOSLOVAKIA	4	12,344	0.08	12,592	3	9,258
DENMARK	27	441,586	2.74	619,886	29	394,677
EGYPT	6	19,800	0.12	26,250	1	148
FINLAND	7	156,466	0.97	36,615	16	247,098
FRANCE	27	108,836	0.68	20,122	26	59,639
GERMANY, FEDERAL, REPUBLIC OF	82	774,502	4.81	905,068	97	856,071
GREECE	3	3,063	0.02	3,633	17	22,096
HUNGARY	2	1,212	0.02	422	6	3,636
CELAND	1	480	0.00	592	1	645
NDIA	8	1,180	0.00	485	11	
NDONESIA	2	776	0.01	390	10	70,163 19,312
RAN	-	110	0.00	390	1	1,704
TALY	28	499,896	3.11	633,842	27	371,810
JAPAN	602	7,282,756	45.25	11,298,425	633	6,824,119
(OREA (SOUTH)	112	3,496,693	21.73	5,821,590	110	3,459,786
MALAYSIA	9	18,049	0.11	31,471	5	20,605
MALTA	2	12,790	0.08	15,400	2	6,570
MEXICO	2	3,177	0.08			
NETHERLANDS	84	210,837	1.31	3,773 253,742	1	23,236
NEW ZEALAND	2	335	0.00		65	163,293
VORWAY	40	124,247		20	-	-
PERU	40	3,479	0.77	100,932	40	79,828
PHILIPPINES		3,479	0.02	532	5	1,883
POLAND	- 47	102.942	0.00	-	2	1,980
PORTUGAL	47	193,842	1,20	227,547	34	103,580
ROMANIA *		21,171	0.13	23,474	16	73,519
	14	175,522	1,09	273,340	14	159,752
SINGAPORE	52	114,325	0.71	142,419	29	38,614
SOUTH AFRICA	2	4,096	0.03	10,200	2	4,599
	59	317,422	1.97	482,678	97	363,100
SWEDEN	6	38,276	0.24	9,486	14	28,994
	23	79,939	0.50	87,198	10	31,132
	106	254,797	1.58	294,257	142	367,395
	-	_	0.00	-	2	826
	31	185,470	1.15	274,742	29	130,650
JNITED STATES OF AMERICA	17	9,335	0.06	11,522	16	14,695
/UGOSLAVIA	22	355,173	2.21	576,560	25	456,853
VORLD TOTAL	1,574	16,095,105	100.00	24,072,809	1,672	15,885,375



New Construction Statistics 1982-1991

decline reflects owners' uncertainties caused, first, by the Gulf War; second by the anticipated effects of the U.S. Oil Pollution Act of 1990 (OPA 90); and third, by the shipyards, placed in a strong negotiating position because of a relatively crowded order book and the resulting lack of building capacity; and lastly, the effect of overall economic conditions worldwide. Examination of orders by vessel type shows that this 4.1 million gt is accounted for by a fall in demand for tankers—down to 8.9 million from nearly 14 million gt in 1990, confirming the Gulf War and OPA 90 as major factors.

Though ore, bulk and combination carrier tonnage showed signs of improvement against the 1990 figures, the 5 million gt ordered is unlikely to improve the profile of the aging dry bulk fleet. As the impact of OPA 90 starts to take effect, figures show that the current order book includes 141 oil tankers with double hull and or double bottom designs, totaling just over 18 million dwt. It also should be noted that the order book contains several tankers whose owners have yet to take up an option on the double hull configuration. In addition, some 2 million dwt of combination carrier tonnage with double

June, 1992

bottom or hull is in the order book.

As expected, Japan leads the world shipbuilding order book with a 36 percent share, followed by South Korea with a 22 percent share. The others in the top ten in descending order include Denmark, Germany, Taiwan, China, Romania, Yugoslavia, Italy and Brazil-all of which have total orders in excess of 1 million gt.

Tonnage Delivered Rises For 1991

Though in 1991 the total of completed tonnage—16.1 million gt rose for the fourth successive year. According to Lloyd's Register of Shipping figures, over 50 percent of the order book at the end of 1991 is due for delivery by the end of this year.

Far East

Shipbuilding

Consolidating its dramatic recovery of the previous year, Japan's shipbuilding industry maintained its substantial order book of just under 50 percent of worldwide new ship construction. Notable Japanese deliveries included the 48,000-gt hatch coverless Nedlloyd Asia, and 36,800-dwt container carrier Arafura, both from the Kure yard of IHI; and the 281,751-dwt VLCC Sawako, from the Ariake yard of Hitachi.

The rebound by the world's number two shipbuilding country, Korea, was led by Hyundai Heavy Industries (See "Boom Times for Korean Shipbuilding" in May 1992 issue of MARITIME REPORTER). HHI's Ulsan yard delivered 13 vessels, highlighted by three 35,559 meter³ LPG carriers for A P Moller, and two 169,178-dwt OBOs for Frontline.

Earlier this year, Samsung Heavy Industries delivered the 95,000-dwt M/VPatriot, a new double-hull product carrier for Conoco Shipping, Inc., Houston. The Korean builder has orders for three more sister ships of the same class.

Scandinavian Shipbuilding

Denmark catapulted into third place behind Japan and Korea in the world order book, securing more than 1.9 million gt in new orders in 1991. Deliveries during the year totaled 20 vessels of 265,000 gt.

Major ship deliveries included the last two in a series of four 16,950dwt reefers from Danyard for J. Lauritzen. The four ships-the Knud Lauritzen, Jorgen Lauritzen, Ivar Lauritzen and Ditlev Lauritzen — are the largest pure reefers ever built.

In Finland, the country's largest shipbuilder, Kvaerner Masa-Yards, which has successfully risen from the ashes of bankrupt Wartsila Marine, completed its second Carnival Cruise Lines' megaliner, the 70,367-

		World			
Year	Japan	Korea (S.)	EC	Rest of World*	Total GT
1982	49.75	9.57	13.47	27.21	11,231,75
1983	56.56	19.21	7.40	16.83	19,480,03
1984	56.73	14.69	9 95	18.63	15,593,54
1985	49.26	10.37	14.21	26.16	12,914,99
1986	43.37	24.04	11.42'	21.17	12,709,89
1987	34.58	30.15	14.63'	20.64	13,799,62
1988	37.58	24.00	16.96'	21.46	12,310,77
1989	49.80	16.62	14.27	19.31	19,323,65
1990	46.28	23.83	16.19 ²	13.70	24,078,76
1991	40.50	25.62	14.49 ²	19.39	19,932,29

Including Spain, Portuga

²Including Spain, Portugal and former German Democratic Republic *Including former Comecon countries

Source: Lloyd's

grt cruise ship Ecstasy. The builder, which operates the Helsinki New Shipyard and the Turku New Shipyard, has orders for three more Fantasy Class CCL ships-the Sensation (for delivery in 1993), the Fascination (1994) and the recently ordered Imagination (1995). Another cruise ship under construction at the Turku New Shipyard, the 32,000grt Royal Majesty, is being built for a July 1992 delivery to Dolphin Cruise Lines. Also at Turku, Kvaerner Masa-Yards is building two Futura Class 91,000-dwt doublehull tankers for Finnish oil company Neste Oy. KMY has delivered the passenger/car ferries Normandie and Barfleur to Brittany Ferries for cross-channel operation.

Finnyards Ltd., the combined Rauma Yards and Hollming companies, recently delivered the SWATH cruise ship Diamond Radisson to Diamond Cruises, as well as the new Sally Albatross, which was partly reconstructed from the old Sally Albatross. An icebreaker for the Finnish Board of Navigation (FBN) is currently under construction. Plans are underway by the FBN to order a second icebreaker.

In Norway, vessels delivered during 1991 included: a 400,000-foot³ reefer from Kvaerner Kleven Ulsteinvik; two 36,000-dwt chemical carriers from Kvaerner Kleven Floro; and four 3,000-gt offshore/ supply ships at Ulstein Hatlo.

European Shipbuilding

In France, the St. Nazaire shipvard of Chantiers de l'Atlantique secured a \$1.4 billion order for the construction of five 125,000 m³LNG carriers for Petronas of Malaysia. The 260-meter ships will be used to export methane from the Bintulu Gas Plant in Malaysia. Chantiers de l'Atlantique is also one of the five European yards involved in the E-3 tanker project. The consortium of HDW and Bremer Vulkan of Germany, AESA of Spain, Fincantieri, and the French yard has selected an HDW design for its standard 280,000-dwt VLCC.

In Germany during 1991, Schi-

Gross Tonnage Completed Annually 1982-1991 Gross Tonnage Ordered Annually 1982-1991 Million gt 25 20 **Oil tankers** Ore and bulk carriers (incl. ore/bulk/oil) General cargo and container Total (all types) Source: Lloyd's

chau-Seebeckwerft completed two 22,000-gt passenger/freight ferries for P&O, with one identical and one modified sister for completion this year.

In Italy, the 71,000-gt cruise liner Regal Princess emerged from the Montfalcone shipyard of Fincantieri Cantieri Navali Italiani SpA for P&O/Princess Cruises. Fincantieri's Castellammare yard delivered the 15,950-gt container ship Caboto for Italia SpA.

Spain's deliveries for 1991 were highlighted by two Suezmax tankers from the Puerto Real yard of Astilleros Espanoles for Petronor and Frontline.

Portugese shipyards were busy with a number of ship repair contracts, especially after the termination of the Gulf War. Lisnave carried out major renovation work on the 14-year-old 170,000-dwt ore carrier Shensi.

North American Shipbuilding

Most new construction activity in the U.S. continued to be in the naval, military and governmental shipbuilding and commercial shallowdraft sector.

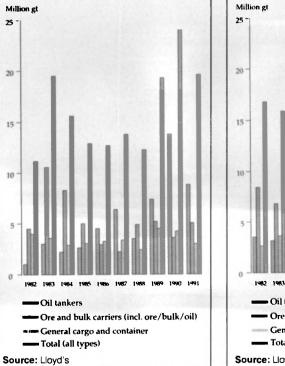
On the commercial side, the 32,500-gt Matson boxship Pfeiffer is scheduled to be delivered this summer by National Steel & Shipbuilding Co., San Diego. The Larose, La., shipyard of North American Shipbuilding recently delivered the 308foot research icebreaking vessel Nathanial B. Palmer to Edison Chouest Offshore.

Many U.S. tanker owners are waiting for the final outcome of the new U.S. Coast Guard regulations for double hulls as mandated by the Oil Pollution Act of 1990. Although many rumors concerning bids for new tankers, one being a Texaco order for two 20,000-dwt ships and two 40,000dwt ships, have circulated, no firm contracts have been placed to date.

As much as \$3.1 billion may be included in a National Defense Sealift Fund (NDSF) proposed by President Bush. Design contracts have been awarded to nine U.S. shipyards, with construction contracts expected in the spring of 1993.

New U.S. gambling laws, which will allow gaming aboard U.S.-flag ships operating on "cruises to nowhere," may also spur some new construction. Gambling laws in Illinois, Iowa, Mississippi and Louisiana have already been a boon to the smaller U.S. yards, creating a multimillion-dollar a year market.

ABS reported that as of early this year, 16 ships of 559,000 dwt were under contract or construction to class in Brazilian yards. Three 132 000-dwt double-skin t and one 150,000-dwt vessel are currently under construction at Ishibras for Chevron.



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CRUISE SHIPPING

Market Potential \$80 Billion Over Next 5 Years

12 New Ships Totaling Over 11,000 Berths Added For 1992

Growth continues to be the buzz word in the cruise shipping industry, as cruise lines add new multimillion dollar ships and expand itineraries to tap a vast poten-tial market. Cruise ships worth \$4 billion have been ordered for the first half of this decade. Many in-dustry analysts predict that over 10 million passengers will cruise annually by the year 2000. Cruise Lines International Asso-

ciation (CLIA), which has 34 member lines representing 97 percent of North American-generated passengers, predicts that during the next five years the cruise market may represent anywhere from a \$50 bil-lion to \$80 billion opportunity.

Since 1970, the cruise industry has had a compound annual growth rate of 9.8 percent per year, tripling in size every 10 years. Over 40 million passengers have taken cruises since 1970 (See Table 1).

James G. Godsman, president of CLIA, said: "The growth numbers are indeed impressive. Twelve ships will debut in 1992, representing over 11,000 berths [see Table 2]. This increase in berths continues to echo

Tabl	e 1—Recent Growth Trends By Year, 1980-1990
%	Growth vs. Prior Years
Year	Annual Passengers
1980	13.5
1981	1.7
1982	1.2
1983	15.2
1984	9.9
1985	13.4
1986	13.8
1987	11.0
1988	9.5
1989	2.4
1990	13.5
Average Source: C	Growth Rate— 9.8% LIA

the strong demand from passengers." Mr. Godsman added that new berths have more than doubled since 1980 and should reach 120,000 by 1995.

The cruise market is so lucrative, in fact, that it has given new life to the S.S. United States. The 990-foot one-time record holder for the Atlantic crossing seemed destined for the scrap heap until a Turkish ship-ping line, Mormara Investments, recently bought her for \$2.6 million. According to one source, the firm intends to refit her at a cost of \$145 million. The United States was built in 1952 by Newport News Shipbuilding at a cost of \$78 million.

	Table 2—New Ships For 1992					
Line	Ship	Capacity	Delivery			
Chandris Cruises	Zenith	1,374	4/92			
Club Med	Club Med II	386	12/92			
Costa Cruises	Costa Classica	1,300	1/92			
Costa Cruises	Costa Allegra	800	12/92			
Crown Cruise Line	Crown Jewel	820	9/92			
Diamond Cruise Line	Radisson Diamond	354	5/92			
Majesty Cruise Line	Royal Majesty	1,056	7/92			
Holland America Line	Statendam	1,266	-/92			
Norwegian Cruise Lines	Dreamward	1,246	12/92			
Renaissance Cruises	Renaissance VIII	114	5/92			
Royal Caribbean Cruise	Majesty of the Seas	2,354	4/92			
Royal Viking Line	Royal Viking Queen	212	2/92			
TOTAL—	12 ships	11,282 berths	1999			

Source: CLIA

Bucking the trend of flat travel industry performance last year-and despite the Persian Gulf and the recession—the cruise industry posted a double-digit gain in 1991.

"Looking ahead to 1992, I see at least a 10 percent growth over last year," said Mr. Godsman. "With all the new ships and the value-packed opportunities, I predict the cruise industry will continue to lead the travel industry in customer satis-

faction and give customers their most memorable vacation experience."

Twelve new ships debuting this year range in size from 200-passenger yacht-like ships to 2,600 passenger megaliners. Several will be radically styled and incorporate state-of-the-art technology. From one ship with twin hulls to another with computer-controlled sails, this year's new ships will add to the

ry

diversity of the cruise product, cre-ating new itineraries, lifestyle and service options for the traveling public.

Previously closed ports in former Soviet East Russia—including the cities of Vladivostok and Korsakow on the Isle of Sakhalin-will be added to several cruise lines' itineraries.

Exotic ports-of-call in India, Singapore, Malaysia, Turkey and China will be among many itineraries

Nice, France, will be a stop for one luxurious ship and all of South America is another itinerary during a 50-day circumnavigation of the continent.

And if those locales aren't exotic enough, this year two passengercarrying vessels will attempt the voyage through the Northwest Passage. The Frontier Spirit, operated by Frontier Cruises, attempted the voyage last year but was prevented by impassable ice at Point Barrow in northern Canada, and the icebreaker Kapitan Khlebnikov, which will make its debut in the Canadian Arctic.

		Table 3—Cruise Ship Const		
		(On Order Or With Letters Of Int	tent)	
Ship	Capacity	Line	Builder	Deliver
Club Med II	386	Club Med	Havre	5/92
CostaAllegra	800	Costa Cruise	Fincantieri	12/92
CostaRomantica	1,300	Costa Cruise	Fincantieri	-/93
Crown Jewel	820	Crown Cruise	Union Naval	9/92
Diamond Radisson	354	Diamond Cruise	Finnyards	5/92
Dreamward	1,246	Kloster Cruise	Alsthom	12/92
Fascination	2,044	Carnival Cruise	Kvaerner Masa	-/94
Imagination	2,044	Carnival Cruise	Kvaerner Masa	-/95
Maasdam	1,266	HAL	Fincantieri	—/93
Majesty				
of the Sea	2,354	RCCL	Alsthom	4/92
Renaissance VIII	114	Renaissance	Apuania	5/92
Royal Majesty	1,056	Majesty Cruise	Kvaerner Masa	7/92
Royal Viking Queen	212	Royal Viking	Schichau	2/92
Ryndam	1,266	HAL	Fincantieri	—/94
Sensation	2,044	Carnival Cruise	Kvaerner Masa	—/93
Society Adventurer	188	Unknown	Finnyards	N/A
Statendam	1,266	HAL	Fincantieri	—/92
(2) SWATH	354	Diamond Cruise	Finnyards	N/A
(4) SWATH	1,000	Swathtech	McDermott	N/A
Unnamed	220	Swedish America	Ferrari	—/93
Unnamed	260	Navieras Dosmares	AESA	N/A
Unnamed	1,975	P&O	Meyer Werft	-/95
Unnamed	820	Crown Cruise	Union Naval	—/93
Vivamar	500	Hoteles	AESA	4/92
Windward	1,246	Kloster Cruise	Alsthom	6/93

Total-28,491 berths/29 ships

Source: Maritime Reporter

Annual Passengers (Millions) (2 Day or More Market) 4.0 1.4 0.5 1970 1991 Externation

Cruise lines have also been able to expand their business by adding state-of-the-art communications for conferences and meetings

"Cruises are ideal for business conferences and incentives," said Mr. Godsman. "They allow enough time for comprehensive, effective meetings, but still provide a relaxing time away from the office and are a highly praised reward."

In addition, even the most driven business person can "keep in touch" with cellular and satellite phone service that's now being offered on most ships.

SURVEY OF NEW VESSEL CONSTRUCTION

Survey results are based on responses from shipyards during 1991 and 1992. Compiled by Maritime Reporter Staff.

SHIPYARD		Dimensions (in feet)			Delivery	SHIPYARD		Dimensions			Delive
Vessel	Туре	LXWXD	Main Engines	Owner/Operator	Date	Vessel	Туре	(in feet) L x W x D	Main Engines	Owner/Operator	Delive Date
	YARD INC., Mobile	, AL				BREAUX BROTH	IERS ENTERPRISE	S, INC., Loreauv	rille, LA		
	Crane Barge 21	175x75	N/A	U.S. Navy	1/91	Miss Terri Lynne	Crew/Supply	130 x 26			11/9
	Crane Barge 22 Crane Barge 23	175x75 175x75	N/A N/A	U.S. Navy U.S. Navy	1/91 4/91	Thunderpatriot Miss Trinidad	Crew/Supply Crewboat	130 x 26 61 x 61			7/9
	Crane Barge 24	175x75	N/A	U.S. Navy	7/91	Live Oak Gardens	Sightseeing	58 x 15			1/9 1/9
	Crane Barge 25 Lighter Barge	175x75 200x50	N/A N/A	U.S. Navy U.S. Navy	11/91 2/91	Miss Angela Miss Faye	Crew/Supply Crew/Supply	130 x 26 130 x 26			10/9
	Lighter Barge	200×50	N/A	U.S. Navy	2/91	Miss Faye	Crew/Supply	130 x 26			6/9 5/9
	Boiler Barge	136x60	N/A	U.S. Navy	11/91	Miss Mary Ann Miss Janice	Crew/Supply Crew/Supply	130 x 26 130 x 26			4/9
						State Police V	Patrol Boat	40 x 14.6			2/9 7/9
TLANTIC MARI	INE INC., Jacksonv	ille, FL				Jesse B	Work Barge	80 x 26			9/9
merald Lady	Gambling Boat	201 x 49	Caterpillar	Steamboat Dev.	4/91	Sam Pearce Miss Melissa	Crewboat Crew/Supply	40 x 14 130 x 26			5/9 1/9
iamond Lady	Gambling Boat	201 x 49	Caterpillar	Steamboat Dev.	2/91	Hull 184	Barge	24 x 12			11/9
ar-A-Dice npress	Gambling Boat Gambling Boat	227 x 49 222 x 66	Caterpillar Caterpillar	Greater Peoria Riverboat Des Plaines Entertainment	8/91 5/92	Wendella Ltd. Pride of Maui	Sightseeing Catamaran	65 x 20 65 x 30			5/9 6/9
ahia Ballena	Ferry	130 x 45	Caterpillar	Naviera Tambor	9/92	Mauia Lui	Crewboat	48 x 15			4/9
						Vanessa C. Carla Pat	Crewboat Crewboat	48 x 15 48 x 15			4/9
VONDALE BOA	T DIVISION, West	vego, LA				Arianna F.	Crewboat	48 x 15			4/9
aren K.	Towboat	169 × 45 × 10	Cotoroillor (0)	Nettl Marian	0.04	Victoria T. Gulf Eagle	Crewboat Dive/Fishing	48 x 15 65 x 20			4/9 5/9
indy Celeste	Towboat	168 x 45 x 12 168 x 45 x 12	Caterpillar (2) Caterpillar (2)	Nat'l Marine Nat'l Marine	8/91 12/91	Merv	Research	130 x 26			3/9
izabeth Dewey	Towboat	168 x 45 x 12	Caterpillar (2)	Nat'l Marine	2/92	Hull 195 Hull 196	Crewboat Crewboat	48 x 15 48 x 15			7/9 8/9
apt. Bud Bisso	Tugboat	110 x 34 x 19	EMD (2)	E.N. Bisso	2/92						
ONDALE SHIP	PYARDS DIVISION,	AVONDALE IND	USTRIES, New Orleans,	LA		CONRAD INDUS	FRIES, INC., Morga	n City, LA			
ohn Ericsson	T-AO-194	667.5 x 97.5	(2) Coll-Pielstick	U.S. Navy	91	Isle de France	Deck barges (4) Crane barge	120x30x7 120x45x7	N/A N/A	Consolidated Projects Moter S A.	2/9 3/9
nawha	T-AO-196	667.5 x 97.5	(2) Colt-Pielstick	U.S. Navy	91	Dick Z	Deck barge	220x54x14	N/A	Cashman Bros.	4/9
g Horn opecanoe	T-AO-198 T-AO-199	667.5 x 97.5 667.5 x 97.5	(2) Colt-Pielstick (2) Coll-Pielstick	U.S. Navy U.S. Navy	92 93	Bruce W. Terminales	Deck barge	220x54x14 120x52x7	N/A	Cashman Bros.	5/9
Jadalupe	T-AO-200	667.5 x 97.5	(2) Colt-Pielstick	U.S. Navy	92	Aimee Danos	Floating dock Lift boat	81x40x8	N/A GM	Terminales Maracaibo Danos & Curole	7/9
atuxent ikon	T-AO-201 T-AO-202	667.5 x 97.5 667.5 x 97.5	(2) Colt-Pielstick(2) Colt-Pielstick	U.S. Navy U.S. Navy	94 93	Lockwood 6	Deck barge	140x40x10	N/A	Lockwood Barge	9/9
ramie	T-AO-203	667.5 x 97.5	(2) Colt-Pielstick	U.S. Navy	95	Lockwood 2001	Deck barge Lift boat	200x48x12 82x48x8	N/A GM	Lockwood Barge Otis Eng.	11/9
appahanock Ishmore	T-AO-204 LSD-47	667.5 x 97.5 609.6 x 84	(2) Colt-Pielstick(2) Colt-Pielstick	U.S. Navy U.S. Navy	10/93 4/91	BH 103	Deck barge	120x38x8	N/A	HBH Inc.	12/9
shland	LSD-48	609.6 x 84	(2) Colt-Pielstick	U.S. Navy	92	тш	Quarters barge Deck barge	55x30x5 150x45x8	N/A N/A	N/A Inter-Lago Transport	1/9 1/9
arper's Ferry arter Hall	LSD-49 (CV) LSD-50 (CV)	609.6 x 84 609.6 x 84	(2) Colt-Pielstick (2) Colt-Pielstick	U.S. Navy U.S. Navy	94 94		•		- T - 1 - 4		
ak Hill	LSD-51 (CV)	609.6 x 84	(2) Colt-Pielstick	U.S. Navy	94 95	CORN ISLAND SI	HIPYARD, Lamar, II	N			
elican obin	MHC-53 MHC-54	188 x 36 188 x 36	(2) Isotta Fraschini (2) Isotta Fraschini	U.S. Navy U.S. Navy	10/93 2/94						
ormorant	MHC-57	188 x 36	(2) Isotta Fraschini	U.S. Navy	2/94	C.I.S. 0005 C.I.S. 0004	Crane Barge Crane Barge	90 x 45 110 x 50		Hatfield Terminals Evansville Harbor Service	12/9 9/9
aters 00-Bed jail barge	T-AGS-45	N/A 625	N/A	U.S. Navy	93	C.I.S. 0003	Crane Barge	110 x 50		Southern Marine Const.	6/9
oo-beu jan barge		025	N/A	City of New York	92	C.I.S. 0002 C.I.S. 0001	Crane Barge Crane Barge	110 x 50 100 x 50		Pierce Construction Koester Contracting	4/9 2/9
						0.1.0.0001	Deck Barge	100 x 34	N/A	Multer Crushed Stone	5/92
ALEHI MARINE	INC., Lacombe, LA						Deck Barge	110 × 45	N/A	AMO Towing	5/92
anne James JII 74	Dredge Tender Port Dredge	48 x 18 x 7 40 x 12 x 4	Cummins NTA-855M GM-6-92	T.L. James Co. Dredging Supply Co.	10/91 9/91	EASTERN SHIPY	ARDS INC., Panama	a City, FL			
ally James ennifer Bean	Dredge Tender Tug/Dredge	48 x 18 x 7	Cummins NTA-855M	T.L. James Co.	11/91	Benno C. Schmidt	Sulfur Tanker	401 x 72	CAT 3515	Freeport-McMoRan	1/92
ill 79	Barge	42 x 15 x 7.5 32 x 20 x 3	(2) Detroit 6-71s N/A	C.F. Bean Balehi Marine	1/92 2/92	Unnamed	Sulfur Tanker	401 x 72	CAT 3515	Freeport-McMoRan	4/92
						ELECTRIC BOAT	DIVISION, GENER	AL DYNAMICS.	Groton, CT		
Son B	ITED, Wakefield, RI Buoy/Mooring	34.6 x 11.7	Yanmar	Quertural en la c	1/00	Annapolis	Attack Submarine		Steam Turbines		199
y3011 D	Tender	54.0 × 11.7	Tanınaı	Bughunter Inc	4/92	(SSN-760) Springfield	Attack Submarine	360 × 33	Steam Turbines		TBC
dy W.	Tugboat	25.3 x 8.2	Yanmar	Walker Towing	12/91	(SSN-761)					TO
						Columbus (SSN-762)	Attack Submarine	360 x 33	Steam Turbines		TBI
NDER SHIPBL	JILDING & REPAIR	CO., INC., Mobile	e, AL			Santa Fe	Attack Submarine	360 x 33	Steam Turbines		тво
1D-1	Barge	523 x 42 x 16		C.M. Barge Parlparchip, LP	1991	(SSN-763) Hartford	Attack Submarine	360 x 33	Steam Turbines		тво
el Tide	Crabber	180 x 38 x 15.7	EMD12-645E5	C.M. Barge Partnership, LP Melbourne Co., TD	1991	(SSN-768)					
rth Seahorse Itic Seahorse	Supply Supply	190 x 40 x 17 190 x 40 x 17	(2) EMD16-645E5 (2) EMD16-545E5	N/A N/A	1991 1991	Columbia (SSN-771)	Attack Submarine	360 x 33	Steam Turbines		TBI
Alton Casino	Casino	155 x 34 x 7	(2) Cummins NT-855	Alton Riverboat Gambling	7/91	Seawolf	Attack Submarine	353 x 40	Steam Turbines		5/9
cilic Orion If Responder	Crabber OSRV	180 x 38 x 15 210 x 45	Caterpillar	Mark Maring MSRC	1991 9/92	(SSN-21) USS West Virginia	Missile Submarine	560 x 42	Steam Turbines		9/9
uisiana	OSRV	210 x 45	Caterpillar	MSRC	9/92 92	(SSBN-736)					
Responder as Responder	OSRV	210 x 45	Caterpillar	MSRC	93	Maryland (SSBN-738)	Missile Submarine	560 x 42	Stearn Turbines		199
bama Respond		210 x 45 210 x 45	Caterpillar	MSRC	93	Nebraska	Missile Submarine	560 x 42	Steam Turbines		тво
						(SSBN-739) Rhode Island	Missile Submarine	560 x 42	Steam Turbines		тв
	CORPORATION,	Varren, Ri				(SSBN-740) Maine	Missile Submarine		Steam Turbines		тв
OUNT MARINE	Passenger/Cruise	150 x 30	Cummins KTA-19-M	Amer./Can. Caribbean Line	6/92	(SSBN-741)					
						SSBN-742 SSBN-743	Missile Submarine Missile Submarine		Steam Turbines Steam Turbines		твс
ayan Prince					10/01			ON INC. Dence	Bay OB		
yan Prince DLLINGER MAC	Oil Skimmer		Cummins	OMI Corp. OMI Corp.	10/91 10/91						
ayan Prince DLLINGER MAC 0-100 0-100	Oil Skimmer Oil Skimmer	44 x 8 x 5 44x8x5	Cummins	entil eoip:		F/V Tradition	Seiner/Comb.	58 x 19 x 9.5	Cummins	Doug Hoedel	4/9
ayan Prince DLLINGER MAC 0-100 0-100 ku-Loa	Oil Skimmer Oil Skimmer Tug	44x8x5 117	EMD	Hawaiian Tug & Barge	1/91						
yan Prince LLINGER MAC 100 100 ku-Loa ku-Kea	Oil Skimmer Oil Skimmer	44x8x5 117 117	EMD EMD	Hawaiian Tug & Barge Hawaiian Tug & Barge	4/91						
yan Prince LLINGER MAC 100 100 100 100 	Oil Skimmer Oil Skimmer Tug Tug WPB WPB	44x8x5 117 117 110x21x7 110x21x7	EMD EMD Caterpillar Caterpillar	Hawailan Tug & Barge Hawailan Tug & Barge USCG USCG	4/91 2/91 3/91		UILDING & MARIN	E REPAIR, INC.	, Freeport, FL		
yan Prince LLINGER MAC p-100 p-100 ku-Loa ku-Kea ind Isle y Biscayne reson Island	Oil Skimmer Oil Skimmer Tug Tug WPB WPB WPB	44x8x5 117 117 110x21x7 110x21x7 110x21x7 110x21x7	EMD EMD Caterpillar Caterpillar Caterpillar	Hawailan Tug & Barge Hawailan Tug & Barge USCG USCG USCG	4/91 2/91 3/91 4/91	FREEPORT SHIPE				N/A	7/5
yan Prince DLLINGER MAC 0-100 b-100 ku-kea and Isle y Biscayne ferson Island diak Island g Island	Oil Skimmer Oil Skimmer Tug WPB WPB WPB WPB WPB	44x8x5 117 117 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7	EMD EMD Caterpillar Caterpillar Caterpillar Caterpillar Caterpillar	Hawaiian Tug & Barge Hawaiian Tug & Barge USCG USCG USCG USCG USCG	4/91 2/91 3/91 4/91 5/91 6/91		BUILDING & MARIN Steel Houseboat Alum, Megayacht	80 x 20 x 1.5	, Freeport, FL N/A N/A	N/A Webb Cruise Lines	
ayan Prince DLLINGER MAC o-100 o-100 oku-Kea and Isle y Biscayne Hierson Island idiak Island ng Island inbridge Island	Oil Skimmer Oil Skimmer Tug WPB WPB WPB WPB WPB WPB WPB	44x8x5 117 117 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7	EMD EMD Caterpillar Caterpillar Caterpillar Caterpillar Caterpillar Caterpillar	Hawaiian Tug & Barge Hawaiian Tug & Barge USCG USCG USCG USCG USCG USCG USCG	4/91 2/91 3/91 4/91 5/91 6/91 7/91	FREEPORT SHIPE N/A Webb Tide II Alpha Centauri	Steel Houseboat Alum, Megayacht Steel trawler yacht	80 x 20 x 1.5 124 x 24 x 5 110x27x6	N/A N/A Cummins	Webb Cruis e Lines G. Ray Miller	6/91 2/91
ayan Prince	Oil Skimmer Oil Skimmer Tug WPB WPB WPB WPB WPB	44x8x5 117 117 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7 110x21x7	EMD EMD Caterpillar Caterpillar Caterpillar Caterpillar Caterpillar	Hawaiian Tug & Barge Hawaiian Tug & Barge USCG USCG USCG USCG USCG	4/91 2/91 3/91 4/91 5/91 6/91	FREEPORT SHIPE N/A Webb Tide II	Steel Houseboat Alum, Megayacht	80 x 20 x 1.5 124 x 24 x 5	N/A N/A	Webb Cruise Lines	7/9 ⁻¹ 6/9 ⁻¹ 2/91 2/91 3/91

June, 1992

Survey Of New Vessel Construction & Conversion (continued)

SHIPYARD		Dimensions (in feet)			Delivery	SHIPYARD		Dimensions (in feet)			Deliver
Vessel	Туре	LXWXD	Main Englnes	Owner/Operator	Date	Vessel	Туре	LXWXD	Main Engines	Owner/Operator	Date
Major Repair & Con Capt. Anderson III		64x26x6	N/A	Max Anderson	3/92	Lamnalco Impala TBA TBA TBA	Crew/Cargo Crewboat Crewboat Commuter	100 x 23 x 4.8 45 x 14.5 x 2.5 45 x 14.5 x 2.5 65 x 22 x 4	 (2) Caterpillar 3412DITA (2) Detroit Diesel 8V71N (2) Detroit Diesel 8V71N (2) Cummins KT-19M and (1) Cummins 6-BTA with 	Undisclosed Undisclosed Undisclosed Undisclosed North American Water Jets	9/92 6/92 8/92 4/92
GLADDING-HEAR	N SHIPBUILDING	DUCLOS CORP.	.), Somerset, MA							Hour American Water Sets	
Jet Cat Express	Fast Ferry Catamaran	102.5 x 28.5	(2) DDA	Doug Bombard Enterprises	4/91	HANSEN BOAT C	OMPANY, Marysv	ille, WA			
H.S.V. Osprey	Research Vessel	55 x 17	(2) DDA	Dept. ol Environ. Protection, City of N.Y.	3/91	Steel	Crab/Tender	125 x 33 x 12	(2) Caterpillar	Handler Corp.	10/91
Unnamed	Research Vessel	60 x 18	(2) DDA	U.S. Navy, David Taylor Research Center	7/91	Steel/Alum.	Crab/Long Line/ Salmon	58 x 22 x 10	Cummins	Mark Severson	10/91
Put-In Cay II	Fast Ferry Catamaran	92.5 x 28.5	(2) Deutz MWM	Put-In Bay Boal Line	4/92	Mickey H, Fiberglas/Alum.	Salmon	55 x 17 x 5	(2) Lugger	Randy Hansen	4/91
P/B Hampton P-275 Unnamed		51 x 17 38 x 13	(2) DDA 8V92 (1) DDA 12V92	Virginia Pilots Charleston Pilots	10/92 11/91	Monica Jene, Fiberglas/Alum	Salmon/Crab	52 x 17 x 5	Lugger	Arnold Nelson	10/91
Jet Express II P-281		92.5 x 28.5	Kamewa 63S Water Jets (2) Deutz MWM 604 TBD	Put-In Bay	Spring/92	*Sea Ern, Steel/Alum.	New Pilot House, Galley, Living Q	120 x 28		Pete, Rolf Myhre	10/91
			(2) Deale Minim 004 100			Jamboree, Fiberglas/Alum.	Salmon/Crab/ Long Line	52 x 17 x 5	Lugger	Brad Underwood	4/91
GULF COAST FAE	RICATION INC., P	ort Bienville, Pea	arlington, MS			Thalassa, Fiberglas/Alum.	Salmon/Crab	52 x 17 x 5	Lugger	Jim Calhoun	3/91
*Delta Queen	Steamboat	280 x 58 x 15	Sleam Paddlewheel	Delta Oueen Steamboat Co	3/91						
DD5801 N/A	Floating Dry Dock Deck Barge	320 x 105 x 25 343 x 86 x 21		U.S. Army Corps ol Engineers Pacific Hawaiian Line	2/92 1/92	HOMEPORT MAR	INE SERVICES, IN	C., Moss Point, N	AS		
GULF CRAFT, INC	., Patterson, LA					Northern Wind Edd Tide II Vee Sea Topaz	Fish Tender Supply Vessel Standby/Rescue Boat w/ Supply	195 x 41.5 x 28 180 212 Canabilities	(2) Caterpillar 3517A (2) Caterpillar 399 (2) 16-Cylinder Alco	Arctic Alaska Fisheries, Inc. Tidewater Marine Inc. Seacor Marine, Inc.	2/91 10/91 5/91
M/V Deanne McCall	Crewboat	160 x 30 x 6	(6) Cummins KT-19M	McCall Enterprises, Inc.	1/91	Vee Sea Sapphire	Standby/Rescue Boat w/ Supply	212	(2) 16-Cylinder Alco	Seacor Marine, Inc.	6/91
M/V Evelyn M. M/V Sam McCall M/V Kevin McCall M/V Voyager II	Crewboat Crewboat Crewboat Whale Watch	130 x 26 x 5 160 x 30 x 6 160 x 30 x 7 90 x 25 x 4.5	(4) Caterpillar 3412DITA (6) Cummins KT-19M (6) Cummins (4) Detroit Diesel 12V71TI	Offshore Oil Services, Inc. McCall Enterprises, Inc McCall Enterprises, Inc New England Aquarium	2/91 9/91 1/92 3/91	Pinnacle	Steel King Crab	152 x 38 x 16	(2) Caterpillar 3508	Walter L. Casto	N/A
M/V Explorer M/V Tim McCall	Commuter Crewboat	85 x 20 x 4.5 145 x 28 x 6	(3) Detroit Diesel 12V71TI (5) Cummins KT-19M	Fire Island Ferries, Inc. McCall Enterprises, Inc.	5/91 7/91	HOUMA FABRICA	TORS, A DIVISION	N OF L.O.R., INC.	, Houma, LA		
M/V Stephanie McCall	Crewboat	130 x 26 x 5	(4) Detroit Diesel 12V92TA		11/91	Robert J. Eymard	Utility/Supply	135 x 32 x 12	(3) Detroit Diesel 16V92 w/ Twin Disc	C & E Boat Rentals	6/91
Hull 366 N/A	Ship Freight Tender	65 x 24 x 5	(3) Detroit Diesel	Crescent Ship Service, Inc.	4/91	Oaklawn	Utility/Supply	133.6 x 30 x 12	(2) Detroit Diesel 16V92 w/ Twin Disc	Galaxie Marine Service	9/91
Galeon Alba Mr. Fais Lamnalco Cougar Lamnalco Jaguar	Line Handler Cargo/Utility Crew/Cargo Crew/Cargo	32 x 12 x 2 6 65 x 24 x 4 90 x 22 x 4 5 90 x 22 x 4 5	(2) Cummins 6-BTA (3) Detroit Diesel 8V71N (2) Caterpillar 3412DITA (2) Caterpillar 3412DITA	Undisclosed Undisclosed Undisclosed Undisclosed	6/91 7/91 2/92 3/92	Unnamed	Passenger Vehicle Ferry	196 x 36 x 12	Caterpillar 3508	Commercial Interests	9/92
Daniel E. Salmon Mr. Gordon Jr.	Commuter Cargo/Utility	65 x 22 x 4 65 x 24 x 4	(2) Detroit Diesel 8V92TA (3) Detroit Diesel 8V71N	Undisclosed Undisclosed	4/92	INGALLS SHIPBU	ILDING DIVISION,	LITTON INDUST	RIES, Pascagoula, MS		
Mermaid	Glass Bottom Crew/Cargo	50 x 14.6 x 4.5 100 x 23 x 4.8	(2) Johnson 140 H.P OB (2) Catepillar 3412DiTA	Undisclosed Undisclosed	5/92 8/92	CG 68 Anzio CG 69 Vicksburg	Aegis Cruiser Aegis Cruiser	565.8x56x31.5 565.8x56x31.5	GE/LM-2500 GE/LM-2500	U.S. Navy U.S. Navy	4/92



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bility for quality. From routine maintenance to complex repairs and new construction, TQM provides our customers with superior workmanship and on-time delivery. At BethShip, we are committed to providing the best service and support in the industry, from the largest job to the smallest detail.

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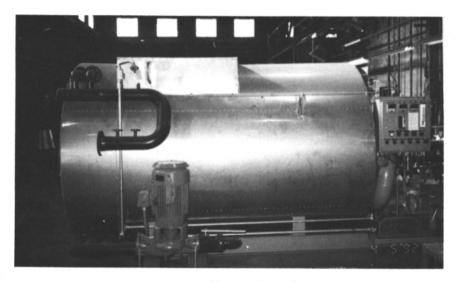
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June, 1992

Survey Of New Vessel Construction & Conversion (continued)

SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delivery Date	SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delivery Date
CG 71 Cape	Aegis Cruiser	565.8x56x31.5	GE/LM-2500	U.S. Navy	3/93		RS INC., Utica, IN				-
St. George					6/93	Robert T	Towboat	111 x 36 x 10	Caterpillar 3516	Luhr Bros., Inc.	2/91
CG 72 Vella Gull CG 73 Port Royal	Aegis Cruiser Aegis Cruiser	565.8x56x31.5 565.8x56x31.5	GE/LM-2500 GE/LM-2500	U.S. Navy U.S. Navy	1/94	JFB	Barge	195 x 35	Catelphan 5510	J.F. Brennan, Inc.	2/9
DDG 52 Barry	Aegis Destroyer	504.4 x 66.5 x 30.6	GE/LM-2500	U.S. Navy	5/92	DF1 Unnamed	Barge Towboat	80 x 7 x 3.6 50 x 20 x 7.6	Cummins 855	Barleycorn's, Inc. U.S. A.C.O.E.	5/91 11/91
DDG 55 Stout	Aegis Destroyer	504.4 x 66.5 x 30.6	GE/LM-2500	U.S. Navy	10/93	Unnamed	Towboat	52 x 22 x 7.6	Cummins 855	M.B.I. (SPEL)	8/91
DDG 57 Mitscher	Aegis Destroyer	504.4 x 66.5	GE/LM-2500	U.S. Navy	4/94						
DDG 59 Russell	Aegis Destroyer	x 30.6 504.4 x 66.5	GE/LM-2500	U.S. Navy	9/94	MARINE INLAND	FABRICATORS, P	anama City, FL			
DDG 63 Ramage	Aegis Destroyer	x 30.6 504.4 x 66.5	GE/LM-2500	U.S. Navy	1/95	MIF080	Steel Workboat	25 x 10 x 3.5	GM 6-71	Milbocker & Sons, Inc.	3/91
		x 30.6	GE/LM-2500	U.S. Navy	5/95	MIF081 MIF082	Steel Repair Boat Steel Barge	35 x 18 x 4 30 x 12 x 2.5	GM 6-71	Cargo Carriers Custom Dock & Davit	3/91 1/91
DDG 63 Stethem	Aegis Destroyer	504.4 x 66 5 x 30.6				MIF083	Steel Workboat	20.2 x 8 x 3	GM 4-71	Escape Marine	3/91
DDG 65 Benlold	Aegis Destroyer	504.4 x 66.5 x 30.6	GE/LM-2500	U.S. Navy	11/95	MIG084 MIG085	Steel Workboat Steel Workboat	20.2 x 8 x 3 25.2 x 10 x 3.5	GM 4-71 GM 6-71	Dynamic Painting Corp. Stock	4/91
DDG 67 Cole	Aegis Destroyer	504.4 x 66.5 x 30.6	GE/LM-2500	U.S. Navy	3/96	MIG086 MIF087	Steel Workboat Steel Barge	20.2 x 8 x 3 40 x 10 x 4	GM 4-71	Pressure Concrete Construct Stock	ction 5/91
LHD 2 Essex	Amphibious		Westinghouse/	U.S. Navy	4/92	MIF088 MIF089	Steel Barge Steel Barge	17 x 8 5 x 2 17 x 8 x 2		Mohawk Northeast, Inc. Mohawk Northeast, inc.	5/91 5/91
LHD 3 Kearsarge	Assault Amphibious	844 x 106 x 23.7		U.S. Navy	5/93	090	Deck Barge	40 x 10		Stock	
LHD 4 Boxer	Assault Amphibious	844 x 106 x 23.7	Steam Turbines Westinghouse/	U.S. Navy	6/94	091 092	Workboat Workboat	40 x 16 25 x 14	(2) GM 8V-71 (2) GM 671	Midstream Fuel Service MCM Construction	8/91 9/91
	Assault		Steam Turbines	U.S. Navy	12/96	093 094	Workboat Workboat	25 x 10 25 x 10	GM 671 GM 671	Hardman Construction Custom Dock & Davit	8/91 10/91
LHD 5 Bataan	Amphibious Assault	844 x 106 x 23.7				095	Workboat	25 x 10	GM 671	Ohio Valley Marine Service	10/91
SA'AR 501	Corvette	281 x 39 x 10 5	GE/LM-2500 & MTU/12V1163 TB82	Israel	11/93	096 097	Power Module Power Module	16.8 x 7 16.8 x 7	GM 8V71 GM 8V71	Straits Engineers Contractin Straits Engineers Contractin	g 10/91
SA'AR 502	Corvette	281 x 39 x 10.5	GE/LM-2500 & MTU/12V1163 TB82	Israel	4/94	098 100	Workboat Workboat	29 x 10 25 x 14	Deulz BF 6L91 GM 8V71	Boke Trading NYC Dept. of Sanitation	11/91
SA'AR 503	Corvette	281 x 39 x 10.5	GE/LM-2500 &	Israel	10/94	101	Workboat	25 x 14	(2) GM 671	Stock Wellstream Corp.	11/91 11/91
			MTU/12V1163 TB82			102	Control Room	22.6 x 11		weistream corp.	11/91
JEFFBOAT, Jeffe	rsonville, IN					MARINETTE MAR		DN, Marinette, WI			
Chem. 154 RCT 5		195 x 35 x 12.6		Commercial Interest	1/91	MCM-4 Champion	Mine Counter-	224 x 38.9	(4) Isotta Fraschini	U.S. Navy	1/91
	Tank Barge			Commercial Interest	1/91	MCM-7 Patriot	measures Mine Counter-	224 x 38.9	1036 SS6 V-AM (4) Isotta Fraschini	U.S. Navy	9/91
Job 5208 (6 Hulis)	Rake Covered Barge	195 x 35 x 12					measures		1036 SS6 V-AM		
Jobs 5332-5382 (60 Hulls)	Box Covered Barge	200 x 35 x 12		Commercial Interest	4/91	120 Aton	Aids to Navigation Servicing Barge			U.S. Coast Guard	7/91
Hull 7021, 7022, 7023	Double Skin Tank Barge	297.5 x 54 x 12		Commercial Interest	3/91	120 Aton	Aids to Navigation Servicing Barge	123 x 50		U.s. Coast Guard	4/92
Hull 2903, 2904,	Double Skin	297.5 x 54 x 12		Commercial Interest	5/91		controlling bongo				
2905 Chem. 242, 243,	Tank Barge Double Skin	200 x 35 x 12		Commercial Interest	4/91						
244 Job 5218	Tank Barge Box Covered	200 x 35 x 12		Commercial Interest	5/91	MASTER MARINE	E, INC., Bayou La B	latre, AL			
(5 Hulls)	Barge							72 x 20 x 9	Caterpillar 3408DITA	Dan Famharm	9/91
	Open hopper barges (40)	195x35x12	N/A	Commercial	91	Steel/New Const. Petrel	Longliner Alum. SES	110 x 42	Caterpinal 3406DITA	U.S. Coast Guard	8/91
	Open hopper barges (60)	200x35x12	N/A	Commercial	91	Shearwater	(Surface Effect S Alum, SES	hips) 110 x 42		U.S. Coast Guard	8/91
	Double-skin	298x54x12	N/A	Commercial	91	Sea Hawk	(Surface Effect S Alum, SES	hips) 110 x 42		U.S. Coast Guard	8/91
	tank barges (16) Double-skin	298x53x12	N/A	Commercial	91	Sea Hawk	(Surface Effect S			0.0.00031 00010	0,01
	tank barges (2) Double-skin	195x35x13	N/A	Commercial	91						
Mahaal Luke	tank barges (10)		EMD (2)	Luhr Bros	92	MCDERMOTT SH	IPYARDS, Amelia,	1.4			
Michael Luhr	Towboat Double-skin	240x54	N/A	Mobil	92				Dissel Electric	U.C. New	4/02
	tank barges (10))				USNS Loyal USNS Able	SWATH SWATH	234 x 93 234 x 93	Diesel-Electric Diesel-Electric	U.S. Navy U.S. Navy	4/93 3/92
						YTT 11 USNS Effective	Torpedo Tesl Cra SWATH	ft 186 x 40 234 x 93	Diesel-Electric Diesel-Electric	U.S. Navy U.S. Navy	5/91 10/92
J.M. MARTINAC S	HIPBUILDING COP	RP., Tacoma, WA				USNS Victorious YTT 12	SWATH Torpedo Test Cra	234 x 93	Diesel-Electric Diesel-Electric	U.S. Navy U.S. Navy	9/91 7/91
Hull 237	Stern Trawler	150 x 39 x 22	Wichman 10V-28B		11/91	111.12	Topedo Teat cia	1 100 x 40	Dieser-Licente	0.0.1121	.,
*Essaquam	Passenger/Car Ferry	328 x 78 x 16	G.E.	Washington State Ferry System	5/91						
*Kittitas	Passenger/Car Ferry	328 x 78 x 16	G.E	Washington State Ferry System	11/91	MUNSON MEG., I	NC., Edmonds, WA				
	reny					ALF00629G191	Research	46 x 15	(2) Detroit Diesel 8V92TI	Naval Civil Eng. Lab	Under Const.
						ALF00626F191	Search/Rescue	30 x 11	(2) Ford Gas Inboard	Maryland Dept. Natural	Under Const.
KVICHAK MARIN	E INDUSTRIES INC	., Seattle, WA				ALF00630g191	/Patrol Oil Poll. Control	36 x 12	(2) V6 OMC Outboard		Under Const.
Peril Strait	Oil Spill Recovery Spill Response	28 x 8 32 x 12	(2) Johnson 70s (2) OMC 155	Larco Foss Maritime	1/91 8/91	ALF00612D191	Patrol/Research	26 x 10	(2) AQ271 Volvo V8 Gas Inboard/Outboard	National Park Ser	7/91
Vulcan II Vulcan II	Spill Response	32 x 12	(2) OMC 155	Foss Maritime	10/91	ALF00621F191	Oil Poll. Control	38 X 13	(2) Cummins 6BTA	Alaska Clean Seas	9/91 9/91
Peril Strait Vulcan II	Oil Spill Recovery Oil Spill Recovery	28 x 8 28 x 8	(2) Johnson 70s (2) Johnson 70s	Foss Maritime Pimek	4/91 6/91	ALF00622F191 ALF00623F191	Oil Poll. Control Search & Rescue		(2) Cummins 6BTA (2) Detroit Diesel 8V92TI		Under Const
Vulcan II Vulcan II	Oil Spill Recovery Spill Response	28 x 8 32 x 12	(2) Johnson 70s (2) OMC 155	J & W Associates Foss Maritime	7/91 9/91	ALF00596L090 ALF00625F191	Patrol Search/Rescue	38 x 13 30 x 11	(2) Caterpillar 3208TA (2) Ford Gas Inboard	Coast Guard Maryland Dept. Natural	5/91 Under Const.
Vulcan II	Spill Response	32 x 12	(2) OMC 155	Foss Maritime	9/91 7/91	ALF00632H191	/Patrol Aids to Navigation		(2) 8.2 Detroit Diesels	Resources Police	Under Const.
Vulcan II Peril Strait	Oil Spill Recovery Oil Spill Recovery		(2) Johnson 70s (2) Johnson 70s	J & W Associates Foss Maritime	4/91	ALF00632F1191 ALF00631G191 ALF00624F191	Oil Poll. Control Search/Rescue	36 x 12 30 x 11	(2) V6 OMC Outboard (2) 460 c. in. Ford	Clean Sound Maryland Dept. Natural	Under Const. Under Const.
						ALF00606C191	/Patrol Oil Poll. Control	44 x 15 44 x 15	Block Gas Inboard (2) Caterpillar 3208TA (2) Caterpillar 3208TA	Resources Police Clean Coastal Waters Clean Coastal Waters	10/91 10/91
LEEVAC SHIPYA	RDS, INC., Jenning	s, LA				ALF00607C191 ALF00597L090	Oil Poll. Control Patrol	38 x 13	(2) Caterpillar 3208TA	Coast Guard	5/91
	Excursion boat	280x65	Caterpillar	Gateway Cruises Gateway Clipper	4/91 5/92	ALF00599K090 ALF00600K090	Oil Poll. Control Oil Poll. Control	26 x 10 26 x 10	(2) Cummins 4BTA (2) Cummins 4BTA	Exxon Corp. Exxon Corp.	3/91 3/91
Belle of St. Louis	Casino boat Seismic	290x65	Caterpillar			ALF00595J090 ALF00602K090	Landing Craft Oil Poll. Control	42 x 15 26 x 10	(2) Detroit Diesel 6V53T (2) Cummins 4BTA	Pacific Island Dev. Corp. Exxon Corp.	2/91 3/91
Belle of St. Louis Empress HMS Nigeria	Shooter barge	46x16 24x12	Cummins Outboard	Halliburton Sabine River Authority	12/91 12/91	ALF00603A191	Oil Poll. Control	38 x 13	(2) Detroit Diesel 6V53T	Clean Bay	6/91
Empress	Stump Culter	190x54 72x26	Caterpillar Detroit Diesel	Boat Works Higman	11/91 8/92	ALF00604A191 ALF00604A191	Oil Poll, Control Oil Poll, Control	38 x 13 38 x 13	(2) Detroit Diesel 6V53T(2) Detroit Diesel 6V53T	Clean Bay Clean Bay	6/91 6/91
Empress	Gambling boat		MTU	S. Illinois Riverboat	2/93	ALF00601K090	Oil Poll. Control	26 x 10	(2) Cummins 4BTA	Exxon Corp.	3/91
Empress HMS Nigeria Casino Rock Island	d Gambling boat (2) Pushboats Casino boat	210x60			5/92						
Empress HMS Nigeria	(2) Pushboats		N/A	Dowell-Schlumberjer							
Empress HMS Nigeria Casino Rock Island *Big Orange 23	d Gambling boat (2) Pushboats Casino boat	210x60		Doweil-Schlumberjer		NATIONAL STEE	L & SHIPBUILDING	3 CO., San Diego,	CA		
Empress HMS Nigeria Casino Rock Island *Big Orange 23 *Retrofit	d Gambling boat (2) Pushboats Casino boat	210x60 216x44		Doweii-Schiumberjer		Supply	AOE 6	753.8 x 107 x 37	(4) LM-2500 Gas Turb.	U.S. Navy U.S. Navy	9/92 4/93
Empress HMS Nigeria Casino Rock Island *Big Orange 23 *Retrofit	d Gambling boat (2) Pushboats Casino boat Supply boat	210x60 216x44		G&B Marine Inc.	7/91			753.8 x 107 x 37 753.8 x 107 x 37 753.8 x 107 x 37 753.8 x 107 x 37		U.S. Navy U.S. Navy U.S. Navy Matson Navigation Co.	9/92 4/93 94 6/92

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Survey Of New Vessel Construction & Conversion (continued)

SHIPYARD /essel	Туре	Dimensions (In feet) L x W x D	Main Engines	Owner/Operator	Delivery Date	SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delivery Date
EWPORT NEWS	SHIPBUILDING &	DRYDOCK CO.,	Newport News, VA			Nico Shindagha	OSV	191x42x20	EMD	Nico	5/91
JSS George	CVN-73	1040 x 134	(4) GE Steam Turbines	U.S. Navy	7/92	Neptuno Del Golfo Fort Tide	OSV OSV	219x42x19 185x38x13	EMD . Caterpillar	Zapata Gulf Tidewater	7/91 7/91
Washington			.,			Sheridan Tide	OSV	185x40x14	EMD	Tidewater	7/91
SS John C. Stennis	CVN-74	1040 x 134	(4) GE Steam Turbines	U.S. Navy	12/95	Raleign Ann City of Pittsburgh	Tug Towboat	121x34x18 148x35x10	ALCO EMD	Zapata Gulf Ashland	9/91 9/91
SS United States	CVN-75	1040 x 134	(4) GE Steam Turbines	U.S. Navy	12/97	Saturno II	OSV	205x42x18	EMD	Zapata Gulf	9/91
JSS Asheville SS Jefferson City	SSN-758 SSN-759	360 x 33 360 x 33	(4) GE Steam Turbines(4) GE Steam Turbines	U.S. Navy U.S. Navy	8/91 1/92	Mister Bill Erin Bruce	OSV OSV	176x38x13 180x40x14	Caterpillar GM	Int'l Bridge Bruce Boat Rentals	10/91 12/91
SS Boise	SSN-764	360 x 33	(4) GE Steam Turbines	U.S. Navý	7/92	Ray Eckstein	Towboat	182x55x12	Caterpillar	Blue Grass Marine	2/92
SS Montpelier SS Charlotte	SSN-765 SSN-766	360 x 33 360 x 33	(4) GE Steam Turbines(4) GE Steam Turbines	U.S. Navy U.S. Navy	11/92 1/94	Tauro II	OSV	205x42x18	EMD	Tidewater	2/92
SS Hampton	SSN-767	360 x 33	(4) GE Steam Turbines	U.S. Navy	8/93						
SS Toledo SS Tucson	SSN-769 SSN-770	360 x 33 360 x 33	(4) GE Steam Turbines(4) GE Steam Turbines	U.S. Navy U.S. Navy	6/94 11/94	ROBERT E. DERE	CKTOR OF R.I., IN	C., Middleton, R			
SS Cheyenne	SSN-773	360 x 33	(4) GE Steam Turbines	U.S. Navy	10/95	Nathanael Greene		128 x 36 x 15	(2) EMD	U.S. Army	8/91
ISS Greeneville	SSN-772	360 × 33	(4) GE Steam Turbines	U.S. Navy	4/95	Henry Knox Anthony Wayne	Large Tug (LT) Large Tug (LT)	128 x 36 x 15 128 x 36 x 15	(2) EMD (2) EMD	U.S. Army U.S. Army	11/91 2/92
			4 1974			Zebulon Pike	Large Tug (LT)	128 x 36 x 15	(2) EMD	U.S. Army	5/92
CHOLS BROTH	ERS BOAT BUILD	NG, INC., Preela	na, wa			Winfield Scott Seth Warner	Large Tug (LT) Large Tug (LT)	128 x 36 x 15 128 x 36 x 15	(2) EMD (2) EMD	U.S. Army U.S. Army	8/92 11/92
an Francisco Spiri Ionte Carlo	t Dinner-cruise boat Gaming Dinner	150x40x7 205x46x7	Cummins (3)	Pacific Marine Yacht	6/91	John Champe	Large Tug (LT)	128 x 36 x 15	(2) EMD	U.S. Army	2/93
	Boat	20384687	Caterpillar (2)	Hornblower Yachts	10/91	LT 808	Large Tug (LT)	128 x 36 x 15	(2) EMD	U.S. Army	5/93
tar of Honolulu uper Emerald	Dinner-cruise boat High-speed ferry	232x45x14 65x17x4	Caterpillar (2)	Paradise Cruise	2/92						
per Emeraio	high-speed leny	63x17x4	DD (2)	Mitsubishi	1/92	SEAARK MARINE	INC., Monticello, A	AR			
						A0235	Crewboat	36 x 12	(2) Detroit Diesel 6V53T	Shell Oil	7/91
	E WAYS, INC., Port	ianu, OR				A0234 A0242	Crewboat Recreational/	36 x 12 40 x 12.5	(2) Detroit Diesel 6V53T (2) Johnson Outboard	Shell Oil Tucker Marine	7/91 4/91
N Sliver Dolphin N Polar Sea	Crabber Crabber	108 104 x 33		Brekka Fisheries Polar Sea Partnership	9/91		Excursion				
W Bold	Crabber	66 x 22		F/V Bold Contender	10/91 4/91	A0233	Crewboat	36 x 12	(2) Detroit Diesel 6V53T	Shell Oil	7/91
Contender						A0238 A0244	Research Patrol	26 × 8 23 × 8	Volvo Inboard/Outboard Mercruiser V8 I/O	EPA Lower Colorada River Auth.	5/91 7/91
						A0246	Boom Deployment	24 x 8	(2) Evinrude Outboard	Mobil Oil	7/91
ORTH AMERICA	N SHIPBUILDING	NC., Larose, LA				A0245	Trans. Research	26 × 9	Mercruiser 7.4 L I/O	NOAA	8/91
thaniel B.	Research Vessel	308.5 x 60 x 22.6	6 (4) Caterpillar 3608	Edison Chouest Olfshore, Inc.	1/92	A0248	Supply	23 × 8	Mercruiser 5.7 L I/O	T.W. Recreation	7/91
Palmer					,	A0232 A0054	Supply Personnel	23 × 8 17 × 8	Customer Provided Customer Installed	Weavertown Environmental U.S. Marine Corps	3/91 2/91
						A0225	Navigator	21 x 8	OMC I/O	PA Fish	3/91
RANGE SHIPBU	LDING CO. INC., (Drange, TX				A0226 A0247	Construction Patrol	23 x 8 36 x 12	Mercruiser I/O (2) Caterpillar 3208TA	Esso Standard Oil U.S. Army	3/91 9/91
56	Ollshore Petrol.	150 x 54		U.S. Navy	10/92	A0239	Research	26 x 8	Volvo Diesel I/O	EPA	5/91
	Discharge Syste	m				A0241	Research	26 × 8	Mercruiser 7.4 L 454 CID V8, I/O	EPA	5/91
overnor Russel 38	Ferry Offshore Petrol.	180 x 44 150 x 54	(2) Caterpillar 3412	State of North Carolina U.S. Navy	5/92 8/91	A0240	Research	26 x 8	Volvo Diesel I/O	EPA	5/91
	Discharge Syste			0.0. Havy	0/31	A0236 A0272	Survey Survey	23 x 8 23 x 8	(2) Johnson Outboard (2) OMC Outboard	John E. Chance & Assoc Army Corps of Eng	5/91 9/91
						A0268	Patrol	28 x 10	(2) Volvo Diesel I/O	U.S. Navy	9/91
ATTI SHIPYARD,	, INC. Pensacoula,	FL				A0269 A0271	Police Survey	19 x 7.6 23 x 8	Evinrude Outboard (2) OMC Outboard	Mecklenburg County Army Corps of Eng	8/91 9/91
ender One	Dredge Tender	65 x 30	Cummins	U.S. Corp. of Engineers	Late-91	A0249	Patrol	19 x 7.6	Mercruiser 4.3 L V6	Army Corps of Eng	7/91
ender Two	Dredge Tender	65 x 30	Cummins	U.S. Corp. of Engineers	Late-91	A0255	Search & Rescue	21 x 8	Gas I/O Volvo I/O	Coast Guard	8/91
rift Collector	Drilt Collector	60 x 26	Caterpillar	U.S. Corp. of Engineers	Mid-92	A0255 A0274	Patrol	23 x 8	Mercruiser I/O 7.4 L	USDA	10/91
shing Vessel ubuque Casino	Combination Gambling	115 x 32 387 x 58	Cummins Cummins (3)	Olf Shore Industries, Inc. Roberts River Rides	Mid-92 91	10056	Saarah & Danawa	21 - 8	454 CID Volvo Diesel I/O	Coast Guard	8/91
Belle	Ū					A0256 A0273	Search & Rescue Aids to Navigation		Volvo Diesel I/O	Coast Guard	9/91
ajor Conversion: ississippi Belle	Gambling	136 x 36	N/A	Roberts River Rides	91	A0252	Personnel	18 × 7	Customer Installed	Coast Guard	5/91
	-excursion					A0266 A0251	Search & Rescue Personnel	21 x 8 17 x 8	Volvo Diesel I/O Customer Installed	Coast Guard Coast Guard	9/91 5/91
						A0250	Aids to Navigation	21 x 8	Volvo Diesel I/O	Coast Guard	8/91
ETERSON BUILD	DERS, INC., Sturge	on Bay, Wi				A0237 A0265	Survey Search & Rescue	26 x 8 21 x 8	Mercruiser 5.7 I/O V8 Volvo Diesel I/O	Army Corps of Eng. Coast Guard	8/91 9/91
CM-6	Mine Counter-	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	8/91	A0254	Survey	36 x 12	Caterpillar 3208TA	David Taylor Research Center	10/91
	measures					A0257 A0243	Aids to Navigation Cargo Transporter		Volvo Diesel I/O (2) Evinrude Outboard	Coast Guard Army Corps of Eng.	8/91 8/91
CM-8	Mine Counter- measures	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	11/91	A0292	Fireboat	30 x 10	(2) Evinrude Outboard	Tampa Port Auth	1/92
1CM-9	Mine Counter-	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	8/92	A0283 A0284	Patrol Crewboat	21 x 7.9 18 x 7	OMC I/O Customer Installed	Army Corps of Eng Coast Guard	9/91 7/91
CM-10	measures Mine Counter-	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	10/92	A0224	Crewboat Protecto	or 36 x 12	(2) Caterpillar V8 3208TA	Transportation Authority	4/91
	measures		.,			A0285 A0276	Personnel UT Patrol LG	17 x 8 23 x 8	Customer Installed Mercruiser I/O	Coast Guard Army Corps of Eng	8/91 10/91
CM-11	Mine Counter- measures	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	5/93			_00		and corporation	
CM-12	Mine Counter-	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	8/93	SEA-FAB INC., Pa	scagoula, MS				
CM-13	measures Mine Counter-	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	11/93		-				
	measures					Bayou Pipeliner Unnamed	Powered Barge Oil Spill Recovery	65 x 28 100 x 28	(2) 6-71N Detroit Diesel(2) Caterpillar 3408	Chevron Pipeline Clean Coastal Waters Inc.	8/91 7/92
CM-14	Mine Counter- measures	224 x 39 x 11	(4) Isotta Fraschini	U.S. Navy	7/94	Unnamed	Oil Spill Recovery		(2) Caterpillar 3408	Clean Coastal Waters Inc.	8/92
ATZER SHIPYA	RD, INC., Houston	TX				SERODINO, INC. (Chattanooga, TN				
				D. // - L		M/V Falcon	Workboat	54 x 22	(2) Cummins 19M	Tennessee Valley Authority	3/91
uffalo 250 hknown	Bunker Tank Barg Lube Tank Barge		Detroit Pump Engine Detroit Pump Engine	Bulfalo Marine Service N/A	1/91 5/91	M/V Cecilia	Skimmer	35 x 15	(2) Caterpillar D-3304	New York Dept. of Sanitation	5/91
hknown	Lube Tank Barge	195 x 35 x 12	Detroit Pump Engine	N/A	6/91	M/V Anne Marie M/V Bearcat	Skimmer Towboat	35 x 15 76 x 26	(2) Caterpillar D-3304 (3) Cummins 19M	New York Dept. of Sanitation Stock	5/91 7/91
hknown	Type I Hull Tank Barge	195 x 35 x 12	Detroit Pump Engine	N/A	8/91				.,		.,
known	Lube Tank Barge		Detroit Pump Engine	N/A	10/91	SERVICE MARINE	INDUSTRIES INC	Morgan City	Δ		
hknown	Lube Tank Barge	195 x 35 x 12	Detroit Pump Engine	N/A	11/91						1.00
						Linda Odyssey	Utility Dinner boat	142x36x10 175x37x8	DD Caterpillar	Gilbert Cheramie Premier Yachts	9/91 3/91
RODUCTION MA	NAGEMENT STRU	CTURAL SYSTE	MS, INC., New Orleans, L	A		Spirit of Norfolk	Dinner	187x40x7	Caterpillar	Spirit Cruises	3/92
ncrete	Underwater	116 x 104 x 14	None	EIF Aquitaine	6/91	Unnamed	Casino	210x67x8	Caterpillar	N/A	12/92
	Storage Tank (Ba	arge)									
						SKIPPERLINER IN	DUSTRIES INC., L	a Crosse, WI			
UALITY SHIPYAR	RDS, INC. Houma,	LA				Tahoe Para Dice	Excursion	63 x 15	Mercruiser D183		5/91
alliburton 221	Service Vessel	210 x 42 x 15	(2) Caterpillar 3516	Halliburton	4/91	Desert Princess	Excursion	90 x 28	Caterpillar 3306		10/91
orthern Empire	OSV to Fishing	194 x 40 x 17	(2) Caterpillar 3606	Empire Alaska Seafoods, Inc.	9/91	Eagle III Celebration	Excursion Excursion	63 x 15 90 x 21	Mercruiser D183 Caterpillar 3208		3/91 3/91
strelita nelma	Pushboat Pushboat	34x16x5 34x16x5	Caterpillar Caterpillar	N/A N/A	12/91 12/91	Carlin Belle	Excursion	90 x 21 60 x 18	Jatopina 0200		11/91
oris	Tug	52x16x5	Caterpillar	N/A	12/91						13,0
ema	Pushboat Pushboat	34x16x5 34x16x5	Caterpillar Caterpillar	N/A N/A	5/92 5/92	ST. LOUIS SHIP/C			St Louis MO		
enny	Tug	52x16x5	Caterpillar	N/A	5/92						
lary M.			Caterpillar	N/A	5/92	(14) Unnamed	Hopper Barges	195 x 35			
	Tug	52x16x5	Caterpillar	1/6	0,01	(7) Unnamed	Tank Barges	200 x 35			

June, 1992

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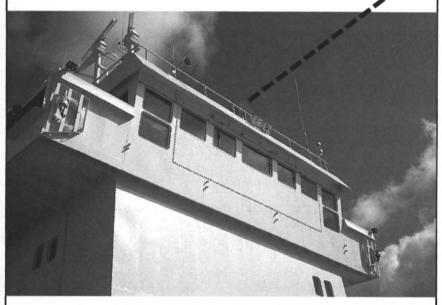
Survey Of New Vessel Construction & Conversion (continued)

SHIPYARD /essel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delivery Date	SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delive Date
15) Unnamed	Covered Hopper	200 x 35					GROUP, TRINITY I	NDUSTRIES, INC	., Gulfport, MS		
10) Unnamed	Barges Covered Hopper	200 x 35				TRINITY-ALUMINU	JM BOATS				
1) Unnamed	Barges Tank Barge	195 x 35				Abeer 23	Crew	85	DD (2)	Commercial	1/9
2) Unnamed	Drydock Wing Walls	100 x 8				Abeer 24 Gray Spear	Crew Crew	85 110	DD (2) DD (3)	Commercial Commercial	2/9 3/9
14) Unnamed 2) Unnamed	Tank Barges Tank Barge Hulls	195 x 35 260 x 45				Abeer 26 Gray Sable	Crew Crew	85 110	DD (2) DD (3)	Commercial Commercial	4/9 4/9
2) Uninamed	Tarik barge Hulis	200 x 43				Abeer 27 Osco Star I	Crew Crew	85 85	DD (2) DD (2)	Commercial Commercial	5/9 6/9
	RD, INC., Bayou La	Batra Al				Osco Star II Abeer 28	Crew Crew	85 85	DD (2) DD (2)	Commercial Commercial	8/9 6/9
			C	Compagnia Francoiria DoBosha	1/91	Abeer 29	Oil recovery boat Crew	65 85	Caterpillar (2) DD (2)	Commercial Commercial	2/9: 8/9
a Parisienne Iarianne	Trawler Trawler	80x22x11 80x22x11	Cummins Cummins	Compagnie Francaise DePeche Compagnie Francaise DePeche	3/91	Abeer One Gemini Five	Crew Crew	85 120	DD (2) DD (4)	Commercial Commercial	10/9 11/9
a Gauloise apitaine Michel	Trawler Shrimp trawler	80x22x11 75x22x11	Cummins Cummins	Compagnie Francaise DePeche Felix Alonzeau	2/91 7/91	Bouge	Crew Crew	65 85	DD (2) DD (2)	Corps of Eng. Commercial	2/9 3/9
urbot 2 Chicago's First Lady		75x22x11 96x22	Cummins Caterpillar	Andre Florus Mercury Skyline	7/91 6/91	Abeer 3	Pilot/line handler	53 53	DD (2) DD (2) DD (2)	Panama Canal Commission	2/9
ames J. Doherty ulu E	Ferry Ferry	104x24 104x24	Caterpillar Caterpillar	Modern Cont'l Modern Cont'l	1/92 12/91		Pilot/line handler Pilot/line handler	53	DD (2)	Panama Canal Commission Panama Canal Commission	4/9 5/9
Discovery Island	Supply boat Supply boat	220x40 220x40	EMD EMD	Seacor Marine Seacor Marine	4/91 9/91	Whale watch boat Fishing vessel	70 100	DD (2) Caterpillar (4)	Commercial	4/92 5/92	
Tosiba Plover Veesea Typhoon	Standby rescue Standby rescue	185x38 180x40	Caterpillar Caterpillar	Sealion Shipping Seacor Marine	11/91 7/91	Yacht tender	30	Anmar (2)	Commercial	4/92	
ighting Fox 9 Capt. Charles	Supply boat Supply boat	178x38 165x38	Caterpillar Caterpillar	Neches-Gulf Marine Transpt	10/91 12/92	TRINITY-BEAUMO	DNT				
						PB 110 B	Hopper barge	195	N/A	Commercial	3/9
	WORKS INC., Gre	enville, MS				PB 111 B Chem 166	Hopper barge LPG barge	195 260	N/A N/A	Commercial Commercial	3/9 9/9
luckiser	Pushboat	46x14x7	Caterpillar (2)	Corps of Eng.	7/91	Chem 167	LPG barge Oil spill recovery	260 208	N/A Caterpillar (2)	Commercial MSRC	9/9 11/9
iedler	Pushboat Shop barge	46x14x7 150x48x9	Caterpillar (2) N/A	Corps of Eng Corps of Eng	7/91 4/92		Oil spill recovery Oil spill recovery	208 208	Caterpillar (2) Caterpillar (2)	MSRC MSRC	11/9 12/9
MV Emily K.	Pushboat	60x22x8	Caterpillar (2)	Black Hawk Fleet	2/92		Oit spill recovery LPG lank barge	208 260	Caterpillar (2) N/A	MSRC Commercial	2/9 3/9
						TD11117					
	YSTEMS, INC., Ch		Cateroiller 2616 Series	N/A	3/92	TRINITY-HALTER	MARINE (Lockpor Crane barge	t) 175	N/A	U.S. Navy	5/9
ong Range Fish. Pursuit	Swath Swath	90 x 45 x 9 35 x 16 x 4	Caterpillar 3516 Series Detroit Diesel 6V53 TI	Swath Ocean Systems,	5/91	Mr. Vick Judy H	Supply	222 222	EMD (2) EMD (2)	Commercial Commercial	7/9 10/9
				America's Cup Organizing Com	mittee	Y.A. Adams	Supply Supply	222	EMD (2)	Commercial	10/9
WIFTSHIPS, INC.	, Morgan, LA					Ronnie Roesheel K. Marine V	Supply Supply	222 202	EMD (2) Caterpillar (2)	Commercial Commercial	10/9 11/9
Arc On Medardo	Alum. Patrol Boat	110 x 24 x 6.5	(2) MTU12V331TC92	Government of Colombia	90	Anchor Barge #3 Kelly Candies	Crane barge Tug	100 124	N/A EMD (2)	Panama Canal Commission Commercial	12/9 2/9
Monzon C. trepid	Motor Yachi	155 x 30 x 7.2	(2) Caterpillar 3516 DITA	Private	91		Oil spill recovery Oil spill recovery	208 208	Caterpillar (2) Caterpillar (2)	MSRC MSRC	10/9 11/9
410	Landing Cralt Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S Navy	91		spill recovery Oil spill recovery	208 208	Caterpillar (2) Caterpillar (2)	MSRC MSRC	12/9 1/9
411	Landing Craft Mech.8		(2) 8V92N Detroit Diesel	U.S. Navy	91	William R. Porter P.H. Worley	Lock tender Lock tender	50 50	Cummins (2) Cummins (2)	Corps of Eng. Corps of Eng.	3/9 3/9
412	Landing Cralt Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S Navy	91						
413	Landing Cralt Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	TRINITY-MOSS PO	DINT MARINE				
414	Landing Craft Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	Churubusco Coamo	Landing craft Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	2/9 6/9
415	Landing Craft Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	Contreres Corinth	Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	3/9 4/9
416	Landing Craft Mech.8	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	El Caney Five Forks	Landing craft Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	4/9 5/9
417	Landing Cralt	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	Fort Donelson Fort McHenry	Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	6/9 8/9
418	Mech.8 Landing Craft	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S Navy	91	Great Bridge Harpers Ferry	Landing cralt	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	8/9 10/9
0419	Mech.8 Landing Craft	74.5 x 21.4 x 4.2	(2) 8V92N Detroit Diesel	U.S. Navy	91	Hobkirk	Landing craft Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	11/9 12/9
0421	Mech.8 Route Survey	87.7 x 24.7 x 8.2	(2) MTU12V183TE61	U.S. Navy/Govt. of Egypt	91	Hormigueros Mavern Hill Matamoros	Landing craft	174 174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	2/9 2/9
422	Vessel Route Survey	87.7 x 24.7 x 8 2	(2) MTU12V183TE61	U.S Navy/Govt. ol Egypt	91	Mechanicsville	Landing craft Landing craft	174 174 174	Cummins (2)	U.S. Army U.S. Army	4/9
423	Vessel Coastal	110 x 27 x 8	(2) MTU12V183TE61	Arab Republic of Eqypt	91	Missionary Ridge Molino Del Ray	Landing craft Landing craft	174	Cummins (2) Cummins (2)	U.S. Army U.S. Army U.S. Army	6/9 8/9
)424	Minehunter Coastal	110 x 27 x 8	DB51L (2) MTU12V183TE61	Arab Republic ol Eqypt	91	New Orleans Palo Alto	Landing craft Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army	9/9
0425	Minehunter Coastal	110 x 27 x 8	DB51L (2) MTU12V183TE61	Arab Republic of Egypt	91	Paulus Hook Perryville	Landing craft Landing craft	174 174	Cummins (2) Cummins (2)	U.S. Army U.S. Army	10/9 12/9
)426	Minehunter Coastal	110 x 27 x 8	DB51L (2) MTU12V183TE61	Arab Republic of Eqypt	91	Port Hudson	Landing craft Tug	174 127	Cummins (2) EMD (2)	U.S. Army Commercial	1/9 4/9
427	Minehunter Coastal	110 x 27 x 8	DB51L (2) MTU12V183TE61	Arab Republic of Egypt	91		Oil spill recovery Oil spill recovery	208 208	Caterpillar (2) Caterpillar (2)	MSRC MSRC	9/9 10/9
428	Minehunter Coastal	110 x 27 x 8	DB51L (2) MTU12V183TE61	Arab Republic ol Eqypl	91		Oil spill recovery Oil spill recovery	208 208	Caterpillar (2) Caterpillar (2)	MSRC MSRC	11/9 12/9
429	Minehunter Landing Craft		DB51L (2) 8V92N Detroit Diesel	U.S. Navy	91						
0430	Mech 8 Landing Craft		(2) 8V92N Detroit Diese	U.S. Navy	91	TRINITY-EQUITAR	BLE-NEW ORLEAN	S			
0431-0435	Mech 8 Riverine Patrol	45 x 12	Detroit Diesel 6V92TA	U.S. Navy		Leda LAE 5 De-Agosto	Yacht Patrol boat	97 112	MTU (2) DD (3)	Private Ecuadorian Navy	2/9 5/9
						LAE 27 De-Febrero Albacora		112 50	DD (3) DD (2)	Ecuadorian Navy Commercial	6/9 5/9
EXTRON MARIN	E SYSTEMS, New	Orleans, LA				Culebra William R Porter	Dredge tender Lock tender	60 50	DD (2) Cummins (2)	Panama Canal Commision Corps of Eng	10/9 6/9
SES-200	Surface Effect	160 x 40	(2) MTU Diesel 16V396	U.S. Navy	2/91		Fireboat Fireboat	106 106	DD (2) DD (2)	Brazil Brazil	3/9 4/9
ES-Fireboat (1-2)	Ship Surface Effect	70 x 19	TB94 (2) Detroit Diesel 8V92TA	City of New York	2/92		Patrol boats (23) Sport fishing boat	77	DD (2) N/A	U.S. Navy FMS Commercial	91-9 2/9
CAC-031	Ship Air-Cushion	89 x 48	(4) Textron Lycoming	U.S. Navy	2/91		Tug	100	EMD (2)	Commercial	3/9
CAC-042	Vehicle Air-Cushion	89 x 48	TF40B (4) Textron Lycoming	U.S. Navy	12/91	TRINITY-HALTER	(Moss Point)				
	Vehicle 32, 033, 037, 048. 0		TF40B			Thomas G.	AGOR 23	274	Caterpillar (3)	U.S. Navy	7/9
Lonoy - Lono-U	000, 007, 040. 0					Thompson			EMD	U.S. Navy	7/9
IDEWATER EQU	IPMENT CORPOR	ATION, Chesapea	ike, VA			John Donnell Littlehales	T-AGS-51 T-AGS-52	208 208	EMD	U.S. Navy	7/9
Barge	Hopper, River	270 x 52 x 18	N/A	Cogentrix Virginia Leasing Corp.	4/91	Hurley	Barge Dredge	195 300	N/A GE (3)	Undisclosed Corps of Eng	5/9 3/9
ALC: NO. ST. CONTRACTOR	Service Hopper, Ocean	360 × 56 × 32	N/A	Undisclosed Under	Conctr	Pathfinder Sumner	T-AGS-60 T-AGS-61	329 329	EMD (4) EMD (4)	U.S. Navy U.S. Navy	1/9 7/9

Survey Of New Vessel Construction & Conversion (continued)

SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Delivery Date	SHIPYARD Vessel	Туре	Dimensions (in feet) L x W x D	Main Engines	Owner/Operator	Deliver Date
	Type		main Engines	Owner/Operator	Date		туре		main Engines	Owner/Operator	Date
Mississippi American Champi	Towboat on Fishing vessel	250 207	Caterpillar (3) Wartsila	Corps of Eng. Commercial	12/92 9/92	*Amber Dawn *American Viking	Trawler Crabber	109 x 29.8 121 x 27	(2) Cummins VTA-28-M (2) Caterpillar 353	Burton Parker Buholm Fisheries	2/91 7/91
TRINITY-EQUITA	BLE-MADISONVILI	E & HILLMAN B	ARGE CO.								
						WASHBURN & DO	DUGHTY ASSOC.,	INC., East Booth	бау, МЕ		
	Hopper barges (106)	195-200	N/A	Commercial	91	Seacapture Alice Winslow	Longliner Tugboat	82 x 22 x 9.5 90 x 30 x 13.7	Caterpillar Alco	Sea Capture, Inc Sheepscot Pilots	4/91 5/91
	Deck barges (26)	Var.	N/A	Commercial	91	Unnamed	Car/Passenger	130 x 36 x 12	Caterpillar	State of Maine Dept. of Trans.	5/92
	Tank barges (22)	Var.	N/A	Commercial	91	onnanica	Ferry	100 x 00 x 12	Calcipilar	State of Maine Dept. of Hans.	0, 52
	Hopper barges (254)	195-200	N/A	Commercial	92		,				
	Tank barges (21)	Var	N/A	Commercail	92	WESTERN TOWE	OAT CO., Seattle,	WA			
TRINITY-GRETN	A MACHINE					Western Navigator		94 x 28 x 15	Caterpillar	Western Towboat	5/91
	50 50 i					West Pt.	Tractor Tug	60 x 24 x 10	(2) Caterpillar 3412	Western Towboat	2/92
Vaialeale	RO/RO-barge	345 380	N/A N/A	Commercial	9/91						
Natchez	Tank barge Tank barge	380	N/A N/A	Commercial	2/91						
	Tank barge	260	N/A N/A	Commercial Commercial	7/92	WESTPORT SHIP	YARD, Westport,	WA			
	Tank barge	467	N/A	Commercial	8/92 1/93						
	Tank barge	467	N/A	Commercial	7/93	5642	Passenger Boat	62 x 18	Lugger L6125	Spirit Cruises	Fall 92
	i ann ourgo			Commercial	1135	6401-Bluefin	Patrol	65 x 19	(2) Detroit Diesel 12V92TA		5/91
						5641	Tour Boat	62 x 18	(2) Lugger L6125AHE	Spirit Cruises	6/92
TRI-STAR MARIN	NE, INC., Seattle, W/					8019 5641-Surf Scooter	Tour Boat	80 × 20	(2) Lugger L6170AHE	Stan Stephans	4/92
						5641-Surr Scooler 5641	Charter/Fishing Passenger	56 x 17 62 x 18	(2) Detriot Diesel 6V92 Lugger L6125	Ron Lethin Spirit Cruises	5/91 92
ady Kodiak	Crabber/Tender	124 x 32 x 12	Caterpillar 3412T	Suydam Boats	6/91	8019	Passenger	80 x 21	Lugger L6125	Stan Slephans Charters	92
Gale Wind	Tug Boat	86 x 30 x 15	Caterpillar 3512T	Anderson Tug & Barge	6/91	7505	Hydrofoil	80 x 23	(4) Detroit Diesel 12V92TA		92
Windy Bay	Crabber/ Processor	160 x 36 x 12	Caterpillar 398T	Windy Bay Inc.	9/91	1000	- Iyurololi	00 X 20		Weston memalona	JE
ady Alaska	Crabber/Tender	124 x 32 x 12	Caterpillar 3412T	Suydam Boats	10/91						
						ZIDELL MARINE (CORPORATION, P	ortland, OR			
JNION BAY SHIP	BUILDING CORP.,	Seattle, WA				642	Hopper Barge	270 x 42		Zidell	11/91
						643	Hopper Barge	270 x 42		Zidell	2/92
*Golden Fleece	Trawler/Proc.	110 x 30	(2) Caterpillar 3412	Golden Age Fisheries	2/91	641	Tanker Barge	296 x 60		Zidell	

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CANADIAN SHIPBUILDING



J.Y. Clarke, President Canadian Maritime Industries Association

last four years. Employment in CMIA member shipyards averaged 8,969 during the year and stood at some 9,047 at year's end, slightly above 1990.

CMIA also noted a reduction in the importation of foreign vessels into Canada from previous years due, perhaps, to the economic state of fleet owners. Also, on a more positive note, Canada's labor costs in the manufacturing sector have dropped to 11th place among the "free world's" top 20 countries. It is at least possible that in the next few years, a resurgence—not massive, but clearly noticeable—will characterize Canadian shipyard activity.

Finally, it is interesting to note that the Canadian trade balance on ship parts, i.e.—equipment and components, remains strong with exports minus imports being over \$C61 million. This bodes well for the future health of many of our marine suppliers.

CMIA's review of future prospects starts with government needs. Last September, Defense Minister Masse announced that four of six planned security and sovereignty enforcement vessels (corvettes), as well as three of six planned conventional submarines would be acquired within the next 15 years. CMIA has recommended, in strong terms, that these projects be initiated immediately and all 12 vessels be contracted to Canadian shipyards in an appropriately phased program.

Another major prospect relates to Canadian-owned commercial fleets. These fleets are comprised, for the most part, of old vessels requiring replacement sooner rather than later.

Future requirements for tankers with double bottoms, double hulls or an alternative horizontal deck arrangement will probably appear on the scene in the not-too-distant future. These needs could involve retrofitting of some existing vessels, as well as new construction. Again, financing will be a problem. In this regard, CMIA agrees that in addition to the financing, funds for this important purpose should be provided by increasing the levy of the Ship-Source Oil Pollution Fund. Also, one would assume that some funding could be made available from Canada's multibillion dollar Green Plan.

Finally, CMIA believes that refit, repair and conversion activity will remain strong in Canadian shipyards. Indeed, with marine transportation continuing to grow on a global basis, it seems logical that vessel maintenance demands will also increase. As Canadian yards are reasonably competitive in this sector, gradual increases of refit and repair orders should occur.

Canadian Shipbuilding And Ship Repairing Industry Annual Statistical Highlights 1988 - 1991										
	1	988	1	989	1	990	1991			
	No.	GT/\$	No.	GT/\$	No.	GT/\$	No.	GT/\$		
ORDER BOOK – Vessels Over 100 GT	Under Cons	truction Or On	Order							
Commercial (GT)	10	32,503	3	1,853	2	5,000	4	9,900		
Federal Gov't. (GT)	16	59,326	20	60,414	18	59,292	11	51,887		
TOTAL (GT)	26	91,829	23	62,267	20	64,292	15	61,787		
NEW ORDERS - Vessels Over 100 GT	Leters									
Commercial (GT)	6	2,906	9	8,048	4	6,634	3	7,400		
Federal Gov't. (GT)	4	2,732	4	1,088	0	0	0	0		
TOTAL (GT)	10	5,628	13	9,136	4	6,634	3	7,400		
DELIVERIES – Vessels Over 100 GT										
Commerical (GT)	8	3,096	16	38,698	5	3,487	1	2,500		
Federal Gov't. (GT)	2	6,561	0	0	1	857	7	7,405		
TOTAL (GT)	10	9,657	16	38,698	6	4,344	8	9,905		
VALUE OF NEW CONSTRUCTION										
Commercial (\$,000)		109,595		80,104		16,996		47,544		
Federal Gov't. (\$,000)		680,332		758,524		846,715		826,124		
TOTAL (\$,000)		789,927	- And	838,628	1	863,711		873,668		
VALUE OF REPAIRS AND CONVERS	IONS									
Commercial (\$,000)		134,133		139,803		118,136		160,814		
Federal Gov't. (\$,000)		79,458		136,907		113,496		102,314		
TOTAL (\$,000)		213,591		276,710		231,632		263,128		
TOTAL VALUE OF SHIPYARD PROD		New Construct	ion, Repai	rs And Conver	sions					
Commerical (\$,000)		243,728		219,907		135,955		203,358		
Federal Gov't. (\$,000)		759,790		895,431		948,913		928,438		
TOTAL (\$,000)		1,003,518		1,115,338		1,084,868	Truesday	1,131,796		

Preliminary data.

Sources: CMIA Members, Statistics Canada and Transport Canada.

Maritime Reporter/Engineering News



J.Y. Clarke

Toward the end of 1991, some sectors of Canadian industry were noting that the recessionary slump had bottomed-out, and that their respective outlooks were positive, indicating a turn-around. The Canadian shipbuilding industry cannot say the same thing—not yet. Indeed, 1991 could be considered, on balance, to be a repeat of 1990.

The Canadian order book, vessels over 100 gross tons under construction or on order, totaled some 61,800 gt, down from 64,300 gt a year earlier, for a reduction of 3.9 percent. On the other hand, new orders during 1991 comprised small vessels totaling 7,400 gt an increase of 11.5 percent. Eight vessels totaling 9,905 gt were delivered during the year, representing an increase of 128 percent over 1990.

In round figures, however, 52,000 gt of the '91 order book total of 61,800 gt are to the account of the Canadian Government. A commercial order book share of 16 percent, an increase over 8 percent a year earlier, is encouraging as it indicates a doubling of commercial content in the order book. If this fact is the start of a trend which grows in the next few years, then we will be able to say that the decline in new construction of ships in Canada has bottomedout and is heading for recovery.

Repairs and conversions in Canadian shipyards totaled \$263.1 million in value, which is a 13.6 percent increase during 1991. It is a misconception that the vast majority of this is due to the update and modernization of the Canadian Navy's Tribal Class destroyers. However, this view does not take into account the growing maintenance and refit activity of cruise liners on the West Coast, of the extensive tug-and-barge fleets, and the fishery and ferry maintenance programs on both coasts.

The total value of shipyard production during '91, at \$C1.13 billion, is the highest its been for the

U.S. NAVY SHIPBUILDING

Navy Still Major Source Of Shipbuilding Work

89 Navy Vessels Under Construction At End Of 1991

he U.S. Navy shipbuilding program continues to be the primary source of ship construction con-tracts, awarding over \$2.2 billion during 1991 alone (See Table 3).

As of the first of this year, 89 Navy vessels totaling 980,272 light displacement tons were under construction at U.S. private shipyards. Additionally, two fleet oilers displace-ment 22,992 light tons were being jumboized (See Table 1).

Table 2 shows Navy vessel deliveries during 1991 by U.S. private shipyards. In all, 14 new construction ships were delivered and three fleet oilers were jumboized.

An examination of the proposed Fiscal Year 1993, for instance, shows that there is still a significant number of market opportunities for U.S. shipbuilders and vessel repairers, and equipment suppliers. The proposed FY 1993 budget proposes fund-ing of \$23.3 billion for the construction, conversion and repair of ships, procurement of ships' equipment and research, development, testing, and evaluation.

In addition, the \$3.1 billion National Defense Sealift Fund, proposed by President Bush as a means of enhancing the nation's sealift capability, looms as an important opportunity as well.

Initially, funding would be accomplished through the transfer of existing shipbuilding appropriations provided by the Congress for sealift totaling about \$1.9 billion, as well as an additional \$1.2 billion requested in the amended FY 1993 President's budget. The Maritime Administra-tion and the Navy would jointly manage the fund.

Design contracts already have been awarded to nine shipyards, and construction contracts are expected to be awarded as early as the spring of 1993.

New Design From Newport News

However, with the paring of the defense budget, and in particular Navy ship construction funding, many of the major U.S. shipbuilders are reassessing their strategy in an effort to maintain or expand their business base.

Last month, for example, it was reported that Newport News Shipbuilding, the nation's sole builder of aircraft carriers, had introduced a new frigate design to compete on the foreign military market with similar German and French designs (see May issue of MARITIME RE-PORTER, "Newport News Markets Frigate Design To World"). Called the FF-21, the 322-foot combatant would cost about \$400 million to

construct, some \$50 million less than competitive designs. Seawolf Saved?

As of press time, it appears that as many as two Seawolf Class submarines (SSN-21) will be built with funding in the Fiscal Year 1992

The full Senate approved a bill restoring two SSN-21 attack submarines to the budget. The President had previously canceled the authorization and funding of three subs.

In the meantime, the House approved its version which would fund the construction of one Seawolf.

The differences in the two bills will be worked out in committee later this year.

Navy Shipbuilding

& Conversion

Table 4 shows details of the Navy's Shipbuilding & Conversion plan from Fiscal Year 1991 to 1993. The

Navy Shipbuilding and Conversion (SCN) appropriation request of \$5.32 billion in FY 1993 will fund four Arleigh Burke Class guided missile destroyers (DDG-51) and two Osprey Class coastal minehunters (MHC-51). An advance procurement re-

quest of \$832.2 million is also included for long-lead nuclear components in support of a replacement aircraft carrier planned for FY 1995. The FY 1993 program includes \$19.5 million for an oceanographic ship conversion program.

Table 1. U.S. Naval Vessels Under Construction

Symbol	Туре	No. of Vessels	Total Light Disp. Tons
Private Shipyar	ds New Construction		
AOE	Fast Combat Support Ship	3	59,100
CG	Guided Missile Cruiser	7	66,500
CVN	Aircraft Carrier (Nuclear)	3	213,000
DDG	Guided Missile Destroyer	16	132,800
LHD	Amphibious Assault Ship	4	114,000
LSD	Dock Landing Ship	4	46,782
MCM	Mine Countermeasures Ship	6	7,572
MHC	Coastal Minehunter Ship	7	5,460
SSBN	Ballistic Missile Submarine (Nuclear)	6	75,000
SSN-688	Attack Submarine (Nuclear)	15	90,000
SSN-21	Attack Submarine (Nuclear)	1	9,150
T-AGOS-19	Ocean Surveillance Ship (SWATH)	3	7,458
T-AGOS-23	Ocean Surveillance Ship (SWATH)	1	3,800
T-AGS-45	Deep Ocean Survey Ship	1	7,312
T-AGS-51	Coastal Hydrographic Survey Ship	1	1,300
T-AGS-60	Oceanographic Survey Ship	2	6,038
T-AO	Fleet Oiler	9	135,000
TOTAL		89	980,272
Private Shipyar AO(J)	ds Conversions & Modernizations Fleet Oiler (Jumbo)	2	22,992

Source: Shipbuilders Council of America

Table 2. Deliveries By U.S. Private Shipyards During 1991, 1,000 Light Displacement Tons & Over (\$ In Millions)

Shipyard	Navy No.	Name	Vessel Type	Contract Date	Delivery Date	Light Disp. Tons	Approx. Contract Price
Marinette Marine	MCM-4	Champion	Mine Countermeasure Ship	12/23/83	1/07/91	1,000	\$42.0
Avondale	T-AO-194	John Éricsson	Fleet Oiler	2/27/86	3/18/91	9,500	96.9
Bath Iron Works	CG-64	Gettysburg	Guided Missile Cruiser	1/08/86	4/05/91	8,910	193.3
Ingalls Shipbuilding	CG-66	Hue City	Guided Missile Cruiser	4/16/87	6/28/91	8,910	184.0
Bath Iron Works	DDG-51	Arleigh Burke	Guided Missile Destroyer	4/02/85	4/29/91	8,300	317.6
Avondale	LSD-47	Rushmore	Dock Landing Ship	12/10/85	4/26/91	11,100	148.7
GD-Electric Boat	SSBN-737	Kentucky	Ballistic Missile Sub	8/13/85	6/27/91	12,500	616.4
GD-Electric Boat	SSN-757	Alexandria	Attack Submarine	11/26/84	6/13/91	6.000	283.0
Newport News	SSN-758	Asheville	Attack Submarine	11/26/84	8/29/91	6.000	259.8
Trinity Industries	AGOR-23	Thomas G. Thompson	Oceanographic Research Ship	6/10/88	7/08/91	2,100	20.9
McDermott	T-AGOS-19	Victorious	Ocean Surveil. Ship (SWATH)	10/31/86	8/13/91	2,486	24.1
Marinette Marine	MCM-7	Patriot	Mine Countermeasure Ship	8/20/86	8/30/91	1,000	51.7
Trinity Industries	T-AGS-51	John McDonnel	Coastal Hydrographic Survey	11/10/88	10/25/91	1.300	14.0
Avondale	T-AO-196	Kanawha	Fleet Oiler	6/16/88	12/09/91	15,000	95.0
TOTAL OF 14 SHIP	S					94,106	\$2,347.4
Vessel Conversion	s						
Avondale	AO(J)-179	Merrimack	Fleet Oiler (Jumbo)	7/15/88	4/22/91	11,496	
Avondale	AO(J)-180	Willamette	Fleet Oiler (Jumbo)	7/15/88	9/27/91	11,496	
Avondale	AO(J)-178	Monongahela	Fleet Oiler (Jumbo)	10/04/88	12/21/91	11,496	
TOTAL OF 3 SHIPS						34,488	

Source: Shipbuilders Council of America

Shipyard	Navy No.	Name	Vessel Type	Contract Date	Est. Delivery Date	Light Disp. Tons	Approx. Contract Pric
Bath Iron Works	DDG-64	Carney	Guided Missile Destroyer	1/16/91	9/14/95	8,300	\$256.5
Bath Iron Works	DDG-66	Gonzalez	Guided Missile Destroyer	1/16/91	3/14/96	8,300	256.5
Ingalls Shipbuilding	DDG-65	Benfold	Guided Missile Destroyer	1/16/91	11/27/95	8,300	254.9
Ingalls Shipbuilding	DDG-67	Cole	Guided Missile Destroyer	1/16/91	3/25/96	8,300	254.9
Trinity Industries	T-AGS-60	Pathfinder	Surveying Ship	1/30/91	1/30/94	3,019	49.9
Trinity Industries	T-AGS-61	Sumner	Surveying Ship	1/30/91	7/30/94	3,019	42.9
Avondale Industries	LSD-51(CV)	Oak Hill	Dock Landing Ship	3/27/91	2/27/95	11,894	135.1
American Ship Bldg.	T-AGOS-23	Impeccable	Ocean Surveillance Ship	3/28/91	5/28/94	3,800	58.6
Avondale Industries	MHC-56	Kingfisher	Coastal Minehunter Ship	3/29/91	11/94	780	55.5
Avondale Industries	MHC-57	Cormorant	Coastal Minehunter Ship	3/29/91	2/95	780	55.5
Intermarine	MHC-55	Oriole	Coastal Minehunter Ship	4/01/91	9/94	780	71.5
Ingalls Shipbuilding	LHD-5	Bataan	Amphibious Assault Ship	12/20/91	12/20/96	28,500	731.3
TOTAL OF 12 SHIP	S					85,772	\$2,223.1

Ship Repair & Maintenance

Over \$3.5 billion is requested for ship repair and maintenance in the proposed FY 1993 budget (see Table 5). Ship Depot Level Repair funding decreases in FY 1993, as previously deferred maintenance and Desert Storm-related maintenance is completed during FY 1992. FY 1993 funding supports 10 overhauls, including an extensive COH for the aircraft carrier USS John F. Kennedy (CV-67), the overhaul of the ballistic missile submarine USS Ohio (SSBN-726) and the refueling overhaul of two Los Angeles Class submarines. **Research & Development**

Over \$8.5 billion has been requested for Research, Development, Testing & Evaluation (RDT&E).

Program funding for the continued development of the electric drive

Table 5. Ship Repair & Maintenance (In Millions of Dollars)								
	FY 1993							
Ship Overhauls Depot Level Support IMA Inactivations	\$2,535.9 233.4 448.9 335.0							
TOTAL	\$3,553.2							
No. of Ship Overhauls No. of SRAs (units) No. of PMAs (units)	; (units) 10 64 42							

has been proposed at \$99.2 million, a significant increase over FY 1992's funding of \$39.3 million. Support Equipment

The appropriation request of \$5.86 billion in FY 1993 will fund the procurement of ship support equipment, communications and electronics equipment, aviation support equipment, ordnance support equipment, civil engineering, supply and command support equipment, and spares and repair parts. Table 6 shows details.

The FY 1993 program includes Ships Support Equipment budgeted at \$1.39 billion. Items procured in this budget activity include propul-

	F	Y 1991	F	Y 1992	F	Y 1993
	No.	Dollars	No.	Dollars	No.	Dollars
New Construction					1.0.9.20	
Trident (SSBN)	1	1,282.2	-	-	-	-
Carrier Replacement		-	-	- 11 C		832.2
Seawolf (SSN-21)	_	400.0	-	48.3	-	-
Arleigh Burke (DDG-51)	4	3,145.1	5	4,064.0	4	3,369.6
Wasp (LHD-1)	1	1,123.1	-	-		-
Surveillance (TAGOS)	-	-	1	148.5	-	
Supply (AOE)	-	-	1	499.1	-	-
Research (AGOR/TAGS)		-	2	99.8	_	_
Landir., Craft (LCAC)	12	263.4	12	264.8		
Minehunters (MHC)	2	200.6	3	349.6	2	246.2
Subtotal	21	\$6,653.1	24	\$5,497.1	6	\$4,446.0
Conversion						
Oceanographic Ship		-	-	-	1	19.5
Kennedy CV SLEP	-	82.0	-	-	-	_
Service Craft	-	75.4	-	35.4	~	200.2
Landing Craft	-	1.7	-	-	-	-
CVN Refuels/Overhauls	-		-	-	-	6.8
CGN Refuels/Overhauls	-	-	-	-	-	30.4
Escalation	-	-	-	453.4	-	-
Other Costs	-	562.1	-	467.7	-	614.6
TOTAL	21	\$7,374.3	24	\$6,463.8	7	\$5,319.5

sion, safety and pollution control equipment, as well as design efforts associated with the modernization of Navy platforms.

Communication and electronics equipment is budgeted at \$2.13 billion in FY 1993. This Budget Activity funds the procurement and installation of the latest communication systems such as the SHF Satcom ship terminal, as well as the improvement of current weapon systems.

Overall, the Navy market, albeit a smaller one, is still very lucrative. Combined with expenditures from other military and governmental sectors, the Naval marine market should exceed \$30 billion in FY 1993 (see May issue of MARITIME RE-PORTER for details).

Table 6. Other Procurement (In Millions of Dollars)

FY 1993
\$ 1,392.6
2,125.6
400.9
685.1
82.8
149.1
452.2
279.9
300.6
\$5,868.8



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U.S. INLAND, HARBOR & COASTAL WATERWAYS

OPA 90, Gambling Laws Propel Boatbuilding Activity

Barge, Casino Boat Construction On Upswing

Shallow-draft vessel construction, which encompasses towboats, tugs, barges, passenger vessels, dry cargo and liquid cargo barges, and other self- and non-self-propelled craft, is one of the healthier sectors in the U.S. marine market.

In traditional areas of construction—towboats, tugs, ferries and barges—a survey of second-tier shipyards conducted by MARITIME REPORTER, revealed that builders delivered 277 dry cargo barges and 40 tank barges. In addition, these same yards delivered 127 workboats, 24 passenger vessels and 21 other miscellaneous vessels. All these figures represent a substantial increase over the previous year's survey results.

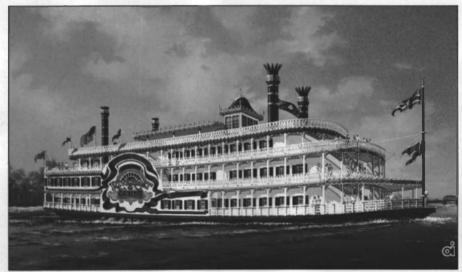
Many analysts believe that during the second half of this decade as much as a quarter of the present 27,000 unit hopper barge fleet will need replacement because of age, translating into a 1,500-barge, \$450 million a year building program. Additionally, trade growth in certain sectors, particularly coal export, should also spur some building. In all, the barge construction market should remain steady over the next few years.

According to the latest boatbuilding and repair survey released by the American Waterways Shipyard Conference (AWSC), second-tier yards delivered 25 tugboats and 10 towboats during 1990. MARITIME REPORTER's data compiled from its two most recent new vessel construction surveys indicate that towboat and tug construction will remain at the same level for the next few years, mostly due to the saturation of the market.

Shipyards Benefit From OPA, Gambling Laws

Furthermore, second-tier shipyards have logged a substantial number of new orders as a direct result of new legislation, in particular, the Oil Pollution Act of 1990 (OPA) and federal and state laws regulating riverboat and cruise ship gambling.

OPA 90 mandates that all tankers and tank barges operating in U.S. waters be fitted with double hulls. About 60 percent of the present 4,043 tank barge fleet is fitted with double hulls. Cost estimates for double-skin tank barge construction vary between \$40 to \$45 per barrel of capacity. For example, a 30,000-bbl-capacity tank barge, a common size vessel in the industry, would cost



Artist's conception of the Players Riverboat Casino under construction at Leevac Shipyards in Jennings, La.

about \$1.3 million. The cost of rebuilding all the single-skin tank barges over the next few years would be upwards of \$1 billion.

MSRC Requests Bids For Tank Barges

The Marine Spill Response Corporation (MSRC) has requested bids from 43 firms for the construction of sixteen 40,000-bbl single-skin tank barges, according to an industry source. Bids were expected to be submitted by May 28, and contracts awarded by mid-July. Each barge will be equipped with a 12 million BTU heater and be classed ABS "unmanned tank barge, load line for ocean service." All the 274-foot by 58-foot by 23-foot barges are expected to be delivered by the middle or end of March 1993. Following training and testing, MSRC expects to have the barges operational by

June 1993.

Another outgrowth of OPA 90 is a substantial number of orders for oil spill response, skimmer, and pollution control vessels. The Trinity Marine Group, based in Gulfport, Miss., and Bender Shipbuilding & Repair Co., Inc., Mobile, Ala., were the beneficiaries of a \$188 million spending program by MSRC for sixteen 210-foot oil spill response vessels (OSRVs). Trinity is building 12 of the OSRVs and Bender four. A number of other yards, namely Munson Manufacturing, out of Edmonds, Wash., MARCO Seattle, SeaArk Marine, Monticello, Ark., have logged orders for several support vessels.

Riverboat Casinos

Legalized gambling on the Mississippi has been a terrific success to both owners and builders alike, as

	М	ajor Riverboat Casinos		
Vessel	Capacity	Operator	Port	Construction Cost
Built				
Alton Casino Belle	600	Alton Riverboat Gambling Part	Rockford, III.	\$1.1 Million
Diamond Lady	1,200	Steamboat Development Corp.	Davenport, Ia.	\$8 Million
Dubuque Casino Belle	2,000	Roberts River Rides	Dubuque, la	\$12 Million
Emerald Lady	1,200	Steamboat Development Corp.	Davenport, la	\$8 Million
Mississippi Belle II	500	Roberts River Rides	Clinton, la.	\$3.5 Million
Par-A-Dice	1,068	Greater Peoria Riverboat Corp.	Peoria, III.	\$15 Million
President Riverboat Casine	0 3,000	Gateway Riverboat Cruises	Davenport, la.	\$11 Million
On Order/Under Constru	uction			
Empress	900	Des Plaines River Entertain. Corp.	Joliet, III.	N/A
Galena Eagle	N/A	Eagle Rock Resort	Galena, III.	N/A
Players Riverboat Casino	1,200	S. Illinois Riverboat Casino Crs.	Metropolis, III.	N/A
Unnamed 2,00	00-3,000	Roberts River Rides	Undecided \$	12-\$15 Million
Unnamed	1,200	Des Plaines Develop. Ltd. Part.	Joliet, III.	N/A

well as pumping money into the coffers of local towns. The Illinois Gaming Board, for example, reported that the 1,068-passenger Par-A-Dice, built by Atlantic Marine, took in \$5.6 million for the month of March, while the Bender-refurbished Alton Belle Casino garnered \$4.4 million in a month. In 20 days of operation, the Casino Rock Island took in \$1.48 million. The combined revenue from the three casino boats for the state was almost \$1.9 million.

In nine months of operation beginning April 1,1991, five Iowa casino riverboats generated gross revenues in excess of \$66 million.

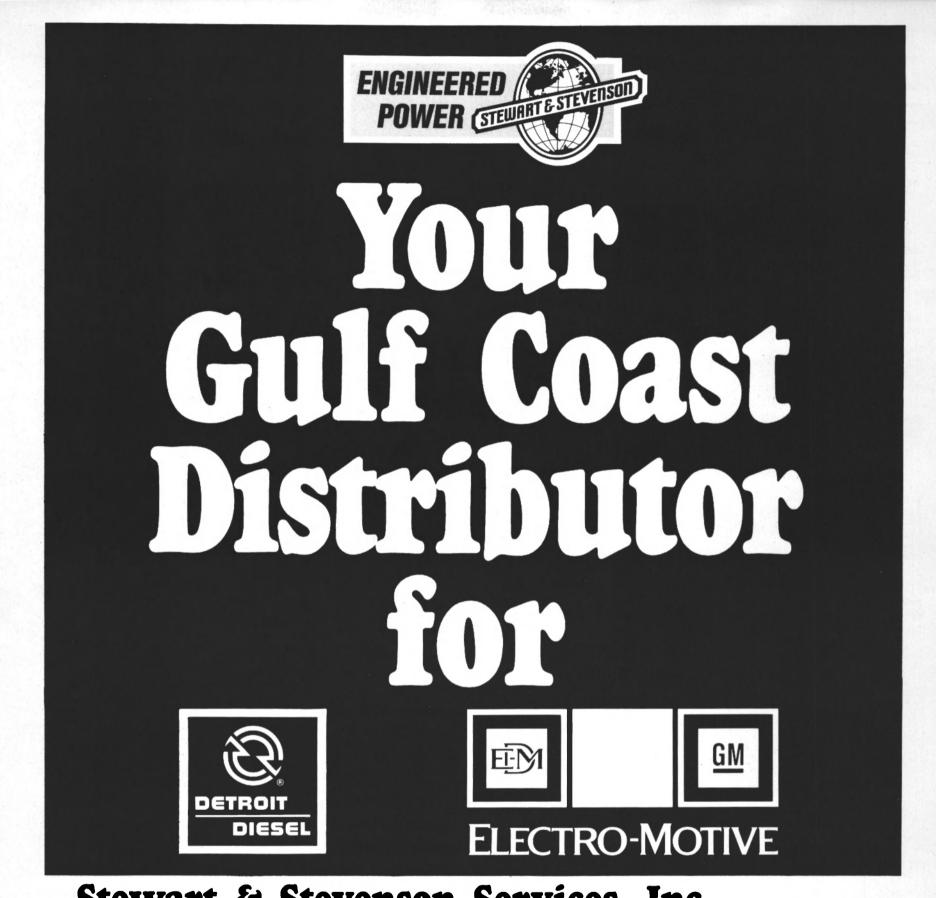
Iowa, Illinois, and Louisiana have been joined by Mississippi as the states offering riverboat casino gambling. Mississippi recently issued its first license to operate a riverboat casino to the Riverboat Corporation. whose parent company is Steamboat Casino River Cruises, operator of two Iowa casino boats, the Emerald Lady and the Diamond Lady. Riverboat plans to operate dockside gambling, dining and entertainment aboard a 1,000-passenger vessel beginning in October. Mississippi is the only state among the four offering dockside gambling all year round.

Annual Casino Boat Building Market May Exceed \$75 Million

Over the next five years, several industry analysts believe as many as 8 to 10 casino boats will be ordered per year, translating into an annual market that may exceed \$75 million in hull construction, propulsion machinery, electronics and gaming equipment outfitting costs. A state gaming bill allows for 15 riverboat casinos in Louisiana. The table shows riverboat casinos in operation, under construction and on order.

Service Marine Industries, Inc., Morgan City, La., recently received a contract to build a 210-foot gaming boat for a Harrah's Casino Hotels/ Hammons partnership. The vessel will begin operation on Des Plaines River out of Joliet, 111., in the spring of 1993.

Jennings, La.-based Leevac Shipyards, Inc., which last year delivered the Casino Rock Island, has received a contract from Southern Illinois Riverboat Casino Cruises, Inc., for the construction of a 210foot four-deck casino vessel. The 1,200-passenger vessel, called the Players Riverboat Casino, will operate of Metropolis, Ill.



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U.S. FLAG OCEANGOING MERCHANT FLEET

OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T-Turbine D-Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D-Diesel	Year Built/ Rebuilt
					100	President Polk	Conbulk	50,205	53,613	D-57,000	88
AMERICAN AUTOCARRIEI c/o Wallenius Lines North Am		232. Woodcliff.	NJ 07675-	1232		President Taft	Container	17,803	17,757	T-24,500	67/72
	01100, 110, 1 .0. 004 .	202, 1100000				President Truman	Conbulk	42,276	54,565	D-57,000	88
Faust.	PCC	51,858	28,070	D-16,980	85	President Tyler President Washington	Container Container	26,746 40,627	39,400 35,765	T-32,000 T-43,200	72/78/83 82
AMERICAN AUTOCARRIEI			NU 07675	1000		APEX MARINE CORPORAT					
c/o Wallenius Lines North Am					70	2001 Marcus Avenue, Lake Su					
NOSAC Ranger	PCTC	16,568	17,631	D-18,600	78	American Heritage	Tanker	44,000	91,849	T-24,500	78
						Charleston Golden Monarch	Tanker Tanker	21,649 44,900	39,366 91,388	T-12,000 T-24,500	56/80 75
AMERICAN AUTOMAR INC 1025 Thomas Jefferson Stree		on, D.C. 20007				Gulf Farmer	Breakbulk	8,988	11,368	T-11,000	65
*American Cormorant	Semisub Hvylft	10,186	47,230	D-19,700	75/82	Gulf Merchant Gulf Shipper	Breakbulk Breakbulk	8,988 8,988	11,368 11,368	T-11,000 T-11,000	65 65
American Eagle	RO/RO	15,952	20,450	D-21,600	81	Del Viento	Breakbulk	10,396	19,285	T-11,660	68
*American Kestrel *Vessels managed by MSO, I	LASH	24,406	39,130	T-35,000	72						
vessels managed by MSO,	Inc. Ior American Auto	indi.									
AMERICAN HAWAII CRUIS	ES					ARCO MARINE, INC. (ATLA 300 Ocean Gate, Long Beach		MPANY)			
550 Kearny Street, San Franc	isco, CA 94108					Arco Alaska	Tanker	83,675	188,436	T-28.000	79
Constitution	Cruise	30,090	7,100	T-55,000	51/88	Arco Anchorage	Tanker	57,691	120,266	T-26,000	73
Independence	Cruise	30,090	7,100	T-55,000	50/88	Arco California	Tanker	83,675	124,999	T-28,000	80
						Arco Fairbanks Arco Independence	Tanker Tanker	57,691 117,515	120,319 262,376	T-26,000 T-35,000	74 77
AMERICAN HEAVY LIFT S	HIPPING CO.					Arco Juneau	Tanker	57,691	120,266	T-26,000	74
520 Post Oak Blvd., Suite 480	, Houston, TX 77027					Arco Prudhoe Bay	Product	35,646	70,278	T-20,000	71
Kina	Tesker	20 1 29	24 702	T-13,600	57	*Arco Sag River Arco Spirit	Tanker	35,646 117,515	70,215 262,376	T-20,000 T-35,000	72 77
King Knight	Tanker Tanker	20,138 20,026	34,723 34,723	T-13,600	57	Arco Texas	Tanker Tanker	39,664	202,370	T-35,000 T-20,000	73/81
Solar	Tanker	18,116	30,806	T-13,600	59	*The Arco Sag River is sched					10/01
Spray	Tanker	18,150	30,806	T-13,600	60						
AMERICAN MARITIME TRA	ANSPORT, INC.					ATLANTIC TANKSHIPS, IN	С.				
120 White Plains Rd., P.O. Bo	x 2011, Tarrytown, NY	10591-9011				5 Koger Executive Center, P.C		A 23506			
Ultramar Ultrasea	OBO OBO	39,827 39,827	82,199 83,438	T-24,500 T-24,500	73 74	Sea Venture	Chemical Tanker	9,993	18,924	D-8,680	72/73
Golden Endeavor	Tanker	44,870	91,849	T-24,500	74						
AMERICAN OVERSEA MA		N				BAY TANKERS INCORPOR 270 Sylvan Avenue, Englewood					
116 East Howard Street, Quir		Sector Sector						10.1.10	05 505	T 100 000	70
2nd Lt. John P. Bobo	RO/RO	32,903	22,700	D-26,400	85	*USNS Altair *USNS Denabola	SL-7 SL-7	48,142	25,595 25,595	T-120,000 T-120,000	73 73
Pfc. Dewayne T. Williams	RO/RO	32,903	22,700	D-26,400	85	*USNS Pollux	SL-7	48,142	25,595	T-120,000	73
1st Lt. Baldomero Lopez	RO/RO	32,903	22,700	D-26,400	85 86	*USNS Regulus *under contract from MSC.	SL-7	48,142	25,595	T-120,000	73
1st Lt. Jack Lummus Sgt. William R. Button	RO/RO RO/RO	32,903 32,903	22,700 22,700	D-26,400 D-26,400	86	under contract from MSC.					
*Lake	Cargo	9,259	12,476	T-12,100	61						
*Pride	Cargo	9,252	12,412	T-12,100	60						
*Scan *Southern Cross	Cargo Cargo	9,259 9,259	12,483 12,519	T-12,100 T-12,100	61 62	5 Koger Executive Center, P.C) Box 13348 Norfolk V	A 23506	HS INC.		
*Cape Carthage	Cargo	9,397	12,684	T-11,000	63	ertegel Execute Conter, Pro	3. 1				
*Cape Catoche	Cargo	9,397	12,684	T-11,000	63	USNS Algol	SL-7	48,142	25,595	T-120,000	
*Cape Canaveral *Aide	Cargo Cargo	9,397 7,846	12,684 10,986	T-11,000 T-13,750	64 61	USNS Bellatrix USNS Capella	SL-7 SL-7	48,142 48,142	25,595 25,595	T-120,000 T-120,000	
*Cape Ann	Cargo	11,309	12,728	T-18,150	62						
*Cape Avinof	Cargo	11,309	12,728	T-18,150	63						
*Curtiss *Wright	T-AVB T-AVB	23,255 23,255	13,651 13,651	T-30,000 T-30,000	69 70	CENTRAL GULF LINES, IN	c				
*under contract from MSC	1-AVD	20,200	10,001	1-00,000		650 Poydras Street, Suite 170		Orleans, LA	70130		
						Austral Rainbow	LASH	26,456	29,749	T-32,000	72
AMERICAN PRESIDENT LI						Caps-Express	LASH-Barge	7,638	9,500	-	76
1111 Broadway, Oakland, CA	94607					Green Valley Green Island	LASH LASH	28,487 28,487	46,908 46,908	T-32,000 T-32,000	74 75
President Adams	Conbulk	50,205	53,613	D-57,000	88	Green Harbour	LASH	28,487	46,908	T-32,000 T-32,000	75
President Arthur	Container	36,800	44,966	D-28,800	87	Green Wave	Cargo	9,521	12,487	D-10,000	81
President Buchanan	Container	36,800	44,966	D-28,800	87	Green Ridge Green Bay	Cargo PCC	9,521	12,487	D-10,000	81 87
President Eisenhower President F.D. Roosevelt	Container Container	36,860 36,195	46,600 46,600	D-43,200 D-43,200	80/84 80/84	Green Bay Green Lake	PCC	38,659 46,950	13,491 14,104	D-11,600 D-13,120	87
President Garfield	Container	36,800	44,966	D-28,800	87	Rover	RO/RO	11,757	15,946	T-30,000	69
President Grant	Container	26,746	37,942	D-32,000	71/78/83						
President Harding	Container	36,800 28,163	44,966 34,515	D-28,800 T-32,000	87 71/78						
President Harrison President Hoover	Container Container	28,163 26,746	34,515	T-32,000 T-32,000	71/78/83	CHESAPEAKE SHIPPING (CO .				
President Jackson	Conbulk	50,205	53,613	D-57,000	88	c/o Prentice-Hall Corp., 229 S		E 19901			
President Jefferson	Container	21,467	23,170	T-28,500	73	Dridester	Tasker	010 007	407 000	T 45 000	
President Johnson	Container Conbulk	21,475 50,205	23,212 53,613	T-28,500 D-57,000	74 88	Bridgeton Chesapeake City	Tanker Tanker	210,065 44,313	407,823 82,572	T-45,000 D-17,000	77 81
President Kennedy President Lincoln	Container	50,205 40,627	35,765	D-57,000 D-43,200	82	Ocean City	Tanker	55,620	82,572	D-17,000 D-17,000	81
President Madison	Container	21,467	23,212	T-28,500	73	Sea Isle City	Tanker	55,454	81,283	D-12,720	81
President Monroe	Container	40,627 21,475	35,765 23,212	D-43,200 T-28,500	83 73	*Surf City *Seriously damaged in explos	Tanker	44,542	81,283	D-12,720	81
President Pierce	Container										

U.S. Flag	Oceangoing	Merchant Fleet	(continued)

OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt
CHEVRON SHIPPING CON 555 Market Street, San Franc		A.				CROWLEY MARITIME CC 155 Grand Avenue, Oakland					
Chevron Arizona Chevron California Chevron Colorado Chevron Louisiana Chevron Mississippi Chevron Oregon Chevron Washington	Product Carrier Tanker Product Carrier Product Carrier Tanker Product Carrier Product Carrier	16,941 35,588 16,941 16,941 35,589 16,941 16,941	39,207 70,213 39,213 39,167 70,213 39,218 39,167	GT/E-12,500 T-20,000 GT/E-12,500 GT/E-12,500 T-20,000 GT/E-12,500 GT/E-12,500	77 72 76 77 72 75 76	Ambassador Senator American Condor American Falcon Sea Fox Sea Lion Sea Wolf	Ro/Ro Ro/Ro Ro/Ro-Lo/Lo Ro/Ro-Lo/Lo Con-Ro/Ro Con-Ro/Ro Con-Ro/Ro	13,412 13,498 15,636 15,636 32,781 32,781 32,781	9,900 9,900 20,730 20,730 33,625 33,625 33,625	D-10,000 D-10,000 D-21,600 D-23,030 D-23,030 D-23,030 D-23,030	80 81 81 81 84 85 84
COASTAL TANKSHIPS US 9 Greenway Plaza, Houston,						ENERGY TRANSPORTAT					- 3
Coastal Corpus Christi Coastal Eagle Point Coastal Manatee Coastal New York	Tanker Tanker Tanker Tanker	23,299 26,198 19,030 23,459	51,196 51,051 30,806 39,400	T-19,000 T-19,000 T-13,600 T-13,650	60 60 60 56/72	Energy Altair Energy Ammonia LNG Aquarius LNG Aries LNG Capricorn LNG Gemini	Tug LPG Barge LNG LNG LNG LNG	262.6 11,438 95,084 95,084 95,084 95,084	12,110 71,475 71,466 71,409 71,327	D-4,800 T-43,000 T-43,000 T-43,000 T-43,000	82 82 77 77 78 78
COASTAL TUG & BARGE, 8700 West Flagler Street, Mia						LNG Leo LNG Libra LNG Tarus	LNG LNG LNG	95,084 95,084 95,084	71,409 71,503 71,495	T-43,000 T-43,000 T-43,000	78 79 79
Coastal Port Everglades/ Barge 101	ITB	17,634	36,846	15,200	81/79	LNG Virgo	LNG	95,084	71,482	T-43,000	79
Coastal Jacksonville/ Coastal 23	ITB	6,231	12,200	D-3,700	71/77	EXXON SHIPPING COMP P.O. Box 1512, Houston, TX					
COVE SHIPPING INC. 200 Virginia Street, Mobile, Al	L 36603					Exxon Baton Rouge Exxon Baytown Exxon Benicia	Tanker Tanker Tanker	34,266 32,136 75,272	75,783 57,720 149,900	T-19,000 D-17,000 T-26,700	69 84 79
Cove Liberty Cove Trader	Tanker Tanker	33,596 28,310	69,306 49,339	T-22,000 T-15,000	54/74/81 59/79/82	Exxon Charleston Exxon Galveston Exxon Jamestown Exxon Long Beach	Products Tanker Tanker Tanker Tanker	27,798 12,769 19,734 95,000	48,075 26,923 40,631 211,469	D-17,000 D-7,000 T-26,500 D31,650	84 70/78 57 87
CREST TANKERS, AFFILIA 8182 Maryland Ave., St. Louis		CORPORA	TION			Exxon New Orleans Exxon North Slope Exxon Philadelphia	Tanker Tanker Tanker Tanker	32,035 75,272 34,266	72,056 149,900 76,192	T-19,000 T-26,700 T-19,000	65 79 70
Chablis Montrachet Pomerol	Tanker Tanker Tanker	19,030 18,407 18,347	30,806 30,806 31,857	T-15,000 T-15,000 T-13,500	60 59 58	Exxon San Francisco Exxon Mediterranean Exxon Wilmington	Tanker Tanker Products Tanker	34,266 95,000 27,508	75,649 211,469 48,011	T-19,000 D-31,650 D-17,000	69 86 84

MACOR Marine Supplies Hatch Covers For Reefers Being Built At Schichau

Two 513-foot reefer vessels currently under construction for the Great White Fleet Ltd. at Schichau Seebeckwerft AG in Germany will be fitted with hydraulically operated multi-folding hatch covers designed and supplied by the German company MACOR Marine Systems International GmbH. The 30.5-foot long and 25-foot wide weatherdeck hatch of hold no. 1 on forecastle dock is equipmed with one folding pain structure.

The 30.5-foot long and 25-foot wide weatherdeck hatch of hold no. 1 on forecastle deck is equipped with one folding pair stowing to fore-end. The other hatches, measuring 41 feet long by 25 feet wide, on the upper deck of holds no. 2, 3 and 4 are provided with two folding pairs each, one stowing to fore- and one to aft-end. For elevator use, each hatch cover is fitted with an opening which is closed by a removable plate.

The three tweendecks are equipped with double folding pairs, one of which stows to foreend and one to aft-end. The tween deck covers in hold no. 1 have only one folding pair stowing to fore-end.

The leading folding pairs are operated using direct-acting cylinders whereas the trailing folding pairs are moved by means of indirectacting cylinders linked to bell crank levers.

Furthermore, MACOR delivered weathertight, noninsulated side doors, measuring 7.2 feet high by 6.7 feet wide, one of which to be installed into each hold at the upper tweendeck level.

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Circle 328 on Reader Service Card

OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuil
FALCON SHIPPING GROU 801 Travis Street, Suite 2000,			-			Energy Independence Fredricksburg	Collier Crude/Products	24,901 21,557	38,234 39,374	T-12,000 T20,460	83 58/80
Falcon Champion	Tanker	17,735	33,542	D-14,500	84	Golden Gate Kenal	Crude/Products Crude/Products	27,899 60,385	61,952 123,113	T-20,000 T-30,000	70 79
Falcon Countess	Tanker	20,751	37,276	D-15,000	72	Keystone Canyon	Crude/Products	74,251	173,380	T26,700	78
Falcon Dutchess Falcon Leader	Tanker Tanker	20,751 17,735	37,276 33,542	D-15,000 D-14,500	71 83	Keystoner Kittanning	Chemical Tanker Crude/Products	11,369 44,875	18,384 91,344	T-7,700 T-24,500	53 77
Falcon Princess Pride of Texas	Tanker Bulk	20,751 24,384	37,276 36,500	D-15,000 D-15,600	72 81	Prince William Sound Tonsina	Crude/Products Crude/Products	60,084 60,385	121,000 122,781	T-30,000 T-30,000	75 78
Spirit of Texas	Bulk	24,384	36,500	D-15,600	82			00,000	122,101		
Star of Texas	Bulk	24,384	36,500	D-15,600	82	LIBERTY MARITIME CORP	ORATION				
						1979 Marcus Avenue, Suite 2			01.000	T 04 500	70
FARRELL LINES, INC. One Whitehall Street, New Yo	rk, NY 10004					Liberty Belle Liberty Sea	Tanker Bulk	44,900 33,784	91,630 63,739	T-24,500 D-12,300	76 84
Argonaut	Container	17,904	16,205	T-17,500	79	Liberty Spirit Liberty Star	Bulk/Container Bulk/Container	33,337 33,337	64,152 64,152	D-15,800 D-15,800	86 86
Export Freedom	Container	17,904	16,230	T-17,500	72	Liberty Sun	Bulk/Container	33,337 33,784	64,059	D-15,800 D-12,300	86 84
Export Patriot Resolute	Container Container	17,904 17,904	16,345 16,205	T-17,500 T-17,500	73 80	Liberty Wave	Bulk	33,764	64,463	D-12,300	04
	ODATED					LYKES BROS. STEAMSHIF	COMBANY				
HVIDE SHIPPING INCORPO 2200 Eller Drive, Bldg. 27, Fo		5				300 Poydras Street, New Orle					
Seabulk America Seabulk Challenger/	Chemical Tanker ITB	_ 20,982	47,000 39,345	D-11,550 D-14,000	90 75	Adabelle Lykes Almeria Lykes	Container Container	16,891 17,802	15,378 22,661	D-15,750 T-24,000	68/73 68/72
STL 3901					77	Ashley Lykes Charlotte Lykes	Cargo Cont. Container	11,892 16,891	14,524 15,443	T-11,000 D-15,750	63/73 68/73
Seabulk Magnachem/ SCC3902	ITB	18,671	39,344	D-14,000	"	Elizabeth Lykes	General Cargo	10,955	15,538	T-15,500	66
						Genevieve Lykes Howell Lykes	General Cargo Container	10,724 17,802	15,538 22,661	T-15,500 T-24,000	68 67/72
						James Lykes	Cargo Cont.	11,892 11,892	14,524 14,524	T-9,900 T-9,900	60/72 61/72
INTERNATIONAL MARINE 22 Jericho Turnpike, Mineola,						Jean Lykes *Jean Lykes	Cargo Cont. Container	21,467	23,147	T-28,500	73
Green State	Container	16,956	17,449	T-19,250	65	John Lykes Leslie Lykes	Cargo Cont. Cargo Cont.	11,892 11,892	14,524 14,524	T-9,900 T-9,900	60/72 62/72
Grand Canyon	Container	17,137	17,448 26,330	T-19,250 T-19,250	65 66	Letitia Lykes Louise Lykes	General Cargo General Cargo	10,724 10,955	15,538 15,538	T-15,500 T-15,500	68 65
Keystone State Cape Farewell	Container LASH	17,128 29,508	41,363	T-32,000	73	Lyra	RO/RO	12,160	15,104	D-18,972	77
Cape Flattery Cape Florida	LASH LASH	29,508 26,406	41,363 30,298	T-32,000 T-32,000	73 71	Margaret Lykes Marjorie Lykes	Container Cargo Cont.	16,375 11,892	15,450 14,524	D-15,750 T-11,000	68/73 62/73
M/S Faust S/L Antarctic	PCTC Tanker	17,951 17,157	28,050 27,221	T-16,980 T-14,000	85 75	Mason Lykes Ruth Lykes	Container General Cargo	17,802 10,955	22,661 15,538	T-24,000 T-15,500	68/72 66
S/L Arabian Sea	Tanker	17,134	27,202	T-14,000	75	Sheldon Lykes	Container	16,375	15,284	D-15,750	69/73
S/L Arctic S/L Atlantic	Tanker Tanker	17,158 17,158	27,221 27,214	T-14,000 T-14,000	75 75	Stella Lykes Sue Lykes	Cargo Cont. Cargo Cont.	15,949 15,949	22,564 22,564	T-24,000 T-24,000	69 69
S/L Caribbean S/L China Sea	Tanker Tanker	17,158 17,134	27,223 27,400	T-14,000 T-14,000	75 75	Tillie Lykes Tyson Lykes	Containership Containership	31,920 31,920	36,004 36,004	D-19,740 D-19,740	85 85
S/L Indian Ocean	Tanker	17,134	27,400	T-14,000	75	*Ex. President Pierce, from A					
S/L Mediterranean S/L Pacific	Tanker Tanker	17,158 17,134	27,717 27,400	T-14,000 T-14,000	74 74	Lykes, above.					
INTEROCEAN MANAGEME Three Parkway, Philadelphia,						MAERSK LINE, LTD. Giralda Farms, Madison Aven	ue, P.O. Box 884, Madiso	on, NJ 0794	0-0884		
Brooks Range	Tanker	74,250	165,037	T-26,700	78	*Cpl. Louis J. Hauge Jr.	RO/RO	38,412	23,068	D-16,800	84
Thompson Pass U.S.T. Atlantic	Tanker Tanker	74,250 189,416	165,037 398,143	T-26,700 T-45,000	78 79	*1st Lt. Alexander Bonnyman Jr.	RO/RO	38,412	23,068	D-16,800	85
U.S.T. Pacific *Austral Lighting	Tanker LASH	189,416 26,406	398,143 29,800	T-45,000 T-28,000	79 71	Maersk Constellation *Pfc. William B. Baugh	RO/RO RO/RO	21,799 38,412	29,750 23,068	D-16,500 D-16,800	80 84
*Cape Bon	Breakbulk	N/A	14,700	N/A N/A	67 72	*Pfc. James Anderson Jr. *Pvt. Harry Fisher	RO/RO RO/RO	38,412 38,412	23,068 23,068	D-16,800 D-16,800	85 85
*Cape Ducato *Cape Edmont	RO/RO RO/RO	N/A N/A	13,800 20,000	N/A	71	*under contract to MSC.	nomo	00,412	20,000	2 10,000	
*Cape Nome *Cape Henry	RO/RO RO/RO	N/A N/A	15,700 32,000	N/A N/A	69 79						
*Cape Horn	RO/RO	N/A	31,800	N/A N/A	79 79	MARINE TRANSPORT LINI	S INC				
*Cape Hudson *Cornhusker State	RO/RO T-ACS	N/A 16,189	31,900 17,500	T-19,250	69/88	150 Meadowland Parkway, Se					
*Diamond State *Equality State	T-ACS T-ACS	16,189 16,189	17,500 17,500	T-19,250 T-19,250	89 89	B.T. Alaska	Tanker	83,650	188,099	T-28,000	78
*Flickertail State	T-ACS T-ACS	16,189 16,189	17,500 17,500	T-19,250 T-19,250	88 87	B.T. San Diego Chemical Pioneer	Tanker Chemical Tanker	83,650 18,500	188,099 35,00	T-28,000 T-15,000	78 83
*Gopher State Green Mountain State	T-ACS	16,189	17,500	T-19,250	69/90	Marine Chemist	Chemical Tanker	20,237	35,949	T-15,000	70
*Meteor *under contract from MarAd.	RO/RO	N/A	12,300	N/A	67	Marine Duval Marine Floridian	Sulfur Tanker Sulfur Tanker	11,080 11,150	24,693 24,838	TE-7,000 TE-7,000	44/70 44/67
						Marine Princess Marine Reliance	Bulk Carrier Pure Car Carrier	26,060 35,700	51,355 11,400	D-13,800 D-11,700	79 87
						Cape Lambert	RO/RO	34,382	20,544	D-18,000	73
KEYSTONE SHIPPING CO						Cape Lobos Cape Decision	RO/RO RO/RO	34,380 23,913	20,220 23,865	D-18,000 D-27,000	72/86 73
313 Chestnut Street, Philadel						Cape Diamond Cape Domingo	RO/RO RO/RO	23,911 23,911	23,725 23,725	D-28,890 D-28,890	72 73
Atigun Pass	Crude/Products	74,251	173,380	T-26,700	77	Cape Douglas	RO/RO	23,972	22,880	D-27,000	73
Chelsea Cherry Valley	Crude/Products Crude/Products	22,358 22,385	39,235 39,230	T-15,000 T-15,000	75 74	Marine Glory/MBC#1 Marine Guardian/MBC#2	Chemical Tug/Barge Chemical Tug/Barge	N/A	3,700 3,700	D-1,900 D-2,600	73 73
Chestnut Hill Chilbar	Crude/Products Chemical Tanker	44,875 21,937	91,295 39,363	T-24,500 T-10,460	76 59/81	Williamsburgh Mission Buenoventura	Crude Tanker Product Tanker	103,800 20,900	225,281 38,238	T-50,000 D-15,000	74 68
Chilbar	Unormoal rainel	21,007	39,237	T-15,000	73	Mission Capistrano	Product Tanker	20,800	37,276	D-15,00	71

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Better Price IDB•A offers the *best* prices in the Inmarsat system, as low as \$6.84 per minute off-peak with no international landline charges for calls to the U.S., Canada and the United Kingdom. (Calls to other countries are delivered at a flat rate of \$0.85 per minute. Our telex charge in the Atlantic and Pacific regions is \$3.85 per minute.)

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AT&T and MCI customers dial 10333-011 plus ocean code and ship ID.

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Circle 250 on Reader Service Card



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U.S. Flag Oceangoing Merchant Fleet (continued)

OWNER/OPERATOR Name of Ship	туре	GT	DWT	HP T=Turbine D–Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt
MATSON NAVIGATION	COMPANY					USNS Silas Bent	Oceanographic	2,456	_	D-3,000	65
333 Market Street, San Fra						USNS Wilkes USNS Wyman	Oceanographic Oceanographic	2,616 2,617	-	D-3,000 D-3,000	71 71
Haleakala	Container Barge	3,562	4,658	-	84	*The American Cormorant a			MSO, Inc. f		
Islander	Container Barge	2,474	6,671	-	88						
Kaimoku	Container-RO/RO	17,525	14,551	T-30,000	76/90						
Kainalu	Container-RO/RO	17,513	14,976	T-30,000	74/89						
Kauai	Container	24,550	26,308	T-32,000	80	OCEAN SHIPHOLDINGS,	INC.				
Lurline	Container-RO/RO	24,901	22,220	T-30,000	73/82	13105 Northwest Freeway, S	uite 700, Houston, TX 77	040			
Manukai	Container	23,786	26,616	T-32,000	70						
Manulani	Container	23,786	26,674	T-32,000	70	Paul Buck	Tanker	19.037	30,127	D-15,300	85
Matsonia	Container-RO/RO	19,301	22,550	T-30,000	73/87	Samuel L. Cobb	Tanker	19,037	30,127	D-15,300	85
Maui	Container	24,545	26,623	T-32,000	78	Gus W. Darnell	Tanker	19,037	30,127	D-15,300	85
Mauna Loa	Container Barge	3,562	4,658	-	84	Lawrence H. Gianella	Tanker	19,037	30,127	D-15,300	86
Waialelae	RO/RO Barge	5,621	7,735	-	91	Richard G. Matthiesen	Tanker	19,037	30,127	D-15,300	86
						Julius Hammer/	ITB	1,594	45,313*	D-9,100**	81
							ПВ		45,313	D-9,100	01
						Oxy 4101	170	17,126	45 04 04	D 0 400++	
MOBIL OIL CORPORATI	ION					Frances Hammer/	ITB	1,594	45,313*	D-9,100**	81
3225 Gallows Road, Fairfa	x, VA 22037-0001					Oxy 4103		17,126			
						*long tons; **metric.					
Seminok	Tanker	28,218	49,298	T-15,000	61						
Syosset	Tanker	18,348	30,293	T-14,850	58						
						OMI CORPORATION					
						90 Park Avenue, New York, N	NY 10016	1.			
MORMAC MARINE TRA	NSPORT INC										
Three Landmark Square, S						Courier	Product Tanker	21,572	35,100	D-14,000	77
in co Lanaman oquaro, e						OMI Champion	Product Tanker	20,858	37,874	T-15,000	69
Mormacsky	Tanker	22,354	39,232	T-15,000	77	OMI Charger	Product Tanker	20,830	37,807	T-15,000	69
Mormacstar	Tanker	22,354	39,232	T-15,000	75	OMI Columbia	Crude Tanker	67,856	136,507	D-27,300	74/83
Mormacsun	Tanker	22,354	39,232	T-15,000	76	OMI Dynachem	Chemical Tanker	32,328	50,852	D-14,100	81
						OMI Hudson					
							Chemical Tanker	32,328	50,852	D-14,100	81
						OMI Leader	Product Tanker	20,877	37,807	T-15,000	69
MSO, INC., SUBSIDIARY	OF *AMERICAN AUTOI	MAR				OMI Missouri	Bulk Carrier	26,800	48,890	D-11,100	83
6110 Executive Blvd., Suite						OMI Sacramento	Bulk Carrier	26,800	48,890	D-11,100	83
		1. 1999				OMI Star	Chemical Tanker	19,047	37,106	T-15,000	70
USNS Bartlet	Oceanographic	1,143	-	D-1,000	69	OMI Wabash	Product Tanker	20,884	37,853	T-15,000	69
USNS Chauvenet	Hydrographic	1,143	-	D-3,400	71	OMI Willamette	Product Tanker	20,884	37,853	T-15,000	69
USNS De Steiguer	Oceanographic	1,143	-	D-1,000	69	Patriot	Product Tanker	21,572	35,100	D-14,000	76
USNS Harkness	Hydrographic	5,151	-	D-3,400	71	Ranger	Product Tanker	21,572	35,100	D-14,000	76
USNS Kane	Oceanographic	2,616	-	D-3,000	67	Rover	Product Tanker	21,572	35,100	D-14,000	77

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Circle 320 on Reader Service Card

MACHINE Under instructions from G.J. Mier, as Receiver and Manager of KPG Integrated Engineering Pty. Ltd. (Receivers and Managers Appointed). TENDER INTELLECTUAL PROPERTY **COMPRISING PATENTS FOR** CONTOURING AND PRETENSIONING OF METAL SHEETS. • KPG 1400 MACHINE TOOL. Patent granted in Taiwan. Patent applications pending in Australia, Europe, South Korea, Japan, China and the United States. An opportunity exists to acquire all the patent design rights for a manual (KPG 1400) contouring and

rights for a manual (KPG 1400) contouring and pretensioning machine which can perform complex concave and convex curves. Preliminary designs and plans for a CAM operated version of this machine are also available. Applications for tenders of individual items may be accepted.

CLOSURE DATE: JUNE 30, 1992

For further details and conditions of tendering, independent status report on intellectual property, operational report on the KPG 1400 rolling and pretensioning machine, contact Mr G.J. Mier, KPMG Peat Marwick, 13th Floor, 15 Lake Street, CAIRNS QLD 4870, AUSTRALIA. Telephone: +61-70-51 7322 or Fax: +61-70-51 0116

Circle 257 on Reader Service Card

"Engineer a better fiber, and ultimately you've engineered a better product."



Because of the challenge faced by rope, cordage and fiber manufacturers — to construct a better polyester product for the wet environment — engineers at Allied-Signal Inc. were persistent until they discovered a solution — SeaGard[®]. The motivation for this was a basic part of the Allied Fibers philosophy: "engineer a better fiber, and ultimately you've engineered a better product". By utilizing Allied Fibers' high tenacity ACE polyester and then applying the SeaGard finish to the fibers, a better-performing, wet abrasion resistant rope was now able to be constructed.

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

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

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



Circle 204 on Reader Service Cand



OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt
OSG BULK SHIPS 1114 Avenue ol the America	s, New York, NY 1003	6				PUERTO RICO MARINE I 212 Fernwood Avenue, Edi					
Overseas Alaska	Tanker	28,250	62,000	T-20.000	70	Carolina	Container	19,127	20,100	T-26,000	71
Overseas Alice	Tanker	20,900	37,800	T-15,000	68	Fortaleza	RO/RO	15,135	13,969	T-32,000	72
Overseas Arctic	Tanker	28,250	62,000	T-20.000	71	Guavama	Container	18,877	20,600	T-26,000	69
Overseas Boston	Tanker	61,200	120,820	D-26,000	74	Humacao	Container	18,765	22,200	T-26,000	68
Overseas Chicago	Tanker	44,850	90,600	T-24,500	77	Mayaguez	Container	18,878	20,600	T-26,000	68
Overseas Harriette	Bulk	14,300	25,550	D-11,200	78	Nuevo San Juan	Container	19,127	20,000	T-26,000	70
		48,017	16,141	D-13,150	87	Ponce	RO/RO	17,513	16,943	T-32,000	68/81
Overseas Joyce	PCC			T-25,000		Funce	nu/nu	17,513	10,943	1-32,000	00/01
Overseas Juneau	Tanker	57,700	120,500		73						
Overseas Marilyn	Bulk	14,300	25,500	D-11,200	78						
Overseas New Orleans	Tanker	21,447	42,954	D-11,200	83						
Overseas New York	Tanker	44,900	90,400	T-24,500	77	RED RIVER SHIPPING C	ORP.				
Overseas Ohio	Tanker	44,850	90,550	T-24,500	77	6110 Executive Blvd., Suite	620, Rockville, MD 208	52			
Overseas Philadelphia	Tanker	21,447	42,595	D-11,200	82						
Overseas Valdez	Tanker	20,900	37,800	T-15,000	68	M/V Advantage	Breakbulk	12,755	21,990	D-14,000	77
Overseas Vivian	Tanker	20,900	37,800	T-15,000	69						
Overseas Washington	Tanker	44,900	90,500	T-24,500	78						
						SABINE TRANSPORTAT P.O. Box 1528, Groves, TX					
PACIFIC - GULF MARINE,	INC.					1.0. Dox 1520, Groves, 1X	//015				
401 Whitney Ave., Suite 211.		O. Box 6479. Ne	w Orleans.	LA 70174-6479		Colorado	Tanker	16,822	30,590	T-7,240	44/72
						Concho	Tanker	18,682	32,741	T-7,000	45/71
American Eagle	RO/RO	15,632	20,972	D-21.60	81	Guadalupe		17,985	30,369	T-7,240	45/78
Moku Oahu/HSTC 1	ITB	17,286	37,107	D-14,000	81	Neches	Tanker Tanker		34,930	T-15.000	45/78
Sugar Islander	Bulk Carrier	155,544	29,984	D-12,000	73			20,066			
Sugar Islander	Duk Camer	100,044	20,004	0-12,000	,0	Pecos Sabine	Tanker Tanker	17,291 20,020	28,749 35,018	T-13,750 T-15,000	50 57
PENN ATRANSCO CORP.											
555 Fifth Avenue, New York,	NY 10017					SEALIFT, INC. 68 West Main Street, Oyste	r Bay, NY 11771				
American Trader	Tanker	37,300	80,700	T-24,000	69						
Baltimore Trader	Tanker	27,269	57,884	T-15,000	55/71	Bravado	Tanker	2,110	4,400	D-2,880	77
Chesapeake Trader	Tanker	24,669	50,116	D-11.400	82	Cleveland	Cargo	16,000	22,200	T-24,000	69
Delaware Trader	Tanker	24,669	50,057	D-11,400	82	Inger	Bulker	14,192	23,977	T-7,240	45/62
Potomac Trader	Tanker	24,669	50,057	D-11,400	83	Noble Star	Multi-Bulk	15,922	18,230	D-13,100	77
Texas Trader	Tanker	19,734	40,631	T-26,500	57/80	M/V Valiant	Tanker	4,415	7,635	D-4,500	73/91

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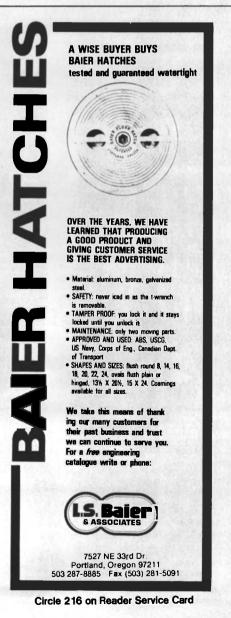
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Ervin Industries, Inc., 3893 Research Park Drive, Ann Arbor, MI 48106 Toll Free: (800) 748-0055 Fax: (313) 663-0136

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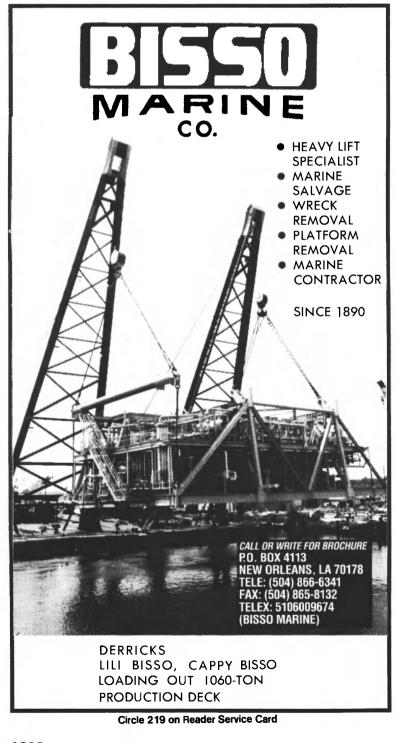
U.S. Flag Oceangoing Merchant Fleet (continued)

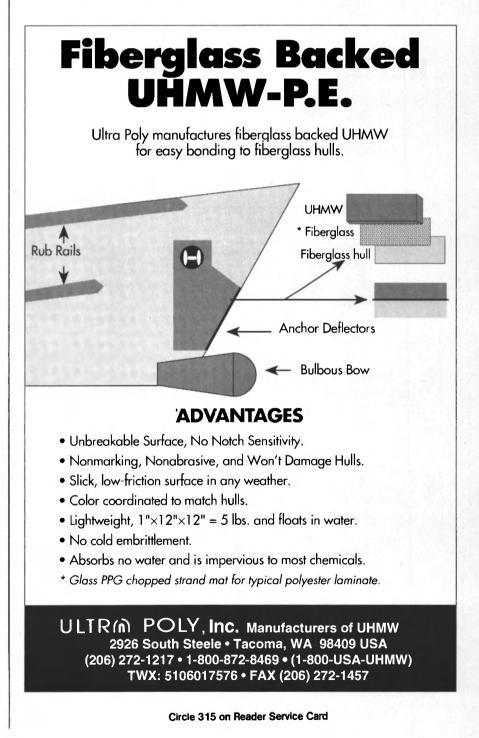
OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt
SEA - LAND SERVICE, II 399 Thornall Street, Edison					
Achiever	Container	57,075	58.892	D-28,000	04
Anchorage	Container	20,965	20,833		84 87
Atlantic	Container	57,075		D-22,540	-
Challenger	Container	19,168	58,892 25,508	D-28,000 T-27,300	85
CGM Isle de'France	Container	57,075			68
Consumer	Container	23,764	58,992 25,206	D-28,000	85 73/74
Crusader	Container	18,389	25,206	-32,000	69
Defender	Container	30,086		T-27,300	
Developer	Container		29,861	D-30,150	80/85
Discovery		30,086	29,818	D-30,150	80/85
Endurance	Container	18,876	20,269	T-27,300	68
	Container	30,086	29,738	D-30,150	80/85
Enterprise	Container	30,686	30,982	D-28,500	80/83
Expedition	Container	13,000	21,694	T-28,500	73/81
Explorer	Container	30,086	29,811	D-30,150	80/85
Express	Container	30,086	29,943	D-30,150	80/85
Freedom	Container	30,086	29,831	D-30,150	80/85
Galveston Bay	Container	57,075	58,992	D-28,000	85
Hawaii	Container	13,000	21,564	T-28,500	73/81
Independence	Container	30,086	29,790	D-30,150	80/85
Innovator	Container	30,086	29,862	D-30,150	80/85
Integrity	Container	57,075	58,992	D-28,000	84
Kodiac	Container	20,965	20,833	D-22,540	87
Liberator	Container	30,086	29,764	D-30,150	80/85
Mariner	Container	30,086	29,903	D-30,150	80/85
Navigator	Container	30,990	30,610	T-28,500	72/84
Nedlloyd Holland	Container	57,075	58,992	D-28,000	84

OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt
Nedlloyd Hudson	Container	57,075	58,992	D-28,000	84
Newark Bay	Container	57,075	58,992	D-28,000	84
Pacer	Container	17,736	15,298	D-17,400	63/80
Pacific	Container	30,685	30,776	T-28,500	79/83
Patriot	Container	30,685	29,748	D-30,150	80/85
Performance	Container	57,075	58,992	D-28,000	85
Producer	Container	23,764	25,206	D-32,000	74
Quality	Container	57,075	58,992	D-28,000	85
Raleigh Bay	Container	57,075	58,992	D-28,000	85
Reliance	Container	29,965	45,896	T-32,000	81/91
Spirit	Container	29,965	45,896	T-32,000	80/90
Tacoma	Container	20,965	20,833	D-22,540	87
Trader	Container	30,990	31,158	T-28,500	73/83
Value	Container	57.075	58,992	D-28,000	85
Voyager	Container	30,086	29,911	D-30,150	80/85

SUN TRANSPORT, INC. (SUN REFINING & MARKETING INC.) P.O. Box 2224, Aston, PA 19014

Eastern Sun	Tanker	1,571	3,396	D-3,000	85
New York Sun	Tanker	19,500	34,400	D-14,200	80
Northern Sun	Tanker	1,533	2,654	D-1,900	80
Philadelphia Sun	Tanker	19,500	34,400	D-14,200	81
Texas Sun	Tanker	26,300	53,453	T-18,500	60
Toledo Sun	Tanker	2,304	4,355	D-1,600	68
Tropic Sun	Tanker	20,177	34,700	T-13,600	57





OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuilt	OWNER/OPERATOR Name of Ship	Туре	GT	DWT	HP T=Turbine D=Diesel	Year Built/ Rebuil
EXACO MARINE SERVI						UNION OIL COMPANY OF 911 Wilshire Boulevard, Los					
Star Georgia	Tanker	16,514	25,156	T-13,600	64	Blue Ridge	Tanker	21,359	42,268	T-13,000	81
Star Massachusetts Star Mississippi	Tanker Tanker	16,515 15,688	19,364 27,013	T-13,600 TE-7,000	63 44/64	VAN OMMEREN SHIPPING	G (U.S.A.) INC.				
Star Montana Star Oregon Star Rhode Island	Tanker Tanker Tanker	16,584 23,461 16,584	19,364 39,363 19,364	T-13,600 T-13,650 T-13,600	65 53/73 64	3 Stamford Landing, 46 Soul Strong American	hfield Avenue, Suite 200, ITB-RO/RO	Stamford, C	CT 06902		
Valiant/Pennsylvania Victory/Texas	ITB	194/12,591 194/12,591	28,500 28,500	D-7,780 D-7,780	81/80 81/80	Strong Texan	Hvylft/RO-RO	1,383	2,804	D-2,500	76
						WATERMAN STEAMSHIP 120 Wall Street, New York, N					
OTEM OCEAN TRAILER						Major Stephen W. Pless	RO/RO-Container	29,091	25,073	T-30,000 T-30,000	83/8 83/8
Great Land	RO/RO	17,527	18,115	T-30,000	75	Pfc. Eugene A. Obregon Robert E. Lee Sam Houston	RO/RO-Container LASH LASH	29,091 32,269 32,269	25,073 40,921 40,921	T-32,000 T-32,000 T-32,000	03/0 7 7
Northern Lights Westward Venture	RO/RO RO/RO	12,000 17,527	16,875 18,411	T-30,000 T-30,000	75 77	Sgt. Matej Kocak Stonewall Jackson	RO/RO-Container LASH	29,091 32,269	25,073 40,921	T-30,000 T-32,000	83/8- 7-
	N					WEST COAST SHIPPING 911 Wilshire Boulevard, Los					
Admiralty Bay	Louis, MO 63117 Tanker	37,800	80,773	T-24.000	71	Coast Range	Tanker	21,257	39,990	T-13,000 T-13,600	8 58/78
Aspen Glacier Bay	Tanker Tanker	37,800 38,400	80,569 80,968	T-24,000 T-24,000 T-24,00	71 70	Cornucopia Sensinena II Sierra Madre	LPG/Tanker Tanker Tanker	21,688 35,634 21,357	21,717 71,459 39,990	T-18,200 T-13,600 T-13,600	58/78 71 81
RELIA		Reasons s and Co	5			IAN	Perform Alumin From MUNSC		R	I	
ABS Class writers the are built an set by ABS Statutory ce ply with nat For over 1 promoting	Sound I to Class with AE with AE sification gives critical third-par d maintained to and recognize trification by ABS tional and intern 30 years ABS the security of 35 for more info	Reasons s and Co ss ss ss ss ss ss ss ss ss ss ss ss ss	ers and that their ds — sta that vesse he regula the fore erty on the	Under- vessels ndards Ils com- tions.			From MUNSC	MFG. special and more than the special and the special and the special and the special and the special and the special and the special and the special and the special and the special and the special and the special and the	alizes in buildir d at high spee nal landing cra softens even th ' to 72' x 25 utboard, ilable. Over	aft hulls. Our proven deep V forefoot he nastiest	or ume bage bat
ABS Class writers the are built an set by ABS Statutory ce ply with nat For over 1 promoting Contact AE and Certific	Sound I to Class with As with As and recognize of maintained to and recognize of an and interna an an br>an an a	Reasons s and Co ss ss ss ss ss ss ss ss ss ss ss ss ss	ers and that their ds — sta that vesse he regula the foret erty on the SS Classi	Under- vessels ndards Is com- tions. front of e seas. fication			From MUNSO From MUNSO AUTORNAL AUTORNAL Inding craft which pounding associate Hammerhead Squ and 16 degree V to chop. Hulls availa increments. Outbo straight shaft, or i	MFG. species a can be utilized at an br>an an br>an an a	alizes in buildir d at high spee mal landing ara softens even th ' to 72' x 25 utboard, ilable. Over world.	d without the usua aft hulls. Our proved deep V forefoot he nastiest 'in 2'Ask for our Volu 11~84 p workb	or ume bage bat

Maritime Reporter/Engineering News

Westfalia Introduces 'Self-Thinking' Unitrol Centrifuge

Westfalia Separator AG produces centrifuges, which are an essential factor for guaranteed efficiency and control of removal of solids and water from fuel oils and lube oils.

Centrico, Inc., Northvale, N.J., is the exclusive marketer of Westfalia Separator AG equipment throughout the U.S. and Canada.

Based on decades of experience, Westfalia Separator has developed new treatment systems that relieve the operator from monitoring and adjustment tasks.

The advanced Unitrol system, a "self-thinking"system, can treat fuel oils as well as lubricating oil. When treating heavy fuel oils, the Unitrol centrifuge can be used either in single stage, single stage parallel or two stages (series operation).

In single stage, respectively parallel operation, the Unitrol centrifuge automatically adapts to function as a clarifier or purifier depending on the water content in the oil. While purifying the oil, a small volume of liquid is branched off, conveyed by the sensing liquid pump, and monitored by the conductivity sensor. If the sensor registers water, the valve opens the water discharge. As soon as the sensor detects a change in the conductivity brought about by an increased proportion of oil, the water discharge is closed.

When operating in the two stages (series operation), any solids or water carried over from the first stage into the second stage and accumulating in its sludge holding space above a limited amount, will initiate a desludging of both centrifuges. Since desludging only takes place when the sludge space is filled, desludgings are carried out at long intervals. This results in less wear and much lower sludge disposal costs, according to Westfalia.

costs, according to Westfalia. The "self-thinking" control of the second-stage Unitrol clarifier registers a rise in desludging intervals, functioning as a good fuel monitor. This patented "self-thinking" feature which enables on-demand desludgings is reportedly only available with Westfalia centrifuges.

Less maintenance, higher reliability and maximum efficiency will result in considerably lower operation costs as well as savings in sludge handling disposal costs.

For free literature detailing the new Unitrol Centrifuge System from Westfalia Separator,

Circle 55 on Reader Service Card

Pyro-Tech Offers USCG-Approved Course For OSRV Personnel

Oil Spill Response Vessel (OSRV) personnel responding to the Oil Pollution Act of 1990 (OPA 90) should be aware of Coast Guard requirements for certification to transfer collected fuels to other ships, barges, or shoreside facilities. There is also

June, 1992

DOT and OSHA mandates for minimum training for crew and oil recovery workers involved in the handling of combustible/flammable hazardous material.

Pyro-Tech Fire School, Inc., Mobile, Ala., teaching U.S. Coast Guard-approved courses, is offering a five-day course covering all of the elements necessary for full compliance. This training meets DOT requirements of Dangerous/Flammable Material Response and OSHA "Hawoper."

The course includes a USCG-approved certificate for fuel/barge fire fighting. Additionally, it incorporates the necessary preparation to take and pass the Coast Guard examination for tankermen.

Cost of this program is \$568 and is being offered on June 15, and July 27, 1992.

For additional information, registration and student housing, contact Pyro-Tech Fire School at Sea Safety Center at 1-800-HOT-SHIP.

Egypt Considers Enlarging Suez For Future Traffic

A plan to widen and deepen the Suez Canal to meet future shipping demands through the next century is being considered by the Egyptian government. A canal expansion feasibility study being carried out by the Suez Canal Authority (SCA) has been delayed while the SCA reviews the requirements of new tanker designs and environmental and safety concerns.

The expansion would allow significantly larger ships to use the canal and would also serve to ease congestion during canal transits, leading to reduced delays and shipping costs. It is also anticipated that ports in the Eastern Mediterranean that serve as staging posts for goods moving through the canal would benefit from the improvements, including; Larnaca, Izmir, Athens, Limasol, Tartous, Lattakia and Alexandria.

Between 1975 and 1980, the canal was expanded to handle 53-foot draft vessels, accommodating 150,000-dwt cargo ships and tankers of 370,000 dwt. The planned second expansion phase, costing between \$700 million and \$1 billion, would allow 67-foot draft dry cargo ships of 260,000 dwt or 550,000-dwt tankers in ballast to transit the canal.

Nynex Plans \$1 Billion Undersea Fiberoptic Cable

A \$1 billion venture to link the United Kingdom and Japan, via the Indian Ocean, is being planned by Nynex Corp., of New York, along with Middle Eastern and Japanese investors.

The high-capacity cable is expected to be completed by December 1996. Construction will begin in 1994, after the project obtains the necessary contracts.

Using fiber-optic technology, the 120,000 circuits that will be used in the project could carry the equiva-

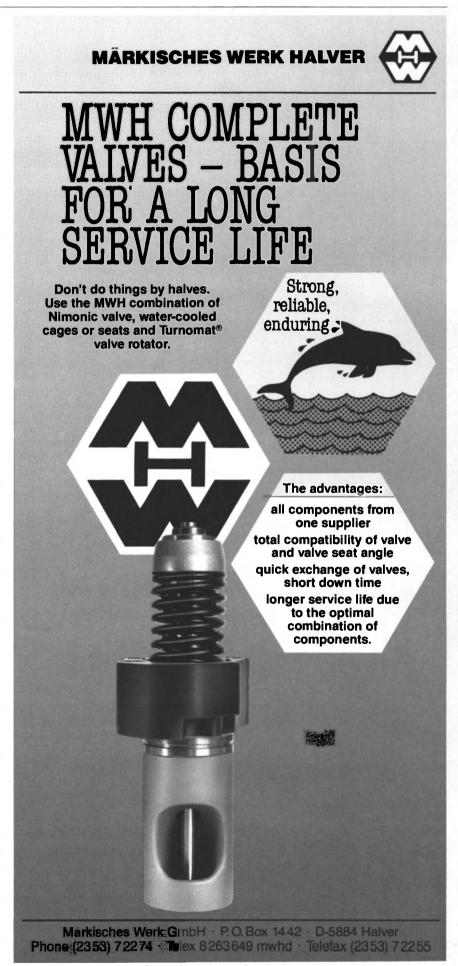
lent of 600,000 simultaneous conversations on two pairs of hair-thin strands of glass. **Goodrich To Market** Solidur Product Line

One of the world's largest converters of ultra high molecular weight polyethylene (UHMW-PE), Solidur Plastics Company, Delmont, Pa., recently announced that Wilmington, De.-based B. F. Good......aerospace will be marketing dock fender facings made of Solidur UHMW-PE.

Solidur fenders are used as replacements for wood which splinters due to impact, sliding abrasion and water absorption. The fenders provide protection for ships and boats, piers, docks, ferry terminals, locks and pilings.

For free literature containing more information about Solidur's UHMW-PE fender,

Circle 7 on Reader Service Card



Circle 268 on Reader Service Card

U.S. P	arent C	ompany R	eport Of F	oreign Fla	g Merchant S	hips (continued)	

				-							¥.
PARENT COMPANY Direct Owner	Name of Ship	Class	GT / DWT	Flag B	Year Built	PARENT COMPANY Direct Owner	Name of Ship	Class	GT / DWT	Flag	Year
David Shipping Ltd.	David L.	Bulk Carrier	16,023/26,976		'73 '76		Tropic Mist	Freighter	1,795/2,563	StV.	'83
Friendly Ocean Inc. Gras Shipping Ltd.	Joshua Papu	Bulk Carrier Bulk Carrier	19,664/34,410 14,743/25,530	Lib.	'76 '82		Tropic Palm	Ro-Ro	1,471/4,734	StV.	
Helena Shipping Corp. Jonathan Shipping Ltd.	Helena Jonathan	Tanker Bulk Carrier	64,412/97/173 19,202/33,311		'75 '70		Tropic Quest Tropic Reign	Ro-Ro Ro-Ro	7,948/9,793 7,947/9,793	StV. StV.	
Mardi Shipping Ltd.	Ari	Bulk Carrier	14,798/25,630 40,369/83,258	Lib.	'80 '74	OCCIDENTAL PETROLEUM CORP.					
Omega Consultants A/S River Zachary Ltd	Sea King Zachary	Tanker Bulk Carrier	15,977/26,510	Pan.	'73		Armand Hammer	Chem. Carrier	32,759/60,763	Mal.	'67
Seamerit Inc. Seapolar Inc.	Shimone Sheeba	Bulk Carrier Bulk Carrier	14,611/27,469 13,061/22,920		'73 '70	OMI CORPORATION					100
Uncle Solomon Ltd.	Solomon Prince Shaul	Bulk Carrier Freighter	19,107/33,311 8,695/14,938	Pan. Pan.	72		Ocean Spirit Ebro	Tanker Ore/Bulk/Oil	39,534/55,000 39,167/71,882	Lib. Lib.	'82 '78
Vega Shipping Co.	Finice Shadi	rieignitei	0,030/14,300	r an.			Nile Sokolica	Tanker Tanker	33,932/64,716 76,883/145,648	Lib. Lib.	'81 '75
EVIN ENTERPRISES Hana Maui Corp.	Hana Maui	Bulk Carrier	15,742/27,112	Lib.	'71	Tagus Transport Inc.	General	LPG Tanker	42,461/49,882	Lib.	'75 '81
OTUS TRANSPORTATION	Fujikawa	Tanker	106,274/234,925	Lib.	'75		Volga	Tanker	33,932/64,652	Lib.	81
						OVERSEAS SHIPHOLDING GROUP Exemplar Bulk Carrier Ltd.	Exemplar	Bulk/Ore	62,200/122,200	Bri.	`90
ANUBANK LEASING CORP.	Rio Sulaco	Reeler	6,417/5,656	Hon.	78	Amity Products Carriers Inc.	Julie N. Tropical Lion	Tanker Tanker	18,965/29,994 122,960/256,387	Lib. Lib.	'82 '72
ANUFACTURERS HANOVER TRUST	Georgia S.	Bulk Carrier	15,462/30,187	Pan.	'81	Ania Tanker Corp.	Ania	Tanker	78,244/135,134	Lib.	'89
		Baix Gamer	10,402,00,107	i can	0.		Atlantia Canopus	Tanker Tanker	42,155/81,278 18,402/31,000	Lib. Lib.	'79 '81
IANUFACTURERS HANOVER TRUS	Star Africa	Tanker	126,974/274,597	Bah.	'74		Chrismir Columbia	Tanker Tanker	31,243/61,203 144,139/258,076	Lib. Lib.	'80 '89
	Star Baltic Star Bergen	Tanker Tanker	18,381/31,502 18,379/31,502	Nor.	'76	Commonwealth Shipping Co. Ltd.	Ulla	Bulk Carrier	17,228/29,399	Bri.	'85
	Star Stockholm	Tanker	18,378/31,502			Conti-OSG Associates III	Concordia C. Continental Reliance	Tanker Ore Carrier	61,111/132,594 30,151/65,224	Pan. Net.	'83
ARINE TRANSPORT LINES INC.						Conti-OSG Associates IV	Continental Spirit Delphina	Ore Carrier Tanker	35,603/65,224 22,972/39,674	Net. Lib.	'83 '89
Oswego Chemical Carriers Corp.	Savonetta M.P. Grace	LPG Tanker LPG Tanker	9,942/10,744 13,483/15,414		'64 '67	Diane Tanker Corp.	Diane	Tanker	38,241/64,140	Lib.	'87
Marine Transport Inc./Peninsular &	William R. Grace	LPG Tanker	9,954/10,750		64		Endeavor Enterprise	Bulk Carrier Bulk Carrier	64,552/122,933 64,741/117,955	Bri. Bri.	'75 '73
Oriental Steamship Navigation						Excelsior Bulk Carriers Ltd.	Excelsior Beryl	Bulk/Ore Tanker	64,141/120,270 52,518/84,406	Bri. Lib.	'90 '86
Rowbotham Tankships Ltd.	Astraman Bridgeman	Chem. Tanker Tanker	1,597/3,202 3,701/6,310		'73 '72	First Pacific Corp. and					
	Cableman Eastgate	Tanker Tanker	4,916/8,496 1,599/3,415		'80 '79	First Panamax Bulkcarriers Inc.	Pacific Hunter Meridian Sky	Tanker Bulk Carrier	18,736/32,109 36,042/64,293	Lib. Lib.	'79 '89
	Echoman	Chem. Tanker	3,759/6,125	Isl.	'82		Lucy Continental Friendship	Tanker Bulk Carrier	36,512/64,000 33,200/61,270	Lib.	'86 '77
	Guidesman Helmsman	Tanker Tanker	1,421/2,162 3,705/6,165	Isl.	'80 '72	First United Shipping Corp.	Western Lion	Tanker	126,795/269,117	Lib.	'74 '89
	Humbergate Northgate	Tanker Tanker	1,579/2,893 1,599/3,290		68 '80	Glasgow Bulk Carriers Co. Ltd.	Neptune Trudy	Tanker Bulk Carrier	22,946/39,171 17,228/29,432	Lib. Bri.	'85
	Oarsman	Tanker	1,550/2547	Isl.	'79		Equinox Continental Carrier	Ore Carrier Bulk Carrier	76,449/138,820 14,925/26,450	Bri. Lib.	'82 '77
	Orionman Pointsman	Tanker Tanker	3,623/6,176 2,886/4,694	ISI. ISI.	'75 '70	Interocean Tankers Corp.	Southern Lion	Tanker	126,850/269,085	Lib.	'75
	Polarisman Quarterman	Chem. Tanker Tanker	1,597/3,202 1,226/2,135		'73 '73		Shirley Jostelle	Tanker Bulk Carrier	60,815/130,286 63,863/122,970	Pan. Bri.	'75
	River Shannon	Tanker	1,567/3,232	Isl.	'70		Argus Traveler Mary Ann	Bulk/Car Carr. Tanker	20,515/33,013 38,241,64,239	Lib. Lib.	'75 '86
	Tankerman Tillerman	Tanker Tanker	5,881/10,500 7,308/12,800	Isl.	'83 '75	Matilde Tanker Corp.	Matilde	Tanker	78,344/135,134	Lib.	'89
	Westgate Wheelsman	Tanker Tanker	1,599/3,368 2,897/4,648		'79 '67		Vesta II Olympia	Tanker Tanker	42,048/81,278 144,139/258,076	Pan. Lib.	'80 '90
							Esplanade Pluto	Ore Carrier Tanker	76,449/138,787 18,402/31,303	Bri. Lib.	'82 '81
IARU SHIPPING CO. INC.	Billie Fay	Bulk Carrier	17,959/30,853	Lib.	'77	Saturn Bulk Carriers Inc.	Saturn	Bulk Carrier	31,243/62,212	Lib.	'80
IOBIL OIL CORPORATION Matco Tankers (UK) Ltd.	Matco Clyde	Tanker	54,172/81,944	UK '	'82		Eliane Caribbean Sky	Tanker Bulk Carrier	52,524/84,323 36,042/64,282	Lib. Lib.	'87 '89
Mobil Oil Australia Ltd	Mawsan	Tanker	15,579/24,489		'72		Suzanne Northern Lion	Tanker Tanker	36,512/64,000 126,851/269,117	Lib. Lib.	'86 '74
Mobil Oil Francaise	Tasman Athos	Tanker Tanker	20,662/35,367 140,745/276,221	Fra.	'74	Third Products Tankers Inc.	Uranus	Tanker	22,946/39,451	Lib.	'88
Mobil Oil Reederie GMBH	D'Artagnan Mobil Jade	Tanker Tanker	140,745/275,225 7,297/13,339	Fra. WGe.	'74 '75		Eastern Lion Argus Explorers	Tanker Bulk/Car Carr.	126,796/269,164 20,513/33,047	Lib. Lib.	'73 '75
Mobil Oil Singapore PTE Ltd.	Mobil Singapura	Tanker	2,010/3,525	Sin.	'79 '71		Northern Light Esperanza	Bulk Carrier Ore Carrier	31,007/65,592 31,814/66,136	Lib. Lib.	'81 '73
Mobil Overseas Shipping (Bermuda)	Alcides Harrier	Tanker Tanker	72,540/136,304 144,209/253,997	Bri.	'75	Vega Tanker Corp.	Vega	Tanker	22,972/39,710	Lib.	'89
Mobil Shipping & Transport Co.	Petrel Astral	Tanker Tanker	139,092/280,428 60,946/127,505		'73 '75		Venus V Vesta	Tanker Tanker	42,048/79,999 42,048/81,278	Lib. Pan.	'81 '80
	Conastoga	Tanker Tanker	17,506/29,931 17,505/29,960	Lib.	'72 '73	PHILLIPS PETROLEUM CO.					
	Corsicana Mobil Aladdin	Tanker	68,502/140,803	Lib.	'74		Phillips Arkansas Phillips Mexico	Tanker Tanker	26,974/54,026 26,973/54,057	Lib. Lib.	'80 '79
	Mobil Challenge Mobil Flinders	Chem. Tanker Tanker	22,587/39,371 93,940/149,235		'83 '82		Phillips Oklahoma	Tanker	26,973/54,044	Lib.	'79
	Mobil Kestrel Mobil Marketer	Tanker Tanker	104,362/227,756 18,258/31,102	Lib.	'71 '74		Phillips Venezuela	Tanker	26,973/54,049	Lib.	'79
	Mobil Producer	Tanker	18,258/31,102	Lib.	'74	PHILLIPS PETROLEUM / USX-MARATI Arctic LNG Transportation Co.	HON Arctic Tokyo	LNG Tanker	44,089/32,878	Lib.	'69
	Mobil Swift Mobil Valiant	Tanker Tanker	119,969/272,494 41,135/81,282		'73 '82		Polar Alaska	LNG Tanker	44,089/32,878	Lib.	'69
	Owl Transporter	Chem. Tanker Tanker	22,587/39,742 104,362/227,756	Lib.	'83 '71	SECURITY PACIFIC NATIONAL BANK		Test	100 007/070	1.1	
	Osprey Petros	Chem. Tanker	22,589/39,724	Lib.	'84		Chevron Burnaby	Tanker	122,627/276,778	Lib.	75
	Royal Arrow Sacona	Chem. Tanker Tanker	22,587/39,776 19,580/33,187		'83 '81	TANKSHIP TRANSPORT LTD. Empress Partners Ltd.	Sea Empress	Tanker	211,359/423,700	Bah.	'76
	Samoset	Tanker	19,580/33,235 16,861/30,397	Lib.	'82 '71	TEXACO INC.					
	Satucket Saucon	Tanker Tanker	19,580/38,529	L i b.	'83	Texaco Panama Inc.	Star Alabama	Tanker	63,234/135,235	Bah.	
	Saudi Glory Saudi Splendour	Tanker Tanker	122,297/276,368 125,394/280,578	Lib.	'74 '75		Star Bogota Star Delaware	Tanker Ore/Bulk/Oil	13,623/22,455 71,208/128,320	Bah. Bah.	'79
	Sequoya	Tanker Tanker	18,843/32,590 50,222/81,278	Lib.	'73 '75		Star Houston Star Kansas	Tanker Tanker	65,287/136,100 55,973/115,826	Lib. Bah.	'75
	Wabasha Waneta	Tanker	41,135/81,282	Lib.	'82		Star Louisana	Tanker	55,973/124,987	Bah	'75
Mobil Shipping Co. Ltd.	Wapello Matco Avon	Tanker Tanker	41,135/81,283 43,622/78,943		'82 '64		Star Skandinavia Star So. America	Tanker Tanker	13,222/21,540 130,959/268,535	Bah. Lib.	'62 '76
	Matco Thames	Tanker Chem. Tanker	51,472/89,398 2,080/3,310	UK	'76 '73	173	Star Tulsa Taboga	Tanker Tanker	64,961/131,350 2,978/5723	Lib. Pan.	'71 '71
	Mobil Lubchem	Unem. ranker	2,000/3,310	UK.	13	Texaco Overseas Tankship Ltd.	Star Westminister	Tanker	49,809/79,999	UK	'81
ORTON-THIOKOL INC. Inagua Transports Inc.	Cecile Erickson	Salt Carrier	3,300/5,588	StV.	`57		Star Windsor	Tanker	49,809/79,997	UK	'80
EW CONNECTICUT BANK & TRUST						TEXACO COMMERCE BANK N.A. (Tru	stee) Star Japan	Tanker	129,973/263,516	Pan.	'75
	Europe	Tanker	122,395/276,050		'75 '76	USG CORPORATION			. 20,070/200,010		
	Independence	Tanker	117,646/274,774	Lib.	'76	Gypsum Transportation Ltd.	A.V. Kastner	Bulk Carrier	12,702/19,075	UK	'87
VICOR INC. Birdsall Shipping S.A.	Tropic Jade	Ro-Ro	1,813/2,496	StV.			Gypsum Baron Gypsum King	Bulk Carrier Bulk Carrier	12,839/18,314 12,839/18,314	UK UK	'76 '75
Dirugui or ippling o.A.	Teopic Key	Ro-Ro	1,786/2,523								-

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U.S. PARENT COMPANY, FOREIGN FLAG MERCHANT SHIPS

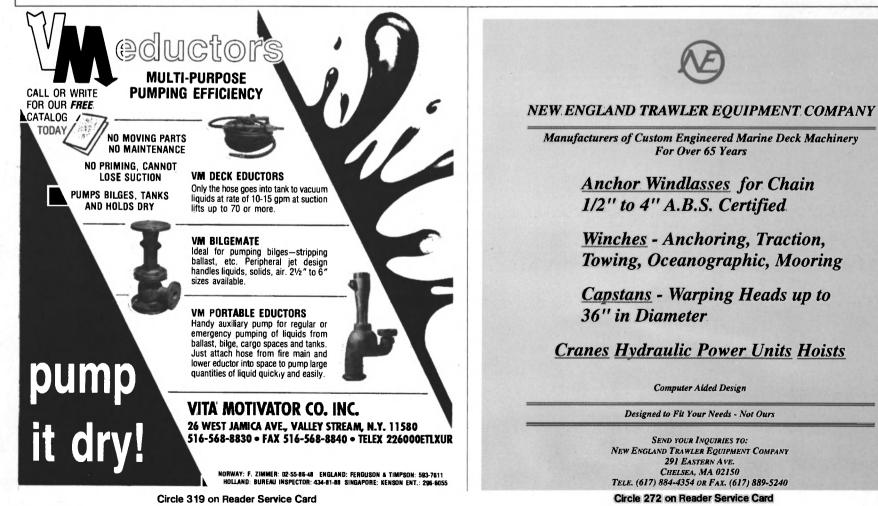
(As Of July	y 1, 1991)
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		TOTAL			FREIGHT	ERS*		BULK CAR	RIERS		TANKE	RS
	No. Ships	Gross Tons	Deadweight Tons	No. Ships	Gross Tons	Deadweight Tons	No. Ships	Gross Tons	Deadweight Tons	No. Ships	Gross Tons	Deadweigh Tons
Flag of Registry	332	14,465,657	27,386,389	56	660,431	632,629	48	1,520,861	2,734,928	228	12,284,365	24,018,832
LIBERIA	155	7,737,359	14,858,974	18	294,884	290,181	26	689,059	1,206,181	111	6,753,416	13,362,612
BAHAMAS	46	2,546,807	4,739,413	16	176,728	149,334	1	70,283	128,320	29	2,299,796	4,461,759
BRITISH DEP. TER.	18	1,561,261	3,012,591	2	39,190	25,800	9	508,792	945,256	7	1,013,279	2,041,535
RANCE	7	709,920	1,402,368	_	-	-	-	-		7	709,920	1,402,368
ANAMA	20	434,327	840,896	7	46,645	65,722	5	68,387	122,976	8	319,295	652,198
JNITED KINGDOM	21	502,017	839,670	_	-	-	3	38,380	55,327	18	463,637	784,343
USTRALIA	6	243,751	402,216	_	_	—	-	_	-	6	243,751	402,210
INGAPORE	9	143,565	253,311	2	20,763	26,202	-	_	_	7	122,802	227,10
IORWAY	5	141,806	252,635	-	-	_	1	76,906	140,832	4	64,900	111,803
ARSHALL ISLANDS	1	103,907	229,727	_	_	-	<u>-</u>	-	-	1	103,907	229,72
RGENTINA	8	92,010	167,671	-	_	-	_	_	_	8	92,010	167,67
JETHERLANDS	2	65,754	130,448	_	_	-	2	65,754	130,448	-	_	- 11 C
SLE OF MAN	18	52,431	92,430	_	-	-	_	-	_	18	52,431	92,430
IALTA	1	32,194	59,806	-	_	-	-	_	_	1	32,194	59,806
TALY	3	49,776	35,026	3	49,776	35,026	-	_	-			100 100 -
ST. VINCENT	8	29,328	40,296	7	26,028	34,708	1	3,300	5,588	- 1	-	1. 1 1 1 1 1 1
GERMANY	1	7,297	13,339	_	-	-	-	—	-	1	7,297	13,339
INLAND	1	4,370	6,954	_	-	-	-	—	-	1	4,370	6,954
IONDURAS	1	6,417	5,656	1	6,417	5,656	-	—	—	-		- 11 - 11 -
APAN	1	1,360	2,962	-	-	-	-	-	-	1	1,360	2,962
Source: Maritime Administration Includes 3 passenger ships.												

U.S. PARENT COMPANY, FOREIGN FLAG MERCHANT SHIPS UNDER CONSTRUCTION OR ON ORDER (As Of July 1, 1991)

		TOTAL			FREIGHTERS			BULK & OIL CARRIERS			TANKERS		
	No. Ships 31	Gross Tons 1,119,150	Deadweight Tons 2,077,500	No. Ships 17	Gross Tons 167,000	Deadweight Tons 173,200	No. Ships —	Gross Tons —	Deadweight Tons —	No. Ships 14	Gross Tons 952,150	Deadweight Tons 1,904,300	
Flag of Registry													
LIBERIA	14	952,150	1,904,300	_	_	_	-	_	_	14	952,150	1,904,300	
BAHAMAS	12	145,200	145,200	12	145,200	145,200	_	-	_			2. Col -	
ITALY	1	15,600	15,600	1	15,600	15,600	_	_	_	_			
ISLE OF MAN	2	6,200	12,400	2	6,200	12,400	-	_		_ * -		-	
UNKNOWN	2	_	-	2	- 1	-	_	_	-		70	-	

Source: Maritime Administration



June, 1992

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fication, and on-screen display of critical navigation data with optional NMEA0183 nav receiver input. All in all, there is simply no better radar available anywhere. Check out the RA770 at any authorized Simrad dealer, or call 1-800-426-5565 for a free full color brochure today.

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Seacor Diversifies Into New Growth Areas

In the face of a drilling slow down in the U.S. Gulf of Mexico, Seacor Marine, a long-time owner and operator of supply vessels, has taken an aggressive approach by expanding its business into marine pollution control, as well as foreign drilling markets.

Seacor Holdings Inc., along with the Miller Environmental Group and Olympic Marine, have formed a joint venture company called the National Response Corporation (NRC), based in Calverton, N.J. The NRC, the Coastal Corporation and Philbro Energy, Inc., intend to create a second regional oil spill response network to serve vessel and facility owners on the East and Gulf Coasts seeking compliance with the Oil Pollution Act of 1990 (OPA 90).

According to **Glen Fornell**, president of Seacor, plans are already underway to convert 12 Seacor 180-

foot offshore supply boats to serve as multipurpose skimming and primary recovery boats. The conversion work has not been contracted as yet. Eight of the vessels will operate in the Gulf of Mexico and four vessels will be stationed at strategic locations on the East Coast from Boston to Miami. The fleet is expected to be up and running by February 18, 1993.

Seacor owns 51 offshore vessels, operating 54 in all. Mr. Fornell said that about 60 percent of the vessels are under contract. Recognizing the softness in the U.S. Gulf market, Seacor has targeted the standby rescue sector in the North Sea. In 1990, Seacor starting moving 11 vessels into the North Sea sector.

As part of its effort, Seacor contracted Steiner Shipyard in Bayou La Batre, Ala., to convert a 1976-



Steiner Shipyard-converted Veesea Typhoon, operated in the North Sea by Seacor of Vector Offshore.

built supply boat into a complete 180-foot by 40-foot standby rescue vessel. The vessel, the Veesea Typhoon, is now operated in the North Sea by Seacor and joint venture partner Vector Offshore.

Steiner also delivered three new 220-foot supply vessels to Seacor over the last two years. The three vessels, the Sun Island, Discovery Island and Avery Island, are built as "international class vessels, with more flexibility than typical Gulf of Mexico supply boats," reports Mr. Fornell.

The Sun Island and the Discovery Island are now working in the Gulf for Seacor. The Avery Island has been contracted to work off the West Coast of Africa, where Seacor has 16 vessels operating.

For free literature detailing the services of Seacor Marine,

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CCL To Enter European Cruise Market In Club Med Deal

The world's largest cruise operator, Miami-based Carnival Cruise Line (CCL), has entered into an agreement with Club Mediterranee which will allow it to begin its first European mass market operation next year utilizing one ship.

The two companies are also examining the Asian cruise market as a possible option.

Universal Offers Free Color Brochure On Riverboat Slots

Universal Distributing Group of Nevada, Inc., Nevada, Las Vegas, is offering a free literature package on its gaming equipment for the riverboat casino market.

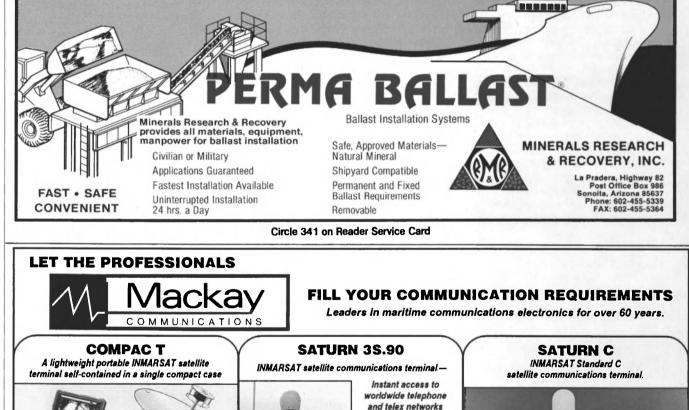
The literature package contains several colorful brochures detailing the slot machines offered by the Universal Distributing Group of Nevada, Inc., which is part of the larger worldwide Universal Group. The package would be extremely helpful togambling boat owners who are in the process of deciding on the proper

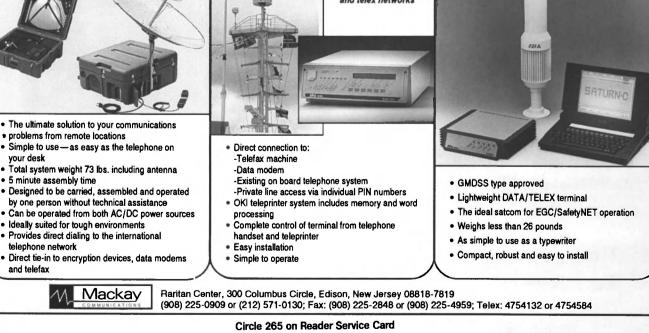
One model particularly wellsuited for the riverboat casino market is the "Stars-&-Stripes," which is available in two- and three-coin versions. The units is contained in a specially designed fire-resistant lightweight metal cabinet. The total weight of the unit is 145 pounds. For a free packet of literature

from Universal,

Circle 100 on Reader Service Card

June, 1992





P&O Cruises Unit Puts Cruise Ship Up For Sale

P&O Cruises subsidiary Princess Cruises is reportedly offering the 925-passenger cruise ship Dawn Princess for sale. Because of its high standard of operation, the 35-yearold ship, which operates out of Los Angeles, may bring between \$35

million to \$45 million. Similar aged vessels have been sold for about \$18 million.

Princess Cruises also operates the Fair Princess, a sister ship to the Dawn Princess, out of Los Angeles. The two cruise ships were acquired in 1988 when P&O Cruises purchased Sitmar Cruises.

Princess Cruises has declined to comment on the price it is seeking on the ship.

SCLR Wins \$232,580 Contract **For Cutter Repair**

The Service Company of Louis Rogers, Inc. (SCLR) was recently awarded a \$232,580 contract for repairs to the U.S. Coast Guard cutter Courageous. This is the third dockside availability of this class ship that SCLR has performed.

Intrinsically safe.

If all you want in a marine handheld VHF is portability, maybe the Horizon HX220AS is too good.

Sure it meets the industry guidelines for explosive environment applications. But it also has the punch you get from six watts of transmitting power, full-on microprocessor control, gold battery contacts for reliability, generous moisture protection, and careful, intelligent engineering.

It receives all U.S., Canadian and international channels as well as 10 weather channels, and can be programmed to scan any number or combination of them automatically.

One-touch channel selection as well as direct access to channel 16 and the weather channels is so easy it can be done in heavy

gloves. The LCD display is oversized and backlit. And options like the external speaker/microphone which allows hands-free operation make it ideal for tankers, tenders and oil rigs.

The HX220AS is a lot of radio in a remarkably small and lightweight package. To find out more about it, or about Standard's intrinsically-safe eightchannel HX340 UHF and VHF handhelds, call or write today.

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Manfred W. Hanisch

Peter D. Richardson, general manager of Industrial Systems for Siemens Electric Limited recently announced the appointment of **Manfred W. Hanisch** as sales manager of power equipment and **Reidar Boen** as sales manager for automation equipment for the marine business in the U.S. marketplace. Both men will be stationed in Alpharetta, Ga.

Mr. Hanisch, a Siemens employee since 1955, has enjoyed a long and rewarding career in the marine industry. As an electrical engineer, he has pioneered the company's success within the North American continent for marine electrical technology. He has held a variety of positions within the Siemens organization from project engineer to regional sales manager for marine systems. His appointment to sales manager for power equipment within the marine department follows seven years of success in Atlantic Canada as regional sales manager for Siemens Industrial Systems in Halifax.



Reidar Boen

In 1983, Mr. Boen joined Siemens in Norway as a project engineer to design, install and start-up electrical control systems for Norwegian submarines. His experience as a supplier to the Norwegian Navy paved the way for Mr.Boen to market Siemens' marine electrical technology to the merchant marine industry and by 1989, he had estab-lished a successful marketing organization to serve this market.

Siemens is one of the leading single systems vendors for integrated electrical marine systems.

Maritime Reporter/Engineering News

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VIS Alarm System On Martinac-Built Trawler Proves Dependable



The main machinery and other vital equipment aboard the Martinac-built trawler Chelsea K is monitored by a Vessel Information Systems' VIAS 128-System as its primary alarm system.

Built by Martinac Shipbuilding Corp. in Tacoma, Wash., for owner Ocean Dynasty Limited for fishing in the icy Bering Sea off Alaska, the 150-foot trawler Chelsea K must have extremely dependable machinery and equipment. A critical part of the electronics aboard the Chelsea K is her primary alarm system, the model VIAS system-128 from Ves-

sel Information System-128 from Ves-sel Information Systems, Inc. (VIS). The VIAS system-128 was in-stalled with 128 sensors to monitor the main engines, gears, genera-tors, AC and DC electrical systems, hydraulics, bilge compartments, fire detection, fish holds, pneumatics, tank levels and freezer temperatures. VIS color CRT display stations are located in the pilothouse and in the control room where captain and engineer can independently monitor the performance of the critical machinery throughout the vessel.

According to Peter Trogdon at VIS, "The Chelsea K is an excellent example of today's new breed of vessels which depend on sophisticated electronics, made simple to use, yet built especially for marine use.

The pilothouse has eight full color monitors which are used for various functions ranging from fish detec-tion to the VIS monitoring. All of these systems were chosen carefully by the captain and owners to bring critical information to the pilothouse. The captain is presented with all the information and then makes decisions based on what he sees.For free literature on the VIAS System-128 from VIS,

Circle 82 on Reader Service Card

For further information on the boatbuilding services of Martinac Shipbuilding,

Circle 83 on Reader Service Card

New Helconic Thrusters From Omnithruster Suited For Wide Range Of Craft

Santa Fe Springs, Californiabased Omnithruster Incorporated, a leader in waterjet propulsion and maneuvering systems, recently introduced a new series of thrusters suited for a wide variety of vessels.

Helconic thrusters are a unique design developed by Omnithruster

June, 1992

that is energy efficient and compact in size. The acronym "HCT" describes a helical seawater flow pattern in-side a conical chamber that results in high kinetic energy emitting from multiple tangential discharge ports. There are sizes ranging from 7 to 450 kilowatts (10-600 hp). Developed at the Omnithruster

Santa Fe Springs facility, these thrusters are particularly designed for shallow-draft vessels such as patrol boats and high-speed planing hulls that require side thrust maneuvering when they are in a docking mode and require low-speed propulsion when operating in harbors.

Their unique design also makes them particularly adaptable to fishing vessels, large yachts, workboats, offshore supply boats, tugs and ocean research vessels up to 300 feet in length.

The thrusters are made to operate with either constant or a variable shaft speed that does not have to be reversed to change thrust direction and can be operated in a

manner similar to a controllable pitch thruster with an accessory control system.

A special adaptation of the HCT thruster enables the vessel to have forward propulsion capability, either as back up for the main propulsion or as low-speed drive.

For free literature detailing the wide range of applications of the HCT new thruster from Omnithruster,

Circle 98 on Reader Service Card



Multinational NATO Squadron For Med

The Chiefs of Staff of the North Atlantic Treaty Organization (NATO), headquarted in Brussels, Belgium, announced the establishment of a new squadron of approximately 8 frigates to patrol the Mediterranean Sea.

Already operatonal, the fleet is

drawn from the 16 members of NATO and organized along the lines of the alliance's standing naval force in the North Atlantic, which has been operating successfully for many years.

S&P 'BBB' Rating To Be Accepted By MarAd

A recent report has revealed that the U.S. Maritime Administration (MarAd) has decided to accept Standard & Poor's (S&P) 'BBB' claimspaying ability rating. According to U.S. law only those

foreign underwriters that have received an 'A', or some rating which is equivalent to it, may apply for ap-proval to write the hull cover. In 1988, when the rule was first imple-mented, Insurance Solvency Inter-national (ISI) was the only rating service with international coverage although, according to MarAd, S&P

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was also rating insurers. S&P acquired ISI in 1990 in a move which was aimed at expanding S&P's international hull coverage.

Manchinu Named President Of TTS, Inc.

A. (Tony) Manchinu was recently promoted to the position of president of Total Transportation Systems, Inc. (TTS, Inc.). The announcement was made by chairman of the board, Olav Munch. Mr. Manchinu was previously executive vice president of the company.



A. (Tony) Manchinu

TTS is one of the leaders in shipyard material handling and produc-tion systems. The systems include panel production lines, beam processing lines, web assembly lines, and heavy lift and transport equipment.

Promet Repairs USS Capadanno Under \$134,788 Pact

Promet Marine Services Corp., Providence, R.I., was recently awarded a \$134,788 for a technical availability of the frigate USS Capadanno(FF-1093). The contract was awarded by the Supervisor of Shipbuilding, Conversion and Repair, Boston.

Free Brochure Offered **By Morse Controls On Single Lever Control**

Morse Controls Division, IMO Industries, Hudson, Ohio, is offering a free brochure on its new singlelever, dual function control, SL-3. The brochure contains, descriptions, features and specifications.

Recently unveiled, the SL-3 control is a new concept in control design.

According to Morse Controls, the SL-3 operates with fewer moving parts, has lifetime lubrication features, is easily adapted to any installation, and is sold complete with an extended 3-year warranty.

For a free copy of the brochure from Morse Controls,

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We Care

The Seamen's Church Institute is a dedicated advocate for the personal and professional well-being of merchant seafarers the world over. Through its Maritime Training Division, Seafarers Services Division and its Center for Seafarers Rights, the Institute cares for the safety, dignity and improved working and living conditions for all those who go down to the sea in ships. Founded in 1834, the Institute today is an ecumenical agency serving the needs of seafaring people of all races, creeds and nationalities.

The goals of the Maritime Training Division are to improve the seamen's professional capabilities and these goals are accomplished through advisory services and high quality training courses and programs designed to meet the ever changing needs of the maritime industry.

Courses vary from a program of guided study to upgrade seafarers to the levels required to sit for the United States Coast Guard license examinations to programs utilizing state-of-the-art simulation equipment consisting of four simulated, interactive ship bridges with extensive navigational areas. Whatever the nature of the training, whether it is a tutorial on a one-to-one basis or one utilizing sophisticated simulation equipment, SCI Maritime Training provides quality instruction provided by expert and well-trained instructors who care and whose sole aim is to serve the training needs of the seafarer.

The quality of the course content, flexibility of the training programs, attention to client needs and the expertise of instruction have already earned us a reputation for setting new standards in maritime training. We care for the training needs of all seafarers from individuals seeking license preparation to companies requiring custom-designed training programs. So give us a call, (212) 349-9090, and we will provide you with details of all our courses. If the type of course you are seeking is not listed then we will design one for you based on your special requirements. We also encourage you to visit our facility at 241 Water Street in Lower Manhattan, see a demonstration at our new training center, and let us discuss with you how we can fulfill your training and research needs.

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Bardex Receives Turret Turn-Lock System Contract From Astilleros

Bardex Corporation, of Goleta, Ca., has recently received a contract from El Ferrol, Spain-based Astilleros y Talleres del Noroeste, SA (ASTANO), for the turret turning and locking system. The turret system is to be used on a Tentech 850 C floating production vessel being built for Ocean Production Inc., a Liberian registered company in the John Fredriksen group in Norway.

The advanced turret system will consist of four hydraulic gripperjack assemblies for rotating the turret in either direction and locking it in position. Bardex will also supply the intrinsically safe control system, suitable for use in a Zone 1 hazardous area.

The hull and turret of the floating production vessel is being built to accommodate a variety of field specific topside facilities for up to 20 risers and oil production up to 100,000 bbl/day. It will also accommodate gas and water injection. The vessel will be able to store up to 550,000 bbls of off-loading to shuttle tankers up to 140,000 dwt in size. For free literature about the services available from Bardex,

Circle 105 on Reader Service Card

Keystone Backs Liberty's Call For MarAd Bulk Cargo Preference Program Reform

A proposal from Liberty Maritime Corporation, Lake Success, N.Y., that would have the Maritime Administration (MarAd) reform the dry bulk cargo preference program is being supported by Philadelphiabased Keystone Shipping Company.

The Liberty proposal calls for MarAd to make the following determinations for dry bulk preference cargoes; the procurement method to be used, the content of freight tenders, ways tenders will be publicized, internal record keeping system for offers, whether solicitations may be retendered or canceled and the content of charter parties (prohibited and mandatory provisions), to name a few.

Keystone also supports Liberty's proposal to have the maritime agency approve all charter terms. A Keystone statement said: "Without MarAd's participation and approval, charter terms are often adopted which hurt U.S.-flag ship operators and, consequently, raise government costs."

FMC Files Agreement That Establishes Atlantic Carriers Association

The Federal Maritime Commission (FMC) has filed a new agreement that establishes an association of ocean common carriers in the trade between the continental United States and Northern Europe.

Unless otherwise challenged, Agreement No. 202-011375 will automatically become effective 45 days after publication in the Federal Register. It replaces Agreement No. 202-011373 which was withdrawn on April 30, 1992.

The members of the new association will discuss and agree upon matters of mutual interest, including; rates, a common tariff, voluntary working arrangements regarding space chartering, the sharing of container equipment, capacity program management, allocation of cargo or revenue and other activities within the scope of the Agreement described in section 4 of the Shipping Act of 1984.

The parties to the Atlantic association are: Atlantic Container Line AB; Compagnie Generale Maritime (CGM); Nedloyd Linjen BV; Hapag Lloyd AG; Sea-Land Service, Inc.; A.P. Moller-Maersk Line; Polish Ocean Lines; Mediterranean Shipping Company; DSR/Senator Joint Service; P&O Container Limited; Orient Overseas Container Line (UK), Ltd.; and Cho Yang Shipping Company.

Maritime Reporter/Engineering News



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

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

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

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New Appointments At Newpark Shipbuilding

James H. Sessions, president of Houston-based Newpark Shipbuilding & Repair, Inc., recently announced the promotion of 3 company staff members. The individuals receiving promotions were: Joseph P. O'Toole, to executive vice president; Dale Payne, becoming yard manager; and Richard Wade, Newpark's new vice president, finance.

nance. A subsidiary of Newpark Resources, Inc., of Metairie, La., Newpark Shipbuilding & Repair is a major Gulf Coast shipyard equipped for new construction, conversion and repair of a wide variety of marine vessels, including tow boats and barges, offshore boats, geophysical boats and small merchant ships. The company's gasfree/cleaning plant is one of the most technologically advanced and permitted facilities on the Gulf Coast.

Fabietti Named VP Of Corporate Shipbuilding For Carnival Cruise Lines

It was recently announced that Captain Vittorio Fabietti has been promoted to the position of vice president, corporate shipbuilding, for Miami-based Carnival Cruise Lines.

Captain **Fabietti** has been with Carnival since the company's inception in 1972, first serving as staff captain on the line's first vessel, the Mardi Gras, and then as captain of various "Fun Ships" from 1975 to 1982, while at the same time overseeing the addition of new ships to the company's fleet. In 1983 he became chief coordinator of newbuildings, responsible for supervising the construction and delivery of all new vessels. Prior to joining Carnival, Captain **Fabietti** served for 15 years

Prior to joining Carnival, Captain **Fabietti** served for 15 years on various Italian cruise liners and, among his many educational credentials, is a graduate of the Italian Naval Academy in Leghorn.

In his present position, he will be responsible for overseeing all facets of new ship orders, construction and delivery for Carnival Cruise Lines and its subsidiaries. Currently, Captain **Fabietti** is supervising the construction of three new vessels for the Carnival fleet and three for its subsidiary Holland America Line.

Crowley Selects New VP Of Liner Service Pricing

Crowley Maritime Corporation has appointed **Peter A. Baci** to the position of vice president, pricing, liner services. The announcement was made by **James Carey II**, Group Vice President, Liner Division Service, effective immediately.

Mr. Carey said that Mr. Baci is responsible for all pricing activities for Crowley's South American, Central American and Caribbean services. He continues to be headquartered in the marine transportation company's Jacksonville offices.

Extensive Line Of Shipboard Furniture From Wilson & Hayes

Wilson & Hayes, Inc., Seattle,

Wash., offers an extensive line of shipboard furniture to meet the specifications of the Navy, Coast Guard, Maritime Administration, NOAA, as well as the commercial and offshore markets. The custommanufactured furniture is available in aluminum, stainless steel, brass and wood.

In business for over 57 years, Wilson & Hayes can assist a customer with interior design/habitability projects, providing technical assistance, color coordination, room arrangements and detailed room layouts.

For a free comprehensive catalogue detailing Wilson & Hayes' full line of shipboard furniture,

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Measure performance. GPS can measure your speed over the ground to a tenth of a knot, so you can precisely figure the set and drift of even subtle currents. That helps you stay on course and helps you find optimum engine and rudder settings.

The NavGraphic XL GPS. A new way to look at navigation. See your boat move on an image of a real NOAA chart. Now with a new slim-line design and highcontrast display.



The NavTrac XL GPS. Innovative 3-D diagram makes staying on course as easy as driving down a road. Now with a new slim-line design and high contrast display.



The Acutis 6 GPS. A six-channel GPS receiver integrated into its antenna module. Brings GPS to any nav instrument that accepts NMEA-0183.

\$189 Million Added In MarAd Budget For Ship Repair

A House subcommittee recently added \$189 million to the Maritime Administration's Fiscal Year 1993 budget for ship maintenance and repair for the Ready Reserve Force lion for vessel construction loan guarantee commitments.

Members of the Merchant Marine Subcommittee of the House Merchant Marine and Fisheries Committee recently approved a \$727 million FY '93 budget for MarAd beginning this October.

The subcommittee justified the additional funding for ship mainte-nance based on the "lessons learned" during the Gulf War.

Rep. Walter B. Jones (Dem.-NC), chairman of the subcommittee, and Rep. Norman Lent (Rep.-NY), jointly introduced the amendment authorizing \$35 million for MarAd's Title XI ship financing program. The \$35 million for loan guarantee commitments, according to MarAd, will enable the agency to issue guaran-tees for about \$750 million for the construction or reconstruction of U.S.-flag ships in U.S. shipyards.

> in a series devoted to safety and performance on the water.

Bruce McAllister Joins Steel Hector & Davis

Bruce McAllister has joined the Florida law firm of Steel Hector & Davis as a partner, and will head the firm's Admiralty and Maritime Law Group, according to **Joseph P. Klock Jr.**, the firm's chairman and chief executive.

Mr. McAllister brings 28 years' experience in maritime law, with particular expertise in marine insurance, litigation and arbitration to his new position.



Bruce McAllister

Part of Mr. McAllister's experience includes serving as president and chief executive officer of McAllister Brothers Inc., a maritime transportation company, and deputy, then acting assistant secretary of commerce for maritime affairs for the Maritime Administration.

Harris Paper Analyzes **Transmitter Interference** In Warship Installations

Harris Corporation's RF Communications Group, of Rochester, N.Y., has recently released a White Paper analyzing the warship design problem of overcoming mutual interference among multiple transmitters and receivers without a trade-off in system performance. Entitled Broadband Solutions to

Mutual Interference in Collocated Shipboard Radio Installations, the paper discusses the operational requirements for HF radio systems in a modern battle group and the re-sulting need for multiple radio systems in a collocated environment. It analyzes the techniques currently being used to address the requirement and describes a new approach to broadband radio architecture, which overcomes the drawbacks inherent in conventional narrowband systems and broadband powerbank systems.

The paper presents test data, which show substantial reduction in wideband intermodulation (IM) distortion using this approach. The Royal Canadian Navy is cur-

rently testing these new-generation broadband HF systems onboard the lead ship of its new patrol frigate class, HMCS Halifax, with promising results, according to Harris. For copies of the White Paper from Harris,

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73





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accuracy to thread their way through rocky passages. Outside boats, working along the Alaskan coast and throughout the world, use GPS to stay on schedule, even in the worst weather.



Small box, big reputation. The Navy used the military version of our portable TransPak II to locate mines in the Persian

experienced." Closer to home, you can use it in a tender or as a back-up unit.





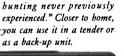
TrimbleNavigation

For more information please call or write our Marine Division: P.O. Box 3642, Sunnyvale, CA 94088-3642 1-800-TRIMBLE or 800-221-3001 in California FAX 408-737-6057

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GPS" can give you 2-5 meter accuracy. Soon coastlines will be dotted with radio beacons like the one at Montauk N.Y., broadcasting corrections to GPS receivers in the area. Only Trimble products come standard with the ability to accept these corrections.

success at mine

Hyde Delivers Lori Brush Pack Bow Collector

A LORI Bow Collector, Model LBC-3, Skimming System has re-cently been delivered by Hyde Products, Inc., of Cleveland, Ohio, to the Delaware Bay & River Cooperative (DBRC) of Lewes, De.

The LBC-3 is installed on the bow of DBRC's 35-foot Sea Responder,

L90 MC

K90 MC

L80 MC

STO MC LTO MIC

L 50 MC

LA2 MC

L35 MC

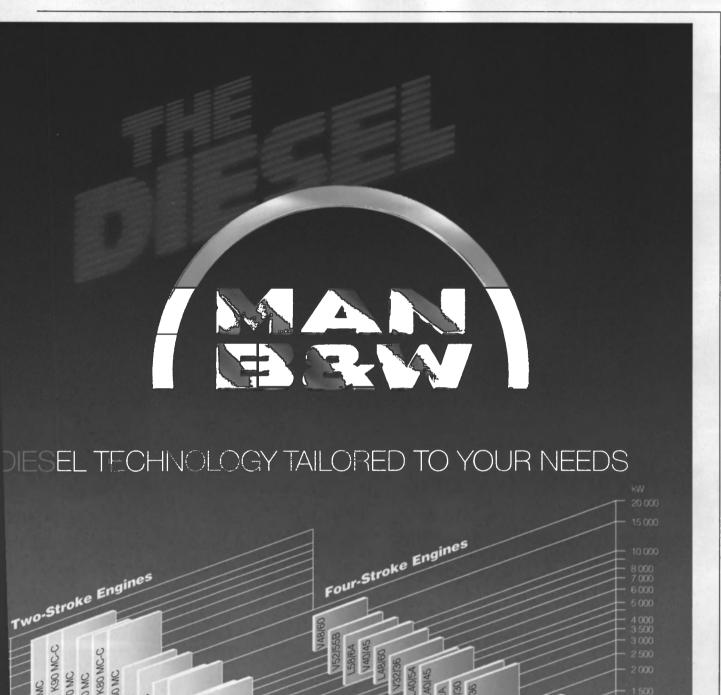
Circle 26€ on Reader Service Card

one of their several spill response vessels servicing the Delaware Bay and Delaware and Schuylkill Rivers. The system is designed to be deployed quickly for recovery operations and to swing up and out of the water for transit and storage.

The LBC Skimming System includes a 3-chain brush skimmer, sweeping boom, jib arms, support frame and hydraulic power pack. The system was delivered with a second brush pack, fitted with light

oil collection bristles, for more efficient performance in light oil and during early stages of a spill. The company reports that the standard brush pack offers excellent performance in a range of conditions from medium viscosity to extremely viscous emulsions. A 3-brush system has a proven recovery capacity of 114 bbl/hr with less than 10 percent free water and a skimming speed of 2 to 3 knots.

Hyde Products has served the ma-



rine industry for more than 125 years and has 15 years of experience in supplying a complete range of Oil Spill Recovery Products.

For free literature about the services and products available from Hyde Products, Inc.,

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New Koden Radome Boosts **Radar Precision & Reliability**

A new radome introduced by Koden International, of Norwell, Ma., is reported to increase the reliability and performance of the company's new 7- and 10-inch radars.

The MRT-136's 1.8-foot antenna unit is driven by a direct-drive motor, eliminating the difficulties normally associated with belt-drive units. Tight tolerances on all gear-ing and the rugged design (corrosion-resistant, weather-tight poly-ethylene shell) is said by Koden to ensure years of problem-free use in any operating area.

A microwave integrated circuit front-end and FET modulator produce a noise figure of less than 6 dB, resulting in very high target discrimination and detection levels. A full 3 kW transceiver processes four pulse widths for efficient navigation in short, medium and long ranges. By producing a 4 degree

beamwidth while suppressing sidelobes to less than -20 dB, Koden's radome provides easy-to-read information on hard-to-find targets such as inlets and breakwater openings.

The MRT-136 is housed inside a compact dome (9.5 inches high by 23 inches in diameter) for easy mounting on any size vessel. All Koden marine electronics are backed by a 30-month, limited warranty.

For free literature about the Koden's new antenna unit and other marine electronic products,

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Former Soviet Black Sea Fleet To Be Split **Between Russia And** Ukraine

The former Soviet Union's Black Sea Fleet will be removed from joint control of the Commonwealth of Independent States and divided between Ukraine and Russia, accord-ing to Marshall Yevgeny Shaposhnikov, top CIS military commander.

Disputes over the future of the former Soviet military machine have rocked the Commonwealth since its formation last December.

Marshall Shaposhnikov recently said during a press confer-ence that bilateral talks between Russia and the Ukraine will determine how exactly the fleet is to be allocated between the two countries.

Robertson Disc Navigation is the Electronic Chart Display & Information System (ECDIS) which has been proven where it counts - at Sea.

Navigators aboard Naval Vessels, Tankers, Paper Carriers and Survey vessels are already reaping the "peace of mind" benefits of Disc Navigation's central "work station" with its real time picture of events - giving the true situation and position, at a glance, as it happens. This is achieved by importing moving target information direct from the ARPA and superimposing it accurately onto official, Hydrographic Office electronic charts - all to IMO standards.

Other interfaces with GPS, Autopilot, Sounder, Speed Log etc. combine with a sophisticated system of alarms to warn of impending danger such as grounding.

An increasing number of Shipowners are realising the economic and safety benefits of the most advanced ECDIS available. For your peace of mind ask Robertson about Disc Navigation now.







Robertson Disc Navigation

"The most significant advance in safer navigation since the invention of radar" Circle 280 on Reader Service Card

Waterfront Boats Completes **2 Spill Response Vessels**

Waterfront Boats, of Ventura, Ca., has recently completed and launched 2 oil spill response vessels for the Pacific Gas & Electric Company's powerplant at Morro Bay, Ca. Powered by a Cummins 6BT5.9

diesel engine coupled to a Traktor Jet drive, the boats have a strong pulling power at low rpm, producing over 2800 lbs of static thrust without a protruding underwater drive propeller, which enables the boats to work in shallow waters of

According to Waterfront, the boats exhibited excellent handling characteristics during their sea trials. Because there is no side torque from a propeller, the jet drive has a neutral handling. It can go from full ahead to full astern at full throttle and can even run over the oil boom without snagging.

Each aluminum welded boat is equipped with an all weather pilot house, flush deck hatches, a heavy duty towing bitt and full safety rail-ings around the work deck area.

Waterfront builds all types of custom aluminum boats to fit the requirements of each owner using computer-aided designs.

For free literature about the line of Waterfront Boats,

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Durable mooring line made of KEVLAR and DACRON - shown new

(top) and after 18 months of rugged use aboard USS Mississippi (below) -

demonstrates no signifi-

Lightweight mooring lines of KEVLAR make securing the ship less difficult, reduce topside

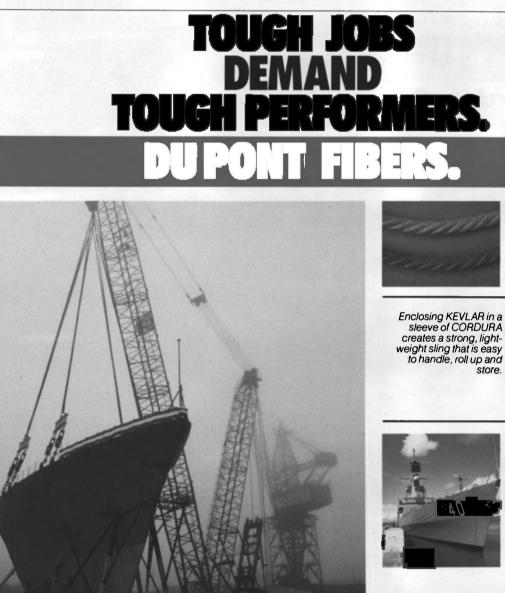
USS Mississippi (CGN 40) Official U.S. NAVY

weight and increase storage space.

photograph

cant wear.

store.



In slings and mooring lines, Du Pont fibers are bound to perform even in the most demanding applications.

Lifting a 550-metric-ton bow ection is no simple task. That's vhy St. John Shipbuilding, imited, of Canada chose slings nadeofDuPontKEVLAR®aramid ber and CORDURA® nylon fiber. nclosing KEVLAR, which is ound for pound five times ronger than steel, in a durable nd abrasion-resistant sleeve of ORDURA created an extremely rong lightweight sling that is isy to handle and store. In another tough test for the nited States Navy, mooring

lines of DuPont KEVLAR aramid with a KEVLAR/DACRON® polyester fiber jacket were used. Stronger, lighter and smaller than incumbent nylon and polyester lines, mooring lines of KEVLAR last longer and don't stretch as much, giving better positioning control dockside.

To receive free information on how you can put tough performers to work for you, complete the coupon below, or call toll-free 1-800-453-8527.



Fill out and mail this coupon to: DuPont, Barley Mill Plaza, G-52056, P.O. Box 80010, Wilmington, DE 19880-0010. YES. I would like information on the following Slings Mooring lines General Rope/Cordage Information NAME/TITLE

ADDRESS		
CITY	STATE	ZIP
PHONE		ME

IDB-A Introduces Lower Satcom Rates

Lower "per minute" satellite communications rates to and from the Indian Ocean region (IOR) are being offered by Rockville, Md.-based IDB Aero-Nautical Communica-tions, Inc., (IDB-A), a supplier of mobile satellite services via INMARSAT.

IDB-A's vice president & general manager, Jon Klein, said: "These price reductions are initiated to meet the demands of our customer base in the IOR, many of whom are using our services for oil & gas exploration in the new Commonwealth of Independent States. It is also important to note that these new global rates include final land-line delivery in the U.S., U.K. and Canada. IDB-A arranges delivery of voice traffic to all other countries for a flat rate of \$.85 per minute.'

A joint venture between IDB Com-munications and Teleglobe, Inc., of Canada, IDB-A has been supplying ship-to-shore, shore-to-ship and remote location services since January 1991 for a wide range of maritime and land mobile users in the transport, pleasure cruise, fishing, oil and energy industries. Company services include telephone, facsimile, telex, electronic mail and data transfer communications routed via INMARSAT through a global network of earth stations to the public switched telecommunications network.

For free literature about the satcom services offered by IDB Aero-Nautical Communications, Inc.,

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Key Appointments At Norshipco

At Norfolk Shipbuilding & Drydock Corp.'s (Norshipco) recent annual board of directors meeting the following senior management promotions were announced: Robert D. Twine, Sr., from assistant vice president, Berkley productions; Frank E. Creasy, Jr., from assistant vice president, Barableton, to vice president, Brambleton produc-tion: Bishard H. Winglow, fram tion; Richard H. Winslow, from vice president, controller and trea-surer, to vice president, chief financial officer, controller and treasurer;

John W. Humphreys, from vice president, administration to vice president, administration and assistant secretary; and Carlos E. Agnese, executive vice president of business development, marketing, estimating and contract administration, was elected by the company's stockholders to the board of directors

Norshipco also announced that W. D. Payne, Sr., executive vice president and assistant secretary, and E. L. Carlyle, senior vice president and chief financial officer, have retired.

One of the largest corporations in the Hampton Road's area, Norshipco employs more than 3,000 people at its Norfolk shipyard.

Maritime Reporter/Engineering News

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Miller Electric Introduces New Wire Feed Systems For Aluminum Welding

Miller Electric Manufacturing Company, Appleton, Wi., has re-cently introduced its XRtm and Spoolmatic air and water cooled semiautomatic wire feed systems which offer optimum performance in gas metal arc (MIG) welding with difficult to feed soft alloy wires.

The unique design of the XR and Spoolmatic guns allows them to be easily converted from a one pound spool gun to an XR push-pull gun, or vice versa. The guns are designed with emphasis on light weight, balance, and operator comfort and convenience.

The Spoolmatic wire feed system utilizes a 1-pound (0.45 kg) spool gun for use with 4-inch (102 mm) diameter spools of wire. Equipped with 30-foot (9.1 m) cable assembly, it is ideal for portability and hardto-reach welding job sites, according to Miller.

The company reports that the XR push feeder/control combined with the XR pull gun offers ideal aluminum wire feeding action, arc starting regardless of type of DC power source, adjustable wire run-in con-trol, and adjustable drive motor acceleration control.

A solid-state speed control circuit and a high power 24 VDC permanent magnet drive motor provide a wide wire feed speed range of 70 to 875 IPM and convenient wire feed speed control for easy operator access in virtually any welding posi-

For a free 10-page brochure de-scribing Miller's XR and Spoolmatic wire feed systems,

Circle 90 on Reader Service Card

Schottel Symposium **On Propulsion Units** Set For June 30

Asymposium titled "State-of-the-Arymposium titled State-or-the-Art Propulsion Systems" will be con-ducted by Schottel-Werft at Spay/ Rhine, Germany, for naval archi-tects on June 30, 1992. The main subject of the event is

the application of Schottel propulsion units. Schottel plans to discuss its newly developed propulsion programs for Rudderpropellers and ump-Jets.

About 80 international professionals have already registered for the symposium.

The company has completed the systematic upgrading of standard Rudderpropellers in the power range of 15 to 6,000 kw and the Pump-Jet series up to 1,000 kw, and Schottel believes that these products now represent an excellent choice for every field of application.

To register for the symposium, ntact Schottel-Werft. Mainzer Str. 99. D-5401 Spay/Rhien, Germany; telephone: (+49) 2628 61235; or fax: (+49) 2628 61300.

June, 1992

Ship Navigator From Sperry Marine **Completes NATO Trials**

Phase I of official NATO sea tri-als of Sperry Marine's MK-49 Ring Laser Ships Inertial Navigation System (SINS) has recently been successfully completed onboard a Royal Netherlands Navy Frigate in the North Sea.

The MK-49 was selected in 1989 by the NATOS SINS Project Group as the standard ships navigator for submarines and frigates in the Netherlands, Spain and the United Kingdom. Subsequently, Australia and New Zealand selected the MK-49 for

their new Frigate Program. According to Sperry Marine, dur-ing NATO sea trial, the performance of the MK-49 won high praise from engineers and officials of the NATO

SINS Project Office. Support for the trials was provided by Sperry Ma-rine and GEC Ferranti, the NATO SINS prime contractor. The MK-49 NATO SINS is manu-

factured by Sperry Marine under contract from prime contractor GEC

Ferranti of Edinburg, Scotland. For free literature detailing the MK-49 Ring Laser SINS from Sperry Marine

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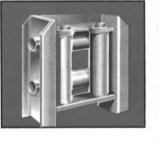
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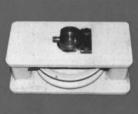
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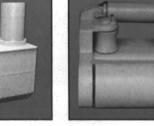
MARINER CLASS FAIRLEADS

OCEANOGRAPHIC

Available with balanced head single sheave or double sheave swivel head designs. Designed for wire rope sizes up to 3" (76mm). Tail sheave or load monitoring pins optional.



ROLLER AND PEDESTAL FAIRLEADS Two, three, or four roller fairleads designed for all wire or synthetic rope sizes. Mounting bases can be custom-designed for special applications.







Consortium Offers New Offshore Platform Design

Deep Oil Technology, McDermott Marine Construction, Rauma-Repola and Reading & Bates Development Co. have formed an international consortium to offer Spar drilling, production and storage plat-forms to the offshore industry.

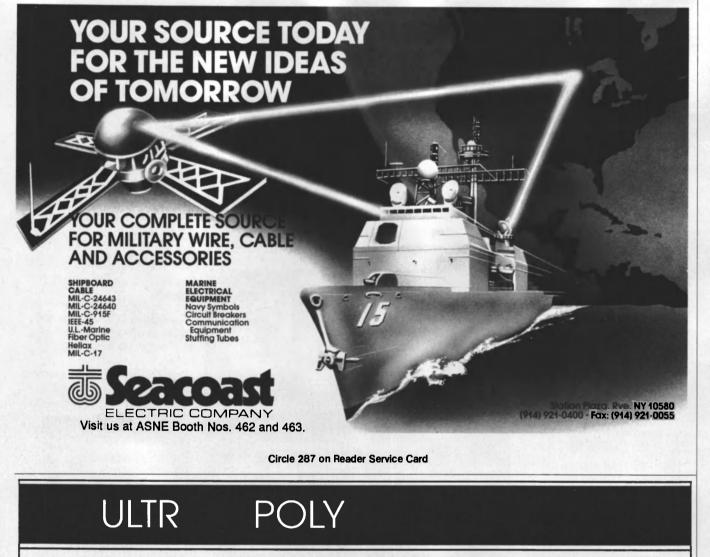
The Spar is a large, deep-draft,

cylindrical, floating platform de-signed to support drilling and production equipment and to store produced oil. It is moored with multiple catenary anchor lines over a cluster of subsea wells. The wells can be individual wells or grouped within seafloor template. Steel risers connect the wells to surface trees located on the cellar deck of the Spar.

The Spar concept has been studied by a number of oil companies for

application in the deep waters of the Gulf of Mexico and other areas throughout the world. The Spar's main advantage is that it allows a field to be developed and produced with a single floating unit. The Spar can be relocated after the field is depleted and therefore can be used for short term as well as long term development requirements.

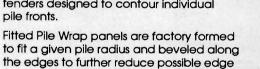
The consortium will offer Spar platforms to the industry by direct



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Ultra Fend Fitted Pile Wraps are rounded fenders designed to contour individual pile fronts.



catching and dislocation. Wraps let hulls slide freely along piles and protect wood against chipping and shredding due to impact and abrasion. 0 0 A 3/4" thick x 11" wide Wrap suitable for a 13" 0 diameter pile is drilled with holes 1-1/2" 0 diameter, 1/2" deep countersink, to 0 accept 1/2" diameter bolts with cut washers. 0 Standard Fitted Pile Wraps are available in any length. 0

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ULTRA FEND — Continuous Length Fendering Systems

Ultra Poly offers Ultra Fend UHMW-PE Fendering Systems for pile wraps and boards in continuous lengths. Because of its low coefficient of friction and high impact

strength Ultra Fend allows vessels to guide freely along its surface while protecting against chipping, shredding, and catching due to impact.

Ultra Fend is available In standard black or custom UVstabilized colors, flat or formed, or fabricated to the special needs of our customers.



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sale, or will arrange lease terms. For additional information on the new Spar concept,

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CMIA Plan Would Revive Shipbuilding Industry, Add Thousands Of Jobs

The Canadian Maritime Industries Association (CMIA) recently presented the Canadian government with a plan which would revive shipbuilding in the country and add about 30,000 jobs.

The plan calls for both the federal and provincial governments to provide financing which would stimulate commercial shipbuilding by pri-vate owners. CMIA claims that its plan could put almost 30,000 Canadians to work which would decrease unemployment rates and, at the same time, upgrade Canadian fleets. The plan would also create a surge in revenue as well as ensuring the survival of the Canadian shipbuilding industry.

SPD Offers Free 48 Page **Brochure On MIL-SPEC Circuit Breakers And** Switchgear

SPD Technologies, of Philadelphia, Pa., is offering interested customers a free 48-page color brochure entitled Mil-Spec Circuit Breakers And Switchgear. This includes the molded case breakers from 5 amps through 1600 amps. The company also reports that the delivery time for new air circuit breakers and switchgear is at an all-time low.

The SPD brochure is a well de-signed and developed guide to selecting from an extensive line of circuit breakers and switchgear. Cir-cuit breakers are divided into two categories, the first being molded case circuit breakers (AQB) and the second air circuit breakers (ACB). Each category includes application and technical data, rating charts and product descriptions, ordering data and an explanation of the company's catalog numbering system.

Each piece of equipment is individually photographed and comes with a full page description, includ-ing rating tables, photos and full dimensional line drawings.

The switchgear section contains photographs and text describing the SDP selection of Navy switchgear. A follow-up chapter provides four, bi-colored, time/current character-

To receive a free copy of SPD Technologies brochure,

Circle 94 on Reader Service Card

NAVAL RESERVES

THE FRIGATE TRAINER PROGRAM: Should It Be Cancelled?

I n March 1990, as part of efforts to reduce the size of the fleet and to meet planned budget reductions, the Navy proposed decommissioning all 46 of the Knox class frigates—whose primary ocean escort mission is to protect merchant ship convoys from submarines. Decommissioning these frigates was considered prudent because, although they had significant service life remaining, they would have required costly weapons modernization and upgrades if they remained in the active fleet. (The frigates lack the guns, electronics and surface-to-air missiles that the Navy considers necessary for modern, anti-air and surface warfare.) The Navy estimated that decommissioning the entire Knox class would save about

\$6 billion over their projected 10 years of remaining service life. The 10-year program life was projected based upon the estimated remaining service life of the ships and the availability of trained sailors with the skills required to operate and maintain their unique steam-pow-

ered propulsion systems. In August 1990, however, a Navy task force recommended the "Innovative Naval Reserve Concept,' whereby eight of the Knox class frigates would be assigned to the reserves. These frigates would be used to train "nucleus crews" for another 32 Knox class frigates that would be decommissioned and maintained in a slightly higher state of readiness than other ships the Navy decommissions. The remaining six frigates would be offered for sale or lease to foreign governments. Training nucleus crews during peacetime was seen as a hedge against the possibility of a future global war. The Secretary of the Navy approved the program in November 1990.

Under the Knox class frigate reserve program, the eight Naval Reserve trainer ships will be manned by full-time support crews made up predominately of active-duty reservists. Each trainer ship will train its full-time support crew, a Selected Reserve augment crew (in case the ship is deployed in combat), and four additional reserve nucleus crews associated with four decommissioned frigates. If mobilized, the nucleus crews would be expected to help activate their frigates and train additional crew members.

The Navy estimates that the Knox class frigate reserve program will cost about \$1.4 billion over the next 10 years, saving \$4.6 billion rather than the \$6 billion if the entire class were decommissioned. The Navy

also estimates that the program will require 488 officers and 4,184 enlisted active and reserve personnel.

As of March 1992, the 8 trainer frigates had been designated, 12 ships had been decommissioned, 20 were scheduled to be decommissioned, and the remaining 6 have been leased—3 to Greece and 3 to Taiwan. Four trainer frigates will move to their new homeports in fiscal year 1992. Planning is underway to move the remaining four trainer frigates to their new home-ports in fiscal year 1993.

Department Of Defense Response:

While Knox class frigates do have convoy escort as one of their missions, additional primary and secondary missions assigned are anti-submarine warfare, anti-surface warfare, anti-air warfare, naval gunfire support, escort of underway replenishment groups, support of amphibious operations, maritime intercept operations, counternarcotic operations, and electronic warfare. Since first built, these ships have been modernized to enhance their mission capability. The combat systems of all Knox class frigates have been upgraded to include the Harpoon anti-ship cruise missile, and they have been continually upgraded in their anti-submarine warfare capability, making them capable of effectively detecting, tracking, and engaging the majority of Common-wealth of Independent States and Third World submarines.

The Navy's Reserve frigate trainer program is designed to provide capability for reconstitution of forces to deter or if necessary respond to potential future global threats. The eight ships maintained in the commissioned Knox class Reserve fleet provide a means of training crews essential to man a reconstituted force. In the absence of this program, training of the complements of the reconstituted ships would require a prohibitively long period. The 32 additional ships in the frigate trainer program will be maintained in condition to be recommissioned within six months. Clearly, without the program, reconstitution of similar capabilities would take years. The Reserve frigate trainer program is a relatively low cost option to provide insurance against possible future global threats.

All topside maintenance costs were included in the original estimates. Since establishment of the Reserve frigate trainer program, the Navy has determined that condition-based rather than time-based topside maintenance is more appropriate. As a result, those ships maintained in more temperate climates will require less frequent topside painting. This new maintenance policy, when adopted, is expected to produce program savings above those already identified.

Equipment at the three homeports is a "sunk" cost not specifically related to the Reserve training frigate program. Port operating costs accrue regardless of what ships are homeported there, and cancellation of the Reserve training frigate program would not in and of itself result in closure of any homeports. The only specific expense related to the frigate program is an estimated \$1 million to run a steam line to the pier in Mobile, Alabama, that was included in the program cost estimate.

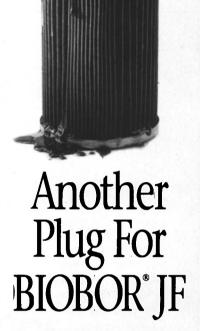
General Accounting Office Recommendation:

The GAO recommended that the Secretary of Defense cancel the Reserve frigate trainer program and direct the Secretary of the Navy either to decommission, sell, or lease the Knox class frigates. The Knox class frigate program should be can-celed because of the much reduced threat of a global war. Decommis-sioning of all of the ships now would save the program's projected \$1.4 billion 10-year cost.

The Department's view, as reflected in the FY93 President's Budget, is that the Navy's Reserve frigate trainer program is a cost effective means of providing reconstitution capabilities to deter, or if necessary to respond to, potential future global threats requiring capabilities beyond those maintained in the active Navy. Because of the long lead time required to build new surface combatants and train their crews, even the most optimistic warning times are insufficient for such reconstitution activities.

In addition to its value as a reconstitution asset, the Navy's Reserve frigate trainer program also serves as an expanded shipboard training opportunity for Selected Reservists throughout CONUS and is an excellent vehicle for the Navy's womenat-sea program.

Complete report available from U.S. General Accounting Office, P.O. Box 6015, Gaithersburg, *MD 20877.*



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Bill Introduced To Revitalize U.S. Shipbuilding

A bill has been introduced in the House of Representatives by Con. **Thomas H. Andrews** that would assist in the revitalization of the commercial shipbuilding industry in the U.S.

The bill, H.R. 5072, the Shipbuilding Promotion Act of 1992, requires the Secretary of Defense, concurrent with the Department of Defense budget request for fiscal year 1994, convene an interagency working group to develop and implement a plan to ensure that U.S. commercial shipbuilding can compete effectively in the international shipbuilding market. If the Secretary of Defense fails to submit such a plan to Congress, the act contains language which would prevent the Department of Defense from entering into

a contract for the construction, repair or purchase of any product or service with any company physically located or headquartered in a nation that subsidizes its shipbuilding and repair industries.

ing and repair industries. "The U.S. shipbuilding industry is in a crisis," said Congressman **Thomas**. "Commercial shipbuilding in the United States has virtually disappeared. As a member of the House Armed Services Committee's Seapower Subcommit-

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tee, I have heard representatives of the Department of Defense testify over and over again that our shipbuilding industrial base is essential to the national security of the United States. However, when they are asked what step they are taking to preserve the shipbuilding industrial base, they have no answers."

Gibbons Bill Passes In House; Faces Test From Senate, Bush

After much debate, the Gibbons Bill, or as its more formally known, the Shipbuilding Trade Reform Act of 1992, H.R. 2056, was recently passed in the House. However, the bill faces a uphill battle in the Senate.

The bill is designed to "try to ensure fair trade in the commercial shipbuilding and repair industries by providing additional trade remedies against subsidized and dumped foreign commercial ships."

The House rejected the Archer notion which would have sent the bill back to the Committee on Ways and Means in order to strike the shipbuilding trade reform provisions while retaining only the boat user fee provisions.

President **Bush** has already stated that he will veto the bill if left in its present form. The Administration feels that a multilateral agreement to eliminate shipbuilding subsidies is preferable to the Gibbons Bill.

New Alaskan Bill Limits Liability From Oil Spills

A bill recently passed by the Alaskan legislature would limit the liability of insurers or other parties supplying certficates of financial responsibility to tanker owners in the event of an oil spill.

State officials are prohibited by the bill from taking action against insurers for more than what is indicated on a COFR. The bill is designed to make it easier for tanker owners to obtain liability coverage.

The bill specifically limits the liability of a third party insurer or other group providing COFRs.

Vecom USA Creates New Director Position

Vecom USA Inc., of New Orleans, has initiated the new position of technical director to enhance the company's quality of technical support for its comprehensive range of marine chemicals and equipment, including AWT and LT-200 systems.

The new position will be filled by **Ray Tilley**, who will be responsible for training personnel and coordinating technical support activities throughout the USA and Canada. Mr. **Tilley** has extensive experience in the marine industry, including 16 years at sea and 15 years in shoreside management.

McDermott Awarded \$55 Million Contract To Build Sulfur Carrier

McDermott International, of Morgan City, La., has signed a contract with Sulphur Carriers, Inc., a subsidiary of International Shipholdings, Inc., for the construction of a 524-foot sulfur carrier of 24,000 dwt. Bids had been solicited from 14 yards for the ship, which is scheduled for delivery in late 1994.

The ship will be operated by Freeport-McMoran Resource Partners, a subsidiary of Freeport-McMoran, Inc., for the ocean transportation of molten sulfur mined at Main Pass off the mouth of the Mississippi River.

Construction will begin on the sulfur carrier immediately at McDermott's Morgan City, La., shipyard, where the company is currently building four Navy ocean surveillance vessels.

For free literature about the facilities and services available from McDermott International,

Circle 103 on Reader Service Card

\$70.3 Million Contract Awarded To AT&T For New China, Japan Cable

A \$70.3 million contract to design, engineer and install the first undersea fiberoptic cable system between China and Japan was recently awarded to American Telephone & Telegraph Company (AT&T).

Linking Miyazaki, Japan, to Nanhui, in Shanghai, China, the 800-mile system will interconnect existing fiberoptic cable routes in Asia and the Pacific.

Scheduled to begin service in December 1993, the new cable will provide China with access to the world's fiberoptic network through the United States.

MSC In The Market To Purchase Used RoRo's

To satisfy an urgent need to acquire additional Roll-on/Roll-off ships, the Navy's Military Sealift Command (MSC) is planning to purchase secondhand RoRo vessels and modify them to military specifications.

Rear Adm. David Chandler, MSC's second-in-command, stated that rather than wait several years for U.S. shipyards to begin producing custom designed vessels under the Navy's new sealift ship acquisition program, MSC wants to buy older ships "as quickly as possible."

Based on a Navy analysis of the U.S. sealift effort during the Persian Gulf war, it was determined that there is a need for more RoRo vessels in the U.S.-flag fleet.

June, 1992

While not stating the exact number of ships that MSC intended to purchase, Admiral Chandler told the RoRo92 conference in Gothenburg, Sweden, that MSC hopes to have \$3 billion at its disposal for ship acquisitions, with \$1.9 billion already allotted and an additional \$1 billion proposed by President Bush in the next budget. Under U.S. law, the new ships must be built in the United States.

Bids Solicited For Construction Of Pilot/Linehandler

Bids have been solicited by the Panama Canal Commission, Logistical Support Division, for the construction, testing and delivery of a 53-foot twin-screw, diesel-powered, aluminum hull pilot/linehandler launch. For further details on the solicitation, due July 13, 1992, contact: **Maria Teresa Arias** at (507) 52-4690.

Research Boat Repaired At Gig Harbor Yacht

Gig Harbor Yacht Sales, Inc., Gig Harbor, Wash., recently performed repairs on a research boat under a \$38,975 contract.



Circle 251 on Reader Service Card

Marc Newman Named VP Of Business Development For IDB Aero-Nautical

It was recently announced by IDB Aero-Nautical Communications, Inc., (IDB-A), Rockville, Md., that **Marc Newman** has joined the company as vice president of business development.

Mr. Newman will be assuming

direct responsibility for IDB-A's shore-to-ship voice, telex and data services, as well as the further development of the IDB-A messaging center project to enable world travelers to gain access to custom information, assistance and communication services with a single phone call from any worldwide location.

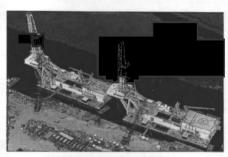
"Marc's efforts are vital to IDB-A's plan to continue providing the best value in mobile satellite communications," according to **John** Klein, vice president and general manager of IDB-A. "He has a rare ability to envision customer focused solution and implement them."

Previously Mr. Newman was director for the reseller marketing group in the Sprint International Value Added Services Division.

IDB-A Nautical Communications, Inc., markets satellite communications services to maritime users, including commercial shipping fleets, fishing vessels, pleasure cruise lines, oil rigs and tankers. IDB-A is a joint venture of IDB Communications Group, Inc. and Teleglobe, Inc. of Canada.

Gulf Coast Fabrication Builds 2 Drill Rigs Destined For Venezuela

Two 200-foot by 100-foot drilling barges were recently delivered from the Port Bienville Industrial Part Facility of Gulf Coast Fabrication, Inc., Lakeshore, Ms.



The two 200-foot by 100-foot drilling rig barges built by Gulf Coast Fabrication, Inc., for Foraven, SA, are to operate under long-term charter to MARAVEN, the Venezuelan government's oil company.

The rigs were built for Paris, France-based Foraven, SA, a joint venture of Forasol, SA, one of Europe's largest drilling rig contractors, and Falcon Drilling, of Abbeville, La. The rigs will be under long-term contract to MARAVEN, the Venezuelan government owned oil production company.

The unique, cantilevered over the stern drilling floor supports a 180foot high drilling mast for major work-over projects or initial exploration. The rigs will operate in Lake Maracaibo, Venezuela.

The rigs were floated onto the deck of the semi-submersible vessel Arctic Tarsuit in the Port of Pascagoula.

For free literature about the facilities and services available from Gulf Coast Fabrication, Inc.,

Circle 92 on Reader Service Card

Bender Shipyard Wins 2 Foreign Contracts

Two new construction contracts for export customers were recently awarded to Bender Shipbuilding and Repair Company, of Mobile, Al. One order is valued at over \$10 million and was placed by Bubiyan Fishing Company, of Kuwait, for ten shrimp trawlers with an option for ten more.

The second contract is for two cantilever drill barges to be used in Lake Maracaibo, Venezuela, and was awarded by ENSCO Drilling Company, Dallas, Tx. This contract will be financed by the Japanese financial house of Nissho Iwai.

For free literature about the facilities and services available from Bender Shipbuilding and Repair Co.,

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WE'VE JUST ADDED A FEW EXTRA POUNDS.



The ALABAMA has a lifting capacity of 250,000 DWT or 50,000 tons displacement. • Normal maximum draft over six-foot keel blocks is 32 feet.

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Circle 214 on Reader Service Card

Ingalls Negotiating For \$200 Million+ Venezuelan Navy Work

Litton's Ingalls Shipbuilding division, Pascagoula, Miss., has won a major international competition to refurbish and modernize the Venezuelan Navy.

Ingalls was selected to begin negotiating final terms of a contract to perform work on two Italian-built Lupo Class 2,500-ton frigates. The negotiations will be completed this summer and are expected to result in a contract award to Ingalls with a value exceeding \$200 million.

value exceeding \$200 million. "Winning this program in direct competition with major shipyards from other industrialized countries demonstrates that we are competitive on a global basis," said Jerry St. Pe', senior vice president of Litton and president of Ingalls. "Our productivity and efficiency match that of leading shipyards outside the U.S.

"We also benefited from our longstanding ship design, engineering and integration experience for construction and overhaul of sophisticated U.S. Navy combat ships," said Mr. St. Pe'.

Rates For Refined Product Tankers Drop

Tanker rates for the carriage of refined oil products and chemicals have dipped recently, with rates on some commodities being 10 to 30 percent lower this year than last year.

According to Jakob Sorhus, executive vice president of Odfjell Tankers U.S.A., a subsidiary of Norwegian-owned Odfjell Tankers, small tanker rates have been slipping since the end of the Persian Gulf war, particularly on volume shipments. However, the drop in product tanker rates has not been nearly as dramatic as that for crude oil and specialty shipment rates continue to remain constant.

tinue to remain constant. Kevin Hazel, a shipping economist with the shipping market analysis firm Marsoft, said that the product market is generally more volatile than the crude market, as it tends to fluctuate as demand rises in the winter for heating oil and gasoline in the summer. Additionally, he added, when crude oil imports are down, oil companies have a tendency to refine it domestically rather than import refined products.

MarAd Shows U.S.-Flag Shippers Appreciation

Warren G. Leback, the U.S. Maritime Administrator, recently thanked fourteen exporters and importers for their support of the U.S.flag for the majority of their ocean transportation needs.

Mr. Leback presented the following shippers with maritime certificates of appreciation during National Maritime Day observances: ASTResearch, Inc., Irvine, Ca.; Bose

June, 1992

Corp., Framingham, Ma.; Dow International BV, Midland, Mi.; Enesco Imports Corp., Elk Grove, Il.; Excel Corp., Wayzata, Mn.; Goodyear Tire and Rubber Co., Akron, Oh.; Hallmark Cards, Inc., Kansas City, Mo.; Harris Freeman & Co., Inc., Anaheim, Ca.; Natural Rubber Shippers Association, Washington, D.C.; Norplex-Oak, Inc., (a subsidiary of Allied Signal), La Crosse, Wi.; Uniden America Corp., Fort Worth, Tx.; Simpo Marketing Systems, Inc., Washington, D.C.; McCormack & Co., Baltimore, Md.; and A & A International, Fort Worth, Tx. (a division of Tandy Corp.).

CG Proposes Vessel Documentation User Fees

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The Coast Guard recently published in the Federal Register proposed rulemaking in accordance with the Omnibus Budget Reconciliation Act of 1990 to establish user fees for commercial vessel documentation activities and to revise existing user fees for recreational vessels.

The user fees will serve to recover current Coast Guard operating and overhead costs associated with vessel documentation and filing. The Coast Guard said that it intends to review the fees annually.

Comments on the proposal are due on or about July 19. Additional information is available by calling (202) 267-1477.

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Hitachi Zosen Delivers VLCC And Product Carrier

Hitachi Zosen recently delivered a VLCC and a product carrier to their owners. The VLCC, Cosmo Pleiades, was built at the Ariake Works of Hitachi Zosen and the Argironissos, a 45,400-dwt tanker, was built at the Maizuru Works.

The Argironissos was the third of the Epoch Mark II type, developed by Hitachi Zosen, to be delivered. The design includes a double-hull which consists of thick shells and uses only longitudinal members to serve as both stiffeners and deep girders. With this design, transverse members, other than bulkheads, can be eliminated. The ship is about 600 feet long, has a beam of 105.6 feet and a draft of 39.4 feet. The ship will be powered by an HZ B&W 6S50MC type diesel engine and have a maximum speed of 15.7 knots. The owner of the ship is Argironissos Shipping Corporation of Liberia.

The Cosmo Pleiades, a 234,999dwt VLCC, was the third tanker of this capacity to be delivered. The design was developed by Hitachi Zosen. The 1063-foot long vessel has a beam of 190.2 feet and a draft of 61.7 feet. Power for the vessel is provided by an HZ B&W 8S80MCE type diesel engine which allows for a cruising speed of 15.6 knots. The ship is operated by Nabix Line, Ltd. and is chartered by Cosmo Oil Co., Ltd.

For further information about the services and facilities of Hitachi Zosen,

Circle 1 on Reader Service Card

PacOrd Names Hartsock VP & General Manager

Robert G. Hartsock has been appointed vice president and general manager of PacOrd Inc., a subsidiary of SPD Technologies specializing in maritime systems repair and overhaul.

A maritime industry professional with more than 20 years' experience, **Hartsock** comes to PacOrd from Crowley Maritime Corp. in Oakland, CA, where he spent the past 13 years as general managershipyards.



Robert G. Hartsock

Prior to that, he held a series of management positions with Crowley Maritime, American Bureau of Shipping, Foss Launch and Tug Co., and Lockheed Shipbuilding and Construction Co.

In addition to its San Diego headquarters, PacOrd has west coast facilities in Seattle, Portland and National City, Calif., as well as a Hawaiian operation in Pearl City, Hawaii. On the east coast, PacOrd has operations in Norfolk, Va., Arlington, Va., and Jacksonville, Fl.

PacOrd's support service for the U.S. Navy include private sector shipyards, DOD contracting agencies and original equipment manufacturers. The company also has one of the largest Master Ordinance Repair (MOR) capabilities in the nation.

SPD Technologies is a major designer and manufacturer of military circuit breakers and switchgear, and a leader in the development of advanced shipboard announcing systems.

For free literature on PacOrd's repair services,

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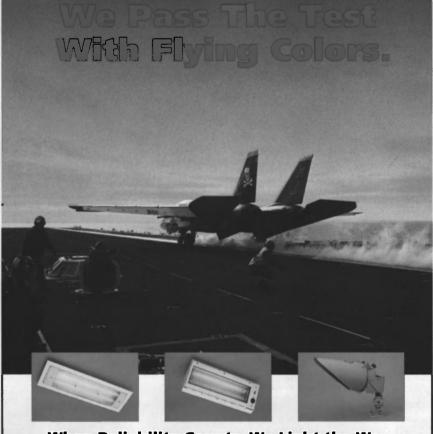
Ground faults are detected early with our insulation monitors and quickly pinpointed with our fault location products. The actual insulation resistance to ground can be displayed or transmitted to a data acquisition system. Systems may be *on* or *off-line*. Call toll-free or write to us about your application or send for your free catalog now.



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GICA To Hold 87th Annual Convention October 14-16 In Texas

The Gulf Intracoastal Canal Association (GICA) has announce that it will be holding its 87th annual convention from October 14-16 at the Sheraton South Padre Island Resort Hotel in Texas.

All waterways interests are invited to join GICA members to exchange information and views on matters affecting the Gulf Intracoastal Waterways (GIWW) and tributary waterways.

Registration will start on October 14, along with committee meetings followed by a welcoming reception. General sessions will take place from October 15 until noon on October 16.

For further information, contact: **Vernon Behrhorst**, GICA Executive Director, P.O. Box 44050, Lafayette, La. 70504; telephone and fax (318)235-1634.

New School For Marine & Environmental Safety To Be Located At Mass Maritime

The House Merchant Marine Subcommittee has selected the Massachusetts Maritime Academy to be the site of the new Massachusetts Center for Marine Environmental Protection, the first major academic curriculum in marine safety and environmental protection in the U.S.

The center's location will allow it to operate in conjunction with the Woods Hole Oceanographic Institution and the Harvard University applied sciences division.

Courses taught at the center will include international environmental law, port and shipping procedures and oil spill response and contingency planning. The funding bill that allocated

The funding bill that allocated \$242,000 for the center was sponsored by Congressman **Gerry Studds**, who, if re-elected in November, is expected to become chairman of the House Merchant Marine and Fisheries Committee. Congressman **Studds** also won committee approval for a \$1.2 million oil spill simulator to be housed at the marine center for use by both students and professionals in clean-up training.

ASNE Sponsors Symposium On Product Engineering

The Midwest section of the American Society of Naval Engineers is sponsoring a major Product Engineering Symposium, "Product Engineering for Naval Systems, The Key to Quality, Today and Tomorrow," to be held in Louisville, Ky., September 1-3, 1992.

The symposium will be hosted by several of the Navy commands in

the area at the Hyatt-Regency Louisville, 320 West Jefferson Street, Louisville, Kentucky, telephone: (502) 587-3434.

The symposium will be structured around product engineering as applied to naval systems and the resulting engineering and manufacturing technology. A few of these topics will include: Logistics Support and Life Cycle Management of Weapons Systems; Design and Development of Naval and Marine Systems of any and all types including Weapons Systems; Computer-aided Acquisition and Logistics Support (CALS); Electronics Systems Design, Repair and Manufacturing; Human Engineering; and engineering support for gun, submarine, launching, expendable ordnance and close-in weapon systems.

For more information about symposium registration, contact Lynn Clement at (504) 364-5774. To obtain additional information about symposium exhibits, call Mel Bischoff at (502) 364-6583.

\$54 Million In Navy Orders To Metro Machine

Metro Machine Corp., of Norfolk, Va., received two Navy contracts. The first, \$48.8 million for the phased maintenance program for CG 16and CG 26-class guided-missile cruisers and a second award of \$5.3 million drydocking selected restricted availability of the U.S.S. Underwood (FFG 36).



Circle 314 on Reader Service Card

First Oil Spill Command Post Exercise Held In MSRC's Northern Region

A simulated collision off Ambrose Light, New York, between a tanker and a containership set a recent Marine Spill Response Corporation (MSRC) oil spill command post exercise in motion, with the Coast Guard and National Oceanic and Atmospheric Administration (NOAA) also participating.

The scenario attempted to simulate as realistically as possible the actual chain of events of a large oil spill, beginning with the initial telephone call informing MSRC's Northeast Regional Response Center of a spill. Afterwards, managers and supervisors were dispatched to the command post where they were required to make operational and communications decisions based on information from external and internal sources. Following the exercise, the organizations held a debriefing to evaluate their performance and to discuss their actions. The participants agreed that the exercise was valuable in testing established procedures.

USCG Captain Rick Larrabee, captain of the Port of New York, said: "I was impressed with the focus and enthusiasm of all the people involved. It was a good start for the Coast Guard's relationship with MSRC."

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

o water in fuel lines.

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

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

For maximum reliability we've substituted implicity for complex electronics and ntricate circuitry. Thus Westfalia purifiers are ore dependable and much less likely to reak down than other separators. Contact entrico for the Westfalia system you need.

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



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Gulf Coast Ports To Raise Dock Fees

To come into closer alignment with ports along the U.S. East and West coasts, it is expected that ports across the Gulf of Mexico will raise their dockage fees.

Jim Badger, marketing director for the Mississippi State Port Authority, Gulfport, Mi., said that the Gulf Seaports Marine Terminal Conference has attempted in recent years to standardize Gulf port tariffs without much success.

iffs without much success. Generally lower than ports on the East and West Coasts, the conference is expected to discuss rates hikes that would equalize Gulf dockage fees at its July meeting.

A 599-foot vessel is charged \$3.45 a foot at the general cargo wharves at Freeport, Texas, and Houston, while Tampa charges \$4.15 a foot and Mobile \$2.05 a foot per day.

The East Coast ports of Miami offers an extremely low 55 cents a foot a day and Jacksonville, Fl., charges \$5.14 a foot on a lengthoverall basis. The Port of Long Beach, Ca., charges \$3.60 a foot a day for the same vessel.

Intermodal 92 Conference To Be Held In The Hague

The commercial realities of combined transport will be the theme of Intermodal 92, a conference sponsored by Cargo Systems, U.K., October 27-29, 1992 in The Hague, Netherlands.

Leading shipping and transport trade associations, plus intermodal policy-making institutions, have joined the conference steering committee to identify the main areas of industry concern. Some of the topics to be discussed are; intermodal pricing, asset management, infrastructure spreading, third party operations, fair competition and waste management.

The conference steering committee includes: European Shipper's Councils (ESC), CENSA, UIRR, FIATA, IRU, Intercontainer, Institute of International Container Lessors (IICL), plus 10 other leading commercial and trade associations.

For further information on the Intermodal 92 conference and exhibition please contact Sarah Derham at; CS Conferences & Exhibitions, McMillan House, 54 Cheam Common Road, Worcester Park, Surrey KT4 8RJ, U.K. Telephone: (44) 81-330-3911; Fax: (44) 81-330-5112.

\$12.8 Million Contract For Aegis Modifications Awarded To Raytheon

Raytheon Company's Equipment Division, Wayland, Ma. received a \$12.8 million contract for modification of the Aegis AN/SPY-1 transmitter group from the Naval Sea Systems Command, Washington, D.C., contract number N00024-90-C-5114.

RTK Delivers Oil Spill Response Craft To BP

RTK Marine, of Dorset, U.K., has recently delivered an RTK STW 413 Oil Spill Response Craft to British Petroleum (BP) International's Oil Spill Response Center, in Southampton, U.K. The STW 413 craft will be equipped with oil booms and spray equipment by the BP Spill Response Conter where it will be used for

The STW 413 craft will be equipped with oil booms and spray equipment by the BPSpill Response Center, where it will be used for emergency response and for training overseas and U.K. company personnel.

Propulsion is provided by twin Mercruiser D183 marine diesel engines coupled to outdrives. The craft's shallow draft and bow ramp enable it to be used for beach cleanup operations.

RTK Marine has manufactured over 1000 Sea Trucks, with further craft under construction for the oil spill response role. RTK workboats are in operation worldwide in commercial and military applications.

mercial and military applications. For further information about RTK Marine, contact: Mrs. **H.** Leppard, RTK Marine, 446 Blandford Road, Hamworthy, Poole Dorset, BH165BL, U.K. Telephone: (+44) 202-68-5581. Fax: (+44) 202-68-3347.

Drew Ameroid Appoints New Product Managers

Two new managers will be overseeing Drew Ameroid Marine's product lines, the company announced recently. **Ronald A. Ieva**, of Keyport, N.J., has joined Drew as product manager with marketing responsibility for the Fuel Treatment, Equipment and Biological Product segments of the company's marine chemical line. The company's new product manager for Welding and Refrigerant Products, **Richard L. Mansmann**, is actively involved in the promotion and support of the welding and cutting equipment and consumables of the Drew product family.

Drew is widely recognized as a major international supplier of highquality marine maintenance, welding, chemical treatment and refrigerant products.

Paramax Systems Wins \$149 Million Pact

Paramax Systems Corporation, newly formed subsidiary of the Unisys Corp., was recently awarded a \$149 million contract by the Navy for the production and support of navigation equipment for Ohio Class submarines.

June, 1992

Arsenale Venezia Appoints T.A.S.T U.S. Representative

Arsenale Venezia Shipyard in Venice, Italy, , which was recently privatized, has named T.A.S.T. Corporation, Fairfield, N.J., as its representative for the U.S., Canada, and Mexico. Arsenale operates three graving docks of 75,000, 20,000 and 3,000 deadweight ton capacities, respectively. They also have 550 meters of repair berth and modernized work shops in addition to offering voyage repair bases in the ports of Venice and Marghera. For free literature,

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Newport News To Repair Dry Deck Shelter Under \$150,000 Pact

Newport News Shipbuilding & Drydock Co., Newport News, Va., was recently awarded a \$150,000 contract by the Supervisor of Shipbuilding, Conversion and Repair, Newport News, for repairs to a dry deck shelter.

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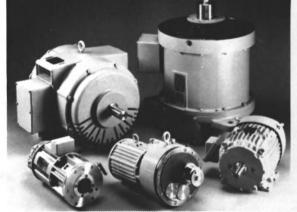
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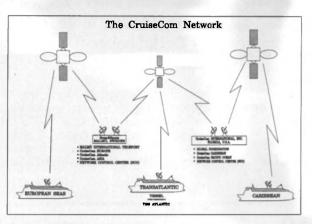
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Veracom International's CruiseCom global network will provide cruise ships with high-speed/quality communications at a low cost.

ScandiSpace Wins Contract For CruiseCom Europe Services

A contract to provide CruseCom European services for two new cruise ships was awarded to Stockholm, Sweden-based ScandiSpace by the shipping company Euroway, of Malmo, Sweden.

A subsidiary of Veracom International, the parent company of the Washington, D.C. based Veracom Group, ScandiSpace has been working closely with Euroway to define and develop the CruiseCom Europe communications concept.

CruiseComSM was established by the Veracom Group to be a specialized satellite communications service for the rapidly emerging maritime mass communications market, including; telephones, data, telefax and videoconferencing to passenger cruise ships. The service is designed to provide global seam less continuous highspeed, high-quality and low cost communications.

Service will eventually be available in Northern European waters, the Mediterranean, the Caribbean and the Atlantic, Pacific and Indian Oceans. Veracom's initial priority is to make CruiseCom Europe and CruiseCom Caribbean fully operational.

The innovative new service will provide ship owners and operators with the ability to operate their vessels with greater efficiency, while creating a new profit center by reselling volume telephone service to passengers and crew.

For free literature about Veracom's CruiseCom network, including Scandispace,

Circle 17 on Reader Service Card

Hanjin Christens Ultra-Large Boxship To Korea Owners

A christening ceremony was recently held at the Young-Do Shipyard of South Korean shipbuilder Hanjin Heavy Industries Co., Ltd., in Pusan, South Korea, for the 4,024-TEU ultralarge container ship M/V Hanjin Osaka, built for Hanjin Shipping Co. The 24-knot boxship was christened by Mrs. **Kim Jeong-II**, wife of Hanjin Group chairman **Cho Choong-Hoon**.

The Hanjin Osaka is the first in a series of six container ships for Hanjin Shipping. The construction program will be completed in early 1994. The Hanjin Osaka is expected to be completed this month, and be put into service between the Far East, North America and Europe.

With a length overall of 950 feet and breadth of 106 feet, the 54,400-gt Hanjin Osaka will be powered by a single 51,500-bhp Sulzer 10RTA 84C main diesel engine.

For free literature detailing the shipbuilding facilities of Hanjin Heavy Industries,

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

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

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

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

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AFDB-7/9200 Ser 212/1114 14 November 15

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DEPARTMENT OF THE NAV

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

. The purpose of this letter is to commond your Mr. Renald T. lettemberg for his dedicated support and exemplary performance in the handling of many design for delivery of the two 100 ton the olsts on our two 100 ton (2007) -7531. MAYSHIPT Charleston precisions the quick action and delivery to support our schedule or leading the two new portal cranes and shipment to Holy Loch.

2. Sources the few new portal transmission is signers to Moly Loch.
2. Enclosure (1), shows the new (310 ton lift) cranes being moved in Holy Lock by SMIT international Floating cranes TAE Lift-0 to US Mayy Drydock, USS LOS ALAMOS (APDB-7). Your 100 ton promastic powered chain hoists are used to level the new portal cranes so that the sixteen wheels will land on the rails simultaneously. The project was a great success as one new crane was loaded in the morning and the other one in the afternoon.

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



INTEGRATED CHEMICAL TRANSPORTATION

Crisis Of Age, Quality & Money In Parcel Tanker Fleet

Quality Owners Invest In New Construction, Ship Life Extension By David G. Palmer, Senior Vice President, Group Marketing, Stolt-Nielsen, Inc.

There is a crisis of age, quality and money heading in the direction of the parcel tanker industry.

The fleet is rapidly aging. The industry has embarked on a period of patch and mend—nurturing an old fleet. Unfortunately the value that can be achieved through life extension is approaching the value from newbuildings, and neither are supported by the current market.

Only the quality owners are putting money into life extension, in order to maintain the quality of their fleets. The second-tier owners are letting their standards drop and are switching to less intensive trades.

Let's try to bring the parcel tanker into the 21st century. What are the implications of the crisis on our customers? Should they change their methods of contracting and make more value-oriented, integrated decisions when working with logistics operators?

I believe so. First, let's take a snapshot of the whole chemical fleet.

Chemical Tanker Fleet

As you can see from Chart 1, as of September 1991, there were 1,104 ships of 14.5 million dwt with IMO chemical certification trade worldwide. They range in size from 1,500 to 50,000 dwt. Of these, 40 percent are considered sophisticated and 60 percent are simple.

Chart 2 shows when the current IMO chemical fleet was built. Focus on the bulge in the early 70s and the spree of newbuilding from 1980 to 1988.

Chart 3 shows the intercontinental parcel fleet that makes up 30 percent of this total, or 4.3 million tons, defined as ships 10,000

	No.Ships	% of fleet DWT Sophisticated	% of fleat DWT Simple	% of first DWT
1,500-5,000	355	3.1	4.1	7.2
5,001-10,000	329	6.5	9.3	15.8
10,00120,000	139	6.9	6.7	13.6
20,001-50,000	281	23.5	39.8	63.3
TOT:	1,104	40.0	60.0	100

Chart 1



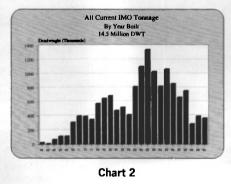
David G. Palmer

dwt and above. The intercontinental parcel fleet of 195 parcel tankers is older and has a different profile.

Parcel Tanker Fleet

As you can see from Chart 4, 42 percent is 10 years old or younger. Nine percent is currently over 21 years old—but 21 percent is aged 16 to 20 years. This is where the crisis is looming.

How are the owners doing? We all know that the deepsea freight market firmed considerably as a result of the Gulf War but has now drawn back somewhat from those highs. Are owners getting ready to make significant orders? The answer is what they can afford.



Parcel Tanker Market Cycle

Chart 5 is the market cycle for the parcel tanker market, inflation adjusted, from January 1972 to June 1991. This chart is expressed in time-charter terms, in essence what an owner has left after paying from voyage expenses to pay his capital and ship management costs. Note that the peak in the early 1970s coincides with the first wave of ordering: the peak of 1978-1981 fueled the second phase of building. This chart shows that there is

This chart shows that there is plenty of upside potential for freight as a commodity. There is a long way that freight markets can move before the consumers experience the same relative pain they survive in the early 80s.

Now the big questions are very subjective. The business is young; there is little experience trading 1970s-built ships. Building techniques changed in the 70s, with ships being built with a lower overall steelweight.

We don't know how long these ships will last. Chemical tankers are subjected to greater stresses and strains than other vessels due to the number and variety of cargoes, and differing specific gravities.

Stolt-Nielsen has just scrapped one 20-year-old front line chemical carrier, but in contrast has life-extended others in expectation of trading up to 25 years. Much will depend on each individual ship. Beyond 25 years, it is almost certain that these ships will be unable to meet customers' increasing requirements.

As a rule of thumb, approximately 25 percent of the ships are expected to trade until 25 years old. The remaining 75 percent will be scrapped about the age of 20 years.

Changes in sourcing and plant location and the growth of the Far East petrochemical industry demand will probably not continue to rise as fast as in the 1980s. We have made the conservative assumption that the demand for chemical transportation throughout the world will grow at two percent per annum.

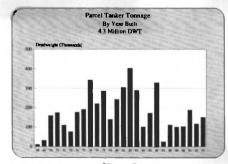


Chart 3

Newbuildings

Chart 6 shows the newbuilding requirement based on a 20-year finite life for a parcel tanker. It is clear that, in the 5-year period from 1992 to 1998, the requirement for fleet replacement will have a significant impact on the market.

In viewing this scenario we must bear in mind that it takes approximately two years from contracting to delivery, and that owners do not currently have the equity base to pay for these ships.

Well, you may say that's all very interesting but this tonnage has been built before and will be built again and if there is demand it most surely will be satisfied. The difference today is that the massive shipyard subsidies available in the Far East and Europe in the 1980s are unlikely to be repeated. In fact, there is an active campaign by the OECD to outlaw the practice.

Needs of the Markets

Another even more important influence will be the needs of other shipping markets. Significant increases in shipbuilding demand are forecast over the next 15 years, and with this demand comes higher prices.

To follow this line of thought further we need to make some more assumptions. The assumptions are:

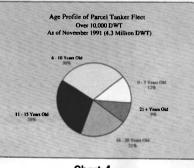


Chart 4

Weighted average replacement cost—\$2,184 per DWT;

Range from \$2,150-\$2,300 PDWT according to size/sophistication;

Growth in demand for chemical transportation 2 percent PA; Ship life will not exceed 25 years;

Building cost will increase at 5

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percent per annum;

Operating cost (60 percent) will increase at 5 percent per annum;

Current time charter earnings range from \$15-\$27 PDWT month with weighted average of \$18.64 in 1991.

On this basis we can establish just how much new capital is required fro this fleet to be replaced. See Chart 7 for details.

Now a sobering thought. There are few owners making a 10 percent margin in the current market. If this margin is achieved during the period by existing owners, we can assume that at least 40 percent of the capital required has to be financed with equity.

Since it is unlikely that existing owners will be able to find more than 20 percent of the required equity, new equity will have to be found. Where will it come from? If the

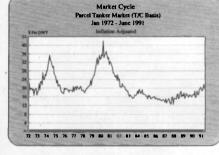


Chart 5

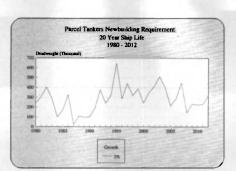


Chart 6

industry doesn't see better returns (better rates), neither the existing operators nor new equity will find its way into the business. Margins need to improve for the business to be attractive to new entrants and for the existing players to replace their fleets. Just how much do rates have to increase in order to pay for the replacement tonnage?

Chart 8 shows that, over the period 1991 to 2000, rates must increase by over 100 percent in real terms in order to finance replacement tonnage.

There are no reasons why the market could not accept such increases as the scale of increase is not out of line with the magnitude of other market peaks (See Chart 5). Now, having completely confused you with theory and statistics, let me tell you what I think it means for the chemical transportation industry as a whole.

Chart 7

Capital Req. for Parcel Tanker Newbldg

20 Year Ship Life

Deepsea freight rates are usually the biggest determinant of where a chemical company should store its product for export or import—assuming of course that its plant is not located on the sea and ships load from its own berth. Freight costs, are more volatile, and have more risk attached both from safety and environmental standpoints.

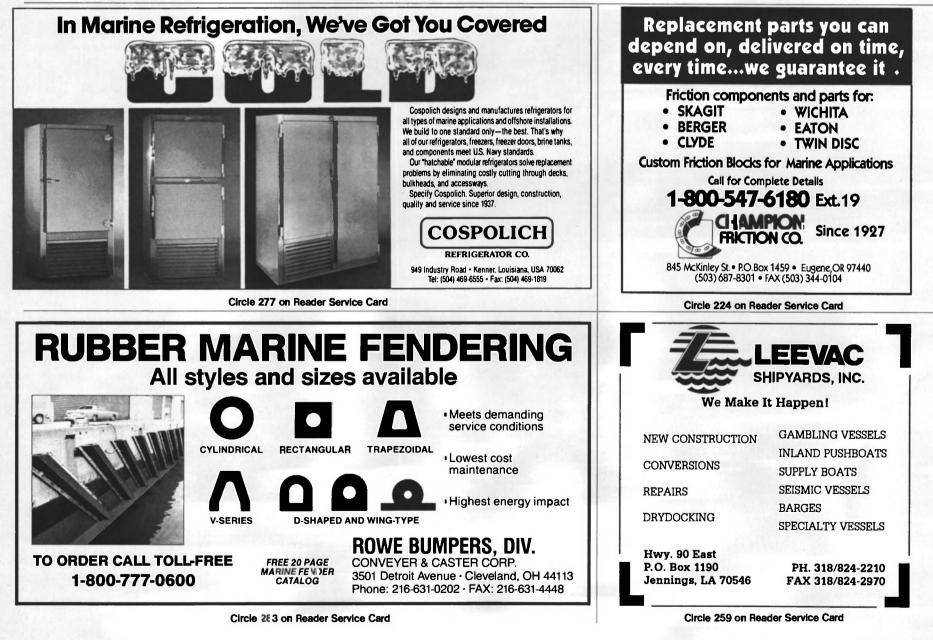
If tanker freight costs are to grow significantly faster than storage costs, then the decision whom to ship with and where to store becomes increasingly important in securing competitive advantage. The owners will not want to call at inefficient, slow-loading terminals and will not call for small parcels. Parcel tanker costs average about \$18,000 per day. As the fleet is renewed, this cost will spiral upwards. In fact, the latest generation of parcel tanker costs \$38,000 per day—today. That gives you an idea of where costs are heading and tanker costs will follow. Charterers should try to choose terminals that are attractive for owners to call. Where they are consolidated with the owners' other charterers, Owner's Berth will take on increased meaning.

Terminal owners need to put greater emphasis on efficient tanker operation. This will earn their customers better freights and attract new customers to their terminal.

By 1998, approximately 25 to 30 percent of the fleet will be over 20 years old, compared with nine percent today. Both shipowners and charterers will be faced with a crisis



Chart 8



of quality. The initiatives of CEFIC and Exxon in ship quality assessments are to be applauded and will help charterers make informed decisions.

Customer Requirements Will Dictate

Customer requirements will dictate how long ships will sail and to what standards. It follows that customers must have standards that allow them to purchase services wisely and not necessarily cheaply.

Many European charterers continue to operate on the spot market for their tonnage requirements and rely on shipbrokers to find the best ship in the best position. In the future, these charterers will have problems finding quality space.

The major international carriers are already heavily contracted, and will become more so as they develop the longer term freighting structures required to develop the confidence to order the new tonnage. Conse-quently, the spot charter will be left with the older tonnage, and likely the lower quality operator.

Both chemical shipper and carriers have duties and responsibilities to meet the highest standards of safety and environmental care. This does not come without cost and can only be achieved if freight rates are sufficient for owners to build, operate and maintain ships that meet these standards.

with the quality and reliability they demand.

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transfer-at-sea.

In order to reverse this situation. shippers must determine the best overall value of a supplier's service. Shippers do not need to guarantee owners's income levels, although it would be nice. Shippers only need to assure the industry that their purchasing strategy recognizes and pays for value. Owners, charters and terminals operators need to develop closer long-term relationships.

The decision of which carrier to use will affect storage location as well. A terminal's ability to meet road, rail and barge needs will also be important in selecting the right terminal. My point is that logistics decisions should not be taken in isolation. The most important success factor will be to choose the best systems and to integrate this fully with your global, marketing, manufacturing and logistics strategy.

Best Ships May Be In Short Supply

The best ships and best systems may very soon be in short supply. Wise companies are already positioning themselves to cope with this inevitable change through long-term alliances with those carriers and storage providers that have the strategic and scarce resources required by the shipper to bring his products to the market.

The industry needs the charter to understand that quality isn't free; it has to be paid for and supported.

Chemical charters should pay for quality and they should do so because they believe it's the right thing to do-not because they have no choice.

Reprinted from Stolten magazine, April 1992

Gulf Coast Ports To Raise Dock Fees

To come into closer alignment with ports along the U.S. East and West coasts, it is expected that ports across the Gulf of Mexico will raise their dockage fees.

Jim Badger, marketing director for the Mississippi State Port Authority, Gulfport, Mi., said that the GulfSeaports Marine Terminal Conference has attempted in recent years to standardize Gulf port tariffs without much success.

Generally lower than ports on the East and West Coasts, the conference is expected to discuss rates hikes that would equalize Gulf dockage fees at its July meeting. A 599-foot vessel is charged \$3.45

a foot at the general cargo wharves at Freeport, Texas, and Houston, while Tampa charges \$4.15 a foot and Mobile \$2.05 a foot per day.

The East Coast ports of Miami

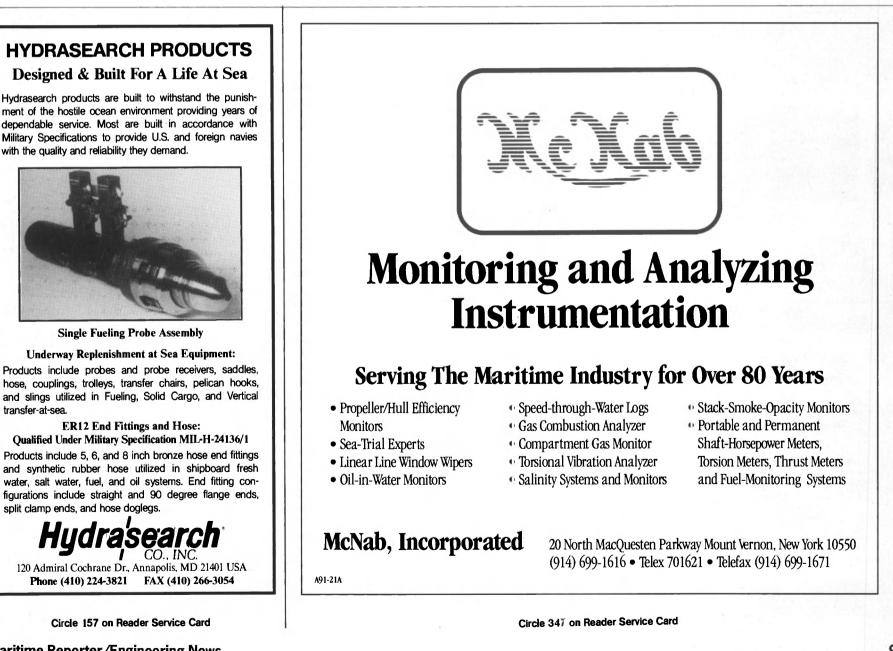
offers an extremely low 55 cents a foot a day and Jacksonville, Fl., charges \$5.14 a foot on a lengthoverall basis. The Port of Long Beach, Ca., charges \$3.60 a foot a day for the same vessel.

Japanese Committee To Study Ship Scrapping

In order to promote the scrapping of older ships, the Japanese Shipowners' Association (JSA) and the Shipbuilders' Association of Japan (SAJ) have formed the "Committee for Joint Study of Problems Related to Ship Dismantling" in an attempt to organize a worldwide

system of scrapping. JSA and SAJ leaders, including Susumu Temporin, committee chairman and president of Mitsui OSK Lines, and Shigeru Goda, vice chairman and chairman of Sumitomo Heavy Industries, attended an inaugural meeting to formulate a committee policy. The aim of the new policy is to stress the importance of demolition both in Japan and abroad, and to make efforts to improve the environment for the promotion of ship scrappings.

Proceeding with its mission, the committee plans to dispatch a joint survey team to assess the current ship demolition situation in Asia.



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split clamp ends, and hose doglegs.

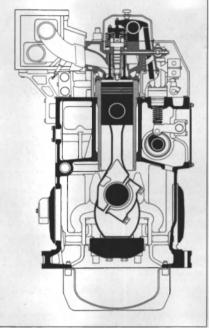
Propulsion Update

New Krupp Mak 20 Engine Designed For Auxiliary Plant/Small-Ship Sector

The German manufacturer Krupp MaK Maschinenbau GmbH, of Kiel, recently introduced its new M 20 diesel engine for marine applications. In a cooperative agreement, over 40 percent of the overall component make-up of each new engine will be supplied by the former East German company of SKL, of Magdeburg. The M 20 will launch MaK into

The M 20 will launch MaK into the highly competitive marine power sector that consists of medium-speed diesel engines for ship auxiliary plants and small vessel main propulsion plants, strengthening its reported 15 percent share of this area of the shipbuilding market.

Based on the latest technology, the modular and compact engine was intentionally designed to feature: low maintenance; 40 percent fewer components than customary; an optimum fuel efficiency of 183 g/ Kw-hr; and suitability for all heavy oil grades. The result is reduced material and installation costs and improved environmental performance.



A cross sectional view of the MaK 20 engine.

The M 20 is a long-stroke engine with 200-mm diameter and a stroke

of 300-mm in the output range of 900 to 2,700 kW at 1,000 rpm. It is available as 6-, 8-, or 9-cylinder inline and 12- or 16-cylinder vee form, with speeds between 900 and 1000 rpm, making it suitable for many different drive tasks.

Series production is fully underway, with 26 engines already on order from shipbuilders in Denmark, Germany and Italy for fishing vessels, containerships and inland barges. Having incorporated SKL's Soviet and Eastern European experience into the M 20's design, MaK also projects major marketing opportunities in that area.

For additional information detailing Krupp's MaK 20 diesel engine,

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Keppel Set To Take Advantage Of Growing Ship Repair Demand

Singapore-based Keppel Corp. is predicting that there will continue to be a strong demand for ship repair services over the next year.

In its annual report, chairman Sim Kee Boon said that the shipbuilding, banking and shipping company is preparing a multi-million dollar investment at its Tuas Yard for additional cranes, berthing space and possibly another dry dock.

An aging global fleet is causing this ongoing surge in the ship repair business as vessel owners opt to extend the normal operational lives of their existing fleets through repairs and overhauls.

According to analysts, low international freight rates are preventing owners from scrapping their ships and buying new ones, which is resulting in many vessels remaining in operation beyond the average 20 years.

Keppel's shipyard reported that its revenue grew by 19 percent in 1991 to \$282.2 million, with group profit increasing by 20 percent to \$1.7 billion and pre-tax profit rising to 22 percent to \$145 million. In addition to Singapore, Keppel owns stakes in shipyards in the United Arab Emirates, India and the Philippines and recently bought the U.S. rig-building company Amfels, Inc.

The company has also been exploring the possibilities of Subic Bay, Philippines, once the U.S. Navy completes its withdrawal, and Cam Rahn Bay in Vietnam, originally a U.S. base that is now being abandoned by the former Soviet Navy.

For free literature detailing the facilities of the Keppel Group,

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Exxon Offers De-Mar 17 Lubricant For Towboats, Tugs

Exxon supplies De-Mar 17, an LMOA Generation 5 crankcase lubricant for both main and auxiliary diesel engines in river towboats, tugs, and other harbor craft. It is a zinc-free 17-TBN high-detergent lubricant specially formulated to meet the severe-service demands imposed by the newer engines.

Exxon reports that De-Mar 17 is approved by the General Electric Company and is posted on the Internal Listing of the Electro-Motive Division (EMD) of General Motors. Additionally, it is authorized by Caterpillar for use in its most advanced engine series—the 3600 Series—as well as its 3400 and 3500 Series engines. Detroit Diesel also authorizes its use in all its two-cycle engines operated in inland marine service, in both auxiliary and main engine applications.

According to Exxon, the newest improvements in General Electric and EMD engines are modified piston rings and cylinder liners that have cut oil consumption in half. This places an extra burden on the oil because of the drastic reduction in the amount of fresh oil makeup. Additionally, the operating practice of extending oil drain periods is becoming more prevalent, further increasing demands on the oil.

The excellent performance capabilities of De-Mar 17 under severe service conditions have been demonstrated in field tests in diesel engines manufactured by General Electric Company and Electro-Motive Division (EMD) of General Motors, as well as in both field tests and dynamometer tests in Caterpillar and Detroit Diesel engines.

For detailed literature on De-Mar 17 premium heavy-duty crankcase lubricant for marine diesel engines from Exxon,

Circle 57 on Reader Service Card

\$6.25 Million Won By Ulstein For Design, Equipment Supply

Norwegian company Ulstein International A/S was recently awarded a \$6.25 million contract to supply the design and equipment for the construction of an offshore supply vessel.

The vessel, which will be of the UT 713 design, will be built for a Chinese shipowner and is part of an agreement between the Chinese and Maltese Governments. It is scheduled for delivery in April 1994.

This contract is the result of almost a year's work by the package sales department of Ulstein International A/S. The contract emphasizes Ulstein's ability to provide a total package of ship design and marine equipment.

The agreement encompasses the delivery of the UT design, main engines, gears and propellers, thrusters, steering gear, high lift rudders,

June, 1992

hydraulic deck machinery, main switchboards, tank measuring systems and bulk handling system.

Ulstein won a similar contract from Malta Shipbuilding for the supply of a tanker design and marine equipment.

For free literature detailing the shipbuilding and engineering and marine product services from Ulstein International,

Circle 51 on Reader Service

EPA's Reformulated Gas Regulations Would Affect Barge Operators

Under the proposed reformulated gasoline regulations published recently by the Environmental Protection Agency (EPA) in the <u>Federal</u> <u>Register</u>, barge operators would be subjected to presumptive liability for off-specification cargoes detected downstream of the carrier. Only by proving that he was not the cause of the violation, that all relevant product transfer documentation was upto-date and that a quality assurance program involving the sampling and testing of reformulated gasoline cargoes was in effect, could a barge operator avoid liability

Carrier would still be considered liable if his quality assurance program was determined to be inadequate.



SHIPPING REVIEW & OUTLOOK

Summary And Conclusions

Clarkson Research Studies Limited

T he first quarter of 1992 saw the bulk shipping industry slide into the eighth recession since 1945. Although this came as a surprise to some operators, especially after the very favorable market in 1991, the statistics show that the downward slide in rates started more than a year ago in the Spring of 1991.

Events have developed much as we anticipated in our last review. The world economy has drifted deeper into recession. More importantly the two key maritime economies. Germany and Japan, have moved from growth to recession over the last six months. This slow down in economic activity was reflected in seaborne trade, which grew by only 1 percent in 1991. Each new set of indicators for 1992 suggests that there will be zero growth or possibly a decline during this year.

On the supply side of the market there was a small increase in the orderbook from 56.6 million dwt in October 1991 to 58.2 million dwt in March 1992. During the same period the bulk fleet grew by 5.7 mil-lion dwt to 503 million dwt, an increase of 1.2 percent.

As far of the development of freight rates is concerned, it is the bigger ships which have suffered most. VLCCs seized the center of the stage when freight rates fell from an average earnings level of around \$30,000 per day six months ago to a current level of less than \$7,000 per day. For smaller sizes of tankers the deline has been more gradual, with Suezmax vessels earning an average of

\$15,000 per day in the first quarter of the year, and Aftrmax tankers \$12,600 a day. The product tankers sector seems to have bottomed out over the last six months, with rates fluctuating around average earnings of \$7,000 per day.

On the dry side, Capesize and Panamax vessels both experienced a substantial softening of earnings. Capesize vessels were earning \$17-18,000 per day during 1991, but by the end of the first quarter of 1992 this had dropped to \$10,000 per day. A similar decline ocurred for Panamax vessels, whose earnings fell to \$7,700 per day at the end of the first quarter 1992. For Handymax tonnage the decline in earnings to \$8,000 a day by end March was less dramatic.

The gas shipping markets have been squeezed by falling demand and increasing supply of tonnage. Rates for LPG voyages from the AG to Japan are down to \$23.50 from \$29.00 six months ago, while timecharter rates for a 75,000 cbm vessel are down to \$600,000 a month from \$750,000. The outlook in this sector remains pessimistic with continued fleet growth compounding difficult trading conditions, particularly for LPG and petrochemicals, and causing further weakening in rates.

Ship values, which had remained relatively stable for much of 1991 following the declines of 1990, have dropped quite sharply during the first quarter of 1992 in response to the decline in freight levels. Consequently, as with freight rates, it has

been the larger vessels which have seen values fall most. The drop in values has been most severe for older tonnage. The Clarkson Index of secondhand prices shows falls of almost 50 percent for 1970s built tonnage from their peak levels of early 1990. This compares to a drop of only 15 percent for 1980s built tonnage over the same period.

This sudden downturn in freight rates seems to have left many operators in the shipping market disoriented, particularly with regard to their investment strategy. At first sight this is surprising. Statistical analysts recognized the fall in freight rates over the last six to nine months as a typical manifestation of the famous "shipping market cycle". These cycles occur every two or three years and form an essential part of the business plan of any sound shipping company. "Other things being equal" the downturn should last a little more than two years. The market should bottom out in Spring 1993 and move towards recovery in early 1994. However, the length of these downturns has never been consistent. The last two lasted five and six years respectively. The one before that lasted only one year. Which will it be this time?

Our view of the cycle has not changed very much since the last bulk shipping review in Autumn 1991. We anticipate a weak market during 1992, with volatile earnings being squeezed hard by rising costs. We do not see sufficient surplus in the market to keep rates at operating costs throughout the year, though this may happen in most sectors for part of the year.

Looking towards 1993, the key is the timing of the recovery of the world economy. It is not difficult to construct a scenario under which this proves to be a relatively short shipping recession, with the market starting to move out in the Spring of 1993. This might occur if the recent signs of economic recovery in the United States prove to be well founded. It would also be assisted if the Japanese recession is short lived. bottoming out in mid-1992, with economic activity moving back into a growth phase in the Autumn of 1992. This combination of events would provide the foundation of positive growth of sea trade in 1993 and the beginnings of a recovery in the shipping market.

Unfortunately, it is not possible to put a probability on this scenario. There are some fundamental problems in the world economy, notably the financial and construction sectors, which threaten a prolonged recession and an anemic recovery when it comes. However the shipping market balance remains tight and it would not take much to produce another complete reversal.

The Spring edition of "Shipping Review and Outlook" is available from Clarkson Research Studies Limited, 12 Camomile Street, London, England EC3A 7BP.



CGPC America Introduces New Marine Vinyl Upholstery Fabrics Line

CGPC America has introduced its new line of vinyl upholstery material for marine applications. The new line is called Tradewinds which consists of 31 solid colors designed to complement currently popular Gelcoat colors.

According to **Ezio Allemano**, marketing manager for the company, "This product achieves the highest level of performance while maintaining a pleasing soft feel."

Reported advantages to the new fabric are easy application and maintenance, "low sheen" appearance, and resistance to burnishing and scuffing.

CGPC America also markets a variety of plastic products including ABS resins and calendared PVC films.

For further information about the Tradewinds fabrics,

Circle 68 on Reader Service Card

Panama Canal Pilots To Be Trained By MSI

The Panama Canal Commission has exercised their option with MarineSafety International to conduct advanced shiphandling training courses for Panama Canal pilots in 1992. The training is conducted at MarineSafety's Newport, RI, training facility which houses 4 interactive, computer-generated imaging, ship simulators.

The training consists of simulator exercises involving various types of ships transiting the Canal under various environmental and traffic conditions. The simulation includes a visual and depth model of the entire Canal from outside the breakwater at Cristobal to the sea buoy at the Pacific entrance channel. During their passage through the "Canal" the pilots must cope with variable winds and currents, the effects of banks and shallow water, adverse weather and many other factors which might affect the safe handling of their "vessels."

The objective of the pilot training is to sharpen the skills of the experienced Pilots and provide practice in meeting a variety of unexpected situations for less-experienced Pilots. This type of training has proven to be very effective in helping to prevent collisions or oil spills before they happen.

In addition to the program for the Panama Canal Pilots, MarineSafety conducts training at Newport for pilots from Canada, Bermuda, South America and various regions of the United States.

For free literature regarding the simulator training services available form MarineSafety International,

Circle 26 on Reader Service Card

June, 1992

Willard Marine Delivers R.I.B. To Clean Seas

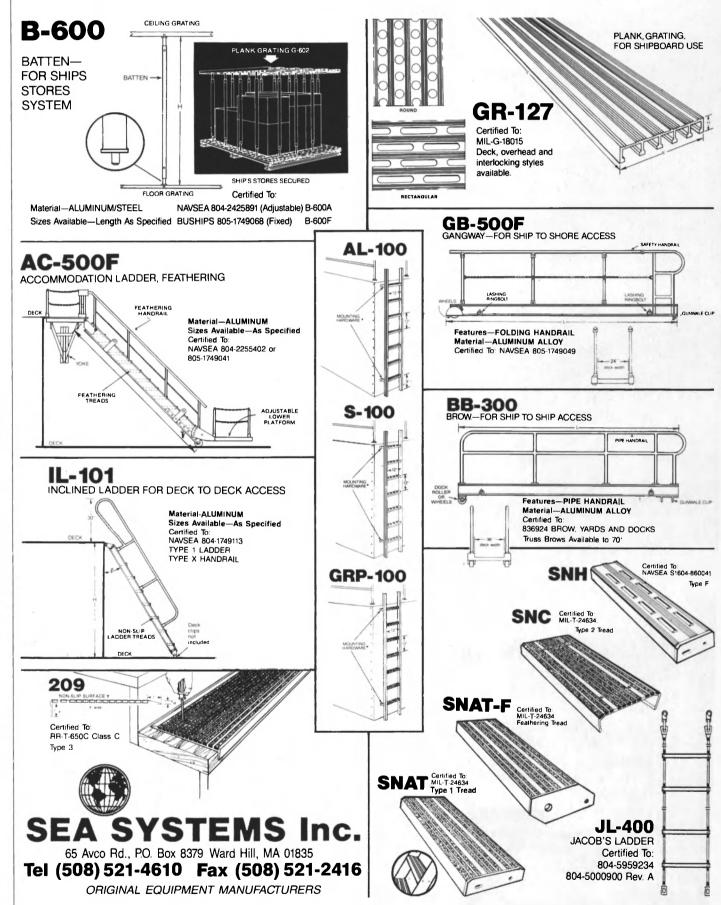
Anaheim, California-based Willard Marine, Inc., recently delivered a Cummins diesel powered SEA FORCE[™] 730 Rigid Inflatable Boat (R.I.B.) to Clean Seas, one of the original oil spill clean up companies, in Carpinteria, Calif.

According to **Darryle M. Waldron**, manager of Clean Seas: "Clean Seas needed a vessel that could operate in the normal 5 to 8foot sea conditions of the Point Conception offshore area, be safely launched via shipboard crane in those weather conditions, be able to tow 1500-feet of high seas boom weighing about 7 tons in a "U" shape, and to (then) be recovered safely." "The SEA FORCE[™] boat performed all of these functions to our satisfaction and also provides a powerful, fast rescue boat," he continued.

Willard Marine, Inc., a U.S. owned firm, has been in business for over 30 years.

For free literature about Willard Marine and it's SEA FORCETM R.I.B.,

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Circle 339 on Reader Service Card

Marine Travelift Offers 'Mariner' Forklift Trucks For Boatbuilding Industry

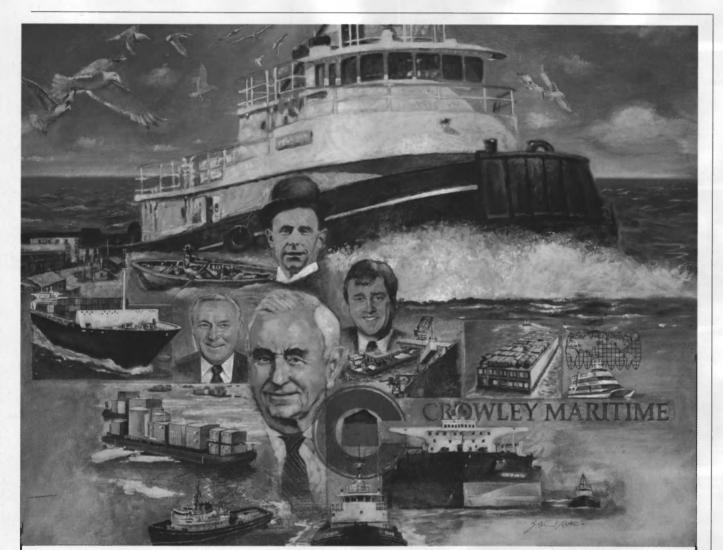
Marine Travelift, Inc., Sturgeon Bay, Wis., offers a complete line of negative drop forklift trucks for use in the boatbuilding industry.

The "Mariner" product line of forklift trucks consists of three models the F65 with a 6,500-pound capacity, the F150 with a 15,000-pound capacity and the F270 with a 27,000-pound capacity.

The Mariner F65, with its four stage mast, offers 10 feet of negative and 30 feet of positive lift. It has a low overhead clearance, allowing it to move through doorways as low as 15 feet.

The Mariner F150 has a full powershift transmission, yielding three speeds for both forward and reverse. Its three-stage mast has 34 feet of positive and 10 feet of negative lift. The F150 has extra-long forks with fabric-reinforced rubber pads to minimize hull marring.

The Mariner F270 has excellent operator visibility of the boat outdrive from the station positioned forward and to the outside. Depending on selection, mast options can yield positive reaches of 40-50 feet. The F270's adjustable 5 degrees for-



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This year marks the 100th Anniversary of a company founded in 1892 by Thomas Crowley. Having saved \$80 from his \$5-per-week wages, he bought an 18-foot Whitehall rowboat to ferry passengers and cargo in the San Francisco Bay. So began one of the great American success stories. Thomas Crowley built this company with an unwavering philosophy of service to the customer. This vision has endured throughout a century of change.

Under a second generation of leadership, Crowley Maritime Corporation has grown into one of the largest, most diversified maritime companies in the world. More than 5,000 Crowley employees provide extensive marine services, including scheduled ocean cargo transportation, specialized tug and barge contract transportation, ship assist, bunkering/lightering, stevedoring and terminal operations, heavy-lift and heavy-haul services, fuel storage and supply, oil industry support, commuter ferry and tour passenger services, marine salvage, international and domestic oil spill cleanup, trucking and all-terrain land transportation.

One hundred years later, this diverse American company maintains its commitment of



ompany maintains its commitment of meeting its customers' needs by innovative use of equipment, expertise and capabilities. Crowley's reputation for providing superior marine transportation and

superior marine transportation and services around the world stems from a simple, time-honored promise: "Anything, anywhere, anytime... on water".

World Headquarters, 155 Grand Avenue, Oakland, California 94612

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ward and 12 degrees rearward mast tilt lend increased boat-handling stability. The carriage may be ordered with either slide-out or swingout forks.

Mariner forklifts are backed by Marine Travelift's extensive network of parts and service specialists.

For free literature detailing the complete Mariner line of forklift trucks from Marine Travelift,

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Simplex-Turmar Appointed U.S. Representative For Blohm + Voss

S i m p l e x - T u r m a r , I n c . , Tonawanda, N.Y., has been appointed as the U.S. representative of Hamburg-based Blohm + Voss A.G., ship's components division. German shipbuilder Blohm + Voss manufactures Simplex-Compact sternseal and U.S. Coast Guard-approved Turbulo oily water separators, as well as a number of other products for military and commercial use.

Simplex-Turmar maintains a stock of seal-rings and related materials in its Tonawanda warehouse. In addition, Simplex-Turmar carries the full range of vulcanization machines required in the repair of sternseals. The company also has a staff of service personnel to cover the needs of its U.S. customers.

For further information on Simplex-Turmar product and repair services,

Circle 48 on Reader Service Card

Ulstein To Supply Tanker Design, Machinery Under \$3.12 Million Pact

Ulstein International A/S of Norway has won a contract worth \$3.12 million from Malta Shipbuilding Co. to supply the design and equipment for a clean petroleum products tanker.

The product tanker design will be performed by Ulstein's ship design company Skipskonsulent in Bergen, and will be constructed for K/S Stavtank in Stavanger, Norway. The ship will be delivered in April 1993.

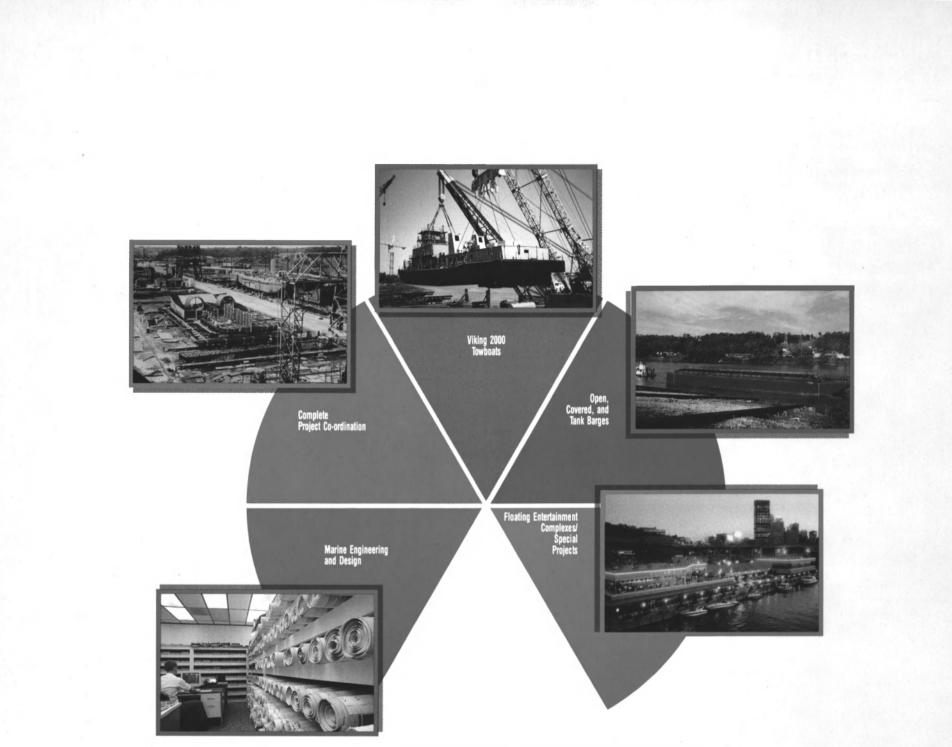
This contract is the result of almost a year's work in the package sales department of Ulstein International A/S.

Under the contract, Ulstein will provide the design, main engines, gears and propellers, thrusters, steering gear, high lift rudders, hydraulic machinery, main switchboards and tank measuring system.

Ulstein also won a similar contract from Malta Shipbuilding for the design and equipment for offshore vessels.

For free literature detailing the full line of ship design and construction and equipment supply services offered by Ulstein,

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MarAd Awards Over \$6.5 Million Worth Of Ship Deactivation Contracts

The U.S. Maritime Administration (MarAd) has award two contracts for deactivation work on Ready Reserve Force (RRF) vessels. Boland Marine and Manufacturing Co., Inc., New Orleans, La., received a \$3,273,249 contract for deactivation of the lighter aboard ship (LASH) SS Cape Flannery, and Metal Trades Inc., Hollywood, S.C., won a \$3,626,073 contract for deactivation and repairs to the LASH Cape Florida.

The RRF is maintained to meet surge sealift needs in the early stages of military contingency operations. During Operations Desert Shield and Desert Storm, MarAd activated 79 of its 96 RRF vessels.

The deactivation work includes repairs necessary to meet classification specifications and regulations. Necessary maintenance repairs will also be performed to ensure that the vessels may be expeditiously activated in the event of future emergencies.

Louisiana Oil Port Foresees Record Utilization

According to recent reports, the Louisiana Offshore Oil Port has predicted that for the first time in eight months it may exceed one million *Continued*

To find out more about John Deere diesel engines for marine applications, contact one of our authorized distributors listed below; For North America Contact: BELL POWER SYSTEMS 677 Cromwell Avenue, P.O. Box 769, Rocky Hill CT. 06067 Tel: (203) 563-5176 • Fax: (203) 257-7899 **CK POWER PRODUCTS** 9290 West Florissant, S.Louis, MO 63136 Tel: (314) 868-8620 • Fax (314) 868-9314 CK POWER PRODUCTS CORPORATION OF FLORIDA 229 Southwest 54th Court, Ocala, FL 326 Tel: (904) 237-7660 • Fax: (904) 237-0855 December 3, 1991 CN POWER SYSTEMS 220 Harter Avenue, P.O. Box 650, Woodland, CA. 95695 Tel: (916) 666-6624 • Fax: (916) 661-1226 **DIESEL BEC,INC.** 2805 Pitfield Boulevard,St., Lauren, Quebec H4S1T2 Tel: (514) 335-0940 • Fax: (514) 335-0080 Vessel - Tug Isahell C. 1955 - Last leg of 2800 - mile round trip past Statue of Liberty. Transported construction barge to Transported construction Bridge, New York City. George Washington Bridge, New York City. New John Deere engines ran flawlessly. Fuel costs reduced by about 2270. Fuel costs reduced by about 2270. EMERSON POWER PRODUCTS 426 South Cloverdale Street, Seattle, WA 98108 Tel: (206) 764-3850 • Fax: (206) 764-3832 ENGINE DISTRIBUTORS, INC. 1709-B South Slappey Blvd., Albany, GA 31701 'Tel: (912) 888-1900 • Fax: (912) 435-2946 ENGINES,INC. U.S. Hwy 49 South, P.O. Box 425, Weiner, AR 72479 Tel: (501) 684-7361 • Fax: (501) 684-7338 Pranch Office: U.S. Hwy 61 South, P.O. Box 1154, Cleveland, MS 38732 Tel: (601) 843-0083 • Fax: no HEARTLAND ENGINE COMPANY, INC. 2113 East Smithville-Western Road, Wooster, OH 44691 Tel: (216) 345-5068 • Fax: (216) 345-7339 Power and responsiveness at low speeds NORTH AMERICAN ENGINE COMPANY also improved. 2045 - Base 2055 - Secure Enginer 2105 - End Log. Stan R. Kraly 156 Industrial Avenue, Greenboro, NC 27406 Tel: 1-800-476-0093 (919) 370-4776 Fax: (919) 370-4993 SUPERIOR DIESEL 1632 N. Stevens Street, P.O. Box 1187, Rhinelander, WI 54501 Tel: (715) 369-5900 • Fax: (715) 369-5918 Tel: (715) 369-5900 • Fax: (715) 369-5918 **Dranch Offlica** 461 East Fen Road, Coldwater, MI 49036 Tel: (517) 278-2445 • Fax: (517) 278-8272 310 W.162nd Street, South Holland, IL 60473 Tel: (708) 331-1166 • Fax: (708) 331-1171 WESTERN ENGINE DISTRIBUTORS WESTERN ENGINE DISTRIBUTORS 321 Industrial Street, Bakerfield, CA 93307 Tel: (805) 327-3881 • Fax: (805) 327-1731 Branch Offlee 3301 Hill Street, Long Beach, CA 90804 Tel: (310) 494-6733 • Fax: (310)985-0718 YORK POWER SYSTEMS 804 West Cotton, P.O. Box 3939, Longview, TX 75606 Tel: 1-800-322-1980 (903) 757-4700 The Isabell C. is owned and operated by Maritime Tug and Barge Inc. of Stuart, Florida. In addition to two 250-hp (186 kW) John Deere propulsion Fax: (903) 757-9927 Branch Office 4601 Pinemont, Suite114, Houston ,TX 77041 Tel: (713) 460-1134 • Fax: (713) 0460-9532 engines, this tug also operates with a 58-hp (43 kW) John Deere powered gen-set. For reliable marine power on your jobs, call Deere Power Systems at (319) 292-6060, or contact your John Deere engine distributor. For Europe Contuct: JOHN DEERE SARAN B.P. 13, 45401 Fleury Les Aubrais, France Tel: (33) 38 82 60 23 • Fax: (33) 38 82 60 00 For Asia, Caribbean, Central And South America Contact: JOHN DEERE INTERCONTINENTAL, LTD. 400 19th Street, Moline, IL 61265-1388 Tel: (309) 765-3310 • Fax: (309) 765-3197 IN DEERE IIII POWER

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barrels per day. Most of the crude Mexico To Establish oil that is offloaded at the facility is foreign, which suggests that crude oil imports will also be higher for the same period.

The facility, which is operated by Loop Inc., is located about 19 miles off the coast of Louisiana and is the only deepwater port where supertankers can offload cargo which is destined for the United States.

Jacksonville Port Authority **Approves Construction** Of New Container Crane

The Jacksonville Port Authority recently approved a proposal to build a new container crane with an option to purchase a second crane.

A \$5.7 million contract was awarded to Industrias Metalurgicas Pescarmona S.A.I.C.y F. (Impsa) of Argentina. The parts will be manufactured in Argentina and assembled by Jered Brown Brothers of Brunswick, Ga.

The port authority reports that the crane could be operable in 12 to 14 months at Talleyrand Docks and Terminals

An option to purchase a second crane for about \$6.4 million can be exercised within 12 months. Reports say that the 50-ton crane would be able to containerships which exceed Panamax size.

Sale Of Offshore Drilling **Rig Gives Global's Income A Boost**

Global Marine, an offshore drilling contractor based in Houston, has reported that after changing ac-counting policies and selling a rig it has made a profit for the first quarter of 1992.

Net income for the company was reported to have risen \$3 million on a revenue of \$68 million, while for the same period in 1991 a \$3 million loss on a revenue of \$75 million was reported.

The rise in the company's income included an \$11 million profit from the sale of a jackup drilling rig and \$3 million from switching to U.S. accounting standards related to income taxes.

Shipping Capacities To South Africa Increased After Trade Sanctions Lifted

Shipping lines have announced that they will increase their carry-ing capacities on the U.S.-South Africa trade route. This was done in anticipation of increasing demand with the lifting of trade sanctions against South Africa.

Lykes Bros. Steamship Co. and SafBank Line Ltd. have announced that they will increase existing services, while Wilhelmsen Lines A/S of Norway began monthly service to South Africa in January

Wilhelmsen Lines (USA) Inc. announced that it anticipates an increase in trade of about 20 percent over the next three to five years.

June, 1992

Ports To Participate In Oceangoing Trade

Mexico has implemented a new plan in which it is developing ports on its east and west coasts in order to increase international trade with Europe and Asia. In the past the

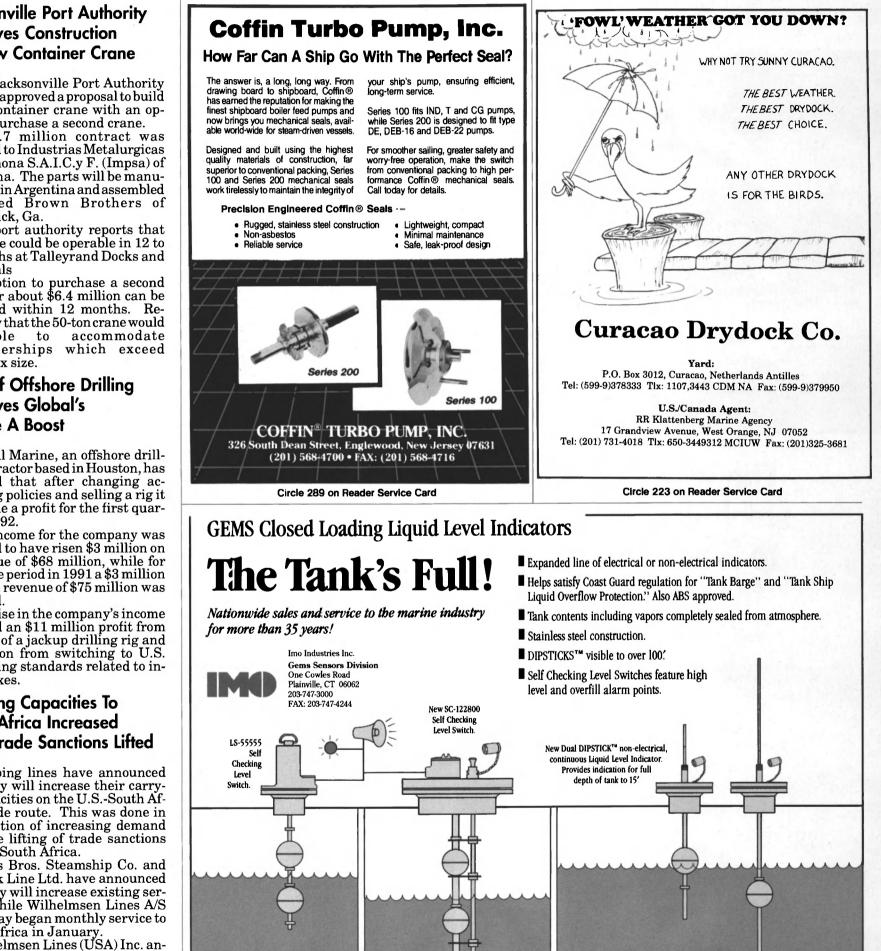
country's primary area of trade was by land and rail over its northern and southern borders.

The country is working on four ports at the present time. The two ports on the Pacific coast are Manzanillo and Lazaro Cardenas and Altamira and Vera Cruz on the Gulf Coast.

Reports predict that shipments

of containers through Mexico could double or even triple over the next year as a result of the development of the new ports.

Mexico is working on its eastwest railroads and privately operated toll roads in order to make the ports more accessible.



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Phase I Of Oceaneering Production Systems EWT JIP Completed

Phase I of Oceaneering Production Systems' extended well testjoint industry project (EWT JIP) has been completed. Companies supporting the project were Marathon Oil, Arco, BP Exploration, Elf, Mobil Research and Development Corporation, and Shell Offshore. Subcontractors supporting the project were ABB Vetco Gray, Aker Omega Marine, FSSL, Mustang Engineering and Wellstream. The primary goal of Phase I was to determine the technical and economic feasibility of designing and building a vessel capable of testing hydrocarbon formations in very deep water in the Gulf of Mexico.

Some of the tasks investigated

during the project included development of the EWT design basis; determination of vessel configuration as well as comparison of new build versus conversion; station-keeping methods; process plant design; methods of utilizing associated gas in lieu of flaring; design of flowlines and risers; design of subsea production systems; and investigation of suitable downhole instrumentation methods.



The world's top shipbuilders turn to New Zealand for waterjets

With waterjets the preferred propulsion system for new age fast ferries, work and patrol boats, commercial influences demand reliability and engineering excellence. That's why more and more shipbuilders are turning to New Zealand, the home of Hamilton Jet.

For Japan, a nation leading the way in advanced technology and quality assurance

techniques, the only choice when it came to selecting the propulsion system for a new ferry was Hamilton Jet. A 33 metre, 35 knot passenger ferry built by Goriki Shipyard, "Nyenufabushi" was commissioned to carry passengers quickly between offshore islands. Crucial design factors were high speed, reliability, passenger comfort and outstanding manoeuvrability. Construction had to be certified to NKK standards. All these were met using the advanced technology and innovative features found only in Hamilton waterjets, adding "Goriki Shipyard" to an impressive and ever growing reference list of satisfied customers worldwide.

Hamilton Jet has built its reputation on providing the best marine jet propulsion systems anywhere in the world. That's why designers from the most technically advanced nations recognise New Zealand quality and expertise and have confidence in specifying Hamilton Jet.



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According to Oceaneering chairman, president and chief executive officer, **John R. Huff**: "Phase I of this project has shown that the EWT vessel is a viable decision-making tool for deep water. It can provide a realistic method of confirming initial drill stem tests and calculated long-term production rates. With continued industry support Oceaneering is prepared to begin Phase II of this important project, which is the actual design and construction of the vessel."

Powered Work Barges From Atlantic Aqua Marine Offer Versatility

Atlantic Aqua Marine, Inc. has introduced its newly expanded line of powered and non-powered steel and aluminum utility barges. The barges were originally designed as service vessels for the saltwater and salmon aquaculture industry. These vessels reportedly fulfill the need for durable, beachable, shallow draft workboats capable of a wide variety of applications.

Outboard models with a control console are offered in lengths of 24 and 30 feet. Single or twin diesel models, including jet powered versions, are available in lengths of 32, 36, 40, 48 and 60 feet with an enclosed pilothouse. Larger customized pilothouses are available with convertible bunks, head and a small galley. Non-powered deck barges are available in similar and larger sizes.

In less than two years the company has reported that 17 vessels are in service and all are active 365 days a year with little or no downtime.

Routine maintenance such as bottom painting, changing propellers or replacing zincs can be done, without having to put the vessel in drydock, by running the barge ashore at high tide and performing the work while the tide is out. The barges also feature a caged propeller system and heavy tubular "legs" to keep the vessels stable and level, along with wear plates at the bow to prevent damage to the hull and underwater hardware.

Safety rails can be removed to permit the transfer of cargo and equipment from the bow or the sides. All of the powered barges have cruising speeds between 8 and 10 knots. Higher speed barges are available upon request.

Atlantic Aqua Marine is presently working closely with organizations such as MSRC, state environmental departments, government agencies and spill cooperatives on the development of specialized vessels. These include spill response vessels, storage barges for recovered oil, large floating dockbarges, self-propelled floating causeway systems and many other systems related to the shipping industry.

For further information detailing the work barges offered by Atlantic Aqua Marine,

Circle 4 on Reader Service Card

MSC Awards \$6.8 Million Contract To Lykes Brothers

The Navy's Military Sealift Command (MSC) has awarded a requirements contract to Lykes Brothers Steamship Company, Inc., of New Orleans, La., for the estimated amount of \$6,800,000.

The contract provides for the weekly containerized delivery of chilled U.S. boxed beef between the U.S. East Coast and points in Northern Europe and the United Kingdom aboard U.S. flag ocean and intermodal services. The one year contract begins July 1, 1992.

International Consortium Propose New Panamanian Container Complex

A proposal to construct a new \$200 million container port on Panama's Atlantic Coast and to modernize local rail and highway systems has been proposed by the PTC Consortium, a group of nine construction, engineering and consulting firms from the U.S., Europe, Panama and Japan.

The project would turn Panama into the primary connection point between ports in Latin America and major international shipping routes serving Asia, Europe and North America, according to consortium officials.

Telfers Island, near the Atlantic port of Cristobal, would be the site of the Panama Transshipment Center's central container terminal and shipping complex. Operations there could begin as early as 1995.

Consortium plans also call for the building of a modern industrial park, the restoration of a now closed trans-Panama railway and the completion of a toll-highway across the country.

The members of the PTC Consortium are: InTecTran Inc., Washington, D.C.; Parsons Brinckerhoff International, New York; The Industrial Bank of Japan; Shimizu Corp.; Aoki Corp.; HLM SA, Panama; Boskalis International BV, a Dutch dredging company; Han-Padron Associates, New York; and Misener Marine Construction Inc., Tampa.

San Francisco Considers Tug Escort Guidelines

To ensure the safe navigation and operation of tankers, barges and other vessels within the San Francisco harbor, the San Francisco Harbor Safety Committee has recently issued a proposal for tug escorting guidelines.

The committee was established by the California Oil Spill Prevention, Abatement, and Removal Act of 1990, and is comprised of state and federal government representatives, port authorities, pilots' organizations, labor and environmental organizations and all types of vessel operators. Under the new guidelines, the bay will be split into 6 geographic zones. A tug escort is required for any regulated vessel, meaning one that is carrying 5000 metric tons or more of oil or other petroleum product as cargo, that enters one of three zones in which there is a high risk of a marine incident, such as grounding or collision. Regulated vessels that are fitted with Coast Guard certified double-hulls would be exempt from the guidelines. For tug crews, the guidelines to provide a set of minimum requirements.

Based on the results of a scientific study, a key provision in the guidelines would establish a permanent formula for matching tugs to vessels. The provision's interim formula states, "tug escorts shall be capable of providing a total ahead static bollard pull in pounds equal to not less than one half of the Regulated Vessel's deadweight tonnage." This would be translated into a regulated vessel of 80,000 deadweight tons requiring a tug escort with a minimum of 40,000 pounds (20 short tons) of bollard pull.

The committee's proposal to adopt tug escort guidelines must first be reviewed by the San Francisco Bay administrator. If approved, the guidelines would come into effect later this year.



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June, 1992

Free 20-Page Booklet On New Ritchie Compass For Commercial Market

E.S. Ritchie & Sons, Inc., Pembroke, Mass., is offering a free literature package including a 20-page pamphlet and 8-page color brochure on its new electronic compass for the commercial market. The new Ritchie MagTronic electronic compass will be an important tool in simplifying vessel navigation and steering an accurate course track, according to the company. Coupled to the Mag-Switch digital sensor, course headings have an accuracy of 1/10th of 1 degree. The MagTronic digital display provides a high visibility heading readout, an easy-to-follow off-course steering indicator, memory for two course headings, plus controls to stabilize readings in heavy seas and to reduce lag in readout during turns.

The traditional appearance and function of a rotating compass dial is combined with a digital readout for precise navigational reference in the Ritchie Analog Display. Both types of displays can be easily installed at multiple locations without regard to magnetic interference and are automatically corrected for deviation. A course can be set in memory at one location with the helmsman having the reference to steer at another location.

The MagTronic Heading System can also provide deviation corrected output to other navigation instruments, including NEMA 0183, N+1, sine/cosine and Ritchie serial.

To receive the free brochures detailing E.S. Ritchie & Son's MagTronic electronic compass,

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China Becomes Major Player In World Ship Demolition Market

With the purchase of a second retired very large crude carrier (VLCC), the Chinese continue to reinforce their position as major international ship-breakers.

The only country to purchase ships for scrapping this year, China has acquired two VLCCs and six capesize units, including combination carriers, since its new year budget was allocated in February.

The Oslo-based ship broker, Fernleys, reported that 21 tankers totaling 1.55 million dwt were committed for scrap in this year's first quarter, compared with six vessels of 300,000 dwt in the same quarter of 1991.

Terminal Operators Criticize CG For Lack Of OPA90 Details

Federal authorities are being criticized by U.S. oil terminal operators for not providing adequate details about the Oil Pollution Act of 1990's (OPA90) strict oil pollution laws that they will be required to meet by February 1993, or face being shut down.

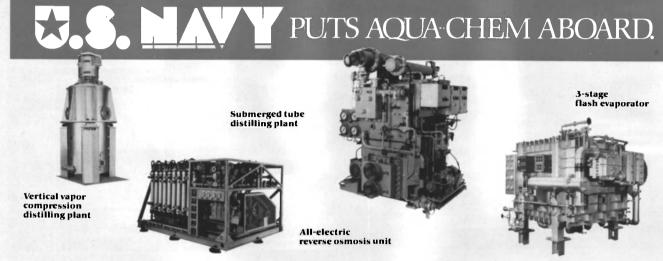
Citing the Coast Guard's expected delay in publishing OPA90 details, terminal operators are claiming that they will be late in meeting the February deadline for submitting oil spill contingency plans.

The Coast Guard has stated that it may not be able to meet its August deadline of publishing an outline of the almost 50 requirements for terminal contingency plans.

minal contingency plans. According to the Coast Guard, there are approximately 3,500 facilities, mostly independently owned, that must submit plans. It is estimated that the cost of preparing a terminal contingency plan is almost \$70,000 per facility, or \$245 million industry-wide in the first year, not including the cost of additional required equipment, hiring contractors, joining a spill-response co-operative or training.

In conjunction with the Coast Guard, the Environmental Protection Agency is also preparing similar regulations for non-transportation storage facilities, which according to some terminal operators, may be even more costly to implement than the Coast Guard's requirements.

Maritime Reporter/Engineering News



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and EMI tests. Vertical vapor compression distilling plant for SSN 688 Class submarines. 1,600

gpd. All electric. **Submerged tube distilling plant** for MCM 1 Class mine sweeper Non-magnetic

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plant which has passed vibration and shock testing. 3,000 gpd. **3-stage flash evaporator** for LSD 41 Class. 30,000 gpd. Successfully passed shock

aqua-chem

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Washburn & Doughty Protects Coupling With Heat Shrink Sleeving

The shipyard of Washburn & Doughty, of East Boothbay, Maine, recently found an innovative solution to the problem of protecting an outboard shaft coupling onboard the ferry Captain Henry Lee, recently delivered by the yard to the State of Maine.

The shafting selected for the ferry was Aquamet 18, supplied by Rose's Marine, and in the water borne section an OK 110 shaft coupling was specified. The SKF shaft couplings which were installed inboard of the ferry's hull required no special treatment, but being carbon steel, the outboard couplings would be subject to galvanic action and had to be protected against corrosion.

Previously, the costly technique of fiber glass wrapping was the accepted procedure. However, on the advice of Ovako Steel Coupling Division, the suppliers of the couplings, the use of heat-shrink sleeving was investigated. This material is commonly used in small diameters for protecting splices in electrical cable, and in larger diameters for the protection of buried pipelines and the legs of offshore oil rigs.

Tests of the material in marine propulsion applications have demonstrated excellent resistance to galvanic action over several years, leading Washburn & Doughty to select the cost-effective method.

In the installation, the un-shrunk diameter of the sleeving is placed on the shaft before the coupling is mounted and must fit over the coupling's outer sleeve, while the shrunk diameter must be small enough to form a tight fit on the shaft. Once the coupling is in place, the transition between coupling and shaft is faired using stick mastic or other suitable material, with the heat-shrink sleeving centered over the coupling.

The application of heat-guns or gas burners causes the material to shrink, and the sleeve's internal coating to flow, thereby creating an impervious cover.

For free literature about the facilities and services offered by the shipyard of Washburn & Doughty,

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For free literature about the services available from Ovako Steel,

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NORSHIPCO Awarded \$5.9 Million Navy Contract

A \$5.9 million contract for the drydocking phased maintenance availability of the U.S.S. Pensacola (LSD-38) has been awarded to Norfolk Shipbuilding and Drydock Company by the Naval Sea Systems Command (NAVSEA), Washington, D.C., number N00024-85-H-8045.

June, 1992

Brazilian Yard Delivers Versatile RoRo/LoLo Ship

The Emaq shipyard, in Rio de Janiero, Brazil, recently delivered the \$60 million combination RoRo and Lift-on/Lift-off ship Betelgeuse, the first of an innovative series of four vessels, to the Brazilian liner operator Transroll.

Loosely based on Atlantic Con-

tainer Line's G-3 series, the 33,100dwt Betelgeuse is designed to have the versatility of being loaded-out as a full containership, amounting to a 2,000 teu container capacity. With a service speed of 19 knots, the Betelgeuse is propelled by a 19,320hp Sulzer engine.

The ship's RoRo capability is provided by a heavyweight MacGregor-Navire ramp and portable pontoons. Designated the T-2 series, the Betelgeuse design provides for substantial seasonal variations in the type of cargo carried, allowing the ships to be switched into other trades as required.

The U.S. Navy's Military Sealift Command has chosen an almost identical design with similar flexibility for its PD-337 commercial cargoship for the year 2000 program, based on its recent Gulf War experience.



Ship Analytics Wins \$3.5 Million Brazilian Simulator Contract

The Brazilian Navy Ministry of Ports and Coasts has recently awarded a \$3,500,000 contract to Ship Analytics, Inc., of North Stonington, Conn. for a full mission shiphandling simulator. This is the second award within six months for Ship Analytics, following an award from the Port of Singapore Authority for approximately \$5 million in October.

The system will be used by the Brazilian Navy as well as Brazilian shipping companies, including Petrobras, a primary sponsor of the simulator and Brazil's leading energy and transportation company. This is the first installation of this type of simulator technology in South America.

The simulator is designed for networking a combat information center (CIC) and navigation trainer for naval applications as well as a 4 ownship radar and ARPA trainer for radar plotting certification and cadet training. The overall configuration architecture will allow the eventual networking of 5 ships in combined exercises and has the capacity for training up to 20 students at one time.

Ship Analytics is a major manufacturer of shiphandling and training simulation systems for the marine industry, as well as national

Engine room automation - cargo automation - fire detection - power supply







Autronica Marine

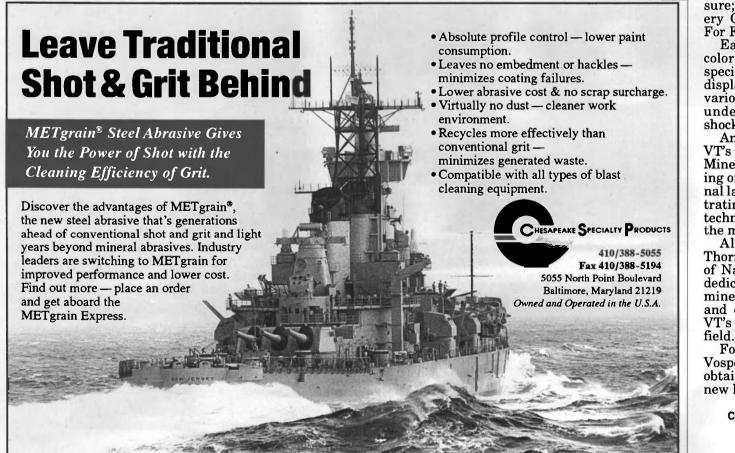
The Autronica Group employs more than 500 people in development, production and marketing of electronic systems and equipment. Autronica has been a market leader since the very beginning in 1957. The product range includes radar-based level gauging systems for cargo tanks, engine and cargo alarm, control and moritoring systems and analogue, addressable fire detection systems. Autronica is a main producer of temperature sensors and pressure transmitters for the marine and offshore market. The reference list includes deliveries to nearly 9000 ships.

****		****			

Protecting environment, life and property...

Autronica Marine, Drammensvn. 126, 0277 Oslo, Norway, Phone: +47 2 55 34 10, Fax: +47 2 55 30 46 Autronica Marine U.S.A. Inc., 234 Industrial Parkway, Northvale, N.J. 07647, Phone: 1 201 768 1886, Fax: 1 201 768 2570

Circle 215 on Reader Service Card



Circle 22E on Reader Service Card

and international defense markets. System delivery is scheduled for early 1993 with training to being in April 1993. Installation and training will be facilitated by a Brazilian firm, Elebra, a major South American high technology simulation firm.

For literature about the ship simulation systems available from Ship Analytics, Inc.,

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Vosper Thornycroft Controls Offers Brochure Package On Its Naval Systems

Vosper Thornycroft Controls, of Portsmouth, United Kingdom, a subsidiary company of Vosper Thornycroft Limited (VT), is offering interested customers a sophisticated information package consisting of multi page brochures, fact sheets and a special magazine supplement that cleary and concisely details the company's extensive line of maval products.

The main folder itself describes the products and services offered by the company and the history of VT's century of experience in the field of naval design and construction.

Warship Platform Automation Systems is the package's main brochure with 6-pages of text and photographs about the various Vosper Thornycroft Control systems currently onboard the Royal Navy's most modern warships and submarines.

These systems and associated equipment are discussed in greater detail in the other package brochures: Position Control Systems For Mine Counter-Measures Vessels; Machinery And Electrical Power Control Systems For Warships; Electronic Equipment Standard Enclosure; D86 Fact Sheet; and Machinery Controls, Monitoring Systems For Fast Patrol Craft.

Each brochure provides multicolor system layouts, equipment specifications, actual control screen displays, and photographs showing various aspects of VT built vessels under construction, undergoing shock testing or underway.

An 8-page brochure dedicated to VT's Sandown Class 52 Meter GRP Minehunter includes a 2-page drawing of the vessel's profile and internal layout and an entire page illustrating the various minesweeping techniques that can be utilized by the multi-role vers-ion of the class. Also included by Vosper

Also included by Vosper Thornycroft is a special supplement of Naval Forces magazine that is dedicated to the subject of British mine countermeasure technology and operations, with examples of VT's extensive experience in the field.

For additional information about Vosper Thornycroft Controls and to obtain a free copy of the company's new literature package,

Circle 45 on Reader Service Card

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INCINE-RATORS SYSTE for all types of ships. tanker

INERT GAS R SYSTEM for F oil and gas P tankers. g

RELIQUE- V FACTION V PLANTS for S gas carriers. N

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Galley Equipment Corp. Offers Extensive Line Of Ship Hotel Equipment

The staff of the recently established Galley Equipment Corporation (GEC), of Virginia Beach, Va., bring over 75 years of cumulative maritime industry experience to the business of supplying its customers with marine commissary and habitability equipment items. GEC is positioned to provide its customers with a wide range of services: galley, medical, laundry and habitability equipment specification and consulting services; auto-cad design services; pre-fabricated shipboard reefer design and engineering services; and, GEC's extensive MIL-SPEC and commercial marine equipment software and drawing library are available. The company prides itself on being able to locate and supply any marine galley, reefer, medical, laundry and habitability item.

Incorporated in October of 1991, GEC has already been involved in several major marine industry projects over the past 2 years. The company has taken part in the refits of 4 Navy vessels as well as several commercial and government new construction programs.

For free literature that fully describes the services available from Galley Equipment Corporation,

Circle 64 on Reader Service Card



FINCANTIERI IS BUILDING FOR THE SEA



New Tank Coating From Sigma —Literature Available

Sigma Coatings Marine Division, based in the Netherlands, recently introduced Sigmagard CSF, which is reported to be a new and unique answer to structural corrosion problems and pitting. This new coating is reported to be able to completely stop corrosion and is particularly useful in solving cargo tank bottom pitting problems and corrosion problems in water ballast tanks.

lems in water ballast tanks. Traditionally pitting has been solved with either a pit filler or tar epoxy coating.

After a great deal of research and development, Sigma Coatings has introduced Sigmagard CSF, a solvent free coating. Sigmagard CSF is reported to have the following benefits: one coat high-build, no shrinkage, fills pits completely, stops corrosion, temperature resistant, good chemical resistance and spray or squeegee applied.

Sigmagard CSF is designed for application aboard existing ships, where pitting and corrosion need to be stopped, and also to new tonnage, where one coat will protect tanks from the beginning of the vessel's trading.

This new coating can be used in cargo and water ballast tanks as well as fresh water tanks, engine room tank tops and for general upgrading of high tensile steel corrosion protection standards. This reportedly offers convenience to shipyards that have to apply tank coatings in confined spaces, like doublehull structures.

For literature detailing Sigmagard CSF,

Circle 74 on Reader Service Card

Schuyler Rubber Appoints MEI As Representative In Middle East

Schuyler Rubber Company of Woodinville, Wash., recently appointed Middle East International (MEI), an export management company, as its representative in the Middle East market. According to **Walid B. Farhoud**, director and CEO of MEI, most Arab

According to **Walid B. Farhoud**, director and CEO of MEI, most Arab countries need the technology offered by Schuyler Rubber in order to satisfy the wide range of fendering requirements throughout the Middle East.

Schuyler Rubber specializes in marine fendering systems for oil rigs, mooring dolphins, piers, docks, tugs, barges and work boats.

For further information and a copy of Schuyler's Arabic/English catalog,

Circle 70 on Reader Service Card

Brochure Offered By AMOT On Engine Safety Shut Down Systems

AMOT Controls, Inc., Richmond, Calif., recently announced their hydro-mechanical safety shut down system. This new system can moni-tor low lube oil pressure, high jacket water or lube oil temperature, coolant loss, high bearing temperature and overspeed. Systems can be specially designed to shut down engine intake air, the fuel injection pump, or the fuel supply line when a problem is detected in the engine. This new system is ideal for use aboard tugs, barges and oil spill clean-up equipment.

Some of the features of this new system are: its heavy duty corrosion-resistant construction for marine use; non-electric, spark-less operation suitable for hazardous areas; no wires; and loss of lube oil pressure from a plugged lube oil line or a break in the line will shut down the engine.

AMOT's new system comes with a choice of a variety of sensing devices and shut down methods. The company also provides any necessary hoses or fittings in order to make the system functional. AMOT Controls specializes in

manufacturing complete engine safety shut down systems operating solely on engine lube oil pressure.

For further information and a free brochure detailing the hydro-mechanical safety shut down systems,

Circle 71 on Reader Service Card

Canadian Consortium Forced To Move Massive **Rig In Hibernia Field**

A 500,000-ton concrete drilling platform, operated by the Canadian consortium developing the Hibernia oil field, must be repositioned one mile farther out into the Atlantic due to unsuitable soil conditions.

Once relocated southeast of its current site, 200 miles off the coast of Newfoundland in the Grand Banks, the rig will straddle two oil fields within the Hibernia discovery, the Hibernia and Avalon structures that are together estimated to contain 650 million barrels of oil. The move will allow the consortium, lead by Mobil Oil Canada, Ltd., to save \$420 million by eliminating several subsea wells that were originally planned to tap the Avalon structure.

The Canadian government and Mobil Oil Canada are hoping that the savings will attract new part-ners to the consortium, which also includes Chevron Canada Resources Lta. and governmentowned Petro-Canada. A 25 percent shareholder in the consortium, Gulf Canada Resources, Ltd., recently left the group because of high operational costs.

June, 1992

Carnival Cruise Promotes Two In Operations Posts

Miami-based Carnival Cruise Lines has recently promoted Brendan Corrigan to vice president, operations, and Pietro Dodero to vice president, marine operations.

A graduate of Glasgow University, Scotland, Mr. Corrigan joined Carnival in 1978 as sanitation offi-

QUALITY

cer and was promoted to ship supervisor for the Festivale in 1982. He became operations manager in 1983 and was again promoted in 1986 to director of operations. His responsibilities include overseeing all operational aspects of Carnival's nine cruise vessels.

Mr. **Dodero** began working for Carnival in 1977 as a superintendent engineer, overseeing shipboard mechanical functions and maintenance until promoted to director of marine operations in 1986. Before

joining Carnival he served as superintendent engineer for Cosmopolitan Shipping and Home Lines, New York, and before that spent 20 years at sea, 13 as chief engineer, aboard various cargo, tanker and passenger_ships.

In his new position he is responsible for the mechanical functions of the entire Carnival fleet, mainte-nance of all shipboard equipment and compliance with regulatory requirements.



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- Joiner Installations

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Circle 159 on Reader Service Card

COMSAT Offering Low Rate For Satellite Services

Washington, D.C.-based COM-SAT Mobile Communications recently announced its lowest rate ever for mobile satellite communications services, which will be available through new digital services that utilize Inmarsat-M and Inmarsat-B technology.

This low price will be available to

You take it seriously

customers equipped with upgraded 2.2-meter multi-channel antennas similar to those currently in use for Inmarsat-A services, and will bring the rate of calls down to \$3.95 per minute. The company said it plans to file its tariff for the service with the Federal Communications Commission (FCC) shortly.

Ronald J. Mario, president of COMSAT Mobile Communications, said: "COMSAT's new digital service, which will be available to the marketplace by mid-1992, will provide'passenger quality' digital voice, facsimile and data transmission ser-"The \$3.95 multi-channel vices." rate reflects an efficient use of the system by using both a digital technology and a larger antenna that reduces the amount of power required of the satellites. Potential users of this new service include any customer requiring multiple telephone and data channels, such as: cruise vessels, seismic, factory or research vessels with crew that are at sea for an extended period of

time; and land transportable customers who have multiple users on a single system," he continued.

Mr.Mario said that as the number of customers for this service increases, the cost of both the service and equipment will continue to come down.

For free literature regarding COMSAT's satellite communications services,

Circle 24 on Reader Service Card

BP Offers Owners Bunker Price Stabilization Schemes

British Petroleum (BP) is offering ship owners who would like to stabilize the price of their bunker oil supplies a choice between an option scheme or the swap mechanism.

The option buyer secures protection from prices rising above a set ceiling or strike price. For the payment of a set fee for each ton of oil purchased, the owner purchases his bunker fuel for a fixed rate and period of time, for example, \$6 for each ton of bunker oil in addition to the strike price of \$80 per ton. If prices fall to \$78 per ton, the buyer can purchase the cheaper fuel oil with-out paying the \$6 fee. This strategy insures against rising prices while retaining the benefits of low prices should the market fall.

In the case of the swap mechanism the buyer purchases bunker oil at the \$80 strike price without paying any initial fees. Instead, if the market price drops to \$78, the owner pays BP the \$2 difference per ton of oil purchased, while in the event prices rise to \$83, BP pays the buyer the \$3 difference. The result is that the buyer is locked into the oil market price of \$80.

Both schemes are tailed to suit individual shipping companies.

Dehumidification, Sealing And Monitoring Systems Installed By L&C

L&C Associates recently completed the installation of a dehumidification and sealing system for the Noble Star, an MSC preposition ship

The dehumidification system is comprised of five dehumidifiers, each delivering dry air to one of the ship's five cargo holds. Materials stored in the holds are highly susceptible to moisture damage. Since the vessel is active, the dehumidifiers were placed on the main deck in containers retrofitted especially for the Noble Star. The containers were necessary because space below decks is limited. The containers also provide a centralized location for the units, making routine maintenance more convenient.

For free literature on dehumidification and sealing systems from L&C Associates,

Circle 67 on Reader Service Card

Maritime Reporter/Engineering News

it's time to take the next step, you don't want to "take a number." You want a shipyard that will work with you to get the job done. One that knows that your project is unique, and has what it takes to do it right. A shipyard with a reputation DIRECT DRIVE for quality, productivity, and customer service FAIL SAFE BRAKING - STANDARD that's second to none. A shipyard like Todd. If it's POWER IN & POWER OUT - FULLY REVERSING We take it personally important to you, it's important to us. NUMEROUS OPTIONS TO SUIT YOUR APPLICATIONS GROOVED DRUMS - CONTROLS - FREE SPOOLING -EXPLOSION PROOF LINE PULLS FROM 400 LBS TO 32,000 LBS VERTICAL LIFT

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Seaward International is the world's largest manufacturer of foam filled marine fenders and flotation products. Our reputation for delivering the highest quality, best performing products to serve the military and commercial marine industry is unequaled.

Seaward Products and Services include:

- Dock Fenders
- Ship Fenders
- Lightering Fenders
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- Foam Filled Marine Buoys
- Flotation Products
- Urethane Marine Coatings
- Specialty Elastomeric Materials

As an elastomer technology corporation solving the problems of fendering, flotation, energy absorption, abrasion and corrosion, Seaward International has the experience and resources needed to solve your problems.

For information contact Seaward International, P.O. Box 98, Clearbrook, SEAWARD Virginia 22624. Telephone: (703) 667-5191, Fax: (703) 667-7987.

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ATIONA

CRUISE SHIPPING

DWNER/OPERATOR Ship	GT	No. of Passengers	Year Built	OWNER/OPERATOR Ship	GT	No. of Passengers	Year Built
ADMIRAL CRUISES, Miami, FL				Sunward II	14,100	676	71/89
Emerald Seas	18,927	982	44/89	Crown Odyssey Shangrila World	34,242 16,254	1,209 730	88 69/88
AMERICAN HAWAII CRUISES, San Francis	co. CA			Golden Odyssey	6,757	460	74
Constitution	30,090	798	51/88	Royal Viking Queen	10,000	212	92
Independence	30,090	798	50/88	Royal Viking Sun	38,000 28,211	740 750	88 72/89
CARNIVAL CRUISE LINES, Miami, FL				Westward	20,211	750	12/05
Carnivale	27,250	950	56/90	MAJESTY CRUISES, Miami, FL	00.400	1.050	02
Ecstasy Celebration	70,367 47,262	2,040 1,486	91 87	Royal Majesty	32,400	1,056	92
Fantasy	70,307	2.044	90	NIPPON YUSEN KAISHA - NYK LINE, TO			
Festivale	38,175	1,146	61/86	Frontier Spirit	6,752	184	90
Holiday	46,052	1,452	85	OCEAN CRUISE LINES, Fort Lauderdale,	FL		
Jubilee Mardi Gras	47,262 27,20	1,486 906	86 62/85	Ocean Pearl	12,456	460	67/88
Tropicale	36,674	1,022	82/89	Ocean Princess	12,200	460	67/84
				P & O CRUISES / PRINCESS CRUISES, L	os Angeles, CA		
CHANDRIS FANTASY / CELEBRITY CRUIS Amerikanis	20.000	619	52/88	Canberra	44,807	1,648	61/86
Britanis	26,000	922	32/87	Sea Princess Crown Princess	27,760 70,000	714 1,748	66/86 90
Azur, The	15,000	663	71/89	Dawn Princess	25,000	890	57/89
Victoria, The	19,000 46,811	550 1.354	36/89 90	Fair Princess	25,000	890	58/89
Horizon Meridian	30.000	1,106	63/90	Fairstar	23,764	850	57/63
Zenith	47,000	1,400	92	Island Princess Pacific Princess	20,000	610 610	71/85 71/85
ACCIONI ODINOFO NEW YOL NY				Regal Princess	70,000	1,700	91
CLASSICAL CRUISES, New York, NY	3.751	140	62/85	Royal Princess	45,000	1,200	84
Polar Circle	2,500	80	90	Sky Princess Star Princess	46,000	1,200 1,470	84/ 8 9 89
Aurora I	2,928	80	91	Star Princess	63,500	1,470	89
Aurora II	2,928	80	91	PREMIER CRUISE LINES, Cape Canaver	al, FL		
LIPPER CRUISE LINE, St. Louis, MO				Starship Atlantic	19,337	1,600	82/88
Nantucket Clipper	100	102	84	Starship Majestic Starship Oceanic	17,750 19,500	950 1,500	72/89 65/86
Yorktown Clipper	100	138	88		10,000	1,000	00/00
World Discoverer	3,153	138	74/84	PRIDE CRUISE LINE, Galveston, TX	0.111	740	F4 70
LUB MEDITERRANEE, Paris, FRANCE				Pride of Galveston	9,114	742	51/73
Club Med 1	3,994	425	88	REGENCY CRUISES, New York, NY			
				Regent Sea	15,294	720	57/85
Commodore Cruise Line LTD, Coral Ga Caribe !	23.000	875	53/89	Regent Star	24,413	960	56/87
Enchanted Isle	23,395	731	57/90	Regent Sun	25,500	815	64/82
Enchanted Seas	23,500	736	57/90	RENAISSANCE CRUISES, Fort Lauderda			
COSTA CRUISES, Genoa, ITALY				Renaissance	4,500	100	89
Carla Costa	19,942	730	52/86	Renaissance II Renaissance III	4,500 4,500	100 100	89 89
Costa Allegra	16,000	800	69/92	Renaissance IV	4,500	100	89
Costa Classica	53,700	1,300	91	Hanseatic Renaissance	3,980	114	91
Costa Marina Costa Riviera	25,000 31,500	850 974	69/90 62/85	Renaissance V	4,280	114	91 91
Danae	17,000	420	56/85	Renaissance VII	3,500	114	91
Daphne	17,000	420	55/86	ROYAL CARIBBEAN CRUISES, LTD, Mia			
Enrico Costa	16,495	800	50/87	Majesty of the Seas	73,000	2,354	92
Eugenio Costa	30,567	1,100	76/86	Monarch of the Seas Nordic Empress	73,400 44,300	2,354 1,610	91 90
ROWN CRUISE LINES, Boca Raton, FL				Nordic Prince	23,200	1,012	71/80
Crown Monarch	13,991	560	90	Song ol America	37,584	1,412	82
Viking Princess	6,421	366	64/85	Song of Norway	23,005	1,022 2,282	70/78 87
RYSTAL CRUISES, Los Angeles, CA				Sovereign of the Seas Sun Viking	73,192 18,556	728	72
Crystal Harmony	49,400	960	90	Viking Serenade	27,000	1,514	82/91
UNARD LINE LTD, New York, NY				SEA CLOUD CRUISES GMBH, Hamburg,	GERMANY		
Cunard Countess	17,593	790	76/86	Sea Cloud	2,517	69	31/88
Cunard Princess	17,496 66,450	750 1.815	77/86				
Queen Elizabeth 2 Sagafjord	66,450 25,147	1,815	69/87 65/86	SEA VENTURE CRUISES, Miami, FL	5,000	1,000	66/88
Sea Goddess I	4,253	120	84/86	Tropicana	5,000	1,000	00/08
Sea Goddess II	4,260	120	85/86	SEABOURN CRUISE LINE, San Francisc			
Vistafjord	24,492	736	73/86	Seabourn Pride	10,000	212 212	88 89
AMOND CRUISE INC., Helsinki, FINLAND				Seabourn Spirit	10,000	212	09
Radisson Diamond	18,400	354	92	SEAESCAPE LTD, Miami, FL	7 701	000	7.000
ISCOVERY CRUISES, Fort Lauderdale, Fi	L			Pride of San Diego	7,764 7,356	900 1.050	74/88 68/90
Discovery I	12,244	1,250	70/89	Scandinavian Dawn Scandinavian Saga	5,259	900	74/88
				Scandinavian Song	8,496	350	66/88
OLPHIN CRUISE LINE, Miami, FL Dolphin IV	13,007	588	56/88	Scandinavian Sun	9,902	1,100	68
Oceanbreeze	14,673	880	55/92	SPECIAL EXPEDITIONS, New York, NY			
Seabreeze	21,000	840	57/89	Polaris	2,214	76	60
IOLLAND AMERICA LINE - WESTOURS, S	eattle WA						
Nieuw Amsterdam	33,930	1,210	82	STAR CLIPPERS, INC., Miami, FL Star Clipper	2,298	180	92
Noordam	33,930	1,214	84	Star Olipper Star Flyer	2,298	180	92
Rotterdam	37,783	1,111	59/89				
Westerdam	53,000	1,476	86/89	SUN LINE CRUISES, New York, NY	4.000	180	60/66
IOTELES MARINOS, Almeria, SPAIN				Stella Maris Stella Oceanis	3,963	300	65
Vistamar	6,517	400	89	Stella Solaris	10,595	620	53
VARANS REDERI, Oslo, NORWAY				WINDJAMMER BAREFOOT CRUISES LT	D Miami El		
*Americana	19,203	88	88	Fantome	2,400	126	27/91
*Passenger-Carrying Container/Cargo Sl				France II	2,000	100	61/92
LOSTER CRUISE LIMITED, Coral Gables,		Viking Line)		Wind Song	5,350	148	87
			60/90	Wind Song Wind Spirit	5,350	148	87
(includes Norwegian Cruise Line, Royal Cruis	75.000	2044					~~
Norway Seaward	75,000 42,276	2.044 1,534	88	Wind Star	5,350	148	86
Norway					5,350		86

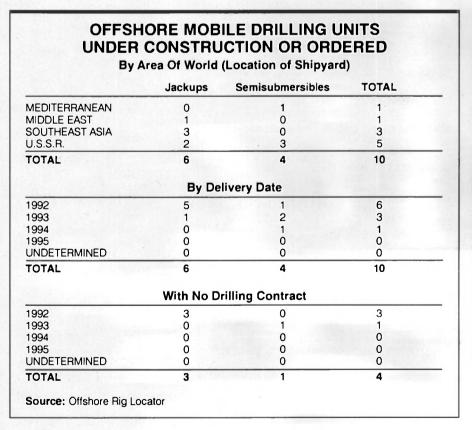
June, 1992

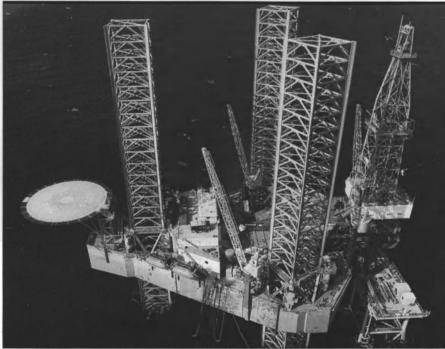
OFFSHORE RIG CONSTRUCTION

MOBILE RIGS UNDER CONSTRUC	TION
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Rig Owner	Rig Name	Design	Water Depth	Shipyard	Estimated Cost (SMM)	Delivery Date	Contract
		JAC	KUPS				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
MAERSK	Maersk Gallant	Marine Structure CJ 62 S-120, 3 legs, cantiflever, harsh environment, z e ro discharge.	400'	Far East Levingston – Singapore	\$136.0	06/92	Available
MAERSK	Maersk Goliath	Marine Structure CJ 62 S-120, 3 legs, cantilever, harsh environment, zero discharge.	400'	Far East Levingston – Singapore	\$136.0	09/92	Available
NATIONAL IRANIAN DRIG	Iranian Unnamed Jackup 01	Rauma-Repola, 3 triangular legs, cantilever.	300'	Iran Marine Industrial —Neka, Iran	\$ 70.0	03/93	NIOC – Owner/operated
RUSSIA	Russia Unnamed Jackup N402	CD&EB – Coral Design, Artic Class, 3 legs, cantilever.	300'	Vyborg Shipyard — Russia	\$ 67.0	08/92	Sahalinmor – Owner/operated
RUSSIA	Russia Unnamed Jackup N610	CD&EB – Coral Design, 3 legs, cantilever.	250'	Astrakhan — Russia	\$ 60.0e	06/92	Chernmor – Owner/operated
SANTE FE	Magellan	Friede & Goldman L-780 MOD V, 3 triangular legs, cantilever, harsh environment.	350'	Far East Levingston – Singapore	\$ 80.0e	05/92	Available
		SEMISUB	MERSIBLES				
AZERBAIJAN	Shelf 07	CD&EB – Coral Design, 6 columns.	1,000'	Astrakhan Shipyard — Astrakhan, Russia	\$ 80.0e	06/92	Caspmor — Owner/operated
AZERBAIJAN	Shelf 09	CD&EB – Coral Design, 6 columns.	820'	Astrakhan Shipyard —Astrakhan, Russia	\$ 80.0e	06/94	Caspmor – Owner/operated
RUSSIA	Shelf 12	CD&EB – Coral Design, 6 columns.	650'	Vyborg — Russia	\$ 80.0e	06/93	Sahalinmor – Owner/operated
SANA	M&S Unnamed Semi 01	Friede & Goldman L-1020, Trendsetter, drilling/production.	5,000'	Fincantieri – Genoa, Italy	\$120.0	12/93	Available

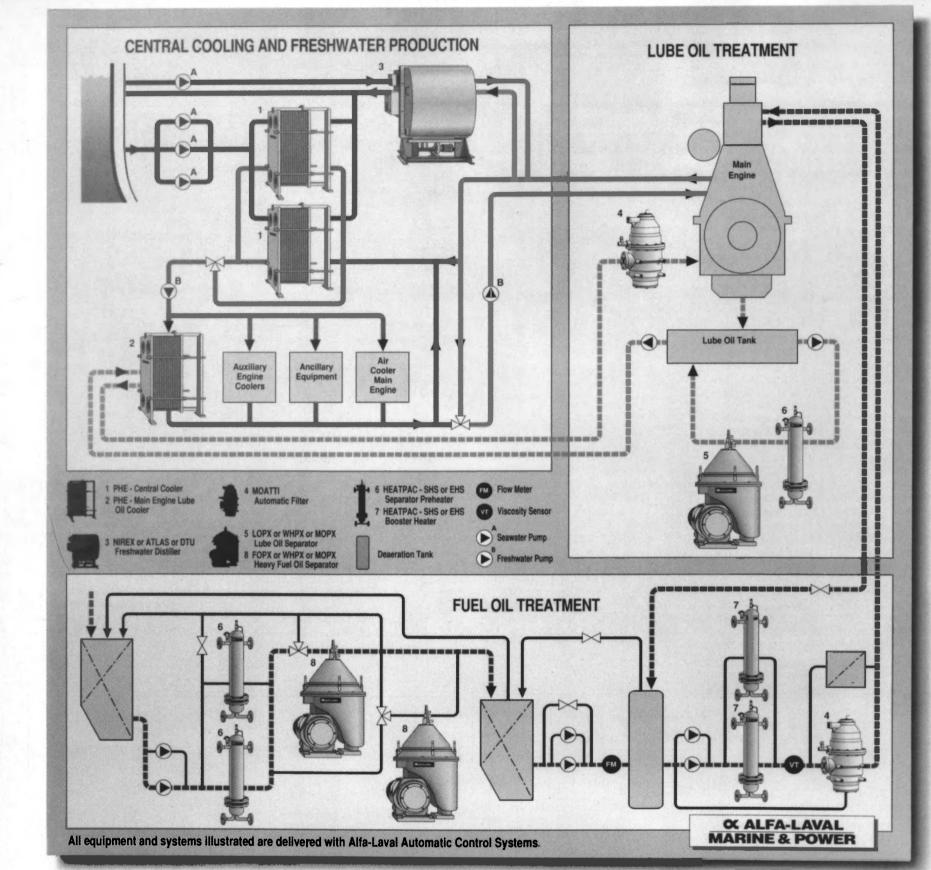
Source: Offshore Rig Locator





The Ocean King, a Marathon LeTourneau Class 116C, independent leg, cantilevered, jackup drilling unit, rated to dril to a depth of 25,000 feet below the rotary water depths from 22 feet to 300 feet.

Source: The Offshore Rig Locator, published by Offshore Data Services, Inc., P.O. Box 19909, Houston, Texas 77224; telephone (713) 781-2713; and telefax (713) 781-9594.



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Based on years of systems experience, Alfa-Laval knows the contribution that quality ancillary equipment can make in enhancing systems performance. From heaters to filters, Alfa-Laval has spent years searching for the right components to meet our demanding specifications. In addition, to provide you with total quality assurance, each of these components is manufactured by Alfa-Laval.

As a result, Alfa-Laval now offers not only the broadest product line in the industry, but a complete Systems Approach where each component in the system is specifically designed for its intended function – *ensuring*

And as always, you can count on Alfa-Laval service worldwide.

The Systems Approach from Alfa-Laval. Single source satisfaction from one of the most trusted names in the industry.

For more information and a free ''Alfa-Laval Systems Approach'' poster, contact Alfa-Laval Separation, Inc., Marine & Power Division, 955 Mearns Road, Warminster, PA 18974

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MARIN

& POWER

telephone (215) 443-4000 fax (215) 9 5 7 - 4 8 5 9 .

Propulsion Update

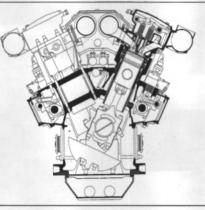
MAN B&W And Pielstick Present New V-version of 48/60 Diesel Engine

The German engineering firms of MAN B&W Diesel and S.E.M.T. Pielstick have recently introduced the jointly developed V-version of the 48/60 engine.

The concept of the new V-type engine is based on the design principles of MAN B&W's successfully family of medium-speed 4-stroke inline engines, the L 40/54, L 48/60 and the L 58/64. Having sold more than 140 engines of this type worldwide to the stationary and marine sectors, the V 48/60 to be marketed as a "proven but new engine."

sectors, the V 48/60 to be marketed as a "proven but new engine." Because of the power development requirements of 11,000 kW to 17,000 kW, it was decided to go with the in-line 48/60 engine as the basis for the new V-type. This made it possible to directly adopt numerous components such as cylinder cover, piston, cylinder liner, connecting rod, injection system, etc.

rod, injection system, etc. The 48/60 V-type engine is available in 12, 14, 16 and 18-cylinder versions. Under ISO conditions and assuming a net calorific value of 42,700 kJ/kg, the specific fuel consumption is 178 g/kWh at 100 percent MCR, and 175 g/kWh at 85 percent load. The V 48/60 engine has been designed to burn even the



Cross section of V 48/60 diesel engine.

poorest quality of heavy fuel oils down to and including the CIMAC H-K 55 specification.

Both companies are primarily aiming the V 48/60 for power generation in medium-scale and largescale diesel power stations of 100 MW capacities and more. Using the engine for navy and merchant marine ship propulsion is also possible. MAN B&W and Pielstick believe

a yearly demand of 20 - 30 engines is realistic, with the majority of demand coming from the Far East, South East and Central Asia and Australasia.

For free literature on the V 48/60 engine and the engineering services available from MAN B&W.

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Vianova Offers Line Of Automated Handling & Treatment Equipment

The Italian company of Vianova S.p.A offers shipbuilders a complete line of automated materials handling and treatment equipment. The company's U.S. operations are now represented by Gerard Technology Associates (GTA) in Thorndale, Pennsylvania.

Vianova's Roblast system is designed to reduce labor requirements for automatic high pressure water cleaning, dust free sandblasting and painting of ship's hulls. The Roblast performance rates are:

Several U.S. shipyard already use Vianova magnetic cranes, steel conveying equipment and treatment lines for shotblasting and painting steel plates, profiles and pipe. The paint marking system identifies plates and shapes to simplify materials management and increase productivity. Automatic welding equipment and fume extraction systems are also available.

Vianova also provides ship towing and centering systems for drydocks, complete with mechanized side blocks for support, and consulting services for shipyard production engineering. For free literature about the prod-

For free literature about the products and services available from Vianova,

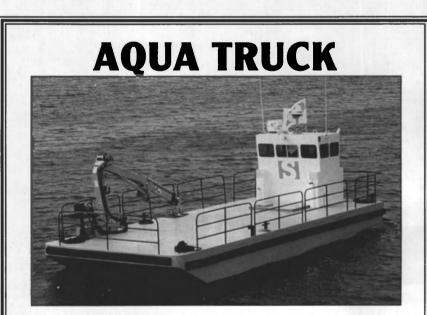
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Detroit's Marine Pollution Control Tests New Method For Oil Spill Cleanup

The Environmental Protection Agency and Detroit's Marine Pollution Control recently tested a new way to control oil spills. The test was conducted on the Detroit River.

The new method forces oil into areas where it can be pumped faster through the use of water jets.

The Valdez and Persian Gulf oil spills are some of the major cleanup operations that Marine Pollution Control has participated in over the past 25 years.

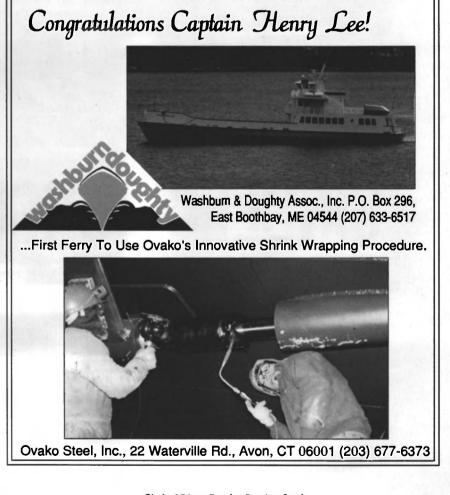


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Circle 274 on Reader Service Card Maritime Reporter/Engineering News

U.S. SHIPBUILDING

Navy Construction Still Prime Source Of Contracts

Tanker, Cruise Ship Construction Pose New Opportunities

Despite budget cuts, most of the ship construction activity in the United States centered around U.S. Navy, military and government programs — a market that will provide \$30 billion in vessel building, repairing, converting and outfitting work for Fiscal Year 1993. The Navy's shipbuilding and conversion budget totaled \$7.37 billion for Fiscal Year 1991 (FY 91), \$6.46 billion for FY 92 and \$5.32 billion for FY 93. Fiftytwo ships will be built or converted as a result of contracts from these three fiscal years.

Funding for Navy ship repair exceeded was about \$12 billion for the three fiscal years.

On the commercial side, the shallow-draft vessel sector was the most active, with a number of hopper and tank barge deliveries and orders, passenger vessels-including the hot riverboat casino market—and various size workboats, including a number of towboats, tugs and crewboats. In all, according to MARI-TIME REPORTER's latest new vessel construction survey, 673 vessels were delivered in 1991, with orders at present for 615 more. For more details on the shallow-draft market, see the "Inland, Harbor & Coastal Waterways" report in this issue.

Ship and boat repair activity has been rising over the last few years, mainly because of the competitive pricing available at U.S. yards, as well as the prevalence of older equipment in the U.S. fleet. For example, NORSHIPCO, one of the leading ship repairers in the nation with \$250 million in work annually, stemmed over 40 commercial vessels during 1991, with an excellent mix of bulk, RO/RO, tanker and passenger ships. NORSHIPCO also benefitted from ship activations for the Gulf War.

Southwest Marine, one of the largest repairers on the West Coast, completed the major conversion of the Viking Serenade for Royal Caribbean Cruise Lines (RCCL), worth more than \$75 million.

In the shallow-draft repair market, the American Waterways Shipyard Conference (AWSC), which represents smaller and medium-sized yards around the country, reported that there were repairs performed on 22,028 power-driven vessels, 56,297 river barges and 7,629 offshore barges in 1990.

Construction Opportunities

Although there were no major commercial oceangoing cargo-carrying ship contracts signed during the past 12 months, there are still a

number of construction opportunities in the U.S. A major driving factor, not only in the U.S. but around the world, is the Oil Pollution Act of 1990 (OPA 90). Of the 313 ships in the U.S. tanker fleet, 262 are 11 years of age or older. Because OPA mandates that all tankers entering U.S. waters must be fitted with double hulls by the year 2015, many of these ships will be phased out and either have to be replaced or retrofitted with a midbody. Many U.S. owners are awaiting the outcome of the Coast Guard's final rules for double hulls, as well as any further developments in the wake of the collapse of the recent OECD talks on the elimination of shipbuilding subsidies

Another area of extreme interest among shipyards in the Navy's Sealift Program. President Bush has proposed a National Sealift Defense Fund (NSDF) which would be used to obtain further expand the Ready Reserve Fleet (RRF) through the acquisition of used ships or, alternatively, charter, build and charter, and military-useful features in new commercial ships or a combination of these programs. Initial capitalization of the NSDF would be accomplished through the transfer of existing shipbuilding appropriations provided by the Congress for sealift totaling about \$1.9 billion, as well as an additional \$1.2 billion requested in the amended FY 1993 President's budget.

At present, design contracts have been awarded to nine shipyards, and construction contracts may be awarded as early as the spring of 1993 whether the NSDF is authorized or not.

U.S.-Flag Cruise Ships Can Now Offer Gaming

Another area of major growth is U.S.-flag cruise ship construction. With the recent passage of the Flowers Banks National Marine Sanctuary Act, the prohibition on gambling aboard U.S.-flag cruise ships has been lifted. This will enable U.S.flag operators to offer gaming aboard, not only for cruises with destinations, but for "cruises to nowhere" as well.

Continental Coast Line Inc. of California has already expressed interest in building two U.S.-flag cruise ships for intra-California service. The 2,500-passenger ships would cost \$300 million to build and operate between Los Angeles and San Francisco.

McDermott Shipyard has signed a letter of intent for the construction of four 1,000-passenger 256-foot SWATH cruise ships. The U.S.-flag ships would cost between \$100 million to \$200 million apiece.

In other cruise ship news, RCCL is reportedly thinking of adding more ships as a result of the completion of a \$900 million expansion plan. The company is reportedly considering a 55,000-gt ship. RCCL is in talks with Newport News Shipbuilding about constructing the vessel, according to one industry source.

Matson Navigation

Boxship Launched

The only commercial oceangoing cargo-carrying ship under construc-

tion in the United States, the 32,500gross ton containership Pfeiffer was launched earlier this year at National Steel & Shipbuilding Co. (NASSCO) in San Diego for Matson Navigation. The \$129-million ship, which is designed to carry 24-foot equivalent unit (TFEU) containers, is due to be delivered this year.

The Marine Spill Response Corporation (MSRC), Washington, D.C., awarded \$188 million in construction contracts to Gulfport, Mississippi-based Trinity Marine Group and Bender Shipbuilding & Repair Co., Inc., Mobile, Ala. The Trinity Marine Group, which consist of 11 shipyards located in Louisiana, Mississippi, Texas and Pennsylvania, is building 12 of the 210-foot vessels, while Bender Shipbuilding is building four of the same class. Bender has already launched the first two vessels, the Gulf Responder and ther Louisiana Responder. The sixteen OSRVs will be stationed around the U.S. at various sites to provide quick response in the event of a major oil spill.

In addition, the MSRC has put out Request For Proposals (RFPs) for the construction of sixteen 40,000bbl tank barges, which would be used as temporary storage for recovered oil.

Icebreaking Research Ship Delivered To Chouest

One of the most notable deliveries during the past 12 months was the Nathanial B. Palmer built by North American Shipbuilding of Larose, La. She is the nation's first commercial icebreaking research vessel. Classed according to ABS Rules for strengthening for navigation in ice, the 308-foot, 6,500-long ship, owned by Edison Chouest Offshore of Galliano, La., will be operated for the National Science Foundation supporting Antarctic research projects.

Also noteworthy among commercial deliveries was the 800-bed, 625foot floating detention facility built and delivered by Avondale Shipyards Division, Avondale Industries for the City of New York.

Avondale's Boat Division also delivered three new Viking Class 2000 towboats to New Orleans-based National Marine. The three 6,800hp Caterpillar-powered boats, the Cindy Celeste, Elizabeth Dewey and the Karen K., represent a new generation of towboat.

Maritime Reporter's Annual New Vessel Construction Survey follows >

Table 1

U.S. Shipbuilding Order Book

		991 veries	1992 On Order/Under Constructio		
Туре	No.	% of Total	No.	% of Total	
Military/Gov't. Combatants	6	0.8	48	7.8	
Military/Gov't. Auxiliaries	73	10.8	107	17.0	
Containerships	0	0.0	1	0.2	
Tankers – All Types	5	0.7	11	1.7	
Passenger Vessels – All Types	24	3.5	28	4.5	
Workboats – All Types	127	18.0	73	11.8	
Dry Cargo Barges – All Types	277	41.0	340	55.0	
Liquid Cargo Barges – All Types	40	5.9	61	9.9	
Miscellaneous Vessels	21	3.1	8	1.3	
TOTAL	673	100.0	615	100.0	
Source: Maritime Reporter/SCA					

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Hagglunds Offers 16-Page **Guide On Large Marine Piston Pumps & Motors**

An updated 16-page, 2-color tech-nical guide is now available from Hagglunds Denison Corporation, Marysville, Ohio, describing its line of large marine-type piston units for use on military and commercial ships. Built to meet MIL-P-17869A and

MIL-S-901C Grade A, typical ship-board applications of Hagglunds' series 61, 62 and 63 axial piston pumps and motors include steering systems, elevators, cargo and anchor windlasses, winches, and automatic transfer between ships at sea.

The guide covers such details as special features, general character-istics, pump and motor operation, hydraulic circuits, power characteristics and transmissions, displacement controls and auxiliary options. Numerous schematics are also provided along with a general specification table, application data and information about various available package units.

Hagglunds Denison is a leading manufacturer of hydraulic components and systems for construction vehicles; for mining equipment; pulp & paper; chemical and other processing equipment; for ships and ordnance equipment; and for such inplant equipment as machine tools, plastic moldings, die casters and stamping presses,



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To receive a free copy of Hagglund Denison's new 16-page technical guide on marine-type pistons,

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Future Of Panama Canal **Studied by Commission**

The United States, Panama and Japan have formed a tripartite commission to determine how the Panama Canal will function as a resource for the shipping industry by the year 2060.

The commission met recently in Panama to review its list of options for the canal, which was narrowed down from 36 to 3 possible alterna-tives, according to **John R. Dawson**, director of the State Department's Office of Panamanian Affairs.

The 3 options under consideration are: the construction of a sea-level canal across the Isthmus of Panama; adding new locks to the canal; and maintaining and improving the ex-isting system. Sinbol, a consortium led by Bechtel Group, San Fran-cisco, and the International Bank of Japan, will be conducting a cost-

benefit analysis for the commission. John C. Young, the deputy U.S. commissioner to the Commission for the Study of Alternatives to the Panama Canal, said that the studies will determine which of the options will best guarantee the future viability of the canal and maintain its competitiveness with the U.S. land-bridge network and other shipping routes.

The sea-level canal concept was studied by a congressional committee in the 1970's and was estimated at the time to cost between \$5 and \$6 billion. Critics of the plan wonder how the project would be financed in

light of the current U.S. economy. The final Sinbol report detailing the consortium's findings will be presented to the commission in September 1993.

Costa Cruise Selects New Manager For U.S.

Italy's Costa Cruise Lines have selected the founder and former head of Premier Cruise Lines, **Bruce Nierenberg**, to be its new head of U.S. operations. He will be replac-ing **Lorenzo Pellicioli**, who will be returning to Genoa to take a senior executive position after serving as the company's U.S. manager for two years

Mr. Nierenberg left Premier and sold his shares for \$16 million to its parent company, Dial Corporation, after a failed take-over attempt by Carnival Cruise Lines last year.

The Costa Cruise fleet will be joined by two new ships, the Costa Allegra will be entering service in December of this year and the Costa Romantica in November 1993.

Electronic Marine Systems Offers Free Color Brochure On New GPS Chart Viewer

Electronic Marine Systems (EMS), of Rahway, N.J., is offering a free color brochure describing its new Ground Positioning System (GPS) Chart Viewer for marine navigation.

According to EMS, the GPS Chart Viewer provides a GPS navigational format that is extremely useful to today's mariner.

The GPS Chart Viewer was designed to provide the navigator with the continuous position assessment that is critical in close quarters situations and shallow or restricted waters, such as harbor areas. Accuracy to within 10 feet inbound at the sea buoy is made possible by the GPS Chart Viewer, which indicates the ship's position directly onto the chart.

The system resolves errors in position accuracy caused by selected availability (SA) of satellites, as well as inherent GPS errors which could be as much as 100 feet.

By determining the exact loca-tion of the sea buoy with either visual or radar fixes, the navigator can then position his "own ship" on the chart viewer to that precise location and from that point continue the vessel's track with extreme accuracy.

For a copy of Electronic Marine System's free color brochure about its GPS Chart Viewer,

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Simplex Awarded \$1.4 Million For Supply Of Optical Ocean Cable

Simplex Wire & Cable Company, of Newington, NH, a leading supplier of undersea optical fiber cables, has been awarded a \$1.4 million contract by SAIC Maripro, of Goleta, CA, for the supply of ocean cable for the Fiber Optic Communications Underwater System project (FO-

FOCUS consists of 3 CUS). repeaterless undersea cables each with 12 dispersion shifted optical fibers. The first segment to be in-stalled will connect Pt. Mugu, CA, to San Nicholas Island. The second segment will connect San Nicholas and Santa Cruz Island, and the third will connect Santa Cruz Island to Pt. Mugu. A total of 300 kilometers of undersea cable will be deployed for the FOCUS project by SAIC Maripro as part of their contract with the Naval Air Warfare Center based at Pt. Mugu, CA. This award is for the first segment, to be deliv-ored in late 1992 ered in late 1992.

For free literature about the undersea fiber optic cables and other engineering services available from Simplex Wire & Cable,

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Congress Urged To Support Towboat Law

Members of the House of Repre-

sentatives are being asked to support a bill introduced by Rep. Neil Abercrombie, D-Hawaii, that would establish minimum manning and watch requirements for towboats.

At the moment, Coast Guard regulations only call for one tow vessel crewman to be present on the bridge to control the entire towing operation, and despite the length of the voyage, the crew need only be di-

voyage, the crew need only be a vided into 2 watches. According to **Walter J. Shea**, president of the Transportation Trades Department, AFL-CIO, in the event that the lone crewman on watch becomes disabled or leaves the bridge for any reason, "the effects would be devastating."

The Abercrombie bill would continue to allow towing vessels to divide their crews into only 2 watches on voyages that are less than 200 nautical miles.

However, for longer voyages, all of the towboat's licensed and unlicensed crewmen would have to be divided into 3 watch sections if the bill becomes law.



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New MWH Valve Rotators In LNG Ship **Prove Cost Effective**

A field test to determine the ability of Markisches Werk Halver's (MWH) valve rotators to correct exhaust valve wear problems was recently performed on the LPG carrier, M/V Sunny Lady, owned by Olaf Pedersen's Rederi of Norway. Studies revealed that the aver-

age life for a seat coated exhaust valve was about 2,552 hours. Turnomat valve rotators reportedly increase the time between engine overhauls and also allow even distribution of heat on the seat area therefore reducing peak temperatures, thermal stress and corrosion sensitivity.

The MWH valve rotators were first installed in 1989 and the first inspection conducted a year later revealed that only two of the 12 standard exhaust valves reached

4,400 running hours and all 12 Nimonic valves were still in excellent condition and could be refitted.

The final results of the test showed that in comparison to the original valve/rotator combination used before the test, the lifetime of the valves fitted with the combination of 12 Nimonic and 12 Turnomat valve rotators extended the lifetime of the exhaust valves from 31 percent to 130 percent. Even after 7,200 hours the Turnomat showed no noticeable signs of wear.

As a result of the tests, the Pedersen shipping company has installed Nimonic valves with Turnomats on all of its ship's engine cylinders.

For free literature detailing the Turnomat exhaust valves manufactured by MWH,

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Strong Charter **Market Ensures Future Of Older Boxships**

According to a report on the liner markets by Clarkson Research Studies, U.K., a strong charter market will allow older container vessels being displaced from the main east-west trade by a new generation of ships to be reemployed in the north-south trade or in feeder services, rather than sold for scrap.

Clarkson's review of world shipping trends indicates that there was a strong demand for containerships during the last half of 1991. A 1,200 twenty-foot equivalent unit (TEU) containership on a year-long char-ter was going for \$13,000 a day at the end of 1991, as opposed to a rate of \$12,000 a day last summer.

A shortage of world tonnage and the rising price of new box ship construction will continue to maintain solid charter rates, despite a weak start in early 1992 and a present slump in international freight rates, reported Clarkson. This should ensure that both new and older containerships will be absorbed by the market.

The company reported that the rising world demand for tanker and dry bulk shipbuilding berths has almost doubled the cost of new large cellular container vessels, now being quoted by Far East yards at \$63 million for a 2,500 TEU ship.

Hempel Marine Paints To Supply Protective Coatings For 10 Newbuild VLCCs

Hempel's Marine Paints A/S has been chosen to be the exclusive supplier of protective coatings for a series of 10 VLCCs to be constructed at Odense Steelshipyard A/S, Lindo, Denmark.

Over the next 2-1/2 years, Hempel will supply 3.6 million liters (approximately 1 million gallons) of paint for 7 vessels of 280,000 dwt and 3 of 301,000 dwt.

Hempel is one of the world's largest suppliers of marine coatings, servicing over 70 percent of Danish new construction.

For additional information re garding the protective coatings that are available from Hempel's Marine Paints,

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Maritime Reporter/Engineering News





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A GUIDE TO U.S. MARINE SALES IN THE NEXT FIVE YEARS

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An Assessment of Ship Construction and Major Modification Prospects Available to Shipbuilders, Equipment Manufacturers and Other Suppliers

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The totally new, 1992 edition of IMA's marine industry outlook has just been published.

Under one cover is a totally objective, in-depth assessment of the business outlook for the entire U.S. marine sector. The report documents the size and composition of 24 individual market segments, analyzes underlying market drivers, forecasts construction and modification activity over the five years, identifies regulatory and legislative actions likely to affect future suppliers.

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Proposal Would Lift Restrictions On Foreign Cruise Ships

The Bush Administration is presently considering a proposal that would exempt foreign-flag cruise ships from the U.S. Passenger Services Act of 1886, allowing them to carry passengers between U.S. ports.

mind.

West Coast port operators have long been pushing for such an exemption, which they believe would greatly increase passenger activity. Staunchly opposing the proposal, U.S. shipping operators say that the 1886 Act is a footnote of the Jones Act, which protects the nation's shrinking domestic U.S.-flag fleet.

The Bush Administration has stated that it strongly supports the Jones Act and does not believe that a repeal of the 1886 Act sets any precedent towards weakening it.

Under Current legislation, a foreign passenger ship leaving an Alaskan port must first stop in Canada or Mexico before it may take passengers to a port in California. As a result, the lucrative Alaskan cruise market is based in Vancouver, Canada.



Greek Buyers Dominate Bulk Ship Market

In recent weeks Greek shipowners have been dominating a busy ship sale and purchase market, with the sale in early May of the bulk carrier Kapetan Yannis to a Greek buyer at an above market price sparking a series of Greek old and new tonnage acquisitions.

While brokers say that it is still to early to determine if Greek ship-owners have decided to begin rebuilding their fleets, there have been tentative signs of an upturn in secondhand ship prices and several Greek owners are making major purchases.

Greek and Norwegian shipown-ers currently control the two largest merchant fleets in the world, with the 43 million-dwt registered Greek fleet standing slightly above that of Norway's 40 million dwt.

The Norwegians have tended to be net sellers and the Greeks net buyers in the past few months, according to a London director of Den Norske Credit-bank, Richard Keisner. Rather than expanding their fleets, however, it would appear that the Greeks are carrying out fleet upgrades, being content to maintain their merchant fleets at present levels and invest surplus cash elsewhere, he continued.

Asian Shippers Move To Stem Increasing **Carrier Surcharges**

Ocean carriers have been warned by Asian shippers that the continuing spread of surcharges must be stopped and have asked the ship lines to stop enacting rate increases without consultations or warnings.

The surcharges are fees being added to the normal freight rates to cover unforeseen expenses such as increases in fuel costs. The Federation of Asian Ship-

pers' Councils have asked governments in the region to clamp down on shipowners in an attempt to "curb the rampant proliferation of surcharges under all kinds of names." It further questioned whether carrier antitrust immunity issued by the European Community extended to surcharges involving inland operations.

Carrier representatives disputed the shipper's claims saying that rates in the area are as low as they have ever been. In fact, shipping lines have expressed their concerns over the increase in the amount of paperwork are being asked to manage

\$56,670 Contract **To Earl Industries**

The Supervisor of Shipbuilding, Va., has awarded a \$56,670 contract to Earl Industries, Inc., Portsmouth, Va., for the technical availability of the command ship Mt. Whitney (LCC-20).

The Engine.



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Device For Rapid Analysis Of Sea Floor Developed By Marmine

The Subsea Detection and Sampling Unit (SDSU), designed by Marmine A/S, of Norway, rapidly analyzes seabed data and core samples so that strategic management decisions can be made during actual mineral prospecting.

Using a penetration head driven

by a customized hydraulic system, the SDSU not only traces minerals below the seabed, but also collects samples specifically at the detected stratas. Several small strata samples are brought to the surface inside the SDSU, where they are each tagged and analyzed by various methods, including; x-ray, fluorescence, microscopy, etc. Results are stored in a computer for later investigation, when operational managers can use the data to carry out prospecting and mining planning.

Reidar Andersen, Marmine's technical manager, believes that the SDSU will lead to a product that can gather prospecting data very efficiently, allowing larger areas to be covered in a single day.

Predicted to be a major competitor to traditional core samplers, the SDSU has successfully completed its feasibility stage and is now ready for full development.

Marmine has many years of experience in subsea engineering related to the gas and oil industries and continues to develop more efficient mining methods for ultra-deep sea mineral crust and nodules.

For further information regarding the SDSU and other Marmine services, contact **Tom Lemb**, marketing manager, at Fax: +47-3-770814.

For additional information regarding the services available from Marmine A/S,

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Rotterdam To Be New Site Of Sea-Land's Atlantic Division

In order to reduce costs and to be closer to its main source of business, Sea-Land Service Inc. recently announced that the Edison, New Jersey, headquarters of its Atlantic division will be relocated to Rotterdam, the Netherlands, by June of this year.

Sea-Land's executive vice president of the Atlantic division, Will Middleton, will be transferred to Rotterdam, while Joseph T. Keegan, vice president/general manager of Sea-Land Europe, will return to a senior company post in the U.S.

In a statement concerning the overseas move, Mr. **Middleton** explained that because the majority of the Atlantic division's business was in Europe, "... we want to be in a position to act quickly and decisively in response to market opportunities while realizing substantial overhead cost savings."

Bill Summers, Sea-Land's manager of corporate communications, said that 45 support positions in the Atlantic division's accounting, finance and human resources departments would be consolidated in Europe.

Remaining behind in the U.S. are the Atlantic division's sales operations and North America operations group, which handles port businesses.

NY Shipping Association Names Melia VP Operations

James P. Melia, a 32-year veteran of the waterfront industry, has been named the executive vice president of operations of the New York Shipping Association, Inc., according to NYSA president James A. Capo.

Mr. Melia will replace Carmine Ragucci, who resigned to pursue private business opportunities.

The NYSA represents ship lines, marine terminal operators and other employers in the Port of New York & New Jersey in longshore labor negotiations and contract administration.

Maritime Reporter/Engineering News

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Hitachi Zosen Completes Fisheries Replenishment Ship



The Japan-Tuna No.3, built by Hitachi Zosen's Ariake Works for the Japan Tuna Fisheries Co-operative Association. She is designed to serve as a replenishment vessel for the Japanese Pacific tuna fleet.

The replenishment ship Japan-Tuna No.3 was recently completed by Hitachi Zosen's Ariake Works, Japan. The 102.64-meter (336.7-feet) long ship possesses a breadth of 18.4 meters (60.35 feet) and an 8.5-meter (27.9-feet) depth. The planned summer load draft of the vessel is 7 meters (22.96 feet). The ship was constructed for the Federation of Japan Tuna Fisheries Co-operative Associations and has a deadweight of 5,895 metric tons (5,801.9 long tons). She will serve as a replenishment vessel supplying the Japanese tuna fleet in the Pacific, between Hawaii and Central America, with fuel, food and other necessities.

To carry out this task, the Japan-Tuna No.3 is equipped with freezers, refrigerators and storerooms for dry goods, consigned goods, oil drums, and gas cylinders. The ship's cargo tanks have a capacity of 5,000 kiloliters of "A" fuel oil.

To assist the Japan-Tuna No.3 in its difficult task of distributing supplies among a working fishing fleet, a variable-pitch propeller is provided to enable delicate adjustment to the vessel's speed and a second control room is located on its starboard quarter so that the crew can more closely monitor the ship's steering.

While at sea, the ship's 31 man crew utilizes a highly maneuverable supply boat to ferry food, oil drums and other equipment to the Japanese fishing fleet. The boat is positioned on a starboard side davit, where ferry operations can be carried out under the supervision of the after control station.

The ship's main engine, an Akasaka 7UEC37LA by Mitsubishi, develops 4,900 HP at 210 rpm, giving the ship a maximum speed of 15.35 knots. When in use, the main engine drives an electric generator to supply on-board power, otherwise a backup diesel engine is available for powering the generators.

For additional information on the Japan-Tuna No.3 or the services available from Hitachi Zosen's Ariake Works shipyard,

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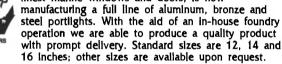
G. Sharp's Allen Chin To Receive Award From Small Business Administration

Allen Chin, president of George G. Sharp, Inc., New York, has been selected to receive the 1992 Entrepreneurial Success Award by the U.S. Small Business Administration (SBA). Mr. Chin was one of 3 honorees recognized by the SBA for achievements in various categories.

A registered engineer in both New York and New Jersey, he has been with Sharp for 35 years, starting as a marine design engineer in 1957.

starting as a marine design engineer in 1957. Established in 1920, George Sharp is the nation's oldest naval architectural firm. The company developed many innovative ship designs including the N.S. Savannah, the first nuclear powered merchant ship. Sharp's list of clients include the Navy, MSC, MarAd, Sea-Land, Exxon, MSRC and the NY & NJ Port Authority.

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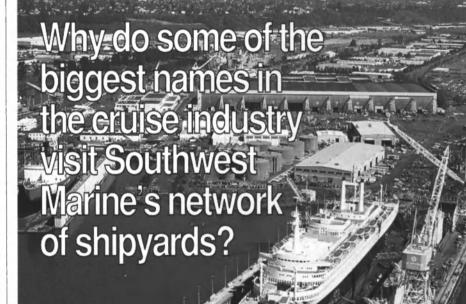
CC-7139 Bolt-in Fixed Portlight with optional deadlight cover

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Sulzer Conducts Research Into Diesel Exhaust Emissions

Sulzer recently commissioned a 6-cylinder RTA38 research engine at the Mobil refinery at Notre Dame de Gravenchon in France.

The new engine is being used by a joint research group consisting of New Sulzer Diesel Ltd., Mobil Oil Corporation and Sulzer Brothers Ltd., to explore the performance of selective catalytic reduction (SCR) for reducing nitrogen oxides (NO₂) emission levels, the pollutant that leads to photochemical smog and acid rain.

The 6RTA38 research engine is basically a standard production engine from the Sulzer RTA series of low-speed 2-stroke engines widely used for ship propulsion. The 6RTA38 is provided with an SCR converter which uses a Katapak^R catalyst unit from Sulzer Chemtech. The catalyst is coated on the internal surfaces of a static mixer within the Katapak^R unit.

New Sulzer Diesel believes that SCR has the capability of removing 90 percent of NO, from an engine's exhaust gasses. The SCR process uses an ammonia spray, in the form of urea, directed into the hot exhaust gases upstream of the SCR converter. In the presence of the catalyst, NO, gases and ammonia react to form nitrogen and water vapor, both natural components of the atmosphere.

The Gravenchon exhaust emissions research follows several years of work on the subject at New Sulzer Diesel Ltd. New Sulzer says that their design possesses the following features: its compact size allows it to be integrated with modified engine exhaust manifolds; the engine's low inertia means that ammonia slip, the quality of ammonia slipping past the catalyst, is extremely low, even during transients; a low pressure drop and a short heating up time; a low fouling tendency, which ensures very little deterioration in the performance over time.

The New Sulzer test program will assist the company in developing solutions to NO_x emission reduction from both ships and stationary diesel power plants. The company is also exploring the possibility of retrofitting existing low-speed Sulzer diesel engines with Katapak^R units.

For more information on New Sulzer's SCR converter system technology,

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Corps Of Engineers Expands Salmon Transport On Columbia River

Begun on the recommendations of the National Marine Fisheries Service over a decade ago to improve the survival rate of steelhead salmon, the Army Corps of Engineers is expanding its salmon barge service from Idaho to the Pacific Ocean.

In the past, barge operators on the Columbia River loaded the Army tank barges with young salmon above the Snake River's largest dam, in Idaho, and then unloaded the fish below Bonneville Dam. Under the new service, 2 barges a week are continuing another 140 miles down river to Astoria, Oregon, where the river meets the Pacific.

The first test barges were moved by Brix Maritime Co, of Portland, who has this year's tug contract to move the corps' barges.

The Corps of Engineers use special barges that continually circulate river water through their tanks, allowing young fish to imprint on the changing chemistry of the water they pass. In theory, this will let the fish recognize the water chemistry on their return spawning trip. The program should eventually have a significant effect on increasing the yearly salmon population.

Tidewater Names Vaccaro Manager Of Insurance

Ralph A. Vaccaro, **Jr.**, was recently named manager of insurance by Tidewater Inc., of New Orleans. He was with Zapata Gulf Marine Corp., which recently merged with Tidewater.

Maritime Reporter/Engineering News



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Port Of Tyne Orders Container Crane From Liebherr

The Port of Tyne Authority, of the United Kingdom, is spending about \$7.23 million to extend a quay in order to facilitate panamax operations, and to expand container facilities which serve the North Sea feeder routes.

The port has ordered a quayside crane from Liebherr Container Cranes Ltd. to be used for container and bulk handling. The crane will have a waterside outreach of about 80 feet, a rail span of 119.8 feet and a backreach of 32.8 feet. Spreader height will be 68.2 feet above the ground. The capacity is 32 tons under telescopic spreader and 20 tons gross grab weight.

The crane drive control system will be a Liebherr designed and built Thyrovert system of thyristor regulation. The switchgear will be fitted with a fault diagnostics system and a Liebherr telescopic spreader will be installed on the crane.

Delivery of the crane is scheduled for early 1993 and will be manufactured, assembled and tested at Liebherr in Killarney, Ireland.

For free literature detailing the cranes manufactured by Liebherr Container Cranes,

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FCC Proposes Use Of VTS Radio System For Port Of San Francisco

The Federal Communications Commission (FCC) has proposed that the Vessel Traffic Services (VTS) radio protection system be made mandatory for all tankers and large cargo ships using the Port of San Francisco.

San Francisco. The FCC would like to make VHF channel 14 the designated VTS channel for the port. The VTS system was designed to

The VTS system was designed to prevent collisions and groundings by requiring as a result of mandating that all vessels report their movements while operating within a VTS zone.

DBW Shipyards Launches First Passenger Vessels Since German Reunification

The passenger vessel, M/S Havelperle, was recently christened and launched at Schiffswerft Malz which is near Berlin. This reportedly was the first launching of a passenger vessel in Brandenberg since the reunification of Germany. The M/S Havelperle, which was

built for the Berlin shipping company Bethke, is a replica of an old Mississippi paddle steamer with a

June, 1992

stern wheel. The vessel is 114.6 feet long, with a beam of 16.4 feet and a draft of 2.8 feet. Power is supplied by an MTU 8 V 183 diesel engine which drives a Schottel pump-jet SPJ 57.

The passenger ship M/S Warsteiner was launched at the shipyard in Tangermeunde for owners Reederei Allard of Kobern-Godorf near Coblenz. The vessel is 159.3 feet long, with a beam of 31.2 feet and a draft of 3.3 feet. Two 450-hp Caterpillar diesels will drive two Schottel rudderpropellers type SRP 170.

Werft Malz and Tangermeunde are part of the DBW Deutsche Binnenwerften GmbH. The other shipyards which make up this group are in Genthin, Laubegast and Berlin-Stralau. Managing directors of DBW are **Wolfgang Richter** and **Josef Walter**.

For further information detailing the capabilities and services of DBW Deutsche Binnenwerften GmbH,

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BP Begins Its Largest Seismic Survey

BP has announced that it has started its largest 3D seismic survey ever. The survey will be conducted in the Norwegian and UK offshore sectors at a cost of about \$54.2 million. Four vessels will be employed in the program over a sixmonth period.

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Federal Policy Group To Report On New Maritime Program

Recently established to address the declining state of the U.S. merchant marine and to reformulate federal maritime policy, a cabinetlevel Policy Coordinating Group has been given a deadline of June '92 to have a report prepared detailing a new reform program. Some of the high-level members of the Policy Coordinating Group include the Department Secretaries: James Baker, State; Nicholas Brady, Treasury; Richard Cheney, Defense; Andrew Card, Transportation; Barbara Franklin, Commerce; Edward Madigan, Agriculture; and Lynn Martin, Labor; as well as Richard Darman, Director of the Office of Management and Budget; Carla Hills, U.S. Trade Representative; Colin Powell, Chairman of the Joint Chiefs; Ronald Roskins, Administrator for the Agency for International Development; and Christopher Koch, Chairman of the Federal Maritime Commission. The President's Chief of Staff, Samuel Skinner; Brent Scowcroft, the National Security Adviser; Michael Boskin, Chairman of the Council of Economic Advisers; and Roger Porter, Assistant to the President for Economic and Domestic Policy.

A group consisting of Sea-Land



Service Inc., American President Lines, Matson, TOTE, AIMS, the AWO and the Transportation Institute sent a petition to Secretary **Card**, asking him to urge the Policy Coordinating Group to give its support to the continued enforcement of the U.S. Jones Act.

Sea-Land and American President Lines have both suggested that they would remove all of their vessels from U.S.- flag registry by 1995 unless the federal government made significant changes to national maritime policy.

Cruise Companies Adding New Ports Of Call To Itineraries

Many cruise lines recently announced the addition of new ports of call to their itineraries. The new ports being added are in Vietnam, China and the former Soviet Union.

Ocean Pearl has announced that it will offer cruises to Hanoi and Danang, Vietnam, as well as to various ports in China and the Far East. Cunard ships will call at ports in

Cunard ships will call at ports in the former Soviet Union such as Odessa and Yalta, Ukraine; St. Petersburg, Russia; and Tallinn, Estonia. Cunard will also offer variablelength cruises from Fort Lauderdale, Fla., to places like Papeete, Tahiti, Cairns, Hong Kong and Singapore.

Art Anderson Associates Names Eric Snyder Naval Architect Group Leader

Art Anderson Associates recently named **Eric Snyder** to be the new naval architect group leader. Mr. **Snyder** has been with the firm as a naval architect since 1975.

Art Anderson Associates, Bremerton, Wash., is a second generation family owned business which was started in 1957. The firm provides engineering services on projects ranging from renovation design of Washington State Ferry vessels to installation of new research equipment on U.S. Coast Guard polar ice breakers. Current projects include the development of a new car ferry design for Steilacoom—Anderson Island traffic, the modification design of Washington and Alaska state ferries and naval architectural support to local vessel operators. Some of the firms major clients are NOAA Pacific Fleet, U.S. Army Corps of Engineers, Pacific rim facilities, port districts and shipyards. The firm has offices located in Bremerton and Seattle.

Plath Offers Free Color Brochure On New Gyrocompass

C. Plath, one of the world's largest manufacturers of marine electronics and navigation systems, is offering interested customers a new, 8-1/4" by 11-3/4" color brochure fully describing and illustrating the company's new NAVIGATX, microprocessor controlled gyrocompass system.

The NAVIGATX/Mod.10 is manufactured to Germany Hydrographic Institute (DHI) approval specifications and in compliance with International Maritime Organization (IMO) recommendation A 424 (XI). The NAVIGAT gyrocompass embodies the latest technology in a compact, light weight design, which allows it to be installed virtually anywhere aboard ship.

Plath incorporates a unique gyrosphere support method, relying on mere buoyancy to ensure north stabilization during short power failures. The company reports that a 3 minute power failure to the gyrocompass results in no more than 2 degrees of deviation. When power is restored, the compass returns quickly to the correct heading without a settling period being necessary. The liquid damping system combined with Plath's use of twin rotors is said to prevent latitude error.

The 4 page brochure begins with the gyrocompass design and main features and continues with photographs and drawings describing the system configuration, accessory equipment that can be utilized with the gyrocompass and all relevant system technical data.

To receive the free brochure on C. Plath's NAVIGAT X gyrocompass,

Circle 13 on Reader Service Card

Senate Bill Would Return Cleanup Costs To Waterways Trust Funds

A bill authorizing the Army Corps of Engineers to carry out various national waterways and harbors improvement projects, contains a provision that would require funds returned to the Army for environmental cleanup activities to be credited to their appropriation source.

ited to their appropriation source. Under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), funding is recouped by the Corps of Engineers from the federal government for the unanticipated removal of hazardous or toxic waste substances. Under the bill sponsored by Senator **John Chafee** (RI), those expenses that were derived from Fund dollars would be re-deposited or credited to the appropriate trust fund. The bill applies to all trust funds, including the Inland Waterways Trust Fund.

The **Chafee** bill will be considered during the development of this

year's Water Resources Development Act. The Senate is expected to draft their version of the Act when it returns from recess.

FMC May Eliminate Several Regulations

The Federal Maritime Commission (FMC) has announced that it will be reevaluating about 23 of its regulations. Some of those 23 regulations could also be eliminated, according to reports 19 are proposed rule-makings, two are advance notices of rule-making and two others are inquiry notices which will investigate the filing of marine terminal lease agreements, military rates and domestic rate increases.

The review will also include looking into how independent rates for carriers are set by conferences and whether a conference can set a notice period which differs from that set by the Shipping Act of 1984.

Lauritzen Offshore Takes Over Semisubmersible Drilling Rig, Hunter

Lauritzen Offshore recently announced that it has taken complete ownership of the semisubmersible drilling rig, Hunter. The company previously had 60 percent ownership and Stena Drilling owned the other 40 percent. The amount of the purchase is unknown.



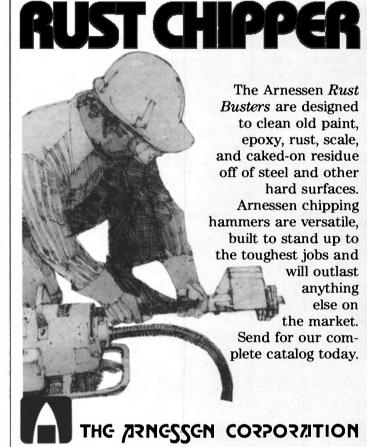
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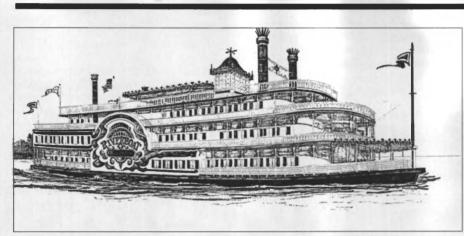
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Circle 237 on Reader Service Card

Boats & Barges



Artist's conception of the 1,200-passenger, MTU-powered Players Riverboat Casino under construction at Leevac Shipyards in Jennings, La.

Leevac Shipyards To Build 1,200-Passenger Casino Vessel

One of the nation's most experienced builders of passenger boats, Jennings, Louisiana-based Leevac Shipyards, Inc., has signed a contract with Southern Illinois Riverboat Casino Cruises, Inc., for the construction of a 210- by 60- by 11-foot four-deck casino vessel. To

be named Players Riverboat Casino, the 1,200-passenger vessel will operate of Metropolis, Ill.

The Players Riverboat Casino will have the appearance of a turn-of-thecentury sidewheeler, but will actually be propelled by two MTU diesel engines developing a total of 1,470 hp driving two props. A 400-hp MTU diesel-driven Schottel bow thruster and four flanking rudders will provide additional maneuverability and safety to the vessel. Two MTU 720kw diesel generators will provide the electrical requirements for all the ship's services and gaming equipment.

A total of 228 tons of HVAC will provide the heating and cooling for the three gaming decks offices, crew's lounge and pilothouse. The interior decor surrounding the 900 gaming positions will provide a rich atmosphere for the 1,200 gaming patrons. The crew size is estimated to total 200 per shift.

Leevac scheduled the keel laying for the vessel for early last month and delivery of the vessel to Metropolis, Ill., prior to February 28, 1993. The Players Riverboat Casino is expected to be in gaming service on the Ohio River by March 15, 1993.

For free literature detailing the boatbuilding services of Leevac Shipyards,

Circle 38 on Reader Service Card

Navy League Industrial **Executive Board Names Kelly As Chairman**

The Navy League Industrial Executive Board has elected John J. Kelly, president of Textron Marine Systems, as chairman of the organization's 12-member board, which is composed of prominent CEOs and presidents of major U.S. companies.

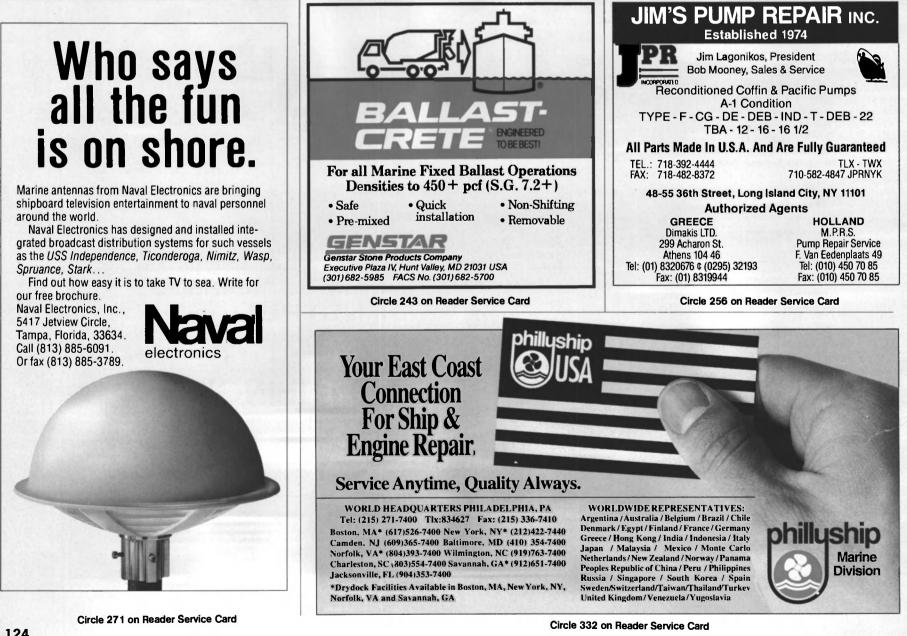
The objective of the Industrial Executive Board is to provide a forum for the exchange of information between industry and the nation's sea services (U.S. Navy, Marine Corps, Coast Guard and U.S.-flag merchant marine) on a broad range of subjects, domestic as well as in-ternational, including research and development and acquisition policy issues.

MSC Awards \$17 Million In Shipping Contracts

Five 1-year contracts worth a total of \$17 million have been awarded to U.S.-flag ocean carriers for the intermodal transport of military cargoes to Puerto Rico and the U.S. Virgin Islands by the Navy's Military Sealift Command (MSC).

The five companies receiving MSC contracts were: Trailer Marine Transport; Sea-Land Service Inc.; Sea-Barge Group, Inc.; Trailer Bridge, Inc.; and Puerto Rico Ma-

rine Management, Inc. The only one of the five compa-nies to have not previously held an MSC contract is Trailer Bridge, a relatively new operator in the trade.



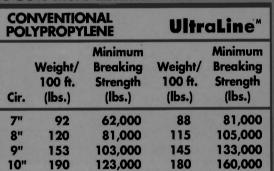
It's bright orange for high visibility, lighter for easier handling, stronger for better performance and very cost effective. It's AMCO UltraLine[™].

American Manufacturing, the largest manufacturer of fiber rope in the U.S., presents ULTRALINETM, the most technically advanced rope ever offered to the marine industry. A unique copolymer, extruded fiber is the basic ingredient in UltraLine, creating a rope that is 5% lighter and 30% stronger than other comparable ropes. Similar to polypropylene, it floats, stores wet, and will not rot or mildew. UltraLine is also 50% more abrasion resistant than regular yarn or monofilament

because it develops a "feathered" surface that protects against further abrasion, as well as lower elongation, better creep resistance and a higher UV resistance. Cir. (lbs.) (ll

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AMCO UltraLine™ Now available up to 12 strand.



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June, 1992

Circle 206 on Reader Service Card

MorBanz Special-Frequency Antennas Available From Morad Electronics

Morad Electronics of Seattle, Wash., has announced the availability of its line of special-frequency VHF/UHF marine antennas— MorBanz antennas.

The MorBanz commercial grade antenna is custom-built to a 4-MHz

> Captain Vittorio Fabietti. Chief Coordinator, Carnival Cruise Lines. The Fantasy and her sister ship the Ecstasy bave both exceeded our expectations, in terms of bookings and operation of the machinery. At Carnival, we often use the expression "the most successful ships since the Ark". Consequently, we have ordered two additional identical vessels, Sensation and Fascination

bandwidth within the 102-MHz to 850-MHz ranges.

These antennas are specially designed for marine use and are made of materials similar to the company's 156HD 6dB "Hot Rod," which is a standard VHF antenna in severe environments such as Alaska. The antennas are built of stainless steel and anodized aluminum and reported resist corrosion and break-

Morad also builds custom, singlefrequency antennas in the 2-30-MHz band

For literature detailing the MorBanz antenna from Morad

Circle 6 on Reader Service Card

AWO Sponsors 'Lifelines' Tug And Barge Industry **Boating Safety Campaign**

Lifelines is the tug and barge industry's new campaign for boat-

ber ha

"The most Successful ships ABB Marine was selected as the main contractor for the electric

"When our new 70,000 GRT 'Fantasy' class of cruise ships were on the drawing board we investigated different machinery concepts. It was soon found out that the power station concept, based on medium-speed diesels and a state-ofthe-art AC propulsion system, was the way to proceed.

propulsion and power plant, because they are by far the most exper-

since the Ark" ienced suppliers of electric propulsion systems in the world. Recordings made during the sea trials had already proven that noise and vibration levels lay far below those occurring in any direct-driven ship today. The Fantasy manoeuvers beautifully even in heavy weather conditions in the narrow passage to Freeport, Bahamas. The possibility to run at any time a selected number of prime mover diesels at their optimum keeps our fuel and maintenance costs low. Adequate combustion also means cleaner exhaust emissions.

> The ABB Cyclo plant has proven itself to be extremely reliable in operation. Very few minor faults have been recorded. When this occasionally has happened, the Miami-based ABB Service crew and manufacturer have been quick to respond and helpful.

All in all, I am impressed by the ABB Cyclo propulsion concept."

We, too, are proud to be part of the four most successful ships since the Ark.

ABB Marine ABB Stromberg Drives Oy Helsinki, Finland Phone: (+358 0) 5641 Telefax: (+358 0) 564 2350

Circle 211 on Reader Service Card



ing safety. This campaign is aimed at educating recreational boaters, water skiers, wind surfers, jet skiers and others about the hazards of operating near tugs, towboats and barges.

Lifelines is sponsored by The American Waterways Operators (AWO), the national trade association of the inland and oceangoing tug and barge industry.

According to statistics almost 60 percent of all accidents involving commercial and pleasure vessels are cased by a lack of knowledge, poor execution of a maneuver or carelessness—a situation AWO wants to help correct with its Lifelines safety brochure for recreational boaters.

The Lifelines boating safety program reportedly has been accepted by the U.S. Coast Guard, the U.S. Power Squadrons and Boat/U.S. More detailed information on

avoiding an accidental meeting with a tugboat or towboat can be obtained by sending a self-addressed, stamped envelope to: Lifelines, the American Waterways Operators, 1600 Wilson Blvd., Suite 1000, Arlington, Va. 22209; telephone (703)841-9300.

Transtema, Stena Introduce New Ship/Shore Data Link

Transtema Communication and Navigation AB, of Gothenburg, Swe-den, has developed a new marine data link (MARIDAL), in partner-ship with the Swedish ferry opera-tor AB Stena Marine. MARIDAL is a multiuser system that allows shoreside computer networks to be linked directly to a shipboard network.

Depending on the area coverage needed, MARIDAL selects a VHF radio frequency for long range communications and UHF for short distances. The system is designed so that a network of onshore base stations can be utilized.

The Stena Jutlandica will serve as the trial ship for MARIDAL on its run between Gothenburg and Fredrikshavn, Denmark, with re-sulting data laying the foundations for building a complete network. Together with the Swedish Space

Corporation, Transtema is planning the first installation of a high speed, 64 kbit/second, data link from shore to ship using the Tele-X satellite system, a high-power satellite covering Scandinavian waters. The ship

terminal is 1.8 meters in diameter. A Stena Line ferry sailing be-tween Gothenburg and Kiel will re-ceive the first fully operational in-stallation. In addition to telephone services and data for MARIDAL the system will be used to evaluate, demonstrate and market the new service.

For more information about Transtema Communication and the MARIDAL system,

Circle 16 on Reader Service Card

Dresser Pump Offers Free Color Brochure On Marine Fire Systems

The Dresser Pump Division of Dresser Industries, Croydon, U.K., is offering interested customers a six-page color brochure that clearly and concisely describes the company's full line of marine fire fighting systems.

Dresser's brochure is illustrated with several color photographs of its pumps and fire monitors in various installations aboard British harbor tugs and North Sea oil supply ships.

Several charts, diagrams and graphs are included to provide the reader with the information necessary for selecting fire fighting systems, such as: Outline Dimensions of Axially Split Centrifugal Fire Pumps; Classification Society Requirements For Fire Systems; Typical Piping Layout Water Systems; and Performance Requirements For Fire Fighting Systems, which shows graphic ratios for fire system vertical throw range.

To receive a free copy of Dresser Pump's brochure on marine fire fighting systems,

Circle 46 on Reader Service Card

Successful Brazilian Waterways Project Would Cut Transportation Costs

If successful, a plan that would make the Paraguay and Parana river system navigable by barges could reduce Brazilian farm commodity freight rates by 75 percent, according to **David Atkinson**, Inter-American Development Bank (IADB) representative to Brazil.

The \$200 million river development project calls for the dredging of the Paraguay River and some of its tributaries, allowing barge traffic to travel up to 1,800 miles north of the Plate River Delta. So far \$7 million has been appropriated by the IADB towards studies on the concept.

It is hoped that most of the project could be financed by commercial companies operating under concession contracts from the 4 South American nations covered by the river system: Brazil, Argentina, Paraguay and Uruguay. After completion, construction costs would be recovered by the companies through the laying of user fee charges on river traffic. "The beauty ofit is that large-scale public works such as locks and dams are not necessary," Mr. Atkinson continued.

Once completed, the navigable waterways system would allow farmers and businesses in the Brazilian interior to transport their produce to world markets by river. Currently, goods must travel the 1,200 miles from the interior by truck to Brazil's seaports of Paranagua and Santos, with farm

June,1992

commodity freight rates often reaching as much as \$80 a metric ton.

Newport News Shipbuilding Honors Top 10 Suppliers

Newport News Shipbuilding recently honored a select group of its more than 3,500 active suppliers nationwide during a "Top Ten Suppliers" ceremony. Among this year's group is Norton Company of Worcester, Mass., which

has provided the shipyard with abrasives for more than 40 years.

The other companies featured

were: Alco Welding and Machine Company, Inc., Norfolk; Clyde C. Nance Construction Company Inc., Hampton; Indusco Corporation, Virginia Beach; Production Supply Co., Inc., Chesapeake, VA; CBI Services, Inc., Cordova, Ala.; The Claremont Company, Inc., Meriden, Conn.; Henschel Inc., Newburyport, Mass.; Joseph T. Ryerson & Son, Inc., Philadelphia, PA; and York International Corp., York, Pa.

Newport News Shipbuilding is the only builder of U.S. Navy aircraft carriers and one of only two domestic shipyards building submarines. The yard is Virginia's largest private employer and the largest private shipyard in the Western Hemisphere.

KPMG Peat Marwick Wins \$5.3 Million Navy Sub Systems Contract

The Naval Undersea Warfare Center Division, Newport, R.I., awarded a \$5.3 million contract to KPMG Peat Marwick, Washington, to provide engineering management support services for submarine combat systems programs. The contract number is N66604-92-D-B136



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- Easily field tested. Servicing and cleaning requires no tools.
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- Fully automatic operation.

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Circle 233 on Reader Service Card



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Who will provide advice within ADNOC on all aspects of shipping developments with specific emphasis on matters relating to:

- Coordination with affiliate companies in respect of planning and implementing LNG Shipping activities.
- Development and implementation of a shipping structure for ownership and operation of new and existing LNG carriers.
- The supervision of construction of 4 new LNG carriers.

The ideal candidate would have a Degree in Marine, Mechanical Engineering, Naval Architecture or equivalent; a minimum of 12 years experience (of which 4 at management level) in the operation and construction of LNG/LPG carriers which include the following responsibility areas:

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ADNOC's attractive benefits include tax-free remuneration, family accommodation, furniture allowances, medical care, annual leave, passages for employee and eligible dependents and educational assistance for eligible children.

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THE HUMAN RESOURCES MANAGER PERSONNEL DIRECTORATE ABU DHABI NATIONAL OIL COMPANY (ADNOC) P.O. BOX NO. 898 - ABU DHABI - UAE.

Saudi Company Selects MMS's Management System

The National Shipping Company of Saudi Arabia (NSCSA) has awarded a contract to Marine Management Systems (MMS), Inc., of Stamford, Ct., for an integrated fleet management system that will allow NSCSA to control its vessels operations and maintenance management worldwide. The MMS package includes software, computer hardware, engineering data services, training and ongoing support

training and ongoing support. NSCSA operates a cargo liner service between ports in North America, Europe, Far East and Middle Eastern countries. MMS is currently installing its system onboard eight RoRo multi-purpose vessels owned by NSCSA as well as the company's head office in Riyadh, Saudi Arabia, and its two representative offices located in New York and Tokyo. The offices will also be equipped with Local Area Networks (LANs).

MMS will support the NSCSA system from its Stamford office, which maintains a department of trained technicians dedicated to fullservice customer support. MMS is an international leader in the marine software industry and has installed over 500 active systems worldwide at more than 250 shipboard and shoreside locations.

For free literature about the services available from MMS,

Circle 42 on Reader Service Card

NOAA Begins \$1.4 Billion Fleet Replacement Program

Congress recently appropriated \$33.2 million for the National Oceanic and Atmospheric Administration's (NOAA) 15-year, \$1.4 billion program to replace and modernize its entire fleet of 22 research vessels.

Ray Kammer, NOAA's deputy under secretary for oceans and atmosphere, said that the money is being used to develop ship requirements, begin design work on replacement ships, develop specifications to extend the lives of 13 existing ships, charter commercial ships in the interim and pay for maintenance work. NOAA has already acquired 5 new ships, with 4 more in the acquisition process.

Mostly built in the 1960s, the agency's ships range from 86 feet to 300 feet long and support NOAA missions such as chartering, ocean floor mapping, resource assessment and fisheries and atmospheric research.

In a closely related issue, Rep. Dennis Hertel (D-Mich.), chairman of the House subcommittee overseeing NOAA, spoke on behalf of U.S. shipyards by calling for a "buy-American" amendment to the NOAA legislation. Mr. Kammer replied that by not opening the shipbuild-

June, 1992

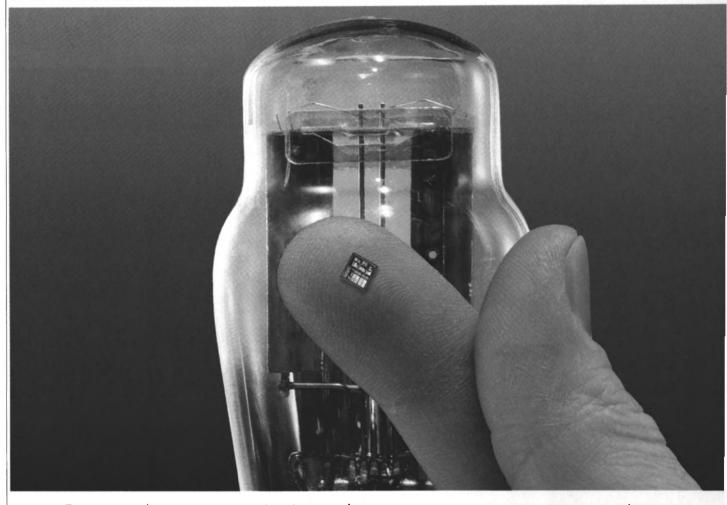
ing project to international competition, the U.S.'s position in international trade negotiations could be jeapordized.

Card Honors Mariners On National Maritime Day

The SS John W. Brown, the refurbished Liberty Ship that symbolizes the U.S. merchant marine's tremendous contribution to World War II, was the site of the recent National Maritime Day 1992 tribute to the nation's merchant mariners. The ceremony served to honor those who fell and the veterans of World Wars I & II, Korea, Vietnam and the mariners currently sailing who participated in the Desert Shield and Desert Storm operations.

Keynote speaker at the event was the Secretary of Transportation, Andrew H. Card, Jr., in Alexandria, Va., where the SS John W. Brown was moored. Secretary Card offered fond remembrances of the merchant marine's mighty past and asked for a moment of silence to honor the dead.

In his remarks, the Secretary touched on the current cabinet level review of U.S. maritime policy describing it as a challenge and admitting that all expectations cannot be met. To those he was there to honor, Secretary Card promised to work "very, very hard" towards strengthening the U.S. merchant marine.



Our New Marine Screw Chiller Is Another Big Breakthrough That Isn't Big.

Carrier Transicold's new screw chiller package is up to 35% smaller than conventional systems—without sacrificing cooling capacity. It also ensures quiet, low-vibration operation.

Available in capacities from 75 to 1,000 tons, Carrier's full line features R-22 refrigerant, standard. Each model is convertible to R-134a or other ozone-friendly blends of the future. And includes advanced microprocessorbased temperature control with remote monitoring capability, standard.



All Carrier Transicold marine systems are backed by expert technical assistance and warranty protection, as well as parts and service support, in every major port worldwide.

So next time, specify Carrier Transicold. And see what a big difference a small chiller can make.

For Companies That Are Going Places."

For more information about our complete line of marine screw chillers, contact Dave Kelly, Director of Sales and Marketing, Special Products Group, Carrier Transicold Division, Carrier Corporation, P.O. Box 4805, Syracuse, NY 13221 USA, 315-432-7540, FAX 315-432-6218. In Europe, contact Joop de Jongh, Area Sales Manager, Marine Systems, Carrier Transicold Limited, Sheffield Straat 18, 3047 AP, Rotterdam, The Netherlands, 010-4466522, FAX 010-4377369.

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Circle 314 on Reader Service Card



Electronic Update

Staten Island Ferries Refit With New Furuno Radars

Units Being Installed On 7 N.Y. City Vessels

The seven double-ended ferries of the Staten Island Ferry system are being refit with state-of-the-art Furuno radar. The new radar was selected by the New York City Department of Transportation as the result of a competitive bidding pro-



Antenna of the new Furuno radar installed aboard the Staten Island ferry American Legion.

cess, based on strict adherence to detailed specifications.

Installation of the new commercial class Furuno radars, which began in March 1992, will take approximately one year to complete. Retrofitting will take place as each ferry is temporarily pulled from service for routine maintenance.

vice for routine maintenance. The Staten Island Ferry system, one of the most heavily used in the U.S., operates between the Whitehall Street Terminal in lower Manhattan and the St. George Terminal in Staten Island. The system provides 24-hour-a-day service in all kinds of weather, carrying thousands of commuters, tourists and others daily across New York Harbor. The radars on the ferries, must be constantly running.

stantly running. The project includes the installation of at least one—and sometimes two—Furuno radars in each of the two wheelhouses of the double-ended ferries. The smallest and newest of the ferries, for example, the 1,200passenger Austin Class John A. Noble, is now equipped with two Furuno FR-2010 radars and one Furuno FMD-8100 remote display in each wheelhouse. The older passenger-vehicle Kennedy Class ferries, the American Legion and Governor Herbert H. Lehman, now have one FR-2010 and one FMD-8100 re-



The double-ended Staten Island ferry John A. Noble is now equiped with two Furuno FR-2010 radars and one FMD-8100 remote display in each of its wheelhouse.

mote display in each wheelhouse. The Staten Island Ferry system also includes another Kennedy Class vessel, the John F. Kennedy, and two newer 6,000-passenger-only Barberi Class vessels, the Andrew J. Barberi and Samuel I. Newhouse. The Newhouse will be the last vessel to be refitted this summer. Most of the installation work will take place at the Pier 7 Maintenance Facility on Staten Island.

According to **Stephen Keller** of AAT Communications, his company has supplied marine electronics to most of the tugs, dredges, etc., operating in the New York port area.

Recent installations performed by AAT Communications include new Furuno radar onboard the pilot boat New York for the Sandy Hook Pilots and the bulk of the electronics for the Port Jefferson ferry, which operates between Port Jefferson, Long

Island and Bridgeport, Conn. "We're proud and pleased that the City of New York has chosen Furuno radars for the Staten Island ferries," said William Dupre, president of Furuno USA, Inc. "When it comes to the safety of thousands of daily passengers, you can't compromise on the performance and reliability of your radar. That's why they chose Furuno."

AAT Communications Corp., Staten Island, which has maintained the Staten Island Ferry electronics since the 1950s, is the prime contractor for the entire installation of the Furuno radars. Their work will include the fabrication of support structures and all electrical, electronic and mechanical aspects of the installation. AAT will also provide training and on-site support.

For more information on Furuno radars and the entire line of Furuno marine electronics,

Circle 49 on Reader Service Card

Boats & Barges

Vosper Thornycroft's New Customs Cutter Ready For Export



Artist's impression of the 34-meter cutter Vosper Thornycroft is to build for the U.K.'s HM Customs and Excise service.

Vosper Thornycroft (VT) has announced that it sees considerable export potential for its 34-meter patrol cutter design which it is to build for the United Kingdom's department of Customs and Excise. The design is reported to be the latest in the line of vessels VT has built for navies and maritime agencies throughout the world. Vessels previously built by VT have been used for a wide range of applications such as law enforcement and security agency work to patrolling Economic Exclusion Zones (EEZ).

Managing director of VT, Martin Jay commented, "This design offers the capabilities required by overseas agencies involved in antidrug, immigration, smuggling and EEZ protection duties."

The hull form of the new vessel is based on that of VT's Island Class patrol cutter's presently in service with the U.S. Coast Guard, though with major internal improvements to machinery lay-out and accommodation.

The vessel will be 110.7 feet long with a beam of 24.6 feet. Two independent fixed pitch propellers will be driven by a Paxman Valenta 12 CM marine diesel engine. For economical cruising speed a Perkins Condor CV8M600TI diesel auxiliary engine will drive a Hamilton 422 waterjet unit. VT expects to deliver the new patrol vessels to Her Majesty's (HM) Customs and Excise in Autumn 1993.

The new boats will significantly increase the Department's operational capability in territorial and international waters, forming an integral part of its overall maritime anti-smuggling strategy of aerial surveillance, cutters, regional boats and local resources.

For free literature detailing Vosper Thornycroft's new 34-meter cutter design or other company services,

Circle 21 on Reader Service Card

W.A. Equipment Named U.S. Agent For Winel Tank Vent Check Valves

Winel B.V. of Holland has named W.A. Equipment Co., Kenner, La., its U.S. agent and stocking distributor for Winel tank vent check valves used by the marine and offshore industry.

industry. W.A. Equipment Co. is responsible for marketing the complete Winel marine product line which includes SOLAS 2 and 3 watertight sliding doors, shell doors, ventilation cowls, cast aluminum vent check valves, standard and custom-design marine doors and hatches.

For free literature detailing the the Winel product line from W.A. Equipment,

Circle 97 on Reader Service Card

Chugach, First Passenger Vessel To Receive Lugger L6170A Diesels



The 82-foot sightseeing boat Chugach.

A new 82-foot Prince William Sound ferry, the Chugach, recently became the first passenger vessel to be equipped with the Lugger L6170A marine diesel engine from Alaska Diesel Electric, Inc., of Seattle, Wash.

Built by Westport Shipyard, of Westport, Wash., and designed by **Jack W. Sarin** N.A., of Bainbridge Island, Wash., the 160-passenger sightseeing vessel will operate out of Valdez, Alaska, for Stan Stevens Charters.

While fully loaded with fuel, water and 54 passengers, the Chugach reached a top speed of 22.6 knots. The fiberglass vessel has a beam of 22 feet and a draft of 5 feet. Both 4blade, 40-inch by 39-inch propellers are supplied by Michigan and the boat's marine gears are the ZF BW195A model.

Her 2 turbo-charged-aftercooled inline 6-cylinder Lugger diesels have a medium duty rating of 750 hp at 2000 rpm. In addition, two Northern Light model generator sets are carried onboard, an M964 30 kW and M843 12 kW.

For additional information about the Lugger L6170A marine diesels manufactured by Alaska Diesel Electric, Inc., or other items in the company's product line,

Circle 65 on Reader Service Card

For free literature about the facilities and services available from Westport Shipyard, of Westport, Wash.,

Circle 66 on Reader Service Card

Marine Insurance Rates Soar In Tightening Market

Marine insurance rates are rising due to the many disasters and accidents that occurred during the past year and higher rates charged by those secondary insurers who assume part or all of a primary insurer's risk, said **Steve Ward**, vice president of Cranbury, N.J.based Marine Office of America Corp.

For the first time in over a decade insurers are being allowed to charge poorly maintained vessels higher

June,1992

rates, bringing hull underwriting rates to what the insurance industry believes are more realistic levels.

However, owners of good-quality ships can negotiate for cheaper premiums, as insurers compete for their business. Hull insurance costs have risen 25 to 50 percent this year for owners of good ships, while operators of ships in poor condition have been hit by increases of up to 200 percent. One result of the increase is that some ships are sailing without insurance altogether.

According to **Roger Nixon**, a marine underwriter at Cornhill Insurance, London, rates may vary from as low as 0.5 percent of hull value to as much as 10 percent for tankers and bulk carriers.

AOTOS Award Goes To Amoss And Bowers

The chairman and chief executive officer of Lykes Brothers Steamship Company, W. James Amoss, and the president of the International Longshoremen's Association, John Bowers, were recently named to receive the 1992 Admiral of the Ocean Sea (AOTOS) award at an October 30 banquet in New York.

The AOTOS award, which recognizes longstanding service to international transpiration and to American seafarers, is presented each year to a maritime industry leader or leaders by the United Seamen's Service, a non-profit agency that provides special service facilities to seaman in foreign ports around the world.

Mr. Amoss and Mr. Bowers were chosen by the USS AOTOS award committee following a nationwide poll of leaders on the international transportation industry.

Chosen by the majority – MTU 396.

Over 50% of the world's twin-hulls are powered by MTU. No wonder when you consider that the catamaran configuration imposes particularly stringent demands on the propulsion system: compactness, power, 🔎 reliability, economy. In other words, just the 396's strengths. Available in 8V, 12V and 16V versions with power ratings from 620 to 2,560 kW, all 396's combine reliability, durability and economy with the outstanding power/ weight ratio for which MTU engines are renowned. And all backed up by our comprehensive assistance to bring your concept to fruition, from application engineering to commissioning, to worldwide round-the-clock product support. MTU – The Propulsion Experts.

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Circle 284 on Reader Service Card

Boats & Barges

Bender Launches Second MSRC Response Vessel

Bender Shipbuilding & Repair Co., Inc., Mobile, Ala., recently christened and launched the second oil spill recovery vessel, the Louisiana Responder, in the Marine Spill Response Corporation's planned 16vessel national fleet.

In September 1991, Bender was awarded a contract of about \$50 million to build four oil spill recovery vessels for MSRC. Bender competed against other U.S. shipyards in the two-phase bid process involving design and price. In addition to the Louisiana Responder, to be stationed at Venice, La., Bender is building the Gulf Responder, which was the first vessel to be launched; the Texas Responder; and the Alabama Responder. All four vessels will be completed by February 1993 and will be stationed along the Gulf Coast. The Alabama Responder will operate out of Mobile.

The Louisiana Responder, scheduled for completion in the fall, was designed by Bender engineers using state-of-the-art computer systems.



The hull of the 210-foot Louisiana Responder being lowered into the Mobile River by Bisso Marine crane barges. The oil spill recovery vessel is one of four under construction at Bender Shipbuilding & Repair Co. Inc., in Mobile, Ala.

Propulsion power for the Louisiana Responder will be supplied by a pair of Caterpillar 3512 C main diesel engines driving manganese bronze fixed propellers via Reintjes reduction gears with turbo Voith couplings for slow-speed operation. The vessel will be equipped with an advanced oil recovery system of skimmers, booms and separators capable of recovering major oil spills both close to shore and in the open ocean. The vessel will have tanks to hold 4,000 barrels of recovered oil. Once recovered, the oil will be pumped into barges or floating bladders for disposal onshore.

After the christening ceremony, the Louisiana Responder was launched using two 600-ton floating barge cranes supplied by Bisso Marine Co. of New Orleans. The two barge cranes, positioned in the Mobile River, lifted the 210-foot hull from the riverbank, as tugs backed the cranes away from the bank. The cranes then placed the hull into the water.

One of the cranes then moved up the river, lifted the vessel's superstructure, brought it down river and placed it onto the hull. The Louisiana Responder's hull and superstructure were built as separate modules, using the latest techniques in modular construction. With the major modules now in place, construction and equipment outfitting on the Louisiana Responder will continue through the summer.

For free literature detailing the shipbuilding capabilities of Bender Shipbuilding,

Circle 47 on Reader Service Card

Doosan Machinery Renews Licensing Agreement With Aqua Chem

Doosan Machinery Co., Ltd. of Seoul, Korea, and Aqua Chem's Water Technologies Division of Milwaukee, Wis., have signed an extension of their licensing agreement for the manufacturing and sale of Aqua-Chem's marine desalination equipment. This year marks the ten-year anniversary of the business relationship between Doosan and Aqua-Chem.

Doosan Machinery owns and operates two manufacturing facilities in Korea. Industrial equipment ranging from chemical process heat exchangers to factory automation systems is manufactured by Doosan.

The Water Technologies Division of Aqua-Chem, Inc. designs, manufactures, assembles and starts up water purification and desalination equipment. The Division also produces evaporators, crystallizers and membrane systems for water recovery and reuse applications for a variety of seawater desalination, power, chemical, offshore, commercial marine and military industries worldwide. Systems are pre-engineered or can be custom designed. For further information,

Circle 5 on Reader Service Card



A complete ultralight seating package is now available from the name Ayou've trusted in marine products for 45 years. Features a 100% aluminum welded frame for the ultimate in strength, light weight and safety. Exceeds U.S. Navy, U.S. Coast Guard and Maritime Administration requirements for fire load. Upholstery is removable and renewable—ideal for ferry systems. Choose from a variety of fabrics and leathers. Track or fixed mounting. All exposed aluminum surfaces are fusion powder coated and all hardware is corrosion resistant for superior service life.

Options include safety belts, 4" reclining mechanism, arm trays, back trays, storage pockets, ash receivers, and under seat life jacket stowage.

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The passenger/vehicle ferry M/S Normandie, built by Kvaerner Masa-Yards for B.A.I. Brittany Ferries.

Kvaerner Masa-Yards Delivers 27,000-GT Cross-Channel Ferry

The Turku New Shipyard of Finnish shipbuilder Kvaerner Masa-Yards recently delivered the 27,000gt Cross-Channel passenger/vehicle ferry M/S Normandie to her owners B.A.I. Brittany Ferries of France. The Normandie will provide car and passenger service in the Western Channel and Bay of Biscay areas. She follows the recent delivery of

the 20,000-gt truck/passenger ferry M/S Barfleur, which was built at Kvaerner Masa-Yards' Helsinki New Shipyard.

Mr. Martin Saarikangas, chief executive officer of Kvaerner Masa-Yards, stated the delivery of the M/ S Normandie bears a special significance because the contract for her construction was the first one signed by the newly established Kvaerner Masa-Yards following the

bankruptcy of Wartsila Marine. The M/S Normandie was designed expressly with the overnight passenger in mind. The vessel will carry a maximum of 2,120 passengers. There will be a total of 774

berths in 217 cabins. Most of the cabins will be four-person family cabins, but eight luxury class cabins will also be available. The seating lounge will accommodate 416 deck passengers in club class seats.

The 529-foot Normandie has a breadth of 85 feet and draft of 18-1/2 feet. She will have the ability to carry 680 cars or 135 trucks in a total space of over 5,600 feet of car lanes. Among the special features are loading doors at both the bow and stern, enabling cars to be loaded simultaneously on two levels. The vessel's time in port is expected to be a mere one and onehalf hours.

The Normandie has a service speed of 20.5 knots and is powered by four Wartsila 12V 32E engines, producing a total of 23,816 hp at 720 rpms. Running on heavy fuel oil, each model is a four-stroke single-acting non-reversible, turbocharged marine diesel with direct fuel injection. Reduction is supplied by two Lohman & Stolterfoht double input-single output reduction gears with built-in thrust bearing and built-in multi-disc clutches. Two highly skewed control-lable-pitch Lips propellers round out the propulsion package.

Auxiliary power is provided by three Wartsila Vasa 6R32 diesel engines, each developing 2,460 kw at 750 rpm.

The Normandie began operation last month between Caen, France,

and Portsmouth, England. The 99mile crossing will take six hours in the daytime and an hour longer at night

Of Brittany Ferries present fleet of 15 vessels, 11 carry passengers as well as cargo, while four are purely cargo ships. In addition to its service between France and England, Brittany Ferries also operates between France and Ireland and England and Spain.

The stretch of the Channel west of Dover is crossed by as many as 4.7 million passengers, one million pas-senger cars and 300,000 trucks annually. Brittany Ferries has a 52 percent share of the passenger traffic, a 55 percent share of the passenger car traffic and a 50 percent share of the freight traffic in this part of the Channel.

Other passenger vessels being built by Kvaerner Masa-Yards include three cruise ships for Carnival Cruise Line, a ferry for Spanish company Compania Trasmediterranea S.A., and a cruise ship for Majesty Cruises. Two tankers for Neste Oy are also under construction.

For free literature detailing the shipbuilding capabilities of Kvaerner Masa-Yards,

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Zuorao on Norm America, P.O. Box 400, Stevensville, MD 21666 Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806 LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale, FL 33310-5247

Archway Marine Lighting, 4501 Swan Ave., St. Louis, MO 63110 Carlisle & Finch, 4562 W. Mitchell Ave., Cincinnati OH 45232 The L.C. Doane Co., P.O. Box 975, Essex, CT 06426 Nautilus Equipment Ltd., P.O. Box 66, Station M, Halifax, Nova Scotia B3J 2L4, CANADA

American Piping Products, Inc., 22 S. 9th St., New Hyde Park, NY 11040 Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474 LIQUID OVERFILL PROTECTION SYSTEMS E.R.L. Marine Products, P.O.Box 1026, New Abany, IN47151-1026

DelGavio, 619 Industrial GL, Caristadt, NJ07072 Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

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

Directions in Design Inc, 633 Emerson, Suite 100, St Louis, MO 63141 Hopeman Brothers, P.O. Box820, 435 Essex Ave., Waynesboro, VA22980

VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs MS 39564

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

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Phoenix Products, 6161 N 64th St., Milwaukee WI 53218 LINE BLINDS

QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455 MACHINERYMAINTENANCE, REPAIR, OVERHAUL, AND TESTING

- GENERATORS
- TechSystems, 401WatertownRd, Thomaston, CT06787 GROUNDFAULTPROTECTION& LOCATION EQUIPMENT Bender, inc., 400 Gordon Drive, Bldg. 501, Exton PA 19341

KahlenbergBrosCo., P.O. Box358, Two Rivers, WI54241 HYDRAULICS

Inc., P.O. Box906, Angleton, TX77515

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INSULATION

10550

Raton, FL 33431

LIFEBOATS/RAFTS

LOGISTICS

MACHINING-On Site Repair

MARINEACCOMMODATIONS

Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL33431 Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, cksonville, FL32256

- MARINEFURNITURE Directions In Design, 633 Emerson, Ste. 100, St. Louis MO 63141 Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue,
- BocaRaton, FL33431 Marine AccommodationsInc., 8535-3BaymeadowsRoad, Suite 140, Jacksonville, FL32256
- Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA98102 MARINE SHIP MANAGEMENT

Arichon Corp., 1810 Chapel Ave. West, Cherry Hill, NJ 08002 METAL PRODUCTS

Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave., Boca Raton, FL 33431

Harrington Metal Fabrication, P.O. Box 410, 6720M 89, Fennville, MI 49408 MOTORS

Tech Systems, 401 Watertown Rd., Thomaston, CT 06787 NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy, Ariington, VA

22202 Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356 Arctec/Ofshore/Corp., 578 Enterprise St., Esconcido, CA 92025 CDI Marine Co., 9487 Regency SquareBlvd, Suite 500, Jacksonville, FL 32225 CTMarine, 18 Church Street, Georgetown, CT06829 Childs Engineering Corp., Box 333, Medileid, MA02052 Cranadal Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, MA02026 CraneConsultants, 15301 First AveS., Seattlew MA98148 C.R. Cushing, 18 Vesey St., New York, NY 10007 Arthur D. Darden, 3200 Ridgelake Dr., Suite 403, Metaine LA 70002 Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129 Designers& Planners, 2611 Jefferson-Davis Hwy, Ste. 3000, Artington, VA 22202 Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320 Encom Management& Engineering Consultant Services, P.O. Box 7760, Beaumont, TX77706 Aero Nav Laboratories, Inc., 14-29112St., College Point, NY 11356

Beaumont, X77706 GHMInc. (Industrial Measurement Consultants), P.O. Box 1836, Newport News, VA 23601

Gibbs & Cox, Inc., 50 West 23rd Street, New York, NY 10010 The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104

Morris Guralnick Associates, Inc., 130 Sutter Street, Suite 400, San Francisco, CA 94104

C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110 Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824 JJH Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034

R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073 James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125 Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225 Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063 John V. McCollum, Inc., 1199 Long Point Road, Mt. Pleasant, SC 29464 McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454 John J. McMullen Associates, Inc., 1 World Trade Center, Suite 3000, New York,

NY 10048

NY 10048 MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090 Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401 Marine Design & Operations, Inc., 226 Chestnut St., Roselle Park, NJ 07204 Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902 Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109 Maritech, Seacliff, Bay Road, Newmarket, NH 03857 Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257 R J. Mellusi&Co., 71 Hudson St, New York, NY 10013 NauticalDesigns, Inc. 2101 S. Andrews Ave, Suite202, PtLauderdaleFL 33316 Northern Marine, P.O. Box1169, Traverse Cdy, MI49685 OgdenGovernmentServices, 3211 JermantownRd, Faifax, VA22030 Olsen Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100,

Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100, Houston TX 77079

Houston TX 77079 QED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455 M. Rosenblatt&Son,Inc., 350Broadway,New York, NY 10013and667 Mission St., San Francisco, CA 94105 Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112 Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702 Seaworthy Systems Inc., P.O. Box 955, Essex, CT 06426; 17 Battery PI., New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2 Skyline PI., 5203 Leesburg Pike, Suite 700, Falls Church, VA 22041; 1305 Franklin St., Suite 210, Oakland, CA 94612. GeorgeG, Sharp,Inc. 100ChurchSt., New York, NY 10007 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235 TIMSCO, P.O. Box91360, Mobie AL36991 NAVIGATION & COMMUNICATIONS EQUIPMENT Anschutz & Company, One Madison St., East Rutherford, NJ 07073

Anschutz & Company, One Madison St., East Rutherford, NJ 07073 AT&T, High Seas Dept., 412 Kemble Ave., Room C380, Morristown, NJ 07960 Autronica Marine A/S, Drammersveien 126, N-0277 Oslo2, NORWAY Cellnet Corp, 400 Main St, Stamford, CT 06901-3004

CellinetCorp.400MainSt,Stamtord,C106501-3004 CorrestMaritimeServices,S50L/EnfantPlazaSW,WashingtonDC20024 EDOCorporation,26455300West,SatLakeCity.UT84115 ElectronicMarineSystems.800FemdalePL, Rahway,NU07065 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080 Hose McCann, 9 Smith St., Englewood, NJ 07631 Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950 IDB Aero-Nautical Communications, 15245 Shady Grove Road, Rockville, MD 20850

20850 Kenwood USA Corp., Marine Products Div., 2201 E. Dominquez St., Long Beach, CA90810

MackayCommunications, 441 USHighway #1, P.O. Box331, Elizabeth NJ 07207

Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ07014-1135 Megapulas, Inc., 8 Preston Court, Bedford MA 01730-2380 Mobile Telesystems, Inc., 300 Professional Drive, Gaithersburg, MD 20879 Norwegian Telecom, P.O. Box 6701, Oslo Professional Dive, Gaintel Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY Novalech, 820CormorantSt, Vidoria, BCV8W1R1, CANADA Raytheon Marine Co, 46River Road, Hudson, NH03051

- Haymeon Manne Co., 40 HWer Hoad, Hudson, NH Quo 1 Robertson Marine Systems, 3000 Kingman Street, Suite, 207, Metairie, LA 70006 SPD Technologies, 13500 Roosevelt Blvd., Philadelpha, PA 19116 Scandinavian Micro Systems P.O. Box 155, N-1411, Koboton, NORWAY Simrad, 1921033rd Avenue West, Lynwood, WA98036
- Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA22901 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009

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Summer Equipment Ltd., 24 West 4th Ave., Vancouver V5Y 1G3, CANADA Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086

Waterway Communications System, Inc. 453E. Park PI., Jeffersonville, IN 47130 NOZZLES

- OIL
- Harrington Metal Fabrication, P. O. Box 410, 6720 M 89, Fennville, MI 49408 —Marine—Additives MobilOilCorporation, 3225Gallows Road, Fairfax, VA22037-0001 Shell Oil, P.O. Box 2463, Houston, TX 77252 Texaco, International, 2000Westchester Avenue, White Plains NY 10650
- Texaco, International, 2000/Westchester Avenue, White Plains NY 10650 OIL/WATER SEPARATORS Alfa-Laval Separation, Inc., 955 Mearns Rd, Warminster, PA18974-0556 Centrico, Inc. (Westfalia Separators), 100 Faiway Court, Northvale NJ07647 Fast Systems, 3240North Broadway, St. Louis, MO63147 MMC International, 60 Inp Dr, Inwood NY 11696 National Fluid Separators, 827 Hanley Industrial CI, St Louis, MO63144 Nelson Industries, Highway 51 West, Stoughton, WI53589 PAINT—COA TING—CORROS NO CONTROL Amdean Coating Removal, 12920 S.W. 99N. Ave., Miami, FL33176 Ameron, 201 N. Berry, St., Brea, CA 92622 The Arnessen Corp., Corrosion Dynamics Division, 1100 Walmut Street, Rosell, NJ 07203
- NJ 07203 EnviroCoatings, Inc., 4560BeltLine Rd., Suite 300, Dallas, TX 75244 Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502 GlobalTech, 9801 Westheimer St., Ste. 202, Houston, TX 77042
- Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02635
- Hempel Coatings, Foot of Curie Avenue, Wallington, NJ 07057 Melvin Pierce Marine Coating, Inc., P.O. Box 93, Semmes, AL 36575 Microphor, Inc., Marine Division, 452 E. Hill Rd., P.O. Box 1460, Willits,
- Natfleet Marine Chemicals, P.O. Box 11, Northwich, Cheshire, CW84DX, BVGLAND
- Sigma Coatings, 8979 Market St., Houston, TX 77029, 330 Rover Road. Harvey, LA70059, 1100 Adams St., Hoboken, NJ07030 Unitor Ships Service, Unitor Marine Chemicals Division, 3 High St.,
- PIPE/TTING\$/CONNECTING\$/STEMS Aeroquip Corporation, 3000 Strayer, P.O. Box631, Maumee, OH43537-0631
- Aeroquip Comporation, Socio Staye, r. C. Boxos, i, Maumee, CAPAS Deulsch Metal Components, 14800S. Figueroa, Gardena, CA90248 Lokring, 396 Hatch Drive, Foster City, CA94404 Stanley G. Flagg Co., 1020W. High St., Stowe, PA19464 Thaxton, Inc., 25 Leonburg Rd., Mars, PA16406 6401 There where
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CumminsEngineCompany, MailCode60011, Box3005, Columbus, IN47202-3005

Electro-Motive, div. General Motors, 9301 W55th St, La Grange, IL60525 Fincantieri, Diesel Engines Divisio — GMT, Bagnoli della Rosandra 334, Trieste, ITALY

GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420 Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241 Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9 Mapeco Products Inc., P.O. Box 6, 725 Glen Cove Ave., Glen Head NY 11545 Marine Gears, Inc., P.O. Box 689, Greenville MS 38707 Marine Systems Inc., 2032 Atlantic Ave., Chesapeake VA 23324 Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY MAN B&W Diesel, 17 State St., New York, NY 10004 MAN B&W Diesel A/S, Ostervej 2, DK-4960 Holeby, DENMARK MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15. DK-9900 Frederikshavn

DENMARK MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1 GERMANY MKW Power Systems, 301 S. Church St., Rocky Mount, NC 27801 New Sulzer Diesel, Ltd., CH-8401, Winterthur, SWITZERLAND NylandsMarineServiceA/S,P.O.Box130,N-4818Faervik, NORWAY Omnithruster Inc., 9515 Sorensen Ave., P.O. Box 2144, Santa Fe Springs, CA

90670

- 90670 Ovako Steel Couplings AB Sweden, S-813 00 Hofors SWEDEN Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA Karl Senner Inc., 25 W Third, Kenner LA 70062 Schottel-Werft, D-5401 Spay, GERMANY Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008 Textron Lycoming, 550 Main St., Stratford, CT 06497 Thrustmaster of Texas, 12227-K FM 529, Houston, TX 77041 Ulstein International, A/S, N-6065 Ulsteinvik, NORWAY J. M. Voith GmbH, Marine Division, Postfach 1940, D-7920, Heidenheim/Brenz, GEFIMANY U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021

Ave., Great Neck, NY 11021 Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND

- HINLAND WesTech GearCorp., 2600 E. Imperial Highway, Lynwood, CA90262 Westinghouse Marine Div., 401 E Hendy Ave, Sunnyvale, CA94068 ZF of North America, Marine Sales, 500 Barday Blvd, Lincolnshire IL 60069
- PROTECTIVE WRAPS
- FANA (Film Applicators of North America), 1260 E Woodland Ave., Springfield PA 19064
- PUMP—Repair—Drives Beckson Marine, 165 Holland Ave, Bridgeport, CT 06605 Coffin TurboPump, Inc., 326S. Dean Street, Englewood, NU07631 Del Gavio, 619 Industrial Rd., Carldstadt, NJ 07072 Der Gavlo, 619 industrial HG., Cardistadt, NJ 07072 Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231 Jim's Pump Repair, 48-5536th St., LongIsland City NY11101 Leistritz Corporation, 165 Chestnut Street, Allendale, NJ 97401 VitaMotivator, 99WHawthome Ave., Suite 622, Valley Stream NY 11580

Wilden Pump & Engineering Co., 22069 Van Burren St., P.O. Box 845, Colton, CA92324 CA92224 RIGERATIONEQUIPMENT/SERVICES UnitorShipsService, Inc., 2375W. Esther St., LongBeach, CA90813

- REMOTEVALVEOPERATORS
- Elliott Manufacturing, P.O. Box 773, Binghamton, NY 13902 S. S. White Technologies, Inc., 151 Old New Brusnwick Road, Piscataway, NJ 08854 Teleflex, Inc., 771 FirstAve., Kingof Prussia, PA 19406

- ROPE—Manila—Nylon—Hawsers—Fibers Allied SignalInc, Fibers Division, 1411 Broadway, New York, NY 10018 American Manufacturing Co., 200 S. Park Road, P.O. Box 52125, Lafayette, LA
- 70505 Dupont, Montgomery 403, 1011 Centre Road, Wilmington, DE 19805 SANITATION DEVICE—Pollution Control Jered Brown Brothers, 56 South Squinel Rd., Aubum Hills, MI48326 Byrme, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130 EnvirovacInc., 1260 Tunet Dr., Rockford, IL 61111 Fast Systems, 3240North Broadway, SL Louis, MO63147 Microphor, Inc., 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490 Novalech, 820Commonant SL, Victoria BC V8W1R1, CANADA Red Fox Environmental Services, Inc., P.O. Box 53809, Lafayette, LA 70505-3809 Research Products/Rienkonschip/Insticuted Const. (1997)

- Research Products/Blankenship (Incinolet), 2639 Andjon, Dallas, TX75220 SCALEMODELS
- Sturgeon BayModelShop, 187NNinth Ave., Sturgeon BayW154235 SCUTTLESMANHOLES
- LS. Baier & Assoc., 7527 NE33rd Dr., Portland OR 97211 SHIPBUILDING EQUIPMENT
- NEI Syncrolift, Inc., 8970 S W 87th Ct., Miami FL 33176 SHIPBUILDING—Repairs, Maintenance, Drydocking AstilerosEspanoles S.A., Padila 17,28006Madrid, SPAIN Atlantic Marine, Inc., P.O. Box3202, Mobile, AL36652
- Atlantic Marine, Inc., 800 Hockscher Dr., Jacksonville, FL 32226 Atlantic Marine, Inc., 8500 Hockscher Dr., Jacksonville, FL 32226 Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150 Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601 BenderInc., 400 Gordon Drive, Bldg, 501, Exton, PA 19341

- BenderInc., 400GordonDrive, Bldg. 501, Exton, PA 19341 BethShip, Sparrows Point Yard, Sparrows Point MD21219 Bisso Marine Co., P. O. Box 4113, New Orleans, LA 70178 Bollinger Lockport& Larose, P. O. Box 250, Lockport, LA 70374 0250 Bourg Drydock, P.O. Box 1852, Hourna, LA 70361 Chris Marine AB, P.O. Box 255, 200039, Malmo, SWEDEN Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381 Curacao DrydockInc., P.O. Box 3012, Curacao, Netherlands Anilles Eastern, 505 North Sam Houston Pkwy. East, Ste. 150A, Houston, TX77660 Fincantien SpACantieri Navailitaliani, Via Cipro 11, 16129 Genoal TALY Galveston Shipbuilding, 6800 PortIndustrial Boulevard, P.O. Box2660, Gaiveston, TX77553

Galveston, TX77553

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TOOLS

SILENCERS

Galveston Shippulong, 6800 Ponindustrial Boulevard, P.O. Box2660, Galveston, TX 77553 Guil Craft, Inc., 3904 Highway 182, Patterson, LA70392 Hatter International, 7412 Lakeshore Drive, New Orleans, LA70124 Hitachi Zosen, Hitachi Shipbulding & Engineering Co., 1-1-1 Hitotsubashi, Chiyoda ku Tokyo 100, JAPAN Institute for International Research, 437 Madison Ave., N.Y., N.Y. 10022 Jacksonville, Shipyards, 750E. Bay St., Jacksonville, FL 32202 Jeffboat, Inc., P.O. Box 610, Jeffersonville, NE 12202 Jeffboat, Inc., P.O. Box 610, Jeffersonville, NA7130 Kværener Fjelstrand, N-5632 Omastrand, NORWAY Kvichak Marine, 615 N34th St, Seattle, WA98103 Lisnave, Apartado2138, 1103 Lisbon, Codex PORTUGAL MILDavie, Inc., P.O. Box 130, Levis, Quebec, CANADA Marco, Inc., P.200W Commodore Way, Seattle, WA98103 Lisnave, Apartado2138, 1103 Lisbon, Codex PORTUGAL MILDavie, Inc., P.O. Box 130, Levis, Quebec, CANADA Marco, Inc., P.200W Commodore Way, Seattle, WA98109 Nurson Manufacturing, 150 Dayton, Edmonds WA98020 National Maintenance& Repair Inc., P.O. Box 38, Hartford, IL62048 Newport News Shipbuilding, 4101 Washington Ave., NewportNews, VA23607 New York Shipyard Corp., One Beard St., BrooklynNY 11231 Nichols Brothers Boat Builders, 5400 South Cameron Road, Freeland, WA98249 Norconsult Engineering Co., Inc., P.O. Box 529, 5785 Plantation Rd., Theodore, AL 36582 AL36582 Proteono, Lid., RuaEugenio Castro, 13A-r/c, 2800Almada, PORTUGAL, U.S. Rep: Walter Thorsen, Inc., 79Oweno Rd., P.O. Box 755, Mahwah, NJ07430 0755 ThomasMarine, 37BransloidStreet, Patchogue, NY 11772 SeaArk, P.O. Box 210, Monticello AR 71655 SeaFab, P.O. Box 1651, 4111 Cedar St. Pascagoula, MS 39567 Service Marine Industries, P.O. Box 3606, Morgan City LA 70381 Skipperiner Shipyards, 621 Park Plaza Dr, Dept21, LaCrosse WI54601 SouthwestMarine, FootofSampson SJ, San Diego, CA92113 0308 Steiner Shipyard, Inc., P.O. Box 742, BayoulaBatre, AL 36509 Swalh Ocean, 979 GStreet, Chula Vista, CA92011 TextronMarine Systems, 6600 Plaza Dhrive, New Orieans, LA70127-2584 Trinity Marine Group, Box 3029, Gulfport, MS 3956-3029 Viking Maritec, 300 Montour Place, Ste 211, Oakdale, PA 15071 Zidel Explorations, Inc., 3121 S.W. Moody Street, Portland, OR97201 Zodiacor/NotthAmerica Inc., Thompson Creek Rd., P.O. Box400, Stevensville, MD21666 AL36582

HoustonMarine TrainingServices, 160020thStreet, Kenner, LA70062 Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371

Naiad Stabilizers, Van Dusen & Meyer Inc., P.O. Box 558, Shelton, CT 06484

Eastern Stainless Division, Cyclops Corporation, P.O. Box 1975, Baltimore

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241 SURVIVAL EQUIPMENT Parkway/Imperial, 241 Raritan Street, South Amboy, NJ 08879 Schat Watercraft, P.O. Box 465, Ft of Industrial Rd., Farmingdale NY 07727 Steams Manufacturing, P.O. Box 1498, St. Cloud MN 56302 Wiking Life Saving Equipment, 1625 N Miami Ave., Miami FL 33136 TANK CLEANING EQUIPMENT Polarmarine Alterbracedon 37, 20 Centracture, Clumpert C, 110

Polarmarine, Alvsborgsgatan 37, 72 Gotbenburg, SWEDEN S-414 TANKLEVELINGINDICATORS

Autonica Marine A/S, Drammensveien 126, N.0277Oslo2, NORWAY EtIL Marine Products div, POBox 1026, New Albany, IN47151-1026 Ian-Conrad Bergan, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561 IMOIndustries, Gems Sensors Division, One Cowles Rd, Plainville CT06062 Metitape, POBox 2366, Littleton, MA01460-2366 Midland Mfg. Corp, POBox 226, Skolie. IL 60076-0226 MuCIntemational @filing. Inwood NV 11566

SanDiegoMarineHardware, 1660LoganAvenue, SanDiego, CA92113 TORSIONAL VIBRATION SPECIALISTS

TOWING-Barges, Vessel Chartering, Lighterage, Salvage, etc.

ASEA Brown Boveri, 1460 Livingston Ave., North Brunswick NJ 08902

Balehi Marine Inc., P.O. Box 600, Lacombe, LA 70445 Jack Faulkner, 2419 Caddy Lane, Flossmoor IL 60422 TURBOCHARGERS

T.W. Spaetgens, 156 W. 8th Ave., Vanc

MMCInternational, 60InipDr, Inwood NY11696 Saab Marine Electronics AB, P.O. Box 13045, S-402 51 Goteborg SWEDEN

BC, CANADA, V5Y 1N2

Buyer's Directory Continues on page 139 Maritime Reporter/Engineering News

Ingersoll-Rand, Professional Tool Group, Allen & Martinsville Rd., Liberty 07938

Vibranalysis Engineering Corp., 9300 Gamebird, Houston, TX 77034

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

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Fixed rate requirements contracts for the transportation of U.S. Government cargo to and from Virginia and New York port areas and the port of Njardvik, Iceland, have been awarded by the U.S. Navy's Military Sealift Command (MSC) Central Technical Activity.

Iceland Cargo Contracts

Samskip HP, of Reykjavik, Iceland, was the overall low priced carrier and will be offered 65 percent of the total cargo for an estimated dollar amount of \$3,800,000.

The low priced U.S.-flag carrier, Van Ommeren Shipping (USA) Inc., of Stamford, Conn., will be offered the remaining 35 percent of the total cargo for an estimated dollar amount of \$6,200,000.

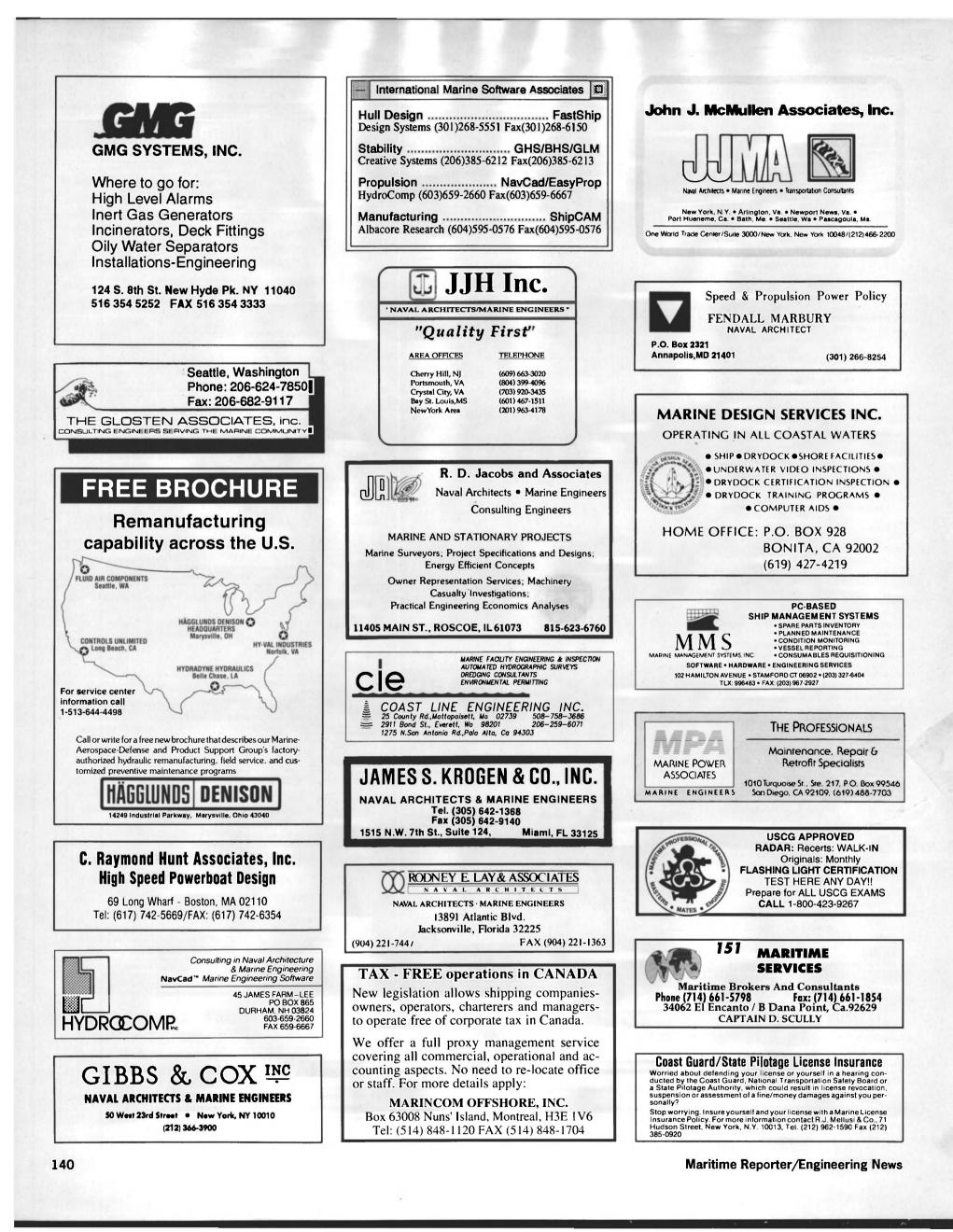
The one year contract began on June 1, 1992 and ends May 31, 1993. Eighty companies were solicited and offers were received from six companies. The estimated total amount of breakbulk and container cargo inbound and outbound is 74.250 measurement tons.

The total volume of cargo is split according to the provisions of a 1986 treaty between the United States and Iceland that allows both countries to compete for DOD cargo.



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NOTICE OF MARSHAL'S SALE

The Bahamian Flag motor vessel, M/V SUN FIESTA, Ex. -"Ionian Harmony", built in 1967 by Italcantieri S.P.A., in Castellammare De Stabia, Italy, all particulars believed to be correct, but not guaranteed; WILL BE SOLD together with her engines, hull, tackle, equipment, apparel, and accessories belonging to the vessel, both on board and ashore, including reconditioned pumps and motors, new galley equipment and Fiat engine parts, "AS IS, WHERE IS", free of all liens, claims and encumbrances whatsoever at Public Auction on June 24, 1992, at 12:00 o'clock noon, Central Standard Time, by the United States Marshal for the United States District Court for the Southern District of Alabama, Southern Division, U.S.A. pursuant to the order of said Court on the front steps of the Federal Courthouse, St. Joseph Street, Mobile, Alabama.

The sale will be to the highest bidder, subject to confirmation by the Court. At least ten percent (10%) of the purchase price shall be deposited with the U.S. Marshal at the time of the bid either by cash, or by cashier's check or certified check expressed in United States currency and drawn on a Mobile bank. Payment of the balance of the purchase price shall be paid to the U.S. Marshal, in the same fashion on or within three (3) banking days of the date of the sale. If any bidder should fail to pay into the Court the full balance of the purchase price as set forth above, then the deposit shall be forfeited. Should the sale not be confirmed by the Court, the U.S. Marshal shall return all monies to the highest bidder.

The vessel is presently berthed at Port of Chickasaw, Slip No. 2, 200 Viaduct Road, Chickasaw, Alabama. For further vessel particulars or appointment to inspect, contact Rudolph (Buddy) Hargrove, (205) 344-8388, Pager (205) 660-3091; Harry B. Zinn, (205) 653-5673 or (205) 479-1213; or Mr. Boyd Lowe of the Mobile-Chickasaw Port Facility, Inc. at (205) 456-7648, Fax (205) 456-6107.

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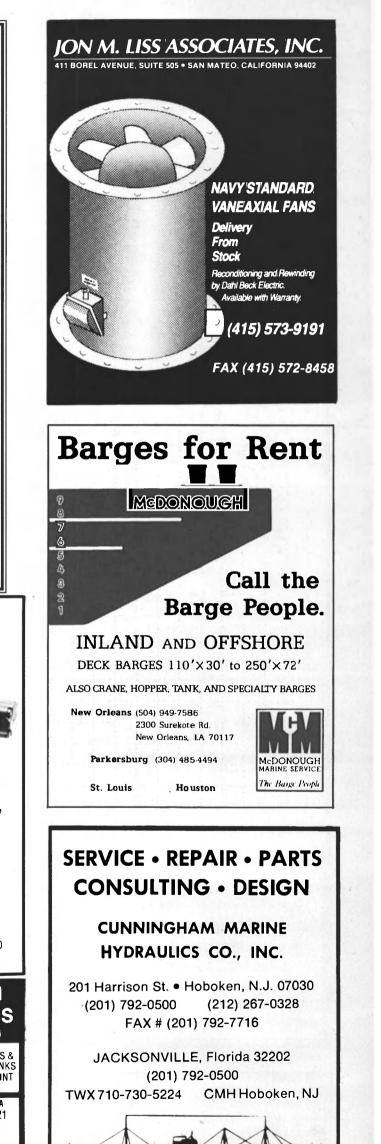
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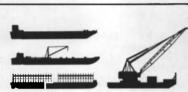
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Congressional Bill Targets Countries With Trade Surpluses

A new bill that would toughen America's stance against countries with substantial surpluses in their trade balance with the U.S., or who engage in unfair trade practices, has been filed by the Congressional majority leadership.

The bill would resume the expired Super 301 statute that from 1988-90 had proven a successful weapon for negotiating away restrictive trade polices targeted at the U.S.

Within 45 days of being enacted, the bill would direct the U.S. Trade Representative (USTR) to investigate all acts, policies and practices of countries that affects U.S. access to their markets.

Based on private sector request, the USTR would also be required to review foreign compliance with bilateral trade agreements annually, with the exceptions of the U.S.-Israeli and U.S.-Canadian Free Trade Agreements. Super 301 investigations would be conducted within 90 days of finding a country in violation of a U.S. trade agreement.

"This bill will put additional tools in the President's hands to open up foreign markets and fight unfair trade practices. It updates our trade laws to meet today's challenges and will force the President to re-examine the status quo polices and recognize the reality of trade as it exists today," said Richard Gephardt, the House Majority Leader.

New Spill Response Mobile Command Center From MSRC & EDS

A self-sufficient mobile telecommunications command center has been designed specifically for the oil spill response industry by Marine Spill Response Corporation (MSRC) and EDS. The Mobile Communication's Suite will give MSRC the ability to simultaneously link the company's command facilities, personnel, vehicles, response vessels and aircraft through voice, data, video imagery and facsimile. Marking the culmination of a two-

year, collaborative research and development effort, the presidents of MSRC, John D. Costello, and of EDS's Energy and Chemicals business unit, Ken Scott, presented the mobile suite prototype in a ceremony at EDS headquarters in Dallas.

The communications facility, the first to be unlimited by wire, is housed in an industry standard, 20foot by 8-foot by 8-foot shipping con-tainer, modified to accommodate air conditioning units and all of MSRC's equipment. The suite, made selfsufficient by an attached generator, is then positioned on a flat bed truck or shipped on a military cargo aircraft for rapid deployment

For more information, contact Greg Rixon, director of MSRC's public affairs, at (202) 408-5793, or Roger Still, regional public affairs director for EDS at (214) 661-6080.

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