

OCTOBER 1997

MARITIME REPORTER AND ENGINEERING NEWS

Keeping pace and making money in today's high-flying

WORKBOAT MARKET

SPAIN

Facing changes and challenges head-on

WHO'S #1

Japan & Korea battle for top shipbuilding slot

Bulk Carrier Safety

Applying lessons learned in containership design



Workboat Show Preview • Fast Craft Update • Australian Maritime Review • Products Showcase



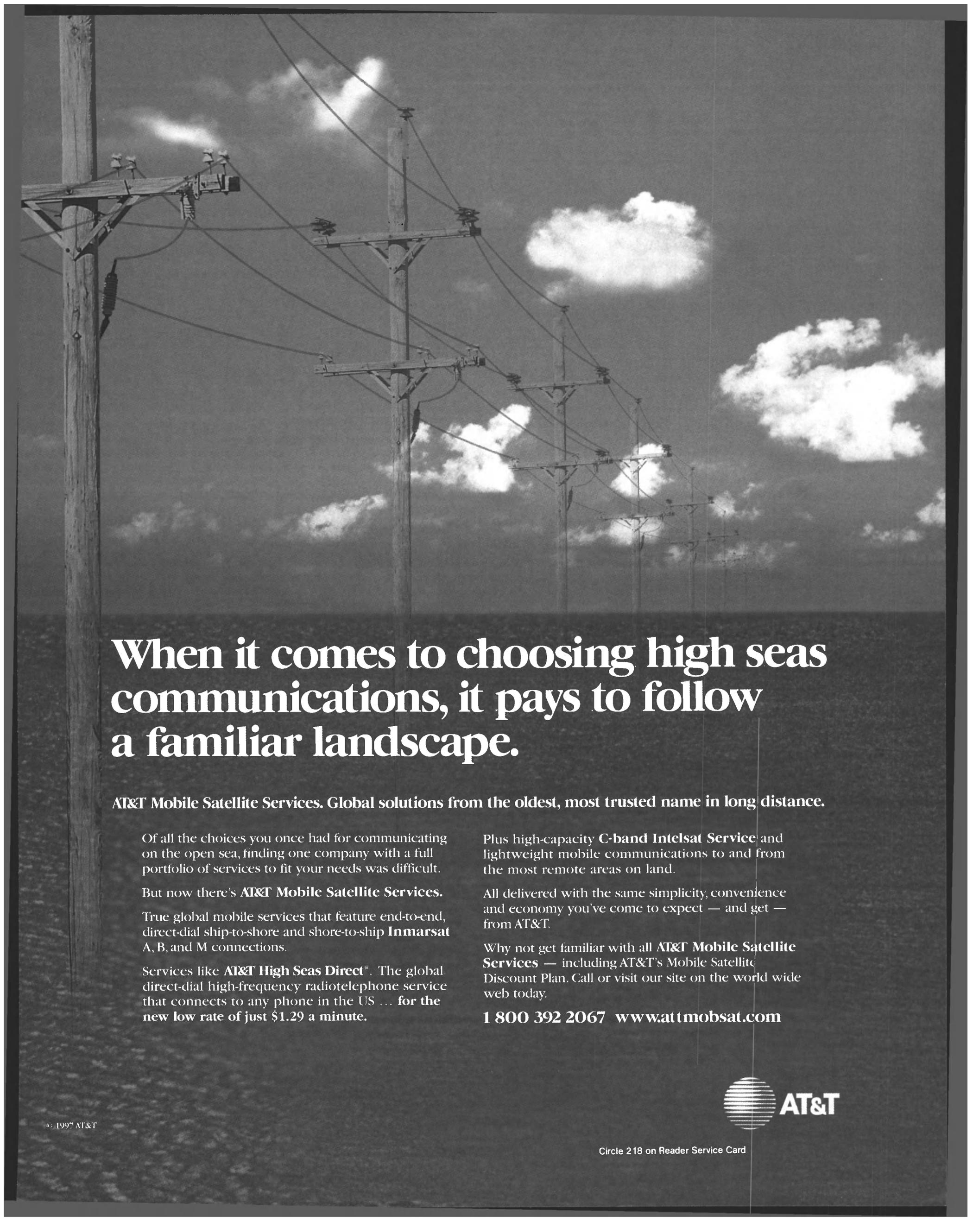
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In this edition

Pictured on the cover: Pictured on this month's cover is *Queen Supplier*, recently completed by Bollinger Quick Repair. The workboot and offshore markets are booming with a resurgence of oil business. Coverage starts on page 24.

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As the oil exploration and recovery business continues its march upward, so too do the fortunes of vessel owners/operators, builders, repairers and equipment suppliers.

43 GOING NOWHERE FAST

Fast ferry builders and suppliers are to the maritime industry what Intel is to the computer industry ... unfortunately, without the same business-driving results. Despite a plethora of technological innovations and advances, a genuine worldwide fast ferry boom has yet to materialize. Technical Editor David Tinsley examines the current situation, and offers some insights as to what will get the niche's motor running.

50 FORGING A NEW PATH

Preparing for a unified Europe and fending off low-cost competitors, Spain's maritime industry has accelerated its gravitation towards specialized or otherwise more capital intensive ships. — by David Tinsley, technical editor

BOATS WANTED

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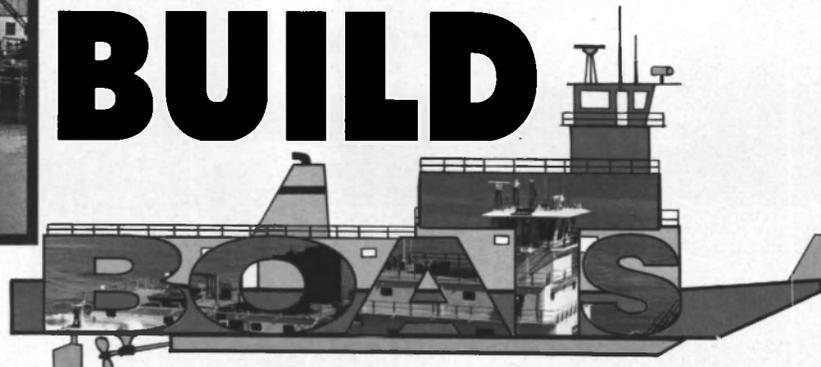
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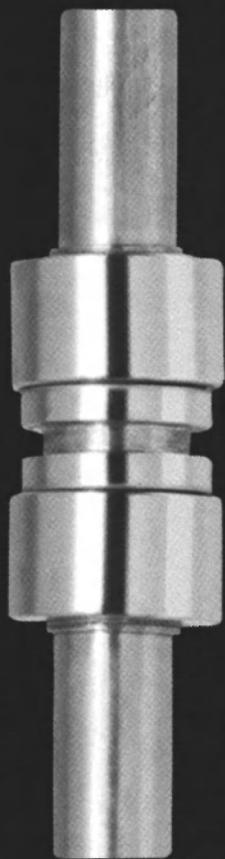


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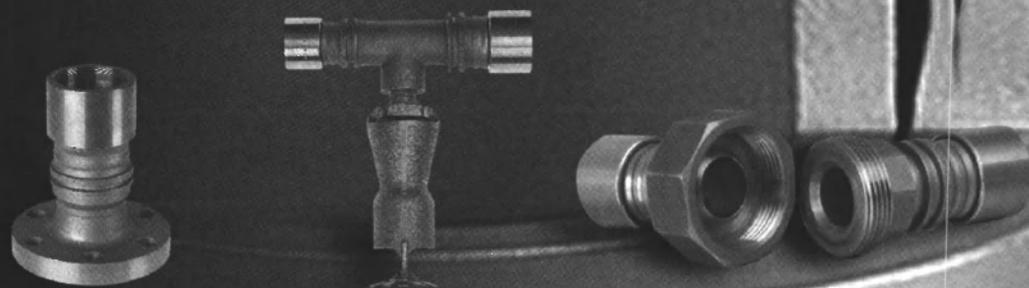
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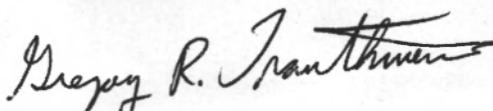
Maybe it's a recent trip to our 50th state talking, but today's business environment strongly resembles surfing, or more accurately, surfing on the north shore of Oahu during the winter.

Maritime business waters are, by nature, tumultuous. Companies not ready, willing or able to participate in the global market are perhaps finding the waters more perilous than ever. The likelihood of wiping out is heightened, and there is always a threat of getting swallowed by a bigger fish.

While all companies must navigate roughly the same waters, companies which are planning for well beyond 2000 are global players, determined to shore up weaknesses and extend product and service reaches. Despite the ominous threat of a nasty spill, these companies are focused on finding and riding the next big wave. There's always a chance of riding the wave too long, or cutting out before the best part is over, but these diverse, accomplished businesses are more amply suited to recover and hit the next swell in stride.

Today's big wave is, of course, the offshore market. The impact of a resurging oil business has reached across the spectrum of the maritime world, boosting business and revenues of oil majors, vessel operators and equipment suppliers alike. In spite of claims to the contrary, no one can predict when this wave will crash, the only certainty is that some day it will. For now, however, all indicators point to a strong ride for at least a few more years. Technology is truly a major driver of this effort, and the offshore industry's recent success and near term prospects are due in large part to the fact that so many new frontiers are being explored simultaneously. This year's WorkBoat Show in New Orleans should prove to be quite busy. Good news — particularly when it involves making money — spreads fast, and competition in all sectors should increase tenfold over the next few years, as anyone and everyone tries to cash in on the offshore wave. This month's coverage of the workboat and offshore markets starts on page 24.

What's the next big wave? The fast ferry market is (and, for a while, has been) poised for significant growth. While it will not be as far reaching as an oil boom, an upswing in fast ferry development and building could provide a number of companies with significant business. As reported in *MR/EN*'s August edition, H.R. 1630 is a bill designed to deliver \$35 million, over a five year period, for a program similar to that of Title XI. U.S. Secretary of Transportation Rodney Slater recently announced that MarAd had issued a federal guarantee to help finance the construction of two high speed ferries for service in Florida, between Miami and Key West. A story on the contract is found in the Marine Finance section on page 10.



Gregory R. Trauthwein, editorial director

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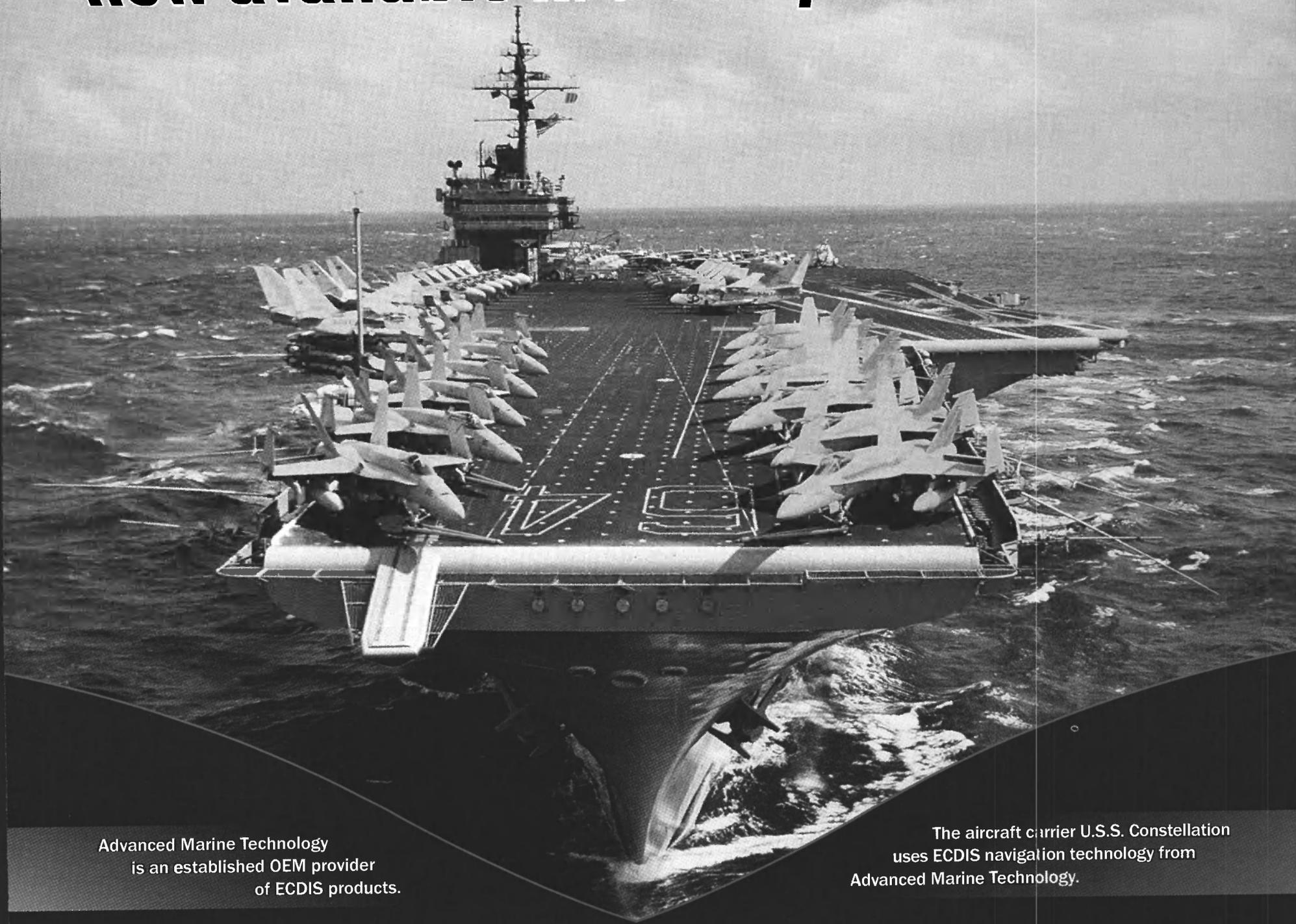
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Southwest Marine Awarded \$26 Million Contract

The U.S. Navy's Military Sealift Command (MSC) has awarded Southwest Marine, Inc. (SWM) a \$26 million, cost-plus-award-fee contract for the repair, overhaul, dry-docking and upgrade of the U.S. Navy ammunition ship USNS *KISKA* (T-AE 35).

With options, the total value of the contract could exceed \$30 million.

The work is scheduled to begin December 1, 1997 and will be completed by October 26, 1998.

"Winning this contract is a real tribute to our employees and a much-deserved reward for the great work they do every day," commented Ed Ewing, SWM's

president and COO.

While at SWM, the habitability spaces currently configured to U.S. Navy standards will be re-outfitted to meet the requirements of MSC's civilian crew.

The primary mission of MSC is to provide sea transportation of equipment, supplies and ammunition to sustain U.S. forces worldwide during peacetime and in war.

Schuyler Awarded Crowley Contract

Crowley Maritime Corporation subsidiary Vessel Management Inc. (VMS) has awarded Schuyler Rubber Co. a contract to outfit its new class of six Voith Schneider-driven harbor tugs.

The model SR3D type fendering and Schuyler's new model SR-SI (Shibata) type fenders will be featured.

This unique combination of fendering will reportedly result in the highest energy absorption and load deflection.

For more information on Schuyler Rubber Co.

Circle 1 on Reader Service Card

NASSCO Contracts For Bardex Deployment System

National Steel and Shipbuilding Co. (NASSCO) has contracted with Bardex Corp. for a sideport ramp shipside deployment system for use in a new strategic sealift ship construction program.

The Bardex system will consist of a push-pull capacity hydraulic gripper-jack assembly and a holding gripper each with operating pressure of 2,600 psi and proof pressure of 3,900 psi, a hydraulic power unit fitted with extensive filtration and a control console equipped with remote control pendant capability for operating and monitoring the gripper-jack assembly.

The unloading ramp will be carried onboard ship and the Bardex system will be used to skid the ramp laterally from its amidships stowed position on A-deck, a distance of 21 ft. (6.4 m) toward a portside position where a ship's cranes can reach the ramp.

Hamworthy Marine Receives First Dutch Order For Advanced Rudder System

Hamworthy Marine has secured an order for its Schilling Monovec rudder system for installation in a sand and gravel suction dredging vessel for South Coast Shipping Company Ltd. of Southampton.

The 4000 sq. m. *Sand Falcon* is currently under construction at the Merwede shipyard in the Netherlands.

The vessel is the first to be equipped with the Schilling rudder at a Dutch yard.

The rudder, scheduled for delivery in December 1997, features low-speed maneuverability and coarse keeping performance, mak-

ing it suitable for dredging applications.

Pennzoil, Spirit Energy 76 Team Up With Boatracs

Pennzoil and Spirit Energy 76 have contracted with Boatracs Inc. to develop a common data interface between marine operators and their customers to provide a faster, more reliable and confidential means of communication.

The Boatracs system reportedly will allow companies to transmit data directly from a vessel via satellite into their own information system. The incoming data is then routed to the appropriate department for report generation, thus eliminating the need to re-key.

Boatracs is working with several offshore marine companies including Seabulk Offshore, L&M Bo-Truc and Trico Marine to develop this module.

Lisnave And Falcon Drilling Sign Contract

Lisnave and Falcon Drilling have signed a contract worth \$60 million for the conversion of the 129,077 dwt bulk/oil carrier *Coastal Golden* into a drill ship. The project is named *Peregrine VI*.

Originally, negotiations for this project were begun between Falcon Drilling and Blohm+Voss. At that time, Lisnave and Blohm+Voss were negotiating an association which, under the restructuring plan for the new Lisnave, has paved the way for the present situation, where Thyssen Werften GmbH became 20 percent shareholder in the newly incorporated Lisnave-Estaleiro Navais, S.A.

The main objective for the association was to have Lisnave diversify its scope of activities by taking advantage of Blohm+Voss's experience in the field of offshore conversions and repairs.

Blohm+Voss advised Falcon Drilling of the advantages of having the *Peregrine VI* project carried out by Lisnave, at its Mitrena Yard facilities, which comprise drydocks able to accommodate vessels up to 700,000 dwt and a gantry crane of 500 t capacity, a large steel fabrication shop, flexible manpower capacity, mild climate and competitive pricing.

Lisnave and Blohm+Voss have formed a joint project management

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team, which will work together at the Mitrena Yard, for the *Peregrine VI* project. Blohm+Voss will be responsible for engineering the project.

The contract includes an option for the conversion of another two ships, to be named *Peregrine VIII* and *Peregrine IX*.

The future *Peregrine VI* was dry-docked in August and the conversion is scheduled to take 15 months.

Exmar Offshore And Santa Fe International Enter Agreement

Exmar Offshore Company has announced an agreement with Santa Fe International Corporation for its new deepwater drilling semi-submersible design, Exmar 2500, capable of exploration and development drilling in water depths up to 8202 ft. (2500 m). Terms of the agreement allow Santa Fe International to be involved during the design development, which is expected to be completed during 1997.

Marinette Marine Awarded USCG Option

The USCG has exercised its \$50.6 million option to award four additional ships to Marinette Marine Corp. (MMC), under its contract to design and build the new Ida Lewis Class of coastal buoy tenders. The contract covers construction of four buoy tenders, with attendant warranty, manuals, repair parts, support, testing and training.

MMC was awarded the basic design and build contract for the Ida Lewis Class vessels in June 1993 and delivered the first ship in January 1996. Currently, MMC is constructing two classes for buoy tenders for the USCG and has three of the larger Juniper Class vessels and four of the Ida Lewis Class vessels under construction.

MarAd Enters Into Cooperative Agreements

The Maritime Administration (MarAd) has entered into two cooperative agreements to enhance the competitiveness of

American shipyards. MarAd is acting as an agent for the Department of Defense's Advanced Research Project Agency (DARPA) and has entered into agreements with National Steel & Shipbuilding Company (NASSCO) and Marinette Marine Corporation.

The cooperative agreement with NASSCO is for the first phase of a ship factory transformation project. The technology proposed for this project is the implementation of a manufacturing philosophy for shipyard production processes. It will use information technology, or knowledge-type automated sys-

tems, to establish shipbuilding policies, rationalized workflow charts and pre-production processes. The total value of this agreement is approximately \$3 million. The recipient will provide \$1.5 million in cash and in-kind services, and the Government will provide approximately \$1.5 million. The

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project has a performance period of nine months.

MarAd's cooperative agreement with Marinette Marine Corp. is for Phase II of the Transitioning to a 21st Century Advanced Manufacturing Facility project — the goal of which is to significantly reduce the time and costs

required to design and build ships by increasing standardization and reducing system and manufacturing complexity.

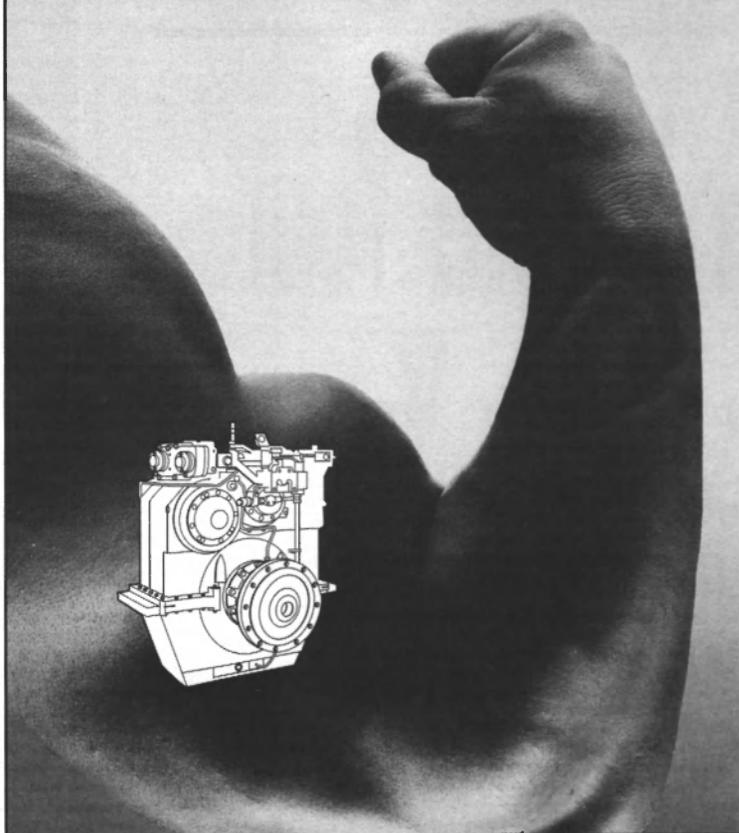
Phase I of the project developed the technology and production processes that allowed the shipyard to market commercial designs internationally.

The total value of this agreement is approximately \$3 million. Marinette Marine Corp. will provide \$1.5 million in cash and in-kind services, and the Government will provide \$1.5 million, of which \$263,176 is FY97 funds. This project has a performance period of 24 months.

MarAd also recently approved four applications under Section 9 of the Shipping Act, 1916, as amended. Transocean Offshore Inc. (formerly Sonar Offshore Drilling Inc.) has been given permission to transfer to Panamanian registry and flag the mobile offshore drilling unit *Sonar George Richardson*, without change in U.S. ownership. International Ultimate, Inc., has received approval to transfer to Russian registry and flag the fishing vessels *Ultimate No. 1* and *Ultimate No. 2*, without change in the U.S. ownership. Permission was also granted to C & F Fishing Ltd. to sell purse seiner *Jeannette* to Industrias Y Frigorificos Pesqueros Infripesca C.A., an Ecuadorian company. The vessel will be transferred to Ecuadorian registry and flag.

In addition, MarAd has received a request filed by Vane Line Bunkering, Inc. (subsidiary of The Van Brothers Co.), to sell tank barges VB31 and VB 32 to Smith Dolphin Shipping Inc. of the Netherlands. If approved, the barges would be used for barging/bunkering service in the Gulf of Moracaibo, Venezuela.

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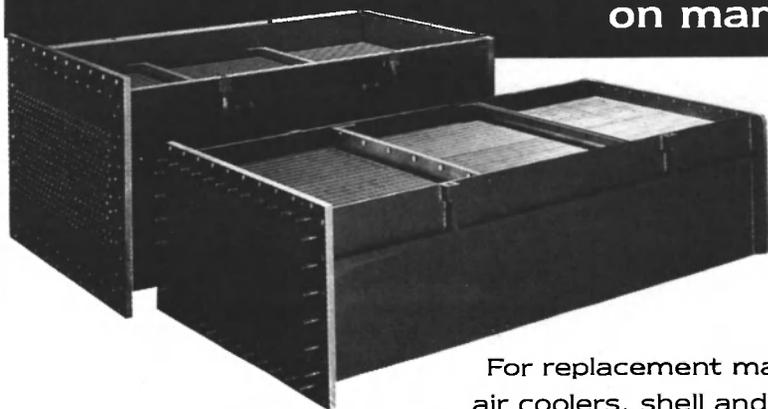
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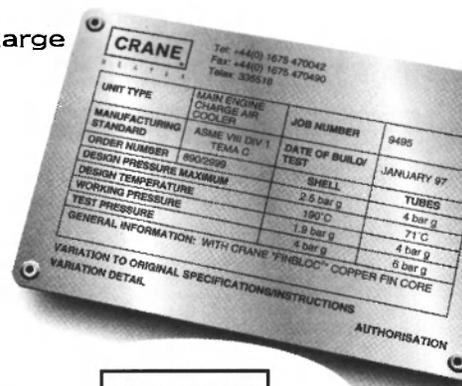
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Chantiers Gets Seismic Ship Contract

GEC Alsthom subsidiary Chantiers de l'Atlantique announced that it and Louis Dreyfus Armateurs unit Sismique SA have signed a contract to build a seismic survey vessel. The 328.08-ft. (100-m) ship is to be operated by CGG Marine, an affiliate of Compagnie Generale de Geophysique and is scheduled for delivery in March 1999.

\$30 Million Loan Guarantee For High-Speed Ferries Announced

U.S. Secretary of Transportation **Rodney E. Slater** recently announced that MarAd approved a federal guarantee to help finance the construction of two high-speed passenger ferries for a new planned service between Miami and Key West, Fla.

In a letter of commitment to Mersea Ships 1, Inc., MarAd reportedly agreed to guarantee approximately \$30 million or up to

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87.5 percent of the estimated \$34 million cost for both ferries.

The aluminum twin-hull vessels each will carry up to 300 passengers and will be built by Bollinger Shipyards for Mersea. The first ferry is scheduled to be delivered 12 months after construction begins, and the second three

months later.

NY Economic Development Solicits Proposals

EDC recently issued a Request For Proposals (RFP) for a consul-

tant to prepare a strategic plan to redevelop the Port of New York.

The RFP calls for the selected consultant to perform a Major Investment Study (MIS)-level analysis of New York City's port development options and to gather information on project cost and benefits. This detailed analysis

will result in a strategic plan to revitalize maritime commerce in New York City and enhance the entire Port of New York/New Jersey complex.

The MIS-level port analysis will be prepared with input from all constituents in hub port development. EDC will reach out to businesses, impacted communities and local officials to ensure their involvement in the project.

It is also working closely with the Army Corps of Engineers, which currently is examining which channels in New York Harbor to deepen and to what depths.

Key components of the analysis are the identification of potential markets for the Port of New York and areas in New York City suitable for major port expansion.

JMS Wins UNOLS Fleet Inspection Contract

Jamestown Marine Services (JMS) has been awarded a five-year contract to conduct seaworthiness and safety inspections of the University National Oceanographic Laboratory System (UNOLS) research fleet for the National Science Foundation. The UNOL's fleet consists of 28 research vessels owned and operated by individual education and research institutions throughout the U.S. and North America.

Golden Ocean Group Sells \$200 Million Note Issue

Golden Ocean Group Ltd. has sold \$200 million of 10 percent senior notes in a private placement arranged by Sutro & Co. and Libra Investments, Inc. The notes, which mature in 2001, were purchased by institutional investors.

The bulk of the proceeds from the private placement will be used to pay for new ships and to finance remaining payments of ships already in the company's fleet.

Oceanering To Construct Five Additional ROVs

Two new Hydra Millenniums and three new Hydra Magnums will be manufactured at Oceanering International, Inc.'s Morgan City, La. facility for delivery by June

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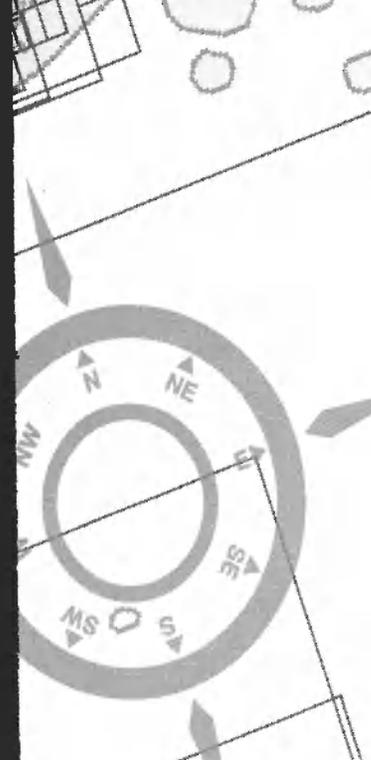
Navi Sailor 2400

1995 ©Transas

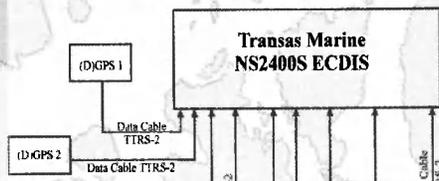
Radar Integrator



Radar Image Overlay and Target Extraction



Transas Marine Console Wiring Diagram



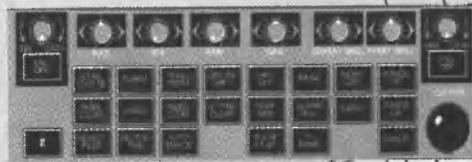
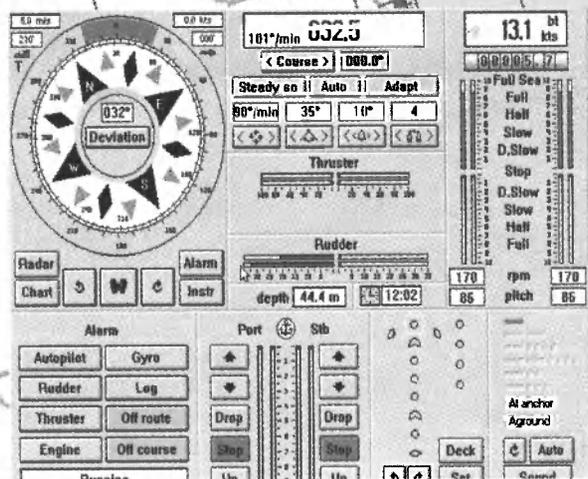
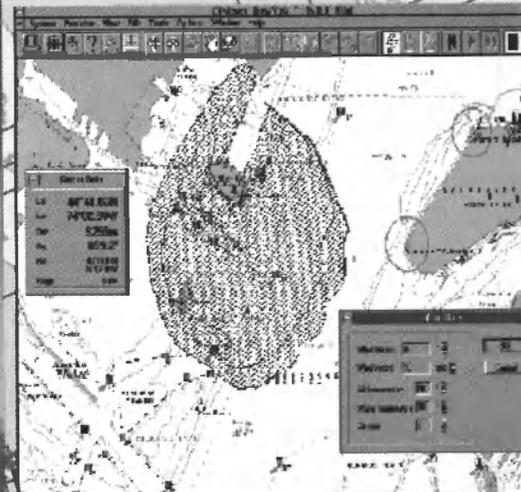
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1998.

Hydra Millennium is a 150 hp high performance work class ROV developed specifically to operate in water depths greater than 10,000 ft. (3,048 m) and for shallower deepwater applications that may require specialized work capability, including the ability to run and operate tools such as large dredge and jet pumps which require very high hydraulic fluid flow volumes. The Millennium is based on the Hydra Magnum series but is designed with higher horsepower, deeper water depth capability and a heavier payload capacity. It utilizes the newly developed Magnum cage design which allows vehicles of either series to carry and operate work packages of any shape and size suitable for ROV deployment.

Magnum ROVs are high-thrust, cage-deployed vehicles designed to accommodate a variety of sensor and work packages for performing a range of underwater intervention tasks that support oil and gas drilling, construction and production activities. These new vehicles are 75-hp units capable of operating in 6,600 fsw or more.

Star Buys Royal Caribbean Ship For \$30 Million

Singapore's Star Cruises agreed to buy the 800-berth passenger cruise ship *Sun Viking* for \$30 million from Royal Caribbean Cruises Ltd. The ship will be renamed *SuperStar Sagittarius* and will become the ninth vessel in its fleet.

The new vessel will target Australian and European fly/cruise passengers and will use the under-construction Kuala Lumpur International Airport as its hub.

Star Cruise's total passenger capacity will rise to 13,000 with this acquisition and the arrival of two ships due for delivery in 1998 and 1999.

Stolt-Nielsen Signs Contract For Two Tankers

Stolt Parcel Tankers Inc. has finalized an agreement with Danyard to build two additional 37,000 dwt Chemical Parcel Tankers in Fredrikshavn, scheduled for delivery in June and

December 1999. This brings to twelve the number of chemical parcel tankers in the Stolt Innovation Class to be constructed for Stolt Parcel Tankers. Four of the nine ships to be delivered by Danyard have already entered service and the remaining ships will be delivered between now and the end of

1999. Three ships are also to be delivered by Ateliers et Chantiers de l'Atlantique du Havre in 1998 and 1999. The two newbuildings from Danyard will be built to the same specifications as their sister-ships, with 44 integral and four deck tanks all built with duplex stainless steel, diesel electric

propulsion, cargo handling and navigation systems.

Indian Firm Orders Oil Tankers

Hyundai Corp. won an \$85 mil-

LUGGER TALK # 4

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Flooding an engine with cold sea water is the easy, cheap way to cool it. But the lack of temperature control leads to overcooling problems. The Luger cooling system is different. It is designed to cool or warm different engine components to keep them at their optimum operating temperature.

Let's use our 700 HP, 15 liter L6140AL2 as an example.

Keel Cooled Or Heat Exchanger.

We offer both configurations directly from the factory. No field modifications are necessary. Keel cooled engines require only one keel cooler.

Saltwater Never Touches The Block.

Up to 82 gpm of sea water is pumped by a flexible impeller pump¹³ through the super-cooler⁷, the heat exchanger⁶, then overboard through the wet exhaust¹. It never touches the engine block or aftercooler³. The seawater pump is gear driven so there are no belts to fail. It has a ceramic mechanical seal and is completely rebuildable.

Cupronickel Tubes.

The supercooler⁷, heat exchanger⁶ and marine gear oil cooler⁹ all have 70/30 cupronickel tube bundles to better resist corrosion. The end caps and tube bundles are removable for easy cleaning and lower maintenance costs.

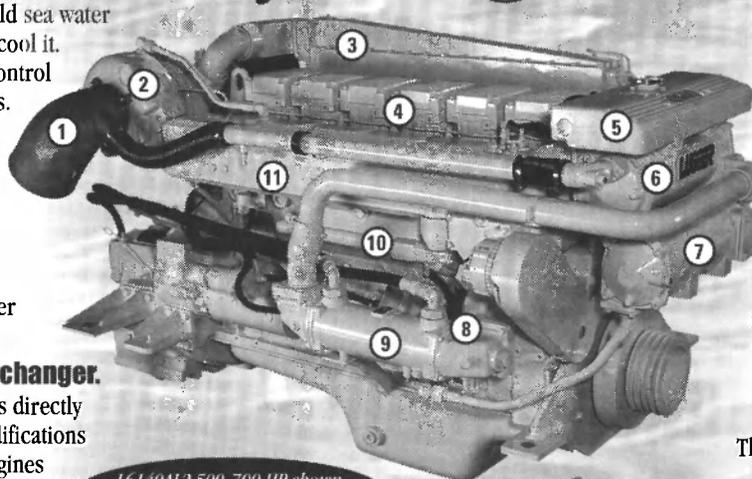
The sea water weaves a three pass path through the heat exchanger to maximize heat transfer.

Aftercooler Not Overcooler.

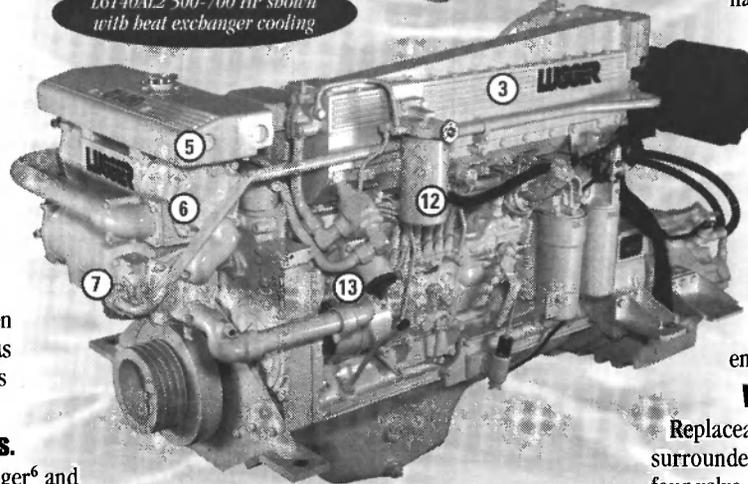
The supercooler⁷ and large capacity, plate and fin aftercooler³ use fresh jacket water to control intake air temperature. This eliminates the problems associated with sea water aftercoolers; overcooling under light loads, white smoke, corrosion and element clogging mineral deposits.

Fewer Leak Points.

First we eliminated as many hoses, clamps and gasket surfaces as possible. Many of the remaining connections are positive sealing,



L6140AL2 500-700 HP shown with heat exchanger cooling



L6140AL2 Cooling Components

Modulating Thermostats.

Two thermostats are used for safety. These sleeve-type 'stats' don't completely interrupt the coolant flow. They function as valves directing the flow for even temperature control.

Jacket Water Pump.

The gear driven centrifugal circulation pump⁸ has no belts to replace. It has a cast iron impeller, a ceramic mechanical seal and is completely rebuildable.

Turbo Cooling Loop.

The turbocharger turbine housing² has its own cooling circuit for safety, fire prevention and lower engine room temperatures.

Two Pass Manifold.

The full flow (158 gpm) of jacket water makes two passes through the cast iron exhaust manifold¹¹. Double pass eliminates hot spots. No gasketed connections between water and exhaust passages reduce the possibility of water entering the cylinders.

Wet Cylinder Liners.

Replaceable cylinder liners are surrounded by coolant. Each individual, four valve cylinder head⁴ has four coolant channels to cool the fuel injector and the bridge between the valves.

Clean, PH Balanced Coolant.

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pipe and o-ring type.

The expansion tank⁵ is not fabricated. It is cast from 356T6 aluminum so there are no welds to break or leak.

Stainless Steel Lube Oil Cooler.

The plate-type oil cooler¹⁰ is built into the block to further reduce external plumbing. The cooler has its own thermostat to keep the engine oil at the optimum temperature.

Gear Oil Cooler/Warmer.

The gear oil cooler⁹ uses thermostatically controlled freshwater to cool or warm the marine gear oil as needed. This eliminates the problem of water condensing inside the gear. It also reduces thermal breakdown of the oil and maintains the correct oil viscosity for proper trolling valve function.



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- Craft that work hard and earn!

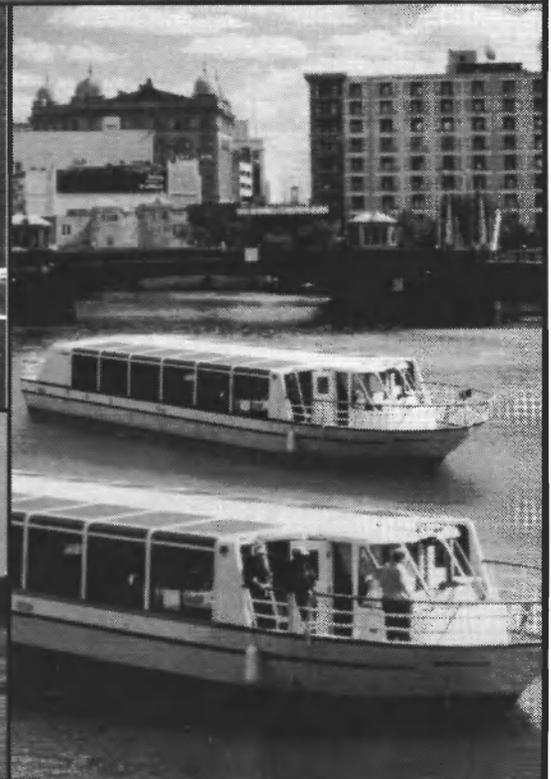
(Top) SkipperLiner luxury vessels rank among the finest and strongest, and earn profits in a variety of configurations. 30' to 160' lengths. 14' to 60' beams. We have excellent custom design/build abilities.

(Center) SkipperLiner's newest sternwheeler, the M.S. Dixie II operates as a sight-seeing and dinner cruiser. At 141' x 33', certified for 600 passengers, she is one of three SkipperLiners earning for their owners on Lake Tahoe.

(Bottom) Nostalgic SkipperLiner paddlewheelers from 49 to 800 passengers generate significant revenues for dinner cruise operators throughout the U.S.

(Far Right) SkipperLiner canal boats and water taxis in various designs are a source of consistent income for our customers. 49,100,150 passenger models, or we'll custom build to your needs.

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MARINE FINANCE

lion order to build four oil tankers for four Indonesian firms, including Silverstone Development Inc. The tankers, including two 35,000-dwt vessels, will be built by Hyundai Mipo Dockyard and Halla Heavy Industries Co. The vessels are to be chartered for 10 years by Pertamina, Indonesia's state-run oil company.

Letter Of Intent Signed For Four Ecoships

Siowalls AB, Volvo Penta Corp., Industrial Development Corp. and Baltiyskiy Zavod have signed a letter of intent regarding cooperation on and construction of four Ecoships.

The consortium has indicated the possibility of reaching a contract agreement in the beginning of October and starting the work before year's end.

Two More VLCCs For Golden Ocean

Hitachi Zosen has reached unofficial agreement with the Golden Ocean Group to build two VLCCs. Hitachi Zosen reported that the two tankers are to be built at the firm's Ariake shipyard in Kumamoto Prefecture.

It brings to 14 the number of VLCC contracts Hitachi Zosen has won from Golden Ocean. Hitachi Zosen now has 10 VLCCs on its order books, and its docks are fully booked through mid-2000.

Final Pieces Of FPSO Contract Put Together

Woodside Petroleum has awarded the two remaining major engineering and construction contracts for the \$747-million *Laminaria* and *Corallina* offshore oil field projects.

A contract worth nearly \$45 million was awarded to Coflexip Stena Offshore Asia Pacific to supply flexible flowlines and risers for the project. United Construction Group was awarded a \$33.6 million contract to manufacture pre-assembled units for the project.

Both contracts are to provide parts to the project's 895.65-ft. (273-m) long floating production, storage and offloading (FPSO)

facility, the largest in the world currently under construction.

The FPSO will displace 220,000 tons and be capable of producing up to 170,000 barrels of crude oil daily.

Initial production will be around 140,000 bpd upon commencement of the project in early 1999.

Northrop Grumman Wins \$9.1 Million Contract

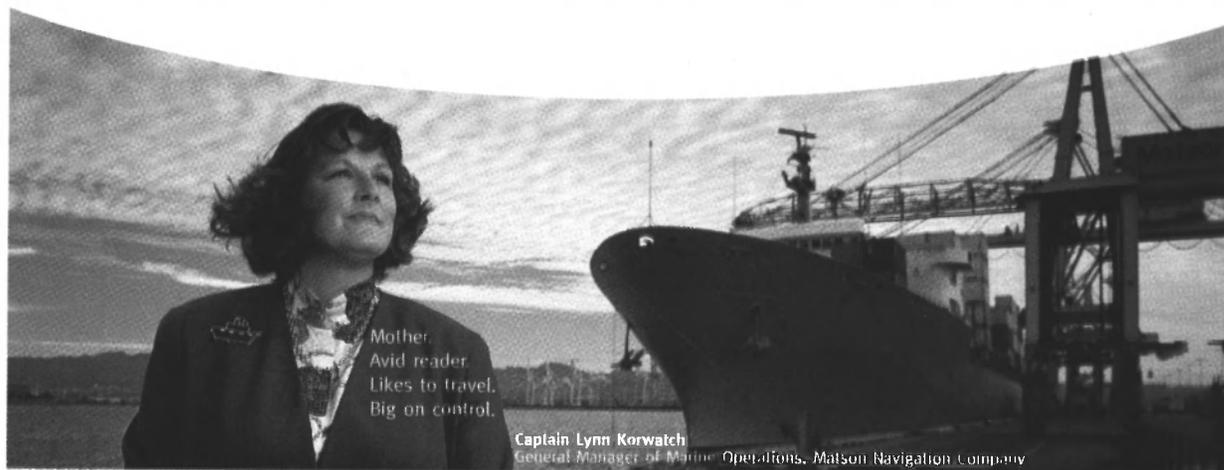
Northrop Grumman Corp.'s Antisubmarine Warfare and Ship Systems business unit has recently been awarded a \$9.1 million contract by the U.S. Naval Sea Systems Command (NAVSEA) to

begin the first low-rate initial production of two AN/SPQ-9B radar ordnance alteration kits.

The kits will provide a complete technological update of the SPQ-9A radar, which was originally manufactured for the Navy in the 1960s.

The work is expected to be completed by February 1999.

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Titan Awarded \$20.1 Million Contract

The Titan Corporation has been awarded a five-year, \$20.1 million contract to provide engineering and technical support services to the Naval Undersea Warfare

Center Division for combat weapon systems. These systems include the equipment that provides submarine and surface ships with the capability to detect, classify, track and evade neutral, friendly and hostile ships, and to defend itself and communicate with stations, aircraft and other ships, as well as

to navigate within harbors and at sea.

Mustang Survival Wins Rowan Contract

Mustang Survival Corp. has won

a survival suit contract from Rowan Industries; it is Mustang's second such contract for the off-shore oil industry.

The Ocean Commander Immersion/Survival Suit features lightweight, reduced volume in-water performance.

Astilleros Gets Tanker Order

Statoil has ordered a 125,000-dwt crude shuttle tanker from Spain's Astilleros Espanoles SA bringing the number of tankers on order with the Spanish shipyard to five. Delivery of the latest unit, a 855,000-barrel capacity vessel, is set for fall 1999. This will increase the company's North Sea shuttle fleet to 21 ships.

Stolt-Nielsen To Acquire Hamburger Lloyd's Barging

Stolt-Nielsen has announced that its subsidiary, Stolt-Nielsen Inland Tanker Service B.V. (SNITS), has acquired the European barging activities of Hamburger Lloyd in Switzerland, Germany, the Netherlands and Belgium. The acquisition will increase the size of SNITS' fleet to 35 inland tankers.

Hamburger Lloyd is reportedly one of the largest operators of double-hulled chemical tankers in Europe with 25 units, of which 11 have stainless steel tanks.

Westfalia Wins Five-Year Navy Contract

Westfalia Separator, Inc. has won a three-year contract worth \$6.8 million with a two-year continuation option to supply modern automatic desludging purifiers for 27 U.S. Navy Spruance and Kidd class destroyers. This procurement is reportedly part of a class-wide modernization program designed to allow the destroyers to continue to operate well into the next century. The contract and project management will be handled from Westfalia Separator's U.S. headquarters in New Jersey. The initial three-year phase of the contract is valued at \$6.8 million in equipment and support. Orders for eight fuel purification equipment systems have been released. In addition, the Navy has optioned

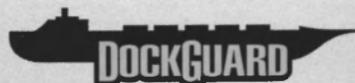
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Poly Hi Solidur offers OEMs and design engineers a broad package of TIVAR components for fendering systems, including half-round piling covers, fender facings, piling rub strips, custom extrusions, molds and fabrications, patented fastening systems and rubber backing material (supplied with fender systems).

Ideal material for marine fender systems

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Half-round piling covers. PHS now offers a complete components package for fendering systems.

TIVAR materials come in bright safety colors for better visibility.

Specialized fabricating center

Poly Hi Solidur has developed fabricating technologies to make fender system components to the most exacting specifications. Extensive machining and proprietary welding capabilities are available.

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- Chemical- and corrosion-resistant
- Chemically inert
- Performs in weather extremes

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MARINE FINANCE

Westfalia Separator to provide an additional \$6.9 million in equipment and support for the fourth and fifth years of the contract. A total of 54 purifiers could be sold to the Navy if all options are used.

For more information on Westfalia
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Bethlehem Steel To Sell Shipyard

Bethlehem Steel Corp. agreed to sell BethShip Inc.'s Sparrows Point Yard in Baltimore to the private investment firm Veritas Capital Inc. of New York for an undisclosed price. The deal is subject to Veritas completing a revolving credit agreement, but Bethlehem reportedly expects to close the sale before September 30.

Saab Reports Record Sales Of TankRadar

During the first eight months of this year, Saab Marine Electronics has reported selling 120 TankRadar systems. The previous sales record was set in 1990 when Saab TankRadar was sold to 103 tankers. In 1997 it has been sold to VLCCs, suezmaxes, aframaxs, product Carriers, chemical carriers, bitumen tankers, sulphur tankers, shuttle tankers and FPSOs.

For more information on
Saab TankRadar

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Alfa Laval Wins Korean Newbuilding Contracts

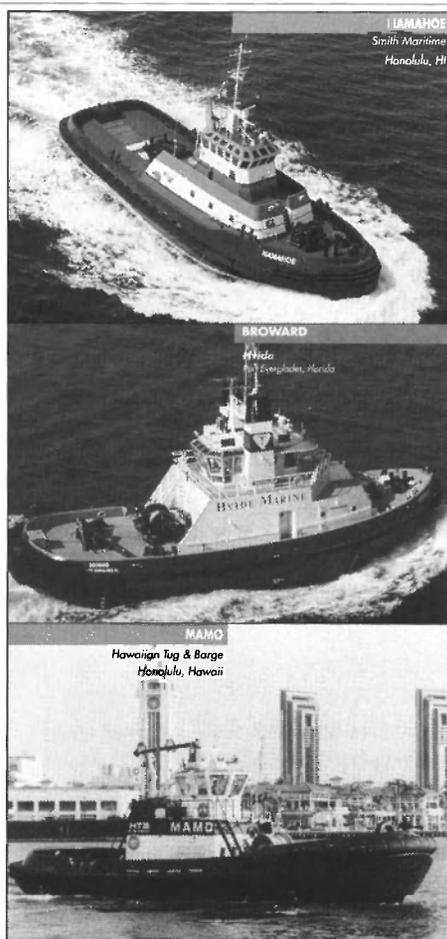
Kuwait Oil Tanker Co. (KOTC) has placed an order at Hyundai Heavy Industries (HHI) for two 307,000 dwt VLCCs. Powered by Sulzer 7RTA 84T main engines, the vessels will be equipped with a full range of Alfa Laval products, including ALCAP fuel oil and lube oil separators for main engine fuel and lube oil cleaning, one Cleaning-In-Place (CIP) unit, Matti filters and six plate heat exchangers (PHEs) for central cooling, lube oil cooling and main engine jacket water cooling. HHI is also building three 307,000 dwt VLCCs powered by MAN B&W 7S80MC main engines for Seatankers. Each vessel will be fitted with Alfa Laval fuel oil separators, main engine and auxiliary engine lube oil separators and a freshwater generator with a daily

capacity of 25 tons. In addition, HHI is building five 105,000 dwt product carriers - four for Malaysia International Shipping Co. and one for Hyundai Merchant Marine - which will each be powered by MAN B&W 6S60MC main engines. Alfa Laval will supply fuel oil, lube oil and diesel oil sepa-

rators totaling 25 units. Each vessel will also be equipped with an ENGARD computerized central cooling system. The Islamic Republic of Iran Shipping Line (IRISL) has placed an order with HMD for six 22,000 dwt multi-purpose cargo vessels, each powered by MAN B&W 6S50MC-MK6 main

engines. Alfa Laval will supply the newbuildings with a total of 30 separators for fuel oil, diesel oil and lube oil. The order also includes freshwater generators providing 30 tons of fresh water daily and PHEs for cooling duties.

For more information on Alfa Laval
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OMI And MTL Sign Acquisition Agreement

OMI Corp. and Marine Transportation Line (MTL) announced that they have signed the definitive agreement for the previously announced transaction

pursuant to which OMI is to acquire MTL, a privately owned company specializing in marine and transportation service, principally to the energy and chemical industries. The transaction is expected to be completed in the spring of 1998.

The transaction is subject to a

number of conditions, including receipt by OMI of a favorable private letter ruling from the Internal Revenue Service and OMI shareholder approval.

In connection with its acquisition of MTL, OMI plans to spin off as a tax free distribution to shareholders a subsidiary owning and oper-

ating its foreign assets (Foreign OMI). Foreign OMI will retain the OMI name and will be managed by OMI's current management. The combined OMI-MTL entity (Domestic) will use the MTL name and will be managed by MTL's current management. MTL shareholders will receive OMI shares in exchange for their MTL ownership. Upon completion of the acquisition and spinoff, holders of OMI shares prior to the transaction will own approximately two-thirds of the outstanding shares of Domestic, as well as substantially all outstanding shares of Foreign OMI. Former MTL shareholders will hold approximately one-third of the outstanding shares of Domestic.

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Marine Accommodations Wins Royal Caribbean Contract

Royal Caribbean Cruise Line has awarded Marine Accommodations, Inc. (MAI) a contract for supply and installation of ceilings on board *Song of America's* main dining room and gift shop. MAI will also be replacing a total of 90 cabin doors. Work will be completed during drydock this November.

Norsk Hydro And Permea Maritime Protection Sign Contract

Norsk Hydro has signed a \$920,500 contract with Permea Maritime Protection, a division of Air Products A/S, for the delivery of a process equipment package based on Permea's PRISM Separators for dehydration of natural gas. The plant is to be installed on the Brage Platform in connection with an increase in oil and gas production.

HAM Marine Signs Contract With Falcon Drilling

HAM Marine Inc. has signed a contract with Falcon Drilling Co. to overhaul and reactivate its semisubmersible rig, *Falcon 100*, which has been idle for more than a decade.

The upgrade will include an increase in deck load capacity,

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installation of a top drive and enhanced mud system and an increase in the rig's water depth capability. The Falcon 100, which has been stacked at Sabine Pass, Texas is expected to arrive at the shipyard in September, with completion scheduled for the end of the first quarter 1998. Falcon has a contract with Brazilian state oil company Petrobras for use of the semi upon completion.

For more information on HAM Marine
Circle 50 on Reader Service Card

Recent Ship Sales

This report, compiled by Shipping Intelligence, Inc., a New York maritime consulting firm, tracks sale prices of secondhand bulk carriers and tankers. For more information, call (212) 997-0966.

Date Reported	Vessel Name	Vessel Type	DWT	Year Built	Sale Price (M)
8/15/97	Sea Friends	Bulker	23,286	90	\$11.5
8/1/97	Rosemoy	Bulker	26,868	78	\$4.5
8/8/97	Ocean Wisdom	Bulker	27,154	73	\$1.4
8/15/97	Hua Tu	Bulker	31,217	84	\$8.5
8/8/97	Sea Coral	Bulker	37,724	84	\$10.1
8/1/97	Midas	Bulker	38,313	84	\$9.9
8/8/97	Western Express	Bulker	38,888	86	\$12.5
8/1/97	New Crystal	Bulker	39,333	84	\$11.2
8/8/97	Sun Master	Bulker	42,001	92	\$18.5
8/29/97	Ocean Trader	Bulker	42,053	84	\$9.4
8/1/97	Soarer Bellona	Bulker	43,609	85	\$12.4
8/1/97	African Express	Bulker	45,877	85	\$12.5
8/22/97	Li Xin	Bulker	54,540	80	\$3
8/8/97	Lei Zhou Hai	Bulker	64,170	82	\$10
8/29/97	Madonna Lily	Bulker	64,747	82	\$10.6
8/8/97	Nand Anant	Bulker	64,978	74	\$2.6
8/1/97	Glory Cape	Bulker	68,634	87	\$16.5
8/1/97	Turtle Queen	Bulker	146,019	87	\$20.4
8/15/97	Seakoh	Bulker	172,428	85	\$20.8
8/15/97	Eloisa	Tanker	6,863	78	\$2.2
8/15/97	Ptolemais	Tanker	11,724	83	\$9.8
8/15/97	Rathkyle	Tanker	14,037	81	\$6.8
8/8/97	Mar Patricia	Tanker	23,296	82	\$7.3
8/29/97	Nordfast	Tanker	29,900	87	\$18.5
8/22/97	Lady Ina	Tanker	31,502	75	\$6
8/1/97	Lady Helene	Tanker	33,952	74	\$3.5
8/22/97	Ten-ai-Maru	Tanker	63,133	81	\$9.1
8/29/97	Sanko Phoenix	Tanker	96,088	89	\$30.5
8/15/97	Unisina	Tanker	110,461	94	\$42
8/22/97	Landsort	Tanker	141,844	91	\$41.7
8/22/97	Pacific Tower	Tanker	245,653	88	\$42.6

For More

Marine Finance News,

Turn To Page 104

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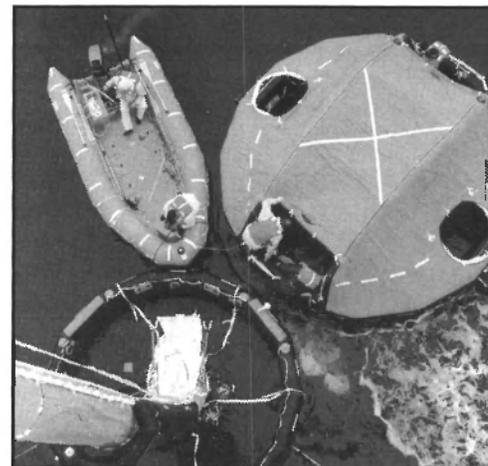
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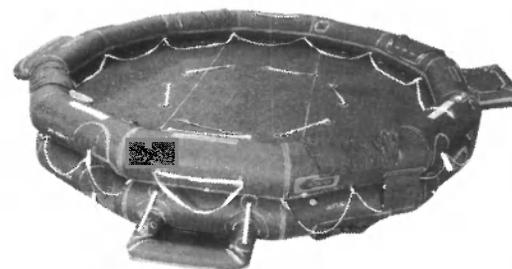
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Is Philadelphia Yard ...

BACK IN BUSINESS?

Pennsylvania Legislature Approves \$180 M Shipyard Plan

Pennsylvania's House and Senate approved more than \$180 million of funds to help revitalize the Philadelphia Naval Shipyard.

The money is the proverbial carrot to convince Kvaerner A/S to make Philadelphia its U.S. headquarters. The measure now moves to Pennsylvania Gov. Tom Ridge, who has recently lobbied for its passage. The shipyard provisions were included in an overall \$3 billion, multi-year capital spending plan.

State aid for the naval yard reportedly would be combined with several other sources as part of the

plan to reopen the Philadelphia shipyard.

The *Philadelphia Inquirer* reported that the plan envisions about \$300 million from Kvaerner, \$180 million from the state, \$50 million from the federal government, \$60 million from the Delaware River Port Authority and \$50 million from Philadelphia. However, Kvaerner authorities denied that it had plans to invest in the yard. While company representatives admitted that they have recently visited the old shipyard, they maintain there are currently no concrete plans to invest.

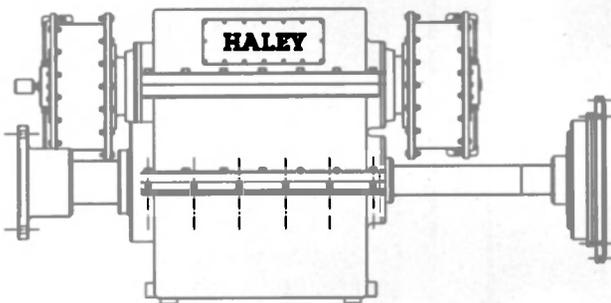
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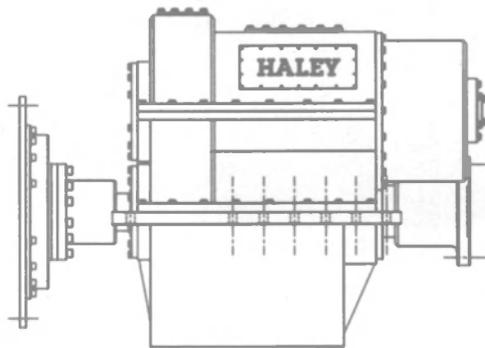
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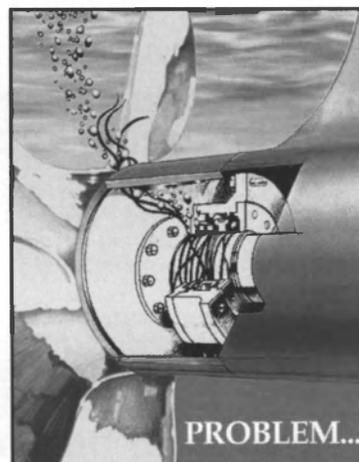
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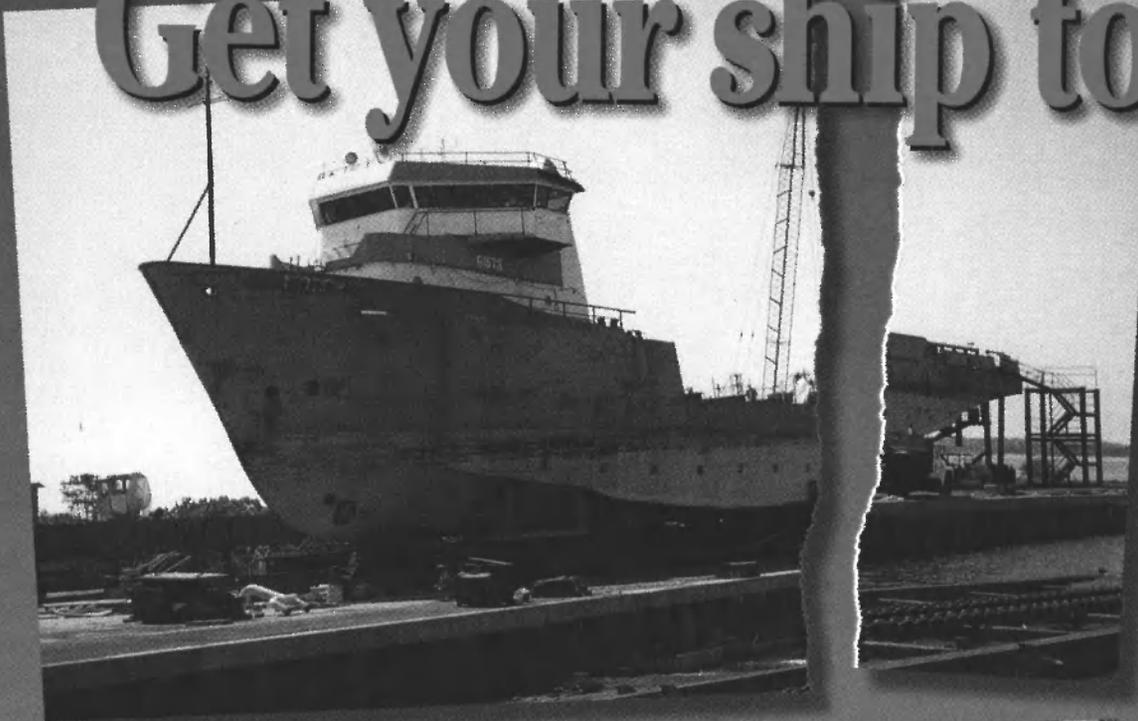
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WORKBOAT ANNUAL



The raging offshore market has now officially passed the “heating up” phase, and is currently running at full-throttle “engulfed.” The resultant business boom for owner/operators, vessel and rig builders and repairers, and product and service suppliers has left many companies with record levels of income and earnings potential. A good sign of the market’s recent (and probable continued) success was Global Marine’s No. 1 ranking on Fortune magazine’s list of the U.S.’ fastest growing companies. (Fortune, September 29, 1997). The respected publication’s analysis noted that “surging day rates for its premier fleet of 28 oil rigs are causing cash flow and earnings to gush.”

Based on a myriad of factors, including: healthy oil demand projections; improved technology to more efficiently find and recover resources; tremendous interest in the purchase of new blocks to explore; and soaring day rates, it appears the proverbial party will continue for at least a few more years. This section is dedicated to delivering the latest news and happenings regarding companies, vessels and products for all walks of the workboat market.

International WorkBoat Show Hits The Big Easy

The Ernest N. Morial Convention Center in New Orleans will be the site for the International WorkBoat Show, which will be held November 5-7.

Thousands of commercial marine professionals will gather to take part in 31 conferences, which include two certification seminars, and to view 1,300 booths where over 650 manufacturers and distributors will showcase the latest technology in the workboat field.

The keynote address, scheduled for Wednesday, Nov. 5, 12:30-1:30 p.m., will be delivered by **Dr. Gary Arnold**, who will share his perspective on where the workboat industry could be heading as we enter the 21st century. Topics will include U.S. tax laws, work boat safety and marine liability, deeper waters and increased tonnage, and licensing requirements. **Dr. Arnold** has worked with companies such as Chevron, Exxon and Shell, as well as smaller companies in the national and international arenas. The 31 conferences, covering a range of topics for inland, offshore and coastal professionals, are broken down into four categories: technology sessions; management sessions; industry-related sessions; and certification seminars. Within these categories, sev-

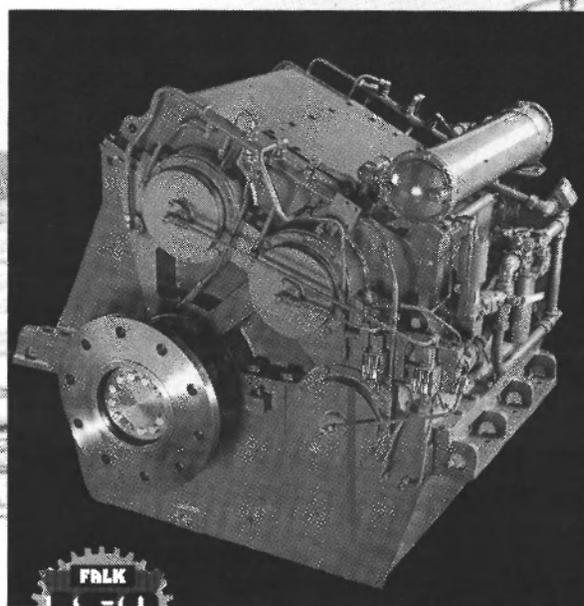
eral different topics will be covered such as New Vessels and Production Methods, Maritime Debt Collection, The Tugboat Revolution and Best Achievable Technology and Marine Radio Operator

Permit Training, among many others. Over 650 companies will display at 1300 booths new products and services for all major segments of the commercial marine industry, including: vessels,

engines, electronics, safety gear, clothing, equipment and supplies. Show hours are from 10:00 a.m.-6:00 p.m. Wednesday and Thursday, and 10:00 a.m.-5:00 p.m. on Friday.

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Why Should The Words "Substantial Alteration" Or "Major Modification" Scare Vessel Owners

by Charley Havnen, contributing writer

Each U.S. Coast Guard (USCG) ruling that a vessel has undergone a substantial alteration or major conversion is a separate determi-

nation that can trigger a cascade of requirements leading to the vessel being re-admeasured and inspected by the USCG as if it were newly

built. For any existing vessel, either of these rulings can be catastrophic.

A ruling that a vessel has under-

gone a substantial alteration for vessels involved in *international voyages* could mean the applicability of Safety of Life At Sea (SOLAS) Convention where not previously required, or the use of a new date of construction by which various requirements under SOLAS are determined to apply.

For more than a year, the USCG has been indicating that any change in a vessel's gross tonnage of more than one percent will constitute a substantial alteration. The USCG has recently modified this policy, increasing it to a five percent change in the ITC gross or net tons.

The change was published as Change 2 to the USCG's Navigation and Vessel Inspection Circular (NVIC) 11-93.

It should be noted that the new five percent figure applies only to vessels constructed after July 18, 1982. Those vessels whose construction was started prior to the 1982 date will continue to have the one percent criteria applied to determine if a substantial alteration has occurred.

A vessel ruled by the USCG to have undergone a major conversion would require a new set of drawings reflecting the vessel's current *as built* condition and resubmitting them to the USCG for approval under the new tonnage as if it were a new vessel.

The keel laying date is used to determine the application of domestic regulations, as well as international rules. If the vessel in question is an Offshore Supply Vessel (OSV), it would mean applicability of the regulations now applicable to new OSVs, 46 CFR Subchapter L. For an older passenger vessel under 100 gross tons, it could mean being required to rebuild the vessel to today's latest regulations.

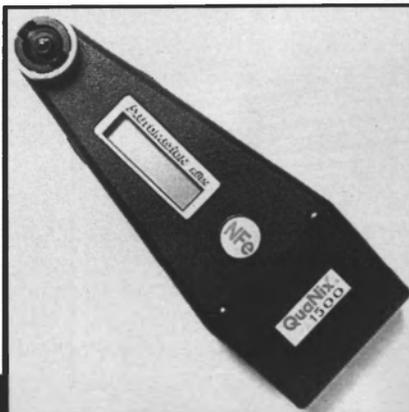
The origin of major conversion is a 1988 amendment to Title 46 of the U.S. Code. 46 USC 2101(14a) defines a major conversion as being a vessel modification that does one of the following:

- Changes the dimensions or carrying capacity;
- Changes the type;

(Continued on page 31)

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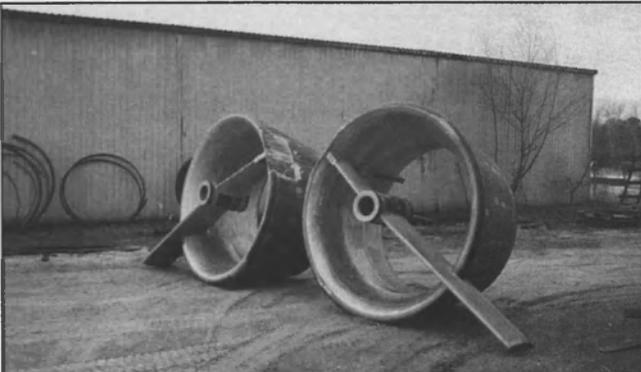
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Business Booms At Bollinger

Bollinger Shipyards, Inc. (BSI) subsidiary Bollinger Quick Repair (BQR) will perform a \$2 million conversion project on 211 ft. (64 m) offshore supply vessel *Queen Supplier*, leased to BJ Services by owner AS Supply Service. The main objective of the conversion is to build a stimulation plant on the vessel. The installation of oil field equipment, related materials installation and all labor involved in the project is being handled at BQR. In addition, BQR also installed a new central piping system below deck for pumping fluids and an independent electrical power system.

BSI is now undergoing a \$3.5 million expansion project to its Lockport new construction facility. The panel line project has reportedly increased production capacity by 25 percent, allowing multiple preparation and fabrication of steel for the new vessels.

A Little Help From Uncle Sam

The U.S. Coast Guard (USCG) has awarded an option for six additional coastal patrol boats to Bollinger. The contract has a total value of \$24.1 million and is for the USCG cutters with the associated spare parts and logistic support.

Referred to as the Low Rate of Initial Production, the award starts the second phase of a contract which could result in more than 50 vessels being purchased from Bollinger. The first vessel, which was awarded in May 1996,

will be delivered in February 1998, and the first vessel awarded on the option will be delivered in May 1998, to be followed by the remaining five over a six week period.

The coastal patrol boat is an 87-ft. (27-m) vessel carrying a crew of 10 and berthing for 11. The craft will have a top speed of 25 knots and will perform patrols up to 200 miles offshore. As the class will be named after different marine species, the first two will be named *Barracuda* and *Hammerhead*, respectively. If all 50 vessels of the class are awarded to Bollinger, the contract will have an ultimate value of \$200 million and will run into the next century.

In addition, BSI recently launched the first of a possible six barge derricks (BDs) to be built for the U.S. Army. Construction will take place at Bollinger's new construction facility in Lockport, La., and if all options are awarded the contract could last up to seven years. The first vessel is scheduled for delivery in May 1998.

"We have had the privilege of working with the U.S. government for the past 10 years, but this is BSI's first contract with the U.S. Army," said **Chris Bollinger**, vice president and Program manager. He added that construction on the second BD is scheduled for later this year.

Bollinger's new design for the 200 x 78 x 16-ft. (61 x 24 x 49-m) BDs includes increased pedestal bearing size and crane capacity to meet Army needs, according to Mr. **Bollinger**. The new vessels will each feature a 115 long ton crane manufactured by Amclyde Engineering Products.

"Increasing the crane size accomplishes the Army's goal of lifting main battle tanks from a ship that

is not self-sustaining, or does not have its own crane," said **James Welling**, combat developer with the U.S. Army Combines Arms Support Command (CASCOM). "The U.S. Army's mission is to provide sustainment for a variety of objectives, which this improved barge derrick will assist us in doing."

For more information on Bollinger Circle 42 on Reader Service Card

Halter Delivers First Of Four To Seacor

Halter Marine Group has delivered 225 ft. (69 m), 12,280 hp anchor handling/towing supply (AHTS) vessel *Seacor Vision* to Seacor Smit, Inc. The vessel is the first in a series of four contracted by Seacor to Halter and designed to meet requirements for deepwater service in the Gulf of Mexico and the worldwide market.

"This is a truly contemporary international workboat with a modern anchor handling system, a thoughtful layout to meet the needs of improved safe working conditions and accommodations to provide crew comfort, advanced position/station keeping systems that include stern and bowthrusters, dynamic positioning and enlarged cargo capacities. It represents a leap forward from the 1980s Gulf of Mexico-style vessels to an international design," said **John Dane III**, Halter chairman, president and CEO.

The all-steel vessel measures 225 x 52 x 22 ft. (69 x 16 x 6.7 m) and features a loaded draft of 18.7 ft. (5.7 m) and a light draft of 11.7 ft. (3.3 m). *Seacor Vision* meets SOLAS requirements, as well as the new U.S. Coast Guard subchapter L requirements.

At 12,280 hp, *Seacor Vision* is reportedly Halter's most powerful AHTS built to-date. The new vessel features four General Motors EMD 16-645-E7B diesel engines driving through Reintjes compound reverse/reduction gears. Berg 140 in., four-blade controllable pitch propellers in Kort nozzles propel the vessel, and maneuverability is aided by two 600 bhp, DC motor driving bowthrusters and one 600 bhp, DC stern-thruster. Anchor handling and towing is provided by a Smatco 116 EAW 660 double drum waterfall 850 hp DC electric winch with a 660,000 lb. line pull. Each drum can hold 7,900 ft. (2,408 m) of three-in. wire rope.

Other towing and anchor handling equipment includes two retractable Triplex shark jaws chain stoppers with a capacity of 350 tons each, two retractable Triplex towing pins, an 8 x 12 ft. (2.4 x 3.6 m) stern roller, two 45,000 lb. capacity tugger winches and two wire storage reels, each with a capacity of 8,000 ft. (2,438 m) of 3.25-in. wire rope. Additional deck equipment includes two 10,000 lb. capstans, an anchor windlass and a five-ton capacity crane. The 127 x 41-ft. (39 x 12.5-m) aft deck can accommodate up to 1,200 long tons of cargo. Below deck, *Seacor Vision* is capable of carrying 8,000 cu. ft. of dry drilling mud in tanks built into machinery spaces.

Seacor Vision is equipped with a



Pictured is the launching of a Bollinger barge derrick.



Seacor Vision.

WORKBOAT ANNUAL

Simrad/Robertson dynamic positioning system, and included in the pilothouse are Berg electronic controls, Sailor VHF and SSB radios, Sperry radars, a Tokimec gyro and a Control General electro-hydraulic steering system. The vessel is U.S.-flagged and ABS-classed, Maltese Cross A1, Maltese

Cross AMS towing supply.

For more information on Halter
Circle 43 on Reader Service Card

Oil Operations Underway At Global

Work has commenced at Global

Industries, Ltd. on two contracts associated with Marathon Oil company's *Oyster* and *Arnold* sub-sea field developments located in Ewing Banks Blocks 917 and 963 in 1,250 ft. (381 m) and 1,800 ft. (549 m) of water,



Global's reel pipelay barge *Chickasaw* laid both the *Arnold* and *Oyster* flow lines.

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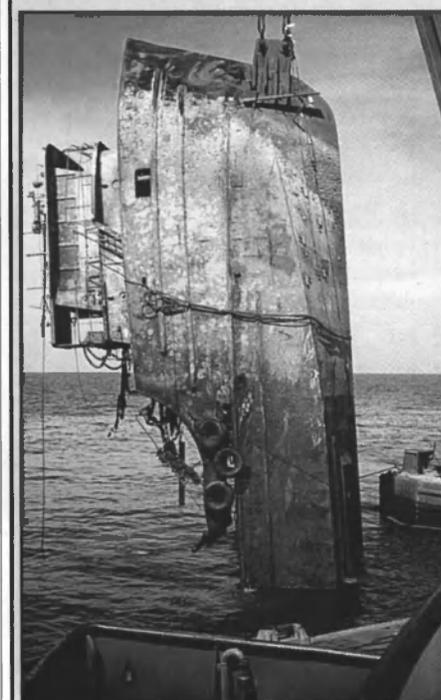
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Bisso Marine Company's Salvage Division has successfully completed salvage operations on *M/V Cliff Wayne*.

The 130-ft. (40-m) offshore supply vessel sank in January 1997 in 40 ft. (12.2 m) of water in West Cameron 103. The stern was embedded 60 ft. (18.3 m) below the mud line in Beaumont Clay with 10 ft. (3 m) of the bow above the

WORKBOAT ANNUAL

water line at an angle of 30 percent off vertical.

Bisso fabricators constructed a custom 600-ton padeye using two-in. steel plate which was welded to the bow stem. After excavating 60,000 cu. ft. of clay from around the outside of the stern, derrick barge *Lili Bisso* was brought on-scene to provide 600 tons of pull to help break the suction on the vessel.

Mud and sand washing, air lifting and jetting continued to remove an additional 400 tons of sediment from the stern compartment. Once raised, the vessel was towed 25 miles in an inverted position into Cameron, rolled over and floated upright.

Simplex Expands Product Line

Simplex-Turmar, Inc. has added composite shaft bearings, turbocharger parts and service, piston rings, accommodation systems, hatch cover seal repair, fuel oil separators and line and net cutters to its marine equipment line.

For more information on Simplex-Turmar, Inc.

Circle 24 on Reader Service Card

Gunderson Builds Bernert Barge

Work has commenced at Gunderson Inc. to build an aggregate barge for Bernert Barge Lines to be delivered in January 1998. The self-unloading deck cargo barge, measuring 300 x 84 x 16.6 ft. (91.4 x 26 x 5 m), is capable of carrying 8,000 tons of gravel, or other conveyable commodities. Bernert will operate the barge on the Columbia, Willamette and Snake Rivers for concrete and asphalt businesses in the Portland area. Valley Equipment Co. will supply the self-unloading conveyor system – with an unloading capacity of 1,000 tons per hour, to be installed by Gunderson before the launch.

In addition, Gunderson will also build a 220 x 50 x 14-ft. (67 x 15.2 x 4.3 m) hull for a cutter-head suction dredge to be used by Manson Construction Co. in the Puget Sound.

The dredge is to be completed by March 1998.

For more information on Gunderson Inc.
Circle 27 on Reader Service Card

Traktor Propels Fairfield Expedition

Expedition is one of four vessels constructed for Fairfield Industries by GEO Shipyard and powered by a Traktor 1-600 HH

jet. The Traktor 1-600 HH features a seven-blade, 24-in. impeller capable of powering boats up to 35 knots.



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Orders Up At Ulstein

Solstad Shipping AS has ordered a large multi-purpose offshore vessel with a contract value of more than \$46 million from Ulstein Group shipbuilding division Ulstein

Verft. The new UT742 design will be capable of carrying out a wide range of underwater tasks and will also have the power and winch equipment to be a formidable deep-water anchor-handler.

"This contract underlines Ulstein's role as a pioneer company in the development and supply of advanced specialist vessels," said **Brynjulv Mugaas**, group director. The UT742 has been developed with close cooperation between Solstad, charterers and the design division of Ulstein International. Delivery is scheduled for the first quarter of 1999, and Solstad has already been awarded a five-year commission for the vessel.

The new vessel will feature a 312-ft. (95-m) long hull, a 79-ft. (24-m) beam, 1,000 sq. m. of working deck space and full dynamic positioning and will be used for subsea installations, light drilling, work on satellite wells, laying pipes

between wellheads and platform, ploughing-in pipeline and ROV services. The ship will be fitted with a 150-ton A-frame featuring two moonpools, one for ROV operations and one for general work.

Propulsion power totals approximately 27,500 hp and is provided by four medium-speed main engines geared to twin CP propellers assisted by a 2,000-hp swing-up azimuth bowthruster resulting in a bollard pull of approximately 2,700 tons. Electrical power is produced by twin 3,500 kW shaft generators and four diesel generator sets totaling 4,800 kW.

With a passenger capacity of 70, the new vessel is the 16th to be ordered by Solstad from Ulstein, and marks the eighth contract Solstad has entered into with Ulstein.

Ulstein Propeller Division

Ulstein Propeller Division has received a large order for thruster equipment for a series of 190 ft. (58 m) long offshore supply vessels to be built for Edison Chouest Offshore at Ingalls Shipbuilding's Pascagoula yard. The project is part of a contract under which Ingalls will build a series of seven vessels for Edison Chouest, with an option for seven more, all to be used for operation in the Gulf of Mexico. The contract value for the Ulstein-supplied equipment is approximately \$6.6 million, which would double if the option is exercised. Propeller equipment on each vessel comprises two Ulstein 900H Z-drives for propulsion and also features the first application of Ulstein's innovative Combi

(Continued on page 32)

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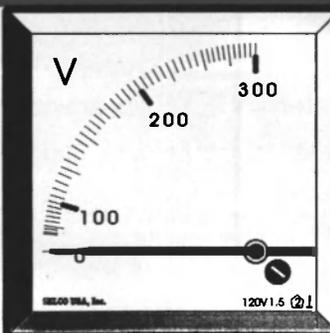
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UT742 specifications

Builder Ulstein Verft AS
Owner/operator . . . Solstad Shipping AS
Designer Ulstein
Flag undetermined
Classification DNV + IA1
Contract date June 1997
Length, o.a. 312 ft. (95 m)
Breadth, molded 79 ft. (24 m)
Gross tonnage 5,850
DWT 5,000
Draft 24 ft. (7.3 m)
Main engine (2) Wärtsilä 6L38
..... and (2) Wärtsilä 8L38
Auxiliary engines CAT 3512B

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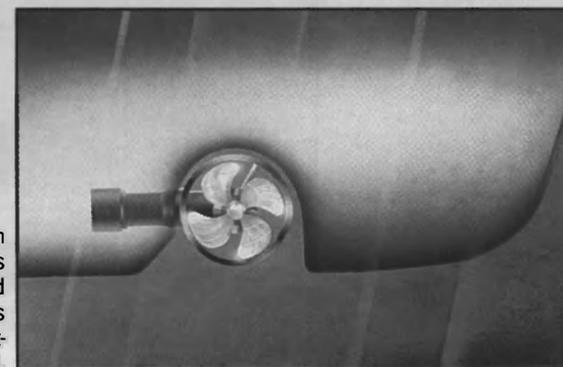
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Above: An artist's rendition of the Ulstein UT742 offshore vessel to be constructed for Solstad Shipping AS.



Right: The Ulstein Combi Thruster is swung down to operate in compass mode.



Right: The Ulstein Combi Thruster is shown in the raised position, acting as a tunnel unit thruster to starboard.

(Continued from page 26)

- Prolongs the life; or
- Otherwise so changes the vessel so that it is essentially new.

Rulings of substantial alteration or major conversion could cause an existing OSV to be viewed by the USCG as requiring compliance with 46 CFR Subchapter L, the new supply boat rules. These rules were once unimportant to the government and took 15 years to produce. Now it appears that they are so important they must be force fed to the offshore industry.

Major conversions are a particularly big deal for liftboats, which are considered by the USCG to be OSVs.

Recently, the USCG has been indicating that modifications which have been routinely accomplished for the past five or more years would now be major conversions and require the application of Subchapter L rather than the standards under which they were originally inspected.

The USCG seems to be ignoring the precedents set since passage of the statutory amendment in 1988 until the end of 1996.

Many vessels, but particularly liftboats, were modified but not considered by the USCG to have undergone substantial alterations and/or major conversions until 1997. If they had, then current standards would have been applied *in toto*, and they were not. Most of these precedents were passive, *i.e.* the question was not formally routed through USCG Headquarters for a determination. The USCG was nonetheless deeply involved with each conversion of an inspected vessel. All conversions were done with approval of individual OCMI's and the USCG's Marine Safety Center.

Operators of other vessels should be aware that the USCG will apply these rulings to them as well. As time passes, this will become more significant. It means that with each new round of regulatory changes will come a probable round of interpretations forcing owners to modify vessels to the new standards.

Major conversions and substantial alterations are hopelessly intertwined. The former being a matter of domestic law and the latter a matter of international agreement.

It looks as though both will continue to evolve but in the process may cause the marine industry significant and long term harm.

Charley Havnen, is a Commander USCG Ret. He can be reached by contacting the Havnen

Group of New Orleans, (800) 493-3883 or (504) 394-8933. His organization can assist you with shipyard or other representation, project management, training, technical procedure or policy manuals, as well as accident analysis and expert witness.

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(Continued from page 30)

Thruster design which operates in compass as well as tunnel thruster modes. The Z-drives will each be driven by a Caterpillar 3512 high-speed diesels rated for 1,210 hp at 1,600 rpm. The stern-mounted Z-drives are installed with hull mounting modules designed and

built by Ulstein. The units feature open fixed pitch propellers of 1,829 mm diameter optimized for operation at an estimated vessel service speed of 12 knots. Also fitted are multi-plate hydraulic clutches and Ulstein's new Z-drive steering pump PTO drive.

Ulstein Maritime has delivered

two model 1650H Z-drive thrusters to tug *Namahoe*, operating in the Hawaiian Islands. Owned by Smith Maritime, the tug is used for inter-island towing and ship assist.

Namahoe's propulsion system consists of two Ulstein 1650H Z-drive thrusters with 86 in. fixed

pitch propellers moderating skew for smooth operation and high thrust in bollard condition. The propellers were designed by Nautican Research and manufactured by Finnscrew.

The 1650H model is the first of Ulstein's new modularization arrangement. According to the company, the goal of this arrangement is to drive systems, reduce installation complexity and cost and simplify maintenance. A key feature of this concept is that the main steering pump is gear-driven by the Z-Drive upper gearbox, permitting the steering control system to be mounted on the drive with no components located elsewhere on the vessel.

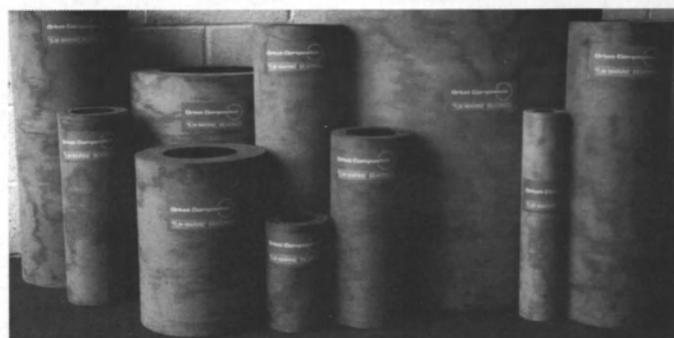
Namahoe's 1650H features an upper gearbox reduction ratio of 2.7 and a lower gearbox ratio of 2.1, reducing the 1,600 rpm input to a speed of 291 rpm. The 1650 has a maximum rating of 2,400 hp and can accept any input speed from 700 to 2,100 rpm. The vessel also features Ulstein's Z-Con electronic remote propulsion control system, an electronic analogue control which reportedly exceeds ABS, Lloyd's Register and all other class society requirements.

For more information on Ulstein
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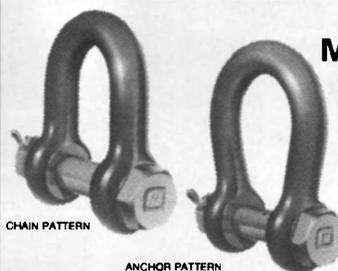
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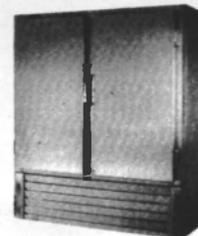
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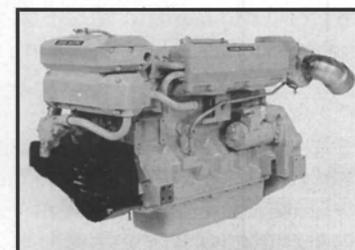
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Deere Power Systems Group offers five marine diesel engines in 3.9, 4.5, 6.8 and 7.6 L configurations, with horsepower ratings from 71 to 300 for propulsion applications. Multiple horsepower ratings are available for each engine. ABS certification is available as an option for engines at a rating of 250 hp.

For more information on Deere
Circle 26 on Reader Service Card

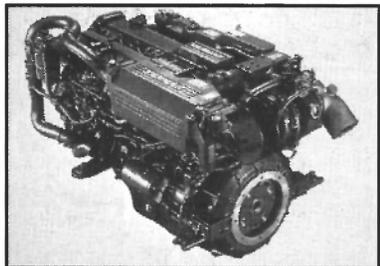
Newpark Acquires Platzer, Forms Greens Bayou

The majority shareholders and management of Newpark Shipbuilding and Repair, Inc. have acquired certain assets of Platzer Shipyard, Inc. The new company

WORKBOAT ANNUAL

will operate under the name Greens Bayou Fabricators and will repair inland, ocean-going and specialty barges. The company plans to add 100 to 200 new employees within its first 18 months of operation.

Yanmar Offers Lightweight Diesel



Yanmar has introduced a new lightweight, six-cylinder diesel engine into its line of marine products. The 4.2 L, 899 lb. vertical four-stroke, fuel-injected engine uses a four-valve intake-exhaust system and is freshwater cooled. The new 6LP-STE develops 300 hp at 3,800 rpm and measure 47.4 x 26.2 x 29-in.

For more information on Yanmar
Circle 30 on Reader Service Card

Cummins Supplies Auxiliary Power For Two Supply Vessels

As their market share in crew boat power grows, Cummins Marine engines are also making inroads in the auxiliary power needs of new offshore supply vessels building in Gulf Coast yards. In Morgan City, La., **Kenny Nelkin**, president of Candy Fleet, makes exclusive use of Cummins KTA-19 and KTA-38 engines for the main engines on his extensive fleet of crew boats. When he designed a 220-ft. (67-m) supply boat, he specified Cummins auxiliary power for the new boat. The auxiliary package includes four engines. A six-cylinder KTA19-M rated 530 hp at 1,800 rpm will drive the bowthruster. This engine will also provide power to drive a fire pump. Ship's service will be provided by a pair of NT855-G4 turning 125 kW gensets. One of these two engines will also be equipped with a power take-off to drive a liquid mud pump.

A NT-855-M rated 240 hp at 1,800 rpm will drive both a liquid mud pump and a dry bulk mud compressor.

The hull of the vessel, with deck

and house, was delivered last April from Leevac Shipyard in Jennings to Swift Ship in Morgan City for finishing out. Delivery of the boat is planned for the fall of 1997. A sistership will follow at a later date.

At Steiner Shipyards, a similar auxiliary package is going into another offshore supply vessel

Calvin B, building for Aries Marine Corp.

Although the two boats are the same overall length, auxiliary power varies somewhat. The Alabama boat, with in-house design handled by **Andy Overstreet**, will have a pair of NT855 engines on the 99 kW gensets.

Two more of the 14-liter NT855 engines will drive the mud pump and compressor engines.

A fifth of these versatile engines, this one designated NTA855M to identify it as turbo charged and after-cooled allowing it to generate 400 hp medium continuous, will power a 45-in. sternthruster through a Twin Disc 2.4:1 gear.

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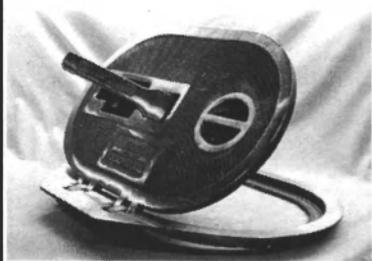
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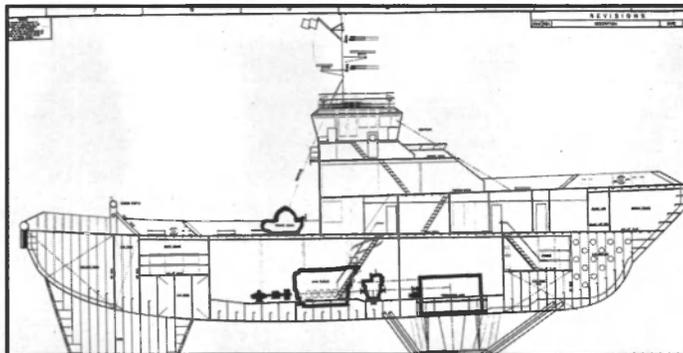
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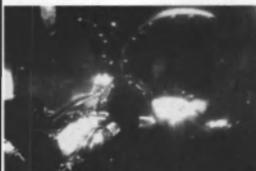
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Crowley Wins 10-Year Contract From Alaskan Interest

Crowley Marine Services, Inc. (CMS) has won a 10-year contract from Alyeska Pipeline Service Co. to design, build and operate two 10,192-hp tractor tugs, specially designed for tanker escort operations in Valdez Harbor and Prince William Sound, Alaska.

The 153 x 48-ft. (47 x 15-m) tugs will feature Voith Schneider twin cycloidal Model 36 GII/269 propulsors driven by Caterpillar 3612 turbocharged four-stroke diesel engines.

Both vessels will be outfitted for tanker escort services, ship handling, firefighting, emergency response and spill response capability in Alaskan waters.

Design features include welded steel construction, transverse framing, wing tanks and ice belt-ing.

"We had a well-founded strategy that has involved four or five years of research and development. The design for the Prince William Sound tugs was built from the keel up, so there is a total integration of design features which permits seamless transitions during the performance of the varied missions of the boat," said Gary Faber, CMS vice president, Operations.

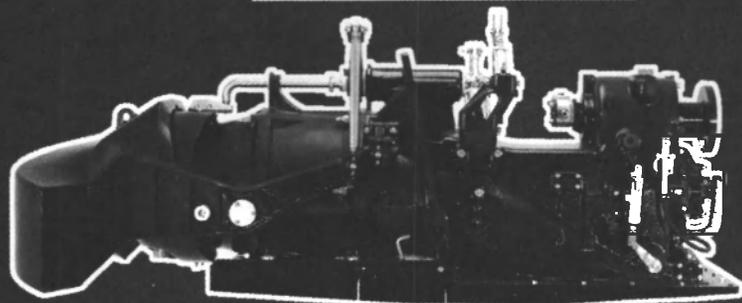
Upon their delivery, the new tugs will be dedicated to serve as part of Alyeska's Ship Escort/Response Vessel System (SERVS), escorting laden tankers as they depart from the terminus of the Trans-Alaska Pipeline at Valdez and proceed southbound through Prince William Sound.

For specifications on the Crowley tug design, turn to page 40.

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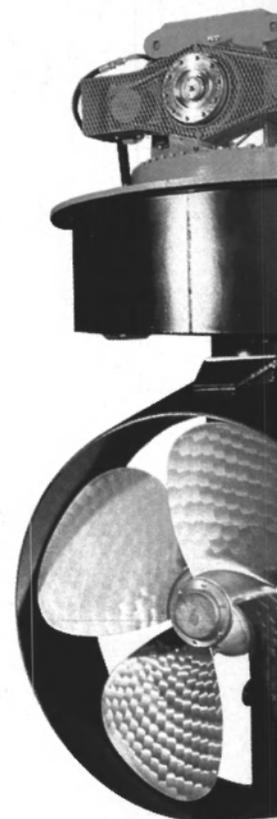
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WORKBOAT ANNUAL

Trico Revives Sunken Workboat

After sitting at the bottom of the Mississippi River for 14 months as a result of a collision with an ocean-going freighter, workboat M/V *Galveston* was recently raised

by Trico Marine Operators, Inc.

Trico executives opted to refurbish the newly-raised vessel — now re-christened M/V *Stones River* — with the help of Eastern Shipbuilding Group. The eight-month refurbishment effort included major upgrades along with a midbody modification to extend

the vessel from 170 to 220 ft. (52 to 67 m). Trico turned to Woodward Governor Company — a worldwide designer and manufacturer of industrial controls for engine efficiency solutions — and Gerhardt's, Inc. Woodward's largest U.S. distributor of engine controls and

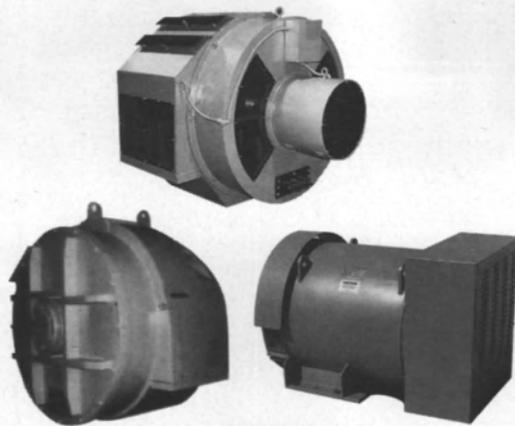


M/V *Stones River*.

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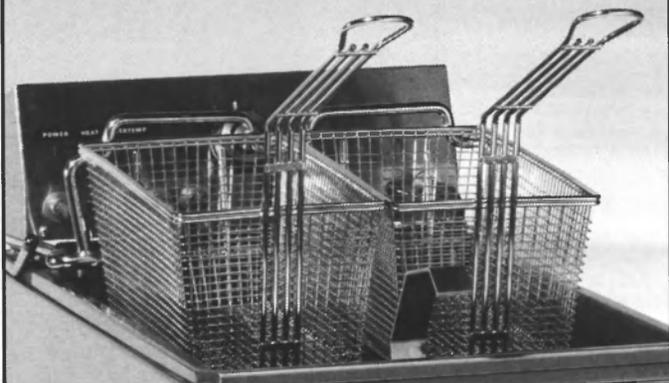
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accessories, providing product service and technical support.

For speed control on *Stones River's* two rebuilt EMD engines and its Detroit Diesel bowthruster, Gerhardt's supplied three Woodward 701A Digital Speed Controls 16-bit microprocessor-based digital controls for enhanced dynamics. Gerhardt's also provided two Woodward PG-12 R actuators to work with Trico's EMDs and Woodward's 701A Digital Controls and a Woodward EG-3P actuator for the Detroit Diesel bowthruster. New Woodward 701A Digital Speed Controls replaced the *Stones River's* old PGA hydraulic governors. The new controls are faster and provide better transient and steady-state performance. According to Gerhardt's Application engineer **Kenny Dennis**, the 701A controls offered the benefit of fewer moving parts, a significant preventive-maintenance advantage.

"It was cheaper for the shipyard to install all-electronic speed setting units like the 701As (digital speed controls) than it would have been to install the older PGA governors since the older technology requires pneumatic lines/tubing from the wheelhouse," commented Mr. Dennis. "Trico executives were impressed at how quickly the 701A controls responded to speed transients."

Trico's decision to retrofit *Stones River* is typical of the recent resurgence of activity in the Gulf of Mexico.

"To respond to the market, companies are working hard to ready vessels as quickly as possible," said **Les Casterline**, Gerhardt's director of Sales and Marketing. "Using controls like Woodward's 701A Digital Speed Controls can help companies reduce or minimize maintenance expenses while increasing equipment reliability."

Stones River is reportedly the first offshore supply vessel equipped with digital controls on the main engines and more are in the works. Gerhardt's has two more Trico 701A Digital Speed Control projects in the works.

Hvide Investment Signals Consolidation Continuation

It's cliché but true: Only the strong can survive the unprecedented level of merger and acquisition activity sweeping the maritime industry around the world.

In a move that will double the size of its towing operations, Hvide Marine has acquired the 14-vessel harbor tug fleet of Bay Transportation Corp. (Tampa, Fla.). Aside from adding an estimated \$17 million in incremental revenues to Hvide's coffers, this acquisition sends an undeniable message that the consolidation of power continues at a torrid pace.

"The acquisition of Bay Transportation adds a first class fleet of tractor tugs to our towing operations and extends our geographic reach in the growing Gulf of Mexico market," said **J. Erik Hvide**, chairman, president and CEO. "More important still, it signals the start of our new consolidation initiative in the U.S. harbor tug business which, with more than 40 mainly small and private operators nationwide, has many of the same characteristics of the offshore workboat business before its recent consolidation. Bay Transportation is the main provider of harbor towing services in the Port of Tampa and charters tugboats to other operators in the ports of San Francisco and Long Beach, Calif. Its 14-vessel fleet includes six tractor tugs and will bring to 30 the number of tugs operated by Hvide Marine, including nine tractor tugs.

Hvides's other towing operations include Port of Everglades and Port Canaveral Towing in Florida, Mobile Bay Towing in Alabama, and Hvide's Offshore Towing fleet operating mainly in the Gulf of Mexico. Hvide operates a fleet of 158 vessels in two core businesses: Marine Support Services (126 vessels), and Marine Transportation Services (32 vessels).

The \$6 M Module

Excitement is still brewing over the \$6 million contract Hvide signed with Halter Marine earlier this year, for the construction of two Ship Docking Modules (SDM) scheduled for delivery early next year. The SDM is a double-ended ship-docking vessel designed in conjunction with Elliott Bay Design Group and representing the next generation of harbor tugs.

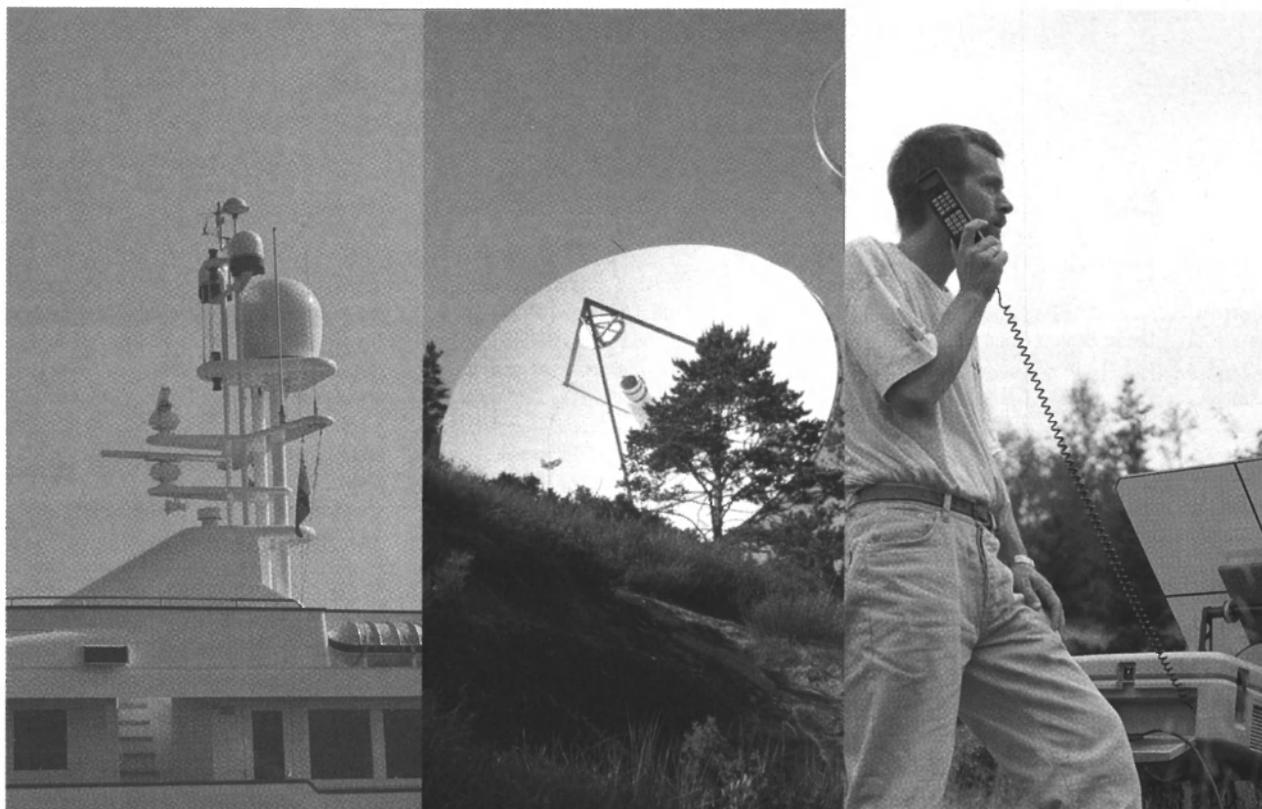
"This is the first major breakthrough in tugboat design in nearly 100 years," said **Erik Hvide**, chairman, president and CEO. "The SDM's rounded shape and

twin Z-drives give it unmatched maneuverability and power, making it the safest and most cost-efficient ship-docking vessel in the world. It's the first vessel capable

of generating 100 percent of its bollard pull in any direction – forward, backward and sideways. It's so different from a conventional

(Continued on page 78)

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WORKBOAT ANNUAL

Shaver Adds New Twist To Fleet

Shaver Transportation Company has added an Aquamaster Z-drive to its new reverse-tractor hull, which is equipped to operate both as a ship-assist tug and river towboat. Measuring 91 x 36 ft. (28 x 11 m), *Deschutes* was designed by J.M. Martinac Shipbuilding Corp.

Deschutes is a dual-purpose vessel featuring the power and maneuverability required of a harbor tug working ships assists and the range and accommodations needed for extended river tows.

Power is provided by two Detroit Diesel 16V-149TI-DDEC engines, each rated at 1,600 continuous horsepower at 1,755 rpm, driving two Aquamaster-Rauma US 2001, 360 rotatable right angle drives fitted with PV-duct nozzles.

Two Cummins 6CT8.3 diesel-electric sets rated at 115 kW at 1,000 rpm provide onboard electrical power.

Deck equipment includes a Markey 75-hp hydraulic hawser winch capable of storing 460 ft. (140 m) of 10-in. synthetic line, a single W.W. Patterson 40-ton electric barge winch and six W.W. Patterson 65-ton electrical winches.

Deschutes specifications

Shipbuilder	J.M. Martinac Shipbuilding Corp.
Owner/operator	Shaver Transportation Co.
Designer	J.M. Martinac with Shaver cooperation
Flag	U.S.
Contract date	July 11, 1996
Float out date	March 8, 1997
Delivery date	July 30, 1997
Length, o.a.	93 ft. (28.3 m)
Breadth, molded	34 ft. (10.4 m)
Gross tonnage	141
Design draft	12 ft. (3.7 m)
Service speed	13 knots
Complement	6
Water ballast	5,500 gallons
Fuel capacity	40,000 gallons
Fresh water capacity	4,300 gallons
Main engine	Detroit Diesel
Main engine type	(2) 16V 149 TI-DDEC II
Total hp	3,600 @ 1,900 rpm
Z-drive units	(2) Aquamaster US 2001
Generator Engines	(2) Cummins 6CT8.3G
Generators	(2) Lima/Marathon rated 120 kW@1,800rpm
Shafting and engine mounts	Lo-Rez
Coatings	CMP
VHF radio	Stevens/Rodgers
SSB radio	Stevens/Rodgers
Radar	(2) Furuno/Rodgers (2110 and 8111)
Compass	Ritchie/Rodgers
GPS	Leica MX 400/Rodgers
Depth sounder	International Offshore/Rodgers
Alarm system	Dynamic Systems Technology
Pumps	Cascade General
Machinery Cooling	Water keel coolers
Air conditioning	Novenco
Firefighting system	Ansul/Acme Fire
Waste management system	Microphor MSD
Lines fairing and NC lofting	Argonaut Marine
Steel	Farwest Steel
Fendering	Johnson D Rubber and Schuyler Rubber

(Continued from page 34)

Crowley tug design specifications

Builder	Dakota Creek Industries	Total hp	10,192 hp
Owner/Operator	Vessel Management Services/Crowley Marine Services	Auxiliary engines	CAT 3306 DITA hydraulic
Designer	Vessel Management Services/Guido Perla	Propellers	(2) Voith Schneider cycloidal modesl 36G11/260
Classification	+A1 Towing Service, AMS, A1 Firefighting	Generator engines (2)	CAT 3306 DITA
Delivery dates	December 1998 and April 1999	Couplings	Voith turbo
Length, o.a.	153 ft. (46.6 m)	Deck machinery	Markey CYP-80 capstan, WYWD-20 bow winch/windlass, DYSDA-62 split drum winch
Breadth, molded	138 ft. (42 m)	VHF radio	(2) SEA 156
Gross tonnage	Less than 500 gt	Radar	(2) Furuno FR 2110 with ARPA
Displacement	1,477 lt	Compass	Sperry MF 37 VT
Lightweight	935 lt	GPS	Trimble NT 200D graphic display
Design draft	21.4 ft. (6.5 m)	Autopilot	Sperry ADG 3000
Service speed	15.3 knots	Cranes	North American
Bunker	122,560 gal.	Firefighting	Skum
Water ballast	73,200 gal.	Oil spill boom reels	Vikoma
Main Engine	CAT 3612-B diesel	Recovered oil capacity	73,200 gallons

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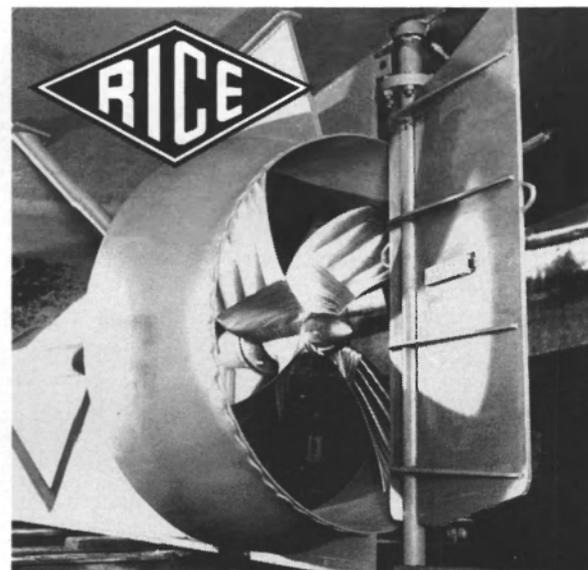
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When will the fast ferry market Pick Up Speed?



by David Tinsley, technical editor

Although the prognosis for the fast ferry sector is good, the "wait-and-see" attitude adopted by many existing shipowners has left the order flow remaining at a moderate level.

In fact, certain of the general shipbuilders who have developed high-speed vessels as one line of business, have found themselves unable to attract fresh work to maintain production continuity in that area of activity. A reluctance to implement new projects has been attributed in some quarters to weakness in the secondhand ferry market.

On the other hand, it is also argued that increasingly stringent international regulations and quality expectations must inevitably bear on the cost of maintaining older, conventional vessels, and thereby raise the comparative benefit of new ferries and the fast-going mode.

Moreover, the fast ferry field is attracting new entrants from outside the shipping industry, thereby widening the market.

The successful introduction of Stena's 127-m HSS class has raised the profile of the sector as a

whole and demonstrated the potential for high-speed passenger and freight transportation on a new unit scale. Nonetheless, opportunities arising in the more modest size categories have rewarded new, dedicated shipbuilding operations, while yielding additional work for established names in the field such as Kvaerner Fjellstrand, Rodriquez and FBM Marine.

Peter Wild of consultancy firm G P Wild (International) this year forecast that additional newbuilding volume over the 1997 to 2001 five-year period could amount to between 68 and 134 vessels in total per annum, including 46 to 90 catamarans, and 14 to 27 mono-hulls.

While unit capacities are growing, there is an expectation of higher speed capability across the size range, which is reflected in ever-greater concentrations of propulsive power.

Main machinery performance and technological developments, coupled with the experience and predisposition of the users, will bear on whether or not the upward trend in power and speed will favor

gas turbine drives over multi-diesel installations. Environmental considerations can also be expected to come into play, given the prospect of increasingly stringent local and international rules governing exhaust gas emissions.

The planned, 95-m *Cargo Cat* from Incat, to be laid down by the Tasmanian yard on a speculative basis, marks an important juncture in the development of the fast-going mode. Growing investment in large, high-speed vessels for passenger and vehicle services already poses a considerable challenge to conventional ferries, and the Australian initiative on the pure RoRo front looks set to open up a new area of opportunity by bringing the high-speed concept within the realms of the freight-only carrier.

Incat's latest aluminum wavepiercer type is arranged with 550 lane-m and has been designed to offer 35-knots in fully-laden condition, employing the maximum 1,000-dwt capacity.

The propulsive powerplant is rated at 28,000-kW, while fuel burning performance coupled with

bunker volume will give *Cargo Cat* a range of 1,500 nm.

For the future, fast freight ships will presumably have to be viewed in the context of purpose-designed, rapid-transfer cargo systems, and scope for creating a market niche lying somewhere between conventional shipping services and air freighting.

Australia: Moving To The Head Of The Class

Australia's shipbuilding industry has successfully attained a leading international standing in aluminum fast ferry construction, backed up by a fertile design sector. Most of its output, and much of its technical consultancy work, is for the export market.

From its modern Henderson premises in Western Australia, Austal recently extended its tally of high-speed passenger catamarans delivered into Chinese ownership to 28, with the delivery of a pair of 40-m vessels for operation in the Chu Kong Shipping (CKS) network based in Hong Kong. The craft represent a change in the Austal line by virtue of a raised wheelhouse, three-deck arrange-

MARKET REPORT

ment, wherein forward views are provided from the upper passenger deck.

Australian shipbuilding has also this year broken new ground in the Mediterranean market, with Austal's completion of the first car-carrying, high-speed ferries for

Turkish operator Istanbul Deniz Otobusleri. The 60-m sisterships entered the Marmara Sea service in September, offering the ability to convey 450 passengers plus 94 cars (or up to three buses with 56 cars) at 35 knots.

FBM Marine's success in attract-

ing an order from Athens-based Goutos Lines for a high-specification, 45-knot-plus TriCat constitutes a commercial breakthrough for the U.K. producer in Greece and the Mediterranean region as a whole, and also signifies the increasing receptivity of a major

ferry market to high-speed technology.

While Attica Enterprises and Minoan Lines have opted for especially high service speeds with modern, conventional passenger RoRo ferry tonnage, there have been comparatively very few Greek commitments to fast-going, lightweight vessels. The deployment of the Royal Schelde-built, twin-hull *Captain George* on trans-Adriatic duty, though, has provided an important focus for the mode among a traditionally conservative, but highly influential Greek shipowning community.

.....
Peter Wild forecasts

that newbuilding volume

over the next five years

could amount to

between 68 and 134

vessels in total per

annum, including 46-90

catamarans, and 14-27

monohulls
.....

North American Expansion

An additional order for the proven 45-m TriCat design has vindicated the decision of the Mashantucket Pequot Tribe to develop a yard in Connecticut, geared specifically to fast-ferry construction.

Opened last year on the site of the former Thames Valley Steel Co., Pequot River Shipworks has strengthened the capability of the industry in the U.S. to respond to the growing demand for high-speed transportation in littoral and harbor waters.

Its recently completed, first newbuilding has entailed the production of the all-aluminum, 302-seat *Sassacus* for a dedicated link between New York City and the Tribe's Foxwoods Resort Casino at the mouth of the Thames River in Connecticut. The stylish, 47-knot catamaran design employs round-bilge hull forms and a distinctive third bow to enhance stability and seakeeping.



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MARKET REPORT

The most recently-sealed project at the Pequot yard has added commercial significance for the shipbuilding enterprise in the light of the South American parentage of the contractual owner involved, *Buquebus*. The 305-passenger-capacity TriCat is to be deployed by the U.S. subsidiary of the Argentine company between Key West and Fort Myers.

The New London yard is licensed to build the entire range of fast ferries designed in the U.K. by Isle of Wight firm FBM Marine, originator of the TriCat. A joint marketing venture covers sales throughout North and South America, the Caribbean and Hawaii.

Imported technology from Australia has also helped increase the lightweight vessel dimension to U.S. shipbuilding production, as expressed in the adoption of blueprints from Advanced Multi-Hull Designs (AMD) for ferry newbuildings at Dakota Creek Industries in the state of Washington.

Having delivered two AMD360-type, 32-knot passenger catamarans this year for the authorities in Vallejo, Calif., Dakota Creek's Anacortes yard is maintaining continuity in aluminum ship production with a similar, 325-seat ferry for another west coast operator, Golden Gate Bridge, Highway and Transportation District.

In addition, it has a 350-passenger, 43.6-m, twin-hulled ferry of the AMD385 designation on order for Washington State Ferries (WSF).

Due for delivery in January 1998, the new vessel will be placed on the Seattle/Bremerton route. Expansion-minded WSF has an option on a second AMD385 from Anacortes, and a medium-term requirement for an additional four fast ferries to serve its Puget Sound route framework.

The creation of a new yard in the Philippines designed specifically for the production of high-speed craft forms a response to the potential offered by the fast ferry mode in developing and modernizing the transport infrastructure within the archipelago.

But it also provides a platform for FBM-Aboitiz in the wider southeast and eastern Asian markets, including China and Singapore, as well as Australasia.

Hit by delays arising from a now resolved environmental issue, the new Belamban facility is scheduled to initially construct two

TriCat 45 newbuildings for Hong Kong, subcontracted from FBM Marine in the U.K. A series of four TriCat 50 catamarans is to follow on for local operator Universal Aboitiz, which has options on a further six craft of the design. The initial stage of development of the

Philippine yard includes two 60-m sheds, each 22-m high, to be followed by investments in facilities for the construction of large, car-carrying catamarans and also patrol boats.

Renowned for its hydrofoil technology and more recently for its

successful *Aquastrada* monohull type, *Rodriquez Cantieri Navali* has made an impressive business re-entry following corporate restructuring. Its Messina yard has been entrusted by Italian State Railways with the construction of three 50-m monohull pas-



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senger ferries for the short-haul link with Sicily, while four 70-m versions of its passenger/vehicle-carrying Aquastrada design are to be laid down at Pietra Ligure for operation with state-owned region-

al operators.

While Rodriguez has a long tradition in the commercial fast craft field, Italy's standing as a producer has been strengthened by Fincantieri's activities, to the con-

siderable benefit of the industry's export earnings. The group's output so far this year has included the first two of six, 38-knot monohulls for Sea Containers, and delivery of a second, 36-knot, 95-m

monohull for Ocean Bridge Investments, for charter to Norway's Color Line.

Fincantieri's stake in the business now is such that at least 50 percent of its naval ship division's turnover is accounted by high-speed ferry design and construction.

Korean moves

As with the Japanese, the nature of Korean research and development work in the field of high-speed seaborne transportation signifies a long-term vision. All the major shipbuilders on the Korean peninsula have projects underway.

The industry sees business opportunities rising on the domestic front from increasing economic activity and mobility within the population, combined with government efforts to secure a modal shift in favor of waterborne transportation.

At the same time, companies are gearing up to respond to an anticipated demand for fast seaborne movement of higher-value goods around the Pacific rim, and to break into the wider international market. Product strategy also reflects the need to progressively increase the more specialized, higher technology component of Korean workloads against the prospect of current competitiveness in conventional shipbuilding being eroded by lower-cost yards in China and elsewhere. Samsung Heavy Industries', with a sole high-speed vessel reference to date, by way of a 32-m, SES (surface effect ship), is intent upon expansion into the fast ferry, conventional ferry and cruise ship markets. It has set up a dedicated passenger ship division and facilities at its Koje Island yard, and commissioned a new towing tank and cavitation tunnel at its Taeduk R&D center, near Taejon, equipped to test models at up to 100-knots.

At the time of writing, it was at a detailed stage of discussions with a European company over a requirement for two fast monohull ferries. The yard is promoting a clutch of designs of monohull and catamaran-type car/passenger ferries in the 75 to 83-m range, plus smaller, twin-hulled, passenger-only vessels.

At Ulsan, Hyundai Heavy Industries has followed up last year's delivery of a 34.6-m foil catamaran passenger ferry, and the earlier completion of the 45-m *Han Ma Eum Ho* with the development of an 80-m, high capacity.

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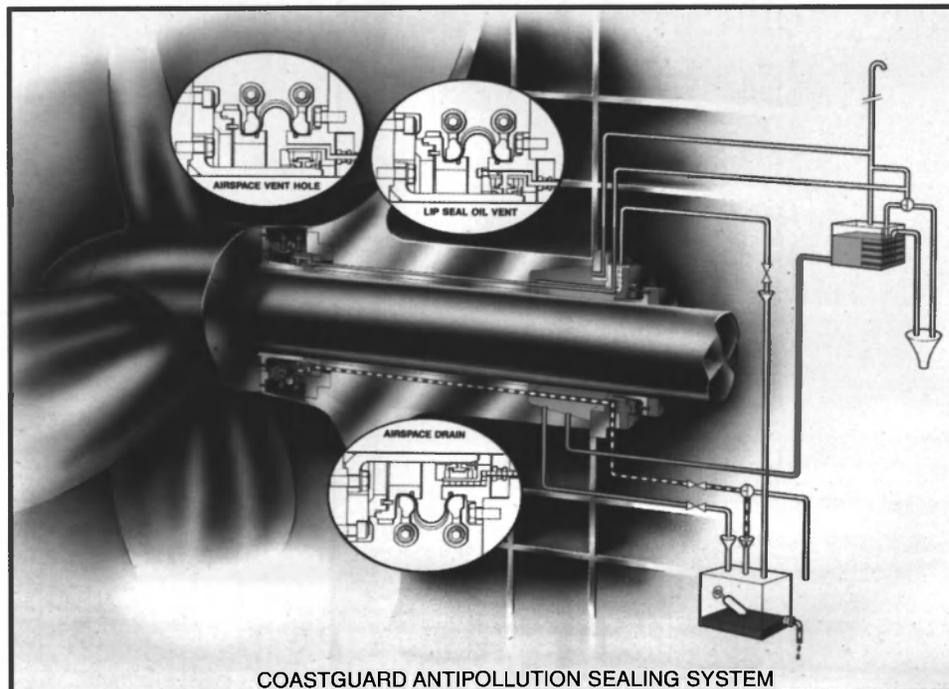
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Maritime Reporter/Engineering News

Kvaerner Fjellstrand To Build JumboCat And FlyingCat

Kvaerner Fjellstrand has received contracts to build a 197-ft. (60-m) JumboCat speed passenger and car ferry and a 151-ft. (46-m) FlyingCat passenger catamaran ferry. The JumboCat, which will be built for ferry operator Express Ferries Ltd. for approximately \$22.4 million, is the second high-

speed car ferry that will be built by the shipyard in Omastrand. Two diesel engines connected to water jets will give the vessel a service speed of approximately 36 knots. The vessel will be delivered in

April 1998, and the contract includes an option for a second. The FlyingCat will be built for Egyptian ship owner Abd. El Naser Eid Youssef and is worth approximately \$11.2 million. The vessel is

a new design which can carry 307 passengers and 12 cars and is capable of performing at speeds in excess of 40 knots. Propulsion is provided by four independent engines and waterjets.

Hovermarine Plans To Manufacture Under License

International Hovercraft Ltd. (IHL) has announced a fundamental change in marketing strategy in addition to providing its worldwide spares and technical services.

The company has acquired the assets of Hovermarine International Ltd. from the administrative receiver. Tangible assets include the detailed designs of all the company's hovercraft including the highly successful HM2 family.

"We believe that we should capitalize on our intellectual strengths and align ourselves with overseas manufacturers capable of producing Hovermarine products to suit today's market requirements," said IHL Director Peter Hill.

In excess of 110 craft — primarily workhorse HM2 class — have been built over a period of 25 years. This rugged design, which utilizes a hull manufactured in composites with diesel power for both lift and propulsion, proved to be extremely adaptable.

Special purpose derivatives of the HM2 design were produced for Tacoma USA and the Port of Rotterdam for firefighting, port surveillance, harbor patrol and hydrographic survey work. Craft have operated in more than forty countries and have proved reliable in service under extreme weather conditions.

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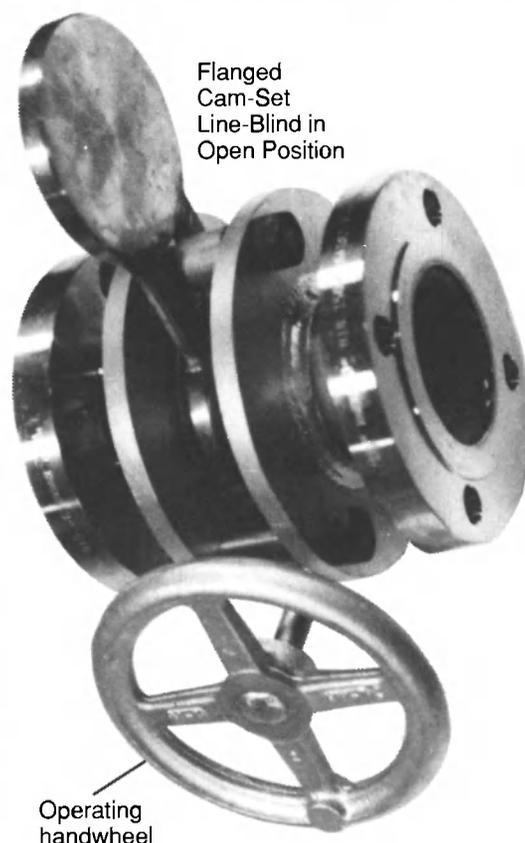
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Lloyd's Register Outlines Challenges Facing High-Speed Craft

The technical, environmental and human challenges confronting the rapidly expanding high-speed craft industry were recently highlighted by **Chris Wade**, managing director of the Marine Division of

Lloyd's Register (LR).

Speaking at FAST '97, the fast sea transportation conference, Mr. **Wade** emphasized that, in order to meet these challenges, classification societies would have to extend their involvement beyond structure and machinery.

According to Mr. **Wade** the service experience essential to calibrate theoretical calculations or to

validate model experiments is still limited for larger high-speed craft. In the formulation of its Special Service Craft (SSC) Rules, LR has elected to adopt a first principles approach taking account of the environmental envelope for the intended service, the loads to which the craft is subject, the strength assessment and the acceptance criteria. With contin-

ued investment in research, Wade feels this philosophy may one day be extended into a load factor and resistance design approach and thereby represent a complete departure from the empirical rules which have been predominant.

High speed craft can be constructed from an array of materials including composites, aluminum alloys, high tensile steels or, increasingly, a combination of these materials. Concern in this area, according to Mr. **Wade**, is related to the ability to carry out effective and economic repairs on unforeseen circumstances and in remote locations.

Mr. **Wade** also suggested that classification societies can and should play an important role in resolving these problems when they arise and, more importantly, prevent their recurrence by introducing rule changes.



GERMANY, KIEL CANAL, 1996. Salvage of 2900 ton container vessel "SABINE D" in winter ice conditions.

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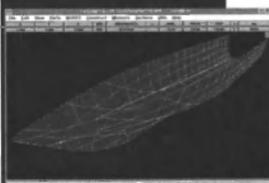
NAMIBIA, 1996. Wreck removal of the flooded Diamond Dredge "BIG RED" (Top Left)
MIAMI, FLORIDA, 1996. Salvage of the 13000 DWT LPG/C "IGLOO MOON" (Top Right)
BRAZIL, 1996. (not shown) Refloated the 15,000 ton freighter "AL JOHEFA"
GALAPAGOS ISLANDS, 1996. (Right) Refloated wreck of 2200 ton passenger vessel. (both vessels scuttled at sea)



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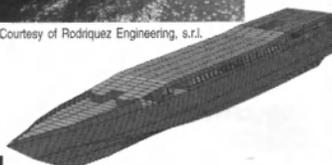
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Dakota Creek Industries Chooses Delta T Moisture Eliminators

Under a contract to provide two high-speed ferries to the City of Vallejo, Ca., commercial boat builder Dakota Creek Industries chose Delta T Systems to provide salt-and-moisture-free ventilation to the boat's engine rooms.

Each of the two ferries measures 135 ft. (41.1 m) and can carry 300 passengers. Christened *Intintoli* and *Mare Island*, the all-aluminum catamarans feature twin 2,700 hp MTU water jet engines enabling the vessels to achieve a top speed of 32 knots, cutting the trip from Vallejo to San Francisco to 53 minutes — a 10-minute improvement over previous ferry trips.

"There are certain wave height requirements that have to be met, and to meet those, these boats have to stay under a certain weight limit," said **Mike Snook**, engineering manager at Dakota Creek. "The Delta T vents are one-third the weight of any comparable system and still provide the highest level of protection from salt spray and moisture."

To supply the large diesel engines adequately, Delta T moisture eliminators constructed from polypropylene were chosen. The unique S-shaped slats in these vents are designed to trap moisture without interrupting the flow of air.

(FAST CRAFT coverage continues with an *Australian Review*, on page 114)

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SPANISH MARITIME REVIEW

Spain Makes Waves As Niche Market Contender

by David Tinsley, technical editor

With its accelerated gravitation towards specialized or otherwise more capital-intensive forms of tonnage, Spain's shipbuilding industry has become an important competitor in niche markets, rather than the high-volume European producer it was some years ago.

But the inevitability of an eventual reduction in public ownership of a sector considerably within the state domain, coupled with the pure intensity of global competition, make for uncertainties as to the future size and influence of the industry, despite the improvements secured by the state-controlled organizations and the resilience demonstrated by the private sector.

The 1990s have seen Astilleros Espanoles (AESA), one of the two premier state-owned shipyard organizations in western Europe, achieve major advances in productivity and quality and gain ground in the high-technology vessel market.

However, it is facing one of its sternest-ever tests in its bid to achieve full financial viability after years in deficit.

The far-reaching, three-year restructuring plan formulated in 1995 set a break-even objective for 1998. On the road to financial equilibrium, the enterprise is aiming to cut losses for 1997 to below Ptas 20 billion, compared to the Ptas 40 billion shortfall recorded last year.

Considering that losses in recent years have hit Ptas 60 billion, the trend is positive. But the fact that the three-year strategy had originally sought a trimming in losses to Ptas 20 billion in 1996 and Ptas 7 billion in 1997 denotes a tracking-off which compounds the task

The latest (order) intake variously reflects the Spanish group's successful development of generic niche markets, and its cultivation of strong links with Scandinavians in the shipowning world.

of reaching break-even by next year.

Management is confident, though, that it will move out of the red on target. In the meantime, it has been instructed by the European Commission to cut shipbuilding capacity from 240,000 cgt (compensated gross tons) to 210,000 cgt.

Whether the process of rationalization and capacity diminution will entail divestment of facilities or yard closures remains to be seen. Certain state-owned yards have been eyed by Norwegian companies in the past, and new inter-

est has recently been expressed from that quarter. Takeovers could also be fostered from within the industry in Spain itself.

The high technological level of current production at AESA is mirrored in the sales growth of recent years. Sales volume amounted to a record Ptas 130 billion in 1996. If the target of Ptas 150 billion is realized for the current year, annual income will have grown by 50 percent since 1994.

Highlights of new business transacted to date in 1997 have included contracts with Norwegian state energy group Statoil for 126,650-

dwt diesel-electric shuttle tankers, plus a 97,500-dwt multi-purpose shuttle tanker (MST), an additional two 22,460-dwt parcel tankers for Stolt-Nielsen, and a combi ferry for New Zealand. As of mid-September, Statoil had contracted for a fifth shuttle tanker, with a scheduled delivery set for the autumn of 1999. The contract with Statoil for an MST was especially significant in that orders for the first three ships of the highly versatile class had been entrusted to South Korean shipbuilder Samsung.

The latest intake variously reflects the Spanish group's successful development of generic niche markets, and its cultivation of strong links with Scandinavians in the shipowning world.

Indicative of the elevated unit work values associated with modern-day Spanish shipbuilding endeavors, the AESA orderbook at the time of writing included nine stainless steel chemical tankers, six shuttle tankers, and six large RoRo ferries.

Encapsulating the latest thinking in RoPax technology, two 30,500-gt newbuildings at the showcase Puerto Real yard outside Cadiz have been the subject of one of the more remarkable deals of the year. Both vessels, conceived around a freight-carrying role complemented by cabin accommodation for 440 passengers, were sold by the Stena Group to Finnliness while still under construction.

The fact that the design was developed from the outset to allow ready modification for future needs may have facilitated the change in specification called for by Finnliness.

Thus, whereas Stena had originally stipulated 2,500-lane meters



Pictured is Astilleros Espanoles Puerto Real shipyard.

of: garage space and ice class 1B compatibility, the vessels will emerge in Finnliness colors next year with a 3,000-lane meter capacity, strengthened and equipped to ice class 1A standard.

The increase in the work value at AESA is also a factor of its raised stake in the offshore industry. The recent \$128 million deal with Petrobras has helped strengthen its business position in that market.

The latest project from Brazil calls for the delivery of a floating storage unit (FSU) with a 1.5 million-barrel oil capacity, intended for connection with a Petrobras floating production unit (FPU) in 1,200-m water depth. AESA has purchased a 1970s-built VLCC for reconstruction as the requisite FSU at its Cadiz shipyard.

In June, the Cadiz repair and conversion complex redelivered a former Petrobras VLCC to the Brazilian organization as a 150,000-bpd floating production, storage and offloading (FPSO) vessel, *Petrobras 32*.

Most recently, a further reconstruction job was completed at Petrobras' behest in Cadiz, entailing the adaptation of a Russian-built semi-submersible into an FPU. As *Petrobras 26*, the unit is to be stationed in nearly 1,000-m water depth in the Campos Basin off Brazil.

Fast Ferry Breakthrough

Drawing on the technical expertise honed from years of constructing sophisticated naval vessels, Empresa Nacional Bazan has made an impressive entry into the fast ferry field.

Its range of aluminum monohull designs provided the initial springboard for a return by the defense contractor to the commercial vessel market.

Following its completion of three 43-knot Mestral-class ferries for South American and Spanish operators, Bazan's San Fernando yard delivered the first of the larger Alhambra series, the 126-m *Silvia Ana*.

Circumspect owner Buquebus has assigned the 38-knot RoRo passenger ship to a new River Plate route during the southern hemisphere summer season, chartering her out for Scandinavian duties over the rest of the year. The Alhambra-type employs a multiple diesel engine plant, consisting of six Caterpillar units yielding a total propulsive effect of

more than 46,000-bhp through five waterjets.

Project scope is enhanced by the in-house engine manufacturing division, Bazan Motores, which in turn has broadened its potential

through a technical alliance with Caterpillar in the U.S.

Recent shipbuilding production at San Fernando includes work on a 77-m catamaran RoRo passenger ferry type, developed in conjunc-

tion with AMD of Australia.

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(Continued on page 53)

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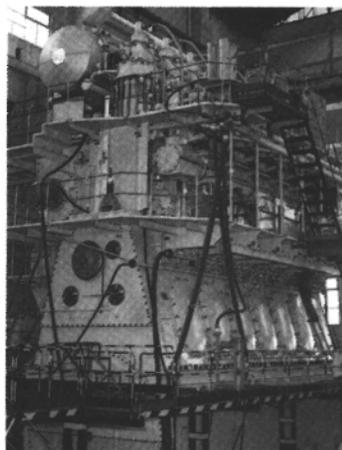
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However, pressures of the times, including

the rampant, worldwide use of subsidies and shipbuilding overcapacity, due in part to emerging countries' eagerness to build an industrial base, has been partially to blame for its losses in recent years. These problems, and the company's short and long-term solutions, were the basis of a recent interview with chairman and CEO **Antonio Mendoza**.

To even the most casual observer, it is painstakingly evident that the way business is conducted is changing rapidly around the world. Mergers and consolidations coupled with an explosion of new players in emerging markets have literally carved a new landscape on the business world. Europe is perhaps the best example of the changes at hand, as it moves forward with the European Union and ultimately the implementation of a common currency.

According to Mr. **Mendoza**, the Spanish government will no longer cover losses at the shipbuilder, due to the EU and its own changing policy. Thus the time for change is past, and the immediate term goal is to get all nine yards viable. He added that long-term prosperity for Astilleros Espanoles lies in four basic principles:

- Labor: Improving efficiency and training;
- New Products: Developing new, market-driven products;
- Yard Improvements; and
- Research & Development.

Subsidy Dilemma

As Mr. **Mendoza** points out, it is hoped that the canceling of all types of subsidies in the European Union will be followed by shipbuilders of all nations, creating the mythical "level playing field." However, much to the chagrin of Astilleros Espanoles' leader, it "looks like OECD is dead, and we are now discussing what to do."

Politics aside, Mr. **Mendoza** and his executive staff intend to use every means at their disposal to fulfill the company's goal of "satisfying clients and keep them coming back. We establish permanent clients and relationships."

Flexibility, Mr. **Mendoza** stresses, is a cornerstone of achieving this goal on a daily basis. And owners shopping for ships at Astilleros Espanoles are likely to find one of the more flexible builders in the world, in that it offers a large array of yards to efficiently handle most any order; it offers a wide variety of products, which it has built skillfully for generations; and it offers the ability to make design changes and alterations in the middle of the job, ensuring that the client gets what it needs.

As Mr. **Mendoza** points out, it can take from 18 to 24 months from initial discussions to finished product, and in that time a company, its personnel and its demands can change.



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New building update

Astilleros Españoles Sestao Yard is currently building two IMO Class 2 DP, BLS shuttle tankers for Statoil for worldwide trading and operations, principally intended for loading and transporting oil from an offshore oil field on the Norwegian Continental Shelf. The loading of crude oil can take place from an offshore loading facility such as a subsurface loading station, floating storage and offloading unit, floating production and storage offloading unit, articulated loading platforms and conventional oil terminals through the mid-ship manifold.

For more information on
Astilleros Españoles
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(Continued from page 51)

building and ship repair, and the largest privately-owned undertaking, Union Naval de Levante (UNL) has augmented its export workload of sophisticated chem-tankers.

The extension of the program into the year 2000 has taken place against the backdrop of the serious fire damage sustained in July by a Norwegian chemical carrier new-building at the yard, with loss of life. The vessel involved, the 5,100-dwt *Proof Spirit*, had been due for delivery to Jo Tankers in August.

While having to rehabilitate and complete *Proof Spirit*, UNL has secured new business which takes its delivery commitments two and a half years ahead. It has attracted orders from Bergen-based Seatrans and French company Tankafrica for 17,500-dwt, fully stainless steel design chemical tankers.

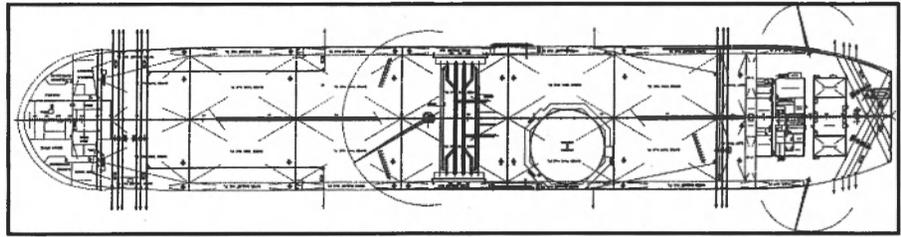
The two operators each have one firm order and one option ship. There is a connection between the investment initiatives, in that Tankafrica has a link with the Ermefer-controlled Swiss company Vinalmar, Seatrans' partner in a chemtanker pooling agreement.

Reflecting a current strength in the industry in Spain as a whole, sophisticated tanker construction forms one of the main planks of UNL's business.

The Valencia yard's output since mid 1996 has included a 9,600-dwt chemical carrier for Marpetrol of Madrid, and two 5,750-dwt vessels for the Gothenburg firm United

Statoil ship specifications

Length, o.n.	869.4 ft. (265 m)
Breadth (molded)	141 ft. (43 m)
Depth (molded)	72.2 ft. (22 m)
Design draft	49.2 ft. (15 m)
DWT	121,600 tons
Classification	DNV
Flag	Norway



Pictured is the upper deck of the IMO Class 2 DP, BLS shuttle tanker from Astilleros Sestao.

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Tankers, which expects to commission a third of class in November.

In addition, a 16,000-dwt newbuilding is in hand for Maritima Mariola on the back of a Marpetrol charter, with a second such ship also in the frame.

The shipbuilder's position as an export earner has also been recently demonstrated by the completion of the first of two 506-TEU containerships for Casablanca-based Comanav.

Northern shipbuilder Naval Gijon has also helped the Spanish industry benefit from the upsurge in demand for chemtanker capacity.

It recently extended its orderbook to the year 2000 with tonnage to a Norwegian account. The business inflow included new commitments by Knutsen OAS Shipping of Haugesund, an existing client both of the Gijon yard and of shipbuilders in the state domain.

The current production program includes a series of 19,000-dwt newbuildings, one for Liverpool-based Bibby Line besides two for Knutsen, plus a pair of 35,000-dwt tankers also booked by the Norwegian operator. North European interests are also understood to have awarded a 22,000-dwt chemtanker to the privately-owned Gijon company.

Production Shift

Builders in Spain have a particular and longstanding expertise in the design and construction of the gamut of fishing vessels, having had a strong domestic platform in the form of Spain's own, diversified fisheries industry.

Production of catcher vessels and combined fishing and processing ships continues to form an important element of the business for mainly family-owned shipbuilders.

But the private sector has adapted well to the considerable changes in the structure and nature of demand from the international fishing industry, increasingly subject to quotas, and compelled to examine new areas and types of resources as stocks on established grounds become depleted.

From an early stage, yards reoriented their products in accordance with market demand, as reflected in the current export weighting to types such as specialized tankers, RoRos and tugs.

The outward looking approach of Construnaves, the umbrella international marketing organization which represents around 90 per-

cent of the private sector, has again been underscored this year by various contractual successes in the North European shipowning community. It has also been reflected in new initiatives, such as efforts to develop small-ship business on the Indian market.

Astilleros de Huelva forged an

early link with the re-emergent Baltic states.

It complemented its fishing vessel activities with the construction of six combined cargo/container carriers of 5,600-dwt for Lithuanian Multipurpose Shipping, now being phased into service, and a quartet of 5,700-dwt

RoRos for Estonia.

Among the largest-ever newbuildings taken on by Huelva, the 125-m ferry *Julian Besteiro* provides a domestic component to the 1997 delivery program at the Andalucian yard.

The adaptability of the sector is further illustrated by the emer-

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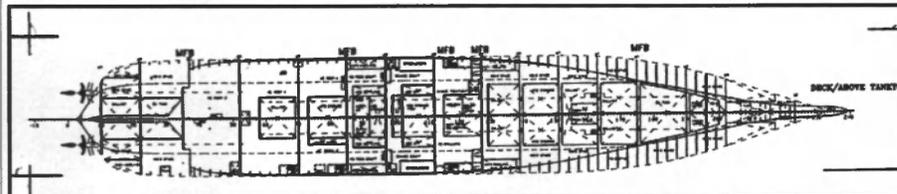
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Pictured is the deck/above tanktop of the 42,800 gt rail ferry being built for SweFerry in the Astilleros Puerto Real yard.

Astilleros Espanoles' Puerto Real Yard is building Hull 77 Baltic Train Ferry for SweFerry's Trelleborg to Rostock service.

Hull 77 specifications

Builder	Astilleros Espanoles
Owner	SweFerry
Length, o.a.	656.2 ft. (200 m)
Breadth (molded)	95 ft. (29 m)
Maximum breadth	98.4 ft. (30 m)
Draft (molded)	20.3 ft. (6.2 m)
Passenger Capacity	600
Flag	Swedish

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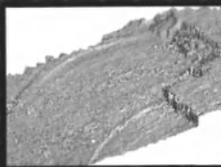
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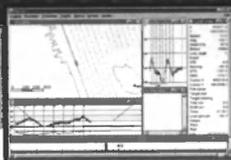
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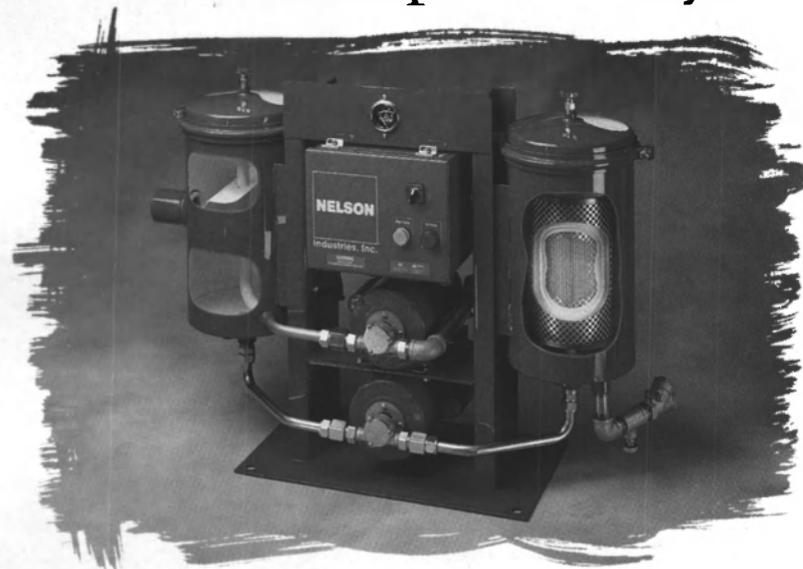


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Maritime Reporter/Engineering News

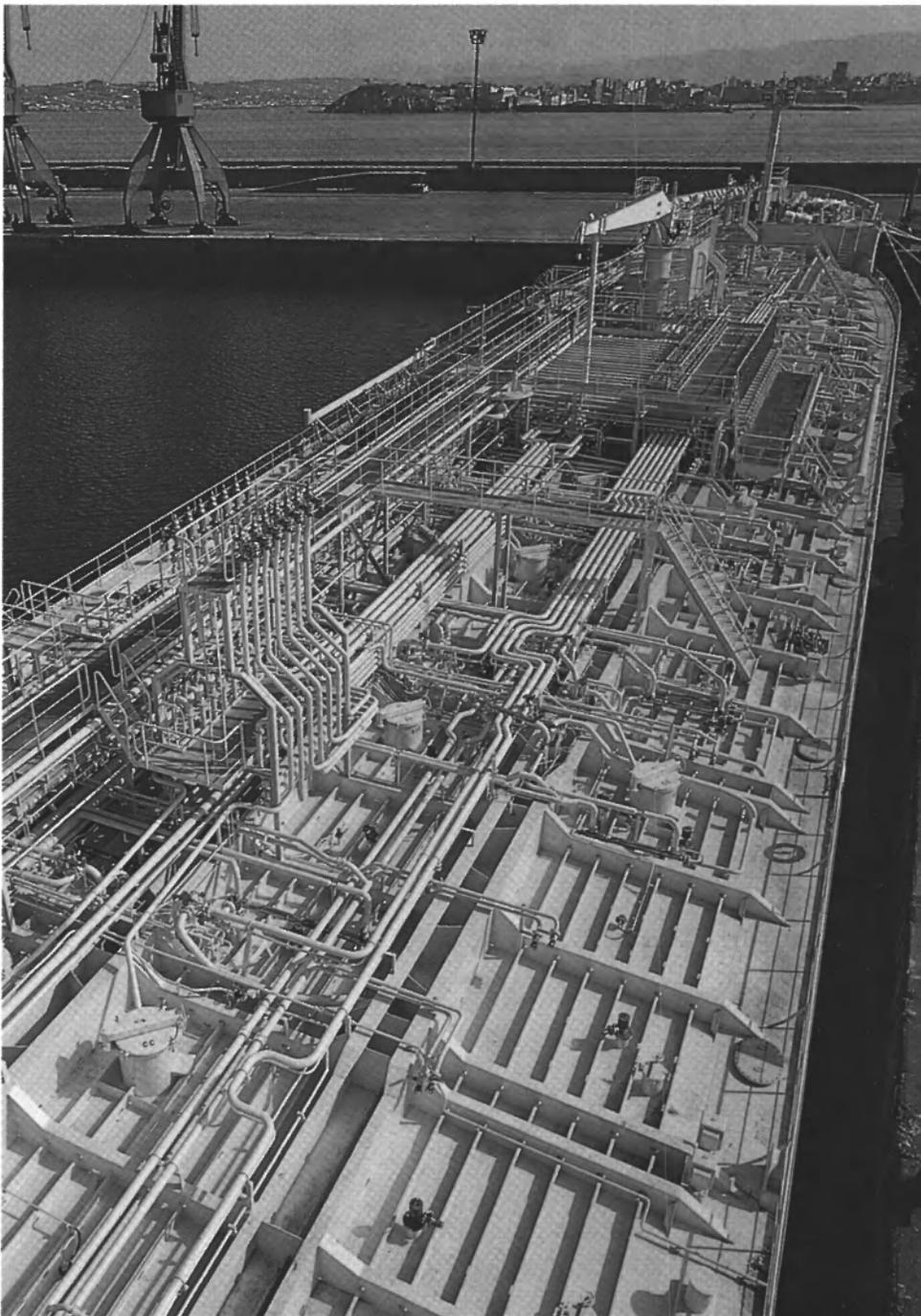
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gence in the 1990s of the northern firm Astilleros Zamacona as a prolific builder of tugs, after many years of almost uninterrupted production of fishing vessels. The substantial weighting to tugs is reflected in the current program, which includes a 29-m class for Algeria and a 4,100-bhp unit for

the Hamburg operator Petersen + Alpers.

Along the coast of Asturias at Navia, Astilleros Armon has also fostered a broader range of activities, developing a presence on the international tug building market alongside its traditional involvement in fishing vessel construc-

tion.

This year's completion of a 4,400-bhp series for Antwerp firm Union de Remorquage et de Sauvetage, and subsequent contracts from Italian tug operators, testifies to the way in which the commercial net has been widened.

Another constituent of the coun-

try's independent shipbuilding sector, Construcciones Navales Santodomingo, is starting deliveries under the largest tug contract ever placed by German specialist Fairplay.

First-of-class in a series of six 55-ton bollard pull-capacity units was expected to be ready for duties this month.

As a shift in design philosophy from the Schottel concept used in its existing fleet of tractor tugs, the Spanish-built type incorporates a stern drive system. This offers flexibility for deepsea towage, escorting, salvage and offshore work, besides harbor services.

The Vigo yard's export references in recent years have included a 110-ton bollard-pull tanker-handling tug built for BP operations in Scotland, as one of the most powerful tugs in her class, and two 50-ton bollard-pull, ship-handling tugs for prominent Dutch firm Wijsmuller.

Cadcam Know-How

Madrid-based Sener Sistemas Marinos (Senermar) achieved an unprecedented level of integration in shipbuilding software with Version 30 of its Foran system, which it continues to refine.

V30 has the potential to cover the entire process from conceptual design to computer-integrated manufacture (CIM), and has widened the operating options available to users in terms of hardware compatibility.

By embracing the Unix operating system, V30 has increased the market potential of Foran.

Shipbuilding and ship design offices now have recourse to CAD/CAE/CAM/CIM systems that capitalize on the more powerful hardware developed by the computer industry.

In use worldwide, Foran is a tool which can be used to cut costly lead times and raise productivity while accommodating the disparate requirements of hull design, drawings production, plate cutting, stability calculations, pipework, outfitting, concurrent engineering and other functions and procedures.

One of the additions to the Foran suite this year has been a module known as SQLEXP, which allows CAD/CAM users to utilize product model information to support third party systems for materials management, production planning and control, and other functions.

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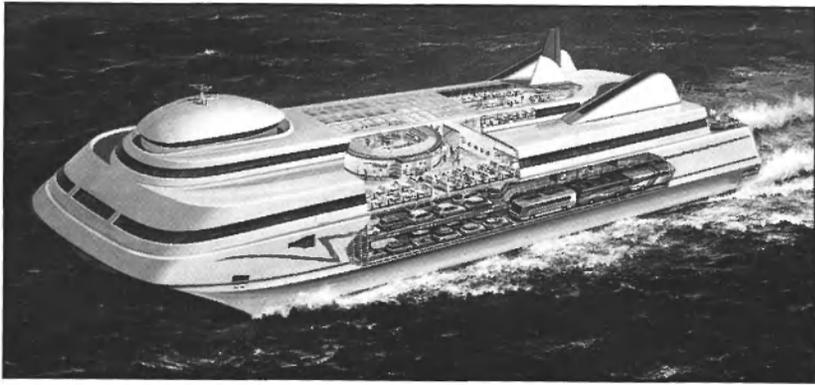
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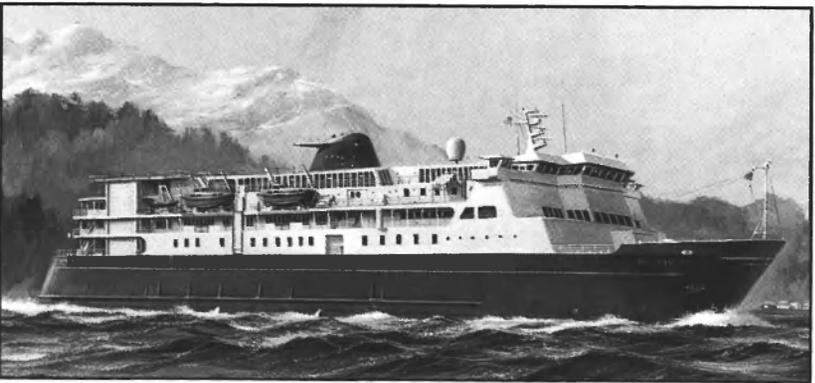
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As The ISM Code Deadline Nears, USCG Preparations Move Full Steam Ahead

By Arthur Dimopoulos,
contributor

The International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM) Code deadline of July 1,

1998 is rapidly approaching for tank and dry cargo vessel operators.

For operating or management companies falling under the July deadline that have not begun the certification process, doing so at this point may be too late.

Charged by the U.S. Coast Guard (USCG) Authorization Act of 1996, the USCG is proceeding full steam ahead in formulating regulations, policies and enforcement procedures implementing the ISM Code. On May 1, 1997, the USCG published a notice of proposed rulemaking which promulgated regulations implementing the Code's provisions affecting U.S. vessels engaged on foreign voyages. The final rule will likely appear in the Federal Register in early January 1998.

USCG ISM Enforcement

Implementation of the ISM Code has been codified in 46 U.S.C. secs. 3201-3205 (1997). With respect to U.S. port state responsibilities, Congress has clearly mandated that a vessel without onboard copies of its Safety Management Certificate (SMS) and Document of Compliance (DOC) can not operate in U.S. waters (46 U.S.C. sec 3204(c)).

The USCG Marine Safety Council is presently deliberating the promulgation of an interim rule that will implement the mandate set forth by section 3204(c). The rule will likely amend regulations relating to a vessel's notice of arrival required by 33 C.F.R. section 160.207 et seq. Upon a minimum of 24 hours' notice of a vessel's arrival, in addition to the present requirements, the vessel's owner, agent, master, operator or person in charge would have to certify that the necessary valid ISM Code documentation was onboard.

Should the required documentation not be onboard the vessel or be invalid, the USCG has discretionary authority to request that the Treasury Department revoke the vessel's clearance, barring its entry into the U.S. Under extenuating circumstances, determined on a case-by-case basis, clearance may be granted upon filing of a bond or other satisfactory surety.

ISM Code enforcement difficulties will surely arise with respect to "off the shelf" ISM Code certificates issued at a price by sources

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INTERTANKO Applauds USCG Final Rules Regarding Under-Keel Clearance For Single Hull Tankers

The Coast Guard (USCG) issued final regulations concerning the under-keel clearance requirements for single hull tank vessels enter-

ing or leaving U.S. ports.

"These rules are dramatically different than those issued by the Coast Guard late last year. I

applaud the Coast Guards' efforts to revise the regulations to reflect modern watch-keeping and passage planning requirements," said

Dagfinn Lunde, Managing Director of INTERTANKO.

The regulations provide that the owner and operator of a single hull tanker furnish the master with written under-keel clearance guidance. The guidance must include consideration of factors concerning calculation of the ship's draft, anticipated controlling depth, and weather/environmental conditions. It also must stipulate under what conditions the owner and operator should be contacted prior to entering port or getting underway. If no such guidance is provided, a statement to that effect must be provided.

The regulations also require that the master and pilot plan the ship's passage. This passage planning must be discussed by the master and the pilot and must include the ship's planned transit, including the anticipated under-keel clearance. An entry must be made in the official log reflecting this discussion of the ship's anticipated passage.

"The final rule vindicates INTERTANKO's stance that regulations must be both effective and based on sound operating and management experience. We believe that the Coast Guard has taken those steps with this regulation," said Richard du Moulin, Chairman of INTERTANKO and President of Marine Transport Lines. The final rule goes into effect on January 21, 1998.

New BIMCO Course Planned For Ship Agents

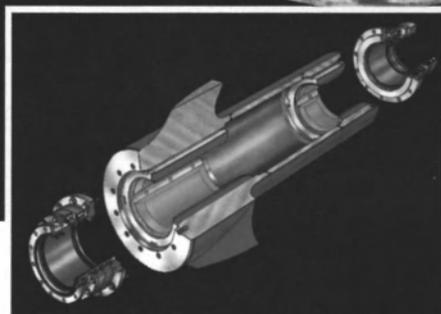
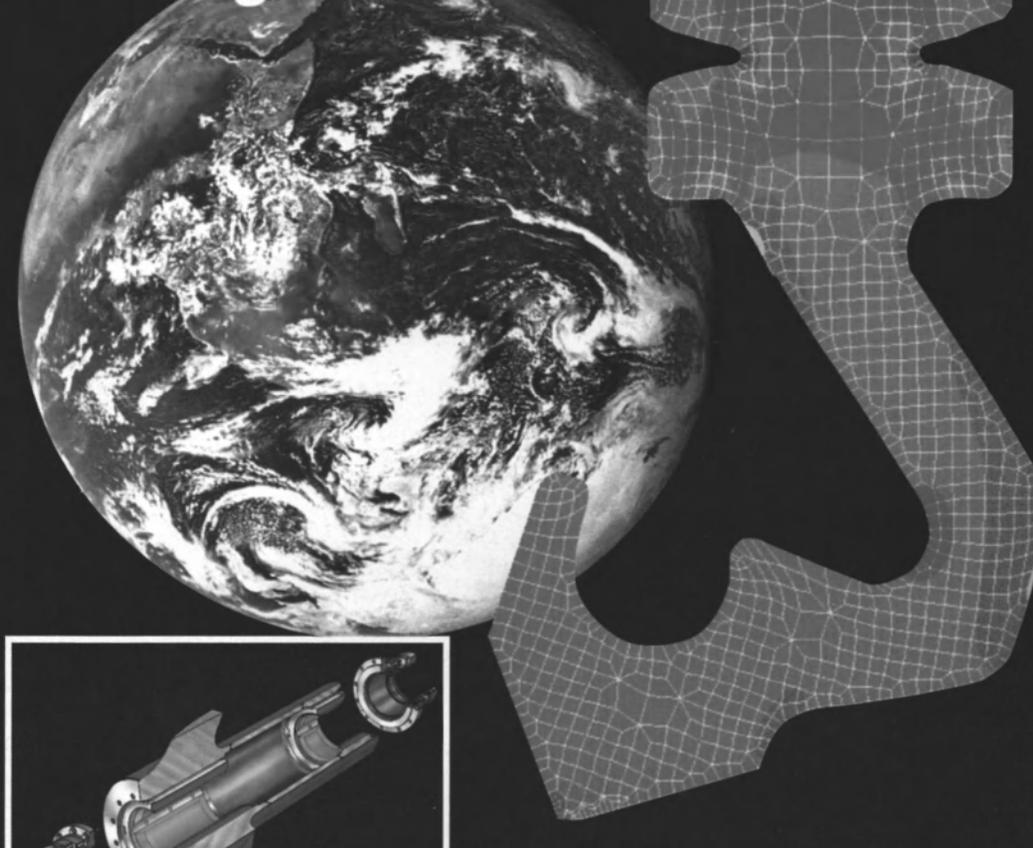
Ships Agents — Obligations and Remedies: A Practical Workshop is the title of the newest BIMCO Residential course to be held from November 3-5, 1997, in Copenhagen.

Designed for ship agency executives, including legal, claims, insurance and accounts personnel, the course offers participants an opportunity to explore the complex issues affecting the agency sector today.

Many maritime industry experts have been invited to speak, including:

— Julia Mavropoulos of ITIC, who will introduce attendees to agency law and discuss recurring

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liability problems and exposure to claims for negligence.

— Paul Smith of PSA Associates, will discuss statutory liabilities in detail.

— Keith Michel of Holman, Fenwick & Willan will discuss the agent's right of arrest in various jurisdictions.

— Peter Grube of BIMCO will enlighten attendees on the effective collection of outstanding disbursements and will discuss the problems caused for agents by illegal immigrants posing as crew members in a separate lecture.

For more information, please contact BIMCO at tel: +45 44 44 45 00; fax: +45 44 44 44 50; e-mail: mailbox@bimco.dk

James P. Colie Tapped For Royal Caribbean Refit

Marine general contractor James P. Colie & Associates was selected by Royal Caribbean International to perform renovations to *Song of America* beginning November 2, 1997 in New York.

In the past, the company has performed many fabrication and renovation projects to *Song of America's* interiors. In the casino, James P. Colie & Associates will construct a workshop for the ship's slot machine technician using A-60 bulkheads. This is just one aspect of a host of cosmetic and structural refurbishments.

Approximately 25 workers from James P. Colie & Associates will sail on *Song of America* from New York to Norshipco in Norfolk, Virginia for the 15-day drydock. The ship will be back at the Port of Miami and ready for service on November 16, 1997.

Rich Beers Marine Awarded Contract

Rich Beers Marine was awarded a contract from Undersea Research and the University of Wilmington to design and build the environmental systems for an underwater habitat. The scientific underwater habitat, designed for six people to live in for 10 days, will be moored off Key Largo in 90 ft. (27.43 m) of water in early 1998 and will provide air conditioning, dehumidification, CO2 scrubber and refrigeration. Harbor Branch of Ft. Pierce also contracted Rich Beers Marine to design and build air conditioning and dehumidification systems for the power and air support buoy for the habitat.

Han-Padron Chosen To Head Design Team

The Israel Ports & Railways Authority (PRA) has selected a team headed by New York-based Han-Padron Associates to provide planning, design, and engineering consulting and supervisory services for a long-planned \$244 mil-

lion expansion of Haifa Port. The Haifa Port Extension East B project is the central phase of the PRA's Ports 2000 program, a staged development plan which will ultimately increase the capacity at Haifa to 20 million tons/yr., with an annual container capacity of 900,000 TEU (20-ft. equivalent units) and 1.5 million passengers. Design work was expected to begin

in September. Construction will begin in 1999 and the new facilities will go into operation in 2004.

The current phase of the project includes a 500-m extension of the existing main breakwater; construction of quays; dredging and land reclamation; and the addition of container, general cargo, and dry-bulk terminals in the eastern area of the port.



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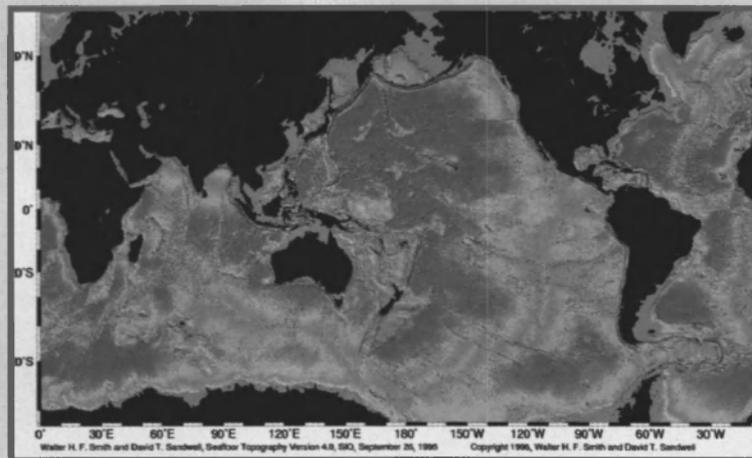
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Scientists Develop New Map Of The World's Sea Floors



Scientists have used gravity data from satellites in addition to depth soundings from ships to produce a more defined, high-resolution map of the world's ocean floors, the U.S. National Oceanic and Atmospheric Administration (NOAA) announced.

The new map provides estimations of the ocean depths from gravity data from satellites.

An older version of the map, produced in 1995, was based on gravity data, but did not provide estimations of ocean depths.

Scientists Walter H.F. Smith of NOAA's National Oceanographic Data Center and David T. Sandwell of the Scripps Institution of Oceanography, University of California, San Diego, report on their project in the September 26 issue of Science magazine.

Filling In The Gaps

Conventional sea floor mapping using echo sounding data from ships has been difficult

because of the large gaps between surveys in remote areas.

"There are places as large as the State of Oklahoma where no soundings are available," said Mr. Smith. "Traditionally, bathymetric contours are drawn by hand, so that human intuition (or prejudice) fills the gaps in coverage," both scientists wrote in Science. "Recent developments allow a new approach to this problem."

Mr. Smith and Mr. Sandwell used gravity data from satellites to estimate depths in unsurveyed areas, thus filling the gaps in the map in an objective and high-resolution manner.

The new topography reveals all of the

intermediate and large-scale structures of the ocean basins, including new mountain ranges such as the Foundation Seamounts in the South Pacific.

These were not found by conventional mapping but were revealed by the satellite gravity data.

The pair of scientists showed that uncharted seamounts are a significant source of topographic variation, and information from satellite gravity can reduce the error in estimated topographic variation by more than half.

Knowledge of sea floor topography is vital for understanding physical oceanography, marine biology, chemistry and geology. Topography influences currents, tides, and mixing and upwelling of nutrient-rich water.

The new topographic features portrayed by Mr. Smith and Mr. Sandwell reveal new fish habitats, and should influence computer simulations of ocean circulation.

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Wärtsilä NSD And Cummins Engine Extend Cooperation

Wartsila NSD Corp. and Cummins Engine Co. Inc. have signed a letter of intent to extend their cooperation in the heavy-duty high-speed engine business to include engineering, marketing and service of power generation, marine and industrial applications based on these engines.

Currently, the parties have a 50/50 owned joint venture, Cummins Wartsila Engine Co., established in 1995 which designs and produces two high-speed diesel and natural gas engine families in France and in the U.K. The joint venture will merge the high-speed activities of Wartsila France, a part of the Cummins PGI Company's manufacturing, all the Cummins Wartsila Engine Company activities in France and in the UK and the respective marketing service activities of Cummins. The new joint venture will be owned 50/50 by Wartsila NSD and Cummins.

Maritime Reporter/Engineering News

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Increasing Orders Put South Korea Ahead Of The Competition

by Alan Thorpe, international editor

The South Korean shipbuilding industry may overtake, in terms of orders, its Japanese rival by the end of this year, **Kentaro Aikawa**, the newly-appointed chairman of the Shipbuilders Association of Japan, has warned.



Mr. Aikawa, chairman of Mitsubishi Heavy Industries (MHI), said, "Judging from the receipts of new shipbuilding orders in the first half of 1997, South Korean shipbuilders could overtake Japan by the end of the year. If so, this would be for the first time in four years."

Japan received orders for the construction of 155 ships, totaling 5.6 million grt, in the January/June period, while South Korea received 92 vessel orders, totaling 5.27 million grt, a near three-fold rise over the same 1996 period. Meanwhile, Japanese shipbuilders received overseas orders for the construction of 39 ships, totaling 1.77 million grt in July, a 172 percent rise over the same period during last year, which included orders for the construction of 20 vessels for export totaling 652,370 grt. The main reason behind this increase is the orders for three VLCCs. Of the leading Japanese shipbuilders, Ishikawajima Harima Heavy Industries (IHI) has among the largest orderbooks for VLCCs, including a total of nine ordered this year. By comparison, Mitsubishi Heavy Industries (MHI) has a total of four VLCCs on its orderbooks and Hitachi Zosen has eight.

IHI is now confident that its shipbuilding division will return to profitability in the current financial period (and for the first time in two years), buoyed by this VLCC orderbook. IHI's shipbuilding division posted a \$43.6 million operating loss for FY95, compounded by a Y2.2 billion loss the following year.

Hitachi Zosen has launched Challenge 99, a management plan to grow the company's annual earnings to more than \$8.6 billion by the end of 2005. The plan will focus on environmental energy, electronics and information system projects, which together share 50 percent of total company revenue. Chairman **Yoshihiro Fujii** said the company was considering entering the environment and energy markets in Taiwan, China and South Korea this year. Three of Japan's largest shipbuilders are to join forces to develop a sophisticated computer integrated manufacture system, designed to replace veteran shipyard foremen when they retire. Mitsubishi Heavy Industries (MHI), Mitsui Engineering & Shipbuilding (MES) and

Sumitomo Heavy Industries (SHI) are to spend Y1.1 billion over three years to develop the system, designed to aid management and supervisory roles in every aspect of shipbuilding. Kawasaki Heavy Industries (KHI) has received an order for two LPG carriers of 84,000 cu. m. from Sonatrach Petroleum of the Virgin Islands. Sonatrach Petroleum, which is a whol-

ly owned subsidiary of Enterprise National Sonatrach, is engaged in a crude oil development project in Algeria.

The first of the two LPG carriers is scheduled for delivery in the first quarter of 1999, with the second to follow in the second quarter of 2000. Nippon Yusen Kaisha (NYK) Line has placed an order with Mitsui Engineering &



Pictured is a FPSO conversion at Jurong.

FAR EAST UPDATE

Shipbuilding (MES) for the construction of two 75,000-dwt Panamax bulk carriers as part of the tramp fleet modernization program. The first is scheduled for deployment in the middle of 1999 and the second in the autumn of the same year. When they are completed, they will join the fleet of large-sized tramp carriers.

Namura Shipbuilding has signed a letter of intent with Sweden's Stena Bulk for the construction of four 107,000-dwt double hull Aframax tankers. Deliveries are set to begin in December 1999. The contract has been valued at \$184 million. Japanese robot maker Orii Corp. recently announced that Namura Shipbuilding is to become its largest shareholder with a 30.7 percent share. Namura has purchased stock previously held by Orii chairman Masaru Orii. Sumitomo Heavy Industries (SHI) has redesignated its Oppama facility as Yokosuka Shipyard, where the company's newbuilding activities are concentrated. The company's nearby Uruga Shipyard, which had been operated by Uruga Heavy Industries until 1969, celebrates its centenary this year. Uruga's docks are today used solely for ship repair work. Further consolidation of the diesel engineering sector has been signaled by a new alliance between Finnish owned Wartsila NSD Corp. and Japan's Hitachi Zosen. A 50/50 joint venture production firm, Wartsila Diesel Japan Co. is to be created in Japan to assemble two of the most recently developed, medium speed designs in the Finnish engineered range.

Due to start in September, it will also sell other types of Wartsila machinery and propulsion pack-

ages into the home market, the world's largest shipbuilding market. Although it has come close to attracting ferry contracts in the past, South Korea's Samsung Heavy Industries (SHI) is poised to achieve its breakthrough in the RoRo freight vessel market. The South Korean yard is at an

advanced stage of negotiations with an Australian operator regarding a requirement for two newbuildings of around 7,000 dwt. The subject design would probably offer a lane capacity in the region of 1,500 to 1,700 running meters. Market sources suggest that the prospective contractual party is

Melbourne-based Brambles Shipping and that an order could be sealed before the end of this month. Hyundai Mipo Dockyard (HMD), one of the world's largest ship repair companies, saw its interim profits fall by 40 percent to \$1.4 million due to a decrease in ship repair prices.

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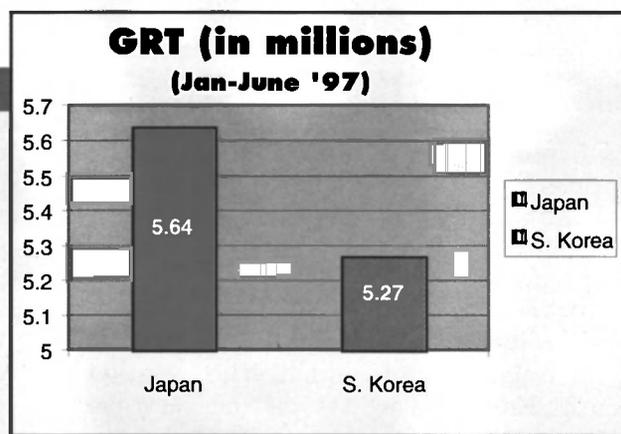
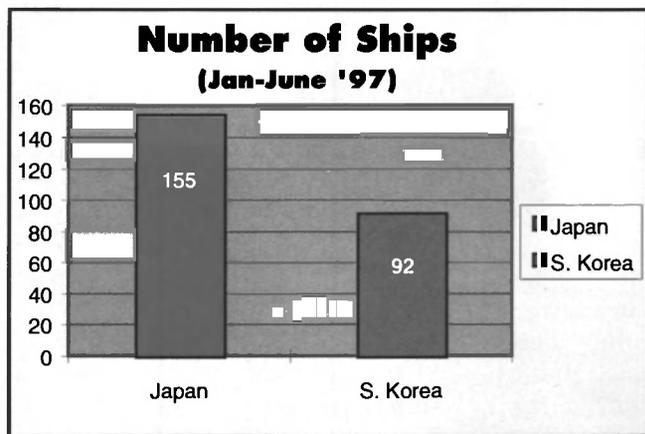
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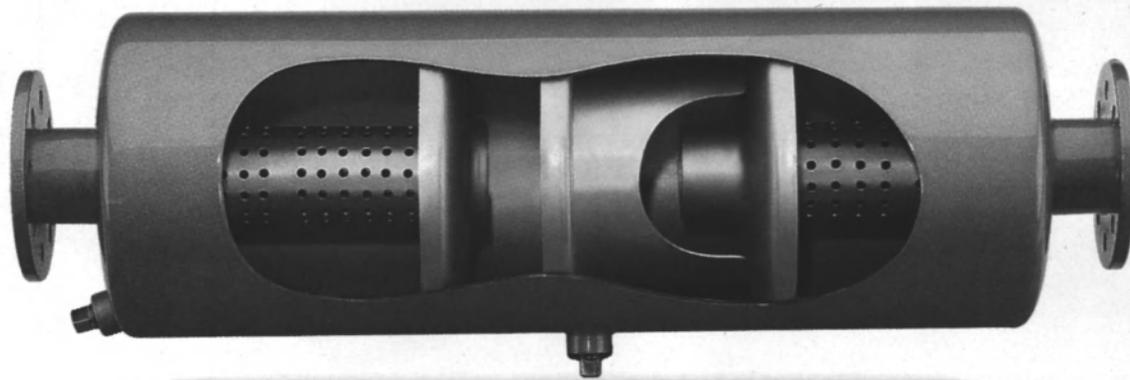
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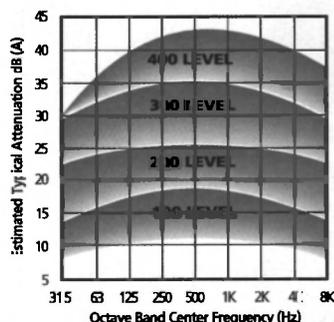


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A series of bulker contracts and exercised options on feeder containerships have filled Taiwan's China Shipbuilding Corp.'s yards.

"We are already fully booked through to the first half of 1999," said David Tien, vice president. Denmark's AP Moller recently exercised a four-ship option for a set of 1,100-TEU containerships, following the initial six ship order late last year. Last month a pair of Panamaxes were ordered by Switzerland's Suisse Atlantique Societe, reflecting the yard's continuing success with European orders. Singapore's Marinteknik Shipbuilders has confirmed receipt of a long anticipated order from the Swedish company Jetson Coast Link for the construction of a 180-ft. (55-m) passenger/car carrying catamaran. The vessel is due to be delivered by the Singapore yard in the first quarter of next year and enter service in Scandinavia in May. Profits at Singapore specialist rig builder Keppel Fels slumped in the first half due to a lack of job completions. Pre-tax operating profit for the six months was down at \$16.1 million, a 19 percent drop from the corresponding period last year. And Keppel Fels warned: "The results of the second half are likely to be lower than those of the first half." Current orders at Keppel Fels include a semi-submersible harsh-environment drilling rig, *Galaxy 2*, for U.S. offshore specialists Sante Fe. This is the second of two sister rigs, and is due for delivery in August 1998. It is also building a 700,000 bbls Floating Production & Storage Offshore (FPSO) unit for Norway's Saga Petroleum, due to leave the yard at the end of this year. This vessel, named *Varg FPSO*, which will be operating on the Varg Field in the Norwegian sector of the North Sea, is Tentech 700 design. Keppel Fels recently completed a Tentech 850 unit for Norway's Statoil. Mitsui Ocean Development (MODEC), the Japanese offshore engineering company, has been awarded contracts worth \$300 million for four FPSO units.

Three companies have awarded the contracts — Australia's BHP Petroleum, Mexico's state-owned Petroleos Mexicanos (Pemex) and Marathon Petroleum Gabon (two contracts), an affiliate of Marathon Oil. MODEC has slated three of the conversion projects with Singapore's Jurong Shipyard Ltd. (JSL), which has a long-standing

relationship, including cooperation on several FPSO conversions. The Pemex contract involves the 357,600-dwt tanker *Juno*, which is to be arranged with a 2.2-million barrel storage capacity as a floating storage unit (FSU).

For BHP Petroleum, JSL will upgrade FSU *Shua Venture 1* — which on completion will be renamed *Modex Venture 1* — to full FPSO status, with the installation of additional processing modules. She is expected to be ready for service next spring.

With regards to the Marathon Petroleum Gabon contracts, an additional two projects have been secured by MODEC in conjunction with Japanese trading house Nissho Iwai Corp, for this company.

The first involves the conversion of the 138,540-dwt tanker *Anitra* into a one million barrel FSO. This project is also to be carried out by JSL.

The second project calls for U.S. conversion specialist Texas Drydock Inc. (TDI) — recently bought by Halter Marine — for the conversion of the drilling platform *Ocean Ruler* to a jack-up production unit. Both projects are expected to be completed by the end of this year.

Coflexip Modifies Board Of Directors

Coflexip's Board of Directors recently elected **Torvild Aakvaag**, formerly chairman of Norsk Hydro, to replace **Jacques Blondeau** as chairman and CEO of SCOR.

Mr. **Aakvaag** began his career with various positions in the Norwegian Foreign Service before joining Norsk Hydro in 1956 where he established and developed the company's petroleum division in 1970. He was then successively appointed vice president (1975), president (1984-91), vice chairman of the board (1991) and chairman of the board (1992-97).

Transmission America Names New Marketing Arm

Transmission America President **Art Cooling** recently announced the association of Fore 'N Aft Marine Marketers, LLC with the Lake Charles, La.-based marine transmission company. Fore 'N Aft will represent Transmission America in marketing the company's TONAN line of marine reduction gears and will be responsible for the sale of the gears to vessel

owners and shipyards along the U.S. Gulf of Mexico coast. Transmission America has sole distribution rights with TONAN for North and South America.

Solar Turbines Appoints New Manager

Solar Turbines Inc. has appointed **Mike Donovan** as manager,

Marine Business Development. He is responsible for managing the worldwide sales, marketing and service support efforts for Solar's marine gas turbine propulsion systems for high-speed vessels and succeeds **Dave Dunley**, who was promoted to a newly created position in the company's industrial turbine business sector.

Mr. **Donovan** is a graduate of

the U.S. Naval Academy and has a Master's degree in Naval Architecture and Marine Engineering from MIT. His background includes ship design and operating experience with the U.S. Navy and 14 years working in gas turbine product development, applications engineering, and project management at Solar Turbines.

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Higman Towing Goes Green With Engine Selection

At 72 x 27 x 8 ft. (22 x 6.7 x 2.4 m), with a pair of Cummins KTA38-MO main engines rated at 750-hp each and turning 72 x 54-in. wheels through Twin Disc MG-

5202 6.10:1 gears, Higman Towing's vessel is, at first glance, just another towboat. A closer look, however, shows how the Orange, Texas-based Higman Towing is getting ahead of the game by operating a new generation of towboat that is designed to meet future environmental regula-

tions.

The vessel incorporates a combination of established and demonstrated technology, and the new boat's engines are designed to eliminate waste in the lube oil system and dramatically reduce exhaust emissions. Building at Hope Services in Dulac, La., to an

in-house design, the boat will be fitted with the latest in marine diesel technology. Starting with Cummins' V-12 KTA38-MO engines, two options have been added to the highly tuned base.

Working with Cummins, Alfa Laval has developed the Eliminator Filter system that effectively eliminates the need for replaceable components in the lube oil system.

Taking the place of seven conventional filters, the Eliminator Filter unites two proven Alfa Laval technologies — a self-cleaning full-flow filter that removes 85 to 90 percent of particulates over 20 microns and a disc stack centrifugal separator that removes particles down to two microns or less.

Emission Reduction

In addition to engine design modifications to reduce emissions, Cummins has worked with Englehard Corp., a leader in emission control technology, to develop a "soot trap" that is located in the muffler to provide after treatment to virtually eliminate particulates, carbon monoxide and hydrocarbons from the exhaust.

The system utilizes a ceramic filter coated with a catalyst developed through the joint efforts of Cummins and Englehard. These "off the shelf" Cummins components significantly reduce pollutants to provide a safer and cleaner working environment and greater operator profitability. A third lube oil management option is available for this engine that can even further reduce waste.

Centinel is an electronically controlled system which actually removes small amounts of lube oil from the engine on a monitored basis.

Removed oil is blended with fuel and burned, and at the same time, the lube oil in the engine is replenished from a make-up tank. This system eliminates the need to change oil and the resulting shut down and disposal costs. Manufacturer's research has shown that the typical operating costs on a KTA38-MO engine for lube oil replenishment together with used oil and filter disposal averages \$1.3 per operating hour. With the Eliminator and Centinel systems in place, this is reduced to only \$0.37 cents per hour.

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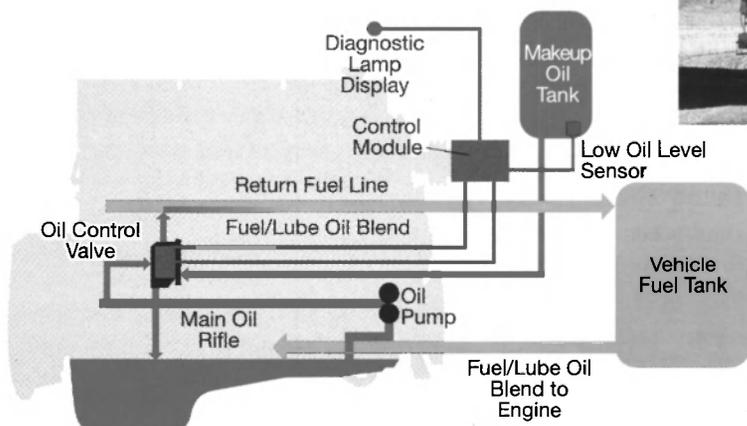
fuel rate and replaces oil at rates engineered for continued reliability and durability of the engine.

CENTINEL's continuous oil replacement process stabilizes engine oil quality and allows oil and filter change intervals to be extended to unprecedented levels. With CENTINEL, you can:

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- Extend oil filter change intervals to 1,000 hours
- Reduce oil and oil filter disposal costs
- Reduce downtime
- Increase productivity and profitability



CENTINEL is available exclusively through Cummins distributors and dealers. For details, contact your nearest Cummins location or phone 1-800-DIESELS (1-800-343-7357).



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Circle 248 on Reader Service Card

GTR Campbell Designs Hit The Waters

The keel was recently laid for the first of a new standard design of geared, 20,000 dwt container bulk-er at the Hitachi Zosen Singapore slipway.

Dubbed Stamford, the design has been developed by the yard in cooperation with Algoship and GTR Campbell.

The new design is a handy-sized, multi-purpose dry cargo/container carrier for unrestricted ocean service. Stamford vessels are suitable for carrying bulk grain, iron ore, packaged lumber, steel coils, steel pipes, containers and unitized cargoes.

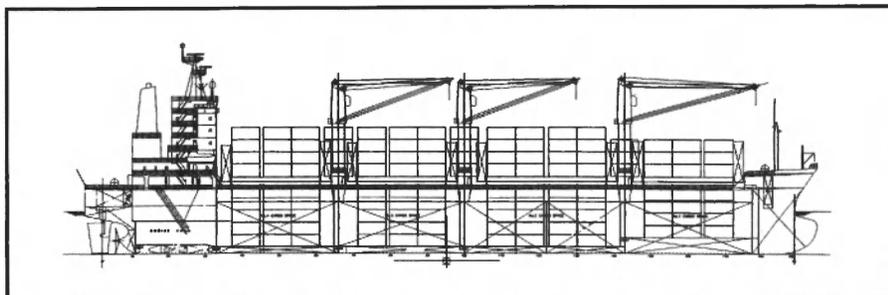
The vessels are equipped with three electro-hydraulic level luffing jib cranes for cargo handling, each rated at 36 tons. Propulsion is provided by a Hitachi B&W 6S42MC Mk VI unit producing 6,150 kW at 136 rpm. Auxiliary power is provided by three 600 kW diesel generators.

In addition, GTR Campbell also recently celebrated the delivery of *Marielle Bolten* for owner Aug. Bolten. The 28,000 dwt vessel, designed to GTR Campbell's Fantasy-class specifications, measures 594 x 32 x 47.2 ft. (181 x 9.7 x 14.4 m) and has a grain capacity of 38,608 sq. m. *Marielle Bolten* features five 30-ton electrohy-

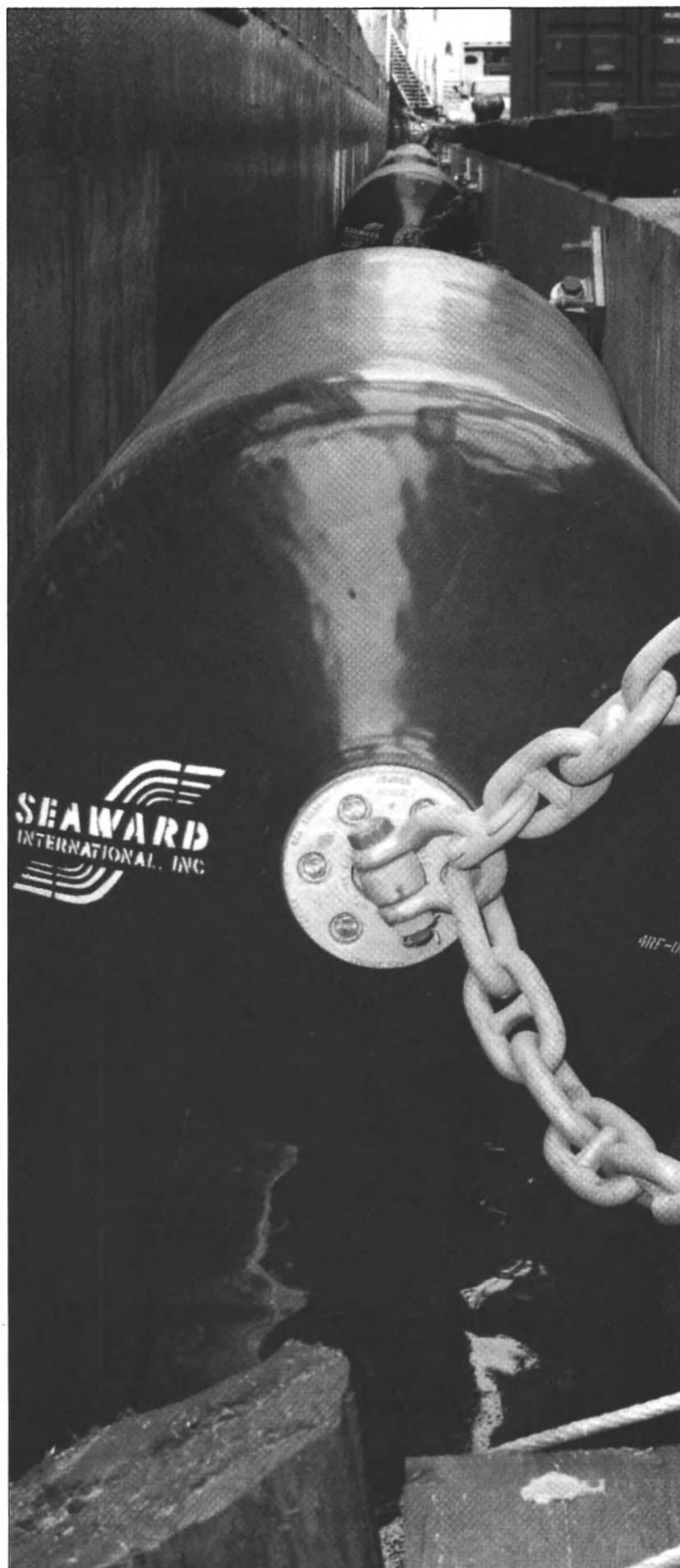
Marielle Bolten is the first of two 28,000 dwt GTR Campbell Fantasy class vessels to be built at the Dalian shipyard for owner Aug. Bolten.

draulic deck cranes and a Dalian MAN B&W 5S50 MC producing 5,760 kW at 120 rpm, providing a service speed of 14 knots.

For more information on GTR Campbell
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Ugland To Order New Car Carrier

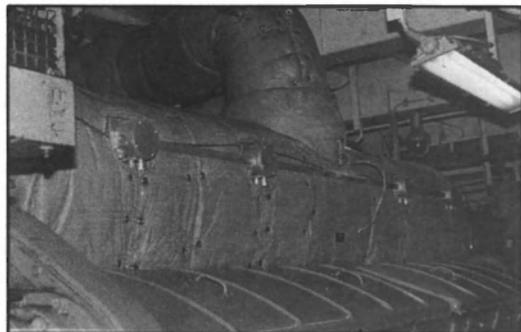
Ugland International reportedly intends to invest in a second new vehicle carrier. The company has signed a contract with Tsuneishi Shipbuilding for a 12-deck, 6,100 car carrying vessel, which is to be identical to a vessel ordered from the Japanese ship-

Stop by and visit with The Cortney Company, Inc., Seaward representatives, at the International WORKBOAT SHOW, booth #225, in New Orleans this November.

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yard this June.

The vessel is expected to be delivered in December 2000, and is designed to be one of the largest and most flexible vehicle carriers in the world.

The contract reportedly includes an option for an additional similar vessel.

Jonaro Technomar Services Announces Opening

Jonaro Technomar Services LLC has announced its formation as an independent

techno-commercial maritime consultancy and service company, based in Savannah, Ga.

Headed by Capt. **Christopher R. Desa** FICS, MCIT, the company will offer professional services spanning the following: ISM Code, ISO 9000 consultancy, facilitation, documentation, system development, training, implementation and monitoring; internal and external auditing; oil major vetting inspections for oil/chemical and gas tankers; technical and commercial aspects of transportation management; emergency/casualty/pollution prevention and response; contingency planning; expert witness, claims, salvage, casualty investigations, damage assessments and recovery coordination, and loss control; advisory services to P&I, hull and machinery, admiralty law interests, attorneys, shipowners/operators and charterers; and ship management operations and general business consultancy.

James McCoy To Join Allweiler Marine

Allweiler Marine Inc. has announced the addition of **James McCoy** to its staff in Bellevue, Wa. Mr. McCoy is a licensed chief engineer with a diversified marine background and will be responsible for the territories of Washington, Oregon, and Alaska.



James McCoy.

Victaulic Appoints New VPs

Victaulic has appointed three new vice presidents. **John R. Diamant** has been named vice president of Victaulic International and **Robert A. Freidl** vice president of Sales.

Gary M. Moore has been appointed vice president of Sales by Victaulic Co. of Canada. In his new capacity, Mr. Diamant will be responsible for the company's foreign sales offices, subsidiaries and distributors.

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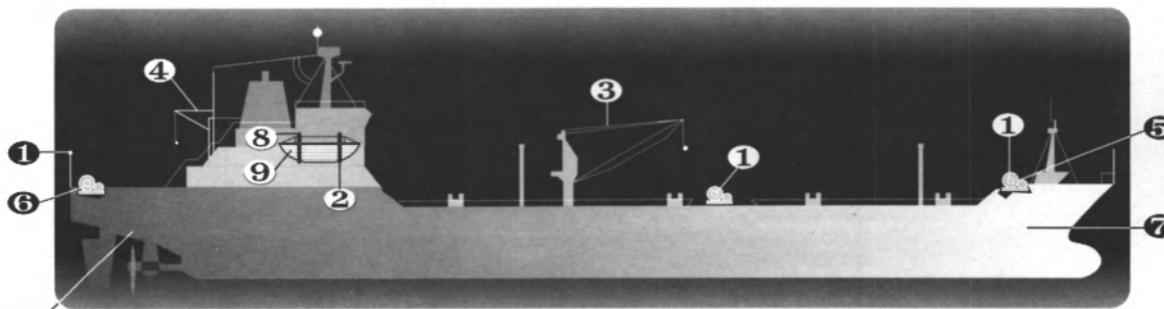
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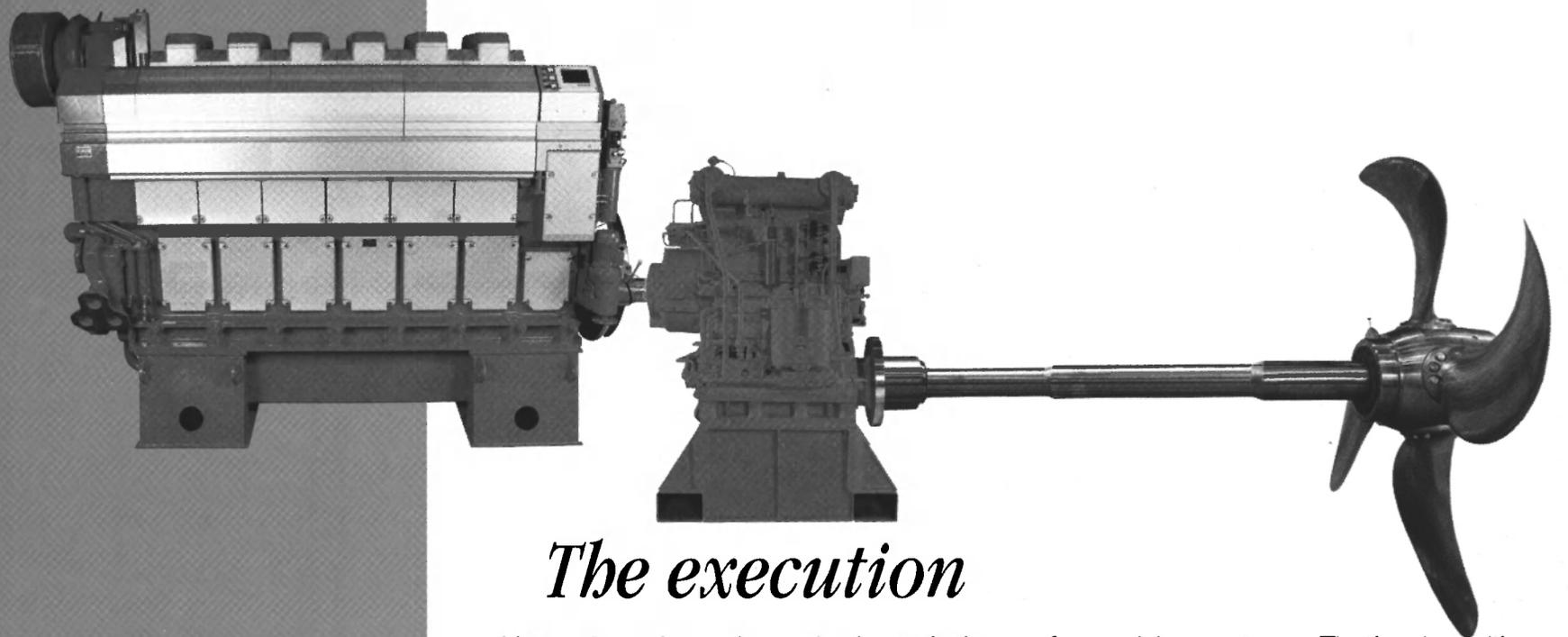
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Containership Technology Improves Bulk Carrier Safety

By Dr. Hans G. Payer.

Germanischer Lloyd (GL), a long-time innovator of containership technology, is currently serving as project manager for the *Container Transport Systems of the Future*

research study. The project involves German shipbuilders, shipowners, a port and technical and economic organizations, and is sponsored by the German govern-

ment. The development of the 8,000 TEU mega ocean containership is one of the topics being examined in the study. As a result of its world lead in containership

technology, GL classifies 22 percent of the existing world fleet of box ships by tonnage and has a 50 percent stake in the number of current newbuildings. The company is now turning its containership know-how to a matter of worldwide concern, namely, improving bulk carrier safety.

Bulk carriers totaling 249 million dwt constitute 34 percent of the world merchant fleet. During the past five years, the fleet has expanded on average by five percent per year. This growth results from a high rate of newbuildings entering the market, coupled with a low level of scrapping. Several studies indicate, however, that due to the large number of old bulkers in operation today — 43 percent of the total tonnage is over 15 years old — demand for newbuildings will increase in the upcoming years.

The recent IACS decision to require strengthening of existing ships to withstand accidental flooding of the number one hold, for ships 10 years of age and older, will probably provide added impetus to the replacement of old tonnage.

Orders for bulk carriers in GL class have increased recently. While containerships form the majority of the newbuildings presently classed by GL, the company has been involved continuously with most other types of vessels as well. GL's extensive knowledge of the structural design and behavior of containerships has been successfully applied to these other ships, but in particular to bulk carriers.

The reasons for bulk carrier problems are basically two-fold: increased corrosion as a result of rough treatment in an aggressive environment; and the neglect of structural mechanisms in the design, particularly regarding fatigue.

It has been GL's philosophy to introduce all relevant findings and developments from the strength analysis and in-service experience of containerships to the design and classification of bulk carriers. Many details derived from positive experience in containerships have thus been introduced to bulkers. GL has decided to go beyond the minimum requirements for bulk carriers mandated within IACS, to

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assure that weak points and areas where problems arise in service are avoided from the start.

Presently, there is a trend of dissatisfaction among bulk carrier owners concerning the structural performance of their vessels. Some have transferred their bulk carrier design, sometimes already classed by other societies, which in many cases exhibits structural weakness not acceptable to GL. Typical examples are the design of the upper and lower bulkhead stools, crane substructures, extension brackets and bottom structures regarding slamming loads in the ballast condition.

GL provides full penetration welds in the bulkhead structure of bulkers, making these critical components more corrosion-resistant compared to bulkheads fabricated with fillet welds only.

With their increasing concern for life cycle design, it becomes clear that the extra cost of preventive measures during newbuilding construction is money well spent. Maintenance and repair efforts can be significantly reduced over the typical life-span of a bulker. Apart from this, the reliability of the structure and the ship is being considerably increased.

The scantlings of a ship are generally determined according to class rules, which are a combination of empirical and theoretical know-how of the load components on the one hand, and structural response on the other. In the past 25 years, the finite element method has increasingly been used as a rational ship structural analysis and dimensioning tool. The development of sophisticated containerships or modern gas carriers for instance was possible only on the basis of detailed finite element calculations. Today, this method is being used for bulk carriers, as it furnishes detailed stress results which are also evaluated for fatigue strength and buckling.

The time required for such a detailed analysis is reduced by GL's system of programs, dubbed Poseidon. This allows, as a first step, the speedy design and evaluation of a ship, determining the required scantlings of plates and stiffeners on the basis of GL's rules. Additionally, the program can generate a finite element model for a more detailed overall or local analysis by direct calculations, where necessary.

The most critical part of a single

side skin bulk carrier is the side shell itself. Apart from static loads, it is exposed to continuously changing pressure loads from the sea-way. This requires fatigue considerations for all relevant structural components similar to the way this is done for containerships.

In the past, not enough attention was given to a notch free design of bulk carriers, particularly of the top and bottom brackets of the side frames, frequently leading to fatigue cracks in this region. The situation at this basically critical zone is aggravated by the fact that it is vulnerable to corrosion, espe-

cially in the heat-affected region adjacent to the welding seams. The corrosion protection now required by IACS and IMO is helping to some degree in this area.

In order to improve confidence in the actual loading, GL is presently conducting a full-scale investigation onboard a large bulk carrier

L27/38 A propulsion package for the 21st century



The L27/38 from MAN B&W Alpha takes the innovation of MAN B&W's new generation of marine diesel engines into propulsion. The many benefits of its advanced, streamlined design include compact dimensions, fewer components, easy installation, modular maintenance and exceptional economy. There are 6, 7 and 8-cylinder versions of the L27/38, producing 2040-2720 kW at 800 rpm. Its combination with Alpha's newly developed range of gearboxes, propellers and control systems provides a fully integrated propulsion package.



MAN B&W Alpha has been designing innovative propulsion systems since 1902. The L27/38 propulsion package is firmly in that tradition, maintaining the high levels of quality and reliability achieved by its predecessors. It will set the standard for the world fleet's marine engines until well into the 21st century.

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concerning the pressure loading on the ship's side. On the basis of the evaluation of the long term histories, most realistic design loads will be derived.

A double hull design is a possible future solution for the problems with the side shell of bulkers. This alternative is being analyzed in detail by GL, within a joint indus-

try research project together with shipyards and the German steel producing industry. The study includes economic evaluations of the life cycle advantages of such a design in relation to somewhat higher construction costs expected.

The dry cargo ship of the past is being replaced by pure container-ships, as well as multi-purpose

ships on the other. Many of the handy-size bulkers today — the most popular vessel for the traditional tramp trade — are being designed with box-shaped holds and large deck openings.

The inner bottom is strengthened for grab loads, and cell guides may be fitted if the ship operates as a container carrier.

For these ships, the interrelation with pure containerships is obvious. For the larger bulk carriers, the application of containership know-how is not as evident, but is clearly beneficial to vessel improvement.

Dr. Hans Payer is a member of the Executive Board of Germanischer Lloyd

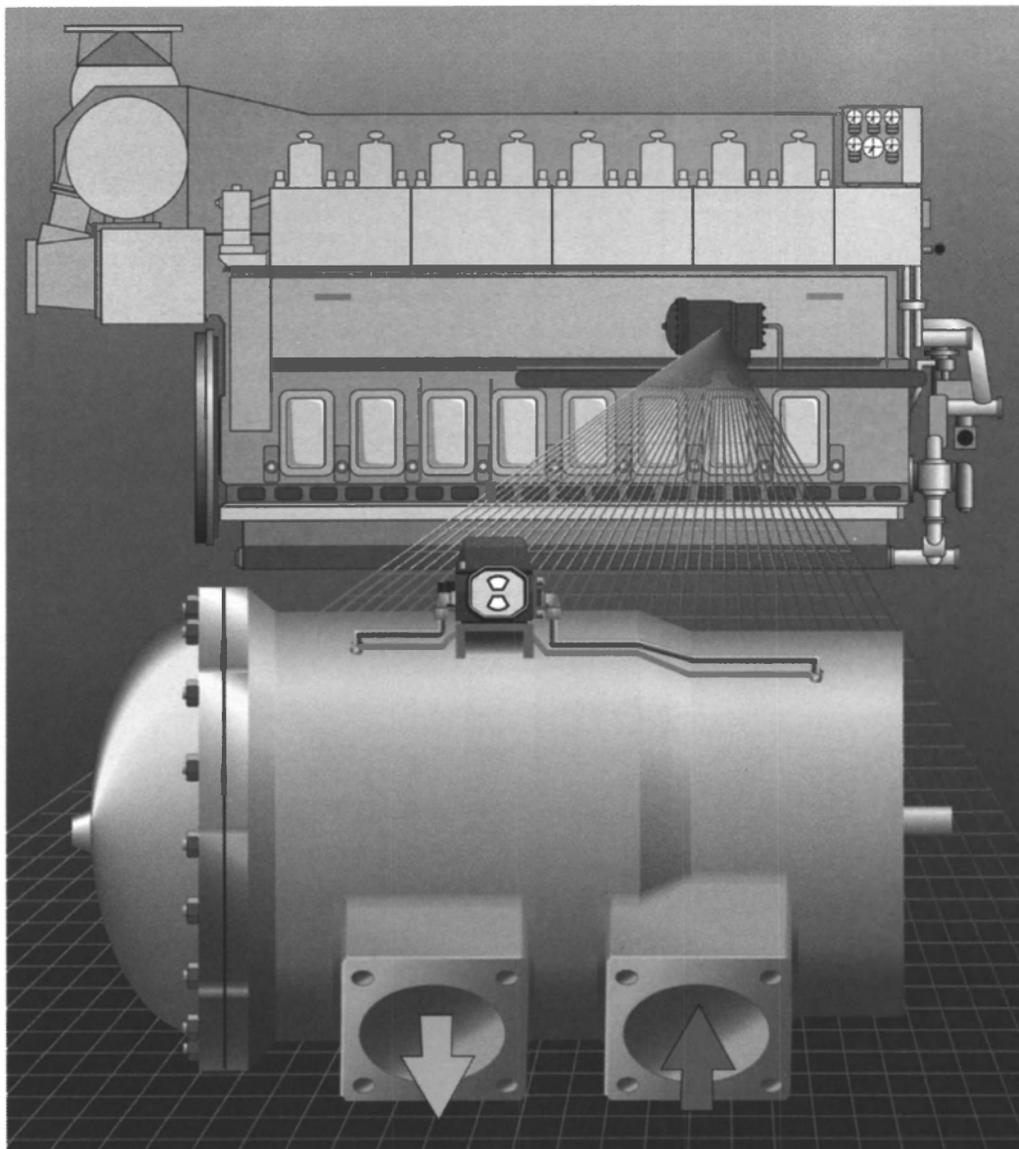
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Tideland Helps Mark Underwater Pipeline

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A Tidewater solar-powered steel buoy is shown being checked at its moorings outside Poole Harbor in southern England.

ed lanterns and buoys for marking an underwater offshore pipeline originating at Las Palmas, Canary Islands.

The buoys feature solar panels which are able to gather and store energy to power the lanterns at night.

These nav aids are electrically powered and designed for use with Tideland's solar generation system.

Tideland offers a comprehensive range of lights including the recently-introduced TRB-400 rotating beacon.

The company also offers a maritime consultancy service and designs and fabricates towers, supporting structures and enclosures.

For more information on
Tideland Signals Ltd.

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Short Sea Container Survey: No Pain, No Gain

Intense Competition Expected To Mark The Burgeoning Market

Collectively, the world's short sea container markets represent one of the largest and most dynamic elements of the global container shipping industry. They currently support deepsea trades by providing the opportunity to feeder over 15 million teu to and from hub ports, as well as independently moving substantial volumes of intra-regional trade. According to Drewry Shipping Consultants' new survey short sea container shipping is set for a period of sustained growth, but competition will remain fierce and sometimes destructive.

Dynamic Market Growth

Intra-regional links are becoming ever stronger, particularly due to the development of economic groupings such as ASEAN, EU, Nafta and Mercosur. Current intra-regional trades are estimated to total 16.5 million teu per annum, now representing more than one third of the world container trade.

In Asia in particular, the hierarchy of economies is giving rise to massive intra-regional trade as manufacturing activity seeks out low wage cost countries, underpinned by the rapid growth in Far East economies and the awakening of China.

At the same time, deepsea trades are set to expand further and this, combined with the ever increasing propensity for transshipment, will have a multiplying effect in terms of generating feeder traffic.

Following more than 15 years of double-digit average growth (see Table), current global transshipment activity is forecast to more than double by 2005, reaching a figure in excess of 70 million teu of port handling moves.

This development of global transshipment has implications for ports and shipping lines, as hubs become bigger and busier in an atmosphere of unprecedented development surrounding container port facilities worldwide. For example, the development of new hub ports such as Aden and Salalah in the Middle East will threaten the traditional hubs of the Arabian Gulf, while major companies such as P&O Ports and Hutchison Whampoa are investing in such diverse places as India,

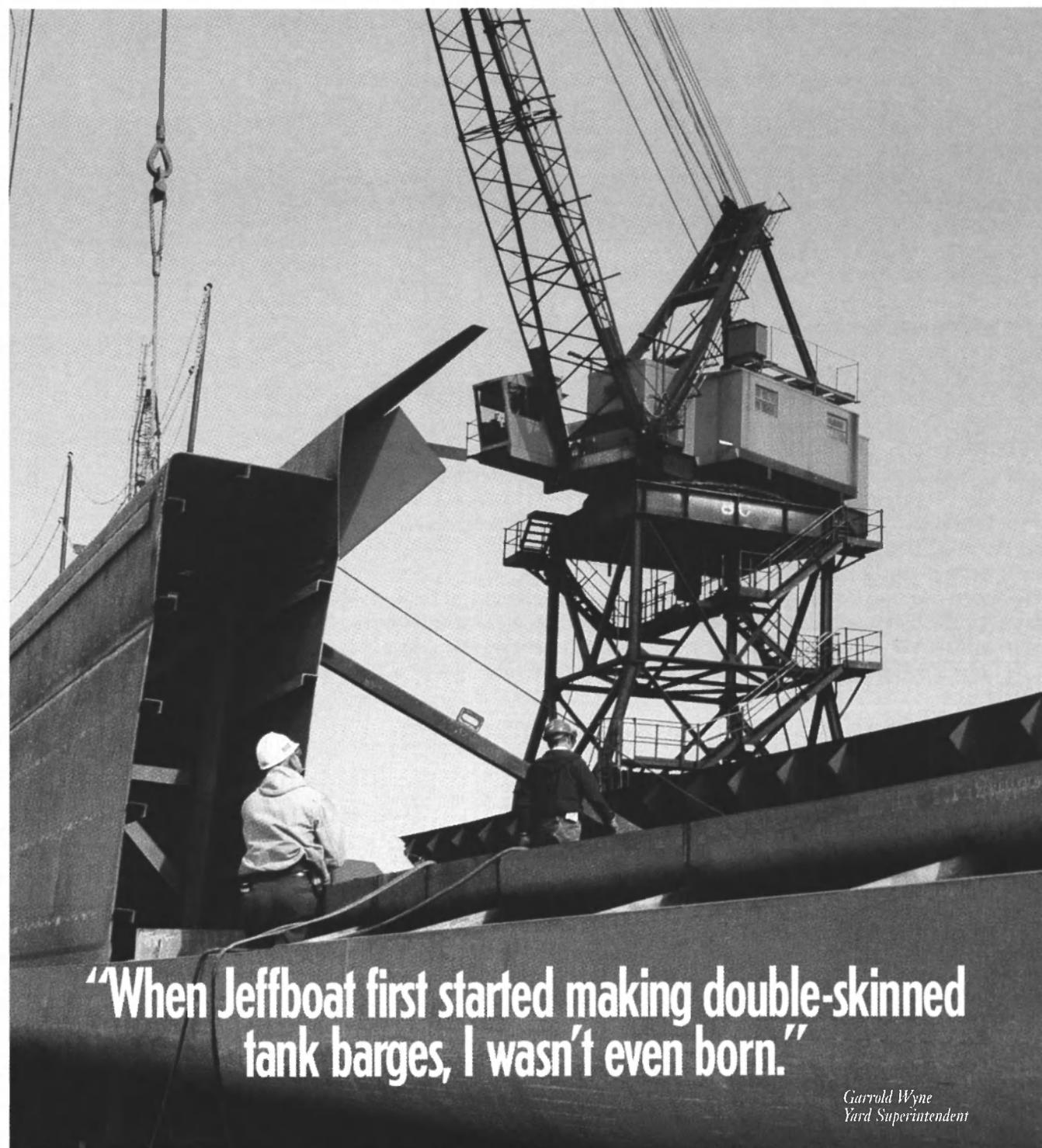
Thailand and the Caribbean.

The east coast of South America is another area where transship-

ment and feeder activity is set to mushroom, once the costs of cargo handling in Brazilian ports decline

to international levels.

Taking the port analysis further, the survey also provides an insid-



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er's view of the short sea container port, detailing key points such as typical contract points, responsibilities and expectations, selling points and management issues.

In Europe especially, the traditional trend of shipping lines investing in ports and terminals is being matched by a reverse trend of ports buying and operating short sea container lines, sometimes as a means of protecting throughputs.

Intense Competition

Despite volume growth, almost every short sea market is characterized by intense competition and constant change. The European and Asian markets provide a marked contrast in terms of short sea shipping.

European short sea container operators experience a high degree of modal competition from ferry operators and forwarders, all against a background of a mature market showing modest growth. Asian operators, on the other hand, have only limited modal competition in a market demonstrating dramatic growth in line with the economies of the Far East. However, what is common to both markets is the ongoing downward pressure on freight rates.

Northern Europe has seen the advent of the Channel Tunnel and the ripple effect on freight rates this massive injection of new capacity has caused.

The fixed-link between Continental Europe and Scandinavia will undoubtedly affect shipping operations and freight rates in the Baltic when completed around the millennium. Meanwhile, the emergence of the countries of Eastern Europe and the former Soviet Union offers a massive potential market, but one fraught with uncertainties and difficulties.

Ship sharing and the formation of alliances is becoming increasingly common as a means of controlling costs and defending market shares in short sea container markets.

However, even this has not been enough to protect leading operator Bell Lines from financial disaster in European door-to-door trade. Many feeder operators also face extreme pressure and the survey provides a detailed analysis of the cost structure of feeder operations in the key regional markets of the world.

For more information on the new survey *Short Sea Container*

Markets: The Feeder and Regional Trade Dynamo, contact Drewry Shipping Consultants Ltd., Drewry House, Meridian Gate - South Quay, 213 Marsh Wall, London E14 9FJ, tel: +44 (0) 171 538 0191.

Seakeeping Prediction System Introduced

Consilium Marine AB recently introduced its new SAL SPS system.

The purpose of the Seakeeping Prediction System (SPS) is to provide information regarding wave-induced dynamic effects on the ship.

The information is obtained by theoretical calculations in combination with measurements of the ship motions.

The SAL SPS allows basic configuration monitoring of bow slamming, green water on deck, hull vertical bending moment, acceleration levels and effective heel angles.

SAL SPS displays responses in a processed form in terms of the most probable maximum value encountered during a certain period of time.

The new system also features a more sophisticated forecast intended to serve as an operational guidance tool in critical situations. This service allows the operator to test the outcome of different

actions prior to executing them in reality and will also indicate the optimum corrective action.

For more information on
Consilium Marine AB
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Yanmar Unveils Four-Stroke Six-Cylinder Diesel Engine For Pleasure Crafts

Using the more economical diesel engine has traditionally meant sacrificing space and weight. Yanmar Diesel America Corp. has reportedly changed that by releasing the 6LP-DTE, a four-stroke, six-cylinder diesel engine that is part of its new series of engines for pleasure craft. The overhead cam design develops maximum horsepower at higher rpms. This design accommodates smaller, smoother-running propellers and, at 3,800 rpm, the turbo-charged diesel produces 250 hp — the same horsepower produced by V8, 454 cu. in. gas engines. Yet the 6LP-DTE weighs only 836 lbs. Its power-to-weight ratio of 3.3 lbs. per hp is reportedly one of the lowest on the market.

The engine measures only 37.4 x 26.4 x 28.7 in. and features a 3.7 in. bore, a 3.9 in. stroke and a 254 cu. in. displacement.

For more information on
Yanmar Diesel America Corp.
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VT Delivers First Of Class Attack Craft



Pictured are QENS Barzan and QENS Huwar, the first two of four fast attack craft Vosper Thornycroft will build for the Qatar Emiri Naval Forces.

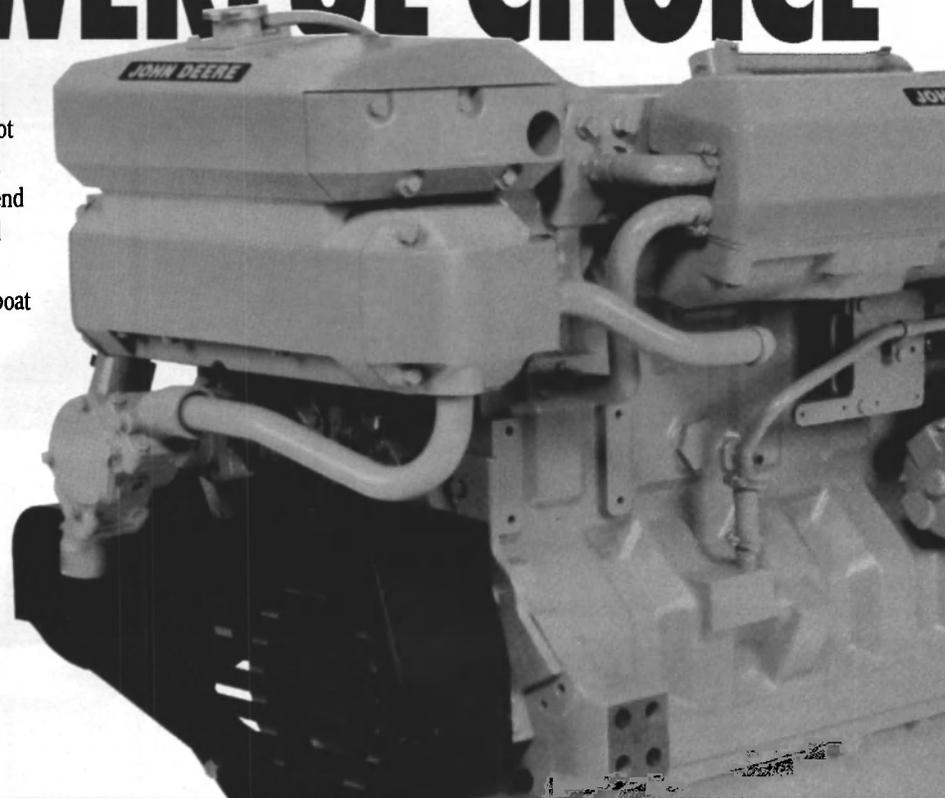
QENS Barzan and QENS Huwar were recently delivered to Qatar upon completion at Vosper Thornycroft Ltd. (VT). The two vessels are the first of four being designed and built by VT for the Qatar Emiri Naval Forces. The 184 ft. (56 m) long Barzan class vessels will feature 76 mm SuperRapid dual purpose guns, a Sadral launcher for Mistral surface-to-air missiles, a Goalkeeper close-in weapon system and two quadruple launchers for Exocet surface-to-surface missiles. In addition, a sophisticated sensor system which includes 3D surveillance radar, navigation radar and passive IR surveillance equipment has been selected for the vessels.

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GREEK INTEREST	mitsui	BULK CARRIER	1	75,000	2000	BELGIAN INTEREST	MERWEDE SHIPYARD	HOPPER DREDGER	1	21,000	1999
NYK LINE	HAKODATE DOCK	BULK CARRIER	1	31,800	1998	HANJIN SHIPPING CO.	HANJIN	LNG	2	72,000	1999
NYK LINE	mitsui	BULK CARRIER	2	75,000	1999	HYUNDAI MERCHANT MARINE	HYUNDAI	LNG	2	71,900	1999
OAK MARITIME	NEW SAMHO	BULK CARRIER	2	—	1999	KOREA LINE	DAEWOO	LNG	1	72,000	1999
SUISSE-ATLANTIQUE	CHINA SHIPB. CORP.	BULK CARRIER	1	73,000	1999	YUKONG LINE	SAMSUNG	LNG	2	72,000	1999
WAH KWONG SHIPPING	HYUNDAI	BULK CARRIER	1	—	4/99	mitsui O.S.K. LINES (MOL)	mitsubishi H.I.	LPG	1	47,900	1999
WORLD-WIDE SHIPPING	SASEBO	BULK CARRIER	3	74,000	1999	NAVIGATOR GAS CAMBRIDGE					
WORLD-WIDE SHIPPING	TSUNEISHI	BULK CARRIER	2	73,000	1999	PARTNERS	JIANGNAN	LPG	5	20,000	2000
JADROPLOV	3 MAJ	BULK CARRIER	2	28,400	2000	SONATRANCH	KAWASAKI H.I.	LPG	2	50,000	1999
UNKNOWN	NANTONG OCEAN SHIP ENGINEERING COMPANY	BULK CARRIER	1	—	—	BRIESE SCHIFFAHRG GMBH.	SLOVENSKE	MULTI-PURPOSE	1	3,700	1998
GRIEG SHIPPING	mitsui	BULK CARRIER	3	45,000	2000	JURGEN OHLE	SIETAS	MULTI-PURPOSE	1	—	1998
GREENSHIELDS & CO.	SUMITOMO	BULK CARRIER	4	73,500	1999	SYRIAN ARAB REPUBLIC	KARACHI SHIPYARD	MULTI-PURPOSE	2	—	1998
SINCERE SHIPPING	HALLA	BULK CARRIER	2	—	1999	TOYO SENPAKU	KWANG YANG SHIPPING CO.	MULTI-PURPOSE	2	9,500	1998
FAR EAST SILO	IMABARI ZOSEN	BULK CARRIER	1	74,000	1999	COMPAGNIE SURF	CHANTIERS PIRIOU	OFFSHORE	1	2,100	1998
AHRENKIEL	VIANA DO CASTELO	CHEMICAL	1	5,800	1998	CHILES OFFSHORE	AMFELS	DRILLING UNIT	1	—	1999
IONO KAIUN	SHIN KURUSHIMA	CHEMICAL	4	19,000	99/00	RASMUSSEN	DALIAN SHIPYARD	DRILLING UNIT	2	—	1999
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NOVOROSSIYSK SHPG CO	ULJANIK	CHEMICAL	4	17,500	1999	EXPRESS FERRIES	KVAERNER FJELLSTRAND	PASSENGER	1	—	1998
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TONGA GOVT.	NIIGATA ENG	FISHERIES RESEARCH	1	150	1998	EM Z SVITZERS	BALTIJA	TUG	1	291	1998
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Carisbrooke Orders Ships From Damen

Carisbrooke Shipping has ordered two 4,630 dwt bulk carriers from Damen Shipyards Group. The London-based shipowner reports that the vessels are to be delivered in the first half of 1998. In conjunction with the announcement, Carisbrooke revealed that it was in negotiations concerning a possible joint venture partner for these vessels. The new ships will be sisterships to the *Mark C* and *Emily C*, which the company said will be sold to a newly formed Dutch investment fund. Carisbrooke will acquire up to 20 percent interest in the fund. It will also continue to manage the ships, as well as a third smaller vessel sold to the fund.

Carisbrooke announced a pre-tax loss for the six months ending June 30, 1997, versus a profit for the same period in 1996.

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CIMAC Working Group Heavy Fuel Work Progress



This is the first in a series of articles presented by the CIMAC Council regarding the work of its nine working groups.

waste products, such as paint, solvents, brake fluids as transformer oils, etc.

C) Lube oil from the main and

generator engines on board ships.

Elements such as calcium, magnesium, phosphorus and zinc are currently used as traces of the

presence of waste lube oil in the HFO.

The major fuel testing services,

In order to illustrate the work of Heavy fuel WG, a case study on one of the issues debated for the past few years is presented here.

The issue is used lube oil ULO blended into marine fuel oil.

This topic is very controversial for all parties involved and a thorough discussion of it is important and necessary in order to come up with an understanding of this subject to provide guidance to the industry.

The situation at present is that due to low profit margins, marine fuel suppliers can no longer afford to give away quality, while the shipowners and their representatives require good competitive fuel quality, to ensure safe operation and low maintenance costs.

In a similar way the engine builders are interested in reliable quality fuels with properties within mutually agreed fuel specification limits.

This, in turn, results in satisfactory engine performance and a satisfied customer.

Particularly in the automotive industry, lube oil manufacturers have introduced a new generation of high quality lube oils with high degeneracy, to ensure trouble free operation between oil changes.

Due to environmental consideration, some governments have accepted and have also supported the industry in blending used automotive lube oil into marine fuels burned at sea, instead of the disposal of the waste ashore. This is one of the reasons why blending of used automotive lube oils into marine heavy fuels has become industry practice, even supported by many countries. Other reasons seem to be purely commercial.

However, one of the questions which keeps coming up is the definition of ULO.

Is it:

A) Reconditioned automotive lube oil and how is it reconditioned.

B) Residues of other chemical

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CORPORATE HEADQUARTERS

RESEARCH & DEVELOPMENT — FUEL QUALITY

which are part of the WG, presented statistical data based on many thousand HFO samples, which had been analyzed for the presence of ULO.

The conclusion was:

—The presence of ULO in marine fuel is very low.

—ULO in HFO is most frequently found in North American bunkers.

—ULO in HFO contributes to a few cases of failing, if it is to meet the ISO 8217 ash limits.

A second question is, what risks are involved when waste lube oil is

mixed into HFO?

From the WG discussions it was obvious that no one has proved what concentration of ULO are required to harm the engine and the exhaust gas system. However, if seen in terms of service experience, it is agreed that metal com-

pounds from a ULO will contribute to an increase in the ash level, and thereby the wear rates of the engine components, and lead to the possibility of further deposits forming and fouling that combustion zone and exhaust gas system.

However, the total ash level, as concluded by the major fuel testing services survey, is only in a few cases higher than the maximum ash content specified in ISO 8172 and CIMAC-H55.

With regard to separator efficiency, as a function of ULO amount, the results of an investigation carried out by one WG member showed the analytical data, obtained by testing fuel oil blends with three percent, six percent and 15 percent of ULO before and after a separator.

The differences observed in respect to the efficiency of the separator removing water, catalytic fines and ash from high and low density residual fuels blended with the above-stained amounts of ULO, were very small.

The opinion of the engine builders concerning the effect on the engine, when blending waste lube oil into HFO, is not consistent.

Fuel suppliers are also divided on this issue as some see no problems with adding up to five percent waste lube oil, while others prefer to recommend the use of HFO without any waste lube oil added.

The WG has not yet reached a final conclusion with regard to ULO. However, the main body has so far emerged of the opinion as follows:

—Waste, which is not lube oil, must not be mixed with the HFO due to safety considerations.

—The fuel supplier should inform his customers about any substances added to the HFO.

—The concept of adding ULO to HFO can influence the engine component wear rates and fouling of the gas ways.

—The higher ash level, due to added ULO, will influence the content of particulate in the exhaust gas emission.

Kjeld Aabo, Chairman CIMAC
Heavy Fuel Working Group
MAN B&W Diesel A/S
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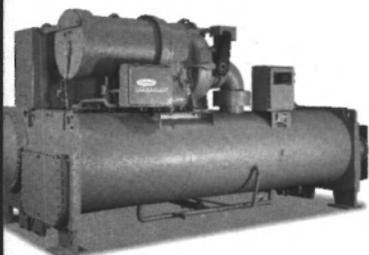
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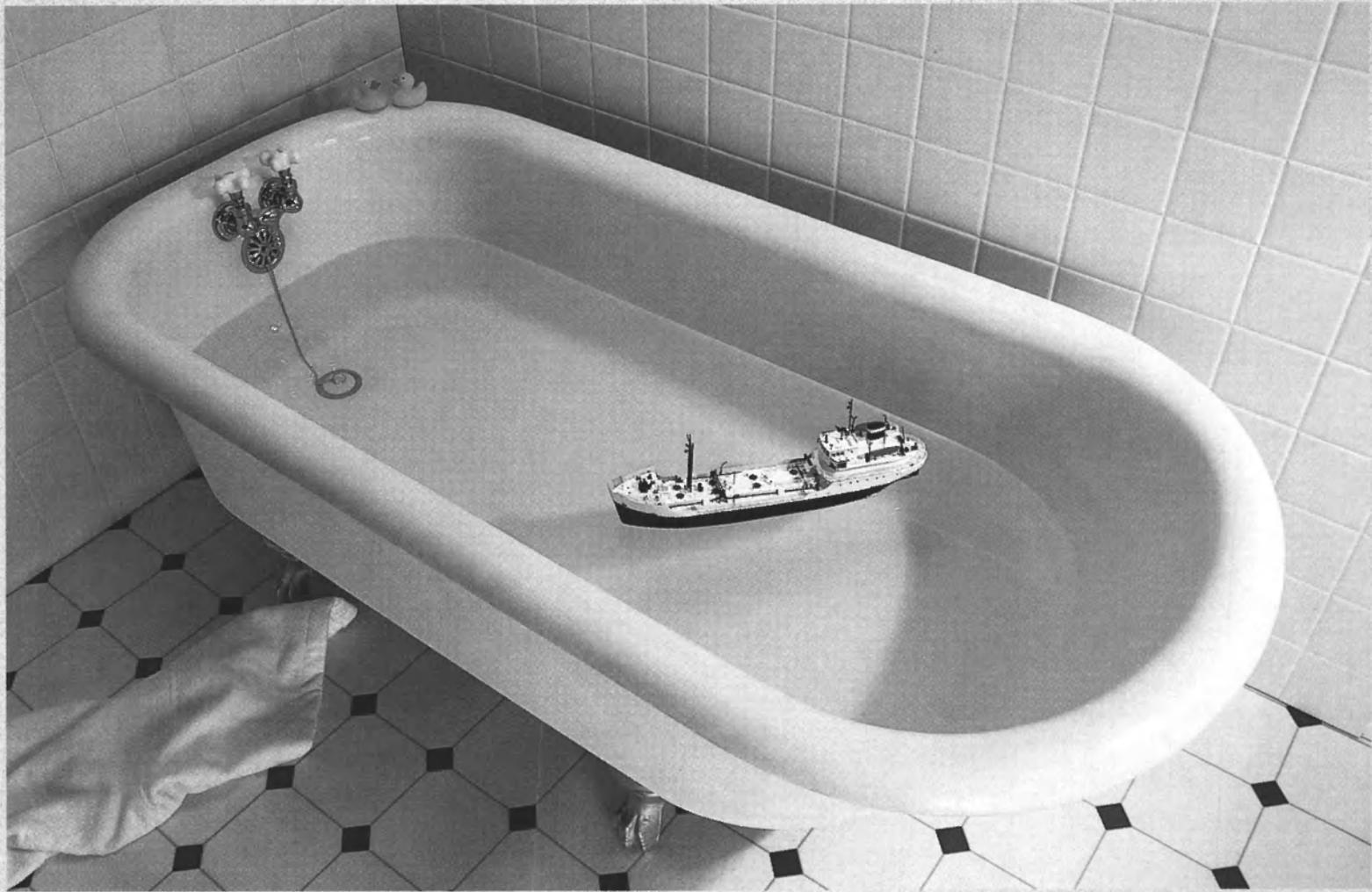


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About CIMAC

CIMAC (Conseil International des Machines a Combustion or, in English, the International Council

on Combustion Engines) was founded in 1950 by the engine builders' initiative to promote technical and scientific knowledge in the field of internal combustion engines.

Comprising 18 member countries CIMAC carries out its work

through nine different Working Groups, one of which is Heavy Fuel Working Group.

The members of Heavy Fuel WG represent 14 countries and belong to the following sectors of the marine industry: engine builders, shipowners, research institutes,

manufacturers of the onboard fuel system components, fuel services, fuel and additive manufacturers, fuel oil suppliers and other interested parties. In January 1982 Heavy Fuel WG published the first edition of Recommendation Regarding Fuel Requirements for Diesel Engines.

The second edition was published in 1986 and the third, current issue No. 11, in May 1990.

For many years the Recommendations Regarding Fuel Requirements have provided the residual fuel users, as well as marine operators, with important guidelines with respect to the purchase of marine bunkers and their main characteristics.

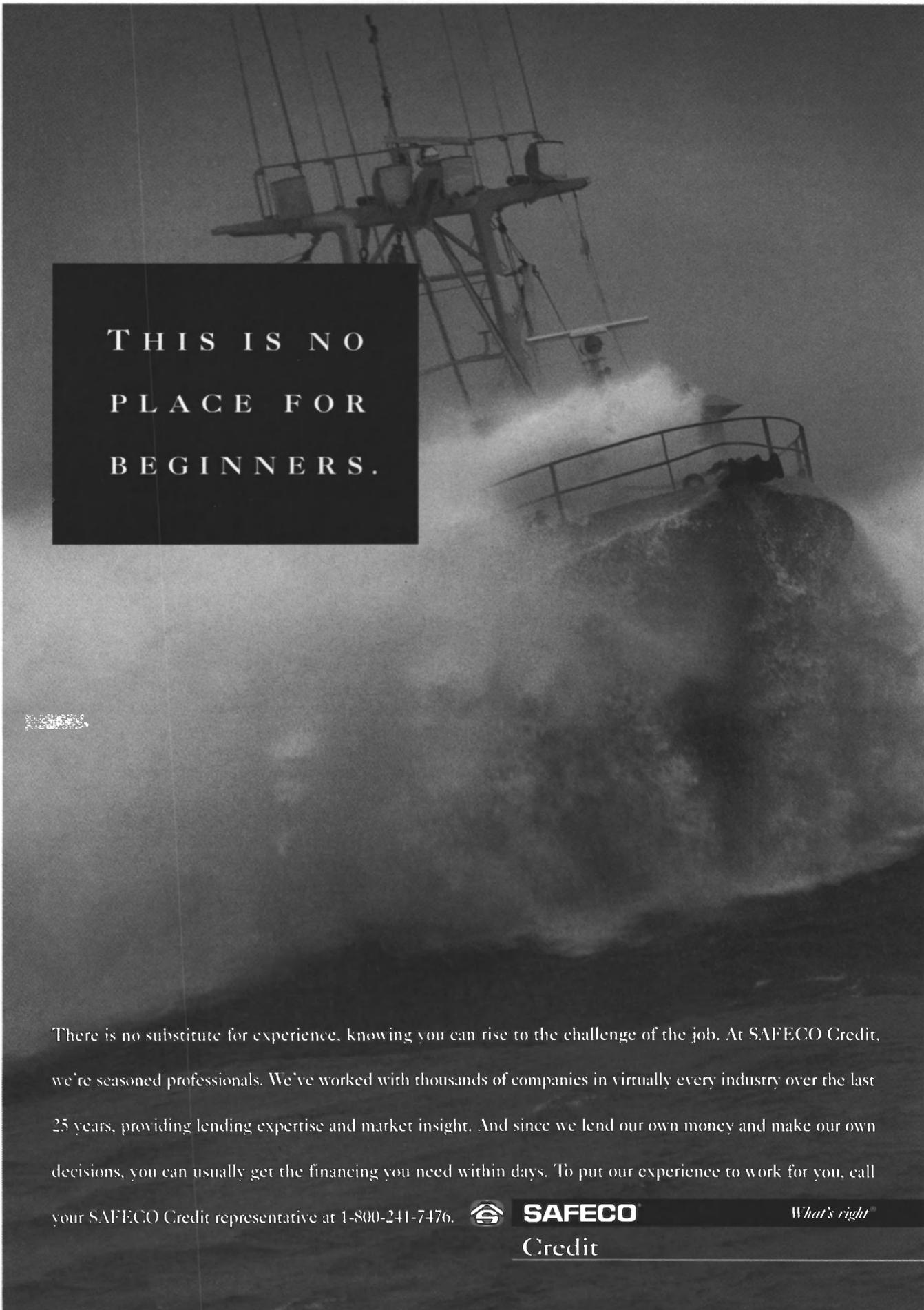
However, originally the Recommendations were intended for the engine manufacturers for inclusion into their manuals to specify the fuel grade(s) suitable for particular engine type and fuel treatment system installed on board the ship.

The Heavy Fuel WG meets twice a year at various locations hosted by the member organizations and the main issues discussed at the recent meetings were: influence of used automotive lubricating oil on marine fuel oil quality; ignition quality of distillate and residual fuels; influence of asphaltenes on combustion profile and the deposit formation; and the necessity to control sodium content and the reactions involved in formation of eutectics.

The debates also embraced some additional subjects relating to environmental issues, such as IMO regulation for low sulphur fuel operation. It has also been proposed that the WG should produce a comprehensive fuel user manual.

The Heavy Fuel Working Group works closely with the ISO/TC28/SC4 Working Group 6 responsible for the revision of ISO 8217 — The International Specification of Marine Fuels. The CIMAC WG provides technical input to the topics discussed during the Working Group 6 meetings, and the Convenor of Working Group 6 sits on and advises the CIMAC Heavy Fuel WG accordingly.

It is felt that all parties in the marine industry will benefit from this united approach to the issues of marine fuel quality and, therefore, this co-operation is of great importance and value.



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PEOPLE & COMPANY NEWS

DNV Recommends V. Ships Marine For ISO 9002 Certification

V. Ships Marine, Ltd. recently received notification from Det Norske Veritas (DNV) that the company will be recommended for its ISO 9002 Certification. V. Ships has been advised to proceed with the scheduling of its external audits for its vessels. With the successful completion of its ship-board audits, V. Ships Marine will then be recommended by DNV for its Safety and Environmental Protection (SEP) Certification.

Waukesha Bearings Opens German Office

Waukesha Bearing Corporation recently announced the opening of a sales office in Springe, Germany, to service its European customer base. **Norbert Holscher**, formerly of Renk, was hired as sales manager-Europe in June to establish a sales office to manage customer technical support for Waukesha

Bearings customers.

New Hamburg Service Station Handles All Ulstein Products

A new Ulstein Deutschland service station opening in Hamburg has been handling all Ulstein products since July 1, 1997. This follows the takeover of Eller Hydraulic Service GmbH by Ulstein Deutschland GmbH, which is headquartered in Bremen.

Eller Hydraulic had been the service agent for Ulstein Brattvaag winches in Germany and for Japanese crane manufacturer Fukushima Ltd., until Ulstein Brattvaag terminated its agreement with Eller in 1996 and entered into negotiations with the company's owner, Blohm & Voss, to take over Eller Hydraulic in Hamburg.

Ulstein Deutschland is now taking over all Eller Hydraulics personnel and is leasing the company's premises and all its equipment. Eller Hydraulic will cease all business activities except the

letting of buildings and the lease of equipment.

Walter Eller, former managing director of Eller Hydraulic, is joining Ulstein Deutschland and will serve as service manager in the Ulstein Deutschland GmbH, Hamburg office. Former Ulstein Deutschland service manager in Hamburg, **Peter Reinhard**, has been appointed contract manager and will work from the Bremen office.

Aker Appoints New Manager

Harry J. Stelly has recently been named manager of Marketing and Sales at Aker Marine Contractors' Lafayette, La. office. Mr. Stelly joins AMC with over 15 years of prior sales experience with diving, pipeline, hook-up, fabrication and heavy lift projects.

Shibata And Schuyler Announce Joint Venture

Shibata Industrial Co., Ltd., of

Tokyo, Japan and Schuyler Rubber Co. Inc. of Woodinville, Wa. have formed an alliance in North America. The new entity, SSR Marine Fenders Inc., will be based in Woodinville, Wa. The product line includes a full range of workboat fenders, as well as fenders for piers, docks and all port facility applications.

Thrustmaster Hires New International Sales And Marketing Manager

Hans van Lingen has joined Thrustmaster of Texas as International Sales and Marketing manager. He will be responsible for the worldwide marketing and sales of the Houston-based company's line of hydraulically and mechanically-driven marine thrusters.

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PEOPLE & COMPANY NEWS

Engineering Corporation (NREC) recently announced that **Dr. David Miller** will be joining the company as director of Engineering as of Aug. 11.

Dr. Miller will provide technical leadership and strategic direction for NREC, as well as operational management of the Design and Development unit and engineering functions. He will report to NREC President **Peter Baldwin**.

Most recently, **Dr. Miller** served as acting deputy branch chief of the Turbomachinery Technology Branch at the NASA Lewis Research Center. He has also held senior research and aerospace engineering positions with General Electric Co.

Marine Pollution Control Celebrates 30th Anniversary

On Aug. 15, Marine Pollution Control (MPC) celebrated its 30th

year of responding to oil and hazardous materials spills worldwide. **David Usher**, MPC's co-founder, teamed with **Bert Piggott** in 1967 and received its first response request when the Ford Motor Company asked for assistance with an oil spill on the Rouge River.

"The experiences gained in the last 30 years have shown me the importance of communication and cooperation among spill responders," **Usher** said.

Exxon Shipping Analyst Joins Clarksons

Fred Doll, a chartering analyst with Exxon Company International in New Jersey, has been appointed senior shipping analyst at international shipbroking group Clarksons.

Clarksons' Chairman **Hugh McCoy** said **Mr. Doll** would be "the interface between Clarkson

Research Studies and our brokers and their clients, providing that added value which we regard as part of our function as shipbrokers."

Mr. Doll, a graduate of the State University of New York Maritime College, sailed with Exxon Shipping Co. (now Seariver Maritime) from 1979 until 1986, serving in the clean, crude and specialty trades and gaining his Chief Mate's License. At this same time, he became a Lt. Commander in the U.S. Naval Reserves.

Kenneth Rogers Leaves OMI

After 11 years at OMI, **Kenneth Rogers** has announced his departure from his position as vice president to pursue his "lifelong ambition" of company and vessel ownership.

He has reportedly acquired ownership interest in Southern Ship Management, Inc., where he will

serve as executive vice president and chief operating officer.

"The present ownership has given me the opportunity to grow this company consistent with the integrity, honesty and personal commitment which I carry with me from OMI to this new venture," **Mr. Rogers** commented.

Southern Ship Management, Inc., has been certified by ABS for both ISM and ISO 9002 and provides a full range of management services to all classes of vessels.

Datrex, Inc. Announces Opening Of New Office

Datrex, Inc. opened a Seattle, Wa., branch, which will be managed by **Robert Hoskins**. The new branch will be the host of marine-oriented sales in the western U.S. Datrex also has offices in Miami and Jacksonville, Fla.; Kinder, La.; and Southampton, England.

Datrex manufactures marine safety equipment and emergency supplies for the commercial maritime industry and onshore emergency preparedness market.

Its product line includes: emergency drinking water; emergency food rations; life ring buoys; distress signaling equipment; low location lighting; photoluminescent signage; and many other products in compliance with USCG and SOLAS/83 requirements and with multinational maritime authority approvals.

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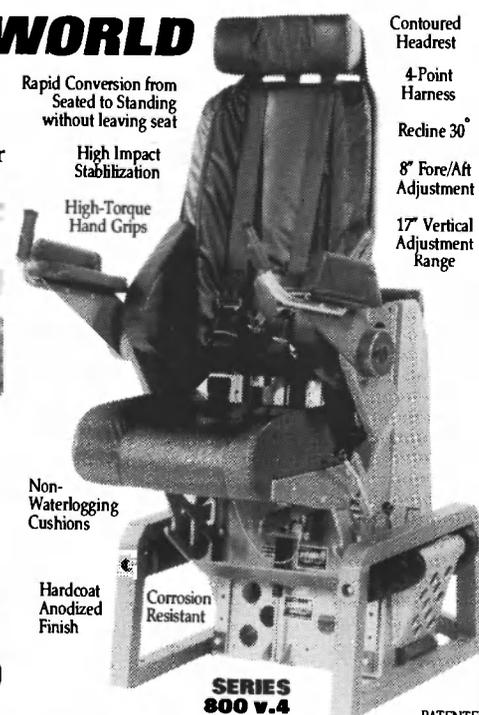
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PEOPLE & COMPANY NEWS

Coast Diving Service Opens In Bay Area

In-water ship inspection and repair company Coast Diving Service, Inc., has announced the opening of its new office in Benicia, Calif.

"We feel that by opening the office in Benicia, we will complement our established business in the Los Angeles/Long Beach Harbors and enhance our services by keeping the cost to our customers to a minimum," said company Vice President **Gene Fenton**.

Hitachi Zosen Corp. To Move Head Office

By year's end, Hitachi Zosen Corp. will move its head office administration, business and design departments to the Hitachi Zosen Nanko Building from the "Ninety Building" at Nishikujo, Konohana-ku, Osaka.

The Nanko building, currently under construction in the Nanko Cosmosquare district of Osaka, will also house the Plant & Machinery Design Office and other departments now located in the Sakurajima district.

Oceaneering Announces Major Multiflex Expansion

Oceaneering International, Inc. announced plans to more than double the manufacturing capacity of Oceaneering Multiflex, which manufactures hydraulic and electrohydraulic umbilicals used to tie back subsea production facilities, blowout preventers, and other underwater equipment to surface control units, and introduce new products over the next two years. The new capacity should be available for use during the company's fiscal year ending March 2000.

To initiate the expansion, the Oceaneering Multiflex U.K. opera-

tions will relocate in the summer of 1998 to a larger, waterfront facility in Rosyth, Scotland, that will be purpose-built to serve the North Sea market.

With available floor space of 130,000 sq. ft., the facility will double the size of the current plant in Leith.

This new facility will be equipped to improve the efficiency of manufacturing long-length thermoplastic umbilicals as well as other new products.

A manufacturing facility will be established in Brazil and existing U.S. facilities will be relocated and modernized. These plants are expected to be ready by the end of 1998.

New product lines including integrated service umbilicals and flowlines of up to four inches in diameter for gas and water injection are being evaluated, in addition to the recent introduction of umbilicals incorporating High Collapse Resistant (HCR) pipes for deepwater applications.

Wikborg, Rein & Co. Appoints New Lawyers

Wikborg, Rein & Co., the international law firm, has appointed two new lawyers to its London office. **Morten Lund Mathisen**, a partner and maritime law spe-



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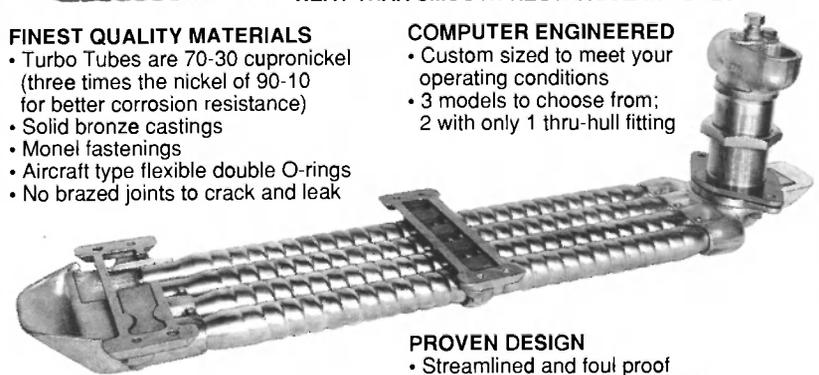
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PEOPLE & COMPANY NEWS

cialist, has moved to the London office from the Kobe office, and **Ketil E. Boe**, a resident lawyer with experience in securities, financial and contract law and transaction management, was formerly stationed in Oslo. Mr. **Mathisen** will concentrate on maritime law and marine insurance law, strengthening the London office's core business of handling sale, purchase and ship finance transactions.

Furuno Promotes Rick Walls

Furuno U.S.A. has appointed **Rick Walls** Customer Service manager for U.S. operations. Mr.

Walls has been with Furuno for more than eight years, serving most recently as assistant manager of East Coast Operations.

In his new role, he will be responsible for supervising the order service and customer relations departments.

GL Reports Strong Growth, Opens New Malaysian Office

Germanischer Lloyd (GL) continued to grow in 1997 with gross performance rising 12.5 percent to \$68.43 million in the first half of the year.

More than \$143.7 million is expected for 1997 as a whole compared with \$130.9 million in the previous year.

On Sept. 1, the volume of world merchant shipping classed by GL exceeded 25 million GT for the first time.

This compares with 18 million GT five years ago.

To date this year, 173 newbuildings of 1.6 million GT have been delivered and an additional 269 units of 2.2 million GT are due for delivery by year's end.

GL also announced the opening of a new office for its subsidiary company in Malaysia.

It is the company's fifth Malaysian office.

Staffan Olsson Joins ASRY

ASRY's mechanical and piping organization has been strengthened by the arrival of **Staffan Olsson**, who will head up this service and report directly to ASRY's production manager, **Chris Potter**.

Mr. **Olsson** began his career at Johnson Line in 1971 where he eventually became chief engineer. In 1985, he moved to Tarntank as chief engineer and newbuilding manager for product and chemical tankers. He then joined Nordic Oriental first in Stockholm then in Singapore as senior superintendent, handling the frontline fleet.

ABS Issues Updated Guideline Booklet

ABS has reissued its widely-used guidelines for meeting Port State Control inspection standards. The updated booklet contains new information and an expanded checklist intended to assist owners in meeting PSC standards.

Information in the new guidelines is based on a detailed analysis of Port State Control activity by ABS. The checklists, which have been perforated for ease of use onboard, now run to 18 pages and include areas and items which are covered by SOLAS, Load Line, MARPOL and other international safety conventions in addition to classification requirements.

Also included in the ABS booklet are sections providing the background to Port State Control and the general procedures followed in a Port State inspection and a synopsis of the types of class and statutory deficiencies that have been found during inspections. The ABS guide, entitled Update on Port State Control — Including Routine Maintenance Checklists is available free of charge from any ABS office to owners and operators of all vessels.

For more a copy of the ABS booklet
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U.S. Chamber Of Shipping Appoints New Director

Kathy J. Metcalf was recently appointed director, Maritime Affairs, of the U.S. Chamber of Shipping (USCS), which represents 20 U.S.-based companies which own, operate or charter oceangoing tankers, containerships

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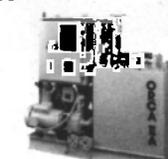


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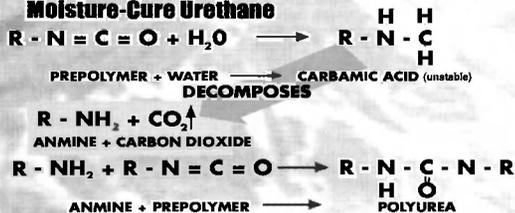
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PEOPLE & COMPANY NEWS

and other merchant vessels engaged in both domestic and international trade.

In her new capacity, Ms. Metcalf will be responsible for legislative and regulatory affairs in both international and domestic maritime arenas.

Ms. Metcalf has experience at

sea with Gulf Oil and Sun Company.

She spent six years as Marine Safety/Health coordinator at Sun and was active with USCS, attending several meetings of the Bulk Chemicals and Fire Protection Subcommittees of IMO on the U.S. delegation as the U.S. shipowner

representative. In 1990 she accepted a corporate position with Sun as senior analyst in legislative/regulatory affairs and in 1992 became responsible for health, environment and safety in the Corporate Oversight and Assessment Group. Since 1993, she has held the position of direc-

tor, State Government Affairs Midwest.

Torkild Funder Awarded International Maritime Prize For 1996

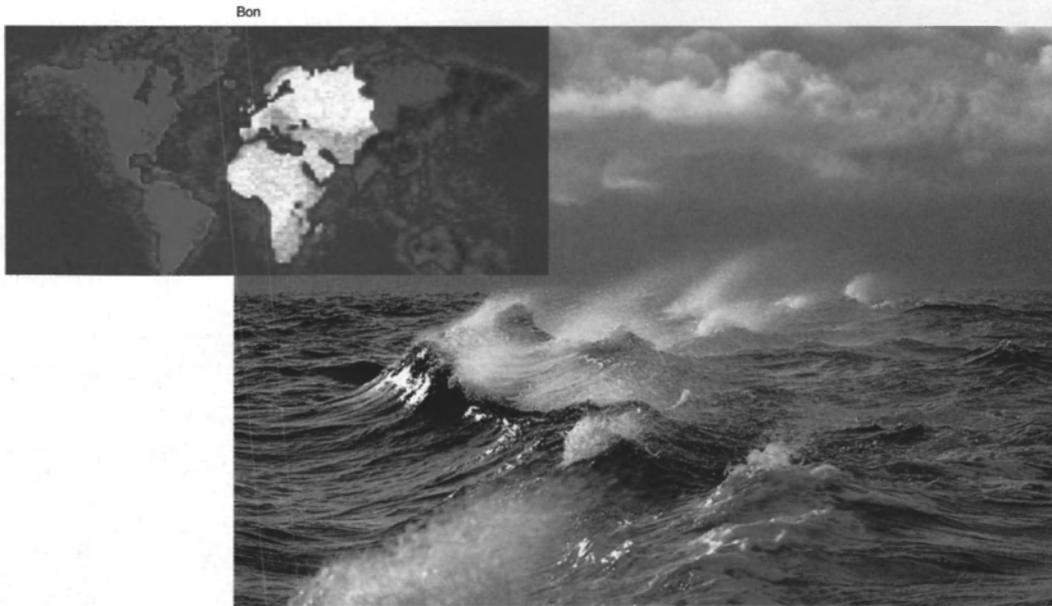
Torkild Reedtz Funder of Denmark, former director-general of the Danish Maritime Authority was presented with the International Maritime Prize for 1996 by William A. O'Neil, Secretary-General of the International Maritime Organization, the U.N. agency concerned with shipping safety and the prevention of pollution from ships. The prize is awarded each year to the person, organization or other entity judged by the IMO Council to have made the most significant contribution to IMO's work and objectives.

Mr. Funder has always been engaged in international work within IMO and other international bodies dealing with maritime affairs. His emphasis while chairing IMO sub-committees and conferences, has been on achieving the highest practicable standards in matters concerning safety, efficiency of navigation and prevention and control of pollution from ships. His posts included Chairman of the Sub-committee on Standards of Training and Watchkeeping (1979-85); Chairman of the Sub-committee on Safety of Navigation (1986-88); Chairman of Maritime Safety Committee (1989-93); and Chairman of IMO Panel of Experts on RoRo Ferry Safety (1994-95). He was also president of the SOLAS Revision Conference in 1994 and president of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Revision Conference in 1995.

Frank Nedney Joins Crowley

Crowley Maritime Corp. has announced the appointment of **Frank Nedney** to the position of director, Business Architecture within the corporation's Information Services Department.

In his new position, Mr. Nedney will lead a group of business and technology professionals whose mission will be to analyze business operations and understand business goals, objectives and plans,



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PEOPLE & COMPANY NEWS

and prepare and promote technology plans and processes that are aligned with the business.

The Business and Architecture unit will be focused on evaluating more contemporary technology alternatives and the integration of selected systems and services into

Crowley's existing operating environment.

Keppel FELS Appoints Two New Directors

Keppel FELS Ltd. has appointed

Dr. Lee Tsao Yuan and **Lt. Gen. (Ret'd.) Winston Choo** to its Board. **Dr. Lee** is the Director of the Institute of Policy Studies, a non-government public policy thinktank which studies issues of policy interest to Singapore. **General Choo's** last appointment

was as Singapore's High Commissioner to Australia from 1994-97. He is currently a director of Keppel Bank of Singapore Limited, DBS Land Limited, Australand Holdings Limited, Ace Dynamics Limited and Chairman of the Singapore Red Cross.

Jonaro Technomar Services Announces Opening

Jonaro Technomar Services LLC has announced its formation as an independent techno-commercial maritime consultancy and service company based in Savannah, Ga. Headed by Capt. **Christopher R. Desa** FICS, MCIT, the company looks forward to offering professional services spanning: ISM Code, ISO 9000 Consultancy, facilitation, documentation, system development, training, implementation and monitoring; internal and external auditing; oil major vetting inspections for oil/chemical and gas tankers; technical and commercial aspects of transportation management; emergency/casualty/pollution prevention and response; contingency planning; expert witness, claims, salvage, casualty investigations, damage assessments and recovery coordination, and loss control; advisory services to P&I, hull and machinery, admiralty law interests, attorneys, shipowners/operators and charterers; and ship management operations and general business consultancy.

Capt. David Condino Resigns

American Shipyard's Deputy CEO/Shipyard General Manager **Capt. David Condino** has announced his resignation after just over a year at the helm. Reportedly, **Capt. Condino** left his post out of frustration with the way court-appointed trustee, **Steven Gray**, and CEO **Henry Nardone** think the beleaguered shipyard should be operated. **Capt. Condino** was hired as the general manager last year and took on the additional responsibilities of Deputy CEO and Shipyard Production superintendent in February, 1997.

According to Mr. **Gray**, when **Capt. Condino** was hired, **Nardone**, who, at the time, was working full time, was supposed to



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PEOPLE & COMPANY NEWS

cut back to one or two days a week. However, this did not take place; Mr. **Nardone** stayed on full time, resulting in the overlap of some responsibilities.

Since his arrival at American Shipyards, the company, which had taken substantial losses on a

Navy contract and only meager profits on two Army contracts over the winter, was able to turn a profit and reported a surplus of over \$1 million in cash and short term receivables.

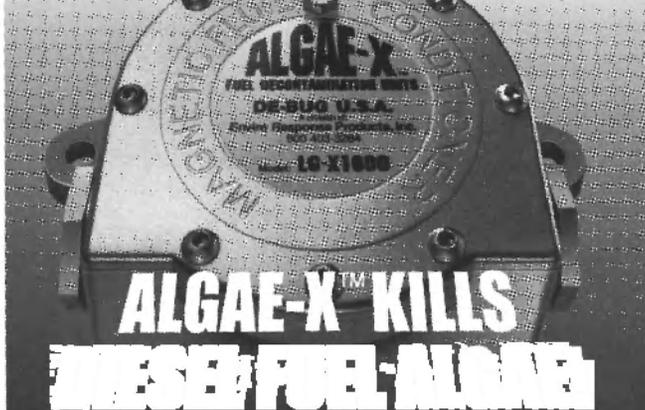
In August, Capt. **Condino** and a group he had formed tried to pur-

chase the assets, property and business of American Shipyard Corp. The offer is still on the table but is unlikely to be accepted.

Capt. **Condino** owns his own marine consulting firm and, though he had hoped to bring several long-term projects to

American Shipyard, he will look in other locations for the placement of these projects, which include a \$20-25 million ferry project and multi-million dollar contracts for a barge and a research vessel.

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Caterpillar Broadens Engine Range With Electronics

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Modernization Of Tanker Fleet A Main Priority

The Latvian Shipping Co. (LSC) reported that its council has approved a tanker fleet strategy that would involve a large scale investment to modernize existing vessels, sell potentially unviable vessels and purchase new ones.

LSC tanker fleet profits after depreciation in the first half of 1997 equalled \$13.71 million against a budgeted \$8.5 million.

The company had a first half profit of \$3.4 million, but is expected to end the year in the red. LSC has already upgraded two tankers, investing \$13 million in Dzintari and Zanis Griva, and has bought two sister gas tankers this year, worth approximately \$50 million each. LSC currently operates 39 tankers, which comprises 60 percent of its total fleet.

Sumitomo Wins Bulk Carrier Orders

Sumitomo Corp. has received an order for

four bulk carriers worth approximately 12 billion yen from Canada's Fednav Ltd.

The 34,000-dwt vessels have been commissioned to navigate the St. Lawrence Seaway for service in the Great Lakes. Japan's Oshima Shipbuilding Co. will build the ships at its Nagasaki yards.

Delivery of the 34,000 dwt vessels will begin in the second half of 1999 and conclude in the first half of 2000.

Keppel Marine Wins \$65.4 M Contract

Keppel Marine Industries Ltd. has won a second contract from the A.P. Moller Group to build two Anchor Handling Tug/Supply (AHTS) vessels valued at \$65.4 million. Keppel Singmarine Dockyard Pte Ltd. (Keppel Singmarine) will design and construct the vessels, which are scheduled for delivery in 1999.

The contract follows A.P. Moller's decision to exercise an option in an earlier shipbuilding contract for two AHTS vessels — which are currently under construction at Keppel Singmarine's main yard and are expected to be delivered in the second half of 1998.

Hess Signs Rig Deal With Dolphin

Amerada Hess signed a three-year contract with Norwegian-based Dolphin Drilling for a rig to drill the first well off the disputed Falkland Islands in the south Atlantic in May 1998.

The Borgny Dolphin rig will go into a yard in western Norway for the upgrades necessary to enable it to drill in water depths up to 500 m next month.

As operator of tranche A, Hess will drill the first well to the north of the islands. The rig contract is expected to run from February next year and could be worth as much as \$150 million to Dolphin, which is owned by the Fred Oslen Ltd.

The operators will share equally the costs of commissioning the rig and its round trip from the North Sea to the south Atlantic — estimated at nearly \$9 million.

Industry sources said the rig could command a day rate of around \$130,000. LASMO will drill the second well, followed by Shell and then IPC. The rig will then return to Amerada Hess for a second well.

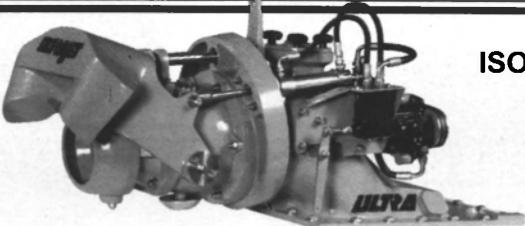
Mobil, Chevron Ink Offshore Pact

The Canadian units of Mobil and Chevron have reportedly agreed to pool resources for the exploration and development of 29 million acres off the east coast of Canada.

No time limit or dollar figure was attached to the strategic alliance.

Under the alliance, the companies plan to create teams to jointly plan and manage exploration, development of current and future plays.

Mobil and Chevron have worked on various offshore Newfoundland projects since Chevron drilled the Hibernia discovery well in 1979.



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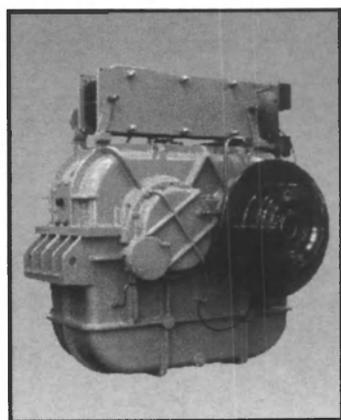
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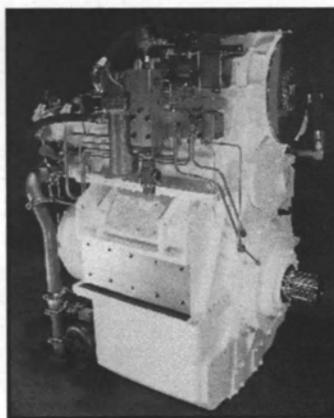
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MARINE FINANCE

Ukraine To Sell Part Of Sevastopol Shipyard

Ukraine's State Property Fund

reportedly plans to sell a 26 percent stake in the Sevastopol shipyard by March 1998.

The stake in the AT Sevastopolskiy Morskiy Zavod,

which builds and repairs cranes used in shipbuilding, comprises 803,379 ordinary shares. According to the plan, the government will maintain a 26 percent

interest and workers will keep 20.2 percent.

An additional 19.8 percent has been reserved for sale for privatization or compensation certifi-



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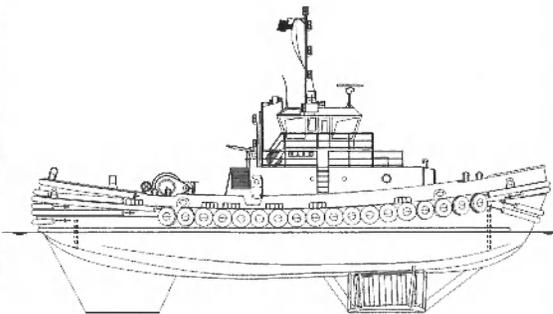
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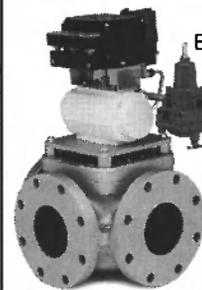
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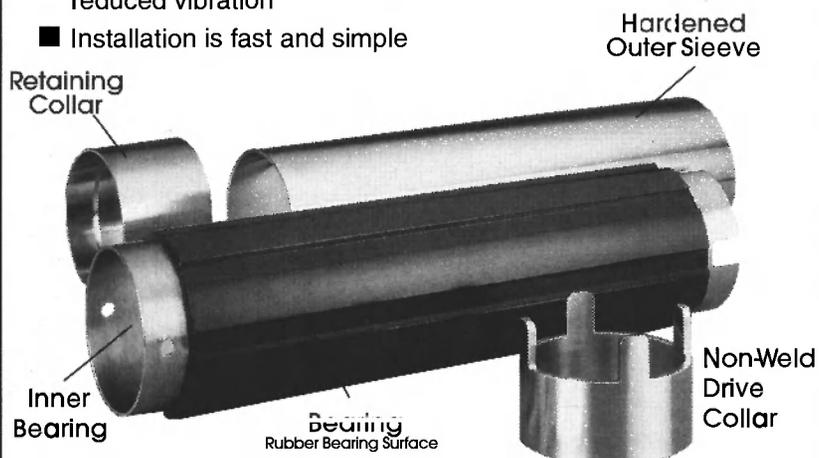
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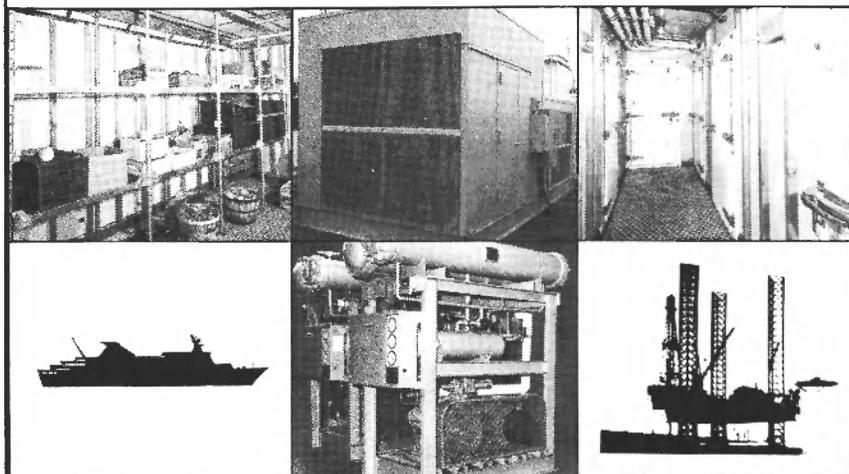
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New Feeder Service Launched From U.S. Gulf Coast

Caribbean General Maritime Ltd. (Cagema) has launched a new weekly feeder container shipping service between the U.S. Gulf, Mexico and the Caribbean.

Cagema said the new Gulf Express Service would link up with the trans-atlantic services

operated by its parent, France's CMA-CGM Group.

Operated with two vessels, the Arcadian Sky and Camira, the service will call at the ports of Miami, Veracruz, Altimira, Houston, Kingston and Freeport. Cagema said the service will link up with CGM's North Europe-West Coast of South America service at Kingston. It will also link with the U.S.-Mediterranean service operated by CMA. CMA acquired CGM from the French government last year.

IHC Caland To Acquire Giessen Shipyard

IHC Caland NV reportedly expects to reach a full agreement to take over Giessen-de Noord shipyard. IHC has agreed to pay 80 guilders per share for all shares of Giessen-de Noord once an agreement is reached. IHC expects to complete the takeover during the fourth quarter of 1997, at which time Giessen-de Noord will continue under its own name and managers.

Kazakha, EBRD Launches \$74-M Caspian Port Upgrade

Kazakhstan launched a joint \$74 million project with the European Bank for Reconstruction and Development (EBRD) to upgrade its important Caspian Sea port of Aktau.

The EBRD is reportedly providing \$54 million for 14 years at an interest rate of seven percent a year. The Kazakh government would invest \$20 million.

The upgrade is designed to increase freight turnover to eight million tons a year, including six million tons of oil products and two million tons of dry cargo.

Holland America Sells Flagship SS Rotterdam

Holland America Line, a unit of Carnival Corp., said it is selling its flagship, the SS Rotterdam, to Cruise Holdings Ltd., under a lease/purchase arrangement. Holland America said it plans to transfer operation of the ship to Cruise Holdings in early October, and that the ship will retire from Holland America service on September 30.

Coincident with the sale of the SS Rotterdam, the company said it will introduce its newest and most luxurious cruise liner, the MS Rotterdam VI.

Jebsens Chairman To Step Down

Atle Jebsen is to step down as chairman of Jebsens S.A. after selling his 70 percent stake in the company to Actinor Shipping ASA. Jebsen will leave the company he founded after the completion of the deal, which is scheduled for November 1. Actinor announced earlier it would acquire Atle Jebsen's stake in Jebsens S.A., a holding company for the North Sea bulk carrier specialist, for \$20 million.

Bergen-based Jebsens S.A. operates 70-80 time chartered vessels, carrying a major portion of Norway's bulk imports and exports.

Sea Malta Sells Ship To Turkish Firm

Sea Malta has reportedly sold its RoRo vessel *Senglea* to a Turkish interest and plans to

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replace another vessel, the Pinto. The company did not disclose the ship's buyer.

The *Senglea* is the former Arcade Eagle, built in 1981 for the Norwegian company Leif Hoesh. It was bought by Sea Malta a year ago and is capable of carrying 86 TIR trailers, 300 containers or 500 cars.

Benor Buys Five Tankers For \$99 M

Benor Tankers Ltd. has spent \$99 million on the purchase of five product tankers during July and August.

In a statement to the Oslo stock exchange, Benor said it had bought the medium-range/handymax product tankers *Leopard*, *Panther*, *Tiger* and *Endurance*, as well as the long-range/Panamax tanker *Trader*.

The acquisitions have been financed through a \$68 million loan and \$20 million in Benor shares, with the balance coming from other company funds. According to Benor, the four medium-range vessels will all continue their current time charter employment.

Benor also holds contracts for two medium-range newbuildings to be delivered during the first quarter of 1999.

Ugland Nordic Buys Four Ships For \$113 M

Ugland Nordic Shipping AS has reportedly agreed to acquire four tankers for \$113 million, funded largely by a new share issue.

The company said it will pay \$82.5 million in shares for three oil tankers controlled by Norwegian shipowners Seabulk AS and L. Gill-Johannessen AS.

The 107,000-dwt, 1997-built Suezmax tanker *Svenner* will reportedly cost \$45 million, and will be converted into a shuttle tanker after the expiration of her current charter in spring 1998.

The 48,000-dwt, 1985-built double-hulled sisterships *Biakh* and *Brali*, at \$18.3 million and \$19.3 million respectively, are suited for conversion into either shuttle tanker or floating production units.

Ugland Nordic has exercised its option to acquire a fourth ship, the

1996-built Suezmax shuttle tanker *Sarita* currently on time-charter to Statoil.

Sarita will be bought for \$30.8 million in shares from the privately-held Andreas Ugland & Sons, Ugland Nordic's largest shareholder.

Unocal Sets Rig For Deepwater Exploration

Spirit Energy 76, Unocal Corp.'s Lower 48 exploration and production business unit, said it has signed a memorandum of under-

standing with Smedvig Offshore Limited for a deepwater drill ship that can operate in 10,000-ft. (3,048 m) of water.

The drillship is currently under construction and has been designed to provide dual activity and capacities for production test-



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MARINE FINANCE

ing. The ship is scheduled to start drilling operations by the end of 1998 or early 1999.

IMO Defers Decision On Double Hull Tankers

Tanker owners received some

breathing room when it was announced last week that an international plan to fast-track a double hull mandate would be tabled for a later date.

The International Maritime Organization (IMO) agreed on Sept. 22, to defer a decision on speeding up the replacement of

single hull tankers by double hull vessels.

IMO said the issue may be discussed further when the IMO's Marine Environment Protection Committee meets again next March.

Japan recently has become especially concerned about the dangers

of oil pollution and has called on governments to offer financial incentives to encourage shipowners to scrap single hull tankers after the single hull very large crude carrier *Diamond Grace* spilt some 1,300 tons of crude into Tokyo Bay in July.

Under regulations in force since 1994, single hull tankers have to be scrapped when they are 30 years old and face cargo load restrictions when they reach the age of 25.

Norway Reviews Terms For Oil Exploration Licenses

Norway is reviewing procedures for awarding licenses for oil and gas exploration on the Norwegian continental shelf, the Oil and Energy Ministry.

The ministry is assessing four options for the changes including group applications and an auctioning system, a spokesperson at the ministry reported.

The NCS is divided into the mature North Sea, the Norwegian Sea, which is gradually opening up, and the Barents Sea, which is completely undeveloped despite several minor and medium-sized gas discoveries.

The ministry was also considering a licensing policy for the North Sea and for areas where there were prospects adjacent to producing fields and infrastructure, such as in the North Sea and Norwegian Sea.

Norway adjusted licensing terms for an extra licensing round earlier this year, known as the Barents Sea Project, in order to renew interest in an area that has failed to produce any major results despite extensive exploration since 1980.

In 1994 the government announced a package of proposals aimed at boosting activity and investment in Norwegian waters.

OT Africa Appoints First Ivory Coast Manager

West African shipping specialist OT Africa Line (Otal) said it has appointed a line manager to its agency office in Abidjan, Ivory Coast for the first time.

Otal said the move reflected increasing trade to the region which has made Ivory Coast a



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major transshipment point for other west and central African states.

Otal currently operates three container ships and four large RoRo vessels which call at Ivory Coast.

NCL Buys Cruise Ship

NCL Holding has completed the purchase of the 1,056-passenger cruise ship *Royal Majesty*.

The company — which earlier last week said it will apply for a listing in the U.S. — said the 1992-built ship will sail as part of the NCL fleet from November 10 under the new name Norwegian Majesty.

NCL additionally revealed that it is making a \$50-million private share placement to help finance the purchase of another vessel, the 1,186 berth *Aida*.

NCL said in August that it would pay \$180 million to buy the *Aida* from German company Deutsche Seetouristik GmbH.

Hemen Holding Acquires Six ULCCs

Frontline's main shareholder Hemen Holding, has reportedly acquired six Ultra Large Crude Carriers (ULCCs) from the Greek ship owner Latsis. Hemen Holding reportedly intends to establish a separate company which will own the six oil tankers, as well as two VLCCs — *Fellowship* and *Friendship* — which are controlled by Hemen Holding.

The new company will reportedly be listed on the Oslo Stock Exchange, probably before the end of the year.

The six ULCCs — ranging in size from 357,000 dwt to 555,000 dwt — were estimated by shipbrokers to have a value of \$125 million to \$130 million.

IMO's O'Neil: People Key To Safety At Sea

Increased vigilance and adherence to safety procedures and not new regulations are the key to improving safety at sea, said secretary general William O'Neil, the head of the International Maritime

Organization (IMO), in a message for World Maritime Day. "This is a problem that cannot be solved by adding more regulations. It requires a change of attitude — the adoption of a culture which puts safety at the top of its priorities."

"Accidents do not just happen, they are caused...by people making mistakes. If we can correct this, then we can reduce accidents and save lives and property," he said.

O'Neil said changes to regulations have often had little relation to the cause of accidents and so do

nothing to prevent them from being repeated.

Two new regulations adopted by IMO will help the process of ensuring seafarers are able to implement safety systems, he said.

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Watchkeeping (STCW) convention introduced this February will allow inadequately trained seafarers to be refused work for next year, O'Neil said.

The International Safety Management (ISM) code, to be introduced next July, will also force companies to treat safety seriously and introduce special planning.

MSI To Conduct Intracoastal Waterway Improvement Study

MarineSafety International (MSI) has been awarded a contract by the U.S. Army Corps of Engineers District, Galveston, Texas, to conduct a simulator study of two areas of the Gulf Intracoastal Waterway (GIWW). The purpose of the simulator analysis is to assist the Corps' Waterways Experiment Station (WES) in fine-tuning and evaluating new channel designs which are intended to alleviate navigational difficulties at the Freeport Wiggles, a section of the GIWW, as well as in the High Island Bridge area, also a section of the GIWW.

MSI will prepare visual, radar, depth, bank and current computer models of the two areas as they presently exist and as they will be with the new channel designs. Hydrodynamic response models of various configurations of push tows will also be prepared. Simulation tests will be conducted at MSI's Newport, R.I., facility which houses four interactive visual simulators.

Two of the simulators are set up as river towboat wheelhouses, each featuring control consoles, two sets of steering and flanking rudder controls, twin throttles, river radars, VHF radios and other instrumentation and gauges found on a river towboat.

These simulators have been refined over the past three years while conducting training for SeaRiver Maritime's Gulf and Inland Division and other tug-barge operators.

MSI will work with WES to verify, and if appropriate, help improve the channel designs.

Using six experienced river pilots, approximately two weeks of real time simulator runs will be

conducted at Newport.

Halter Wins OSV Contract From Kilgore

Halter Marine, Inc. has been awarded a contract from Kilgore

Offshore, Inc. for the construction of two 205-ft. (62.5 m) offshore supply vessels (OSVs) with options for two additional sisterships.

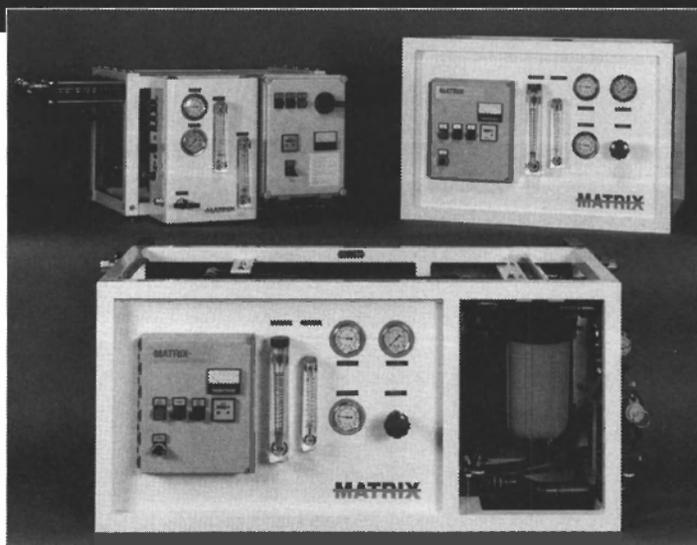
The vessels will be built at Halter's Moss Point, Miss., yard, with the first delivered in August 1998 and the second following in

November. The vessels are valued at approximately \$8 million each.

Each will be powered by two Caterpillar 3516 diesel engines developing a total of 4,000 hp, driving 92-in. diameter stainless steel propellers through Reintjes reverse/reduction gears.

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NEW PRODUCT

Westfalia Debuts New Separator Series

Four new separators and control units rolled out

Westfalia Separator announced four new C-Generation separators last month.

Touted by the manufacturer as the "highest capacity separator in the world" (the model 50 @ 43,100 l/h), the units are the result of

nearly two years of marine and industrial testing.

The units feature a patented water monitoring system that measures the water content in the bowl, a feature designed to ensure optimum separation. The new

units also feature a patented Hydrostop bowl hydraulic system, which is designed to enable precise solids ejection in a highly compact state, to eliminate oil loss.

Overall, the new line is billed as providing "dramatically longer" maintenance intervals.

Westfalia — a subsidiary of Bochum, Germany-based GEA AG — has produced separators continuously since 1863.

The company manufactures a complete line of high-speed separators (purifiers) for marine, offshore oil & gas platform/drill ships, and a variety of other industrial applications.

Integration, Restructure Nearing End

Westfalia, following a good year in 1996, reports that it is near completing its integration into the GEA Group with a market-oriented Group restructuring and adjustment to its management structure.

Battling for business on the world market takes not only a technologically advanced product, but a streamlined approach to designing, manufacturing and delivering that product to market at a competitive price. The company believes the new structure will enable it to achieve these goals.

Westfalia depends heavily on the export market as its primary source of turnover, and in 1996 nearly 80 percent of its turnover was product sold outside Germany. The big growth area continues to be S.E. Asia, but the company notes that Eastern Europe is growing in importance.

The cornerstone of the restructuring was announced earlier this year, when the supervisory board of GEA AG approved a plan which has GEA AG functioning as a strategic management holding.

A holding board, cut down to three members, will be jointly responsible for all business.

Nine divisions — which take the place of the three previous divisions — directly report to the holding board. The nine divisions are divided by technological fields.

Two of the new divisions have evolved from the previous business units of Westfalia Separator AG: "Agricultural Engineering" and "Mechanical Separation."

For more information
on Westfalia
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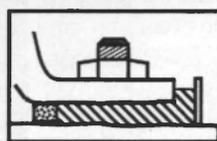
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HEAVY-DUTY SIGNALS by Kahlenberg



Model S-120 Piston Horn

Chosen for use on aircraft carriers as well as commercial vessels over 200 meters in length, the S-120 utilizes an oscillating piston driven by 7-1/2 horsepower 3 phase 220/440 volt electric motor producing 143 dB and a fundamental frequency of 94 Hz in 1/3 octave band at one meter.



Kahlenberg Signals were developed to withstand the punishing use of commercial and military service. Their durability has been demonstrated over decades of service on ocean-going vessels ranging from naval warships to commercial vessels. Military specifications have required extensive testing for many of these whistles and the accessories supplied with them, which have proven the exceptional qualities of Kahlenberg design and manufacturing.

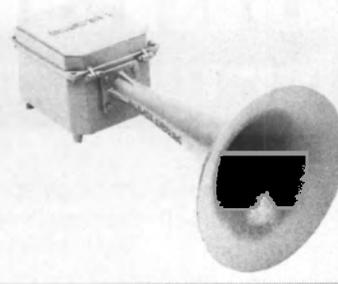
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Model S-203C S-203 CHT

For vessels over 75 meters in length, this design allows both whistles to exceed 143 dB (1/3 octave band). The S-2036 and S-203 CHT are virtually maintenance free. Durability is ensured by the use of bronze and marine aluminum construction materials throughout. For the most extreme cold weather operation, Model S-203 CHT (shown) includes a thermostatically controlled, heated enclosure for both the combination manual/electric valve and the horn sounding body.

Circle 287 on Reader Service Card

Meyer Werft Delivers Lambelu

Meyer Werft recently delivered the 18th passenger ship to the Directorate General of Sea Communication, Jakarta/Indonesia.

Dubbed *Lambelu* in a ceremony before its delivery, the new vessel is the second in a new series of passenger ships built for Indonesia. By 1998, Meyer Werft plans to deliver two additional vessels in

the series.

Lambelu measures 481 ft. (146.5 m) long and features a 77-ft. (23.4-m) beam and a passenger capacity of 2,000.

For more information on Meyer Werft
Circle 34 on Reader Service Card

Lambelu main particulars

Length, o.a.	481 ft. (146.5 m)
Breadth	77 ft. (23.4 m)
Draft	19.3 ft. (5.9 m)
Tonnage	14,800
DWT	3,375

Lambelu is shown, forward.



Ingalls To Commission Latest Assault Ship

The U.S. Navy/Marine Corps team was scheduled to commission its newest large-deck amphibious assault ship on September 20, at Ingalls Shipbuilding division of Litton Industries.

USS *Bataan* (LHD 5), the fifth of the seven-ship WASP (LHD-1) class to be completed at Ingalls, will report for U.S. Atlantic Fleet duty and be homeported in Norfolk, Va., as an element of Amphibious Group TWO.

Bataan measures 844 ft. (275.3 m) long with a 106-ft. (32.2-m) beam.

Two steam propulsion plants developing a combined 70,000 hp will drive the 40,500-ton ship to speeds in excess of 20 knots.

Following this vessel, Ingalls has two additional LHDs — *BonHomme Richard* (LHD 6) and *Jima* (LHD 7) — under contract.

For more information on Ingalls
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Above: LHD 5 is shown sailing in the Gulf of Mexico during sea trials earlier this year.

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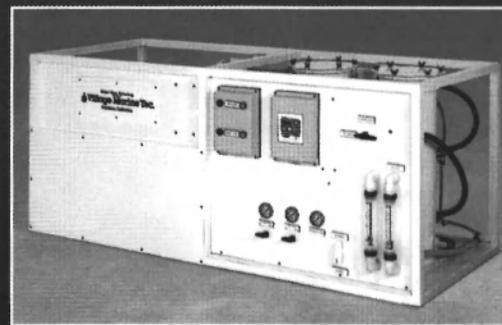
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Dominance From Down Under

Australian maritime companies have built a dominant position in the world as suppliers for and builders of technologically advanced fast ferries. The following pages encapsulate recent business trends and happenings which have shaped and will continue to shape the country's unique maritime make-up.

Major Reforms Cause Storm In Australian Shipping

The Australian shipping industry is experiencing turmoil as the release of a report from federal government-commissioned task force Shipping Reform Group has moved major reforms, intended to prune shipping costs by \$116 million a year, a step closer to being realized. The report recommends that cabotage be phased out during an 18-month period, allowing foreign vessels to compete with Australian ships carrying domestic

cargo along the Australian coast.

The task force proposals also call for Australian ships to be allowed to employ cheaper foreign crews, a move that, if pursued, will likely be met with strong resistance from the maritime union. Seafarers on Australia's coastal shipping routes would also be made to work 31 weeks a year, not the present 27. In return for compliance, and to help it adjust, the shipping industry would be offered tax incentives.



Austal's 196.8-ft. (60-m) Auto Express high-capacity catamaran for Turkey's Istanbul Deniz Otobusleri.

Both the foremost union body in Australia, the ACTU, and the Maritime Union of Australia, have rejected the report.

According to Transport Minister **John Sharp**, who anticipates a rapid decline in Australia's shipping industry if reforms are not made, cargo rates for Australian ships were almost one-third higher than for foreign ships.

The report has also flagged a second shipping register to encourage more ships to register under the Australian flag. Both Australian

and foreign crews could use the second register, which would be controlled by Australian managers, masters and chief engineers, that would offer tax incentives and more flexible labor arrangements than the existing register. But if the Australian crew failed to deliver cost savings, ships would be permitted to hire foreign crews.

The report, put together by business and industry leaders, indicated reform could cut costs by more than 25 percent. Using foreign crews could save a company sub-

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stantial revenues, as Australian ships reportedly cost \$1.55 million a year more to operate than other OECD countries, primarily due to crew costs.

Whether these reforms are implemented or not remains to be seen. In the meantime, Australian maritime companies are proceeding with business as usual.

Austal Ships Leads The Way

Austal Ships is western Australia's largest shipbuilder and is a leading builder of aluminum vessels in the 98.4 to 328.1-ft. (30 to 100 m) range. In only ten years, Austal has exported close to 50 vessels to international markets including Northern Europe,

the Asia Pacific and the Mediterranean, and reportedly holds the record for having supplied more high-speed passenger catamarans (29) to China than any other shipyard in the world.

While the company's passenger-only ferries have dominated the Asian market, Austal's high-capacity vehicle-passenger Auto Express catamarans, accounting for almost one third of all fast vehicle catamarans entering service in Europe during 1996, have established Austal in this growing market. The Auto Express range now includes 157.5, 196.8, 269, 282.1-ft. (48, 60, 82, 86-m) designs.

The two newest Auto Express catamarans to be commissioned by Austal

Harbour & Marine: Researching New Ways To Provide A Fully Integrated VMS

Harbour & Marine Engineering is a supplier of vessel mooring systems to ports and harbors throughout the world. The company designs and manufactures wharf quick release hooks, capstans and controls for the remote release of moored vessels, load monitoring systems for the measurement and analysis of vessel mooring loads, bollards, marine winches and ship deck machinery. It also provides a broad range of engineering services including mooring load assessments to both shore-based and offshore marine industries. Products include chain hawser hooks, chain stoppers and SPM load monitoring systems.

The management of modern ports demands greater control over the movement of vessels, the docking process and the monitoring of weather and other environmental factors affecting the moored vessel. Harbour & Marine has been working closely with companies supplying related technologies to provide a fully integrated vessel management system comprising vessel docking, mooring load monitoring and environmental sensing of wind, wave, tide and current.

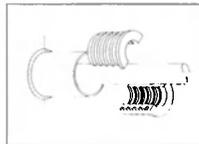
Major work currently being undertaken includes integrated mooring and marine monitoring systems for the Port of Bintulu in Sarawak, Malaysia and for Pertamina at Bontang, Kalimantan in Indonesia and mooring hooks and mooring line tension systems for the Hibernia Transshipment Terminal in Newfoundland and the LNG Terminal at Bonny Island, Nigeria.

October, 1997

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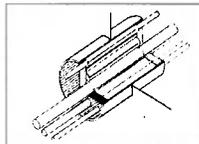
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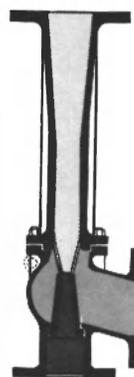
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AUSTRALIAN MARITIME UPDATE

will soon be plying the Turkish waters across the Marmara Sea. Sisterships *Turgut Reis I* and *Cezayirli Hasan Pasa I* are the first car ferries for Turkish fast ferry operator Istanbul Deniz Otobusleri. The vessels join two Austal 131.2 ft. (40 m) passenger catamarans delivered in December 1996, which together represented one of the single largest contracts in the history of Australia's lightweight shipbuilding industry. A new innovation in the 196.8-ft. (60-m) class is the latest development in Austal's Ocean Leveller ride control system. Previously, the control surface had been configured with T-foils beneath the forward hulls and hinged flaps aft. Replacing the flaps, the new system features active interceptors that provide lift at the transom for minimum increase in transom area thereby carrying out the required function in the most efficient manner. Both the vessels are out fitted with two MTU 20V 1163TB73L engines of 6,500 kW each and the Ocean Leveller ride control system recorded speeds of more than 35 knots when fully loaded.

A 157.5 ft. (48 m) Auto Express vehicle-passenger catamaran has

also been sold to Compagnie Chambon, the major French maritime group which includes shipping operations subsidiary Surf. The vessel will be delivered to Guadeloupe in April 1998, where it will enter service for L'Express Des Iles, Chambon's fast ferry operation. It will carry 329 passengers and 10 cars and will be powered by quadruple MTU 16V 396TE74L diesel engines to deliver a fully-loaded service speed of 39 knots. Austal's Ocean Leveller Ride Control system featuring T-foils forward and interceptors aft will also be included.

In 1997, Austal will deliver four vehicle-passenger catamarans including the first fast car ferry to Southeast Asia and a 269-ft. (82-m) catamaran with a capacity for 900 passengers and 175 cars at a fully loaded speed of 42 knots, built for cruise line operator Star Cruises, and will operate between Langkawi, Malaysia and Phuket, Thailand. Other deliveries include a 269-ft. (82-m) ferry for Polish operator Polferries, and two 196.8-ft. (60-m) designs for Turkish operator Istanbul Deniz Otobusleri.

Austal's 311.7-ft. (95-m) Cargo Express design is a new concept

targeting premium freight based on Austal's fast ferry technology and aimed at providing a cost effective alternative to conventional sea and air freight transport. The Cargo Express has a maximum dwt of 1,000 and capacity for 80 TEU sea containers and 50 air containers, or alternatively more than 30 trucks/trailers in an open deck configuration. The propulsion package comprises two x 14,000 kW gas turbine engines and two 6,500 kW diesel engines to deliver a continuous speed of 42 knots with an approximate fuel consumption of 9.5 tons per hour. It has a 75.5 ft. (23 m) beam and a full displacement draft of 10.2 ft. (3.1 m).

In other business, Austal has made its third sale to Indonesia — a 144.4 ft. (44 m) cruise catamaran for Bounty Cruises of Bali, owned by the Bounty Group.

Austal had previously delivered two cruise catamarans to the Balinese operation, Bali Hai Cruises in 1990 and 1994. The new vessel is scheduled for delivery in July 1998 and will have the capacity to carry 500 passengers on three decks at a cruising speed of 28 knots. It will operate day

cruises from Bali's Benoa Harbour to the Gilis which is part of Lombok Island. Principal dimensions include a 38.7-ft. (11.8 m) beam and a hull draft of 8.2 ft. (2.5 m). Propulsion is supplied by two MTU 16V 396 TE 74L diesel engines and two fixed pitch propellers.

Tai Jian and *Nan Hua* are the latest Austal deliveries to join the Chu Kong Shipping fleet in Hong Kong and are the 27th and 28th high speed passenger catamarans built for Chinese owners.

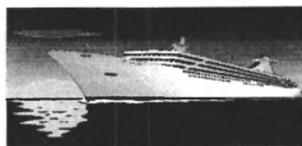
They are also the first high-speed vessels delivered to Hong Kong following its return to the People's Republic of China as a Special Administration Region. The vessel design represents a departure from earlier vessels and features forward views from the upper passenger deck with the bridge deck raised above. *Nan Hua* and *Tai Jian* feature passenger capacities of 338 and 318, respectively. Each vessel is equipped with six 65-person liferafts. The propulsion system on each vessel comprises twin MTU 16V 396 TE74L diesel engines (1,980 kW at 1,940 rpm)

(Continued on page 119)

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Incat: Leading The Way For 20 Years

Recent Successes Include Launch Of *Tasmanian Devil*, A New Wave Piercing Catamaran

In September, Incat Australia celebrated its 20th anniversary of building fast ferries. The festivities coincided with the launch of Hull 046's *Tasmanian Devil*, the first 298.5-ft. (91 m) wave piercing catamaran. This vessel is reportedly Australia's biggest fast ferry to date and was launched by **Eva Clifford**, mother of Incat Chairman **Robert Clifford**. Painted black with a *Tasmanian Devil* livery, the vessel is a diesel-powered ferry which can carry 900 passengers and 240 cars at fully loaded speeds of 43 knots, or lightship at 49 knots. It is built to the requirements of the Det Norske Veritas High Speed Light Craft Rules and, where appropriate, to comply with the IMO High Speed Craft Code.

Incat is a private company operating primari-

ly in the ferry and tour boat industry. It produces two types of vessels — the Wave Piercing and K Class catamarans. Both types of vessels are tailored to suit customer and route requirements. Incat is currently building its fifth generation Wave Piercer and its second generation K Class catamaran. A third type, suitable to carry fast freight, is under development. Worldwide, the company reports having built approximately 40 percent of the high-speed car passenger ferry fleet currently in operation.

Incat recently announced the formation of a joint venture company, registered in Hong Kong. Incat AFAI (HK) Limited has been established to market and contract the successful K50 catamaran which will be built at AFAI's new shipyard in Panyu, China. The first K50

from the yard will be delivered during 1998.

Entering service in mid-1997 was *Sicilia Jet*, the high-speed, 282.1-ft. (86 m) wave piercer car ferry, which was purchased by Jetmarine Line Srl and is being operated by Aliscafi SNAV Spa between Naples and Palermo, Sicily. The available deadweight of this class has been increased to 370 tons and the aft sky deck was extended to allow passengers to take advantage of the more temperate Mediterranean operating environment.

The overall capacity of the ferry has been increased to 900 passengers and 200 cars. *Sicilia Jet* can achieve fully loaded service speeds of 43 knots, and it will reduce crossing time between Naples and Palermo from 11 hours to approximately four.



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FAST CRAFT REVIEW

Norent Provides Shore To Ship Facilities To Ferry Operations

Norent has recently installed several Shore to Ship facilities, indicating a trend in ferry operation where there is an increasing demand for shorter cycle times regarding handling of vehicles, passengers and provisions as well as bunkering and mooring of the ferries in the berth.

In addition to the functional handling of vehicles during loading and unloading, the Linkspan — a floating service center for the vessel — provides equipment for guiding the vessel to its berthing position as well as mooring it with the automooring equipment. During the period of harbor stay, the bunkering manifold, which forms part of the linkspan, is connected to the vessel, which facilitates the filling of bunkering oil and fresh water at the same time as bilge, sludge and sewage water is discharged from the vessel. The floating pontoon of the Linkspan has built-in tanks for bunkering of two types of oil and fresh water as well as a complete pump room including all necessary pumping equipment.

The Linkspan features four traffic lanes for cars and coaches in and out of the vessel; automooring units for complete mooring of the vessel while in harbor; storage tanks for fuel oil, fresh water and bilge/sludge; a complete computerized bunkering system for transport of all service media in and out of the vessel; pre-defined bunkering procedures; computerized recording of all transfers; remote control bunkering manifold for quick connection of all media transfer piped between the vessel and the Linkspan; and a converter for electrical supply to the vessel at "overnight" harbor stops are advantages built into the system.

Norent's automooring systems reportedly eliminate the need for rope-handlers ashore and contribute to short turn-around times. Mooring a ferry with the automooring system normally takes less than 30 seconds, and the releasing time is approximately 20 seconds. The mooring operations are initiated with push buttons in the wheel house of the ferry.

The automooring unit can be installed within three days and serves the ferry by its hydraulic mooring arm, acting on a special mooring bit — located in a protected position above the fender and recessed in the hullside — pulling the vessel into its correct position along the quayside.

Norent also provides provisions handling equipment and telescopic passenger gangways, which feature fully toughened glass side walls with a walkway width of 9.8 ft. (3 m) and a length of 52.5 ft (16 m).

For more information on Norent
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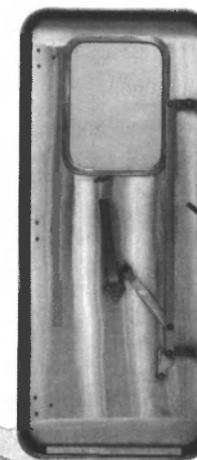
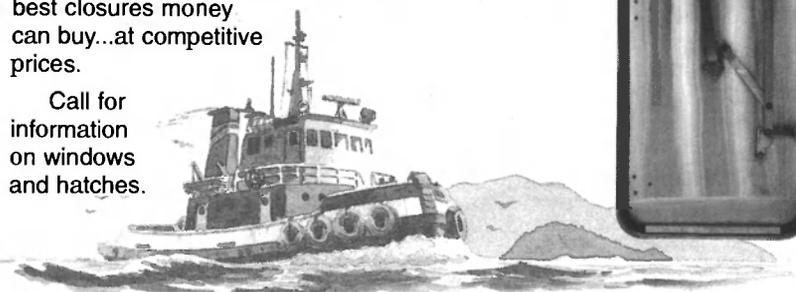
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Circle 297 on Reader Service Card

(Continued from page 116)

driving KaMeWa 71SII Waterjets coupled to ZF BU755 gearboxes delivering a speed of 34.5 knots. The new vessels feature an overall length of 131.6 ft. (40.1 m), a beam of 37.7 ft. (11.5 m) and a hull draft of approximately 4.4 ft. (1.35 m). Austal's 29th vessel for China is being built for the Ahaoqing Hong Kong Transportation Co. and will be ready for delivery next month.

Austal's second vessel to fly the Japanese flag, *Marine View*, has a passenger capacity of 140 and will operate five return trips daily for Kumamoto Ferry on a new route between Kumamoto City and Hondo City in Amakusa. The 98.4-ft. (30-m) aluminum catamaran features the Ocean Leveller system and twin MTU 12V 396 TE74L diesel engines, driving Kamewa 56 S62/6 waterjets through ZF BU 465 gearboxes, delivering a speed of 33 knots. It has a 28.5-ft. (8.7-m) beam and a hull draft of 3.6-ft. (1.1 m), and its classification is JG (Japanese Government).

Peter Hopton has been appointed business development manager of Austal's Fast Freight division, a new concept targeting premium freight based on Austal's fast ferry technology. In his new position, Mr. **Hopton** will be dedicated to the marketing and development of the company's range of fast, 95-plus meter cargo catamarans.

Oceanfast Wins Carnival Cruises Contract

Oceanfast Marine Pty. Ltd., located in western Australia, builds in all three major construction materials (aluminum, steel and composite fiberglass) in two main divisions: yacht and commercial. The company's yacht division focuses primarily on sizes over 114.8 ft. (35 m). Ferries tugs, trawlers and barges comprise the commercial division's main business. Its west Australian yard facilities also include a repair and refit operation, a stand-alone air conditioning and refrigeration business and a major machine shop and computer plate-cutting equipment. Following the management buyout of the company earlier this year, Oceanfast listed on the Australian Stock Exchange — a first for any Australian shipbuilder. The shares traded and settled at over the double the \$0.50 opening price.

Earlier this year, Oceanfast signed a contract with Carnival Cruises Pty. Ltd. to construct a 206.7-ft. (63-m) restaurant cruise vessel, scheduled for completion in June 1998. The vessel, to be named *Sydney 2000*, is intended to cater to the anticipated tourist boom as a result of the 2000

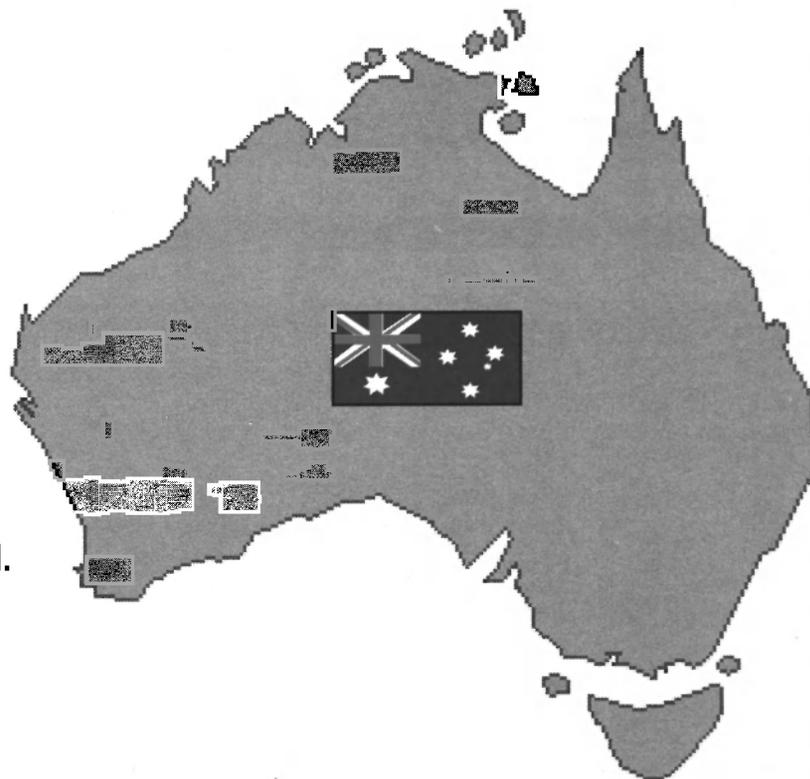
Olympics being held in Sydney, and it will have a 600-passenger capacity and three separate restaurant decks.

The 114.8-ft. (35-m) custom pearl processing vessel *Montoro-K* was delivered in April to Broome Pearls Pty. Ltd., a division of the M.G. Kailis Group who operate exten-

sive fishing and pearling operations in western Australia's local waters. Scheduled for delivery to Tahiti in December 1997 is the *Tamarii Moorea VIIIH*, a 262.5-ft. (80-m) 20-knot, steel, RoRo passenger vessel for operation between Papeete and the island of Moorea.

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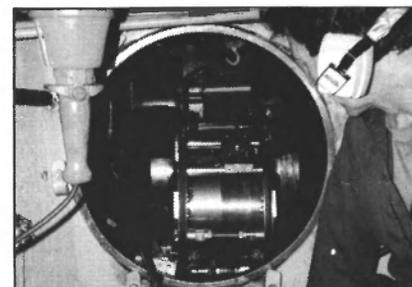
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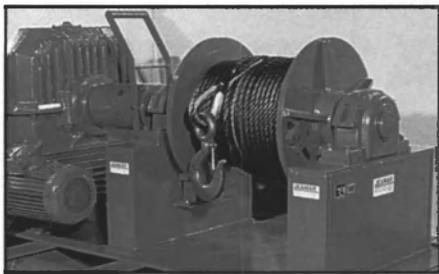
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PRODUCTS SHOWCASE

Jeamar Electric Winch Designed For Former Soviet Union



Jeamar's electric winch is designed to pull railcars in the former Soviet Union.

Jeamar Winches has announced the shipment of a winch, custom-designed and manufactured for service in an international project spearheaded by Procor Sulphur Services of Calgary, Alberta.

The winch is part of an equipment package designed by Procor to load bulk sulphur into railcars at a refinery in the former Soviet Union.

Included with the winch are portable conveyors, a belt feeder hopper and a dust-suppression system.

The electric-powered winch,

incorporating free spooling, has been engineered to pull as many as 10, fully loaded, 70-ton-capacity railcars at one time.

When operating, the winch will move a string of railcars through a loading station, stopping and starting the unit as each car is filled.

Design specifications called for a maximum cable tension of 22,000 kg, developed at a cable speed of three meters per minute.

For more information on
Jeamar Winches

Circle 18 on Reader Service Card

Composite Materials Used For New Products From A/S Ravnsbeck



Cable Tray System from A/S Ravnsbeck.

A/S Ravnsbeck has introduced a new line of products made from composite materials. The new Cable Tray System was developed for use in aggressive corrosive environments such as the chemical processing industry, and marine and offshore environments. It consists of fiber reinforced profiles and can be custom made according to necessary specifications. The Ventilation Grating is another new product developed for use within the shipping industry. It, too, is made of fiber reinforced profiles and can be made to meet specifications according to order volume.

The newly developed composite Telescopic Operating Rod, used to open and close container twist locks allows easy handling of twistlocks from the lashing bridge or the deck — up to a height of 46 ft. (14 m).

A new ladder is permanently fixed onboard vessels. The ladder consists of fiber-reinforced profiles, made in composite materials, and can be supplied according to specifications and individual colors according to volume.

In addition, A/S Ravnsbeck has developed a new glass fiber grid as a substitute for stainless steel and galvanized steel grids. The CLE Grid has an impact strength of approximately twice that of steel. Because glass fiber has no yielding point, there is reportedly no risk of permanent defamation by large deflections.

For more information on A/S Ravnsbeck
Circle 17 on Reader Service Card

ALUMINUM BOATS FOR SEVERE SERVICE

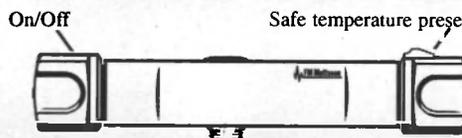
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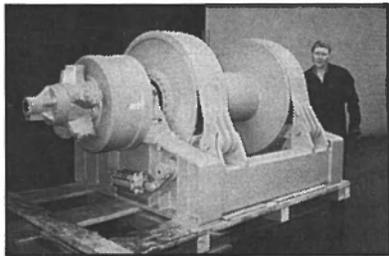
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Circle 256 on Reader Service Card

Lantec Introduces New Hydraulic Winch



Assembly Assistant Jim Jenkins with Lantec's T30 Bow Tow Winch.

Lantec Industries Inc. has introduced the Model T30 Hydraulic Winch Bow Tow Winch, which is mounted to the bow of a towboat and used for berthing large freighters and cruise ships. The new winch has a rated line pull of 16,000 lbs. at 125 fpm at mid drum, and a brake holding capacity of 250,000 lbs. line pull at mid drum. Its features include: dual band brakes on cable drum; radial piston hydraulic motor; high capacity, anti-friction roller bearings; a heavy duty single stage planetary gear reducer; self-contained, sealed gear compartments with all moving parts running in oil; stainless steel hardware; clean to near white metal, three-coat marine epoxy paint; gearing designed in accordance with AGMA guidelines; and a two-year warranty.

For more information on Lantec
Circle 2 on Reader Service Card

New Sound Control System From TODCO

TODCO recently introduced a new system of sandwich panels designed to control sound in a variety of work environments including shipboard engine spaces and drill rigs. The system consists of a series of interlocking galvanized panels. Each panel is constructed with a rock wool core laminated between two sheets of galvanized steel with acoustic perforations on one side. In test labs, the panels have been proven to reduce transmitted noise by a minimum of 32 dB. The TODCO system is free-standing, is designed to be easily installed and in most applications requires no hot work. Compatible acoustical ceilings and drop-in lights are also available from TODCO.

For more information on TODCO
Circle 5 on Reader Service Card

Super Diesels Feature Chris-Marine Machinery

Chris-Marine's maintenance machines have been selected for what is reportedly the world's most powerful diesel engines, the Sulzer 11RTA96C built by Diesel United in Japan. The engines will be installed in container ships under construction for NYK Line and P&O Lines.



Chris-Marine's Honing Rig Type HR.

New Sulzer has announced the first test run of the world's most powerful diesel engine, its 11RTA96C with a MCR of 60,390 kW (82,170 bhp) at 100 rpm.

The engine will be installed in a container ship under construction for NYK Line. In addition, four of the larger 12-cylinder versions have been specified by P&O for its container ships. Each engine will get a full set of original Chris-Marine maintenance machines comprising valve seat grinding machine type LCD, valve grinding machine type LBD and working rig type WR.

"Some of the world's largest container ship operators specify the Chris-Marine deglazing and honing and wear edge milling machines as necessary tools for regular use at each overhaul of the main engine cylinders," commented **Christian Gylden**, marketing and sales manager at Chris-Marine AB in Malmo, Sweden.

For more information on Chris-Marine
Circle 3 on Reader Service Card

Waukesha Publishes Technical Newsletter

Waukesha Bearings Corporation (WBC) introduced its Waukesha@Work (W@W) technical newsletter.

The W@W newsletter was created to provide an educational avenue for technical support information regarding products, quality control, and after-market issues as they pertain to the fluid film bearing industry.

For more information on Waukesha
Circle 4 on Reader Service Card

ABS Issues Updated Guideline Booklet

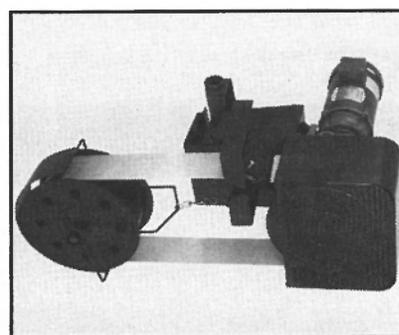
ABS has reissued its widely-used guidelines for meeting Port State Control inspection standards. The updated booklet contains new information and an expanded checklist intended to assist owners in meeting PSC standards.

Information in the new guidelines is based on a detailed analysis of Port State Control activity by ABS. The checklists, which have been perforated for ease of use onboard, now run to 18 pages and include areas and items which are covered by SOLAS, Load Line, MARPOL and other international safety conventions in addition to classification requirements.

Also included in the ABS booklet are sections providing the background to Port State Control and the general procedures followed in a Port State inspection and a synopsis of the types of class and statutory deficiencies that have been found during inspections. The ABS guide, entitled *Update on Port State Control — Including Routine Maintenance Checklists* is available free of charge from any ABS office to owners and operators of all vessels.

For a copy of the ABS booklet
Circle 7 on Reader Service Card

Abanaki Introduces Improved Oil Grabber



The Abanaki Oil Grabber Model 4.

The Abanaki Oil Grabber Model 4, a unit that removes oil from water and water-based solutions at a rate of up to 20 gph, has been redesigned to offer improved oil removal capability in a variety of systems and applications. The Model 4 is now available with belts made of fiber-reinforced plastic that can handle oil temperatures up to 212 degrees Fahrenheit. The unit also has new wider, deeper troughs that allow it to accept

more viscous oil. It can be used in depths ranging from one to 100 ft. (.3 to 30.5 m) or more.

The Oil Grabber itself has been changed for easier maintenance and cleaning. A steel mesh guard allows visual inspection of the drive pulley. The guard has no screws and is simply removed. Maintenance personnel can change a belt without any tooling.

For more information on Abanaki
Circle 6 on Reader Service Card

Ro-Clean Desmi Unveils New Heavy Duty Portable Submersible Pump



Ro-Clean Desmi's DOP-160 Submersible Screw Pump.

Ro-Clean Desmi has introduced its heavy duty portable submersible pump, the 55-lb. DOP-160, which functions as a positive displacement pump and can be used in a variety of applications such as an emergency response pump for offloading or firefighting. It can be fitted in tanks or sumps or submersed for pit cleaning.

With a cutting knife fitted to the leading edge of the screw, the DOP-160 is capable of handling and cutting debris such as plastics, rope and other materials often trapped in oil. It has a capacity of 25 sq. m. per hour (110 U.S. gpm) and can develop discharge pressures up to 10 bar (150 psi) while maintaining nearly maximum flow over a full range of light or heavy liquids.

For more information on Ro-Clean Desmi
Circle 8 on Reader Service Card

High-Speed Data Option Available From Hughes MAGNAPhone

Hughes MAGNAPhone's new high-speed data option for its

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Inmarsat-A and B ship terminals permits multiple voice, fax and data transmissions to be made simultaneously between ship and shore.

The multiplexing option takes advantage of Inmarsat-A and B duplex high-speed data (HSD) channels which provide data transmission at 56-64 kbps.

The HSD option utilizes multiplexers on the ship and at the shoreside destination to subdivide the available HSD channel bandwidth so that it can be used to support multiple telephone, fax and data circuits at the same time. The multiplexers can be configured to provide considerable flexibility in allocating bandwidth for different applications.

The HSD multiplexing option is

available with the new MX 2464 Inmarsat-B system and can be added to existing MX 2400 Inmarsat-A ship terminals with HSD capability.

For more information on
Hughes MAGNAPhone
Circle 11 on Reader Service Card

Hoffer's Flow System Breezes Through Tests

Recent tests on Hoffer Flow Controls flow system concluded with results within +/- one percent over the range of pressures and flow rates tested.



Hoffer's Turbine Flowmeter System.

Hoffer offers CNG flow systems for applications such as pipeline transmission, bulk transfer and the automotive industry for engine testing. Typically, these systems include the gas turbine meter, temperature and pressure transducers, installation kits and a flowstar flow computer with the AGA 8 gas flow calculations. Hoffer also supplies LNG and CNG custody transfer metering systems to both distributors and original equipment manufacturers for bulk distribution.

For more information on
Hoffer Flow Controls
Circle 12 on Reader Service Card

beveling is performed by fixed-mounted insert holders. The range of the PBM-6 clamping is 1.5-6 in. and the PBM-12 is two-12 in. pipe with outside diameters of 48-170 mm and 60-330 mm, respectively.

The turning ranges are 30-170 mm and 40-330 mm, respectively. These models feature high-speed beveling and eliminate the need for changing clamping parts or adjusting insert-holders.

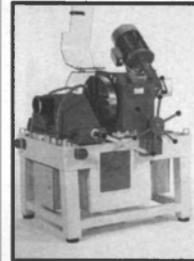
For more information on Wortelboer
Circle 9 on Reader Service Card

Leica Releases DGPS Unit

A new, low-cost DGPS Reference Station/Mobile Unit with integrated keypad and display has been introduced by Leica. The 12-channel differential station provides one to three meter accuracies for real-time applications. The MX 9250 is a turnkey, rapidly deployable, stand-alone DGPS reference station which is capable of functioning completely autonomously without an external computer or specialized software for setup and

New Tube-End Preparation Machines From Wortelboer

Th. Wortelboer has unveiled its new PBM-6 and PBM-12 Tube-End Preparation Machines. Clamping is executed through a self-centering prism-clamp and



Th. Wortelboer unveils its new tube-end preparation machines.

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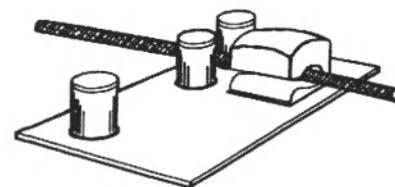
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PRODUCTS SHOWCASE

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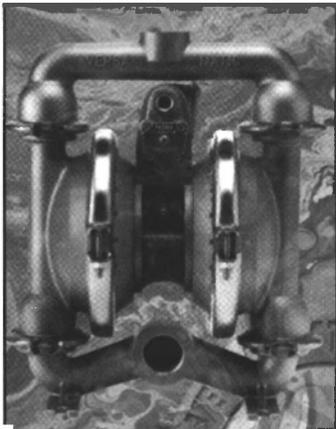
The display and keyboard provide simple, menu-driven control to initialize the unit, set parameters, view data and perform other functions. With all setup parameters stored in battery-backed memory, the MX 9250 can operate unattended, automatically restarting after a power failure.

The MX 9250 can also function as a mobile DGPS receiver, providing all of the features and capabilities of Leica's MX 400 navigator. The splashproof enclosure is designed for use in extreme environmental conditions.

For more information on Leica
Circle 10 on Reader Service Card

Versa-Matic Pump Adds Pump To Line

Versa-Matic Pump Co., a manufacturer of air-operated, double diaphragm pumps, has expanded its pump line to include the new model E4, 1.25 in. Elima-Matic, available in aluminum, cast iron, hastelloy C and stainless steel.

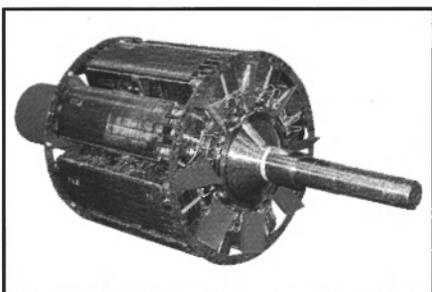


E4 Series Pumps from Versa-Matic Pump Co.

The new E4 pump model features the Elima-Matic anti-stalling, non-icing, lube-free air valve system and is interchangeable with the V4 and Wilden M4 metallic and plastic pumps. The mid-size pump is designed to handle anything from water to 90 percent solids easily and efficiently.

For more information on Versa-Matic Pump Co.
Circle 21 on Reader Service Card

Customized A.C. Generators From Baylor



A.C. Generator from Baylor's Generator/Motor Group.

Baylor Company's Generator/Motor Group manufactures a complete line of A.C. generators from 50 Kw to 5,000 kW, voltages from 208 to 13.8 KV, speeds from 600 to 1,800 rpm and nearly every combination in between. Whether the application is marine, industrial, military or stand-by, Baylor can supply A.C. brushless generators to meet any specification.

For more information on Baylor Co.
Circle 22 on Reader Service Card

Kistler Produces Smaller Water-Cooled Sensors

In an effort to respond to the trend toward smaller engines, Kistler unveiled its newest water-cooled sensor, Type 6041, which is reportedly the world's smallest sensor with only an 8 mm front diameter.

The new water-cooled sensor is suitable for accurate thermodynamic investigations in

small internal combustion engines. Because the measuring element is resistant to high temperatures, this sensor is not damaged if water cooling fails.

A diameter of 14 mm is required for the standard mounting hole.

Using a special mounting key, the sensor can reportedly be inserted in a hole of only 12 mm diameter.

For more information on Kistler
Circle 14 on Reader Service Card



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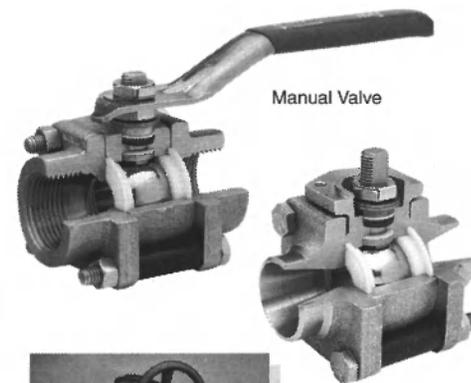
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CALENDAR

OCTOBER

Boat Accessory Market USA: October 3-13, 222 Severn Avenue, Ground Floor Warehouse, Annapolis, M.D. 21403.

Contact: Boat Accessory Market USA, P.O. Box 4981, Annapolis, M.D. 21403, tel: (410) 280-1373; fax: (410) 280-0972.

Container Asia '97: October 7-9, Shangri-La Hotel, Kuala Lumpur, Malaysia.

Contact: **Paddy Payne**, Baltic Conventions, Regal House, 70 London Rd., Twickenham TW1 3QS, U.K., tel: +44 181 892 2892; fax: +44 181 892 6767.

International Disaster and Emergency Response (IDER '97): October 7-9, The Hague., tel: +44 1985 846618; fax: +44 1985 846163.

15th World Petroleum Congress: October 12-16, Beijing, China.

Contact: Chinese Organizing Committee Secretariat, c/o China National Petroleum Corporation, P.O.

Box 766, Liu Pu Kang, Beijing 100724, China, tel: +86 10 209 5455/5446; fax: +86 10 209 544/5459.

9th International Conference On Computer Applications In Shipbuilding (ICCAS '97): October 13-17, Yokohama, Japan.

Contact: ICCAS Secretariat c/o Int'l Communications Specialists, Inc., Kasho Bldg., 2-14-9, Nihombashi, Chuo-ku, Tokyo 103, Japan, tel: +81 3 3272 7981; fax: +81 3 3273 2445; e-mail: iccas97@ics-inc.co.jp.

Intertanko Conference And Exhibition: October 14-16, London, U.K.

Contact: **Barbara Ann Viken**, Oslo, tel: +47 22 12 26 56.

ASNE's 6th Fleet Maintenance Symposium: October 14-17, Town and Country Hotel, San Diego, Calif. Contact: **Rich Caccese**, tel: (619) 556-2623, or Cdr. **Chuck Goddard**, tel: (619) 556-1627.

SNAME International Maritime Exposition: October 15-17, Westin Hotel, Ottawa, Ontario, Canada.

Contact: SNAME, 601 Pavonia Ave., Jersey City, N.J. 07306, tel: (201) 798-4800.

AWO 1997 Fall Convention and Board of Directors Meeting: October 16-17, The Four Seasons Olympic Hotel, Seattle, Wash.

Contact: **Tina Gardner**, manager, Administrative & Member Services, American Waterways Operators, 1600 Wilson Blvd., Ste. #1000, Arlington, Va. 22209, tel: (703) 841-9300; fax: (703) 841-0389.

Women In Shipping: October 16-17, Washington, D.C.

Contact: **Carleen L. Kluss**, International Marketing Strategies, 28 Southfield Ave., Stamford, CT 06902, tel: (203) 406-0106; fax: (203) 406-0110.

1997 Permanent Int'l Association of Navigation Congresses (PIANC) National Conference: October 28-30,

Hilton Hotel, Wilmington, N.C. Contact: Office of U.S. Section, PIANC, 7701 Telegraph Rd., Alexandria, Va. 22315-3868, tel: (703) 428-6286; fax: (703) 428-8171.

Society of Accredited Marine Surveyors Annual Conference and Education Training Symposia: October 29-31, Downtown Riverfront Holiday Inn, St. Louis, Mo. Contact: **Mary Stahler**, executive secretary, tel: (800) 344-9077; fax: (800) 388-3958.

Fort Lauderdale International Boat Show: October 30-November 3, Fort Lauderdale, Fla.

Contact: Show Management, Inc., 1115 Northeast 9th Ave., Fort Lauderdale, Fla. 33304, tel: (954) 764-7642; fax: (954) 462-4140.

NOVEMBER

Seatrade Pacific Cruise Convention: November 3-5, Cairns, Australia.

Contact: The Seatrade Organisation, Seatrade House, 42 North Station Rd., Colchester CO1 1RB, U.K.

International WorkBoat Show: November 5-7, Ernest N. Morial Convention Center, New Orleans, La.

Contact: Diversified Expositions, P.O. Box 7437, Portland, Me. 04112-7437, tel: (800) 454-3007 or (207) 842-5508; fax: (207) 842-5509.

International Symposium On Shell & Spatial Structures: November 10-14, The Orchard Hotel, Singapore.

Contact: CI-Premier Pte. Ltd., 150 Orchard Rd. #07-14, Orchard Plaza, Singapore 238841, tel: +65 733 2922; fax: +65 235 3530.

Electronic Commerce (EC) & Simulation Based Design (SBD) Seminar: November 12, Wyndham Greenspoint, Houston, Tx.

Contact: **Shannon McMillon**, ABS, tel: (281) 877-6852; fax: (281) 877-6001; e-mail: smcmillon@eagle.org.

ASNE Environmental Symposium: Environmental Stewardship, Ships and Shorelines: November 12-13, Virginia Beach Pavilion, Virginia Beach, Va.

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CALENDAR

Engineers, 1452 Duke St., Alexandria, VA 22314-3458, tel: (703) 836-6727; fax: (703) 836-7491; e-mail: asnehq.asne@mci-mail.com.

The Asia Pacific Conference on Natural Gas, LNG & LPG (GasTrade 97): November 17-18, Island Shangri-La Hotel, Hong Kong.
Contact: **Julie Caulkett**, Conference Manager, GasTrade Secretariat, Turret RAI plc, Armstrong House, 38 Market Square, Uxbridge, Middlesex UB8 1TG, England, tel: +44 1895 454533; fax: +44 1895 454678

1997 Tri-Service Conference On Corrosion: November 17-21, Blockade Runner Hotel, Wrightsville Beach, N.C.
Contact: **David A. Shifler**, NSWC - Carderock Division, tel: (301) 227-5128.

Europort 97: November 18-22, Amsterdam, The Netherlands.
Contact: Amsterdam RAI, P.O. Box 77777, NL-1070 MS Amsterdam, tel: +31 (0) 20 549 1212; fax: +31 (0) 20 644 5059; e-mail: press@rai.nl.

Fish Expo Seattle: November 20-22, Washington State Convention and Trade Center, Seattle, Wash.
Contact: Diversified Expositions, P.O. Box 7437, Portland, ME 04112-74338, tel: (207) 842-5508; fax: (207) 842-5509.

ASNE Modeling, Simulation and Virtual Prototyping Conference II: November 24-25, Hyatt Regency, Crystal City, Arlington, Va.
Contact: American Society of Naval Engineers, 1452 Duke St., Alexandria, VA 22314-3458, tel: (703) 836-6727; fax: (703) 836-7491; e-mail: asnehq.asne@mci-mail.com.

2nd Asia-Pacific Conference On Shock & Impact Loads On Structures: November 25-27, Hotel Sofitel, Melbourne, Australia.
Contact: CI-Premier Pte. Ltd., 150 Orchard Rd. #07-14, Orchard Plaza, Singapore 238841, tel: +65 733 2922; fax: +65 235 3530.

DECEMBER 1997

Marichem 97: December 2-4, Cologne, Germany.
Contact: Julie Caulkett, RAI Exhibitions London Ltd., Armstrong House, 38 Market Square, Uxbridge, Middlesex UB8 1TG, U.K., tel: +44

1895 4545 45; fax: +44 1895 4546 47; e-mail: 100730.1313@compuserve.com

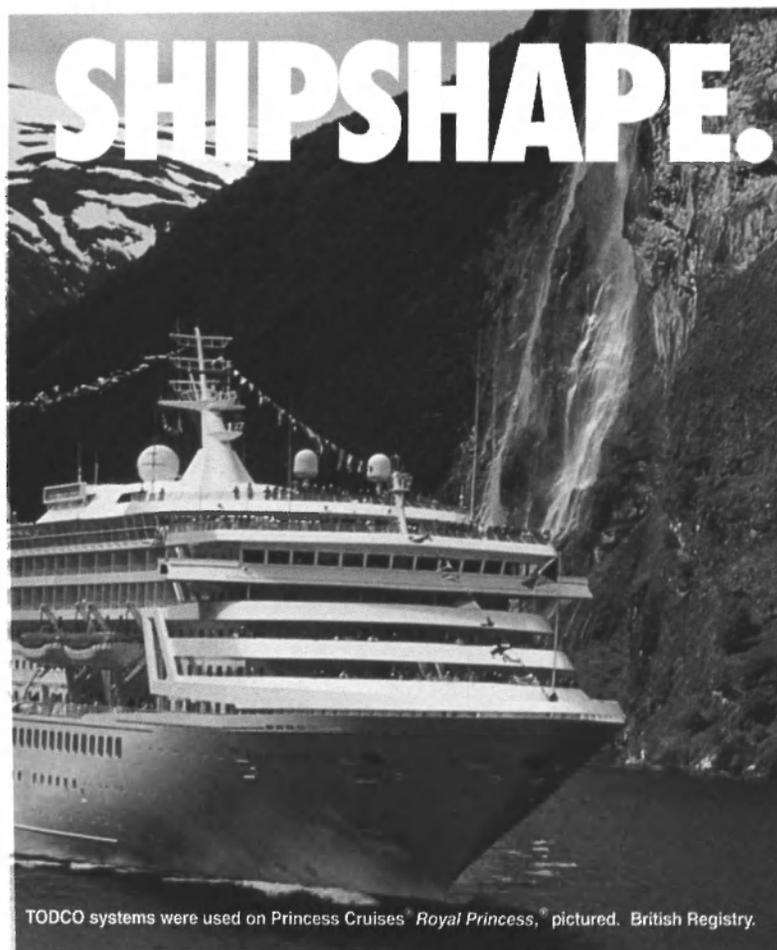
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ASNE 21st Century Combatant

Technology Symposium: January 27-28, Mississippi Coast Coliseum, Biloxi, Miss.

Contact: American Society of Naval Engineers, 1452 Duke St., Alexandria, VA 22314-3458, tel: (703) 836-6727.

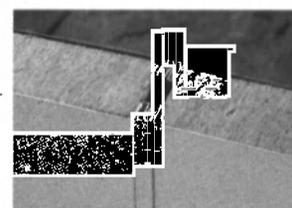


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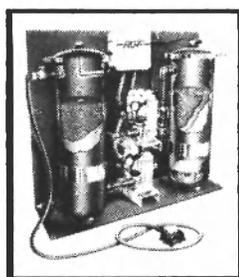


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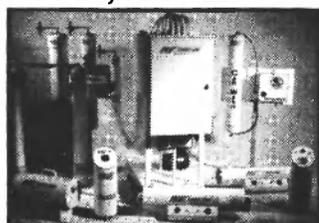
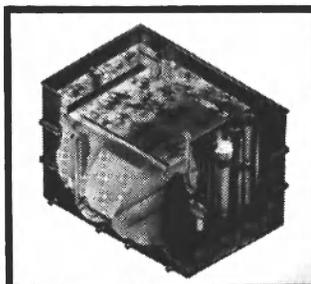
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October, 1997

BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

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Railko Ltd., U.S.A. Repts: Simplex-Turmar Inc., P.O.B. 675, Tonawanda, NY 14151-0675

Rox Corp., 12402 E. 60th St., Tulsa, OK 74146-6922

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GEC ALSTHOM Diesels Inc., 10801 Kempwood Drive, Suite 1, Houston, TX 77043-1412

Ian-Conrad Bergan, 3409 Gulf Breeze Pkwy, Gulf Breeze, FL 32561

Gems Sensors Division, One Cowles Rd., Plainville CT 06062

MMC International, 60 Inip Dr, Inwood NY 11096

Prime Mover Controls, 3600 Gilmore Way, Burnaby V5G 4R8 CANADA

Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006

Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

Stork-Kwant BV, P.O.B. 23, 8600 AA Sneek, Netherlands

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Engine Monitor, Inc., 179 Hickory Avenue Harahan, LA 70123

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Lo-Rez Vibration Control, Ltd., 186 West 8th Ave., Vancouver, B.C. V5Y 1N2

Mapeco Products, 90 Forest Avenue, P.O. Box 382, Locust Valley, NY 11560

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New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

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Cummins Mid-South, Inc., 110 E. Airline Highway, Kenner, LA 70062

John Deere, John Deere Rd., Moline, IL 61265

DMI Norshipco Co., P.O. Box 2100, Norfolk

Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501

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LA 70059-0008
Thrustmaster of Texas, P.O. Box 840189-12227 IFM 529,
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Ultra Hydraulics Limited, Cheltenham Road East, Gloucester,
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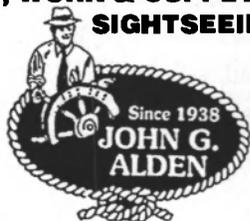
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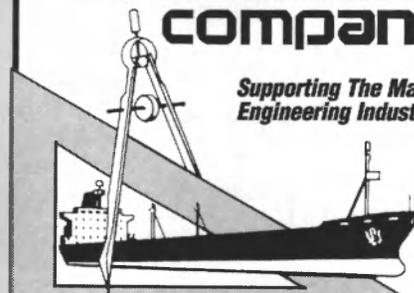


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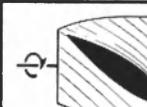
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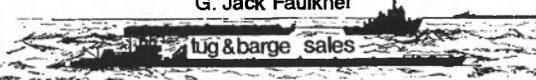
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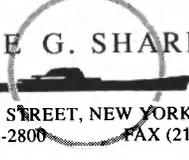
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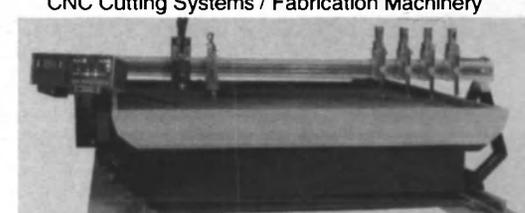
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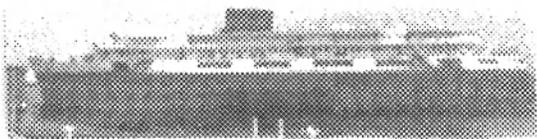
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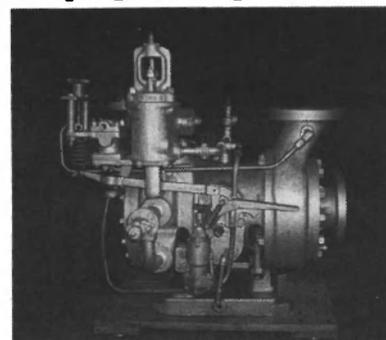
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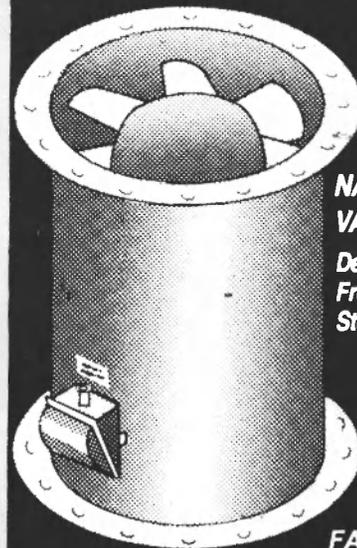


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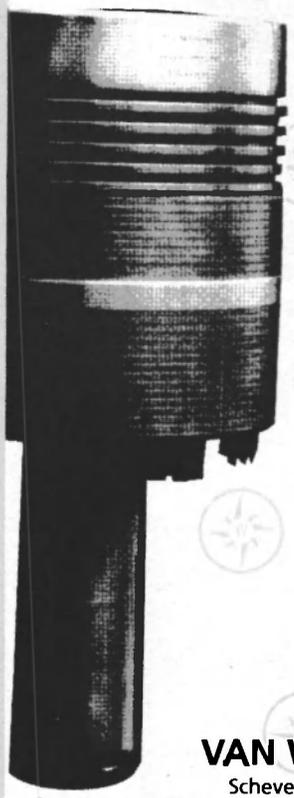


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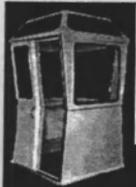
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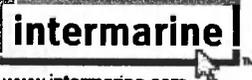
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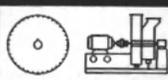
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It is imperative to call 1-800-573-0937 to request a copy of the vacancy announcements for further application procedures.

or send a written request to:
National Transportation Safety Board
Human Resources Division
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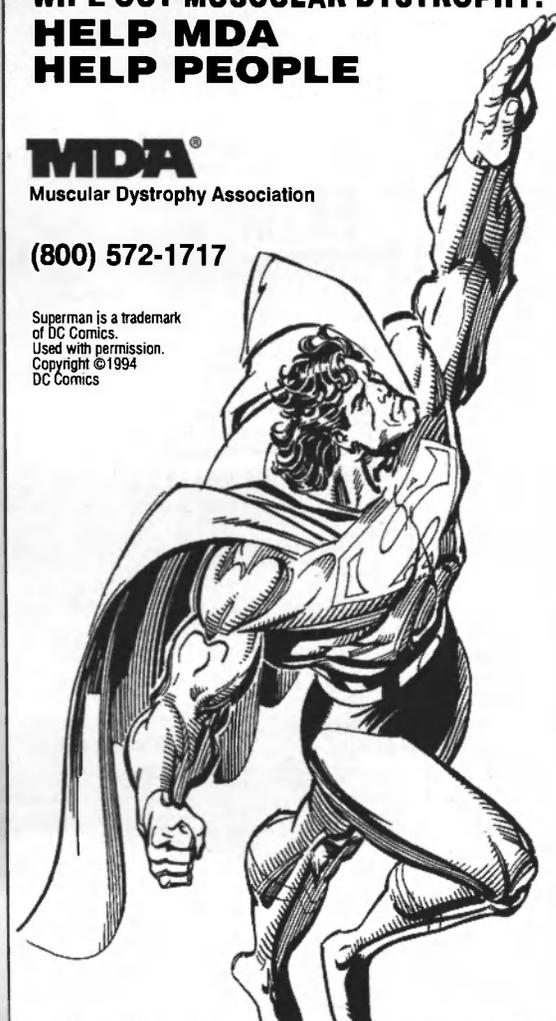
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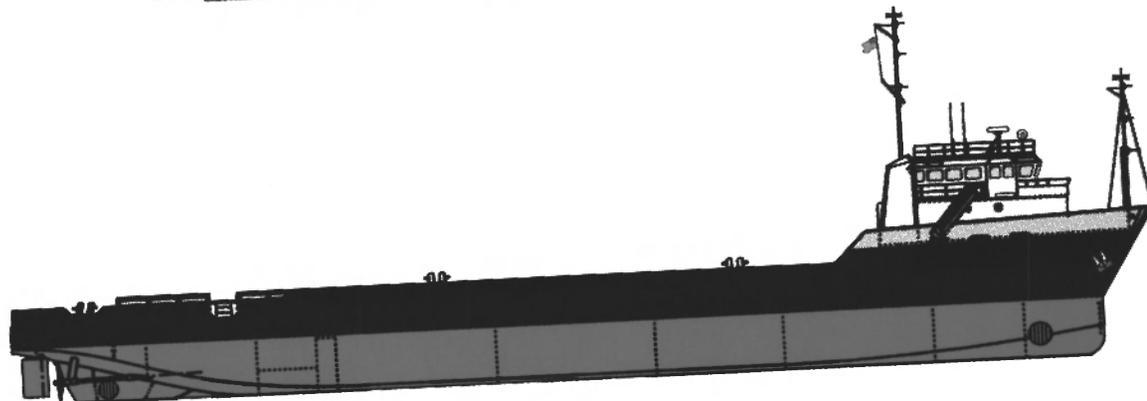
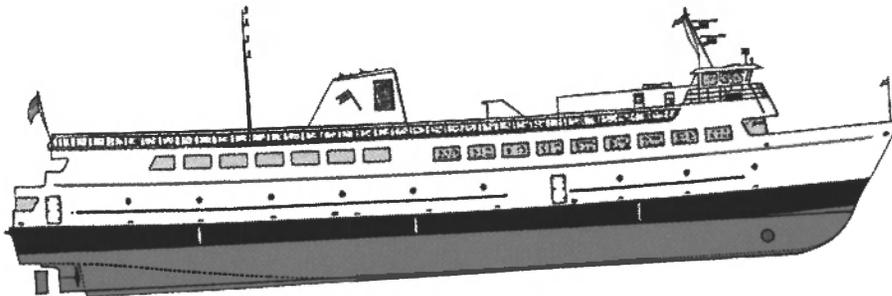
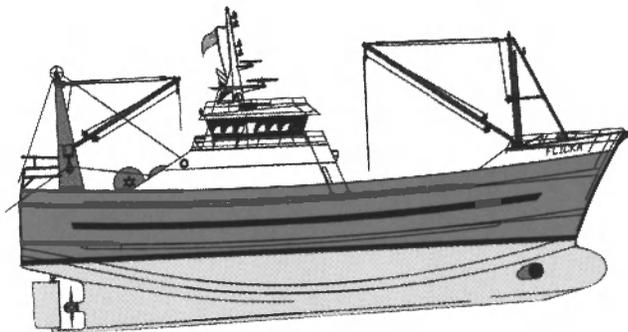
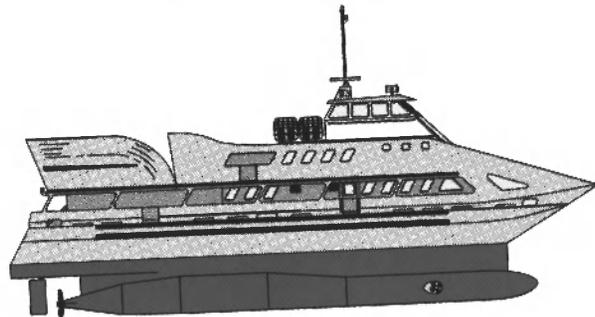
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