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n this — the "Cruise" edition — it may seem odd to start with a discussion of Safety and Security, but such is the world in which we live. Security matters have permeated nearly every corner of the marine world, and it is a situation that is not likely to change soon. The summer, which traditionally is a quiet time for the marine business, has literally and figuratively heated up.



Fleet Battle Experiment-Juliet (FBE-J) is set to start

later this month off the coast of California, and it is a safe bet that many of the technologies under review during the two week exercise will find their way into real-world use faster than normal, given the increased emphasis on developing new ways to detect and deter potential enemy threats. Lockheed Martin Naval Electronics and Surveillance Systems (NE&SS) -Marine Systems' Sea SLICE technology will participate, displaying the advantages of its innovative hull design and truck-like Load On, Load Off capabilities in providing a broad, stable platform for diverse operations. A review of the technology starts on page 26.

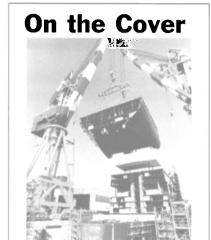
Of more immediate interest, news came late in June that Integrated Coast Guard Systems (ICGS) — the Lockheed Martin and Northrop Grumman joint venture— has been selected to implement the estimated \$17 billion U.S. Coast Guard Deepwater project. The contract may extend up to 30 years, and will involve the acquisition of up to 91 ships, 35 fixed-wing aircraft, 34 helicopters, 76 unmanned surveillance aircraft, and upgrade of 49 existing cutters and 93 helicopters, in addition to systems for communications, surveillance and command and control. Details of the contract are found starting on page six, with a more in-depth analysis to follow in the August edition's U.S. Report, which will highlight the various ship and boatbuilding opportunities presented by the current security push.

On the smaller boat side of the business, companies that manufacture small aluminum or composite craft to RIBs — Zodiac; Boston Whaler Commercial and Government; Munson; and SeaArk, to name but a few — are enjoying the unleashing of dollars to build boats. While some may argue that conducting business with the government is no simple task, there are few — if any who could successfully contend that additional funding is unwelcome.

Gregory R. Franthmens

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Italy's Fincantieri has a long history of building some of the finest cruise ships in the world, as pictured here at its Marghera Venezia Shipyard.

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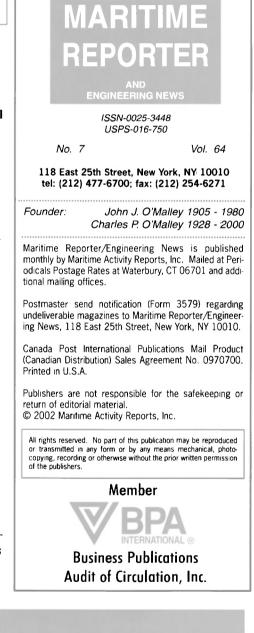
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News

SeaArk Marine Wins \$14M Warfare Boats Deal

SeaArk Marine, Inc. won a two-year, \$14-million contract from Naval Sea Systems Command for 36 Coastal Warfare Boats. The 34-ft. (10.3-m) aluminum boats are powered by Cummins Diesel engines with Twin Disc gears and Konrad stern drives. Designed for coastal patrol and defense, these boats will be deployed to protect military facilities worldwide. Naval Sea Systems Command (NAVSEA) is the primary purchasing office for U. S. Navy boats and ships, as well as non-combatant craft.

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Kongsberg Simrad and ABB Team Up

Kongsberg Simrad AS and ABB AS have entered a worldwide cooperation agreement on joint marketing, sales and technology development to marine and offshore vessels. As part of this agreement there will be a transfer of ABB's business related to dynamic positioning to Kongsberg Simrad.

The two companies have established themselves as leading international suppliers, predominantly with complementary products and systems.

By the co-operation, the two companies aim to take one step ahead, to become the leading vendor of packages of vessel automation, dynamic positioning, electric power, propulsion, and thruster systems to marine and offshore vessels. These integrated systems will take advantage of the best of technology and marine knowledge from both companies. By this agreement both companies will capitalize on ABB's new industrial IT technology by a joint development program on integration of total solutions, enhancing the vessel's performance, reliability, safety, fuel consumption and emission.

Zodiac Debuts Bulletproof System For CRRC

Zodiac unveiled Armorflate (patent pending), a system it is touted as the world's first bullet-resistant system for Combat Rubber Raiding Craft (CRRC). The innovative product, undoubtedly created to fulfill the burgeoning need for combat and security craft in the wake of previous terrorist attacks, was unvelied at the 2002 Multi-Agency Craft Conference (MACC), held at Naval Amphibious Base, Little Creek, in Norfolk, Va.

The inflatable Armorflate system made its debut on the Zodiac F470 CRRC inflatable boat, which has a long history of military and special forces operation. The Armorflate system is available with either soft or hard armor protection, made from a bulletproof material provided by Simula, Inc.

"This inflatable bulletproof system will revolutionize the way combat and security missions are conducted on the water," said **Rick Scriven**, vice president of Zodiac Professional Products. "Armorflate provides troops with dramatically increased levels of safety in close combat situations."

The soft armor package can be folded

and stored in minimal space and, when needed, can be inflated rapidly (in about 40 seconds) to provide armor protection for CRRC occupants and the boat's inflatable tubes. Hard panels can be inserted in pockets on the inflated soft armor panels to provide upgraded protection.

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Zodiac unveiled Armorflate (patent pending), an inflatable bulletproof system for inflatable boats.

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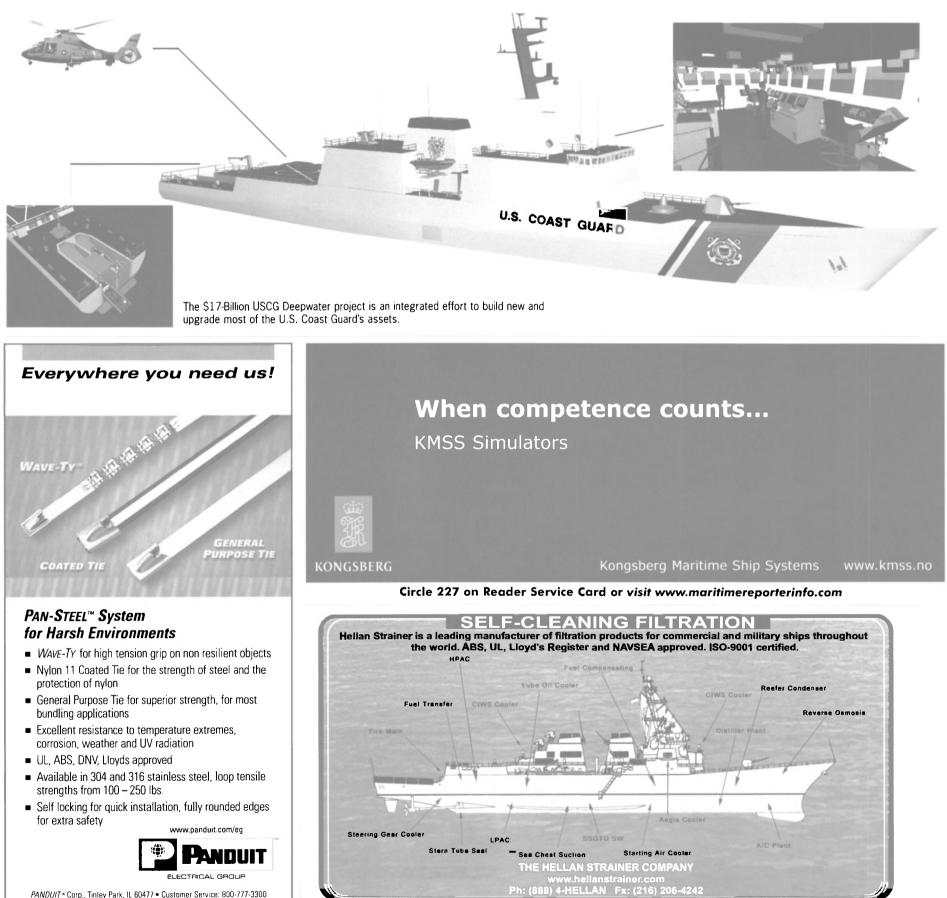


Historic \$17 Billion Order Placed

The marine industry, which traditionally hits a lull during the summer months, has been boiling over with new projects and business prospects, mainly centered on the business of keeping U.S. shores secure from further terrorist incursion. The Coast Guard Deepwater project, which was well in the works years before the date September 11 came to signify much of anything, after five years of planning has finally come to fruition in the form of a nearly 30-year, \$17 billion plan to essentially re-shape the U.S. Coast Guard.

Yet even upon the awarding of the historic contract, there were rumblings from inside Washington, D.C., from Congressional powers. At issue are several matters, including the potential changing of the Coast Guard's operational role once it is fully integrated into the new Homeland Defense scheme, from that of search and rescue to fighting terrorism, as well as from those who question whether the Deepwater project should be rethought in the face of the recent terrorist attacks and threats.

In fact, in a *Wall Street Journal* article "Coast Guard Braces for Fight," (*WSJ*, Wednesday, June 26, 2002, page A4), Alaska GOP Rep. **Don Young** (R-Alaska), is



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News

quoted as saying that Congress will alter those Coast Guard missions "over my dead body."

When the stakes are billions and the government is involved, it's a good bet that proceeding from evaluation to contract will always contain some hitches. Nevertheless, the recently announced deal is historic and will keep the U.S. maritime industry busy for some years.





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The deal, announced by U. S. Deputy Secretary of Transportation, **Michael P. Jackson**, and by U. S. Coast Guard Commandant **Thomas H. Collins**, is a contract valued at \$11.04 billion for a fleet of new ships and aircraft, plus improved command and control systems. An additional \$5.91 billion is contracted for operating, maintenance, and sustainment costs, bringing the package to a staggering total value of \$16.95 billion. The contract was awarded to Integrated Coast Guard Systems (ICGS), a joint venture established by Lockheed Martin and Northrop Grumman.

How Many? And When?

The program calls for the delivery of the first ships and planes - and within the next five years. This is the first time the Coast Guard has bundled procurement of several types of ships, aircraft and other equipment into an integrated procurement program. The contract may extend up to 30 years. Deepwater will involve the acquisition of up to 91 ships, 35 fixed-wing aircraft, 34 helicopters, 76 unmanned surveillance aircraft, and upgrade of 49 existing cutters and 93 helicopters, in addition to systems for communications, surveillance, and command and control. The historic program effectively has taken on the lead role in the effort to secure the U.S. from attacks through its ports. "The tragic events of September 11th changed the world as we know it. Homeland security, now more than ever, is a mission where we must succeed," said Admiral Collins. "As the leader in Maritime Homeland Defense, the Coast Guard must have the most capable ships, aircraft, sensors and communications technology available to protect our nation and carry out our many missions. The Deepwater Program will give us the necessary tools to create an effective, layered defense of our nation's maritime interests."



Legal Beat

USCG Proposes New Changes in Vessel Arrival/Departure Procedures

By Art Dimopoulos, Of Counsel, Preston Gates, Washington, D.C.

On June 19, 2002, the United States Coast Guard proposed permanent changes to its notification of arrival and departure information for all commercial vessels greater than 300 gt. (See, 67 Fed. Reg. 41659). The notice of proposed rulemaking is part of a greater port security scheme that seeks to ensure port safety, security without compromising the flow of commerce.

The changes to the present Notice of Arrival (NOA) reporting regime are substantive and procedural. The changes affect the estimated 10,367 respondents (vessel owners, operators, masters, agents or others in charge of U.S.-bound vessels, herein "Submitters") that currently submit an approximate, 136,278 NOA and Notice of Departure (NOD) reports. The following changes have been proposed with each change discussed in further detail below:

Additional Information in NOA Reports;

• Submitting cargo manifest information electronically to U.S. Customs;

NOA submission time changes;

• Reporting changes to submitted information

• Consolidating NOA and Notice of Departure (NOD) reports

• Centralizing electronic submissions; and

• Revising reporting requirement exemptions.

NOA Reports

The submitter would be required to file a NOA with the U.S. Coast Guard's (USCG) National Vessel Movement Center (NVMC). The NOA would have to include information that accurately identifies each U.S. destination the vessel will call on. The submitter would have to indicate the vessel's present location/position at the time of submission of the NOA report. A general description of the vessel's cargo must also be included in the NOA.

The proposed rule requires the submission of the full name (including nicknames, maiden names, aliases, etc.), date of birth, nationality, passport number or mariner's documentation number, place of embarkation, and the position/duty of each crewmember aboard the vessel. The submitter must also report on every passenger or non-crew member aboard the vessel listing the full name, date of birth, nationality, passport number and place of embarkation for each person.

Cargo Manifest

The proposed rule would require the electronic filing of U.S. Customs Service Form 1302 with the U.S. Customs Service (USCS), 96 hours before the

vessel's arrival at the first U.S. port of call. The single electronic filing to the USCS Sea Automated Manifest System (AMS) would satisfy USCG and USCS requirements for both agencies. Vessels engaged in the U.S. coastwise trade would not be subject to filing a cargo manifest.

USCS filing is established by: (1) a direct connection with USCS; (2) using



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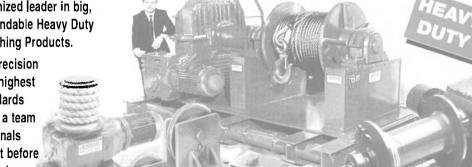
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a service provider; (3) using a port authority; (4) purchasing filing software from a vendor. More information about the AMS systems is available at the following website: (http://www.customs.treas.gov/impexp2/auto-sys/ams.htm).

NOA Submission Times*

The table in the far right corner provides information regarding substantive changes to already submitted NOA Forms. In sum, substantive changes must be reported as soon as practicable, but not less than, 12 or 24 hours, (see table) prior to entering the port depending upon the vessel and voyage characteristics. Fortunately, the Coast Guard has eliminated the need to file a NOD report by requiring estimated date and time departures included in the NOA submission. Furthermore, Submitters would be allowed to file a single NOA report listing consecutive U.S. destinations during the voyage, along with estimated arrival and departure times for each port of call.

Centralization of Submissions

The proposed rule envisions the filing of all NOA reports with the NVMC rather than with individual USCG Captains of the Port (COTPs) for each respective district called on by the vessel. Foreign-flag vessels of 300 gross tons or less operating in the Seventh Coast Guard District, would submit NOA reports to respective COTPs. Moreover, inbound St. Lawrence Seaways vessels could fax NOA submissions to the Saint Lawrence Seaway Development Corporation and the Saint Lawrence Seaway Management Corporation of Canada.

Electronic Submissions

The Coast Guard is considering adopting an automated electronic filing system as a preferred or required means for filing NOA reports. The Coast Guard is soliciting specific comments on the electronic filing system with six specific questions for consideration:

• Enumerate information security concerns regarding electronic NOA submissions

• Should Coast Guard have authority to forward all/part of NOA information to marine exchanges, port authorities to facilitate information sharing at the port level?

• Is a desktop e-mail application powered with capability of creating, managing and automatically submitting NOA useful?

• Comment on preferred electronic submission means (e.g., HTML, SMTP, FTP).

• Enumerate information security concerns in event Coast Guard forward NOA to an FTP server or web server in the public domain?

• Is an XML data specification for a NOA useful as means of submitting by e-mail or other means?

Exemptions

U.S. non-tank vessels operating solely between U.S. ports on the Great Lakes would be exempt from the NOA reporting requirements. U.S.-flag tankers coming from a foreign port, vessels complying with the Automated Mutual Assistance Vessel Rescue System, (AMVER) and vessels operating on a regularly scheduled route would be required to submit NOA reports. All barges coming from foreign ports would be required to submit a NOA.

Industry Comments

Comments and supporting materials should be sent to the Docket Management Facility c/o (USCG-2001-11865), U.S. Department of Transportation, room PL-401, 400 Seventh Street, S.W., Washington, D.C. 20590-0001, on or by August 19, 2002. Comments can also be faxed to (202) 493-2251, or filed electronically through the Docket Management System website at: http://dms.dot.gov.

Incorporatea	III NOA N	
VESSEL TYPE & VOYAGE TIME	FORMER NOA REQ.	NEW NOA REQUIREMENTS
Vessels greater than 300 GT with vayage time of 96 hours or greater	24 hours	At least 96 hours before entering each port of destina- tion; changes to NOA must be made as soon as practi- cable, but no later thon 24 hours prior to port entry
Vessels greater than 300 GT with o voy- age time ol less than 96 hours	24 hours	Before departing but no less than 24 hours prior to each port entry; changes to NOA must be made as soon as practicable, but no later than 24 hours prior to port entry
Vessels greater than 300 GT with a voy- age time of less than 24 hours	24 hours	Prior to port departure, but no later than 12 hours prior to each port entry (for short hauls); changes to NOA must be made as soon as practicable, but no later than 12 hours prior to port entry; NOD must be ot least 24 hours unless notification was mode within 2 hours of port arrival
All vessels carrying dangerous cargo (except barges) with a voyage time of 96 hours or greater	24 hours	At least 96 hours before each port entry; changes to NOA must be made as soon as practicable, but no later than 24 hours prior to port entry; NOD must be at least 24 hours unless notification was made within 2 hours of port arrival
All vessels carrying dangerous cargo (except barges) with o voyage time of less than 96 hours	24 hours	Before departing but no less than 24 hours prior to port entry; changes to NOA must be made as soon as practicable but no later than 24 hours prior to port entry; NOD must be at least 24 hours unless notifica- tion was made within 2 hours of port arrival
All vessels carrying dangerous cargo (except barges) with a voyage time of 24 hours or greater	24 hours	Prior to port departure, but no later than 12 hours prior to port entry (for short hauls); changes to NOA must be made as soon as practicable, but no later than 12 hours prior to port entry; NOD must be at least 24 hours unless notification was made within 2 hours of port arrival
All barges carrying certain dangerous cargo	4 hours	At least 12 hours before entering each port of destina- tion; changes to NOA must be mode as soon as prati- cable but no later thon 24 hours prior to port entry; NOD must be at least 4 hours before departing, unless notification was made within 2 hours of port arrival

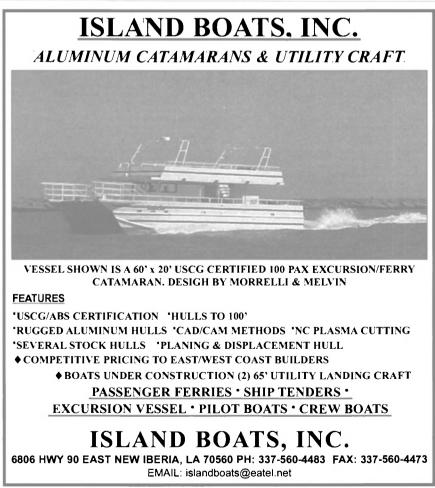
*Notice Of Departure (NOD)Filing Requirement Is Now

NOA Submission Times*

Incorporated in NOA Form



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NASSCO Celebrates Keel Laying of Trailerships



Richard Griffith, VP, Operations of Totem Ocean Trail Express, Inc. (TOTE), and **Jim Scott**, VP, marketing and business affairs, of National Steel and Shipbuilding Company (NASSCO), a wholly owned subsidiary of General Dynamics, pose at the keel-laying ceremony for the North Star, the second of two ORCA-class RoRo trailerships being built for TOTE's Tacoma-to-Anchorage service.

Griffith drove in a wedge that signified the fit-up of the ship's first keel blocks and then welded his initials onto a steel plate that will become a permanent part of the ship. The new ships will be 839 ft. (255.7 m), have a beam of 118 ft. (35.9 m), and carry 600 cargo trailers and 200 autos. The ships are designed for the rigors of Alaskan service and feature the latest in environmental protection technology. The first ship, the Midnight Sun, is scheduled to be delivered in fall 2002 and the North Star in spring 2003.

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First Wave/Newpark Awarded Contract

First Wave/Newpark Shipbuilding was awarded a major contract by Sasaran Perdana Sdn Bhd, a wholly owned subsidiary of Crest Petroleum Bhd, for the drydocking, repair and refurbishment of the semi-submersible tender assisted platform drilling rig to be renamed the Teknik Hidayat. The refurbishment will be performed at First Wave's Pelican Island Facility in Galveston, Texas and is expected to continue into the fourth quarter 2002. The rig is expected to arrive in Galveston in mid-June 2002.

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Stelmar Shipping Gets Panamax Tankers

Stelmar Shipping Ltd. has taken delivery of two double-hull Panamax tankers, the Rosemar and the Goldmar, from the Daewoo Shipbuilding and Marine Engineering Company Ltd.

Both tankers have entered into previously announced multi-year time charters. The time charter contract for the Rosemar is for 24 months at a rate of \$17,500 per day. The contract for the Goldmar is for five years at a rate of \$18,500 per day. Rosemar and Goldmar are sister ships to the Rubymar, Jademar and the Pearlmar, which were delivered in the first four months of 2002, and entered into twenty-four month time charters at an average rate of \$18,000 per day. The Rosemar is the last ship to be delivered as part of the 2002 Pana-

max newbuilding program.

The Goldmar is the first vessel to be delivered from the recent offering.

Sea Containers Introduce New Fast Craft

Sea Containers introduced the Ancona, Italy to Split, Croatia route operated by its joint venture with SNAV, a subsidiary of the Mediterranean Shipping Company. The seasonal service, which started in 2000 and has carried nearly 75,000 passengers and 15,000 vehicles to date, has proved so popular that a larger craft is needed. The high speed catamaran Felix, which was built in 1996, will appear in the Croazia Jet livery, entering service early on June 8.

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SJD-1206 IRCS Workstation

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JMA-9800 Color ARPA Radar

This futuristically designed radar unit features a large 29-inch high-definition color CRT display. It enables quick detection of small targets.

JAN-3598 ECDIS Total Navigator

This advanced ECDIS system permits fully automatic navigation. It features a large color LCD and abundant functions unique to JRC, including radar video overlay, grounding prevention, NAVTEX data, route safety check, alarm displays and engine data display. The result is greater safety and economy.

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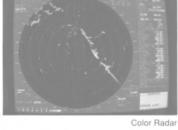
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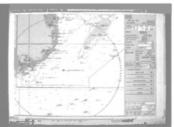
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Industry-Wide Interoperability Investment Paying Off

By Rick Self, Executive Director, National Shipbuilding Research Program (NSRP)

The Integrated Shipbuilding Environment (ISE) project sponsored by the National Shipbuilding Research Program is a three-year effort to develop and deploy an industry-wide architecture for computer interoperability. ISE is targeting cost and cycle time reduction for both Navy and commercial customers by providing real-time digital connectivity between shipbuilders and their suppliers. ISE also targets the total ownership costs during the 40-year life of a ship in that it provides access to configuration data during the life of a ship or ship class - regardless of computer system upgrades.

The expected benefits of this project are very high. For each shipyard, conservative benefits are a 15 percent reduction in pre-contract labor, six percent reduction in production labor and a two percent reduction in material costs.

Business Case

The ISE business case is simple: radically reduce the costly, time-consuming

and error-prone manual re-entry of complex 3-D design information through reliable and efficient digital data transfer of:

Part information from vendor elec-• tronic libraries into shipyard parts libraries,

3-D design data from CAD files to the sophisticated computer analysis and simulation tools used to validate the design of each ship system, and

3-D design data between diverse CAD systems and versions at shipyards specializing in defense work, commercially oriented U.S. yards, and marine suppliers. This capability is significant because second tier shipyards and marine suppliers rarely use the sophisticated high-end CAD tools used by U.S. yards supporting DoD programs, and because even a single vendor's CAD product installations at different facilities routinely result in interoperability issues. The patchwork solutions currently used to address this increasingly significant cost driver include time consuming and very expensive modification of direct point-to-point translators every time a new version of a CAD system is

Top-down Projections (over a 10 year period)

Design Savings	Structural	Piping	Other	Total
Design Programs Carriers, Submarines, Combatants	\$4.5B	\$6.75 B	\$3.75B	\$15B
Projected systems technology savings	\$1.12B	\$1.69B	\$0.94B	\$3.75B
Projected savings attributed to ISE	\$56M	\$85M	\$47M	\$188M

This project began in September 1999 and completes in July 2003.

implemented at any point in the supply chain, or among co-design or co-production partners — a frequent occurrence.

ISE's end goal is a cost effective, integrated, and functional information system that will provide toolsets for realtime collaboration and information sharing among shipyards, suppliers, owner/operators, and regulators. Toolset capabilities include:

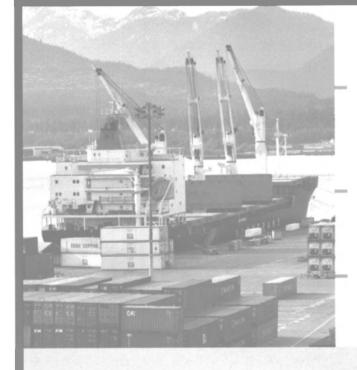
Direct download of piping and structural parts data from vendor electronic catalogs into shipyard digital parts libraries;

Export of detailed CAD data to (a) analysis tools, (b) simulation programs, and (c) ship classification software; and, Electronic exchange of molded form data (complex geometric shapes of

steel hull plating) between four different shipbuilding CAD systems.

These capabilities flow from adherence to international standards for data structures — a practice adopted across most manufacturing industries worldwide. Typically during the life cycle of a ship or ship class, the Navy, shipbuilders and/or suppliers will face one or more Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Enterprise Resource Planning (ERP), and or Product Data Management (PDM) system transitions. The consensus ISE standards and protocols being developed enable new systems to access the data from previous systems and enable new versions of existing systems to access data from all previous versions - a capability whose absence in current systems is costly.

ISE's key asset is the critical mass of



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CAD/CAM

committed stakeholders - an empowered team with representatives from U.S. shipyards, CAD/CAM vendors, regulatory bodies and software vendors. The team has developed and approved an architecture for interoperability that includes agreement on information requirements and data exchange standards and protocols. The ISE architecture uses readily available Internet technologies as well as data exchange standards being developed in conjunction with the International Standards Organization (ISO).

Progress, Implementations and Early Results

Shipyards are already using ISE tools in warship production on the submarine and Carrier programs. These tools enable shipyards to select digital tools (simulation, analysis, ERP, CAD, PDM, etc.) best suited to their business, yet fully participate in co-design and coproduction arrangements that rely on other information systems to design, build and maintain war ships. Highlights of the project's on-budget, onschedule successes include:

Development/agreement of industry-wide interoperability architecture

Publication of hundreds of use cases defining requirements for information sharing at many shipyards

Development of common data element definitions and common taxonomy for transferring data between parts libraries and supplier catalogs

Development, demonstration and distribution of tool sets for inter-organizational sharing of piping system information, including: parts catalog information, system diagrams and simulation engines, and detailed design and analysis systems. Available, proven tools are a mix of open source software available on the project's website and commercially available tools in the product lines of collaborative design, co-production, integrated supply chain, and standardized parts.

The project recently completed the second of three years with a highly successful demonstration of capabilities. The April 4 demonstration showcased the impressive "eShipDesign" capabilities of the consensus architecture, standards, protocols, and toolsets developed to date. The following capabilities were demonstrated:

Direct download of piping and structural parts data from vendor electronic catalogs into shipyard digital parts libraries.

Export of detailed CAD data to analysis tools, such as Anteon's Proteus Flagship Suite, simulation programs such as SIMSMART, and ship classification software such as the ABS Safe Hull program.

Successful electronic exchange of molded form data (complex geometric shapes of steel hull plating) between four different CAD systems (Dassault's CATIA, Sener's FORAN, KCS' TRI-BON and Intergraph's GSCAD).

Examples of estimated savings are: Cost to link two IPDE (Integrated Product Development Environment) systems for co-design or co-production is estimated to be \$30 million. If there are three programs over the next 10 years that use an IPDE, the total cost would be \$90 million. It has been estimated that the ISE developed tools will save 40 percent or \$36 million.

A top down projection of savings ٠ for the design process for Navy pro-

®

grams is \$188 million over 10 years (see chart, previous page).

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Any queries regarding this article may be directed to the Program Administrator (Advanced Technology Institute): Tel: 843-760-3331; Email: hebert@aticorp.org

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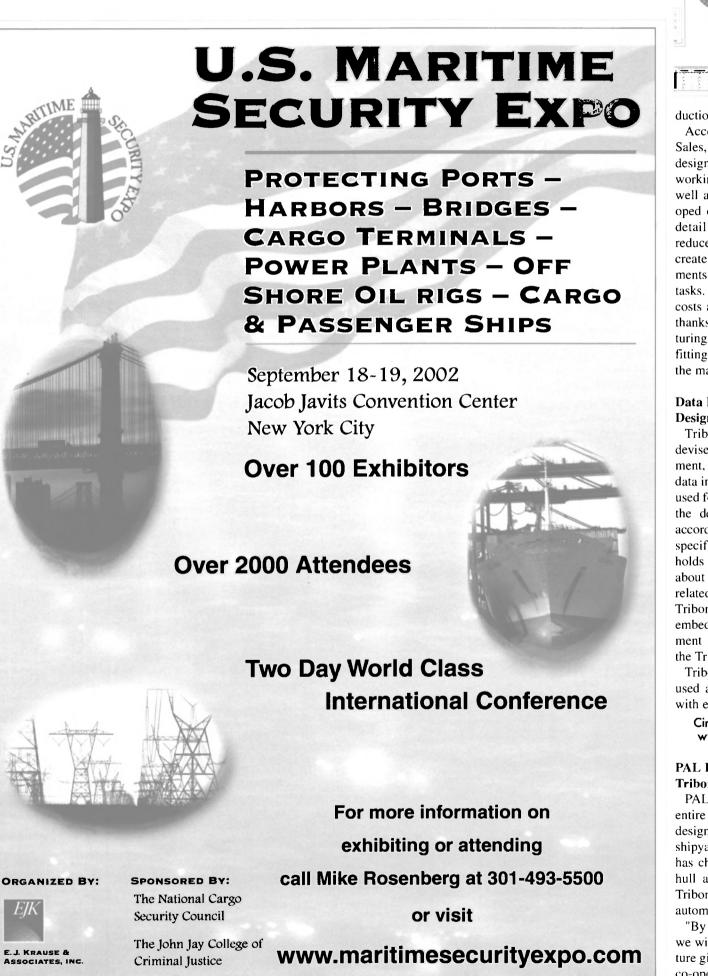
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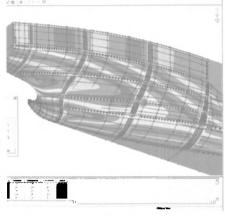
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Tribon M2 Aim: Better Ships at a Lower Cost

Recently launched Tribon M2 Shipbuilding system aims to further reduce time and costs in shipbuilding. Able to run on Windows NT or Windows 2000, Tribon M2 applications for machinery, piping, outfit and cabling have been extensively enhanced, and the new Tribon M2 Data Management reportedly leads to safer and better management of the Tribon Product Information Model (PIM). Together with other new features this will lead to an earlier start of pro-



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duction and to major overall savings According to Bruce Douglas, VP Sales, Tribon Solutions, "In the early design phase, calendar time is saved by working in parallel both internally as well as externally due to highly developed co-ordination possibilities. In the detail design phase man-hours are reduced through an efficient process to create production information and documents for the manufacture and assembly tasks. In the production phase material costs are reduced and man-hours saved thanks to high quality on the manufacturing information, which leads to better fitting, less rework and full utilisation of the machines in the workshops."

Data Management Controls Design Data

Tribon M2 Data Management is devised to fully control the development, approval and release of design data in a project. The application can be used for projects both inside and outside the design department in a shipyard according to the authority rules for the specific shipyard. The Tribon PIM holds information and documentation about the ship design, and information related to the manufacturing of the ship. Tribon M2 Data Management is an embedded and adapted data management functionality fully integrated in the Tribon PIM.

Tribon M2 Data Management is also used as a platform for communication with external PDM systems.

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PAL Indonesia Implements Tribon System

PAL Indonesia has purchased the entire Tribon Shipbuilding system for design and production of ships at its shipyard in Surabaya. PAL Indonesia has chosen to implement the complete hull and outfitting applications of the Tribon system to increase the yard's automation and efficiency.

"By implementing the Tribon system we will be part of the Tribon infrastructure giving us increased opportunities to co-operate with more shipyards," said Dr. **Ir Adwin H. Suryohadiprojo**, president Director PAL Indonesia.

Autoship Systems Corporation's Total CAD/CAM Solution for Ship Design and Building

Autoship Systems Corp. (ASC) has able when editing control point weight. initiated a new 'total system' approach to CAD/CAM software for shipyards, aiming to eliminate what it terms the most expensive CAD/CAM inefficiencies within the design-to-manufacture process: data exchange and interface discontinuities between specialized products (and the additional training and maintenance costs that result). ASC sought to achieve these goals through designed interoperability, with the overall system bringing a shipyard's major design and construction phases into the same data chain, and the interface remains familiar through each stage of the process.

Autoship's total solution includes five ASC products and software options from two partnered companies. While some of the product names are familiar, four of the Autoship products are either brand new or so re-engineered that they can be considered brand-new:

The Autostructure 1.1 Group (Released 1st Quarter 2002)

Autostructure performs internal structural modeling tasks. Designed to support many networked engineers working simultaneously on single or multiple projects, its data base capacity and response time provide well for even the largest shipyard. It starts with project files generated in Autoship and Autoplate (plate design and structural modeling can proceed in parallel). Autostructure aims to simplify design tasks by providing specialized dialogues, excellent graphical methods, and advanced regeneration based on automatic tracking of part dependencies and interrelationships. The Autostructure group consists of three associated programs: Autostructure itself, Project Manager, and Report Manager. Project Manager provides database management functions (project creation, archiving, backup and access control). Report Manager provides flexible and customized report generation.

Autoship 8.1 (Released 1st Quarter 2002)

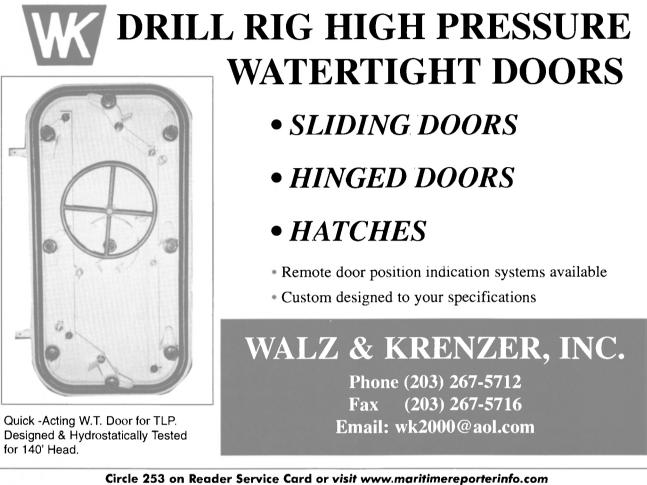
Version 8.1 retains all that ASC has learned from 20 years of developing this CAD/CAM product, yet has been reengineered to provide the foundation for a modern and integrated CAD/CAM suite for ship design. The many additions and enhancements to the user interface include the Navigator (a floating window in which the project is displayed as a tree), and the OpenGL Viewer developed for Autostructure. Dynamic display is included when editing curves, and immediate updating is avail-

cal engine, Autoship displays models in four views — three axes and a rotatable

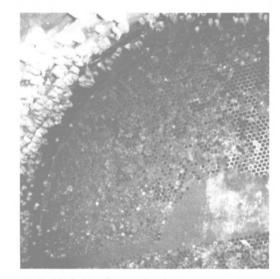
Centred on a NURBS-based mathemati-

types of points, curves and surfaces, including developable surfaces. A special feature allows surfaces to be con-

3-D view. Autoship works with several structed from an offsets table. Editing is accomplished through control points, edit points, scaling, translation, rotation or shearing. Models can be exported as



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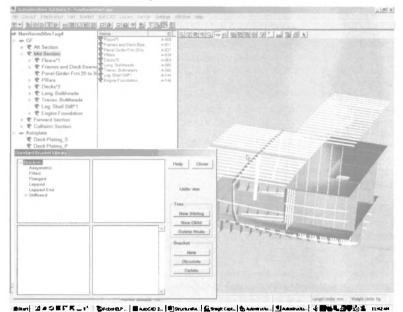
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DXF and IGES files, Autohydro geometry files, or Offshore Racing Council IMS offset files. During export calculations the program enforces specified tolerances to ensure true engineering accuracy.

Autoplate 8.1 (Released 1st Quarter 2002)

This new Autoplate product has been developed and updated to be able to work in tandem with Autostructure 1.1, and to import project files from Autoship 8.1. Autoplate now incorporates the OpenGL Viewer developed for Autostructure, and "Navigator" - a new feature used to access and control project structure (see description of Navigator in Autoship 8.1 section above). Another new feature is ability to create plates that extend across the center plane (by reflection). Plate boundaries can be surface edges, chines and embedded curve sections. A full range of expansion options is available to match fabrication methods, and the output includes plate measurements, pin jigs, templates and strain contours. Dynamic display is incorporated to let the user see the results of the editing compared to the unedited form, and Autoplate also generates shell expansion drawings.

Autohydro 5.3

This hydrostatics/stability component was released in June 2002. Autohydro is a development of the longsuccessful product used by naval architects around the world, and is also at the core of ASC's on-board stability software. It performs intact and damaged analyses and produces customized stability reports which are accepted by all major governing approval bodies. Improvements include summarized reporting of loadAutoship Systems Corp. recently adopted a "total system" approach, which is embodied in all of its products. Autostructure (pictured) performs internal structural modeling tasks. Designed to support many networked engineers working simultaneously on single or multiple projects, its data base capacity and response time provide well for even the largest shipyard.

ing conditions, a trim list correction table for tank sounding/ullage, SI units (longitudinal strength calculations in KN), local strength checking, and grain stability checking.

Autopower 3.0

As the resistance and power prediction component, this program provides 12 resistance prediction methods suitable for displacement vessels, planing vessels, semi-displacement vessels and catamarans. Hull parameters may originate in Autoship, then Autopower's advanced user interface enables optimization based on the available methods. Autopower also provides propeller optimization, analysis of 5 models concurrently, editable reports, rapid calculation and output, and a built-in Report Editor.

ASC has concluded co-operation and marketing agreements with two major players in the ship design and construction field:

• The Perception suite from Spar USA (http://www.sparusa.com) does cost estimation, material management, scheduling and work management. Direct transfer of part information from Autostructure will provide a link into the shipyard supply chain.

• AutoPLANT from Rebis (http://www.rebis.com) is an advanced piping design system. Working together, Autostructure and AutoPLANT provide designers with the ability to incorporate structural-piping design into the structure design drawings — which is much less costly than resolving structure/pipe interference during the build process.

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HDW Purchases Topgallant

As part of the implementation of SAP R/3 at the Howaldtswerke-Deutsche Werft in Kiel, Germany, Atlantec Enterprise Solutions has been chosen to develop the link from the Tribon Hull shipbuilding software to R/3.

The link is to be developed in close cooperation with HDW's own software house, NIS Norddeutsche Informations-Systeme GmbH. Using information extracted from Tribon, the Topgallant software supplied by Atlantec Enterprise Solutions will prepare data for the ERP system.

The Topgallant solution to be provided will support both the initial transfer of data shortly before the burning start of each block, as well as any subsequent changes to that block during production. Using interactive tools supplied with Topgallant, all data can be tracked, verified and, if required, modified independently of Tribon.

The link to be provided by Topgallant will be used for all new construction programs in both the submarine and commercial shipbuilding departments at HDW.

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Delmia Granted Research Funding From U.S. Navy

Digital Shipbuilding Innovation Center (DSIC), which was founded in 2001 with the support of Delmia Corp., has been awarded research funding by the U.S. Navy's Office of Naval Research (ONR).

Delmia Software, in conjunction with CATIA and as part of the global Dassault Systems' 3-D PLM offering, will be used in DSIC to model a digital shipyard. The focus of the project, which is to determine means for reducing the construction costs of the U.S. Navy warships and commercial ships, will be performed in collaboration with the University of Michigan (Ann Arbor, Mich.).

Entitled "Simulation-based tools to support decision making in industrial policy, ship acquisition, shipyard planning and ship production process improvement," the project's 3-D PLM enables customers to optimize their business processes for engineering, manufacturing, maintenance and support, by utilizing collaborative workspaces to share a common product, process and resource (PPR) model.

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Juniper Industries Keeps the Water Out

Since 1928, Juniper Industries, located in Middle Village, N.Y. has continually increased its service to the Navy and maritime industry by developing both a large watertight closure line and a diversified ventilation product line. In addition to product innovation, Juniper provides its customers with a web-based price quotation and ordering system as well as direct phone and fax access to its technical and pricing specialists.

Juniper is known as one of the largest independent manufacturers of Navy standard watertight doors, hatches, scuttles and manholes. To maintain their position in the industry, they invest in a large inventory of parts, which allows them to supply shipyards and repair facilities the hardware their customers need — right off the shelf. One of Juniper's newest stock items is a watertight door hinge upgrade kit, which the Navy cycle tested at the Juniper test facility. Tested to one million cycles, this product significantly reduces maintenance and replacement costs. Always willing to meet client-specified design requirements — flexibility and progress are the order of the day at Juniper. Working closely with naval architects and engineering firms, Juniper strives to find solutions to maintenance and repair problems as well as develop new products. Testing capabilities include hydrostatic pressure as well as cycle and a wide range of quality control procedures.

A diversified company, they also offer a line of ventilation products including dampers, flame arresters, duct, duct fittings, access plates, deck ventilators and bellmouths. Seeing growth potential in

quality control procedures.

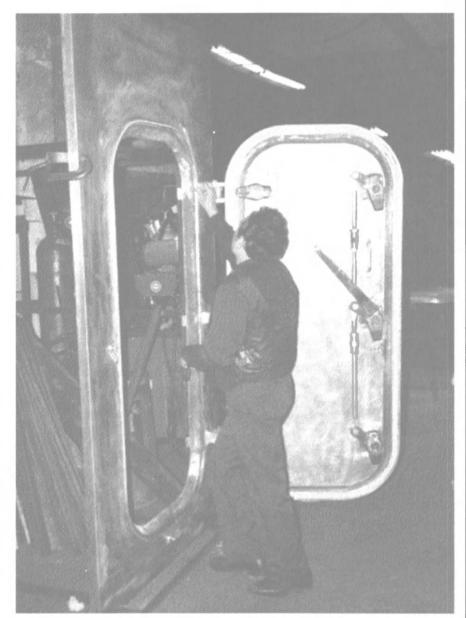
the damper field, Juniper is seeking to increase its share of the air control, fire, smoke and toxic gas damper market. Juniper has recently added an improved actuating system to its toxic gas dampers making the product more efficient and cost effective. Shock and vibration testing to customer specifications is offered.

With 200+ employees and more than 70 years of experience, Juniper has proven itself through its successful relationships with repeat customers such as the U.S. Navy, and the Northrop Grumman and General Dynamics Groups.

Advancing technology and modern business practices demand an increase in web-based capability as well as rapid turnaround times. A visit to the welldesigned and user friendly Juniper web site helps field and purchasing personnel identify closures correctly, isolate subassemblies for repair parts ordering and submit requests for information, assistance or quotes 24 hours a day. Juniper has kept a step ahead and offers a very helpful "Tips and Techniques" section on its web site with the product selection and ordering system. Its EDI capability has allowed the company to successfully meet the demands of DVD contracts with its largest clients. Regarding long term projects, Juniper has its eye on the design stage of the DX program and the product development that it will demand.

To gain the competitive edge this company plans to focus on increased design capability, state-of-the-art manufacturing equipment and a tradition that goes back three generations.

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Juniper is one of the largest independent manufacturers of Navy standard watertight doors, hatches, scuttles and manholes.

<text>

Juniper's testing capabilities include hydrostatic pressure as well as cycle and a wide range of

In addition to product innovation, Juniper provides its customers with a web-based price quotation and ordering system.



Investment in Design

Molding the five-deck Trailership



by David Tinsley, technical editor

Having emerged in recent years among Europe's top echelon of builders of RoRo vessels, Flensburger Schiffbau-Gesellschaft (FSG) has put down a new marker for the industry by anticipating demand for a future generation of RoRo ferries incorporating a capacity for 6,000 lane-m of freight.

Closely following its formalization of an order from North Sea and Baltic RoRo specialist DFDS for a fifth newbuild capable of loading 4,000 lane-m of road trailers, rolltrailers, cassettes, and other cargo, the German shipyard has unveiled its proposal for a 6,000 lane-m carrier.

The Flensburger offering, which has already attracted the interest of operators looking to achieve further scale economies on high-volume routes, combines an unprecedented arrangement of five trailer decks and flexible freight distribution with a rapid service speed of 23-knots. The design thereby promises high productivity as well as a major advance in unit capacity.

The German yard's international competitiveness springs from a continuing plough-back of funds into research and development and a preoccupation with efficiency as concerns both its homegrown designs and its in-house processes. In setting out to formulate a state-ofthe-art RoRo incorporating more cargo space than any other design available on the market, FSG's technical team sought

to ensure compact overall dimensions so as to keep initial investment costs as low as possible.

skills.

At 722 ft. (220 m) length overall, the 6,000 lane-m design is only 88 ft. (27 m) longer than the three-deck UND Akdeniz of 2,640 lane-m, and 'three-and-ahalf deck variants of 3,256 lane-m built at Flensburg for Turkish operator UND RoRo Isletmeleri. FSG's propensity for design development within a compact hull envelope was also expressed by the main dimensions of approximately 656 x 87 ft. (200 x 26.5 m) used for the milestone 4,000 lane-m class destined to make its debut in the DFDS Tor Line network during September next year.

In each case, though, the proposed

new trailership behemoth is substantially more beamy, at 98 ft. (30.4-m) breadth. Good seakeeping behavior to ensure schedules and cargo safety on the most rigorous of shortsea freight routes has been a tenet of the design project, as has a turnaround capability that belies the huge cargo intake, to safeguard schedules.

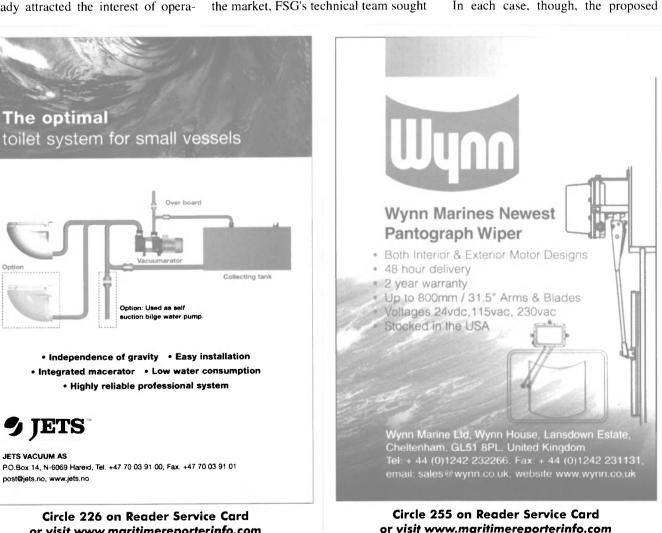
Hurst Point, yard no. 717 at FSG, is due for delivery in August. It is an example of the German yard's advanced RoRo building

> Close attention to hull form, hydrodynamic performance and propulsive plant configuration has resulted in an attractive speed and power relationship, bearing on freight ton-mile efficiency and also capital outlay. The favored layout keeps faith with the diesel-mechanical concept, comprising four medium-speed engines driving twin controllable pitch propellers through reduction gearing. The engine written into the provisional specification is a seven-cylinder version of the MaK M43 series from Caterpillar Motoren, for a total plant output of 25,200-kW.

> Just as the 4,000 lane-m size has come to be favored by a number of Nordic operators besides DFDS, the 6,052 lanem design from Flensburg could be the next trendsetter. The as yet unique provision of five decks suited to trailerborne freight comprises four enclosed decks plus the weather deck, served by an inter-deck ramp system configured to allow simultaneous working of four different cargo areas. RoRo access is concentrated over twin stern ramps.

> In the meantime, FSG is set to deliver the Hurst Point, the first of four 23,300-gt RoRo sisters contracted by British consortium AWSR for strategic sealift duties under a transport service agreement with the U.K. Ministry of Defense. The 2,600 lane-m heavilyreinforced design incorporates three decks, with the addition of a 36-ton crane on the weatherdeck, and further demonstrates the German yard's propensity for meeting bespoke RoRo requirements within the bounds of efficient production practices.

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IZAR Gijon Delivers Dredger

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ANCHORS CHAINS

WORTELBOER

French owner GIE Dragages Ports recently took delivery of a 5,000 cu. m. TSHD (Trailing Suction Hopper Dredger) — yard number C365 — built by Spain's IZAR Gijon shipyard. This self-propelled TSHD, named Daniel Laval, is designed to operate in water depths ranging from 1 to 3 m under the keel, and mainly in the Seine river estuary and in Dunkerque, according to shipowner sources. The vessel took just 21 months to build, as it was ordered in May 2000, and delivered in February 2002.

PAREL LAN

Daniel Laval is fitted with a trailing side suction pipe on starboard and bottom valves for load dumping. The dredge pump is driven by one of the propulsion diesel engines through a reduction gear. Dredging operational availability is 7,000 hours per year.

Loading and Unloading

At a 66-ft. (20-m) dredging depth, the loading times are:

• Sixty minutes for filling the hopper with fine sand to reach the maximum carrying capacity of 6,500 tons of sand having a d50 between 0.10 and 0.20 mm (based on the free flowing soil),

• Twenty-one minutes to fill the hopper with silt having an average load density in the hopper of 1.25 ton/cu. m. for 5,000 cu. m. and having a d50 of 0.01 mm, with a hopper previously drained before the beginning of dredging operations. The accommodation deckhouse and the wheelhouse are located at the bow of the ship. Accommodation is arranged in 19 single cabins but the shipowner expects to employ 16 crew on board. A machinery deckhouse is

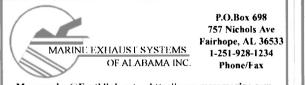
located at the stern of the ship. Daniel Laval is propelled by two shaftlines equipped with controllable pitch propellers, each of the shaftlines driven by a diesel engine. The ship is also equipped with a bowthruster to enhance manueverability.

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Main Particulars

Main Languars				
Length, o.a				
Length, between pp				
Breadth molded				
Depth to main deck				
DWT				
Propulsion				
.(2925 kW and 2700 kW)				
Output Power				
Travelling speed				
Capacity				
Maximum draught on dredging freeboard				
Minimum dredging depth (drained hopper, 50 % stores)				
Max. dredging (drained hopper, 10 % stores)				

July, 2002



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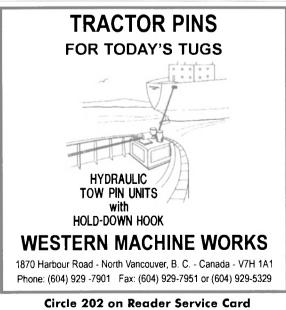
Estonians Raise the Ferry Stakes

A stylish entrant to the rapidly-growing ferry traffic across the Gulf of Finland between Tallinn and Helsinki denotes the opening of a new chapter in the development of the Estonian fleet, and could also act as a spur to fresh investment by

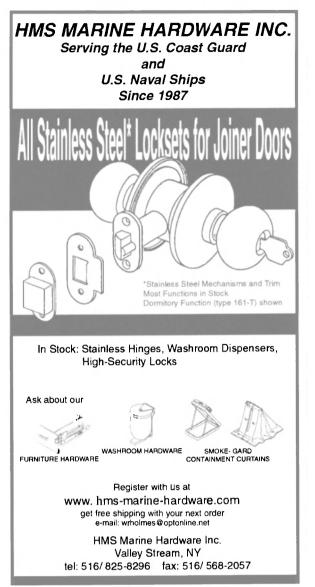
Nordic operators. The 40,000-gt Romantika is a landmark vessel, signaling the attainment of a new unit scale in the Estonian ferry sector and the introduction of a cruise ferry standard to contractual owner Tallink's inter-city service, where the company ranks as market leader with a 40percent share of the passenger traffic.

The designers' endeavors to appeal to the Finnish short-cruise market have been shaped by the expectation that at least three-quarters of passengers will book round-trips entailing only a short sightseeing break in Tallinn. At the same time, the vessel is equally suited to rising demand from business travelers, car-accompanied passengers and freight shippers, recognizing the convenience and opportunity presented by the 3.5-hour crossing between the Finnish and Estonian capitals.

The latest completion from the Rauma stable of Aker Finnyards, an innovative shipbuilder which can lay claim to a long line of mold-breaking European ferries and RoRos, has been dimensioned for 2,500-passengers and 1,000 lane-m of vehicles, conveyed on a year-round schedule at up to 22-knots. The ship was phased into duty only 21 months after the signing of the \$131-million contract in August 2000. At a time of diminishing ferry orderbooks, it is hoped that the high-grade Romantika will give fresh impulse to ordering by Baltic specialists.



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Austal USA Sells Vessel

Austal USA has signed a contract with Lighthouse Fast Ferry of New York for the sale of the 86 ft. (26-m) passenger catamaran being built at Austal USA's shipyard facilities in Mobile, Ala.

Due for delivery in July 2002, the new catamaran will be the third vessel delivered by Austal USA within six months and follows closely the delivery of two crew/supply vessels to Otto Candies LLC in January. Designed by Austal Ships to meet USCG Subchapter K regulations (46 CFR), this catamaran also features bow loading, a kiosk for snacks and drinks (especially popular in the morning and evening commuter runs) and seats from Beurteaux of Australia. In other projects, Austal USA continues with the construction of a 111-ft. (33.8-m) dinner cruise vessel for Island Queen Cruises of Miami, Fla. Due for delivery in November 2002, the dinner cruise catamaran will operate in the Miami and Biscayne Bay area.

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Main Particulars

	(iounaro
Length. o.a.	
Beam	
Depth, molded	
Draft	
Passengers	
Crew	
DWT	
Main engines	.(2) Detroit Diesel 16V 2000
Gearboxes	
Speed	
Fuel Consumption	
Range (approx)	
Survey/Class	

Sperry Receives VDR Orders

Sperry Marine received orders for 10 Voyage-Master Voyage Data Recorders (VDR) for an undisclosed price. Grimaldi Group's cruise ferry operator, Grandi Navi Veloci (GNV), has ordered six VoyageMaster VDR systems for installation on six existing cruise RoRo ferries. These systems are in addition to Sperry Marine VDRs already on order for Grimaldi's two newbuildings (#1220 and #1221) at Nuovi Cantieri Apuania. The orders were secured by Sperry Marine's Italian sales and service representative, Compagnia Generale Telemar S.p.A. Additionally, BP Shipping has ordered four VoyageMaster VDRs for new tankers under construction at Tsuneishi Shipbuilding in Japan. The ships (British Laurel, British Hawthorn, British Willow and British Oak), which are also being fitted with Sperry Marine electronic chart systems, are scheduled for completion in 2002/2003.

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Lockheed Martin, OSI Team

Lockheed Martin Marine Systems and Offshore Systems Ltd. announced a teaming agreement that will provide navigation software to U.S. Navy ships, eliminating the need for paper navigation charts. Offshore's Electronic Chart Precise Integrated Navigation System-Military (ECPINS-M) software is designed to meet the Navy's Electronic Chart Display and Information System-Navy (ECDIS-N) requirements. ECPINS is capable of continuously determining a vessel's position in relation to land, charted objects, aids to navigation and unseen hazards. Lockheed Martin is the system integrator for Offshore's ECPINS software and will also incorporate ECPINS into its next generation bridge (pilot house) being developed as part of the company's Total Ship Automation System (TSAS).

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ACBL Makes New Appointments

American Commercial Barge Line has appointed Capt. Samuel S. Dickey to the position of Marine superintendent. Dickey, who has 34 years of experience in the industry, previously facilitated the training of ACBL Captains and Watch Captains at Seamen's Church Institute in Paducah, Ky. Mario Munoz has accepted the position of manager of corporate safety and loss control with ACBL. Munoz, who was previously risk analyst, holds a Bachelor of Science degree from the University of South Alabama. Also, Capt. Al L. Weaver has accepted the position of Marine Superintendent with ACBL. He was previously a quality facilitator at Seamen's Church Institute in Paducah, Ky., and an International Port Captain.



Dickey

Weaver

Transportation Secretary Announces \$92.3M in Port Security Grants

Last month U.S. Secretary of Transportation **Norman Y. Mineta** announced the award of \$92.3 million in grants to 51 ports to enhance the security of ports and other facilities. (See full listing below).

"Protecting seaports and port facilities against the threat of terrorism is imperative," said Secretary Mineta. "The terrorist attacks have resulted in a renewed focus on the security of our transportation systems and we at DOT are aggressively meeting these challenges on several fronts."

At a press conference near New York City's Staten Island Ferry, the Secretary was joined by New York City Police Commissioner **Ray Kelly**, and Port Authority of New York & New Jersey Vice Chairman **Charles Gargano**, as well as a host of federal representatives including Rep. **Bill Young**, (R-Fla.); U.S. Coast Guard Commandant Admiral **Thomas Collins**; and U.S. Maritime Administrator **William Schubert**.

Port security grants totaling \$78 mil-

DOT Port Security Grants

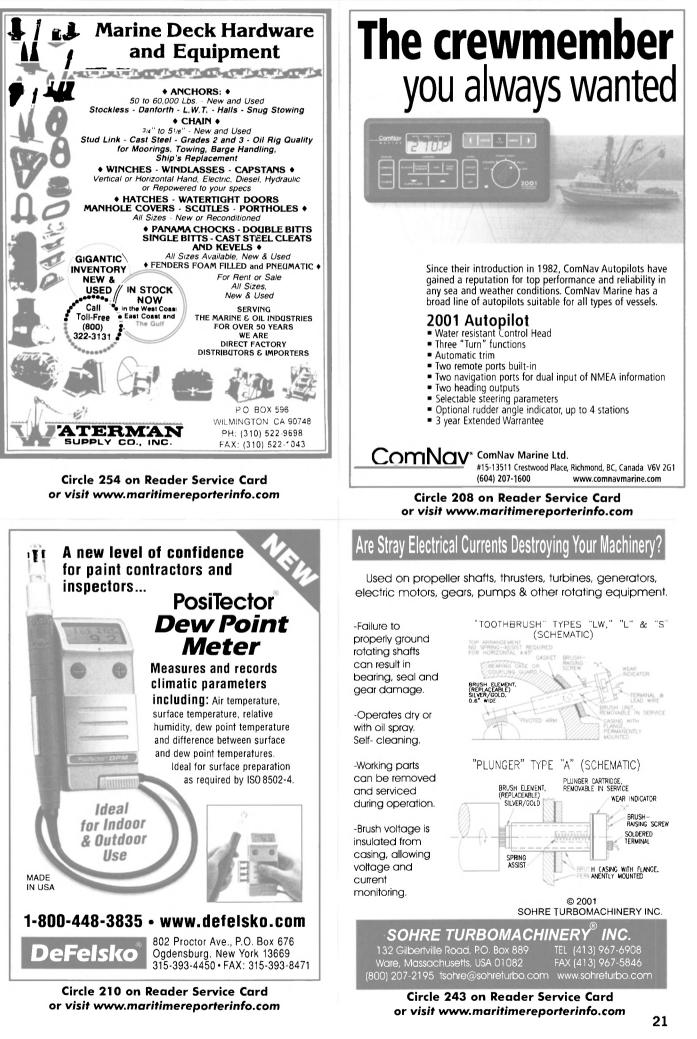
Grantee	Award	Location		
Municipality of Anchorage	\$458,208	Anchorage, AK		
City of Baltimore	500,000	Baltimore, MD		
Maryland Part Administration	3,264,000	Baltimore, MD		
LBC Baton Rouge LLC	80,000	Boton Rouge, LA		
Port of Beaumont Navigation District of Jefferson Cau				
Boston Police Department	2,878,947	Boston, MA		
Maritime Incident Resource and Training Partnership NoviTag Technologies	1 00,000 875,000	Boston, MA Boston, MA		
Conoveral Port Authority	1,650,000	Cape Conoveral, FL		
South Carolina State Ports Authority	1,921,750	Charleston, SC		
The Maritime Association of the Port of Charleston	15,000	Charleston, SC		
Atlantic Energy Inc.	109,590	Chesapeake, VA		
Port of Corpus Christi Authority	2,273,277	Carpus Christi, TX		
Maritime Exchange for the Delaware River and Bay Ir		Del. River Ports, PA/NJ/DE		
Tri-state Maritime Safety Assn Detroit-Windsor Truck Ferry Inc.	150,000	Del. River Ports, PA/NJ/DE		
Everen Police Department	135,000 150,000	Detroit, MI Everett, MA		
Broward County Board of County Commissioners	6,844,800	Fort Lauderdale, FL		
Brazos River Harbor Navigation District	85,000	Freeport, TX		
Port of Galveston	375,000	Gelveston, TX		
Makon Navigatian Company	125,000	Honolulu, Hi		
State of Hawaii Department of Transportation Harbor	s Division 650,00	O Honolulu, Hi		
Dynegy Midstream Services inc.	60,000	Houston, TX		
LBC Houston L.P.	142,000	Houston, TX		
Port of Houston Authority	1,800,000	Houston, TX		
Chevron Phillips Chemical Compony LP Strictly Business Computer Systems	30,000 750.000	Huntington, WV		
Sunoco Inc. (R&M)	647,000	Huntington, WV Huntington, WV		
Woods Hole Martha's Vineyard and Nantucket Steams		Hyannis, MA		
Inland Rivers Ports & Terminals Inc	562,722	Jackson, MS		
Jacksonville Morine Transportation Exchange Inc.	240,000	Jacksonville, FL		
Jacksonville Seeport Authority	297,000	Jacksonville, FL		
Crowley Liner Services Inc.	268,000 .	lacksonville/Fort Lauderdale, FL		
City of Ketchikan	122,721	Ketchikan, AK		
The Curtis & Kimball Company	510,500	Key West, FL		
CITGO Petroleum Corporation Loke Charles Harbor and Terminal District	201,757 200,000	Lake Charles, LA Lake Charles, LA		
The Port of South Louisiana	624,000	Lake Charles, LA		
Harbor Dept. of the City of Long Beach	4,335,000	Long Beach, CA		
City of Long Beach	340,000	Long Beach, CA		
Eagle Marine Services Ltd.	\$1,900,000	Los Angeles, Ca		
Pasha Stevedaring & Terminals L.P.	80,000	Los Angeles, CA		
Part of Los Angeles	1,500,000	Los Angeles/Long Beach, CA		
APL Limited	\$1,300,000	Los Angeles/Oakland, CA and		
Seattle, WA Memphis & Shelby County Port Commission	200.000	Memphis, TN		
Miami River Marine Group	49,157	Miami, FL		
Miami Dade County	6,370,801	Miami, FL		
Cross Sound Ferry Services Inc.	96,636	New London, CT		
State of Connecticut	200,000	New Haven, CT		
Board of Commissioners of the Port of New Orleans	3,684,450	New Orleans, LA		
BASE Corporation	398,000	New Orleans, LA and Freeport, TX		
Port Authority of New York and New Jersey	4,068,800	New York and New Jersey		
New York City Department of Transportation	2,768,166	New York, NY		
New York City Economic Development Corp. City of Norfolk	2,500,000 500,000	New York, NY Norfolk, VA		
Virginia Part Authority	5,293,140	Narfolk, VA		
Part of Qakland	4,867,071	Oakland, CA		
Delaware River Maritime Enterprise Council Inc.	850,000	Philadelphia, Pa		
City of Portland Maine	175,000	Portland, ME		
Columbia River Steamship Operators Association	623,000	Partland, OR		
NH Department of Safety	200,000	Portsmouth, NH		
ProvPort Inc.	261,500	Providence, RI		
San Diego Unified Port District Part of San Francisco	2,233,000 500,000	San Diego, CA San Francisco, CA		
Puerto Rico Ports Authority	3,000,000	San Juan, PR		
Colonial Terminals Inc.	942,600	Savannah, GA		
Georgia Parts Authority	1,312,000	Savannah, GA		
Support Terminal Operating Partnership LLC	50,800	Savannah, GA		
Clipper Navigation Inc.	127,000	Seattle, WA		
Washington State Ferries	110,000	Seattle, WA		
Port of Seanle	4,769,724	Seattle/Taroma/Everett, WA		
Tempe Port Authority Post of Texas City	3,500,000	Tampa, FL		
Port of Texas City City of Valdez	1,735,883 764,000	Texas City, TX Valdez, AK		
Port of Vancouver USA	30,000	Varaez, AK Vancouver, WA		
Diamond State Port Corp.	500,000	Wilmington, DE		
North Carolina State Ports Authority		Wilmington/Morehead City, NC		
	00,000			
φ/2,000,000				

lion will fund enhanced facility and operational security.

In addition, \$5 million is provided for security assessments that will enable port and terminals to evaluate vulnerabilities and identify mitigation strategies for their facilities, and \$9.3 million will fund "proof-of-concept" projects, which will explore the use of new technology, such as electronic seals, vessel tracking, and electronic notification of vessel arrivals, to improve maritime security. Congress provided funding for the grant program to the Transportation Security

Administration (TSA), which is responsible for security in all modes of transportation.

TSA, along with the Maritime Administration and the U.S. Coast Guard, reviewed project applications and is administering the grant program.



July, 2002

NKK Delivers Bulk Carrier

NKK Corp. delivered the 172,559 dwt bulk carrier, Cape Salvia, to its owner Pinos Maritime S.A. of Panama. The bulk carrier features the Ax-bow design, which was developed by NKK and has proven effective to reduce the sea margin. The Ax-Bow allows 20-30 percent reduction in ship's sea margin compared with the conventional bow, and is a sharp-edged bow shape above the waterline. This has tested as effective in cutting through the waves.

Blount-Barker Signs Contract for 120-Ft. Whale-Watch Catamaran

Blount-Barker Shipbuilding signed a contract with a B.B.O., LLC of Portsmouth, N.H., for the construction of a 120-ft. (36.5-m) Whale Watch Catamaran for operation in Bar Harbor, Maine. The vessel designed by Crowther Multihulls of Sydney, Australia will operate both seasonal whale watch tours and high-speed commuter service. The 124 x 36-ft. (37.7 x 10.9-m) catamaran designed with a main, mid and upper deck will accommodate 444 passengers at a loaded operating speed of 40 knots. The vessel's structure will be designed to DNV Rules and Regulations for the classification of high-speed light craft and built to U.S. Coast Guard Subchapter K Rules and Regulations. With delivery scheduled for May 2003, the all-welded aluminum catamaran will be powered by four Cummins KTA50-M2 engines, generating 1.800 hp at 1.900 rpm with ZF 4600D reverse gears driving four Hamilton HM651 Jets.

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Ships Ltd. Receives Lykes Ranger

Ships Limited has taken delivery of the 3.200 teu Lykes Ranger. It is the first in a series of new geared containerships being built under the company's \$800 million ship replacement program and was delivered

on schedule by China Shipbuilding Corporation in Kaohsiung, Taiwan. Lykes Ranger entered service on June 20 in Hong Kong to begin deployment in the Asia-Americas trade lane, where CP Ships has two twice- weekly services under the Lykes Lines and TMM Lines brands. It replaces the 3,000-teu Hyundai Pioneer, which had been deployed on a short-term charter basis. With four sister ships also built by China Shipbuilding scheduled for deployment in the Asia-Americas trade lane by early 2003. CP Ships' ship replacement program remains on schedule. By the middle of 2003 an additional nine new ships, one second-hand ship, and six long-term charters are scheduled for delivery.

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Main Particulars

Class Society	S
Length	1)
Breadth	1)
Deadweight	IS
Capacity	
Cranes	٧l
Keel laid	1
Launch	2
Delivery June 18, 200	2
Main Engine	p
Speed 21.8 kpo	ts

Last Stabilizers For QM2 **Depart From Rolls-Royce**

The last 40-ft. (12.1-m) stabilizer bound for French shipyards to complete the construction of Queen Mary 2 left Rolls-Royce's Dunfermline site in late June. Each stabilizer was loaded on to a flatbed trailer and will require a police escort to Rosyth where it was then shipped to Chantiers de l'Atlantique in France where the Queen Mary 2 is under construction. The fins, when fitted, will extend from the hull below the ship's water line to provide enhanced stability at sea.

Rolls-Royce, which manufactures the Brown Broth-

ers range of ship stabilizers, has taken a year to complete the four 100 ton, folding fin stabilizers- each the size of a two-story house for the luxury liner. The Queen Mary 2 will be the world's largest passenger ship when commissioned in 2003 and will be capable of carrying more than 2,600 passengers.

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Salacia Returns to Boston

Boston Harbor Cruises recently completed the first successful ferry service between St. Thomas and St. Croix in the U.S. Virgin Islands. Salacia, the largest of the company's high-speed catamarans, built by Gladding-Hearn Shipbuilding, returned to Boston, having carried from 200 to 700 passengers daily between the islands from November til early May. Until now, islanders normally traveled between the islands by plane. At 33 knots across swells that average five feet, the vessel's active motion-control system also added to a minimal loss of speed, as well as passenger comfort. Ride control systems perform best at high speeds. A computer measures the vessel's motion and then calculates the angle of the vessel's trim tabs to counter its pitch, roll and yaw.

There's still time to reserve your booth at this year's SNAME Annual Meeting and International Maritime Exposition to be held from September 25-28, 2002 at The Westin Copley Place in Boston, Mass.

For further information on the conference and/or reserving a booth, please contact Susan Giver, exposition manager, SNAME at (201) 798-4800 or (412) 741-0995, e-mail: sgiver@sname.org





Navy

USS Shoup Commissioned



USS Shoup (DDG 86), the newest in a series of advanced Aegis guided missile destroyers built for the U.S. Navy by Northrop Grumman Corporation's Ship Systems sector, was commissioned June 22, 2002, in Seattle, Wash. This ship is named in honor of U.S. Marine Corps Gen. David M. Shoup (1904-1983), a World War II naval hero, a Medal of Honor recipient for his actions during the initial landings on Betio, Tarawa Atoll, in the Pacific in 1943, and who later became the 22nd commandant of the Marine Corps. Claudia Natter, wife of Adm. Robert J. Natter, USN commander in chief, U.S. Atlantic Fleet, and Zola Shoup, of Arlington, Va., the widow of Gen. Shoup, were the Ship's Sponsors. Matron of Honor, Lt. Col. Catherine Chase, USMCR, of Fairport, N.Y., represented her grandmother at the ceremony.

Gen. James L. Jones Jr., USMC, commandant of the Marine Corps, delivered the principal commissioning address. Following commissioning, DDG 86 will be homeported in Everett, Wash., as an element of the U.S. Pacific Fleet. Cmdr. E. Bernard Carter, a native of Hopkins, S.C., will command the 509.5ft (155.2-m)., 9,300-ton destroyer. USS Shoup (DDG 86) is the 36th ship of the DDG 51 Aegis destroyer program and the 16th to be built by Northrop Grumman Ship Systems. The ship is the fourth of the revised Flight IIA ships built by Northrop Grumman, with hangars for two SH-60B/F helicopters and an enlarged flight deck.

Following DDG 86, Northrop Grumman has contracts to produce nine additional Aegis destroyers, with six of those ships in various stages of production, including Pinckney (DDG 91), which will be christened in a public ceremony in the shipyard Saturday, June 29. USS Shoup was delivered to the Navy by Northrop Grumman Feb. 18, 2002, and departed Pascagoula April 22.

IMSSCO Makes Navy Inroads with Gold PFA-95

The Department of Navy, Office of Naval Research Laboratory and NAVSEA have approved IMSSCO Inc.'s gold PFA-95 by way of Test Assessments and Doctrinal Validation. A near term need and request for order (RFQ) was issued by Coastal Systems System Station Panama City. IMSSCO Inc. of San Diego, Calif., received multiple sole source awards per FAR regulations. The PFA is validated for use by Navy Rescue and Assistance teams, places on board where the standard navy in line educator is not connected to the main fire hydrant and is under consideration for use by the Rapid Response Team. ABS has typeapproved the PFA-95 per SOLAS and Class requirements for documented Ready Reserve Fleet and other such commercial ships.

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Navy

Munson Delivers Boats to Navy



The Naval Facilities Engineering Command recently took delivery of two 30 x 10-ft. (9.1 x 3-m) PACK-CAT catamaran landing craft designed and built by the William E. Munson Co. Developed for the NAVFAC Oil Spill Response Program, each vessel is outfitted with twin 200 hp Mercury outboards, providing a 45 mph response speed. Additional outfitting includes a 5 x 5-ft. wheelhouse elevated for maximum visibility, cargo deck tie down rails, 3-in. D guard rubber, 200 gallon fuel system, towing package, work light package, VHF, GPS, and depth sounder.

The standard 74-in. wide bow door, large self-bailing

cargo deck and 5,000 lb. cargo capacity and provide unlimited versatility. The PACKCAT's patented tunnel hull catamaran design incorporates twin 16 degree V hulls providing increased stability, superb rough water performance and shallow draft.

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U.K. Royal Navy Increases Overhaul Efficiency of HP Air Cylinders

The U.K. Royal Navy, Marine Fluid Power Fire Fighting & Mechanical Handling Integrated Project Team (MFFMIPT) Submarine Division, implemented a tailor made version of the recently launched portable Valve Seat Lathe, type VSL, from Swedish manufacturers Chris-Marine. As a result, the MFFMIPT claims to have saved both time and substantial costs when overhauling HP air cylinders installed on submarines.

Instead of the standard designed angular cut used on valve seats, the VSL was produced to operate in a horizontal plane, with a present maximum diameter of 200 mm. Additionally, the cutting tip passed over flange stud holes without damage, and with a tool feed of 0.075 mm/rev, a surface finish of 0.5Ra was achieved. Finally, a shorter headroom version was required, able to fit into the narrow access between bulk-heads, decks and other obstructions. This was made possible by introducing a right-angle gearbox which maintained the same ease of mounting, whilst stability was unaffected by the "off-center" drive. This new flange facing version of the VSL can now be utilized on the HP air bottles without need for the bottles to be removed from the vessel, thus providing savings in time and money.

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DD(X) Dispute: **BIW** Files Protest

As might be expected when losing the most significant navy newbuilding project for a generation, Bath Iron Works (BIW) filed a protest with the General Accounting Office (GAO) challenging the fairness of the Navy's DD(X) evaluation process. The Northrop Grumman-led Gold team in a mild surprise was awarded \$2.9 billion initial design contract in late April. Bath Iron Works was the leader of the BLUE Team in that competition; a team that included Lockheed Martin Corp., United Defense Industries, Northrop Grumman Electronic Systems, L-3 Corp. and others.

Allan Cameron, president of Bath Iron Works. Cameron, in a statement cited three main issues:

Test-Bed Hull Advantage

The use of a Spruance-class DD 963 hull for atsea testing of the radar was cited by the Navy as one reason the GOLD Team had "significant" strength in its Radar Engineering Development Model. Yet, on January 16, 2002, in response to the BLUE Team's specific request to use a DD 963 hull for its engineering development models, the Naval Sea Systems Command formally said, "No." In an email on that date, NAVSEA wrote: "The NAVSEA position is that we will not entertain a leasing or other agreement at this time to lease, loan, grant, sell, etc., a DD 963 Class ship in furtherance of the BLUE team effort ..."

Firewall Failure

Firewalled information was used as a discrimi-

nator in rating the GOLD Team radar solution. One of the GOLD Team members, Raytheon, had developed the SPY-3 radar under a separate and pre-existing contract. The Navy established a firewall to screen SPY-3 radar engineering development model data from both teams. However, the same Navy personnel were involved in reviews both inside and outside the firewall and in evaluating the GOLD Team's proposal. In fact, the Navy has conceded: "Source selection technical evaluators' knowledge of Phase II data concerning the radar suite integration approach, provided by the firewalled Raytheon personnel, provided confidence that the integration approach proposed by the GOLD Team was achievable ... " This indicates that the Navy used "behind the firewall" information as a significant factor in its evaluation of the GOLD team proposal. By conducting an evaluation that effectively reached over the firewall, the Navy undid the protections that the BLUE Team had relied upon for two years. The firewall built by the Navy to prevent an unfair advantage to the GOLD Team failed its essential purpose.

Double-Counting

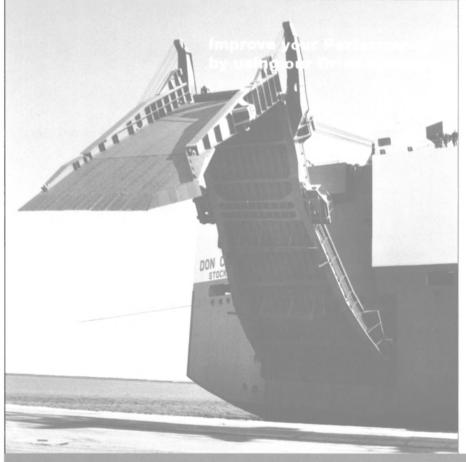
The RFP required that ship performance evaluation be separate from evaluation of engineering development models. But in its evaluation, the Navy counted ship performance features not only toward ship performance, but also toward the grade given for engineering development models. This double-counting was pivotal in the award to the GOLD Team.



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Technological Wonder, No Matter How You SLICE It

Next generation technology used to wage wars of the future will be on display for two weeks off the coast of California later this month. The upcoming Fleet Battle Experiment-Juliet (FBE-J) will offer the military an unprecedented glance at how established and emerging technologies work in sync. Sea SLICE will participate as a littoral warfare ship in FBE-J, as a High Speed Vessel (HSV) for the exercise. Lockheed Martin Naval Electronics and Surveillance Systems (NE&SS)-Marine Systems — which has overall responsibility for developing Sea SLICE — shared with MR/EN some of the secrets behind its success. — By Greg Trauthwein

As the military evolves increasingly toward the collection, dissemination and integration of information in an attempt to locate, target and defeat enemy forces with lighter, cheaper "networked" forces, exercises such as the Navy's Fleet Battle Experiment — Juliet (FBE-J) will play an increasingly important role in testing technologies under battle conditions. One such technology earning a second look is Lockheed Martin's advanced hullform ship Sea SLICE, which will participate as a littoral warfare ship FBE-J this summer, as a High Speed Vessel (HSV) for the exercise. Lockheed Martin Naval Electronics and Surveillance Systems (NE&SS)-Marine Systems has overall responsibility for developing Sea SLICE. During FBE-J, which will take place from July 22-August 6, Sea SLICE will operate no more than 80 miles off the San Diego coast



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Sea SLICE is viewed as a surrogate technology. Of particular interest is the hull's outstanding performance in a variety of sea states

in a cluttered littoral combat environment against surface, sub-surface and air threats.

"Lockheed Martin is the only corporate entity represented by a ship," said George Root, Advanced Programs Director for NE&SS-Marine Systems. Sea SLICE's role in FBE-J is unique in that most of the crew — about two-thirds of the vessel's 20 person complement - will be Lockheed Martin personnel, with the remainder representatives from the armed forces. "We have a 35 mm gun, torpedo and missile capabilities, which is a good combat suite for a small littoral combatant," Root said. "We are a fast, stable gunboat, with the capability to escort ourselves in an armed fashion."

Of particular interest is the fact that engineers will be the actual combat equipment operators, said Joe Wenderoth, Integrated Products Team Leader. This will afford the designers a frontline view of how the various systems work in the user environment of the future, providing an unequalled opportunity to integrate this experience into making a superior product.

The Pick-Up Truck

Perhaps the Sea SLICE is best described as a mid-size pick-up truck with a large cargo bay, as it offers a large, flat, stable work platform from which to conduct military or commercial operations. While Sea SLICE was invited by the Navy to exhibit its prowess as a modular base from which to conduct a variety of tasks, the vessel itself is considered a surrogate technology, meaning that the final product will like extract a number of its innovative features, but not be the entire vessel, per se. The secret of Sea SLICE's success lies in its stability, which is significantly aided by its 2:1 length to width ratio, as well as its innovative hull design.

The ship has an advanced hullform that provides for outstanding stability and speed in high sea states and is capable of 30-plus knots in wave heights of up to 12 ft. (Sea State 5). This hullform is a variant on SWATH (Small Water-Plane Area Twin-Hull) technology and has four separate underwater hulls that provide buoyancy, propulsion, and excellent hydrodynamic efficiencies. The ship is controlled by a patented PC-based canard and stabilizer steering and motion control system. SLICE technology is predicted to yield speeds of 45 knots in Sea State 6 (13 to 20 ft. seas); however a larger ship with greater propulsion than the charged with devising a coastal security system existing Sea SLICE vessel is required.

Piece-by-Piece

July, 2002

Modularity, or rather the ability to quickly

change the operational hardware aboard the Sea SLICE, is one of its major selling points for military applications. The 110-ft. (33.5-m) vessel during FBE-J will enjoy the connectivity of any other Navy Ship, including an aircraft carrier, via its 1.1m KU band antenna, among other systems. This connectivity — and the inherent ability to collect, disseminate and receive data -- combined with the ability to reconfigure the vessel in a number of hours — from perhaps a minehunting vessel to a missile attack boat — is central to the Naval Warfare Development Command's work toward a network centric Navy.

"We give you a flat, wide deck capable of carrying lots of things," said Wenderoth. "We supply power and data.'

The ship can be reconfigured quickly by virtue that it incorporates Bolt-on, Bolt-off technology - as commonly found in the container shipping business, utilizing a hand tool to secure and loosen the bolts. This system is even used to secure weapon systems to the ship.

"(For FBE-J) we'll be working on overnight evolutions," said Wenderoth. "We'll be out all day long at sea, and change out configurations overnight, making the ship ready for morning."

In exercises to highlight this modularity, the Sea SLICE will be required to perform all of the following over the two-week battle experiment.

1 Minehunting with towed sonar

2 Minehunting in shallow water with UUVs

3 Transformational Tactical Targeting technology utilized by simulated Loitering Attack Munitions (LAM) and Precision Attack Munitions (PAM) from the NetFires system, a system created by DARPA

4 High Volume fire support capability

A modular Combat Information Center (CIC) in the deckhouse will provide all command and control and systems integration to effectively engage in all live fire and simulated events during FBE-J.

An integrated sensor package will include Lockheed Martin's Silent Sentry passive radar system. and three FLIR Systems Inc. sensor devices that provide infrared, electro-optical and laser ranging capabilities.

The name SLICE refers to how the ship moves through rough waters.

The concept, obviously, has drawn interest from the commercial side of the business, but perhaps of more urgent note is the interest from those entities aimed at thwarting future terrorist attacks in the U.S.

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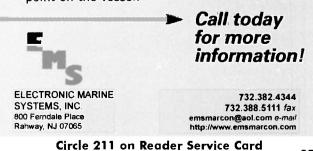




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Satellite Communications

GALILEO: 2008 or Bust?

The European Union is on track to start its own satellite navigation and positioning system, Galileo, as it was earlier this year announced that the Council of Transport Ministers released the \$44 million needed to develop Galileo, and at the same time adopted the regulation establishing the joint undertaking responsible for operating it.

Galileo is being developed as a commercial alternative to the U.S. GPS system, and tentatively is scheduled to be up and running by 2008. While markets are varied, and much of the advantages are touted in terms of savings to the airlines, the maritime sector, including offshore oil and gas exploration, has been targeted as a major market for the project.

The \$3.1-billion Galileo project, which has been developed in conjunction with the European Space Agency, will enable users to accurately determine their positions in time and space at any given time, via a constellation of 30 Medium Earth Orbit satellites. The push is on to commence service by 2008, a date which seems achievable at this time, as GPS III is expected to commence operation by 2010.

"Europe has finally taken the political decision to launch this strategic program. Today we are seeing the creative side of Europe," declared Mrs. Lovola de Palacio, the Commission Vice-president responsible for transport and energy. "It will help Europe to maintain its autonomy, its sovereignty, its technological capacity and control of its knowledge," she concluded.

More than a Satellite System

In the 1980s, the United States developed the satellite navigation system known as GPS (Global Positioning System), initially for military purposes. Interest in its civil applications grew quickly, and today GPS — replaced, in certain areas, by the Russian GLONASS system, also of military origin — is used for navigation by an increasing number of sailors, aviators, and car drivers.

A system made in Europe "Europe's dependence on these two external, military systems over which it has no control places it at a disadvantage," explains **Matthias Ruete**, director of the Trans-European Networks for Transport program. "Their links with defense priorities provide no guarantee of development and dependability for the future. But this future is crucial in determining the development of an integrated European transport sector. Added-value services and equipment linked to the The S3.1 billion Galileo project has been developed in conjunction with the European Space Agency – providing users with the ability to determine accurately their positions in time and space — at any time.

growth of navigation systems could represent a market worth Euro 35 billion in the next decade and generate large numbers of skilled jobs." (1)

In short, the Galileo project is seen as important for European political interests as it is for commercial viability and real market need. While the system will undoubtedly offer new products and services that will be embraced by shipping and offshore oil productions ever increasing need for timely, accurate positioning information, Galileo is viewed by politicians as a critical system in the event that the U.S. and Russian systems were pulled away for their intended purpose, that being military applications.

While Galileo will compete with the GPS system, it will also be designed to complement it.

"The Galileo project sets out to be perfectly compatible and redundant with GPS. The dovetailing of the two systems will make the whole more solid and more reliable," said Mrs. Loyola de Palacio, "and it will help to prevent a monopoly situation and give everyone a choice."

Galileo is Coming: Jump On

The European Commission will organize in Brussels at the beginning of October 2002 an information day for enterprises wishing to participate in the Galileo program. Representatives from the Commission, the Galileo Joint Undertaking, ESA and from a consultant will inform enterprises on the development of the program, the steps leading to the choice of the future concessionaire and the numerous services based on satellite radio navigation. Simultaneous translation will allow for speeches in French, German and English.

(1) CREDIT: © European Communities, 2000-2005 [Research strategy Galileo: the challenge of autonomy], in RTD-Info, Magazine for European Research, No. 25, February 2000, [http://europa.eu.int/comm/research/rtd info/en/25/03.html.]

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Satellite Communications

Forget the Dog, MTN Delivers the News Onboard Residensea

If visions of the family dog bringing its master a paper, pipe and slippers is a part of Americana folklore, Maritime Telecommunications Network, Inc. (MTN) delivery of daily news to residents aboard the world's most unique cruise ship is visions of the future. MTN has entered an agreement with ResidenSea to provide newspaper services on board The World, the new vessel that is the first resort community at sea, continuously circumnavigating the globe. Using MTN's OceanNews ser-

vices, provided through an alliance with NewspaperDirect, the residents and guests of The World are able to get their newspaper — wherever they happen to be.

MTN has formed a strategic alliance with NewspaperDirect and, using total global satellite services, can now deliver current full-format newspapers from around the world directly to the cruise vessel while at sea, or in foreign ports.

MTN and NewspaperDirect have made it easy for cruise guests to read their favorite newspapers every day. State-of-the-art technology and the power of the Internet bring current, digitally imaged, full-format newspapers on board. NewspaperDirect's Network Operations Center (NOC) collects and receives newspapers from various publishers around-the-clock via the Internet.



MTN, via an alliance with NewspaperDirect provides

Newspaper files are then pushed via MTN's Satellite High-speed IP Network, ShipNet — to dedicated laser printers onboard the vessel. Copies of the newspapers are ready to print on-demand, and the cruise guests can receive their hometown newspaper on the open seas. Guests can subscribe for the entire cruise or order individually anytime during their stay. **Bradford Briggs**, MTN's Senior Vice President and General Manager said, "MTN is excited to bring the extended convenience of a full format newspaper service to vessels served by our global satellite network. We look forward to delivering OceanNews and other exciting, emerging technologies to our customers."

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SeaWave Aims to Drive Down Communication Costs

SeaWave provides mariners with reliable, low-cost Internet e-mail and standard priced NOAA color weather charts and NOAA text weather forecasts. The company has positioned itself as an alternative to satellite providing reliable links at a low cost.

The company has been very active, in March announcing the release of SeaWave Navigator Version 1.1, a low-cost, user-friendly communications solution, providing Internet e-mail, NOAA (National Oceanic and Atmospheric Administration) color weather charts, NOAA text weather forecasts, and other communication services to professional mariners.

SeaWave Navigator's Microsoft Windowsbased, point-and-click software is easy to use and designed for computer users at all experience levels. Each member of a vessel's crew and passengers can be given an individual account with administrator assigned permissions, allowing administrators to track usage and budget communications spending. By streamlining functions, SeaWave Navigator reduces vessel administration to a minimum.

Compatible with most computers and operating systems, SeaWave Navigator Version 1.1 features:

- True Internet E-mail
- NOAA Weather Information
- Individual User
- Address Book Functionality

• Microsoft Windows-Based, Point-and-Click Software Advanced Signal Processing

"SeaWave Navigator 1.1 takes full advantage of recent improvements in back-end technology and robust programming code. Combined with a clean graphical user interface and the utilization of Microsoft Windows conventions, Sea-Wave Navigator is an exceptional product for marine communications," said Mark Witsaman, vice president of technology and development, SeaWave LLC.

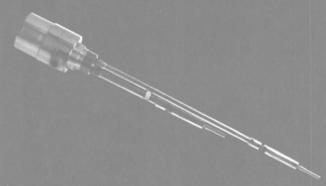
Transmission charges are billed in data increments, at a rate of \$0.30 per first kilobit and \$0.075 per quarter KB thereafter. The SeaWave Communications System is \$1495.00 and includes: the SeaWave Digital Communications Modem and SeaWave Navigator Version 1.1; Installation and User Manual; and required cables. The one-time activation fee is \$275.00 (US).

SeaWave Navigator is the software component of SeaWave's marine communications system, which utilizes high frequency (HF) radio technology to securely transmit digital data to vessels at sea.

In April, the company completed its SeaWave Communications Station. Located in Rhode Island, the station features multiple antenna arrays that provide worldwide coverage and notably improved service for SeaWave customers.

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The Sea Switch Two was designed and patented for all tank applications. The Sea Switch Two offers a reliable solution for liquid level detection and control for cargo, ballast, and storage tanks, without any moving parts.

The Sea Switch Two uses a fully static system that is based on the propagation of an acoustic wave into a metallic rod. A piezo-electric sensing element produces a wave along the rod. As the liquid reaches the sensing element the oscillation stops and the alarm is activated.

The Sea Switch Two sensor detects high, highhigh, or low level in any liquid with an alarm output given by a dry contact or current loop change 6-18 mA.

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Satellite Communications

Iridium Aggressively Pursues New Outlets

Iridium Satellite LLC, the company born from the ashes of what was one of the most spectacular and initial telecom failures, has fortified its market position in the past year, aggressively pursuing relationships with companies that will help expand use of its satellite network across all industires. The Alexandria, Va.-based Iridium — which bought the assets of Iridium LLC out of bankruptcy in December 2000, launched global voice services in March 2001 and added ubiquitous Internet connectivity in June - has announced a number of deals with leading satellite communication companies - Xantic, Telenor and France Telecom Mobile Satellite Communications - and has launched a new crew calling service for the marine business.

The Xantic and Telenor agreements center on partners offering Iridium's voice and data services through their respective worldwide networks. Each has particular strengths that the company is counting on to fortify the whole.

"Iridium's mobile communications services and world-wide coverage com-

plements our fixed satellite offerings," said Xantic CEO Knut Reed. "We intend to make a selected number of our Value Added Services available over the Iridium network, making it a great new medium to serve our customers following the Content, Application and Transactions (CAT) strategy."

In the case of Telenor, Iridium already had an existing relationship with Marlink, a leading provider of satellite communications for the maritime community, launched by Telenor Satellite Services in March 2002. As part of the agreement, Iridium will work with all of Telenor Satellite Services' business units including Telenor Satellite Services, Inc. in the United States and Marlink.

With France Telecom Mobile Satellite, Iridium is helping to significantly broaden the company's offerings. "Iridium is an essential addition to our satellite services portfolio enabling us to significantly broaden our target market and revenue base," said Jean-Louis Charlety, chairman and CEO of France Telecom Mobile Satellite Communications. "With global coverage and data capabilities, Iridium delivers a robust mobile satellite communications offering and perfectly complements our existing satellite offerings for maritime and landbased applications. This partnership is key to delivering the most comprehensive suite of satellite communications services to our customers."

Crews Phone Home

This past April, Iridium announced the availability of crew calling to assist the management of on-ship call operations. Iridium's crew calling solution supports pre-paid calling for individual crew members and subscription services for a vessel's official communications. The new service is touted as simplifying the task of managing fleet communications costs.

"By reducing the administrative burden of monitoring each crew member's calls, this new platform of services will help shipping businesses cut back on operating expenditures while providing an affordable convenience that benefits crew morale and productivity," said



Gino Picasso, Iridium's CEO, helped to establish the "new Iridium."

Charlene King, executive vice president for marketing and channel management at Iridium Satellite. "While prohibitive costs and complicated pricing schemes have limited the use of other satellite systems for crew calling purposes, Iridium's affordable, flat-rate pricing makes it ideal for crew morale programs."

Iridium Satellite recently launched five additional spare satellites to ensure the life span of the constellation, currently estimated to have at least eight more years of operational life.

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KVH Offers TracPhone F77

The KVH Tracphone F77 marine satellite communication system makes reliable communication, with the ability to receive up-to-the-minute information critical to vessel safety, operation, and business, a reality.

Brought to market in cooperation with Thrane & Thrane, the leading designer and manufacturer of Inmarsat equipment, the KVH Tracphone F77 offers a fully stabilized antenna with a transceiver that can serve as the hub of your shipboard communications network. Tracphone F77 uses Inmarsat's new, global Fleet F77 service, a breakthrough in maritime communications.

Fleet F77 provides both the high quality and speed of a 64 Kbps mobile Integrated Services Digital Network (ISDN) service and the flexibility and "always on-line" capability of the Inmarsat Mobile Packet Data Service (MPDS). Captains, crews, fleet managers, and vessel owners can now have unparalleled real-time access to the information they need: e-mail, the Internet, corporate Intranets, and Virtual Private Networks (VPNs). Tracphone F77 offers the unmatched versatility and reliability you need to stay safe and stay in touch, almost anywhere on earth.

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Thrane & Thrane Selling Capsat

Fleet77 Systems Briskly Since the introduction of Inmarsat Fleet F77, Thrane & Thrane has shipped more than 100 Capsat Fleet77 systems to distributors and ship owners worldwide. Several interesting installations have been carried out on merchant ships, fishing boats, coast guard vessels and super yachts all over the world.

"We place great emphasis on the training of our business partners since this provides the opportunity to multiply the efforts on providing information to the ship owners world-wide. It also gives us the assurance that the ability to service and support the Capsat Fleet77 terminals is available world-wide", says Kim Bille Gram, Maritime Sales Manager, Thrane & Thrane.

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Telaurus Delivers Family of Communication Solutions

Telaurus Communications LLC brings to the market the se@COMM application family of communications software and the Telaurus Global Network. Telaurus claims to offer a "thinking" network that combines the best of multiple communication paths, including the Inmarsat system, into one single maritime network that is transparent to the user.

"At Telaurus, we believe in providing everyone in the maritime industry, from the captain to the crew, the same communications reliability, ease of use and cost-effectiveness whether at sea or on land," said Christopher Oldham, CEO of Telaurus Communications. Focused on the needs of both ship owners, ship management companies and their crews, Telaurus offers private and reliable off-the-bridge communications as well as convenient billing and file transfer capabilities. The company says that se@COMM took over two years to develop and then underwent four months of sea trials before being released.

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Worldlink Delivers Secure Serverless Communications

Worldlink Services has launched a secure, serverless data exchange communications service for the marine industry.

"Worldlink prides itself on providing maritime customers with premium communications solutions at affordable prices and Quick Com's cutting edge platform is perfect for our market," said George Kyrlazis, Worldlink marketing manger. The product is designed to enable users to send files and messages securely and simultaneously to a number of recipients. It runs using Quick Com's serverless software platform, which enables any number of sites and users to interconnect anywhere in the world. Using this system, shipper's private data can be exchanged directly between sender and recipient, in real time or within a scheduled time frame, helping to enhance information security, while improving network performance.

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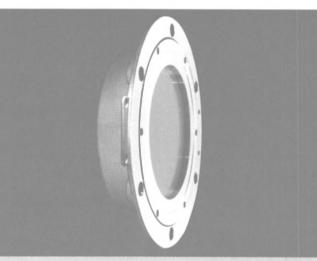
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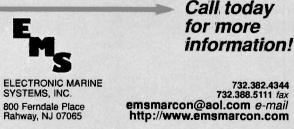


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Fincantieri Stays Strong

With a strong history of building some of the greatest liners to sail the seas, with names such as Rex, Saturnia, Vulcania, Leonardo da Vinci and Grand Princess to its credit, Fincantieri continues its tradition to this day as a leading ship builder, particularly in the cruise ship segment. Fincantieri — which is comprised of seven shipyards and two centers for ship design, with the one in Trieste being the largest in Europe — has developed a long tradition in designing and building ships, with more than 200 years of history marked by the construction of more than 7,000 ships. While the entirety of the Fincantieri system is geared toward generating technically superior products, it can be said, simply, that the Italians build beautiful cruise ships. But ships, despite their aesthetic appeal, are only truly beautiful in a corporate environment if they are profitable for the bottom line, and Fincantieri has seemingly emerged with a plan for profitability. Last year it launched its "Challenged to Succeed" project, which, in essence, challenged each employee, both white and blue-collar alike, to collectively yet individually improve quality and results. The plan seemingly had its desired result, as Fincantieri recently announced a net profit of \$44.6 million for 2001, compared to an \$11.6 million profit in 2000.

Another Princess

The Fincantieri reference list contains some of the finest cruise ships ever built, and that tradition was continued by its Monfalcone yard earlier this year with the delivery of the passenger vessel Star Princess.

The 109,000-ton, 951 x 118-ft. (290 x 36-m) Star Princess (sister of the Grand Princess and Golden Princess) was commissioned by the British ship owner P&O Princess Cruises. The ship carries its 4,160 passenger and crew - situated in 1,300 passenger and 630 staff cabins, at a speed of 23 knots. A high 72 percent of the cabins have an external view. The ship, a floating luxury hotel, has been fitted out to the highest

standards of comfort and offers a wide range of entertainment: for example, three theatres, five swimming pools, three restaurants, numerous bars, shops of various types, a beauty center, a library and a spectacular disco with a breath-taking view located in the ship's tail flap, nearly Fincantieril's successes 60 m above the surface of the begin at the heart sea. Fincantieri's shipyard at Monfalcone built a previous company last series of seven ships for the same ship owner: the Grand launched its "Challenged Class series (the Sun Princess, to Succeed" project Dawn Princess, Sea Princess and focusing on the improve-Ocean Princess, all 77,000 gt, as well as the Crown Princess and



with its employees. The year, which is headed by CEO Corrado Antonini ment of quality results.

the Regal Princess, both 70,000 gt) and is scheduled to build another sister ship of the Golden and the Grand and the Star which will be delivered at the end of 2003. Fincantieri is the world's leading shipbuilding in the cruise ship sector with a market share of 35 percentage. Additional activities at Fincantieri's Monfalcone shipyard including the launching and commissioning of the cruise ship Carnival Conquest, by the American ship owner Carnival Corporation. The 109,500 gt ship measures 951 x 125 ft. (290 x 38 m) and has a cruising speed of nearly 23 knots. The ship will accommodate a staggering 4,950 people - 3,780 passengers and 1,170 crew — in its 2,117 cabins. Delivery of the ship is scheduled for the end of the year. Fincantieri will also build two sister ships for the same ship owner at Monfalcone; these are the Carnival Glory - the first block of which was laid on February 5, and the Carnival Valor, which are due for delivery in spring 2003 and in autumn 2004, respectively.

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Fincantieri Predicts Clear Vista For HAL



Constructed by Fincantieri, Holland America's Zuiderdam and Oosterdam vessels will boast two separate engine rooms with side-by-side funnels

First introduced last March, Holland America and Fincantieri announced to the cruise shipping community that it had signed a contract to construct one of the world's most innovative vessel series that would incorporate keen interior designs, as well as the most up-to-date safety and technical features. The first two members of the vessels series — Zuiderdam and Oosterdam — are well on their way to completion; Zuiderdam is currently afloat at Fincantieri's outfitting dock in Trieste, Italy, while Oosterdam is in the midst of the construction process. Zuiderdam is scheduled for a November 15, 2002 delivery (up from its original December delivery date), followed by Oosterdam in June 2003.

The vessels, which will each measure 951 ft. (289.8 m), and are able to hold 1,848 passengers, are unique in that they will boast innovative side-by-side funnels placed atop two separate engine rooms. According to Pieter Rijkaart, Holland America's director of Newbuildings, Zuiderdam is set to undergo technical sea trials in Italy from July 12 -14, 2002. At this time, engineers will test out a basic "prototype" ship at different speeds, looking for disturbances in the vessel's mechanics that may become problematic later on, such as vibration or glitches in the vessel's combined diesel electric and gas turbine power package.

"During the technical trials, vibration sensors will be run throughout the ship at various speeds," Rijkaart said. "If any type of vibration is detected, then extra steel will be added to the vessel before the final paneling is in place."

Rijkaart added that in September 2002, Zuiderdam will undergo its official sea trials for approximately five to six days, prior to its November 2002 delivery date. At this time, the vessel will undergo speed and simulation testing to ensure its safety at sea.

What sets this vessel series apart is its innovative power package — five Wärtsilä diesel engines, one gas turbine and Azipod propulsion in two separate engine rooms. According to Rijkaart, this is a way of making ships safer by running them via two completely separate switchboards. The aft engine room

Italian Maritime Report

will hold three diesel engines, while the room forward will house the gas turbine. If a power outage or burn out were to occur, the other engine room could still operate the vessel from between 15 and 16 knots.

"If even just a small fire were to occur in the engine room onboard these vessels, there would be severe water and CO2 damage to the electrical switchboard," Rijkaart said. "With the dual engine room concept, the vessel can still be brought back with power from the remaining one.'

Other innovative safety items onboard the Vista vessels include audible smoke detectors in every stateroom. Up until this ship series was introduced, smoke detectors were present in every cabin, but could not be heard by passengers in their individual cabins. This way if a fire were to occur in a guest room, the passenger could immediately alert a crewmember for safety upon hearing the smoke detector go off in their room. Each ship, according to Rijkaart will also feature a fast rescue boat similar to an RIB. This 22-ft. (6.7-m) IMO-approved vessel, which is able to withstand flames, can accommodate eight passengers — is lowered into the water just the same as a conventional lifeboat. - Regina P. Ciardiello

Fincantieri Signs Strategic Navy Deal

Cooperation between Fincantieri and Ger-

many's Howaldtswerke-Deusche Werft AG, Kiel (HDW), which had already started up with the construction, in Muggiano (La Spezia) of class U 212 A submarines, was strengthened earlier this year with an agreement that provides for the constitution of a joint venture company, under the guidance of Fincantieri, aimed at the development and marketing of submarines below 700 tons. Moreover, on the basis of the agreement, Fincantieri will become the first-choice partner of HDW in the management of its production overload relevant to submarines of over 1,000 tons.

The agreement also provides for an ad hoc cooperation in the ferries sector in case of multiple orders and aims to be extended to the construction of naval surface vessels.

Bono Named CEO

The Board of Directors of Fincantieri, chaired by Corrado Antonini, having accepted the resignation of Pier Francesco Guarguaglini, has appointed Giuseppe Bono as CEO of the Com-

pany and given him the relevant powers. The Board of Directors warmly welcomed the new CEO and took the occasion to thank Mr. Guarguaglini for his work for which they expressed their great satisfaction.



Rodriquez Cantieri Navali: Fast Company

Rodriquez Cantieri Navali has built a reputation for building fast, sleek ships. Sam Crockford, marketing director, explains how the yard keeps its orderbooks full.

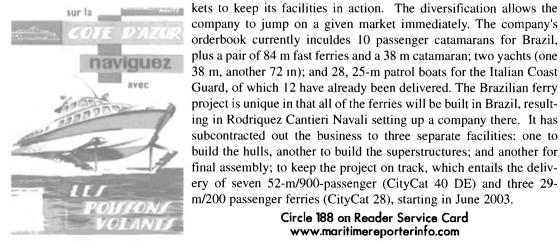
Touted in the pages of the trade press, including MR/EN, for more than a decade has been the "need or speed" which gripped the burgeoning fast ferry market. Upon meeting with Sam Crockford on the occasion of Posidonia 2002, it is sobering to learn that the "bigger, faster, more' mantra has quieted somewhat in recent years. "No one is trying to push the envelope (technologically) anymore," said Crockford, noting that the technology level has leveled out, and saying that the market opportunities lie in the small and



Rodriquez Cantieri Navali has a long history of supplying fast, technically advanced vessels.

mid-size ferry markets. "Basically, a 35-knot boat with good accommodations is what people want." Crockford reasons that fuel costs, and the voracious fuel appetites of the ultra fast class, ultimately led operators to re-evaluate the logisites of fleet management. He said that, in lieu of running one very fast boat, owners seem more apt to purchase a pair of smaller, slower vessels.

Considering that Rodriquez Cantieri Navali, founded in 1887 in Messina on the island of Sicily by Leopoldo Rodriquez as a repair yard, has carved a considerable niche in designing and building very large, very fast ferries, one might conclude that the builder is not faring so well. Nothing, however, could be further from the truth, as the yard counts on the trifecta of the ferry, yacht and patrol boat mar-



company to jump on a given market immediately. The company's orderbook currently inculdes 10 passenger catamarans for Brazil, plus a pair of 84 m fast ferries and a 38 m catamaran; two yachts (one 38 m, another 72 in); and 28, 25-m patrol boats for the Italian Coast Guard, of which 12 have already been delivered. The Brazilian ferry project is unique in that all of the ferries will be built in Brazil, resulting in Rodriquez Cantieri Navali setting up a company there. It has subcontracted out the business to three separate facilities: one to build the hulls, another to build the superstructures; and another for final assembly; to keep the project on track, which entails the delivery of seven 52-m/900-passenger (CityCat 40 DE) and three 29m/200 passenger ferries (CityCat 28), starting in June 2003.

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Smart Pneumatic Level Sensor with Generic 4-20mA Output

The Bubbler is an electro-pneumatic level transmitter that allows remote level measurement using a 4-20mA analog output. The lack of air pressure poses no operational problems, due to an automatic one-way valve which closes as soon as the pressure drops below 1 bar, this prevents back flow in the bubbling line towards the transmitter. Over pressure is also protected against by an automatic one-way valve.

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- Automatic over-pressure valve
- Automatic stop valve for air failure
- Automatic cleaning of bubbling line
- Connection for pressurized tanks
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- Top or side mount

Many Options



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Italian Maritime Report

SEA RIDER Infiltrates Small Craft Propulsion Market

The Ferry Transport Company Gestione Governativa Navigazione Laghi, owned by Italian Government, and the Taiwan Coast Guard have ordered Sea Rider propulsion. Gestione Governativa Navigazione Laghi is responsible for ferry transportation on northern Italian lakes Garda, Maggiore and Como. The line, connecting hundreds of cities and tourist sites along the banks of the lakes, is serviced by a fleet of fast passenger commuters and passenger/vehicles ferries. The fast service, started in the late 1950s with the introduction of the first hydrofoils, is being rejuvenating with the introduction of a series of new less expensive catamarans, with larger passenger capacity and lower maintenance cost.

The Taiwan Coast Guard, very busy fighting around against smuggling and piracy, were demanding not only a very high speed for their interceptor missions but also a low consumption at cruising speed when patrolling in order to increase their range of action. Last year, an order for building twenty, 49-ft. (15m) new fast patrol boats, was placed to a shipyard in Taiwan.

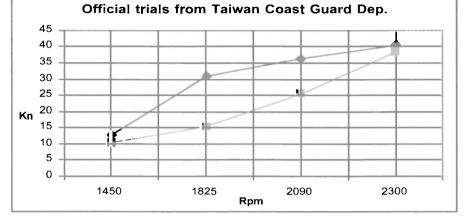
Navigazione Laghi tried three different propulsion systems on four of their catamarans in order to find out the most suitable one in terms of efficiency and operation costs. The vessels tried were: Carducci (Sea Rider Ti 60) vs. Fosco-

lo (Controllable Pitch Propellers)

Citta di Como (Sea Rider Ti 90) vs. Citta di Lecco (Water jets, competitor-1) Characteristics of all four crafts are shown below.

From these results, Gestione Governativa Navigazione Laghi has decided to fit the remaining six, 91-ft. (27.7-m) catamarans under construction with Sea Rider Ti90. Navigazione Laghi has considered overall performance at maxi-

	Citta di Como	Citta di Lecco	Corducci	Foscolo
LOA:	91 ft. (27.7 m)	91 ft. (27.7 m)	71 ft. (21.7 m)	71 ft. (21.7) m
LWL:	80 ft. (24.5) m	80 ft. (24.5 m)	65 ft. (19.8 m)	65 ft. (19.8 m)
Hull type:	Catamaran	Catamaran	Catamaran	Catamaran
Displacement:	79.5 tons	abt. 82 tons*	44.3 tons	42.5 tons
Mox. Output:	2 x 1,050 k₩ @ 2,100 rpm	2 x 1,050 kW @ 2,100 rpm	2 x 610 kW @ 2,100 rpm	2 x 610 kW @ 2,100 rpm
Propulsion:	2 x Seo Rider Ti90	2 x Woterjets (c-1)	2 x Sea Rider Ti60	2 x CPP
Top Speed	28 kts.	26.7 kts.	27.4 kts.	24 kts.
				*: Due to larger propulsion weigh



mum speed as the most important data, since the estimated operative time for the vessels will be 2,000 hours a year, with 70 percent of the time spent at maximum power.

Last year the Taiwan Coast Guard decided to build two fast patrol boats fitted with Sea Rider Ti25 surface piercing propellers and two fast patrol boats with water jets (competitor-2), in order to accurately define benefits from one or other propulsion type both at maximum and cruising speeds.

Characteristics of these boats follow: PP-2005 PP-2001 LOA 49 ft. (15 m) 49 ft. (15 m) LWL: 13.5 m 13.5 m Hull type: Monohull Monohull Displacement (full) 20 tons 20 tons 2 x 605 kW @ 2 x 605 kW @ Max. Output 2,300 rpm 2,300 rpm Propulsion 2 x Sea Rider Ti25 2 x Woterjets (c-2)

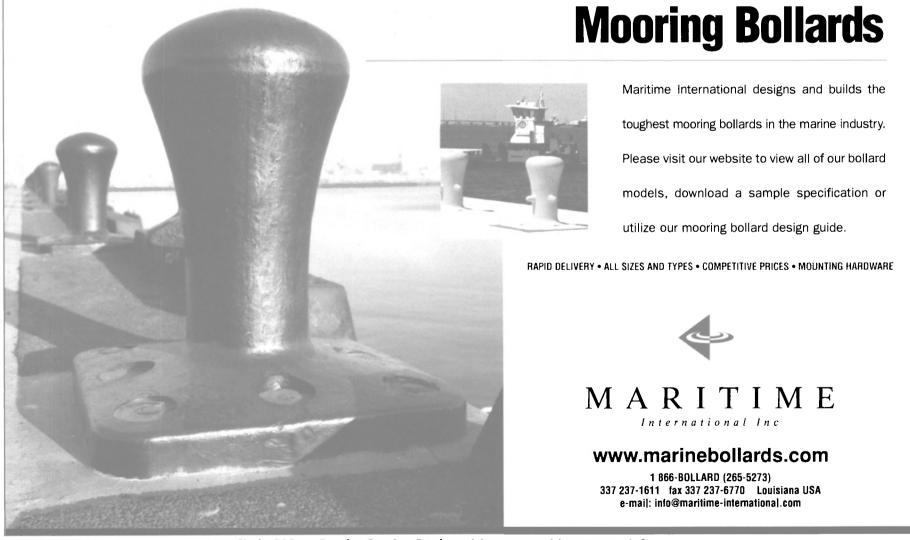
It is important to notice that when cruising, at 1.825 rpm, the speed difference is amazing with 15.38 kn for water jets (still in cavitation zone) and 30.71 kn for Sea Rider. The difference in fuel consumption is more than evident. Performance at top regime, at 2,300 rpm, is also superior with 38.45 kn for water jets against 39.22 kn for Sea Rider.

Taiwan Coast Guard has ordered a further 16 sister boats all fitting a pair of Sea Rider Ti25.

LA.ME SRL - Marine Division

LA.ME srl has been designing propulsion systems since 1989 and has been producing Sea Rider packages for 10 years.

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ACG Makes Solid Inroads

Since it was established in the mid-1940s, Azienda Chimica Genovese (ACG) has grown significantly, and today boasts a broad international market base with clients, both shipyards and shipowners from all over the world. Initially producing only antifouling units, ACG soon expanded its product range to include the supply of ICCP systems and in the early 1990s adopted its electro chlorination antifouling system to the disinfection of seawater swimming pools both onboard cruise ships and ashore.



The Azienda Chimica Genovese (ACG) system is onboard Olympic Cruise Lines' Olympic Voyager, which was built at Blohm+Voss Shipyard.

ACG has three offices in China, one in Korea and another in Norway. It is assisted in its goal to satisfy all its clients by service engineers and agents located worldwide.

Azienda Chimica Genovese offers a high quality and effective product at very competitive prices and for this reason it has succeeded in entering the hearts and minds of clients all over the world.

Recent contracts in the U.S. include: • Bath Iron Works: Arleigh Burke DDG Destroyers for U.S. Navy, to supply electrochlorination antifouling sys-

ACG U.S. Reference List

Shipyard	Shipowner	Ship nome	ACG system
Both Iron Works	US Navy	DDG 51 - Ship 1	Ecolceli R700
Both Iron Works	US Navy	DDG 51 - Ship 2	Ecolcell R700
Both Iron Works	US Navy	DDG 51 · Ship 3	Ecolcell R700
Bath Iron Works	US Navy	DDG 51 - Ship 4	Ecolcell R700
Both Iron Works	US Navy	DDG 51 - Ship 5	Ecolcell R700
Both Iron Works	US Navy	DDG 51 - Ship 6	Ecolcell R700
Newport News	Exxon/Mobil	American Progress	Ecolcell R1500
Lloyd Werft	Norwegian Cruise Line	Norwegian Sky	Ecolcell R2000
Lloyd Werft	Norwegian Cruise Line	Norwegian Sky II	Ecolcell R2000
Kvaerner Masa	Carnival Carp	503 (Carnival Mirad	e) Ecolcell R6000,R3500,R3500
Kvaerner Masa	Carnival Carp	504	Ecolcell R6000,R3500,R3500
Kvaerner Masa	Carnival Carp	505	Ecolcell R6000,R3500,R3500
Fincantieri Sestri	Minoan Lines	Knossos Palace	Ecolcell R3000
Fincantieri Sestri	Minoan Lines	Olympic Palace	Ecolcell R3000
Fincantieri Sestri	Minoan Lines	Festos Palace	Ecolcell R3000
Apuanio	Renaissance Cruises	Renaissance VI	(White Goddess) Ecolcell R700
Apuania	Renaissance Cruises	Renaissance VII	(Gadess Nayna) Ecolcell R700
Apuonio	Renaissance Cruises	Renaissance VIII	Ecolcell R700
Apuania	Renaissance Cruises	Sun Viva	Ecolcell R600
Brodogradiliste	Wallem Shipmanagement	Marble	Ecolcell R1300
Brodosplit	Wollem Shipmonogement	Front Comor	Ecolcell R1300
Brodogradiliste	Wallem Shipmanagement	Front Sundo	Ecolceil R1300
Brodagradiliste	Wallem Shipmanagement	Granite	Ecolcell R1300
Hyundai Mipo	Gypsum Transportation	9927	Ecolcell R1000
Trogir	Laurin Maritime	302	Ecolceil R1000
Trogir	Laurin Maritime	303	Ecolcel R1000
Trogir	Laurin Maritime	304	Ecolcell R1000
Trogir	Laurin Maritime	305	Ecolcell R1000
Newport News	Hvide Marine	Diamond Shools	Ecolceli R1500
Newport News	Hvide Marine	Cape Lookout Shoal	Ecolcell R1500
Newport News	Eletson Corporation	Agathonissos	Ecolcell R1500
Alabama Shipyard	Dannebrog Rederi A/S	Amalianborg	Ecolcell R700
Alabama Shipyard	Dannebrog Rederi A/S	Aggersborg	Ecolcell R700
Hyundai Mipo	GMI Corp	9	Ecolcell R1500 & Marimpress 250A
Hyundai Mipo	GMI Corp	10	Ecolcell R1500 & Marimpress 250A
Halter Marine	NOAA Research Fishing Ve	ssel	I-PO-013
Marimpress 50A			
Avondale Shipyard	Polar Tankers	Endeavour	Ecolcell R2000
Avondale Shipyard	Palar Tankers	Discovery	Ecolcell R2000
Avandale Shipyard	Polar Tankers	Resolution	Ecokell R2000

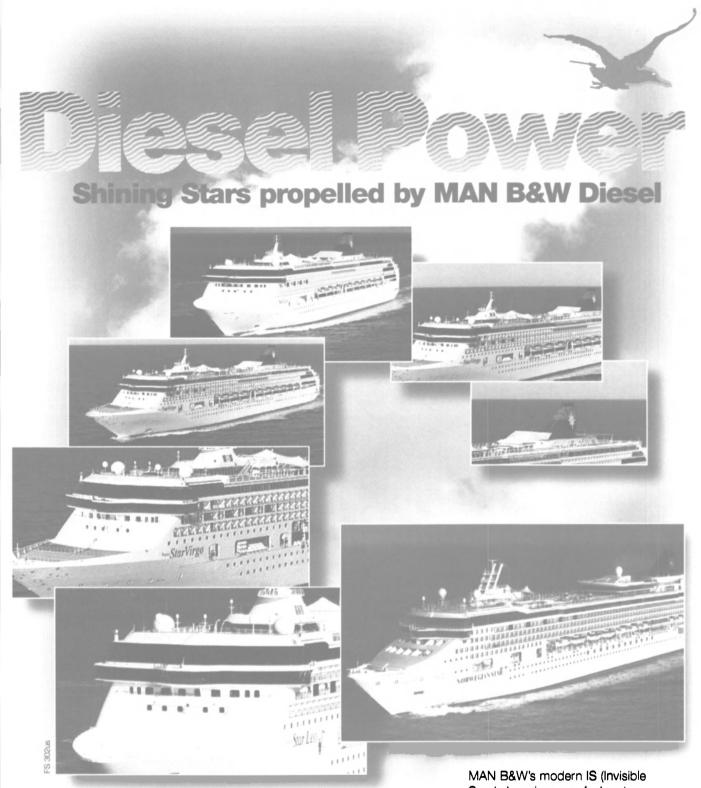
tem type R700. This system is capableof producing 228g chlorine per hour.Carnival Cruise Line: New shipsbeing built at Fincantieri Monfalcone

will include ACG's electrochlorination antifouling system for the protection of seachests and seawater pipelines from the growth of marine fouling. Each ship will install two type R4000 units for protection.

These ships will also use three ACG

electrochlorination system of type R800 for the disinfection of seawater swimming pools aboard these new constructions.

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MAN

July, 2002

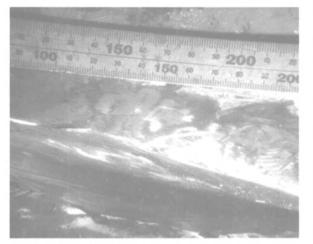
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Cruise Shipping Annual

SubSea Solutions Alliance Provides Quick Fix - Underwater



Trite as it may be, time is money, especially in the high-end cruise market that depends on millions of tourists spending ample sums of cash onboard today's floating cities. A cruise ship out of action can quickly translate to millions in lost revenue, not to mention the public relations black eye. To help shipping companies alleviate this loss, the Subsea Solutions Alliance was formed, an alliance that includes Miami Diver in the U.S., All-Sea Enterprises in Canada, and Trident in Europe. With its worldwide supply of divers technicians and equipment, the Subsea Solutions Alliance is able to come through at a moment's notice

By Regina P. Ciardiello, managing editor



With offices in key locations at the world's busiest cruise ports, the Subsea Solutions Alliance can be at the scene of an emergency repair on a moment's notice. If a repair happens to be one that requires more diver technicians than are available at one location, additional personnel are then brought in from the other Alliance members.

While the relationship between Miami Diver, All-Sea and Trident spans 15 years a formal alliance was not established until earlier this year. According to **Kevin Peters** president of Miami Diver, there was no doubt in his mind that the alliance would not have been an immediate success. "Because of this venture, we now have more locations and more trained personnel to serve the cruise industry," Peters said. The Subsea



Caption: From left: The 100 percent weld repair completed on RCCL's Legend of the Seas; Middle and right: The Subsea Solutions alliance fitted and welded four gagging plates on the housing of Carnival Paradise's Azipod prior to its repair in 2000.

Solutions Alliance has responded to and carried out emergency repair for cruise ships from Miami to Alaska, from Europe to Australia and Asia. Recently through members of the Subsea Solutions Alliance a blade change was carried out on a cruise ship in the Port of Venice, a stern seal repair was done on another cruise ship in Alaska, a stabilizer repair on another cruise ship in Peru, a propeller repair in Miami along with a bowthruster repair for a cruise ship in Australia.

(continued on page 53)



Maritime Reporter & Engineering News



Antillia Graving Dock

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Cruise Shipping

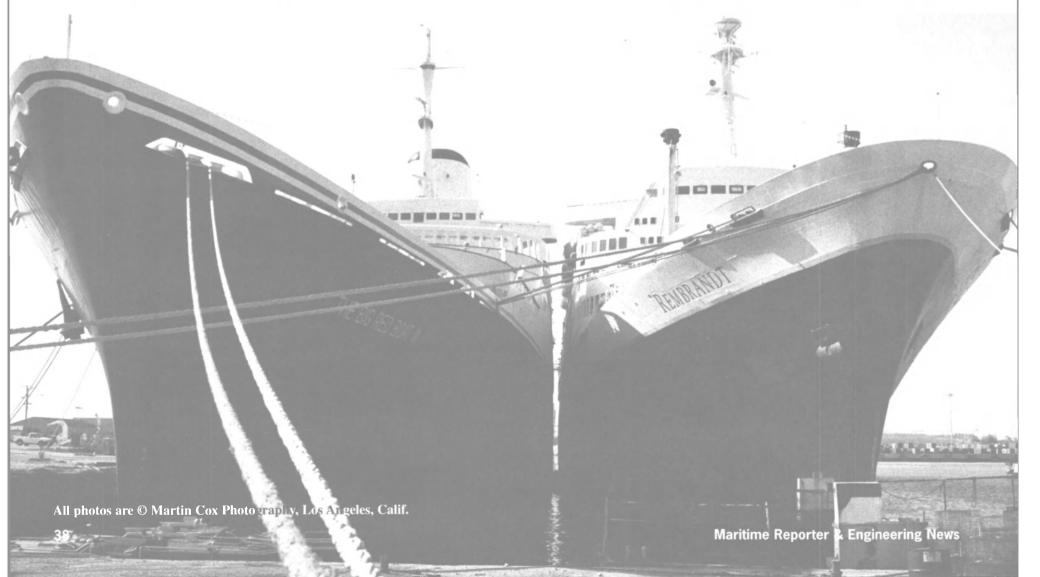
Classic Vessel's Demise Leads to New Found Hobby

A revelation pays off for photographer Martin Cox, who at just seven years old, realized that he was drawn to landscapes or places that beg a question — such as what happened? Originally from the U.K., Cox turned his passion into a reality with his focus on the wonders of industrial marinescapes, (as pictured here) in addition to his fascination with the American landscape.

By Regina P. Ciardiello, managing editor

os Angeles, Calif.-based photographer **Martin Cox** had a revelation when he was just seven years old that he wanted to pursue the art of photography. Cox, who was born and raised in the maritime mecca of Southampton, U.K., can vividly recall the day Cunard's original Queen Mary set off on its final voyage from the port city. "When I was seven years old, something happened that was to complicate my life," Cox said. "I witnessed the final departure of the British Ocean Liner Queen Mary on her farewell voyage from Southampton." Cox was filled with emotion and sadness. "The public outpouring of emotion is something that struck me deeply," he said. "Ten thousand people (many weeping) lining the wharves and beaches."

Receiving his first camera as a teenager, Cox began to explore what later became his vocation, by focusing on industrial and urban sites — a theme, which has literally stayed with him his entire life. After graduating with a fine arts degree from England's Exeter College of Art and Design, Cox made his first trans-Atlantic journey to the U.S. where he was fascinated by the landscapes of the great West — mainly California, Arizona and New Mexico. Upon his return from the States, he moved form Exeter to London where he readied his black and white prints for potential exhibition, which eventually happened in 1984. The subject of Cox's first U.S. exhibition, which was held at San Francisco State University Art Gallery focused on images of desolate val-



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Cruise Shipping

leys left in the wake of the collapsed mining industry of South Wales.

A resident of Los Angeles since 1990, Cox's travels and exhibitions have taken him to a variety of jaunts since his first exhibition more than 15 years ago with his current maritime imagery "representing a return to his visual roots" as he continues to focus on industrial marinescapes. In his own words, Cox has literally, "instilled the same emotional intensity and mystery from the earlier desert landscapes - now transposed on to maritime and industrial themes."

MR/EN was able to catch up with Cox between assignments to discuss his philosophies on maritime photography. as well as his fascinations with the

American landscape.

Maritime Reporter: In your eyes, what makes something an interesting subject to shoot?

Martin Cox: I am drawn to landscapes or places that beg a question — "What happened here?", "Why is it like this?" A sense of mystery draws me to choose



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my subject, which oftentimes involves structures. Whether they are rail lines, partially dismantled buildings, or mine workings, landscapes that reflect human activity recently or long ago. I work in lonely, isolated places and seldom photograph people through their actions are implied by the landscapes I choose.

MR: As a photographer/artist, what drives you?

MC: I see when I shoot. I look for the imprint the culture makes on the world. The subjects of my pictures teach me about the world and connect invisible strands together. I never saw the links eroded hillsides and rusted ships until I shot them. I am fascinated by places that have been acted upon by water, either flood, a tide or a dry lake bed, so naturally photographing ships and vessels comes in to this. I grew up in the Port city of Southampton, England and ships have been on my mind as long as I can remember. Their unique profiles coming and going from the port formed my visual background.

MR: What types of preliminary work do you have to do to prepare for a shoot?

MC: I am interested in history and often spend time researching a vessel's history or the history of a port or place that I then go to shoot in. Or sometimes the place comes first, I am compelled by the look of the place then learn how it got to look like that. I write a news column for the Steamship Historical Society and when I talk with public relations depart-

(continued on page 51)

Maritime Reporter & Engineering News

www.nera.no

Training and Education

STAR Center Provides 360-Degree Field of View

Imagine having your employer inform you that your only two-week vacation all year will be spent sitting in training courses to revamp or add to your skill base as an officer. Most would more than likely offer a collective groan of discontent by this suggestion since they often spend more than four months at sea in one given shot. Time spent away from relaxation with their families is precious to these individuals as it is hard to come by. Therefore RTM Star (Simulation, Training, Assessment & Research) Center, located in Dania Beach, Fla. And Toledo, Ohio, strives to give students who come to the training center an atmosphere that exudes a "home away from home" environment.

By Regina P. Ciardiello, managing editor

Driving along the industrious thoroughfare of U.S. I (or Federal Highway, as the locals call it), stands a building on the corner of West Dixie Highway that could easily be mistaken for a country club. Entering RTM STAR Center's Dania Beach, Fla. facility, guests and students are greeted by tall palm trees, maintenance people on golf carts and neatly lined and labeled guest rooms (125 to be exact), as well as an outdoor swimming pool, exercise facility and movie theatre. The facility also boasts what it is the largest and one of the most comprehensive training facilities for merchant mariners and officers. The Center is always researching its course offerings to offer students the most up-



RTM STAR Center provides real-time training with its 250-degree bridge simulator (pictured above), as well as its new fast rescue craft training facility (pictured below) that is scheduled to open this summer.



to-date classes, and is home to the um Speed Diesel Simulators. world's only 360-degree Full Mission Bridge Simulator, which is complemented by the center's Slow Speed and Medi-

The Bridge Simulator, which provides

an immense 360-degree view of realtime, at-sea situations, is an invaluable

training tool that features a Litton Sperry 2100 Integrated Bridge System (IBS)

(continued on page 51)

PROP SHAFT BEARING STEM SOLUTIONS

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What today's ships are turning to

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July, 2002

Diesel Engine Guide

Propulsion Update

MAN B&W 48/60B Engine

The current basic family of MAN B&W's large medium-speed diesel engines consists of four sizes L 58/64, L/V 48/60, L 40/54 and L/V 32/40, launched between 1985 and 1995. This engine family covers an output range from 2,880 kW (6L 32/40) to 18,900 kW (18V 48/60). Within the last few years, this portfolio has been supplemented by the V 40/50, the smaller engine sizes L 16/24 and L 27/38, and, finally, the new L 21/31 (2002/03). All engines are fully heavy fuel oil compatible and have been optimized for both high fuel economy and lowest exhaust gas emissions.

In terms of sold power, the 48/60 engine is second in the list of MAN B&W's bestsellers. Since its market launch in 1989 to January 31, 2002, a total of 245 engines of this size, representing 3.7 million hp, has been sold, of which 162 engines were for marine applications

The 48/60 has evolved with the needs of the market in its 13 years. Service experience and improvement in component design are just two reasons driving change. In addition, progress is made in better understanding injection, combustion and emission control. Both theoretical and experimental development work result in greater insights into the many processes involved, allow safe prediction of component loadings, safety levels and even lifetimes. With all this experience and knowledge at hand, it is possible today to upgrade an existing proven engine in regards of output, fuel consumption, emissions, and component safety, whilst retaining proven engine sub-groups.

For these reasons MAN B&W decided to retain the

main dimensions, bore and stroke, of the 48/60 and with it many proven engine subgroups, while modifying and changing a variety of other key engine components.

The new engine is named 48/60B, with a rating of 1.200 kW per cylinder at 500 and 514 rpm, respectively. This is equal to an increase of 14 percent over the current nominal output of the 48/60 engine.

The 48/60 B also is cleaner and leaner, featuring:

• Increased efficiency (fuel savings, lower carbon dioxide emission)

• Less smoke and nitrogen oxides

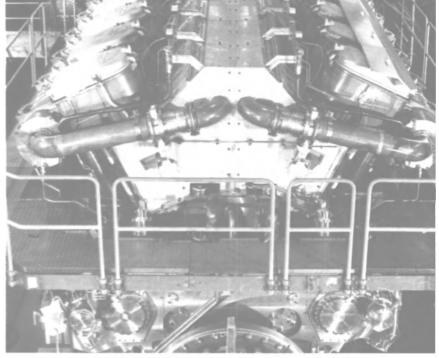
• Reduction in engine width and, consequently, in center-to-center distance in order to reduce the gear size

- Improved operational and component reliability
- Increased ease of maintenance
- Reduction in weight-to-power ratio

• Reduction of manufacturing costs by applying improved design features and a lower number of engine components and parts.

Achieving Better Fuel Economy

With a bore of 480 mm and a stroke of 600 mm(bore-to-stroke ratio = 1.25), the 48/60B engine obviously is not a typical long-stroke engine with its options to reduce fuel consumption rates. However, even with the same bore-to-stroke ratio, the bundle of



The 48/60B prototype engine.

in-engine measures effected gave the same result — at a lower cost. A package of engine-internal measures was worked out, initially confirmed to be feasible by simulation calculations and finally tested step by step on a 12V 48/60B protopype engine in order to find the best solution between several variables, i.e. an acceptable compromise between fuel consumption, component loading, and NOx and smoke emissions.

To achieve this target, the following principal correlations, which are partly in conflict with each other, had to be considered and the work process was modified accordingly:

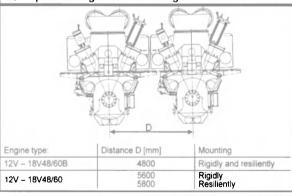
1. Adoption of a "slight" Miller process to lower combustion temperature levels, and, with them, NOx emission.

2. Increase in injection intensity for lower soot production and therefore lower smoke emissions, especially at partload. Unfortunately, this measure has a negative effect on NOx emission. In order to neutralise

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Technical Data Engine type Output A1 Weight A в н [mm] [mm] [mm] [mm] 12V 48/60 B 10 440 5 0 0 0 181 to 14 400 kW 7 980 4 700 5 000 206 to 14V 48/60 B 16 800 kW 8 980 11 750 4 700 16V 48/60 B 19 200 kW 9 980 12 800 4 700 5 000 230 to 256 to 18V 48/60 B 21 600 kW 10 980 4 700 5 000 13 800 Low specific weight: 12.6 – 11.9 kg/kW



This shows, the center-to-center distance between two V48/60B-type engines was decreased by about 1 m. The total height of the engines is the same as with the current 48/60 models.

(Continued on page 47)

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2002 DIESEL ENGINE DIRECTORY

USING THIS DIRECTORY: This directory includes details of diesel engines from approximately 500 hp and upwards. It is separated by BRAND name. Full contact details, separated by BRAND name but listing full manufacturer contact information, can be found immediately following this guide. All information provided by Worldwide Ltd. Publisher assumes no responsibility for errors or omissions)

			6 I	c 1//	1111 / 1	2011					6 I	c 1#	11117		DUED
BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	BMEP	BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	BMEP
Anglo Be	lgian Co	rp							BR-1/2000 18 D/SS	150 150	180 180	18 18	61.3 - 74.2 55.8 - 67.4	2020 - 2075 2010 - 2075	11.4 - 13.5 10.5 - 12.3
	DX DZ	242 256	320 310	3 - 8 6 - 16	46 - 110.4 135 - 221	600 - 750 720 - 1000	6 - 12.5 16.5 - 18.1		18 D/SS BR-1 18 D/SS BR-2	150 150	180 180	18 18	61.3 - 74.2 77.9 - 85.8	2010 - 2075 2050	11.5 - 13.5 14.3 - 15.3
ADD								Cummins	Marine						
AUU	30V	300	480	6 - 18	548.3 - 572.2	720 - 750	26.9 - 27		QSMII	125	147	6	55 - 77.8	2300	19.2 - 22.8
A		500	100	0 10	540.5 572.2	720 - 750	20.7 - 27		N14-M VTA28-M	139.7 140	152.4 152	6 12	54.7 - 65.3 42.0	1800 - 2100 1800	15.6 - 17 12
Akasaka	MH22R	220	200	,	62.5 - 74	407 - 430	13.9 - 14.1		K1A19/M KTA38/M	159 159	159 159	6 12	52.8 - 87 49.8 - 80.8	1800 - 2100 1800 - 1950	11.2 - 16.8 10.5 - 17.1
	M23R	230	390 390	6 6	86.0	440	14.5		KTA50/M	159	159	16	58.3 - 74.6	1800 - 1950	12.3 - 16.8
	MH23R 6AH24	230 240	390 410	6 6	72.9 - 85.8 110.0	417 - 440 410	14.7 - 14.4 17.4		QSK19-M 170	159 170	159 200	6 6 - 18	82 - 99.5 115 - 130	1800 - 2100 1600 - 1800	17.1 - 18 19 - 20.3
	MH25 6AH25	250 250	400 410	6 6	83.4 - 98.1 116.0	407 - 430 395	12.5 - 14.2 17.5	Daewoo							
	U26	260	320	6 - 16	159.3 - 165	720 - 720	15.6 - 16.2	DUEWOO	V 158TI	128	142	8	44.1 - 62.5	1800 - 2300	15.8 - 18.2
	6AH26 126	260 260	440 440	6 6	147.0 10 4.2 - 147	400 350 - 420	18.9 15.3 - 18		V 180TI	128	142	10	44.1 - 60.3	1800 - 2300	15.3 - 18.6
	K26 U28	260 280	480 340	6 6 - 8	159.2 - 171.5 221 - 245.2	410 - 420 680 - 720	18.3 - 19.2 18.6 - 19.5		V 222TI	128	142	12	44.2 - 61.3	1800 - 2300	15.6 - 17.9
	U28AK	280	380	6 - 8	303.4 - 306.7	720 - 720	21.6 - 21.8	Daihatsu	Diesel						
	6AH28/S E28	280 280	440 480	6 6	165 - 178 220.5 - 245.2	385 - 390 420 - 450	19 - 19.3 21.3 - 22.1		6DLM 16 6DLM-19	160 190	210 230	6 6	73.6 85.9	1350 900	15.5 17.5
	K28 A28/A285	280 280	500 550	6 6	171.5 - 196 183.8 - 184.2	380 - 410 320 - 320	18.3 - 18.6 20.3 - 20.4		6DLM-20	200	260	6 6 - 8	104.3 156 - 159	900	17 22.1 - 22.5
	6AH30	300	480	6	196.0	375	18.5		DKM-20 DKM-26	200 260	300 380	6	269.7	900 750	21.4
	K31 A31	310 310	550 600	6 6	196 - 245.2 220.8	340 - 380 290	17.3 - 18.6 20.2		DKM-28 6DY-28	280 280	390 530	6 - 8 6	313 - 319 171.7 - 220.7	720 - 750 395	20.8 - 22.1 16.3 - 20.9
	6AH33 DM33/K	330 330	500 500	6 6	221.0 195.8 - 220.8	340 350 - 370	18.2 15.7 - 16.7		DKM-32 DLM-40A	320 400	360 480	6 - 8 6 - 8	368.0 552.0	720 515	21.2 21.3
	A34C/S	340	620	6	270.0	310	18.6			400	400	0 * 0	332.0		21.5
	A34S S35	340 350	660 640	6 6	294.2 318.3	280 280	21 22.1	John Dee							
	6AH36 DM36K	360 360	540 540	6 6	262.0 245.0	330 330	17.3 16.2		4045TFM 6068DFM	106 106	127 127	4 6	22.4 - 25.3 14.5 - 16.2	2400 - 2600 2400	10 - 11.5 6.4 - 7.2
	A37 6AH38/A	370 380	720 560	6 6	318.3 282 - 307	250 310 - 310	19.7 17.2 - 17.5		60685FM 6081AFM	106 116	127 129	6 6	37.3 29.2 - 55.9	2600 2100 - 2400	15.4 12.2 - 20.5
	DM38AK	380	600	6	281.8	320	15.5		6125AFM	127	165	6	42.3 - 74.6	1800 - 2100	13.5 - 20.4
	A38/S 6AH40/AK	380 400	740 600	6 6	343.3 - 367.7 367 - 465.7	240 - 250 300 - 340	20.4 - 21 19.5 - 20.4	Detroit Di	esel						
	8AH40AK DM40AK	400 400	640 640	6 6	468.9 392.2	340 340	20.6 17.2		2000	130	150	8 - 16	50 - 83.9	1900 - 2350	15.9 · 23.6
	DM41	410	640	6	367.0	300	17.4		SERIES 60, 12.7 SERIES 60, 14L		160 168	6 6	46.6 - 87 46.6 - 102.5	1800 1800	14.6 - 21.4 13.3 - 22.9
	A41/S A45/S	410 450	800 880	6	404.2 - 441.2 490 - 551.5	230 - 240 210 - 220	20 - 20.9 20 - 21.5		4000	165	190	8 - 16	110 - 170	1700 - 2100	18.2 - 23.9
	U50	500	620	6 - 9	674 - 674	380 - 380	17.5 - 17.5	DEUTZ							
Alaska D				r / No	rthern Ligh				FM 1015	132	145	6 - 8	35.7 - 70.8	2100 - 2300	10.3 - 18.6
	SA6D140-1 SA6D170-A-1	140 170	165 170	6 6	62.2 - 87 87 - 111.9	1800 - 2100 1800 - 2100	16.3 - 19.6 15 - 16.6		616 620	132 170	160 195	8 - 16 8 - 16	60 - 85.8 127 - 140	2100 - 2300 1800 - 1860	15.7 - 20.4 19.2 - 20.4
Allen									628 632	240 250	280 320	6 - 16 6 - 18	166.1 - 225 285 - 385	750 - 1000 1000 - 1200	20.3 - 21 21.8 - 24.5
Allen	2000	241	305	4 - 9	176 - 176	1000 - 1000	15.1 - 15.1		645	330	450	6 - 9	425 - 460	600 - 650	22.1
	3000	240	300	12 - 16	132 - 260	1000 - 1000	15.1 - 19.3		640	370	400	12 - 16	168.3 - 441.3	500 - 650	18.8 - 19
	4000 5000	325 320	370 410	6 - 16 6 - 16	328.1 · 332.8 441.7 - 525	750 - 750 720 - 750	17.2 - 18.3 21.4 - 26.5	Electro-M		vision			Aotors Corp		
Baudouin	1								645E6 645F7B	230 230	254 254	8 - 16 8 - 20	93.3 - 98.1 149.3 - 163.1	900 900	5.9 - 6.2 9.4 - 10.3
	- VTI	120	110	12	26.4 - 50.3	2680 - 3000	15.0 - 17.0		645EB 710	230 230	254 280	8 - 20 8 - 20	148.0 186.5	1000 900	8.4 10.7
	R 124 SR M26	124 150	165 150	6 6 - 12	49 - 62.5 29.4 - 79.8	1800 - 1900 1800 - 2000	16.4 - 19.8 7.4 - 18			250	200	0 - 20	100.5	700	10.7
Borgon								Fairbanks							
Bergen	B32:40	320	400	6 - 12	500	750	24.9		38TD8-1/8	206.4	254	6 - 12	261.1 - 217.6	750 - 900	20.5
	BRM/BVM	320	360	6 - 16	440.8 - 516.8	750	24.4 - 28.6	GE Diese							
	C KR/KV	250 250	330 300	5-9 3-18	240.0 1 58.0	1000 900	17.8 14.3		7FDM FDL	229 229	267 267	8 - 16 8 - 16	158.5 - 186.5 186.0	1050 1050	16.5 - 19.4 19.3
	KRMB/KVBM	250	300	6 - 18	222.9	825	22		265H	265	300	16	250	900	20.68
Callesen									265H	265	300	16	280	1000	20.27
	425 427	250 270	300 400	3 · 4 3 · 8	44 - 59 58.8 - 124.1	500 395 - 500	7.3 10.4	Grenaa							
Catornille									F24 F24T	240 240	300 300	3-6 3-6	40.5 - 81 61.3 - 67.4	500 500	7.2 - 14.3 10.8 - 11.9
Caterpillo	3176B	125	140	6	56 - 74.7	2300	17 - 22.7		F24TK	240	300	6	73.6 51.7 - 123	500 750	13 6.1 - 14.5
	3196	130	150	6	42.3 - 82	1800 - 2300	14.2 - 21.5		FR24 FR24T	240 240	300 300	6	92.0	750	10.8
	CT2 3400	130 137	150 152	6 6 - 16	87 26.4 - 99.5	2300 1200 - 2300	22.8 8.5 - 21.3		FR24TK	240	300	6	110.3 - 122.7	750	13 - 14.5
	3500 3500	170 170	190 190	8 - 16 8 - 16	65.8 - 108.8 93.3 - 139.9	1200 - 1800 1600 - 1925	12.3 - 16.8 14.4 - 20.2	Guascor							
	3600	280	300	6 - 18	247.5 - 400	750 - 1100	20 - 24.7		E318 F180	150 152	150 165	12 6	27.1 - 50.6 30.7 - 79,4	1800 - 2100 1800 - 2000	8.5 - 12.7 6.8 - 17.2
CRM									F240	152	165	8	55.2 79.5	1800 - 2000	12.3 - 17.7
h.h. 2004	12 D/S/SS	150	180	12	52.1 - 84.3	1900 - 2075	9.4 - 15.3								40
July, 2002	E														43

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BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	ВМЕР	BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	ВМЕР
Hanshin	F360 F480	152 152	165 165	12 16	55.2 - 79.5 58.4 - 79.5	1800 - 2000 1800	12.3 - 17.7 13 - 17.7		M32M M33M LS33L LS35L LS38L LS42L	320 330 330 350 380 420	550 600 640 680 740 840	6 6 6 6	223.8 - 248.7 248.7 - 286 186.5 - 245.2 211.4 - 282 261.1 - 343.2 317.1 - 416.8	315 - 350 290 - 330 250 - 290 245 - 275 230 - 255 205 - 227	19.3 - 20.2 20 - 20 16.3 - 18.5 15.8 - 18.8 16.2 - 19.2 15.9 - 18.9
	6L24GSH 6LU24 6LUD24	240 240 240	400 410 410	6 6 6	79.7 103.5 110.0	400 410 400	13.2 16.3 17.8					Ū	317.1 - 410.0	105 - 117	13.7 - 10.7
	LH26 LH26/A LC26 6LU26	260 260 260 260	440 440 440 440	6 6 6	147.0 171.5 104.2 123.0 203.4	420 450 400 400 730	18 19.6 13.4 15.8 24.5	MAN N	Utzfahrz 2876	128 128	AG 142 166	6 - 12 6	31.6 - 91.9 77.2 - 85.8	1800 - 2300 2200	10.7 - 26.2 17.1 - 22.0
	8MX28 6MUH28 6MX28	280 280 280	330 340 380	8 6 6	303.4 281.8 306.5	780 730	20.7 21.5	MAN B	&W AG						
	LH28 6LUN28 L/C/H/Z28L LH30 LH31 LH32L LH34LA LA34 6LU35 6LU35 6LU35 6LU35 6LU35 6LU540 6LU540 6LU540 6LU540 6LU540 6LU540 6LF58/A 6LF58/A	280 280 300 310 320 340 350 350 350 350 360 380 400 400 400 400 400 400 400 500 540 580	460 480 530 640 640 720 550 550 670 760 640 640 640 800 800 740 800 800 800 800 850 1050	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	171.5 196.0 245.2 220.5 245.2 269.7 294.2 - 306.5 245.2 245.0 294.2 - 367.8 343.0 294.2 - 367.8 343.2 367.0 405.0 405.5 405.0 404.5 - 441.3 441.3 440.3 - 551.5 490.3 - 551.6 612.9 - 674.2 735.5 - 772.3	395 395 380 - 430 300 370 280 280 280 240 - 265 320 320 240 - 270 240 320 300 300 240 245 - 270 245 - 270 200 - 220 215 - 240 215 - 240 180 - 190	18.4 20.1 19 - 21 20.8 17.9 20.4 19.9 21.2 - 21.7 17.4 20.7 - 21.3 19.9 21.7 17.1 18.2 20.1 20.4 - 20.9 17.6 - 17.7 20.1 - 20.6 17.4 - 17.6 17.6 - 17.7 17.6 - 17.7		S26MC L35MC S35MC S42MC S46MC-C L50MC S50MC-C L60MC L60MC/ME-C L70MC S60MC/ME-C L70MC/ME-C S70MC/ME-C L70MC/ME-C L80MC/ME-C L80MC/ME-C S80MC	260 350 420 420 460 500 500 600 600 600 600 600 600 600 6	980 1050 1400 1360 1764 1932 1620 1910 2000 1944 2022 2292 2400 2268 2360 2674 2800 2300 2592 3056 3200 2300 2592	4 - 12 4 - 12 4 - 12 4 - 12 4 - 8 4 - 9 6 - 82 4 - 9 6 - 82 6 - 12 4 - 9 6 - 82 6 - 12 6	275 - 400 440 - 650 475 - 700 480 - 995 695 - 1025 880 - 1310 640 - 1330 690 - 1330 690 - 1430 690 - 1430 690 - 1430 970 - 1920 1520 - 2230 980 - 2040 1085 - 2255 1355 - 2830 248 - 3110 1350 - 2810 1490 - 3105 2470 - 3610 1750 - 3640 1760 - 3870 3100 - 4560	212 - 250 178 - 210 145 - 170 132 - 176 115 - 133 108 - 129 111 - 148 95 - 127 95 - 127 95 - 127 92 - 123 105 - 123 79 - 105 81 - 108 68 - 91 68 - 91 68 - 91 68 - 91 68 - 91 89 - 104 70 - 93 59 - 79 57 - 76 89 - 104	14.8 - 18.5 14.7 - 18.4 14.7 - 18.4 11.5 - 18 14.8 - 18.5 15.2 - 19 10.9 - 17 11.5 - 18 12.2 - 19 11.5 - 18 12.2 - 19 11.5 - 18 12.2 - 19 11.5 - 18 12.2 - 19 11.5 - 18 12.2 - 19 14.4 - 18 12.2 - 19 12.2 - 19
Hedemor	a Diese								K90MC/ME L90MC/ME-C S90MC/ME-C	900 900 900	2550 2916 3188	4 - 12 4 - 12 6 - 9	2200 - 4570 275 - 4890 3130 - 4880	71 - 94 62 - 83 61 - 76	11.5 - 18 12.2 - 19 15.2 - 19
	VA VB	185 210	210 210	6 - 18 6 - 18	91.7 116.7	1350 1350	14.4 14.3		K98MC/ME-C K98MC/ME 21/31	980 980 210	2400 2660 310	6 - 18 6 - 18 6 - 9	4130 - 5719.9 4090 - 5720 215	94 - 104 84 - 104 1000	14.6 - 18.2 14.6 - 18.2 24.1
Himsen	H21/32 H25/33	210 250	320 330	5 - 9 5 - 9	160 - 200 290.0	720 - 1000 900	21.7 - 24.1 23.9		23/30A/AE 27/38 28/32A 32/40 40/50	225 270 280 320 400	300 380 320 400 500	6 - 12 6 - 9 6 - 16 6 - 18 12 - 20	133.3 - 160 340.0 245.0 480.0 750.0	800 - 900 800 775 750 600	16.8 - 17.9 23.4 23.5 23.9 23.9
lsotta Fro	aschini								40/54 48/60 48/60B	400 480 480	540 600 600	6 - 9 6 - 18 6 - 18	700 - 720 1050.0 1200.0	500 - 550 500 - 514 500 - 514	23.2 - 24.8 22.6 - 23.2 25.8 - 26.5
	1300 1700 S20U	130 170 200	142 170 300	6 - 12 8 - 16 4 - 9	36.7 - 73.3 87.5 - 162.5 160 - 175	1800 - 2700 1800 - 1935 900 - 1000	13 - 19.4 15.1 - 21.8 22.3 - 22.6		58/64	580	640	6 - 9	1390.0	428	23
lveco								MAN B	& W Die: k major mks		D 457	6 - 16	544.0	600	18.9
11000	8281/8291	155	130	8 - 12	25.8 - 64.6	1800 - 2200	7.0 - 19.6		MB430 MB430M RK215	430 430 215	480 520 275	6 - 16 12 - 18 6 - 18	608.4 - 800 723.5 - 976.7 130 - 197.5	500 - 600 500 - 600 720 - 1000	19 - 23 23 21.6 - 23.9
Kelvin	KEL140-6M TBSC8 KEL170-6M	140 165 170	165 184 170	6 8 6	59.0 49.9 93.3	1800 1350 1800	15.1 11.5 15.2		RK270 RK280 VP185 VALENTA	270 280 185 197	305 330 196 216	8 - 20 12 - 20 12 - 18 6 - 18	246.7 - 377.5 450.0 166.7 - 222.2 140.6 - 191.7	720 - 1032 1000 1770 - 1950 1500 - 1640	21.5 - 25.1 26.6 21.1 - 25.9 17 - 21.6
Kolomna								Matsui	Diesel						
	14/14 D49 30/38	140 260 300	140 260 380	12 4 - 20 4 - 6	40.0 - 45.8 182.5 - 267.5 275 - 491.7	2100 - 2350 1000 750	10.6 15.9 - 23.2 16.4 - 29.3		ML624G/A/H/S/ MS245GTSC ML626GSC ML627GSC MS28BGFC MA28GSC	240 245 260 270 280 280	400 470 480 480 500 540	6 6 6 6 6	42.9 - 110.3 150.0 61.3 - 161.6 73.6 - 186.4 184.0 85.8 - 183.9	420 - 420 420 310 - 410 300 - 410 390 300 - 700	6.9 - 17.7 19.3 10.8 - 18.6 10.7 - 19.9 18.4 4.4 - 18
Komatsu	117 122 125 132 137	117.9 121.9 125 132.9 137.9	150 150 150 165 165	6 6 6 6	58.2 - 64.4 67.4 - 74.6 61.3 - 68.4 70.5 - 85.8 83.4 - 94.4	2200 2300 2200 2300 2200 2300 2100 2200 2100 2200 2100 2200	19.4 - 20.5 21 - 23 18.2 - 19.4 17.6 - 20.4 19.3 - 20.9		MA29GSC HD30FSC MA31GSC MA32GSC MA33GSC	290 300 310 320 330	540 540 460 600 600	6 6 6 6 6	85.8 - 208.4 184.0 122.6 - 220.7 122.6 - 245.2 269.7 - 281.8	290 - 375 360 260 - 320 270 - 320 330 - 340	10 - 19 18.9 12.5 - 19.5 11.3 - 19 19.1 - 19.4
	140 170	140 170	165 170	6 - 12 6	55.2 - 94.3 111.6 - 122.6	1900 - 2100 2000	11.1 - 16.8 17.3 - 19.1	Mitsubi	shi Heav	•			00/ J 5/J 5	1/0_01F	105 170
MaK Mo	toren G ^{M20} ^{M25} M32C L M32C V M43	200 255 320 320 430	& Co.I	6 - 9 6 - 9 6 - 9 12 - 16 6 - 18	170 - 190 290 - 308 480 480 - 500 900	900 - 1000 720 - 750 600 720 - 750 500 - 514	24.1 - 24.2 23.5 - 23.7 24.9 23.7 23.7 - 24.4		UE33LSII UE37LA UE37LSII UE43LSII UE45LA UE50LSII UE52LA UE52LS UE52LS	330 370 430 450 500 520 520 520	1050 880 1290 1500 1350 1950 1600 1850 2000	4 - 8 4 - 8 5 - 8 4 - 8	306.7 - 567.5 278 - 514.9 418 - 772 570 - 1052.6 477.5 - 882.6 144.5 - 1445.1 85 - 1176.8 716.7 - 1323.9 930 - 1700	162 - 215 158 - 210 158 - 210 120 - 160 119 - 158 95 - 127 100 - 133 90 - 120 95 - 127	12.5 - 17.3 1T.4 - 15.9 12.5 - 17.3 12.5 - 17.3 11.5 - 15.9 12.5 - 17.3 11.5 - 15.9 12.4 - 17.2 13.8 - 19.4
Makita	M30M L30M M31M L31M	300 300 310 310	480 600 550 600	6 6 6	183.9 223.8 - 248.7 223.8 - 248.7 223.8 - 248.7 223.8 - 248.7	375 300 - 330 320 - 355 290 - 320	17.4 21.1 - 21 20.2 - 20 20.4 - 20.3		UESZLSE UE60LA UE60LS UE60LSII UE75LSII UE85LSC UE85LSII	600 600 600 750 850 850	2000 1900 2200 2300 2800 2360 3150	4 - 8 4 - 8 4 - 8 4 - 12 5 - 12 5 - 12	930 - 1700 836 - 1544.6 956 - 1765.2 148 - 2045.1 1593.8 - 2942 2111.7 - 3898.2 1980 - 3861.4	95 - 127 83 - 110 75 - 100 79 - 105 63 - 84 76 - 102 54 - 76	13.8 - 19.4 11.6 - 16 12.5 - 17.4 12.5 - 17.3 12.5 - 17.3 12.7 - 17.5 12.6 - 17.4
44											I	Maritim	e Reporter	& Engineer	ing News

2002 DIESEL INCIDE DIRECTORY

BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	ВМЕР	BRAND NAME	Model	Bore	Stroke	Cyl#	kW/cyl	RPM	вмер
	SA SN SR 6SGACE-1 SU SMALE	150 160 170 220 240	160 180 220 240 260	6 - 12 12 6 - 16 6 - 12 6 - 16	52.8 - 81.7 49.1 - 74.6 56.7 - 143.8 110.0 183.9 - 202.3	1840 - 2100 1550 - 1800 1350 - 2060 900 1150 - 1200	11.6 - 16.2 10.5 - 13.7 10.1 - 20.5 16.1 16.3 - 17.2	Sulzer	29/24 48	240 320	290 480	6 - 8 6 - 8	220 - 261.1 121.3 - 139.7	1000 - 1000 428 - 428	20.1 - 23.9 8.8 - 10.1
MTU	5H24-5 183 2000 396 4000 595 1163 8000	240 128 130 165 165 190 230 265	280 142 150 185 190 210 280 315	6 - 16 8 - 16 8 - 16 8 - 16 8 - 16 12 - 16 12 - 20 16 - 20	129.0 21.1 - 80.8 50 - 91.9 80 - 186.7 105 - 170 190 - 270 184 - 370 410 - 450	900 1900 - 2400 1900 - 2350 1600 - 2100 1700 - 2100 1600 - 1800 1100 - 1300 1150 - 1200	13.6 6.6 - 22.1 15.9 - 23.6 15.2 - 23.1 18.2 - 23.9 23.9 - 30.2 17.2 - 29.3 24.6 - 27		RTA48T RTA48TB RTA52UB RTA52UB RTA52UB RTA/RT-flex58T RTA/RT-flex58T RTA62UB RTA62UB RTA62UB RTA62UB RTA62UB RTA72UB	600 620 620 680 720 720	2000 2000 1800 2416 2416 2450 2150 2150 2150 2500 2500 2500	5 - 8 5 - 8 4 - 8 5 - 8 5 - 8 5 - 8 5 - 8 4 - 8 5 - 8 5 - 8 5 - 8 5 - 8 5 - 8 5 - 8	820 - 1360 1020 - 1455 860 - 1560 1120 - 1600 1200 - 2000 1490 - 2125 1031.3 - 2360 1165 - 2220 1600 - 2285 2060 - 2940 1640 - 2990 2155 - 3080	99 - 124 102 - 127 98 - 135 110 - 137 82 - 103 84 - 105 91 - 114 82 - 113 92 - 115 75 - 94 70 - 97 79 - 99	11 - 18.2 13.3 - 19 10 - 18.1 12.8 - 18.3 13.3 - 19 8.5 - 19.5 10 - 18.2 12.9 - 18.4 13.3 - 19 10 - 18.3 12.8 - 18.3 12.8 - 18.3
Niigata	NSAK NSF NSE	132.9 132.9 150	160 160 165	12 - 16 6 6	40.4 - 44.1 51.3 - 61.3 67.3 - 76	1950 - 2000 2100 - 2200 1950 - 2100	11.2 - 11.9 13.2 - 15.1 14.2 - 14.9		RTA84C RTA84TB RTA84TD RTA96C ZA40S	840 840 840 960 400	2400 3150 3150 2500 560	6 - 12 5 - 9 5 - 9 5 - 14 6 - 18	2840 - 4050 2130 - 3880 2870 - 4100 3571.4 - 5720 750 - 750	82 - 102 54 - 74 61 - 76 92 - 102 510 - 510	12.6 - 17.9 9.9 - 18 13 - 18.5 11.6 - 18.6 25.1 - 25.1
	NSD NSDL 16FX 18CX MG19 20CX 20FX 20FX 22X MG22 22LX 25CX MG25 26FX	150 160 165 180 190 200 205 220 220 220 220 250 250 250	210 235 185 240 260 260 220 250 250 280 290 320 350 275	6 6 8 - 16 6 6 12 - 16 6 - 12 6 - 18 6 6 6 12 - 18	79.7 - 88.2 91.8 - 101.7 125 - 139.2 79.0 122.5 98.0 250 - 270.8 123 - 232 171.5 - 220.7 135.0 171.0 220.5 312.6 - 378.8	1450 - 1500 1400 - 1450 1950 - 2000 950 1000 960 1650 - 1695 1000 - 1100 1000 900 750 750 1185 - 1290	17.8 - 19 16.7 - 17.8 19.4 - 21.1 16.3 19.9 16 25 - 26.4 14.1 - 24.4 19.3 - 24.4 16.3 17.4 20.5 21.7 - 24.1	Volvo Po	Enta TAMD 718 TAMD 162 C TAMD 163 P/A TAMD 165 P/A/ D12 D25 D30 D34 D49 D65A MT	104.7 144 144 131 170 170 150 170	130 165 165 165 150 180 220 160 180 180	6 6 6 6 6 12 12 - 16 16	46.7 62.5 67.3 - 94.3 59.1 - 94.3 75.3 - 85.8 64.2 - 86.7 64 - 116.8 51.6 - 58.4 55 - 86.7 78.1 - 86.3	2600 1800 - 2100 1800 - 2100 2100 - 2300 1200 - 1650 1800 - 2800 1600 - 2800 1600 - 1650 1600 - 1650	19.2 15.5 16.7 - 20.1 15.5 - 20.1 20.6 - 22.1 13.5 - 16.9 13.1 - 15.4 11.6 - 13.7 10.1 - 15.4 14.3 - 15.3
	MG26 M26 28BX M28 M30 31FZ M31 32FX MG32 MG34 M34 M37	260 260 280 280 300 310 310 320 320 340 340 370	275 460 320 370 480 530 380 530 340 360 450 620 720	6 - 18 6 - 16 8 - 18 6 6 - 8 6 12 - 16 8 - 18 6 - 18 6	230.1 - 245.2 104.2 - 171.5 221.0 294.1 - 367.8 171.5 - 220.5 196.0 - 290.0 275.0 220.5 440.9 - 485.4 367.7 441.2 - 555 269.7 - 306.3 318.7	750 - 1000 400 - 440 720 390 - 450 290 - 360 600 290 - 360 920 - 950 650 - 750 600 240 - 310 240	18.9 - 21.1 12.8 19.1 18.7 20.6 - 24.4 17.8 19.9 17.4 - 19.1 19.2 18.4 - 20.1 21 - 22.4 20.1 - 20.3 21.6 - 24.4 18.5 - 21.3 20.6	Wärtsilö	200 20 26 26 26 26 32 38 38B 46 64	200 200 260 320 380 380 380 460 640	240 280 320 320 400 475 475 580 900	12 - 18 4 - 9 6 - 18 12 - 18 6 - 18 6 - 18 6 - 18 6 - 18 5 - 18	175 - 200 165 - 180 325.0 360 - 400 460.0 660.0 725.0 1050.0 1940 - 2010	1200 - 1500 1000 1000 1000 750 600 600 514 333 - 426	21.2 - 23.2 22.5 - 24.5 23 25.4 - 28.2 22.9 24.5 27 25.4 18.9 - 25
	M38 40CX MG40 41FX MG41 M42 MG46	380 400 400 410 410 420 460	700 520 520 440 560 820 600	6 6 - 8 6 - 8 12 - 16 6 - 18 6 6 - 16	343.2 - 367.8 405.0 441.3 750 - 825 661.8 429.0 823.8	240 - 300 450 450 700 - 720 500 230 450	18.5 - 21.6 16.5 18 22.1 - 23.7 21.5 19.7 22	Yanmar	K LA L S165 N165 S185	135 148 150 165 165 185	160 165 165 210 232 230	6 6 - 12 6 - 16 6 6 6	64.9 51.3 - 74.6 67.4 - 83.4 24.5 - 73.5 98.0 67.5 - 81	2100 1800 - 1900 1650 - 1950 1200 - 1350 1400 900 - 1200	16.2 12 - 16.6 14.9 - 17.6 7.6 - 14.5 16.9 13.1 - 19.9
Scania	D1 12 D1 14 D1 16M	127 127 127	154 140 154	6 8 8	51 - 83.9 44.5 - 68.9 46 - 73.6	1800 - 2300 1800 - 2200 1800 - 2100	17.4 - 22.7 14.3 - 21.2 15.7 - 21.5		UAL M200 T220 M220 GL T240	200 200 220 220 240 240	240 260 280 300 290 310	6 - 12 6 6 6 6 - 12 6	102.0 73.5 - 122.7 135.0 100 - 147.2 147.0 147.2 - 171.7	1000 750 - 900 900 800 750 1750 - 1800	16.2 12 - 20 16.9 13.1 - 19.3 17.9 7.2 - 8.2
Seatek	10.3 ENDURAN 10.3 OFFSHORE 6.4V.10D B1 6.4V.10D B2 6.4V-10.3 TWIN 800 PLUS NAVY A1 NAVY A2	127 127 127	135 135 135 135 G 127 135 135 135	6 6 6 135 6 6 6	116.3 134.8 95.5 95.5 6 100.5 80.8 80.8	3200 3350 3100 147.1 3100 3100 3100 3100	25.5 28.2 21.6 21.6 3250 31.7 22.7 18.3 18.3		MF24 6G250L T260 6T260L N260 MF26 ZL Z N280 MF29 N330 MF33	240 250 260 260 260 280 280 280 280 290 330 330	420 290 330 380 500 340 360 380 520 440 620	6 6 6 6 6 - 12 6 5 - 8 6 6 - 8 6 6	73.5 - 94.7 162.0 171.7 - 196.2 184.0 196.2 - 245.2 98 - 159.3 221.0 220.7 - 245.2 239 - 306.5 171.7 - 196.7 367.8 - 413.8 196.7 - 269.7	1420 750 1700 750 1750 1380 · 1400 750 1720 · 1850 1720 1380 1620 1620 1000 - 1300	3.3 - 4.2 18.2 6.9 - 7.7 16.8 6.7 - 8.8 3.5 - 4.8 16.9 6.5 - 7.7 7.1 - 9.1 4.3 - 10.5 7.2 - 8.4 3.8 - 4.6
SEMT Pi	PA4-185 PA4-200 PA4-200VG PA5-255 PA6 PA65TC PA6B PA6BSTC PA6CL PC2.5 PC4.2B PC40	185 200 255 280 280 280 280 280 280 400 400 400 570 570	210 210 270 290 330 330 350 460 500 520 660 750	6 - 18 8 - 16 8 - 18 4 - 18 6 - 18 12 - 16 12 - 20 6 - 18 12 - 20 6 - 18 12 - 20 6 - 18 10 - 20 5 - 10	123.3 165.6 141.0 220.0 325 323.3 405 405 294.0 477.9 750.0 699.0 1325.0 1325.0	1500 1500 1500 1000 1050 1050 1050 750 520 600 470 430 375	17.5 20.1 17.1 19.1 20.8 20.7 22.8 21.8 19.1 23.9 19 19 21.9 22.1	Zvezda	16/17 18/20	160 180	170 200	42 - 112 12		1500 - 2200 1450 - 1850	4.8 - 12.4 6.8 - 13.5
SKL Dies	18/16	160	180	6 - 8	90 - 108.8	1200 - 1800	16.6 - 20			Credit	: Data pro	vided by	v Worldmarine Li	d. info@worl	dmarine.org
July, 200	26/20 2	200	260	6 - 8	88.3 - 110.4	1000 - 1100	13 - 16.2								45

2002 DIESEL INCIDE DIRECTORY

Diesel Engine Directory: Contact Details

Below is a comprehensive listing of information to collect additional data from Diesel Engine Manufacturers listed in the preceding pages The following listings are arranged in the following order. (Publisher assumes no responsibility for errors or omissions)

BRAND NAME

COMPANY ADDRESS1 ADDRESS2 CITY POSTCODE STATE COUNTRY **TELEPHONE NR** TELEFAX NR e-MAIL URL

ADD

ADD Inc Shipbuilding Research Centre Bldg 3-8 Mejiro 1-chome,Toshima-ku Tokyo 171 Japan +81 3 3985 6416 +81 3 3985 3604

Akasaka

Akasaka Diesels Ltd. 4-3-1- Nakaminato. Yaizu Shizuoka Japan +81 5462 72121 + 81 5462 96933 http://www.akasaka.co.jp (japanese)

Alaska Diesel Electric -

Lugger / Northern Lights Alaska Diesel Electric Inc., 4420-14th Avenue NW, PO Box 70543, Seattle 98107 WA U.S.A. +1 206 789 3880 +1 206 782 5455 ade@northern-lights.com

http://www.northern-lights.com Allen **Rolls-Royce Diesel Business** Queens Engineering Works PO Box 43 Bedford MK40 4JB UK +44 (0)1234 327200 +44 (0)1234 353934

guy.hope@rolls-royce.com http://www2.rolls-royce.com Anglo Belgian Corp

Anglo Belgian Corporation N.V Wiedauwkaai 43, Ghent 9000 Belgium + 32 (0)9 267 0000 +32 (0)9 267 0067 info@abcdiesel.be http://www.abcdiesel.be

U.S. Address 9958 North Alpine Rd., Ste. 101, Machesney Park, III. 61115, Tel: 815-637-2880; Fax: 815-637-2877. Email: analobel@aol.com

Raudouin

Moteurs Baudouin. 165 Bd de Pont de Vivaux, Marseille 13010 France + 33 91 83 85 00 + 33 91 79 09 38 http://www.moteurs-baudouin.fr

Bergen

Rolls-Royce Marine AS Department Engines - Bergen Hordvikneset 125 Hordvik 5108 Norway + 47 (0)55 53 6000 +47 (0)55 19 0405 engines.bergen@rolls-royce.com http://www2.rolls-royce.com

Callesen Heinrich Callesen A/S

Aabenrao Motorfabrik. Naestmork 30. Aabenraa 6200 Denmark + 45 (0)74 622088 + 45 (0)74 627407 bukh@bukh.dk http://www.bukh.dk

Caterpillar Caterpillar Inc., Marine Engine Division, PO.Box 610, Mossville

61552-0610 U.S.A. +1 309 578 6369 +1 309 578 6466 cat_power@cat.com http://www.cat-engines.com

CRM

CRM Spa Motori Marini, Via Marnate 41, Castellanza 21053 Italy + 39 0331 572600 + 39 0331 505501 crmspa@tin.it http://www.crm-spa.it

Cummins Marine Cummins Marine Division

4500 Leeds Avenue - Suite 102 Charleston 29405 South Carolina U.S.A. +1 803 554 6700 +1 803 745 1603 wavemaster@cummins.com http://www.cummins.com/marine

Daewoo

Daewoo Heavy Industries Ltd 6 Manseok-dong Dong-gu Incheon **Republic of Korea** +82 32 760 1523 +82 32 762 1546 engine@solar.dhiltd.co.kr http://www.dhiltd.co.kr

Daihatsu Diesel

Daihatsu Diesel Mfg.Co.Ltd., 4-14 Tokui-cho, Chuo-ku, Osaka 540 +81 (0)6 945 5331 +81 (0)6 945 5308 http://www.dhtd.co.jp/index.html

John Deere Deere Power Systems, 3801 W.Ridgeway Ave. PO.Box 5100 Waterloo, Iowa 50704-5100 U.S.A. +1 319 292 6060 +1 800 533 6446 +1 319 292 5075 jdpower@johndeere.com http://www.deere.com/jdpower

Detroit Diesel Detroit Diesel Corporation, 13400 Outer Drive West, Detroit, 48239-4001 Michigon U.S.A. +1 313 592 5000 +1 313 592 5137 http:/www.detroitdiesel.com

DEUTZ Deutz AG Deulz-Muelheimer Str 147 Koln 51057 Germany +49 (0)221 822 2510 + 49 (0)221 822 2529 http://www.deutz.de

U.S. Address

Deutz Corp. - 3883 Steve Reynolds Blvd., Norcross, GA 30093; Tel: 770-564-7100; Fox: 770-564-7222; Website: http://www.deutz.com **Canadian Address**

4420 Garand St., Montreal, Que. H4R 2A3 Canada, Tel: 514-335-3150, Fax: 514-332-4173; Email: deutzcon@msn.com; Website http://www.deutzcanoda.com

Electro-Motive Division of General Motors

Corp. Electro-Motive Division **General Motors Corporation** 9301 West 55th Street La Grange 60525 U.S.A +1 708 387 5843 +1 708 387 5845 robert.l.grajek@gm.com http://www.gmemd.com

Fairbanks Morse BF Goodrich Company

Fairbanks Morse Engine Division 701 White Avenue Beloit 53511-5492 U.S.A. +1 608 364 4411 +1 608 364 0382 cammerc@fairbanksmorse.com http:www.fairbanksmorse.com

GE Diesel General Electric Company **GE Transportation Systems** 2901 East Lake Road Erie PA 16531 U.S.A. +1 814 875 2942 +1 814 875 6635 http://www.ge.com/tronsportation Grenaa

Grenao Motorfabrik AS Sdr.Kajgade 3-5 Grenaa 85**00** Denmark + 45 (0)8632 0666 + 45 (0)8632 6390 info@armo.dk http://www.grmo.dk

Guascor Guascor S.A. Barrio Oikia 44. PO.Box 30. Zumaia 20759 Gipuzkoa, Spain + 34 943 865201 + 34 943 865210 guascor@guascor.com http://www.guascor.com

U.S. Address Guascor USA International 7220 N.W. 36th. Street, Suite 310 MIAMI, FL 33166 - USA Phone: 305 436 89 29 Fax: 305 436 96 33 E-mail: guoscor-usa@worldnet.att.net

Hanshin

The Hanshin Diesel Works Ltd. Roam 936, Eiraku Building, 4-5, Marunouchi, 1-chome Tokyo 100-0005 Chiyoda-ku Japan +81 (0)3 3216 3601 +81 (0)3 3201 7675 http://www.sphere.ne.jp/hanshin-d/engine (japanese)

Hedemora Diesel

Hedemora Diesel AB, Sturegatan 2, Hedemora 77600 Sweder + 46 225 595800 + 46 225 595801 diesel@hedemoradiesel.se http://www.hedemoradiesel.se

Himsen Hyundai Heavy Ind. Co. Ltd. Engine & Machinery Division

Republic of Korea + 82 52 230 7264 + 82 52 230 7425 lch@hhi.co.kr http://www.hyundai-engine.com

Isotta Fraschini Isotta Frashini SnA

Vale Francesco de Blosio, Zona Industiale Bari 70100 Italy +390805345000+ 39 080 531 1009 isotto@fdgm.com http://www.isottafraschini.it U.S. Address

800 Principal Ct., Ste. C. Chesapeake, Va. 23320, Tel Toll Free: 1-888-4-Isotto, Fax: 757-548-6012, Email: isotta@fdgm.com

lveco lveco Aifo SpA, Via della Industria 13/15. Preanana Milanese 20010 Italy + 39 02 935101 + 39 02 93590029 aifo@ailo.com http://www.aifo.com

Kelvin Kelvin Diesels, 133 Helen Street, Glasgow G51 3HD Scotland UK + 44 (0)1698 810666 +44 (0)1698 810999 sales@polareng.sagehost.co.uk http://www.britishpolarengines.co.uk

Kolomna Kolomensky Zavod JSC, Partizan str 42, Kolomna 140408 Moscow Region Russia + 7 0966 138585 +70966154793kolomzavod@kolomna.ru http://www.dieselkolomna.com

Komatsu Komatsu Diesel Co. Ltd. International Department 2-3-6 Akasaka, Minato-ky Tokyo 107 Japan +81 3 5561 3473 +81 3 5561 3477 http://komatsy.co.jp/product/compocat/

MaK Motoren GmbH &

Co.KG Caterpillar Motoren GmbH & Co KG Falckensteiner Str. 2, Kiel 24159 Germany +49 (0)431 399501 +49(0)4313995-2193ju_marketing@cat.com http://www.mok-global.com

Makita Makita Corporation

4-1-1 Asahi-machi Tokamatsu-City 760-0065 Japan +81 (0)878 21 5501 +81 (0)878 21 5510 makita@mail.netwave.or.jp http://www.netwave.or.jp/~makita/

MAN B&W AG MAN B&W Diesel AG

Postfach 10 00 80 Augsburg 86135 German +49 821 322 3847 +49 821 322 3944 marineengines@manbw.de http://www.manbw.de

MAN B&W Diesel LTD MAN B&W Diesel Ltd, Hythe Hill. Colchester. CO1 2HW UK + 44 (0)1206 795151 + 44 (0)1206 797869

http://www.manbwltd.com

MAN Nutzfahrzeuge AG MAN Nutzfahrzeuge AG, Marine Diesel Engines Dept., Postfach 44 0100 Niirnberg 90206 Germany + 49 (0)911 4206238 + 49 (0)911 4211915 brigitte-moehler@mn.man.de http://www.man-nutzfahrzeuge.de

Matsui Diesel Matsui Iron Works Co.Ltd. 70 Takenohana-machi lse-City 516-0005 Japan +81 (0)5963 62 222 + 81 (0)5963 62 895 matsuis@matsui-j.co.jp http://www.matsui_j.co.jp (japanese)

Mitsubishi Heavy Industries Ltd. Mitsubishi Heavy Industries Ltd.,

5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100 Japan. + 81 (0)3 3212 9080 + 81 (0)3 3212 9779 Q07676@hq.mhi.co.jp http://www.mhi.co.jp/index.html

MTU MTU Motoren- und Turbinen-Union Friedrichshafen GmbH. Friedrichshafen 88040 Germany +49 (0)7541 90-3381 +49 (0)7541 90-3945 ebenhoch@mtu-friedrichshafen.com http://www.mtu-

friedrichshafen.com/mtu/e/index.html

Niigata Engineering Niigata Engineering Co.Ltd., Power Systems Division 10-1 Kamata Honcho 1-Chome, Ohta-ku Tokyo Japan + 81 (0)3 5710 7730 + 81 (0)3 5710 4752 webmstr@niigato-eng.co.jp http://www.nigata-eng.co.jp

Scania Scania, Industrial & Marine Engines, Sodertalie 15187 Sweden +46 (0)855 381 000 +46 (0)855 382 993 webmaster@scania.com http://www.scania.com

Seatek Seatek S.p.A., Via Provinciale 71, Annone Brianza, 22040 Co, Italy + 39 0341-579335 + 39 0341-579317 sales@seatek-spa.com http://www.seatek-spa.com

SEMT Pielstick

S.E.M.T. Pielstick S.A. Bat Le Ronsard 22 avenue des Nations Raissy Cdg Cedex 95946 France + 33 1 48176300 +33148176349 sales marine@pielstick.com http://www.pielstick.com

SKL Diesel SKL Motoren GmbH

Friedrich-List Strasse 8 Magdeburg 39122 Germany + 49 39 140 320 + 49 39 140 32382 info@skl-maadebura.de http://www.skl-magdeburg.de

Sulzer

Wärtsilä Corporation Marine Marketing & Sales PO.Box 414 Winterthur CH-8401 Switzerland + 41 (0)52 262 4941 +41 (0)52 212 0720 marinewebmaster@wartsila.com http://www.wortsila.com

Volvo Penta Volvo Penta AB.,

Goteborg 40508 Sweden +46 (0)31 590000 + 46 (0)31 510348 http://www.penta.volvo.se

U.S. Address 1300 Volva Penta Dr., Chesapeake, Va. 23320, Tel: 757-436-2800 Fax: 757-436-5158 Website http://www.penta.volvo.se

Wartsilä Corporation Wartsilä Corporation Marine Engines, PO.Box 196 Helsinki 000531 Finland + 358 10709 0000 + 358 10709 5700 marinewebmaster@wartsila.com http://www.wartsila.com

U.S. Address Wärtsilä North America, Inc. 201 Defense Highway, Suite 100 Annapolis, MD 21401-7052 Phone: (410) 573-2100 Fax: (410) 573-2200 Email: wna@wartsila.com

Yanmar Diesel Yanmar Diesel Engine Co.Ltd., Overseas Operations Division, 1-1, 2-chome, Yaesu, Chuo-ku, Tokyo 104 Japan + 81 3 3275 4941 + 81 3 3275 4969 http://www.yanmar.co.jp

Zvezda Zvezdo Production Association 123 Babuschkina Str St Petersburg 193012 Russia +7 (0)812 261 8005 +7 (0)812 267 2364 zvezda@mail.rcom.ru http://www.zvezda.spb.ru

> Credit: Data provided by Worldmarine Ltd. info@worldmarine.org

Diesel Engine Guide

Propulsion Update

(Continued from page 42)

the increase in NOx emission, the injection can be retarded, although this leads to a higher fuel con-sumption rate and increased particle emission.

3. To neutralize the fuel consumption disadvantage resulting from step (2), it is necessary to take advantage of the firing pressure potential of the engine. Therefore a higher compression ratio has been chosen for the 48/60B.

4. Use of the considerably increased efficiency level of the newly-designed MAN B&W TCA-type turbocharger so that the resultant fuel savings from steps (1) to (3) exceeded the fuel losses involved in (1) to (3).

By optimizing the combustion space geometry (with unchanged engine stroke), which was achieved by avoiding dead volumes, edges and ribs in the combustion side of the cylinder cover, the compression ratio was increased from e = 14.4 (48/60) to e = 15.3(48/60B). A possible further increase in e would most likely result in increased smoke emission at low loads. A conventional medium-speed diesel engine with a bore-to-stroke ratio of 1.25 and a rather high compression ratio of, for instance e = 17, would produce a pronounced dark plume - even at higher engine loads - which would be visible from far away.

The slightly increased compression ratio of the 48/60B has another beneficial effect: it improves the ignition behaviour of lowest-quality heavy fuel oils. The 48/60B can there-fore safely operate with HFO up to a viscosity of 700 cSt/50°C and runs on fuels up to, and including, the CIMAC H55/K55

Cylinder Head Design OLD NEW

Re-designed cylinder head (top old, bottom new) without valve cages and a new valve train

48/60B was increased to a maximum of 200 bar. This, in con-nection with other measures such as modified injection (the injection pressure was in-creased from 1,300 bar for the 48/60 to 1,600 bar) and a further

specifications.

pressure of the

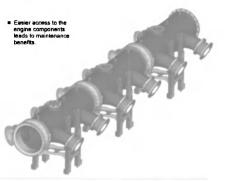
firing

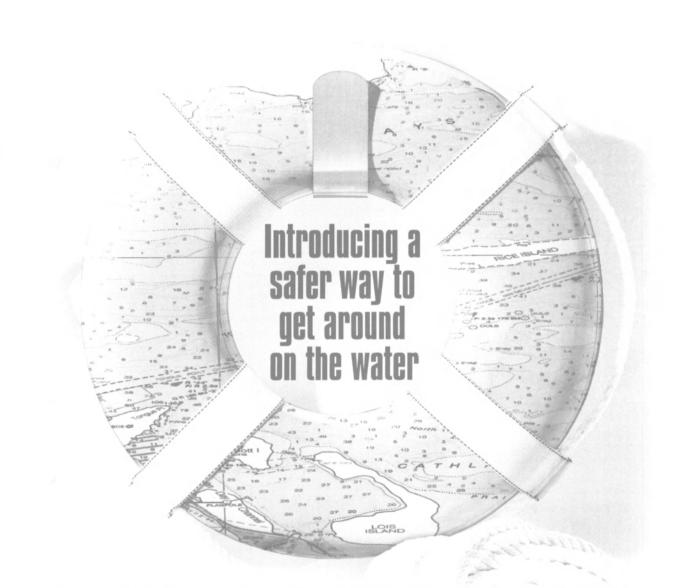
The

improved gas exchange process, resulted in a process very close to the ideal constant-pressure combustion. The higher firing pressure was possible without risking the operational safety of the engine: to have the same safety margins as the 48/60 in spite of a higher mechanical loading, better materials were used and/or com-

ponents strengthened.

An engine component considerably contributing to make this engine setting easier is the newly designed TCA axialflow turbocharger from MAN B&W Diesel in Augsburg, Ger-many. Compared with the previous turbocharger generation (NA/S-type series), TCA turbochargers show increased airflow rates, higher compressor pressure ratios and, simultaneously, significantly higher turbocharger efficiencies across the whole load range. The most obvious benefits from this are greater flexibility in matching the turbo-charger to the engine, a higher surge margin and improvements in the engine's scav-enging process. The TCA turbocharger can be easily optimised for higher charge-air pressures at part load for best fuel con-





Announcing a stunning advance in navigation safety — the New Nautical Chart.

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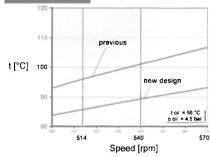
National Oceanic and Atmospheric Administration National Ocean Service Office of Coast Survey

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Diesel Engine Guide

Propulsion Update

Technical Data



The difference between the current 48/60 and the 48/60B at no-load and an engine speed of 514 rpm is 10 °C (zero load is the critical operational condition for conrod bearings).

sumption, for lower pollutant emissions and for a quick load response.

The minimum fuel consumption rate, at 85 percent engine load, and in constant speed application, is 173 g/kWh, which is 7 g/kWh better than that of the 48/60Vee-type engine at the same absolute output. Simultaneously, the measured smoke Bosch index, from full load down to about 20 percent engine load, is below 0.3 — which means invisible soot-produced exhaust.

With such favorable smoke emission figures, the new 48/60B is a genuine Invisible Smoke (IS-type) engine, a result that has been achieved only with inbuilt emission-reduction technologies, omitting additional hardware such as an auxiliary air blower.

Engine design

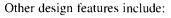
Since bore and stroke of the 48/60B remained unchanged, the robust and stiff single-part engine block of the current 48/60-type engine, cast of grey iron or nodular iron, could be used with sufficient operational and safety reserves. The main features of the basic engine structure are the same for all MAN B&W medium-speed diesel engines: cylinder jackets separated from each other and mounted on the frame, and an un-derslung crankshaft. The engine cooling water is only supplied to these jackets, leaving the engine frame itself completely free from cooling water. Therefore the risk of lube oil contamination by water is avoided.



FUEL PIPES?

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Changed turbocharger/charge-air cooler mounting to decrease engine width of all 48/60B Vee-type engines. The center-to-center distance between V48/60B-type engines was two decreased by about 1 m.The total height of the engines is the same as with the current 48/60 models.

Re-designed cylinder head without valve cages and a new valve train

Modified valve timing

New injection system with high injection intensity (as described above)

Improved piston with a steel crown and a skirt cast of nodular iron or a steel skirt

Improved material for the connecting rod, and increased shaft diameter New combustion chamber.

The new engine also features a simplified exhaust-gas system with only one single exhaust manifold and a single (TCA) turbocharger for Vee-version engines, improving access to engine components, reducing the number of component variants, and contributing to a reduction in engine mass. For instance, the dry weight of the 14.4 MW 12V 48/60B engine is 181 tons compared with 193 tons for the current 12V 48/60 that is rated at only 12.6 MW.

Another example for new inventions with the 48/60B is the patented rocker arm concept with the modified rocker arm. The axial bearing of the rocker arm was replaced by two spherically shaped bearings. With this solution the number of moving parts is reduced from three to two. Accordingly, the valve train assembly is less complicated than in the current 48/60. Rocker arm housing and charge-air pipe section made of aluminium form one common casing. This allows easy dismantling, reduced maintenance work for the rocker arms and the rocker casing. To meet the higher mechanical load, special attention was paid to the conrod bearing. Its big-end design was improved by: modified bearing shell concavity and optimized bearing clearance.

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The preceding was excerpted from a paper by Horst W. Koehler, MAN B&W Diesel



Detroit Diesel Powers New Long Island 85 ft. Ferry

The Fire Island Ferries, Inc. took delivery of AMERICA, an 85-ft. (25.9-m) Freight Boat built by Derecktor Shipyard Conn. LLC. This is the first boat to have been delivered by Dereck-tor's Connecticut facility. AMERICA will be used between the Long

tor's Connecticut facility. AMERICA will be used between the Long Island operator's home port of Bay Shore, on the South shore of Long Island, and various destinations on Fire Island. The new vessel shall be used primarily to ferry cargo needed by contractors working on Fire Island, and various commercial delivery vehicles and con-tractors. Designed by Nigel Gee & Associ-ates, the ferry is a fairly traditional looking vessel with a singlechined hull. Hull and superstructure are all-aluminum alloy. The bow of the boat has an enclosed section for cargo storage and passengers. The boat has been designed to accommodate an 80,000-pound cement truck on its rear deck. Atop the cargo/passenger area there is a raised the cargo/passenger area there is a raised pilothouse. The cargo deck extends all the way back to the stern, where it has a

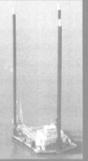
hydraulic ramp. Furthermore the vessel is equipped with a Furthermore the vessel is equipped with a hydraulic deck mounted cargo crane. The ferry is powered by two Detroit Diesel Series 60 engines, keel-cooled, each rated at 400 BHP mated to Twin Disc gears. In the last few years Derecktor Shipyards have established themselves as a leading manufacturer of commercial aluminum vessels in North America. Among their recent deliveries is the third of a series of new pilot boats as part of the fleet modernization effort of the Sandy Hook Pilots Association. The Sandy Hook Pilots were extremely pleased with the performance of the vessels pleased with the performance of the vessels delivered by Derecktor, especially their sea-worthiness and ride comfort in rough seas.

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CAT Power for Bollinger **Built Superior Storm**

Bollinger Shipyards, Inc., Lockport, La., has delivered the Superior Storm, the first of two nearly identical Bollinger designed 245-ft. (74.6-m) class liftboats being built at Bollinger

Marine Fabricators, Inc., Amelia, La. for Superior Energy Ser wices, Inc., Harvey, La. With leg lengths of more than 230 ft. (70.1 m), Superior Storm Storm operate in water depths to 180-ft., and is equipped with a 250ton capacity crane. The Superior Storm mea-sures 141 ft. (42.9 m), with a molded hu



peam of 67-ft. (20.4 m) and hull depth of 13 t. (3.9 m) It has 6,550 sq. ft. of useable ft. (3.9 m) It has 6,550 sq. ft. of useable deck space and a cargo lifting capacity of 1 million lbs.. The boat's secondary crane has a capacity of 30 tons. Air-conditioned accom-modations have been provided for 42 people. The self-propelled Superior Storm is powered by two Caterpillar 3512 diesel engines dri-ving through Twin Disc reverse/reduction gears. Electrical power is supplied by two 190 KW generator sets of 480v, 3 phase, 60 HZ with one main switchboard and one remote. The vessel is USCG certified Subchapter L with an ABS loadline. Delivery of the sistership, Superior Gale, the second 245-ft. class liftboat from Bollinger to Superi-or, is planned for the fourth quarter of 2002.

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Products



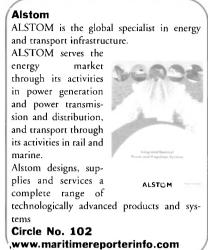






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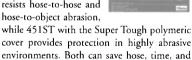


Nordica Nordica Engineering maintains a reputation in the field of repair, service, installation, engineering and consulting, in all areas of marine engineering and naval architecture whose experienced teams save provide onboard repair and service work while you are under way. Their archi-

tectural work incorporates the latest computer software to ensure that your design is state of the art, whether a small repair or a complete conversion Circle No. 106 www.maritimereporterinfo.com

Parker Hannifin Parker Hannifin Corporation's Hose Products Division has introduced 451TC and 451ST, the multiple-wire braid-

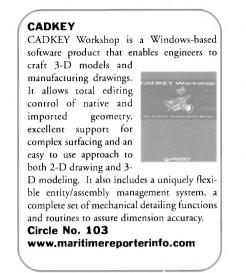
ed hoses that exceed SAE 100R17 and make it easy to match abrasion resistance with the application. The MSHA-accepted Tough Cover of 451TC hose resists hose-to-hose and



environments. Both can save hose, time, and money with extended use. Circle No. 110

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Federal Signs Federal Signal Corporation has expanded the Streamline offering with the LP3I light. The new LP3I incandescent light offers several unique features including a NEMA 4X / IP65 enclosure, three mounting options and five colors. Operat ng voltages include 12VDC, 24VDC and 120VAC. A choice of three factory-assembled mounting bases ensures quick and easy insta lation. The LP3I is UL and cUI. listed, and available in amber, blue, clear, green and red Circle No. 107 www.maritimereporterinfc.com

Kiene Diesel

Chicago-based Kiene Diesel Accessories was founded in 1948 by William Kiene. Kiene was an



responsibility for maintenance of the main propulsion engines. He developed a range of successful products for use on large-bore engines (as used on marine vessels). He then went on to develop a line of service equipment for use on high-speed (truck-type) diesel engines such as International Harvester, Cummins and Detroit Diesel. Circle No. 111

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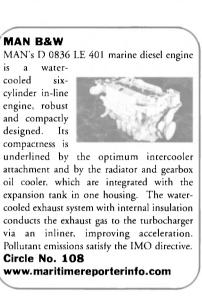
Washington Chain and Supply A comprehensive new catalog is now available

GTON CHA

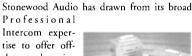
from Washington Chain & Supply, detailing the longtime company's wide variety of marine and industrial product lines. In addition to chain, the 216-page publication provides details on

anchors and connecting inks, towing and mooring gear, capstans, lashing gear, release hooks, deck gear of all kinds synthetic and wire rope and much more. Circle No. 115

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Stonewood Audio



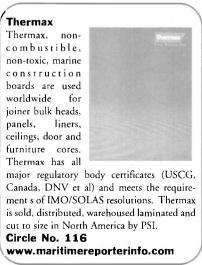
shore and marine intercom sys tems. Where reliability, functionality and ease of use are para-



mount. All offshore and marine intercom equipment has been designed to ensure full operation in hostile environments. The Belt Pack is manufactured in extruded aluminum to provide a light weight ruggedized product specifically for this industry.

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Conforma Clad, provider of severe wear solu-

tions for fabricated metal components, intro-

Conforma Clad

duced its line of tungsten carbide clad gripper

pads at the 2002 Oil

Technology Conference.

Conforma Clad's grip-

per pads are available in

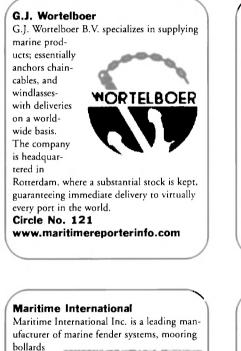
flat plate and semi-circle

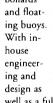
Products

Lang Manufacturing

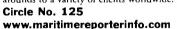
Lang's Rotating Rack Oven features state of the art design and construction to vastly improve food quality, while meeting the high volume needs of fastpaced institutional kitchens, bakeries and food processing facili-

ties. It raises the class standard with a wealth of features for greater function and performance, such as an automatic lift-and-rotate system, a special heat exchanger with no blowers, a waterfall steamer unit with pulse steaming, an integrated vent hood and much more. Circle No. 117 www.maritimereporterinfo.com



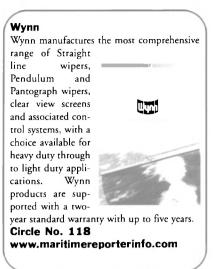


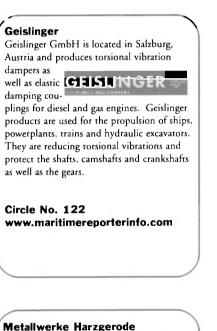
well as a full service manufacturing facility, Maritime is able to provide a wide range of marine products and services with short turnarounds to a variety of clients worldwide.





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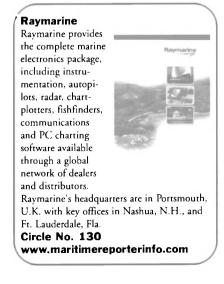


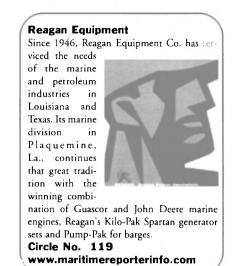
Metallwerke Harzgerode specializes in development and manufacturing pistons for large bore engines for station-

ary and marine applications. In 1946, the company started manufacturing pistons in Harzgerode, a location in the center of Germany, which was a time that was mainly characterized

by the development and production of pistons for the four-strokeengines of the VEB SCHWER maschinenbau Karl Liebknecht Magdeburg (SKL) group and the Eastern European Market. Circle No. 126

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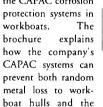




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US Filter

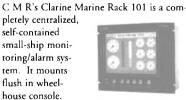
USFilter has released a six-page, full-color, detailed brochure describing the benefits of the CAPAC corrosion



eventual plate replacement that loss can require. The CAPAC system works via the introduction of an electrical current by an anode at a controlled rate, the most accepted and effective way to protect a workboat hull. Circle No. 127

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CMR



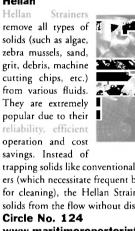
which features a display for main monitoring functions, complete with a 12 in. multi-page LCD screen, integrated logic, black box function to record monitored events. It has rugged design for harsh environments, and utilizes CAN-Open high-speed network for local and networked monitoring, providing most efficient use of data and space. Circle No. 131

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Hellan





trapping solids like conventional basket strainers (which necessitate frequent basket removal for cleaning), the Hellan Strainer discharges solids from the flow without disassembly.

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SMS

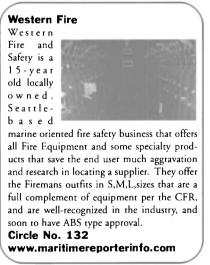
Scientific Marine Services, Inc. (SMS) provides specialized technical consulting services and custom engineered

products to the marine and offshore industries applying advanced methods and technologies. The multi-disciplinary nature of the solutions to projects in the marine environment demands expertise in a

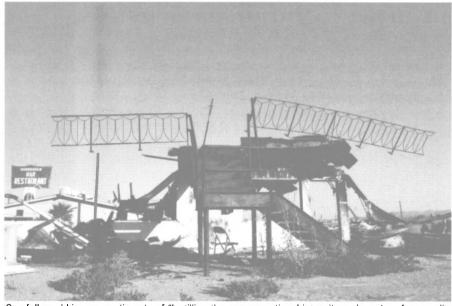


wide range of fields. Their team of dedicated engineers, naval architects, programmers and technicians possess a combined experience of over 150 years in a broad range of fields. Circle No. 128

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Maritime Reporter & Engineering News



Cox followed his own sentiments of "Instilling the same emotional intensity and mystery from earlier desert landscapes," in this photo that was taken in Salton City right outside Palm Springs, Calif

(continued from page 40)

ments of contemporary cruise lines they are always more than happy to have me come aboard to shoot and see their ships. I sail when I can the last of the older pre-jet age ships when I can, for example, Rembrandt, Oceanbreeze, Independence and visit such beauties as the former Cunard vessel Albastros, the old Union Castle liner now Big Red Boat III.

MR: What other projects (shipping or otherwise) are you currently pursuing? MC: Presently I am working on a black & white photography exhibition using a only toy camera called a "diana camera" the blurry impressionist prints will be exhibited at FOTOTEKA in Los Angeles in October 2002, the theme is The Rural Idyll. I have been taking pictures of where the natural landscape intersects with a manmade one though Roman roads, agriculture, canals and rail lines in rural Wales, North Devon and Southern England.

I am also pursuing an exhibition of large full color prints on cruise ship interiors, and working on a documentary landscape show and video of the making of a ghost town in the Mojave Desert, again it's a landscape and place in transition.

For further information on any of the artwork on the preceding pages, please contact **Martin Cox** at 1634 Sunset Blvd., #211, Los Angeles, Calif. 90026, tel: (213) 482-2676; e-mail coxphoto@concentric.net; web: www.martincoxphotography.com

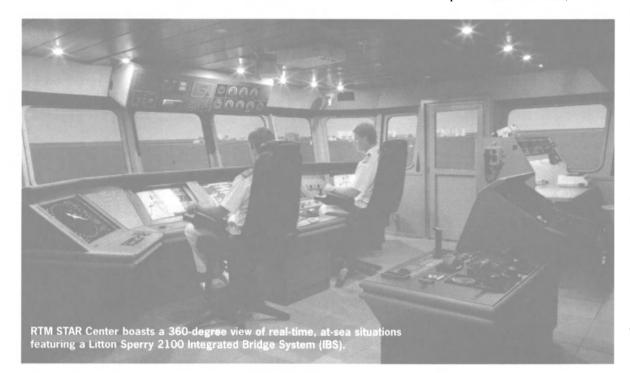
(continued from page 41)

— similar to the one found on RCCL's Voyager of the Seas. This one-of-a-kind device boasts podded propulsion capability, as well as Dynamic Positioning (DP) capability, and is set off by the Center's 250-degree bridge simulator.

Walking into the simulation room, is much like stepping into a virtual reality-type ride at Epcot Center in Disney World. Star Center made MR/EN right at home by displaying a real time at sea "scene" of New York Harbor - complete with the Verrazano Bridge, Liberty Island and Governor's Island in the distance. While officers command the controls of the simulator, simulator operators located in an adjacent room throw many situations in their directions — many that could be life threatening or pose imminent danger. When MR/EN visited Star Center, the operators provided a scenario on a tanker traveling through New York Harbor in both the day and evening. In the vessel's field of vision lay the New York skyline, as well as several types of ships cruising through the harbor on a busy day. The simulator operators threw anything and everything in the tanker's path, from small sailboats to U.S. Navy destroyers to containerships, and could include, for example, a U.S. Coast Guard helicopter cruising overhead looking for landing spot, or a bevy of media helicopters covering a high-publicity event, such as Fleet Week. The officers at STAR Center even go as far as to communicate to the students via "staged" traffic on the simulator's radio. According to **Graeme Holman**, STAR Center's head of Customer Service & Operations, the simulator is capable of running a variety of situations. "The simulator can be changed from port to starboard side, can mimic an oil spill and even change the wind and current speed. Mariners who are trained on this system will always say that this is how a ship is handled in real time situations."

Evolution of a Major Training Facility

Since opening its doors to the maritime community in the winter of 1993, STAR Center's three-story building at its Florida facility has expanded rapidly, an expansion which includes additional floors on the original building and the commencement of operations in Toledo, Ohio for training on inland waterways and Great Lakes. STAR Center is preparing for the grand opening of its new waterfront training facility located in Fort Lauderdale — just minutes from its Dania Beach facility. While fast craft training is not new to STAR Center, according to **Jerry Pannell**, head of STAR Center's Deck department, the center, (which in



the past had to rent out fast rescue craft from a shorebased facility), will now have this "self contained facility" approximately 2.5 miles from its main training grounds. The new center, which at press time was scheduled for a mid-August opening, will house one 18-ft. (5.5-m) and two 26-ft. (8-m) fast rescue boats, a single-point davit for launching and recovering boats, enclosed SOLAS certified lifeboat, davit launchable liferaft, as well as classrooms and workshops. Designed to meet STCW '95 compliant training, and are U.S.C.G. approved, the curriculum followed at this new center will focus on Proficiency in Fast Rescue Boat and Proficiency in Survival Craft.

A spitting image of a diesel electric engine onboard a traditional cruise ship, the Center' Full Mission Diesel Electric Engineroom Simulator puts the "real" in real time as it is based on a large cruise ship running on 40 MW of power at 6,600 volts. When MR/EN was hosted by Dwight Hutchinson, STAR Center's director, Quality and Engineering, he explained how students operate the simulator's controls, which run on Kongsberg Maritime Ship Systems (KMSS) software. The simulator, which is actually the former engine plant from the cruise ship Sun Princess, boasts four diesel generator sets connected to two 14 MW synchronous propulsion motors. Four thrusters and two emergency generators are also part of the simulated vessel's power package — based on a 77,000 grt with a cruising speed of 18.5 knots. Hutchinson also mentioned that this past May, STAR Center has furthered its commitment to providing the highest grade of advanced training via its recent transition to ISO 9000:2000 certification. This award, which was granted by the Center via a third party conversion audit by Det Norske Veritas, recognizes the Center as the only training facility in the U.S. to hold this type of certification. While the staff at STAR Center realizes that the certification puts the facility in a high regard, it also translates to more time researching and upgrading its curriculum and programs. This, however is not foreign to the facility, as its instructors and full time staff already have a handle on this — specifically Capt. Al Stiles, who is the Center's Curriculum & Program Development Dept. Head.

According to Stiles, approximately 60 percent of the Center's course offerings are cruise-oriented, and, as always, have been tailored to meet the requirements of each individual cruise line.

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New Ship Contracts E by Ferliship

Ferliship is a strategic consultancy highly specialized in market researchs guided to the shipping industry. For additional information, please contact Ferliship @: Pza. Sta. M^a Soledad Torres Acosta, 2. 2° C, 28004 Madrid, Spain, Tel. : +34 91 531 01 78 , 689 01 45 66; Fax: +34 91 531 01 78 `e-mail: ferlship@iies.es (Prices are in U.S. Dollars) (NOTE: Contracts are for May, 2002)

OWNER OPERATOR	COUNTRY SO	SHIPYARD	COUNTRY SB	TYPE	No	TEU	DWT	DELIV	PRICE M \$
HAVILA SHIPPING	NORWAY	LANGSTEN SLIP & BAABYGGERI AS	NORWAY	AHTS	2			03	
JAPANESE INTERESTS	JAPAN	NKK CORP.	JAPAN	BULK CARRIER	1		200,000	05	38
JAPANESE INTERESTS	JAPAN	NAMURA ZOSENSHO	JAPAN	BULK CARRIER	3		177,000	04/05	-
SINCERE NAVIGATION	TAIWAN	CHINA SHIPBUILDING CORP.	TAIWAN	BULK CARRIER	2		176,000	03/04	-
GOULANDRIS	GREECE	SAMHO NEW SHIPYARD	KOREA	BULK CARRIER	1		75,000	03	22.5
KOMROWSKI	GERMANY	JIANGNAN	CHINA	BULK CARRIER	2		74,000	03	40
TRANSOCEAN LINES	GERMANY	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	2		74,000	04	-
NORDEN AS	DENMARK	OSHIMA SHIPBUILDING	JAPAN		1		55,000	04	18
TSHUDI & EITZEN BULKERS	DENMARK		JAPAN JAPAN	BULK CARRIER BULK CARRIER	2		54,000	04	34
CENTRAL GULF SHIPPING (LIBERTY SHIPPI JIANGSU MARINE	CHINA	OSHIMA SHIPBUILDING NANTONG SHIP & ENG. (KAWASAKI/CC		BULK CARRIER	2		52,00017 47,650	02/04	34
PACIFIC BASIN BULK SHIPPING	HONG KONG	KANDA SHIPBUILDING CO.	JAPAN	BULK CARRIER	1		32,000	03/04 04	13.5
CIDO SHIPPING	JAPAN	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	2		32,000	04	29
E. OLDENDORFF	GERMANY	SAIKI	JAPAN	BULK CARRIER	1		31,350	03	27
OAK MARITIME	CANADA	CHINA SHIPBUILDING CORP.	TAIWAN	BULK CARRIER+E85	2		175,775	03/04	
MEDITERRANEAN SHIPPING CO.	SWITZERLAND	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	1	6,400		04	-
MEDITERRANEAN SHIPPING CO.	SWITZERLAND	HANJIN	KOREA	CONTAINER	2	4,900		03	-
JAPANESE INTERESTS	JAPAN	KOYO DOCK	JAPAN	CONTAINER	3	2,700		03	-
P&O CONTAINERS	UK	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	5	2,600		03/04	137.5
HOLLAND AMERICA LINE	US	FINCANTIERI	ITALY	CRUISE SHIP	1			06	-
RIGELSCHIFFARTS	GERMANY	JINLING	CHINA	CHEMICAL TANKER	3		37,000	04/05	90
BROSTROM TANKERS	SWEDEN	JINLING	CHINA	CHEMICAL TANKER	3		37,000	04/05	90
KYOWA SANSHO	JAPAN	SHITANOE ZOSEN	JAPAN	CHEMICAL TANKER	1		6,500	02	
CARL F PETERS	GERMANY	SEDEF GEMI	TURKEY	CHEMICAL TANKER	1		6,000	403	-
NAKAEI KISEN	JAPAN	HITACHI ZOSEN	JAPAN	CHEMICAL TANKER	1		5,500	02	-
CLEARWATER ATLANTIC	CANADA	MYKLEBUST MEK VERKSTED	NORWAY	FISHING	1		5,000	03	-
ARKHANGELSK SHIPPING	RUSSIA	ZVYOZDOCHKA	RUSSIA	FISHING	1		1,000	03	-
BOMLO BRONNBATSERVICE	NORWAY	AAS MV	NORWAY	FISHING	1			02	-
NAVIERA DEL ODIEL / LYNG	SPAIN / NORWAY	BARRERAS	SPAIN	FLOATING DESALIN. PLANT	1		0.710		34
	UNKNOWN	BRAILA		GENERAL CARGO	1		8,712	02	
CASPIAN SHIPPING			RUSSIA NETHERLANDS	general cargo general cargo	4		5,885	02	
UNKNOWN KNUTSEN OAS SHIPPING	UNKNOWN NORWAY	PETERS SCHEEPSWERF BIJLSMA	NETHERLANDS	LNG	0		5,000	03/04 1003	n
K LINE	JAPAN	KAWASAKI H.I.	JAPAN	LNG	1			003	
EXMAR	BELGIUM	DAEWOO	KOREA	LNG-RV	1			05	182
QATAR SHIPPING CO	QATAR	STX (DAEDON)	KOREA	LPG	1			04	30
EDISON CHOUEST OFFSHORE	US	NORTH AMERICAN SB	US	OIL WELL STIMULATION	1			02	
STRANDFARASKIP LANDSINS	FAROE ISLANDS	IZAR	SPAIN	PASSENGER / RO-RO	1			04	-
CORSICA FERRIES	FRANCE	CANTIERE NAVALE FRATELLI ORLANDO	ITALY	PASSENGER / VEHICLE/FERRY	1			04	73
SHETLAND ISLANDS COUNCIL	UK	POLNOCNA	POLAND	PASSENGER / VEHICLE/FERRY	1			03	-
ZAMIL MARINE	SAUDI ARABIA	ABG SHIPYARD	INDIA	PLATFORM SUPPLY VESSEL	4			02/03	-
WAVENEY SHIPPING	UK	AKER GROUP	NORWAY	PLATFORM SUPPLY VESSEL	1			03	-
GULFMARK OFFSHORE	US	AKER GROUP	NORWAY	PLATFORM SUPPLY VESSEL	1			04	16
INTERNATIONAL OFFSHORE SERVICES	AUSTRALIA	BREVIK MARINE	NORWAY	PLATFORM SUPPLY VESSEL	1			03	-
	US	DE HOOP	NETHERLANDS	PLATFORM SUPPLY VESSEL	1			02	-
	KOREA	SUMITOMO	JAPAN	PRODUCTS TANKER			110,000	04	38
SAFBULK			KOREA CHINA	PRODUCTS TANKER PRODUCTS TANKER	3		75,000	04	96
KC MARITIME BYZANTINE	CHINA GREECE	HUDONG SHIPYARD STX (DAEDON)	KOREA	PRODUCTS TANKER	2		74,000 73,000	04 04	19.9
PARADISE SHIPPING	GREECE		CHINA	PRODUCTS TANKER	2		72,000	04	57.4
TORM A/S	DENMARK	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	PRODUCTS TANKER	5		72,000	04	160
TRANSPETROL	BELGIUM	STX (DAEDON)	KOREA	PRODUCTS TANKER	2		47,000	04	51.6
GREAT EASTERN SHIPPING CO. GESCO		HANJIN	KOREA	PRODUCTS TANKER	2		46,000	03	52
NORDEN AS	DENMARK	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	3		45,800	03/04	
FUKUNAGA KAIUN	JAPAN	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	3		45,800	03/04	
ARMINTER	MONACO	STX (DAEDON)	KOREA	PRODUCTS TANKER	3		45,000	04	78
TOR LINE	SWEDEN	FLENSBURGER	GERMANY	RO-RO	1		10,500	04	
LOUIS-DREYFUS/HOEGH	FRANCE/NORWAY	JINLING	CHINA	RO-RO	1			04	30
KNUTSEN OAS SHIPPING	NORWAY	SAMSUNG	KOREA	SHUTTLE TANKER	2		150,000	04	114
MALAYSIAN INT.SHPG. CORP. (MISC)	MALAYSIA	HITACHI ZOSEN	JAPAN	TANKER	1		298,100	03	66
NAVION	NORWAY	SAMSUNG	KOREA	TANKER	1		160,000	03	
NS LEMOS	GREECE	SAMSUNG	KOREA	TANKER	2		115,000	04	70
GREAT EASTERN SHIPPING CO. GESCO			KOREA KOREA		2		105,000	04	38
MINERVA SHIPPING	GREECE	SAMSUNG SAMSUNG	KOREA	TANKER TANKER	2		105,000	04 03	70 64
TANKER PACIFIC STELMAR TANKERS	SINGAPORE GREECE	DAEWOO	KOREA	TANKER	2 5		72,000 69,000	03/04	04 155
UNKNOWN	UNKNOWN	CANTIERE NAVALE MARIO MORINI	ITALY	TANKER	1		18,500	03/04	- 100
TARNTANK	SWEDEN	SHANGHAI EDWARD	CHINA	TANKER	1		14,000	03	21
VOLGOTANKER RIVER SHPG.	RUSSIA	SLIP	RUSSIA	TANKER	1		5,742	03	<u>م</u>
VOLGOTANKER RIVER SHPG.	RUSSIA	KAMA	RUSSIA	TANKER	1		4,585	02	
SINOTRANS	CHINA	BOHAI SHIPYARD	CHINA	TUG	1		.,	02	
UNKNOWN	UNKNOWN	ROSETTI	ITALY	TUG	1			03	
SPANISH INTERESTS	SPAIN	UNION NAVAL DE VALENCIA	SPAIN	TUG	1			02	
IBAIZABAL	SPAIN	UNION NAVAL DE VALENCIA	SPAIN	TUG	1			03	

Cruise Shipping

(continued from page 36)

While Peters' goal is of course to provide state-of-the-art repair solutions that are cost-effective, he would also like to continue providing cruise lines with maintenance support of their fleets.

"Our focus for the last 10 years has been on cruise ships," Peters said of Miami Diver. "Since many of these vessels were built in the 1980's, they will need to be maintained. In addition, many experimental, or innovative equipment has been added so therefore more problems could occur, and when this happens, the Subsea Solution Alliance will be called. Gone are the days where a ship had to go into a drydock and risk missing precious moneymaking days at sea. A quick call to any of the Subsea Solution Alliance members allows the vessel to have all its work completed, with out delay to the vessel. Depending upon the complexity of the job the personnel may travel with the vessel and perform repairs while the vessel moves to a variety of ports. An example of this was (from March 22 - April 9, 1996) when wake modifiers were installed on the trailing edges of the primary strut arms on a new cruise ship that was experiencing a "singing" noise that could be heard inside the staterooms. The noise, according to Peters was the result of a design flaw in the vessel's strut during original construction. As the vessel pulled into various port locations, such as San Juan, St. Thomas and Santo Domingo, the divers went to work beneath performing hyperbaric weld modifications - in accordance with the vessel's classification society — Det Norske Veritas. Each day, divers would begin welding the wake modifiers by stripping down the coating system on the trailing edges of the primary struts down to the bare metal, via the use of hydraulic grinding tools.

Once the welding procedure was completed, each trailing edge piece was allowed approximately two hours cooling time while covered with an asbestos blanket. Each weld seam was then examined with magnetic particle where it revealed no signs of irregularities — deeming the vessel ready for regular operation.

Another great benefit of the Alliance other than having a larger group of highly skilled technicians available world wide is that repair work in progress can start in one Alliance members area and be completed in another Alliance member's area. For example, recently a cruise ship called Miami Diver with concerns about the vessel's bowthruster. Miami Diver carried out the initial inspection, diagnosed the problem and presented a repair procedure and schedule that would work in conjunction with the vessel's schedule. The second part of the repair was carried out in L.A with Miami Divers L.A. office and finished in Vancouver and Alaska by the All-Sea office in Vancouver.

What Does The Future Hold?

The Subsea Solutions Alliance has recently developed equipment and procedures to carry out stern seal replacement underwater. To date several cruise vessels that have experienced stern steal problems have been able to avoid unscheduled dry-docking by utilizing the Alliance's underwater stern seal repair systems. The Subsea Solutions Alliance via Miami Diver is the authorized underwater seal repair facility for Blohm+Voss in Germany. In addition the Subsea Solutions Alliance performs underwater straightening of ship propellers world-wide as network members of Lips Propellers exclusive underwater repair licensee Subsea Propeller Inc

Through Miami Diver the Subsea Solutions Alliance also plans to put maintenance contracts in place with several of the major cruise lines, and already has a commitment from Royal Caribbean to perform propeller polishings on their vessels every six months. According to Peters, the benefit of this simple maintenance task provides the owner with a significant amount of fuel savings, as it lessens the amount of fossil fuel burned by the vessel. The Subsea Solutions Alliance performs "check ups" on each cruise vessel simply by having its divers do a swim out report on major mechanicals such as thrusters, fins and propellers. "The dive out reports can prevent problems before they start," Peters said. "If we find something that we think could be a potential problem, our divers let the owners know how they can fix it." The Alliance is presently involved in underwater security inspection and is in conversation with several major cruise ship companies to provide underwater security inspection world-wide.

For additional information on the Subsea Alliance and its capabilities, Circle 187 on Reader Service Card www.maritimereporterinfo.com

Olympia Explorer Christened in Greece

Royal Olympic Cruise Lines Inc. announced that its new cruise ship, Olympia Explorer, was christened at the Port of Piraeus on Friday, June 7, 2002.

Vangelis Papathanassiou, the internationally renowned composer and 1982 Oscar winner for his film score for "Chariots of Fire," was the vessel's godfather, assisted by Katerina Potamianos and Marisa Loizou, the daughters of



Andreas Potamianos and Costakis Loizou, Royal Olympic's two main shareholders. After the christening ceremony, music from Vangelis' score for the film "1492" was played. Olympia Explorer, like its sister ship, Olympia Voyager, was built at the Blohm+Voss shipyard in Hamburg and with cruising speeds of up to 30 knots, it is the fastest cruise ship, of her size, in the world. This fast speed allows the vessel to call at more ports during a cruise, providing the passengers the opportunity to spend more time in port to tour the destinations.

With a passenger capacity of 836 and a gross tonnage of 25,000, Olympia Explorer is the ideal size for those passengers that enjoy cruising on a smaller ship in an intimate and sophisticated atmosphere and style. The vessel is currently performing seven-day round trip cruises from Piraeus and Venice to Corfu, Dubrovnik, Bari, Katakolon (Olympia), Istanbul, Santorini and Mykonos.

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RINA Elects New Leaders

RINA has appointed **Enrico (Gianni) Scerni** as Chairman of RINA Spa, and **Ugo Salerno** as CEO. Scerni, who has wide ranging managerial experience in the maritime sector, as well as in the transport, logistics and finance sectors, has, since 1970, been taking charge of the traditional activities of the family run companies (Maritime Agency, Logistics, Estate Agents, manufacturing industries).

Salerno, who steps down as Managing Director of Coeclerici Armatori and Logistics to take over as RINA's CEO, earned a Degree with honor in Naval Architecture and Marine Engineering at Naples University in 1976. From 1988 to 1994 he served as Fleet Manager and Director for Bulkitalia SpA Genoa, and most recently, from 1996,

Enrico (Gianni) Scerni

has served as General Manager/Director for Coeclerici Shipping.

Beside Scerni and Salerno, the following Directors have been appointed as members of the Board: Giuseppe Bernardi (Deputy Chairman); Umberto D'Amato; Gianrenzo Prati; Carlo Stagnaro and Manfredo Zanardi.

RINA recently reported strong growth for its 2001 financial year. The consolidated revenues of the Group were \$90.3 million, up ten percent from last year.

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Carnival Reports 2Q Results

Carnival Corporation reported net income of \$194.2 million on revenues of \$989.2 million for its second quarter ended May 31, 2002, compared to net income of \$187 million on revenues of \$1.08 billion for the same quarter in 2001.

Net income for the six months ended May 31, 2002 was \$323.8 million on revenues of \$1.89 billion, compared to net income of \$314.9 million on revenues of \$2.09 billion for the same period in 2001.

Earnings for the second quarter of 2002 were reduced by a \$9 million loss, including related expenses, on the sale of Holland America Line's Nieuw Amsterdam and by \$12 million from cancelled cruises. Revenues for the second quarter of 2002 were 8.3 percent lower than last year primarily because of lower cruise ticket prices, largely attributed to the events of September 11, and a significant decline in the

number of guests purchasing air transportation from the company. This was partially offset by an increase in cruise capacity of 2.1 percent. Net revenue yield (net revenue per available berth day after deducting the cost of air transportation and travel agent commissions) was down 5.3 percent, compared to the previous year's second quarter.

People & Company News

Titan Pulls One Off for Marine Response Alliance

The first call is made to the Marine Response Alliance (MRA) Dispatch Office on MRA's 24 hour emergency response line. The call is from V-Ships' Miami office informing the dispatcher that they had sustained a casualty. The M/T Sea Jackie, a 58,508 dwt single hull tanker, laden with 44,000 barrels of oil, had run aground at the entrance to the Mississippi River.

The MRA went into high gear.

Founded in 1994, the MRA is made up of member companies Crowley Marine Services, Inc. (CMS), Marine Pollution Control Corp. (MPC) and Titan Maritime, LLC (TITAN). The company was formed

to provide a "one call" approach to rescue towing, lightering, salvage and firefighting in all U.S Captain of the Port Zones. V-Ships vessels' name the MRA in their OPA-90 required Vessel Response Plans. Given the nature of this incident, the MRA elected to have Titan lead the response, with the knowledge that emergency lightering packages of MPC and high horse power tugs belonging to CMS would be available in Louisiana if needed. Titan immediately responded by dispatching Assistant salvage master, **John Swanson**, located in New Orleans, to the Sea Jackie while arrangements for naval architect, **Jeremy Vecchione**, and salvage master, **David Walshe** to fly to New Orleans from Titan's headquarters in Fort Lauderdale were being made. At the same time, Titan sent logistics coordinator, **Gage Parrot** to V-Ships' office in Miami to facilitate Titan's technical response in regard to vessel data. A full dive/salvage team followed over the road with truck and trailer loaded with specialized equipment. The first vessel dispatched to the scene on behalf of Titan was E.N. Bisso & Son's tug Vera Bisso. As the Vera Bisso is a high horsepower, yet nimble tug, purpose built for operations in the Mississippi River, Titan new she was the right tool for the job.

With Titan's Salvage plan approved by the USCG early the next morning, Titan mobilized additional tugs to assist in the re-floating effort:

Dumar-II, Dumar-III, J.A. Bisso and Bud Bisso were all put into position for the re-floating effort. The five tugs combined equated to a bollard pull force in excess of 400 tons. With numbers checked and re-checked, Titan re-floated the Sea Jackie on the morning tide of May 24 — less than 48 hours after it was grounded.

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Garrido Joins Titan As V.P.

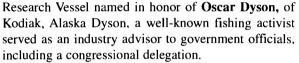
Mauricio Garrido became Titan Maritime LLC's newest Vice President on May 15, reporting to Richard Fairbanks, president of Titan. As a member of the Titan Management Team, Garrido will catalyze the company's rapid expansion plans by supporting its global salvage response mission. Garrido, former Vice-President of Operations at Resolve Marine Group, brings 17 years of solid experience in the marine casualty response industry, including tours with the Military Sealift Command and the National Transportation Safety Board (NTSB) as Naval Architect and Marine Engineer. During the early 1990's, his technical experience was further expanded as he managed major salvage, wreck removal, and oil pollution incidents on behalf of Scandinavian underwriters as a hull surveyor for Scandinavian Marine Claims Office (SMCO). During the last 9 years, Garrido has been directly responsible for the management and coordination of more than 50 major salvage operations throughout the Americas.

Halter Marine Commences \$38.3 Million Project

Halter Marine, Inc, a subsidiary of Friede Goldman Halter, has begun construction of NOAA's (National Oceanographic and Atmospheric Administration) newest vessel the M/V Oscar Dyson. The vessel is scheduled for delivery in 36 months at a price of \$38.3 million. It is anticipated that options for additional vessels will be exercised as Congress incrementally appropriates funds. NOAA may build up to three additional Fishing Research Vessels (RFV) under the terms of the contract, pushing its value to more than \$165 million.

M/V Oscar Dyson is a state-of-the-art Fishing

54



Born in 1913 in Rhode Island, Dyson relocated to Alaska in 1940 following WWII where he worked as a commercial salmon and halibut fisherman. He pioneered the expansion of the commercial fishery of crab, shrimp, and pollock. He was a founding partner of Kodiak-based All Alaskan Seafoods (later sold to Tyson Seafoods), which became the first group of fishermen to own both the vessels and the canneries.

The completed vessel will be 208.6 ft. (63.6 m) in length, with a beam of 49.2 ft. (15 m) and a draft with the centerboard in an up position of 19.3 ft (5.9 m). The vessels will house multiple laboratories and is designed with a 40-day endurance.

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Metro Machine Agrees to Purchase \$2M UltraStrip System

Metro Machine Corp. of Norfolk, Va. has agreed to purchase a high production prototype UltraStrip robotic paint removal system for \$2 million. Metro is developing a marine vessel enclosure, paint removal, and coating system, the Metro Ship Coating System — and will be evaluating the UltraStrip prototype for use in the Metro Ship Coating System. A binding agreement has been secured from Metro, and delivery and initial testing is scheduled to be completed by August 15.

UltraStrip's patented systems have been used on the USS Eisenhower, a U.S. Navy Nimitz-class aircraft carrier, and the USS Cole, the U.S. Navy destroyer attacked in Yemen in October 2000, as well as the Lisnave Ship Yard in Portugal, one of the world's busiest commercial yards for the heavy marine industry. Circle 7 on Reader Service Card www.maritimereporterinfo.com

MSC Names Bozzo Executive VP

Mediterranean Shipping Company (MSC), has

appointed **Claudio Bozzo** as executive vice president of the company. Bozzo, who will be based out of the company's New York City headquarters, has been with MSC since 1991, when he joined the company as Traffic Analyst. Since then he has held increasingly responsible management positions in



Documentation, Customer Service and Strategic Planning. Most recently he has served as senior vice president, Liner Service and Quality Control.

Collins Assumes CEO at FGH

The Board of Directors of Friede Goldman Halter has added the title of CEO to **T. Jay Collins**, who presently serves as Chairman of FGH. Mr. Collins is overseeing the final stages of the bankruptcy process from the Board level, while continuing his full-time position as president of Oceaneering International, Inc. **Jack Stone**, who served as interim CEO, will continue his focus as the Chief Restructuring Advisor to FGH. Stone, who is a principal of Glass & Associates, Inc., a nationally prominent management-consulting firm, has been advising the Board of Directors since October 2001 on restructuring matters.

Shell and ALSOC Choose Thor-Lube For LNG Newbuilds

Thordon Bearings Inc. of Canada recently received orders for environmentally friendly Thor-Lube sealed stern tube bearing systems for three LNG carrier newbuild projects in Korea and Japan. Daewoo Shipbuilding & Marine Engineering Co. Ltd. ordered systems for two ships, one for Shell International Gas Ltd. and the second for the Australian LNG Ship Operating Co. (ALSOC). Mitsubishi Heavy Industries (MHI) of Japan ordered the third system for a second Shell newbuild. All three vessels are due to be delivered in 2004.

Thor-Lube is Thordon Bearings' environmentally friendly option to eliminate oil filled stern tubes comprising Thor-Lube lubricant, Thordon XL elastomeric bearings and a lubricant circulation and monitoring system. Water soluble Thor-Lube lubricant is biodegradable and leaves no sheen should leakage ever occur, eliminating the risk of pollution and associated fines. In the event of a seal failure and subsequent loss or contamination of lubricant, the system can be easily converted to operate on emergency seawater lubrication ensuring safe passage to port.

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Maritime Reporter & Engineering News

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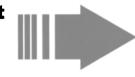
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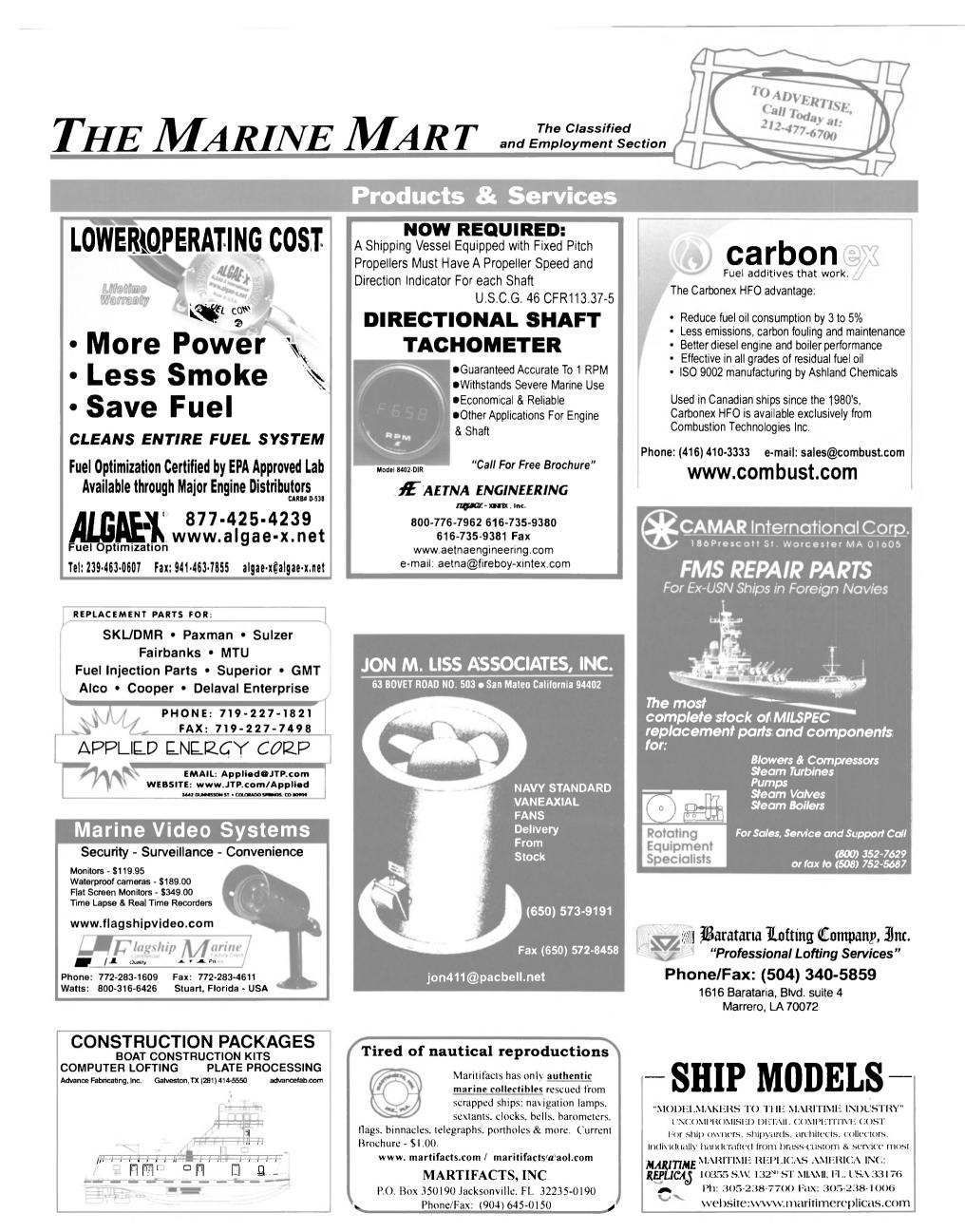
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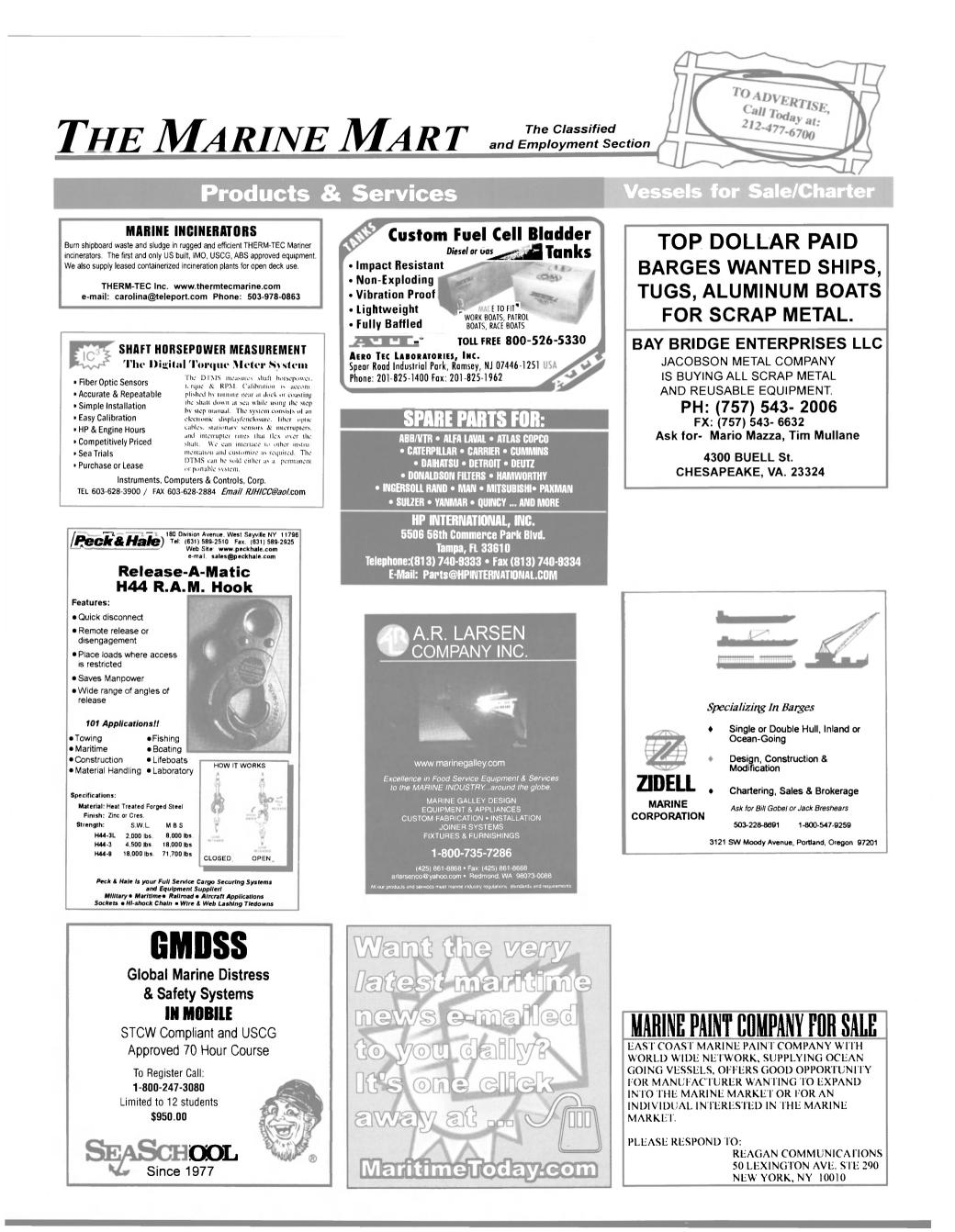
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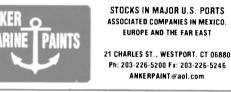


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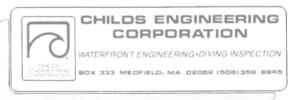


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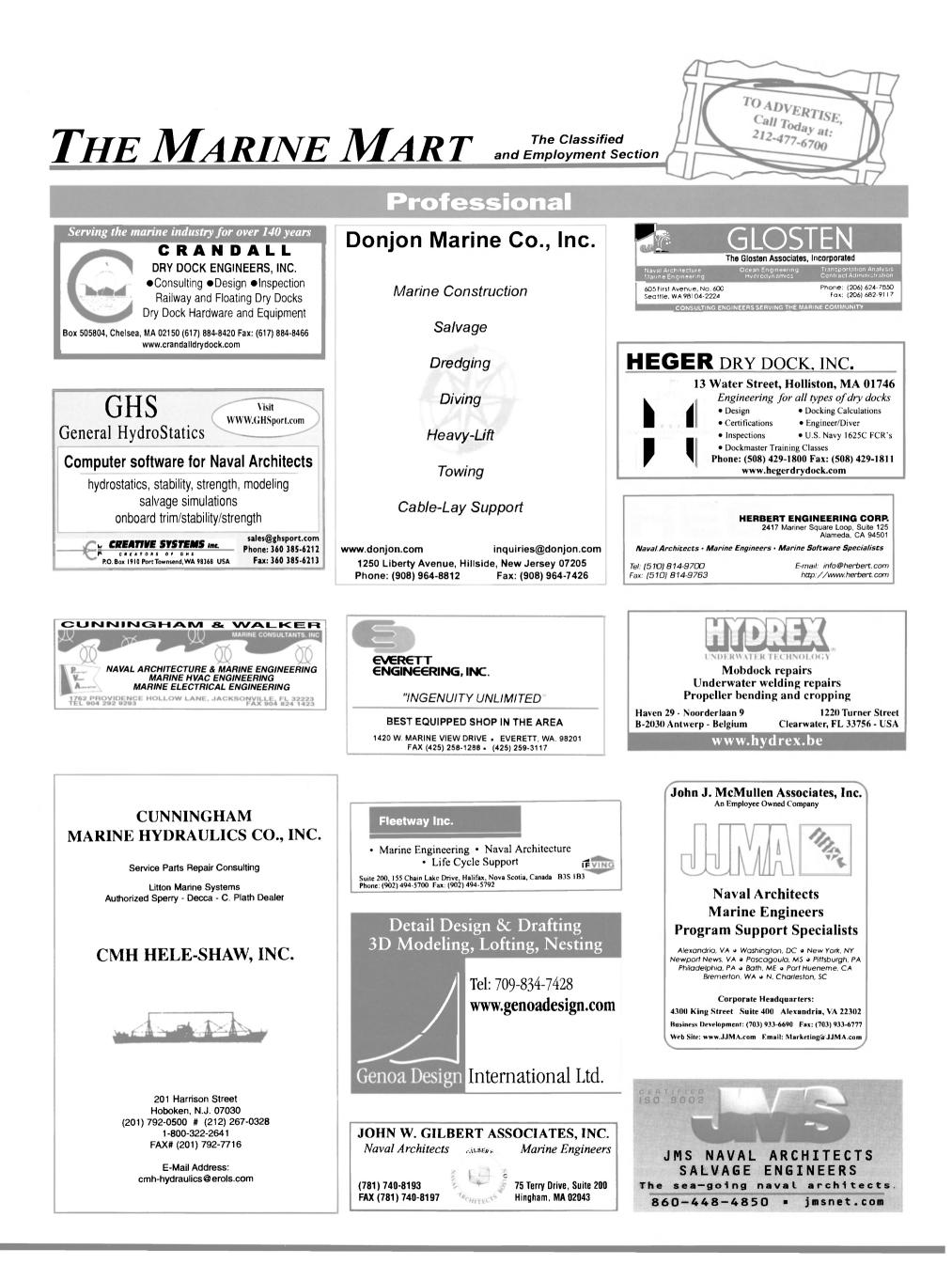
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