

March 2006

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Fleet in Transformation

Q&A

Dr. Andrew Clark on IOOS

Government Update

Reporting Significant Environment Harm

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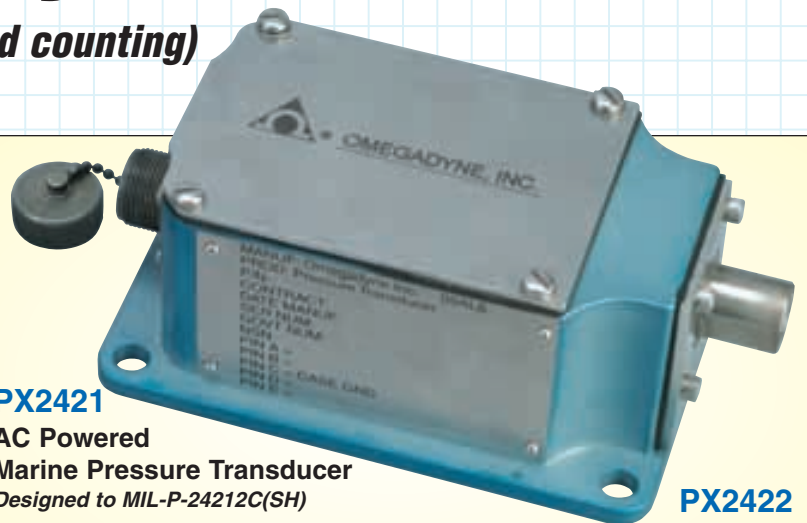
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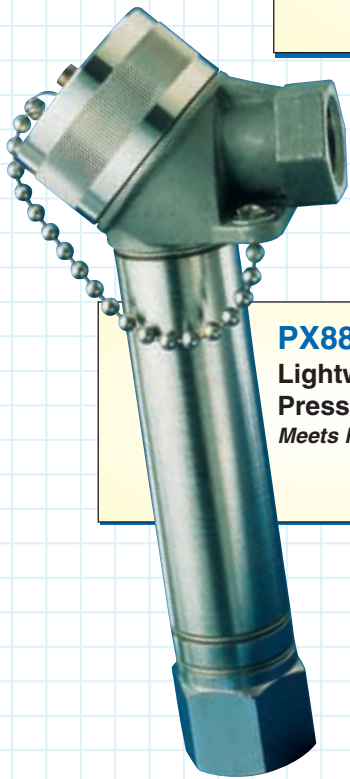
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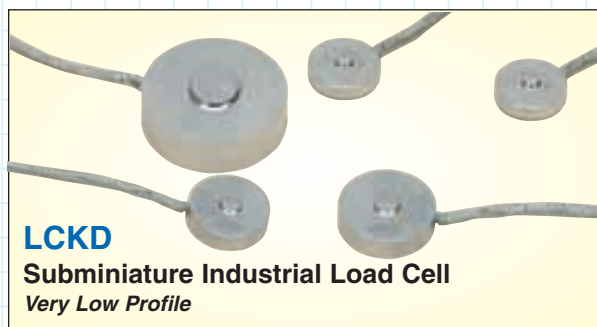
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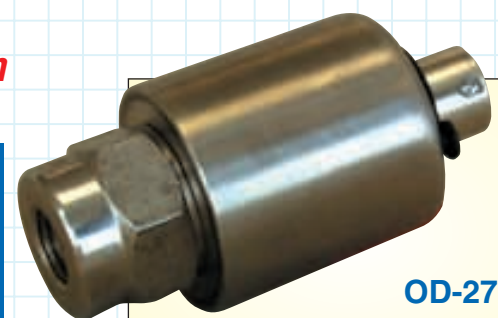
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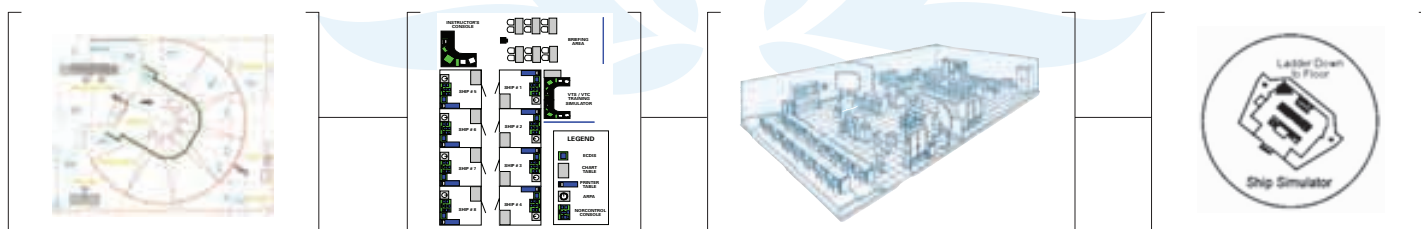


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MARITIME REPORTER AND ENGINEERING NEWS

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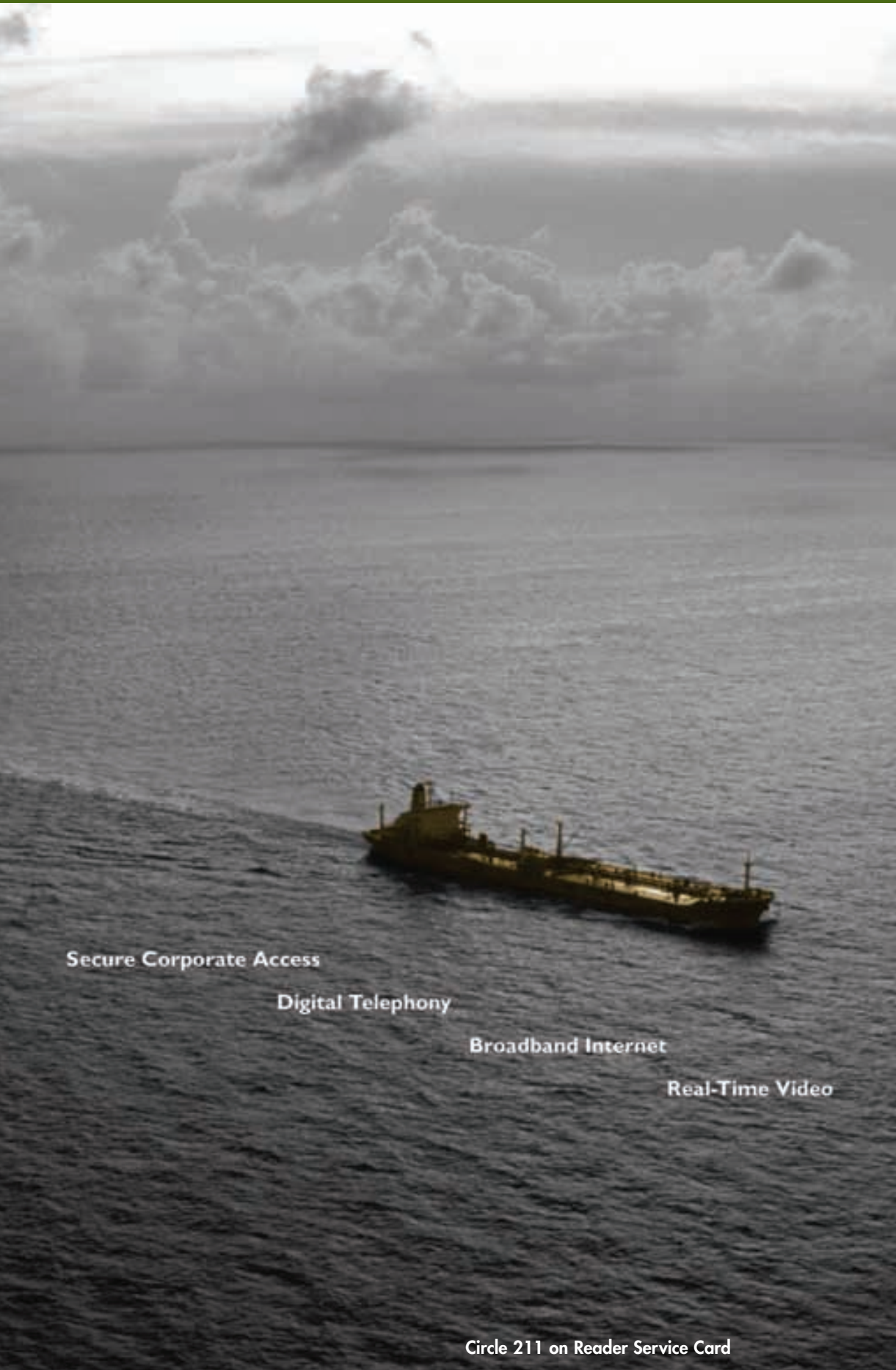
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Editor's Note

Sometime in the distant future, historians will view today's procurement of U.S. Navy and U.S. Coast Guard ships and assets as a watershed in the history of these two services. The U.S. Coast Guard's Deepwater program has been covered in great detail in these pages — and those of sister-publication MarineNews — for several years. Now, finally, it appears the U.S. Navy is getting its due, as legislators have finally heeded the call of industry and defense to increase budgets to build more surface combatants. While the final numbers and ultimate make-up of the fleet is still under negotiation, President Bush's \$127 billion request for the Navy is a significant boost over previous years, and, in conjunction with the release of the Department of Defense's Quadrennial Defense Review (QDR), calls for a 313 ship navy (versus today's 281-ship fleet) reversing decades of decline. Much of this is due, of course, to the addition of 55 new Littoral Combat Ships — smaller, faster vessels designed to operate as a cog in the network-centric defense scheme. There will be plenty of political wrangling for years to come as to the number of aircraft carriers, submarines, destroyers and LCS that are sufficient for the nation's defense, but suffice it to say that an increase of any sort is welcome news for the companies that build, outfit and service Navy ships.

The international offshore market is another niche that will seemingly bring business to the commercial side for years to come. Those in the know are well-versed in the "boom and bust" cycle inherent to the offshore market, but by all appearance this could be a long-term driver for the marine business. In a February 28 conference call with the CEO of emerging offshore giant Bourbon, Jacques de Chateauvieux unveiled his company's aggressive four-year plan to invest nearly \$1.8 billion in new vessel construction — much of it serving the burgeoning deepwater offshore development market — as well as plans to increase its number of employees by 80 percent. At the end of 2006, Bourbon will own a fleet of 264 vessels, including 192 in its Offshore division, 66 tugs in its Towage and Salvage division, and six bulk carriers in its bulk division.



On the Cover



On the Cover: Pictured on the cover is the M80 Stiletto from M. Ship Co., an operational experiment for the Pentagon's Office of Force Transformation to test new materials and designs for the Navy's next generation. Navy coverage begins on page 30; M80 Stiletto details are on page 38.

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MARITIME REPORTER

AND
ENGINEERING NEWS

www.marinelink.com

ISSN-0025-3448
USPS-016-750

No. 3

Vol. 68

118 East 25th Street, New York, NY 10010
tel: (212) 477-6700; fax: (212) 254-6271

Founder: John J. O'Malley 1905 - 1980
Charles P. O'Malley 1928 - 2000

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

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

Publications Mail Agreement No: 40024966
Return Undeliverable Canadian Addresses to
Circulation Dept. of DPGM
4960-2 Walker Road
Windsor, ON N9A 6J3

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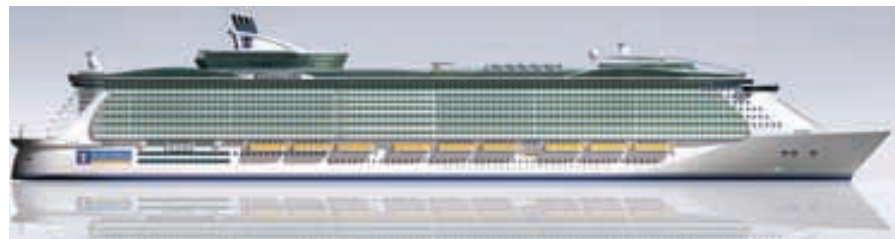
Leading Off

RCL Orders 220,000 GRT Cruise Ship

Royal Caribbean International has ordered a mammoth new generation cruise vessel from Aker Yards, a 220,000 grt ship with a contract value of an estimated \$1.07 billion, and includes an option for a similar vessel. The ship, a prototype developed under Project Genesis, will be delivered from Aker

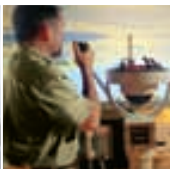
Yards, Finland in autumn 2009,

"After developing so many generations of cruise ships together over the 35 years of our partnership with RCCL we are excited about jumping so far out in front of cruise-ship design with this highly innovative and exciting new ship" says Yrjö Julin, President responsible for Aker Yards Cruise & Ferries business area. "Project Genesis truly is a

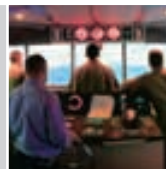


remarkable ship," said Royal Caribbean Chairman and CEO Richard Fain. "Its bold design, daring innovation and tech-

nological advancements will delight our existing customers and help us draw in new ones." The new giant ship will be 360 m long, 47 m wide, 65 m high above waterline and accommodate 5,400 passengers.



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The Royal Navy's latest warship that will offer its crew many modern amenities, including an iPod charging point, a CD player, and internet access in every cabin. The 150-m, 7,350-ton, 14-deck HMS Daring is the first of six Type 45 Destroyers that come with a \$1.05 billion price tag. HMS Daring is the first in the six-ship order — HMS Dauntless, Diamond, Defender, Dragon and Duncan with the ships makers BAE hoping the Navy will increase its order to eight in total.

Snake Causes LNG Facility Blackout

A natural gas facility in southern Thailand was brought to a standstill by a blackout blamed on a snake. A plant pumping liquefied natural gas (LNG) from the southern Thai province of Songkhla to Malaysia had to suspend operations after its electricity system was downed by a stray boa constrictor. The reptile caused a short circuit in the system by wrapping around an electricity transmission line and clamping down on a high-voltage transformer. (Source: RIA Novosti)

Costa Serena Cross Section Arrives

The fore end section of the Costa Serena arrived in Fincantieri's Sestri Ponente shipyards in Genoa recently. The Costa Serena is the second of Costa Crociere's three new sister ships due to enter service over the next four years. The fore end section of the new building is about 299 ft. (91 m) long and 3,200 gt.



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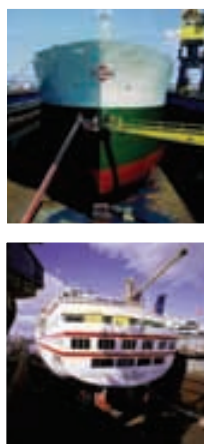
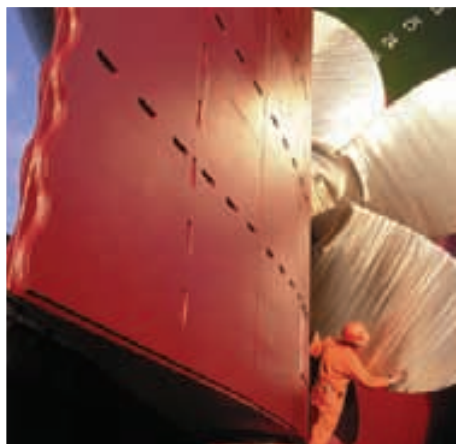


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equipment was mandated based on the assumption that uncleaned discharge of engine room bilge water would result in discharge of oil into the environment. Oily water separator equipment has now been installed aboard commercial vessels for over 30 years, but there is reason

to question the actual effectiveness of this equipment. It has never been clearly established if oily water separators actually work to a level that enables crews to operate them in a reliable fashion. Recently port state and flag authorities have started to more closely scrutinize

the use of this equipment by vessel crews and this has resulted in numerous prosecutions of vessel crews and shipowners.

In January 2005 the Society of Naval Architects and Marine Engineers (SNAME) formed a Technology and

Research Ad Hoc Panel that was tasked to evaluate oily water separators and systems. This panel operates under SNAME's Technology and Research Program, which is recognized internationally for its excellent and unbiased guidance on marine technical issues. Initial evaluation of the scientific and engineering issues surrounding oily water separator systems by the Ad Hoc Panel has shown that there are numerous unsettled operational, human factors, scientific, and engineering issues that can interfere with the design and construction of reliable and verifiable systems aboard ships at this time. (See http://www.sname.org/committees/tech_ops/oilywater/meets06.pdf) As a result of these findings, SNAME has now taken the initiative to provide the Ad Hoc Panel with \$10,000 in seed funding, and thereby hopes to encourage the Maritime Industry to match these funds to allow further study of the problems associated with oily water separator design and operation.

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When the tanker Cape Bradley collided with a cargo vessel off the French coast, the whole foreship, including winch equipment, was heavily damaged. After docking at Lloyd-Werft, Bremerhaven, the winch fragments were forwarded to Hatlapa in Hamburg.

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Soon after Cape Bradley received two new roller chain stoppers, a windlass part for 70 mm stud link chain, a double drum mooring winch for a pull of 150 kN and a winch gear with high-pressure hydraulic drive.

New Tug and Linehandling Fees at Panama Canal

The Panama Canal Authority (ACP) announced that effective April 1, 2006, there will be rate increases for tug and

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linehandling services due to rising operating costs. The decision was made by the Republic of Panama's Cabinet Council, upon a recommendation from the ACP's Board. Rates for tug services will increase seven percent and rates for linehandling services will rise four per-

cent. Fees vary by vessel size. Rates for these services have not been increased since March 2004. However, increases in operating costs due primarily to sustained fuel hikes have impacted tugboat and linehandling services, making it necessary to adjust rates.

Stratos Acquires Xantic

Stratos Global Corporation completed its acquisition of Xantic B.V. for approx. \$191 million, subject to post-closing adjustments. Xantic was the third largest provider of Inmarsat services in 2004, accounting for approximately 19 per-

cent of Inmarsat's mobile satellite telecommunications revenue.

With the completion of this transaction, Stratos' market share increases to approximately 44 percent of Inmarsat's mobile satellite telecommunications revenue, according to the company.

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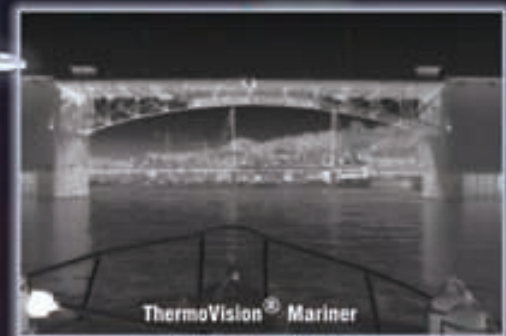
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Reporting Significant Harm to the Environment

Dennis Bryant, Senior Counsel, Holland & Knight LLP

On January 17, 2006, a new marine casualty reporting requirement came into effect. As of that date, vessels are required to promptly report to the U.S. Coast Guard a marine casualty involving "significant harm to the environment". The requirement applies to U.S. vessels worldwide, to foreign vessels in the navigable waters of the United States, and to foreign tank vessels in the U.S. exclusive economic zone (EEZ).

Significant harm to the environment, as defined in the regulation, is much broader than the mere words would lead one to believe. The standard dictionary definition of "significant harm" is harm that is meaningful, important, or fairly large in quantity. In the regulation, it means all that and more.

Under the new regulation, significant harm to the environment means any of the following:

- (a) In the navigable waters of the United States, a discharge of oil that causes a film, sheen, or discoloration of the water or a discharge of a hazardous substance in a reportable quantity;
- (b) In other waters subject to the jurisdiction of the United States, including the EEZ, a discharge of oil in excess of the quantities or instantaneous rate permitted by MARPOL or a discharge of a noxious liquid substance (NLS) in bulk in violation of applicable regulations; or
- (c) In waters subject to the jurisdiction of the United States, including the EEZ, a probable discharge of oil, hazardous substances, marine pollutants, or noxious liquid substances. Factors to be considered in determining whether a discharge is probable include proximity to land or other navigational hazards, weather, current, sea state, traffic density, nature of the damage the vessel, and failure or breakdown of the vessel's machinery or equipment.

For a marine casualty that exclusively involves an occurrence that constitutes significant harm to the environment, the marine casualty reporting requirement, in most instances, is met by submitting a standard notice of discharge to the USCG National Response Center (NRC) or cognizant Captain of the Port (COTP). For a marine casualty that involves an occurrence that constitutes significant harm to the environment along with some other type of reportable marine casualty (such as a collision or grounding), then both the standard notice of discharge and the written marine casualty report must be submitted.

A foreign tank vessel operating in the navigable waters of the United States and suffering a marine casualty that exclusively involves an occurrence that constitutes significant harm to the environment must submit both the standard notice of discharge and the written marine casualty report. A foreign tank vessel operating in the U.S. EEZ and suffering a marine casu-



alty must report the circumstances to the USCG NRC or cognizant COTP, immediately after addressing resultant safety concerns, whenever the marine casualty involves or results in: (1) material damage affecting the seaworthiness or efficiency of the vessel; or (2) an occurrence involving significant harm to the environment as a result of a discharge or probable discharge resulting from damage to the vessel or its equipment. Note that the requirement for a foreign tank vessel operating in the EEZ to immediately report a marine casualty involving material damage affecting the seaworthiness or efficiency of the vessel is not dependent upon whether there has been or is likely to be significant harm to the environment.

In the Coast Guard regulations implementing MARPOL, the reporting requirements have been amended such that the vessel must report without delay the particulars of an incident involving the discharge of oil, hazardous substances, marine pollutants, or noxious liquid substances resulting from damage to the vessel or its equipment, or for the purpose of securing the safety of the vessel or saving a life at sea. Excepted from this requirement are discharges of oil or hazardous substances within the quantities or instantaneous rates allowed by MARPOL. A probable discharge resulting from damage to the vessel or its equipment must also be reported. The report is to be made by radio whenever possible or by the fastest telecommunications channel available. This requirement applies to U.S. vessels worldwide and to foreign vessels in the navigable waters of the United States, as well as to foreign tank vessels operating in the U.S.

EEZ. Given the recent dust-up concerning oily water separators and oil record books, it should be noted that (either inadvertently or intentionally) the new reporting requirement for incidents involving significant harm to the environment have somewhat raised the ante for U.S. ships and for foreign tank vessels operating in the U.S. EEZ. Now, if the government proves a bypass or misuse of the oily water separator, it can also (in most circumstances) impose a civil penalty for failure to report an occurrence involving significant harm to the environment, as that term is defined in the new regulation. Under the statute, the civil penalty is not more than \$25,000 per violation, but it can be imposed on the owner, charterer, managing operator, agent, master, or individual in charge of the vessel.

It is an old saying, but bears repeating - the cost of avoiding pollution is far less than the cost of polluting.



Dennis L. Bryant, Senior Maritime Counsel at the law firm of Holland & Knight, Washington, D.C., is a contributing editor of MR/EN.

Q&A with Dr. Andrew Clark: Industry Opportunities in IOOS

Maggie Merrill spent some time with Dr. Andrew Clark — president of Harris Corp.'s Maritime Communication subsidiary and Industry Liaison for the National Office for Integrated and Sustained Ocean Observing (Ocean.US) and the Integrated Ocean Observing System (IOOS) — at Underwater Intervention in Tampa, Fla.



Emily Speight, Marine Technology Society and **Dr. Andrew Clark**, Industry Liaison for IOOS.

(Photo credit: Maggie L. Merrill)

MR What is your role with IOOS?

Clark During my term as President of the Marine Technology Society, I was asked to testify before the then just created U.S. Commission on Ocean Policy (USCOPS) — this was so shortly after 9-11 that all the buildings on Capitol Hill were still shut down over the anthrax scare and we held that session at the Navy Memorial. I emphasized in my testimony that a nationally integrated ocean observing capability (not yet coined as "IOOS") was critical to the nation and that such an ambitious undertaking would require a full partnership with the private sector - particularly U.S. Industry. This really resonated with the Ocean Commission as in their report, not only was the IOOS among their priority recommendations to the President, they also emphasized that its success would hinge upon the participation of U.S. Industry. In the interim I wrote a paper for an Oceans conference and an op-ed piece emphasizing the issues. A little over a year ago, I got a call from some of the senior government leadership who are responsible for establishing IOOS saying that they agreed that U.S. Industry must become engaged and asked if I could help.

MR So a classic example of "be careful what you wish for?"

Clark Something like that. Actually, I was honored to be asked and fortunate to be in a position that I could essentially "take a sabbatical" from my day job and pitch in. I consider this my "answer to the call of public service." Actually, most of the staff of The Office for Integrated and Sustained Ocean Observations (www.Ocean.US) are also "on loan" from their posts either at other Federal agencies or from universities and oceanographic institutions around

the country. I am only unique in that I was the first recruited from industry.

MR Are there opportunities for marine companies in this IOOS initiative and if so, how do they find and respond to them?

Clark Yes there are. Actually, as we speak, there is an RFQ (Request for Quotations) that has just been posted seeking firms who are interested in providing conceptual designs for IOOS. By the time this interview runs, these response will have been received and in

the evaluation process. Prior to this, two other awards were already made; one to Boeing and the other to Northrop-Grumman, to develop some demonstration products of how IOOS could address some of the complex problems faced by NOAA and the U.S. Navy.

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Q&A

Aside from these national procurements that will be posted at the Federal Register, Federal Business Opportunities, and/or the U.S. General Services Administration companies, both large and small need to get involved with IOOS at the regional level. An important aspect of IOOS is

that it will be user-driven largely from 11 Regional Associations that comprise the coastline of the U.S. and its territorial waters. Companies interested in participating should contact some or all of these Regional Associations to see about becoming a member.

MR And how do they contact them?

Clark Two very good "one stop shops" for reaching some or all the RA's is through our website (www.ocean.us) or that of the National Federation of Regional Associations (NFRA at www.usnfra.org)

MR What contribution can be made by the private sector?

Clark Actually, from the inception of IOOS through its development, deployment, operation, maintenance and continual upgrade and improvements there will be critical roles that can best be fulfilled by Industry. The national calls or solicitations to date have been focused primarily at the very front-end of design and architecture of this "system of systems". In a very real sense, the offshore oil & gas sector has already become actively involved in IOOS data, both in gathering and utilizing it. Through the Gulf Coast Ocean Observing System (GCOOS - the RA in that area of the country) and working closely with both NOAA's National Data Buoy Center (NDBC) and the Minerals Management Service (MMS) many major oil companies have installed current meters on some of their offshore platforms and that data is now flowing through NDBC as part of IOOS. In terms of sensors and other hardware required for IOOS, obviously these will substantially be procured from companies just as I'm sure that sensors that will be required but don't yet exist will also be developed by these and other firms. Similarly, there exist in many parts of the country (the Gulf Coast for example) substantial existing infrastructure and assets that can be called-upon for deployment and maintenance of offshore systems; and it's quite possible that this need may be answered in other regions of the nation by companies that will be stood-up specifically to answer these needs. About a dozen federal agencies, literally hundreds of universities, laboratories, private institutions as well as myriad state and local organizations are presently all involved in conducting ocean observations and collecting data. Perhaps the biggest and most immediate challenge facing IOOS - and one in which US Industry has considerable expertise in solving - is devising and instituting the means, processes, procedures, software, hardware, middleware and metadata that will facilitate the seamless interoperability of all these data and collection systems.

MR Any final thoughts?

Clark If you think that you and/or your company may have a reason to become involved with IOOS then you should — I can think of almost no sector of the maritime industry who will not ultimately be a stakeholder in IOOS, whether as a contributor, a user, or both. Whether as a user, a provider (or both) you will benefit more (and the system will also benefit) through getting involved at the earliest possible stage - where you can have the most influence on the products it delivers and its usefulness to your enterprise.



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New Training Facility for Wärtsilä's Land and Sea

by Henrik Segercrantz

At the end of January, a new training facility for Wärtsilä Land & Sea Academy (WLSA) was inaugurated in Turku, Finland. As part of the Service business of Wärtsilä Corporation, the Land & Sea Academy today operates three Academies that provide a wide range of training for clients, seafarers and staff worldwide. The training facilities are based in Ft. Lauderdale and in Subic Bay, in the Philippines, and now also in Turku. In addition to these Academies, primarily product training is also provided at the locations of the production facilities such as in Trieste, Italy, and in Winterthur, Switzerland, but also in Lahore in Pakistan, Khopoli in India and in Pnyu, China.

At the inauguration, Tage Blomberg, Group VP and Head of the Service Division, noted that Wärtsilä is in the business of offering complete competitive value added training for its clients. "We are not in the business of standard certification," he said. According to Jari Ullakonoja, Director of WLSA, the aim is to provide a global network of 'one-stop-shops' to cater for the training need of Wärtsilä's customers, including tailor made courses. WLSA offers various levels of outsourcing possibilities for the shipowners for their seafarer training. The training services are built up based on a competence management process, with evaluations of needs, existing competences, individual development needs and confirmation. There is a computer-based Competence Management System built to the requirements of the ISM Code and the STCW-95 Convention (the 1995 amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) which the clients can use as an extension to their own crew management system.

In Subic Bay all the training including maritime courses is provided in-house, whereas in Turku some of the courses are arranged in co-operation with Sydväst Maritime, a local nautical school for educating master mariners and watchkeeping officers and watchkeeping engineers, which operates its own full mission bridge simulator.

The courses provided vary somewhat at the different locations. In all, they cover training of the operation and service of Wärtsilä's products, courses on Marine engineering on all aspects of engine room operation and marine equipment operation, Electrical and electronics and control system courses, Power plant operation, Maritime safety courses, Security courses, Search and rescue, Navigation, Cargo management, Tanker courses for handling oil, chemicals, and liquefied gas, Radio, Medical aide as well as various management courses.

The Bridge Resource Management courses are based on Scandinavian Air Lines' own training concept for their flight crew. Wärtsilä has developed this concept further in its Engine Room Resource Management courses. To qualify as an instructor for these courses, one has to receive training at the SAS Flight Academy.

WLSA has Maritime Training Center certification



The new training center in Turku will give training to some 2,000 people this year through some 200 separate courses. The Turku facility is equipped with state-of-the-art PC workstation engine room simulators.





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from DNV. The course content complies with mandatory legislation institutions by IMO/STCW-95 as well as with requirements set by flag state administrations and other relevant regulatory bodies. In all, WLSA has a training staff of 50 and uses, in addition some 100 in-house inspectors and experts for providing training.

The new Turku Academy, facilitated in the previous diesel engine factory, aims at training some 2,000 people this year through some 200 separate courses. The number excludes those receiving deck training done in cooperation with Sydväst Maritime. Training is to a large extent provided as part of turnkey sales projects of ship machinery and power plants. The Turku facility is equipped with engine room simulators which can handle all types of probable and less probable events related to engine operation, including those of possible failures and accidents and other unusual ship events. Complete engine and power plant control systems are provided on several PC-type workstations. In addition to training in class-rooms, there are workshops for practical training also on twelve different actual engines, including also dual-fuel engine types for LNG carriers. There are also ancillary engine room equipment and control systems, marine-high voltage electrical systems as well as propulsion equipment. The Turku training center also has a small ship handling simulator, which can be linked to the engine room sim-



ulator. The simulator is provided by Rheinmetall Defence Electronics GmbH.

The Simulation Center of Subic Bay, which was officially opened last November, has full mission bridge handling simulators for two main bridges, with 240 deg view, and three smaller auxiliary bridges, and one engine room simulator. Sydväst Maritime consulted Wärtsilä with the specification and commissioning of the bridge simulators. The simulators are provided by Rheinmetall Defence Electronics GmbH. In addition here is a newly installed simulator for liquid cargo handling for operators of VLCC's, product and chemical tankers, LNG and LPG carriers, which has been supplied by L-3 MPRI Ship Analytics, USA. A total of 3,000 will be trained in Subic Bay this year, one third receiving deck training, one third engine training and one third training for land based power plants. LNG crew training is particularly booming.

The Ft. Lauderdale Training Center provides engineering training and has an engine room simulator and five actual engines and auxiliary equipment.

Tage Blomberg (right) Wärtsilä Group VP and Head of the Service Division and Timo Aalto, Training Manager, at the inauguration ribbon for the Group's third training center in Turku, Finland.

Urgent Need for LNG Officers, Crew

Ray Gillett, director of MPRI, UK, points out the urgent need for competent personnel for LNG carriers, 'the fleet of which has increased by over 60% in five years, and is still increasing at a rate of some three ships per month.' According to Gillett, there simply are not available people with five years of sea service, a typical requirement today when hiring crew. 'Cargo handling simulation is a

typical single person task. For an LNG carrier three to five years for a complete voyage cycle, that include all modes of cargo handling, is typical. With simulators, we can do this in five days. One learns by making mistakes. And that is possible only with simulators, through which we can implement training which is above regulatory standards,' he said. According to Gillett, The Society of International Gas Tanker and Terminal Operators should, together with charter-

ers, agree on this type of training as an alternative to a full sea service record, as a requirement for hiring personnel for LNG carriers.

Transas Simulator Chosen by MMA

Transas will supply a Liquid Cargo Handling Simulator (LCHS) and Engine Room Simulator (ERS) for Malaysian Maritime Academy Sdn Bhd (ALAM), Melaka. The delivery project was sponsored by Petronas Maritime Services Sdn Bhd (PMSSB), a subsidiary of PETRONAS. The contract for the design, supply, installation, testing and commissioning of a Full Mission Ship-handling Simulator (FMSHS) at ALAM was awarded to Transas Marine Pacific. Configuration included DNV Class A full mission bridge with nine visual channels projected to the curved screen, consoles, mock-up and a full range of dedicated hardware to simulate a real ship's bridge environment. A further

three cubicle bridges each with three visual channels, and twelve CBT Navi-Trainer Professional 4000 'configuration A' bridges were provided. Even though the time from order to delivery was short, Transas also provided customization of the simulator software and ship models much to the satisfaction of ALAM. At the moment the LCHS installation includes 10 trainee workstations of LCHS 2000 (Oil Tanker, Chemical Tanker, LPG), LCHS 4000 (Oil terminal and LNG spherical) and the ERS installation includes 10 trainee workstations of ERS 4000 (Container, Oil Tanker, RoRo). The LCHS and ERS are installed in separate rooms but can be used for joint training.

The project requires customization of models such as Kawasaki Steam Turbine, Wärtsilä Sulzer marine diesel engine, LNG Membrane and VLCC meaning that the project will be completed in phases.

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MITAGS Provides Ship Modeling to Pilot Groups

The Maritime Institute of Technology and Graduate Studies (MITAGS) and the Pacific Maritime Institute (PMI), have been contracted to provide ship modeling for three major pilot groups. The Pilots' Association for the Bay and River Delaware has contracted MITAGS/PMI to develop a hydrodynamic model of the "Stena Vision Class" Very Large Crude Carriers (VLCC), including a simulated visual database for the entrance of the Delaware River to Sun Oil Dock near the Philadelphia Shipyards. The model and database are an integrated part of a comprehensive training program that has been created for all new Delaware Pilots for each class of vessel. The course will also cover advanced control systems, such as Azipod and Kamewa.

The Chilean Pilots, in conjunction with the Centro de Instruccion y Capacitacion Maritima (CIMAR) School in Valparaiso, Chile, has contracted with MITAGS/PMI to provide advanced ship familiarization training using a hydrodynamic model of the Queen Mary II. The project will include a full visual database of the Beagle Channel and adjoining straits, which was developed by CIMAR. The Queen Mary II is scheduled to arrive in Chilean waters beginning in 2006.

MITAGS/PMI also completed a full-mission ship simulation study for the Bermuda Government's Department of Marine and Port Services and Celebrity Cruise Lines, LLC. The study included advanced modeling of the cruise vessel Century and Hamilton Harbor, Bermuda.

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Kongsberg Outfits New STC Group Simulator Center

The STC Group, the largest maritime training institution in Holland, has opened the doors to its new 2,300 sq. m. simulator facility in Rotterdam. The new simulator center is built on an extensive, state-of-the-art package of simulation technology and services from, amongst others, Kongsberg Maritime.

STC, which has more than 3,500 day students in Rotterdam and offers more than 2,000 course modules awarded the contract to provide simulators and support to Kongsberg Maritime in February 2005. Installation was completed in August, with a site acceptance test signed on September 9, 2005. "We required our new simulation center to provide the most advanced transport, port, dredging and maritime training possible. After careful evaluation of the market and based on an already positive relationship, we chose Kongsberg Maritime to deliver the upgrade and extension of our simulators. We have modified and extended our Engine Room simulators as well as our Inland Waterways simulators, our Ships Bridge simulators and our Cargo Handling simulators," says Jan S. Bakker from STC. "The new and upgraded simulators will enable our students to gain even more out of their training, and ultimately help to make more competent, skilled and safety conscious officers and

engineers, which is a benefit to the whole maritime and transport industry."

"Our simulator center in Rotterdam is presently one of the largest, maybe even the most comprehensive, civil simulator centers in the world. We presently operate simulators for Cargo Handling, Dredging, Container Crane, Off-Shore Platform Crane, Straddle Carrier, Logistics and Transport Chain, Engine Room (including the latest diesel electric engines), Inland Waterways Vessels, Ships Bridge, GMDSS, Petrochemical Refinery, Offshore Oil and Gas production, Electrical Power plant, Fishery and GMDSS (Global Maritime Distress and Safety) System). Due to the high demand for training in our center, it is operated on a 24/7 basis," said Bakker. Kongsberg delivered a high-end operational engine room simulator based on a very large crude carrier with a slow speed turbo charged diesel engine and a fixed propeller. The engine room simulator is based on the latest generation of Kongsberg Maritime's Neptune simulation architecture and boasts the new BigView interactive mimic screen. The delivery also included an upgrade and renewal of the existing engine room simulator, 30 engine room simulator desktop stations and 15 cargo simulator desktop stations

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Dry Dock Conference Planned for March 28-30

Dry docking of ships and vessels is a small but specialized part of the shipbuilding and repair industry. San Diego based DM Consulting, Inc. specializes in dry dock training, education and consulting.

The U.S. Government has two publications that provide good guidance for the dry docking process and dry dock maintenance programs, Naval Ships' Technical Manual Chapter 997 "Docking Instructions and Routine Work in Dry Dock" and Military Standards 1625 "Safety Certification Program for Drydocking Facilities and Shipbuilding ways for U.S. Navy Ships."

Besides these two publications, there is little written about the drydocking of vessels. Engineering and Naval Architecture books include very little specific information on the drydocking of vessels. Often these books will state only that drydocking is very similar to the grounding of a vessel.

To help bridge this gap of information, DM Consulting conducts Dry Dock Conferences, Basic Dry Dock Training courses and consults with companies requiring dry docking assistance.

The fifth in a series of Dry Dock Conferences is scheduled take place at the Hilton Jacksonville Riverfront, Jacksonville, Fla., from March 28-30. This international conference is targeted for Dock Masters, Docking Officers, Engineers, Naval Architects and Port Engineers representing shipyards, engineering/consulting firms and government agencies. International dry dock industry personnel from six continents have attended past conferences.

The goal of the conference is to stimulate the transfer of knowledge and information to personnel in the dry dock industry. The first two days of the conference will



be a series of presentations by experts in the dry dock field or fields related to docking. On the third day, a

couple of presentations will be followed by a tour of Atlantic Dry Dock's dry dock facilities.

This years scheduled topics include:

- Caisson maintenance analysis.
- Damaged submarine dry docking.
- Dry dock equipment.
- Dry docking a submarine without a plan.
- Dry docking with shores (without side blocks).
- Dry dock related software programs.
- Dry dock structural analysis and tow plan.
- Economic and environmental advantages of using rubber docking blocks.
- Floating dry dock automated systems/alarms/sensors.
- Floating dry dock ballast system.
- Floating dry dock tow and work-ups to service.
- Graving dock maintenance.
- Hurricanes lessons learned.
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- Safety of floating dry docks.
- Ship launchings.
- Ship stability.
- Submarine launching/dry dock ship transfer operations.
- Test of dry docking with rubber blocks.
- Underwater camera dry dock systems.

For more information on the conference, visit www.drydocktraining.com or call 858-705-0760

The DockMaster for Windows

DM Consulting and Neptune Systems have teamed to produce "The DockMaster," a Windows based software program designed to assist dry dock personnel in the planning and preparation of dry docking vessels. This program was designed specifically to support the dry docking of vessels. Other Naval Architecture software programs can be used to assist dry docking calculations, however, they are difficult to use without an engineering degree. Dock Masters for Windows was designed solely to guide dry dock personnel through the planning and calculations of dry docking/undocking vessels.

Program features include: Docking and Undocking Calculations; Ship Loading Calculations; Dock Loading Calculations; Emergency Loading Calculations; Tidal Graph Generator; Pumping Plan Generator (floating dry docks); and Calculates in US or Metric Units

The program is an accurate, time saving tool for the individual tasked with ensuring safe dry docking and undocking evolutions. All the standard docking and undocking calculations can be computed using the program including ship size; load limitations; ship stability; corrections for list and trim and; dock loading.

A Weight and Moment spreadsheet provides a fully integrated tool for managing weight changes that occur while the vessel is in dry dock. Additionally, the spreadsheet can be used prior to docking to determine off-setting weights to counter act excessive list and trim. Computations tabulated are vertical, trimming and heeling moments for each weight change or movement. The resultant vessel list, trim, displacement, drafts and stability is automatically updated and displayed.

An Emergency Loading calculation section of the program computes the required side block support requirements for the emergency conditions of high winds or seismic events. The fully integrated Title Graph generator uses results from the docking or undocking calculation and the expected tides to determine time periods for safely dry docking vessels. For yards with floating dry docks, a Tank Loading calculator can tailored to the specifications of the docks tanks. Numeric and graphical results provided for average and estimated load on each tank. With the loading calculations, tank pumping plans are generated.

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Furuno Brings Nav Training In-House



In late November 2005 the first training center in the world established by Furuno — the Furuno INS Training Center (INSTC) in Copenhagen, Denmark — received the certificate of approval from DNV for the ECDIS training course. The course complies with the rules laid out by IMO, the IMO Model Course 1.27. The INSTC was established in March 2005. Its aim is to

educate the crew members onboard vessels equipped with the Furuno navigation and communication equipment. During 2005, INSTC has successfully completed 22 training courses for the crew members who mainly operate the Furuno Integrated Navigation System Voyager. The training allows the crew members to try out the equipment in a full mission navigation simulator in order to exercise the daily use of the equipment as well as to operate the equipment in awkward situations. Furuno is currently planning to establish a second training center in the headquarters in Nishinomiya City, Japan, scheduled to be open in May 2006.

Circle 15 on Reader Service Card

Tug Masters Train at MSI

East Coast ports are seeing a steady influx of Z-Drive tugs to their ship assist

fleets. The Port of Miami is slated to get a new Moran Z-Drive tug early this year, and other ports and other tugs will follow. Five Moran tug masters and mates from the Port of Miami came to Norfolk for three days of Z-Drive training the week of February 6, 2006. Mornings were spent in the simulator at MSI learning the techniques and nuances of Z-Drive tug control. The rest of their training was done on Moran's Norfolk based Z-Drive tugs doing actual ship assist work.

Circle 13 on Reader Service Card

VT Group Buys Training Firm for \$20.9M

Shipbuilding and support services supplier VT Group PLC bought training company Touchstone Learning and Skills Ltd for \$20.9 million. VT acquired the work-based training

provider, which specializes in the retail sector, from Martin Loftus and Touchstone Property Management Ltd. Southampton-based VT is paying \$1.3 million in cash on completion and \$19.6 million in loan notes. Touchstone has annual profits of more than \$1.7 million, operates primarily through UK government-funded contracts with the Learning and Skills Council (LSC) and has offices in several locations across England.

Kongsberg Signs with Maersk Contractor

Maersk Contractor, Norge, has on behalf of Marathon Petroleum Norge AS, awarded Kongsberg Maritime a contract for delivery of a customized Operator Training Simulator (OTS) for the Alvhelm FPSO project. The OTS will allow process training to take place, before, during and after first oil produc-



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tion. The OTS is a tool in assisting delivery of first year operability targets. The OTS will consist of a comprehensive customized dynamic process model based on Kongsberg Maritime's ASSETT. The ASSETT process model will be configured based on the project specific data from the Alvheim FPSO project. The OTS will also include real Kongsberg AIM operator stations, and the control system logic which has been configured for the Alvheim FPSO project.

Alvheim lies on the Norwegian Continental Shelf, west of Heimdal, in production license PL 203, at a water depth of 125 m. The field is operated by Marathon (65%) on behalf of ConocoPhillips (20%) and Lundin Petroleum (15%).

Circle 16 on Reader Service Card

New Allweiler Emulsion Pump

Allweiler AG introduced the EMTEC-A, a screw pump based on its eight-year-old EMTEC series. The new pump is designed specifically for moving emulsions and cooling lubricants, but extra-hard special steel and cast iron ensure safety and a high level of wear resistance even when pumping liquids that contain abrasives. The pump has six standard installation options, special materials with a hardness of 1200 HV for the spindle and rotor housing, complete hydrostatic thrust compensation for the spindles, and a variety of sealing systems



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The new Miller Revolution Harness is engineered with seven unique components and more than 11 key product features. It incorporates key benefits identified by those professionals using fall protection equipment -- comfort, fit, ease-of-use, style, durability, compliance, flexibility and convenience. Unique components include the PivotLink connection; integrated accessory system; cam buckles; ErgoArmor back shield; DualTech webbing and web finials; and self-contained label pack.



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Rising Japanese Engine Output

By David Tinsley, Technical Editor

Against the backcloth of China's seemingly inexorable rise in the maritime industrial stakes, and with South Korea commanding broader areas of the market, Japan continues to demonstrate remarkable resilience as a powerhouse of shipbuilding and ships' machinery. That determination and dynamism is reflected in figures indicating that 2005 saw total annual production among Japan's 11 leading marine diesel engine makers reach its highest level for many years.

According to statistics compiled by Kaiji Press, output amounted to 9.12-million bhp, 21-percent up on the previous year's 7.53-million bhp. Moreover, the combined backlog for the 11 companies reached a new high of 19.3-million bhp by the close of 2005, an increase of nearly 25 percent on the situation 12 months before.

The enduring strength of Japan's engineering base within the maritime industrial infrastructure reflects the solid market position of the domestic shipbuilding sector, as its primary customer, and the engine manufacturers' consistency as regards productivity and contractual performance. During the low periods, not least in past years when the industry as a whole was faced with the debilitating effects of the yen at its strongest, companies took steps to raise efficiency levels further through attention to internal processes and through reinvestment in the means of manufacturing.

Some market pundits have regarded the ship machinery sector's level of exposure to the fortunes of the home shipbuilding industry as a potential weakness. However, the interwoven links, coupled with the business culture and disciplines applied by the companies involved, have resulted in a steady upward trend among the engine makers over the past 10 years. A recent investment milestone for the industry was the completion of a new diesel propulsion assembly shop at the Tamano works of Mitsui Engineering & Shipbuilding (MES), which leads the field in engine production in Japan.

Deliveries by MES during the financial year are set to reach 3.71-million bhp, about 26-percent up on 2004 and more than double the figure for the end of the 1990s, and reflecting both expanding newbuild demand and the advance in average unit powers of shipboard propulsion plant.

The Kaiji Press data puts Hitachi

Zosen Corporation at second place in the 2005 output, with a total of 1.03-million bhp, closely followed by Mitsubishi Heavy Industries, whose 1.01m-bhp was comprised of indigenous UE-series

two-stroke diesels plus Wärtsilä Sulzer models produced under license.

Three of the companies had order backlogs in excess of three million bhp, namely MES (3.92-million bhp),

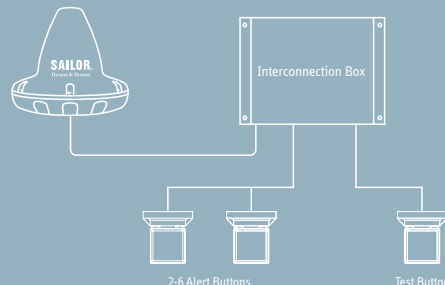
Hitachi (3.92-million bhp) and Kawasaki (3.09-million bhp). MES production is focused on its role as a licensee of MAN B&W, and deliveries from Tamano of the Danish-designed two-stroke series have increased substantially in recent years, from a level of around 1.7-million bhp in the 2000 fiscal period. Output in 2006 is scheduled to show



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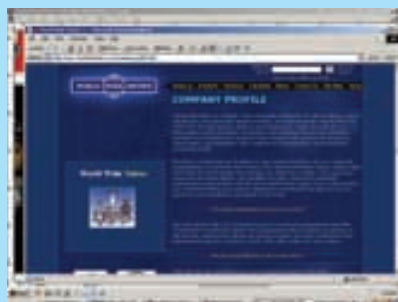


A six-cylinder Sulzer RT-flex 50 marine diesel engine built at Wärtsilä's licensee Diesel United Ltd. in Japan.

a further advance, to 4.2-million bhp. The new assembly shop forms an integral part of an investment strategy aimed at boosting the company's marine diesel production to an annual level of 5-million bhp by the 2008 fiscal year. In addition to supplying its own yards at Chiba and Tamano and other Japanese builders, MES is aiming to increase its business as an engine supplier to the international market. A joint venture in China will broaden the company's role in this regard. Due to start manufacturing towards the end of 2007, the CSSC-MES Diesel Company will be 51-percent owned by Hudong Heavy Machinery and 34-percent by the Japanese company, with China State Shipbuilding Corporation holding a 15-percent stake. The plant will be located at Nanjun, Shanghai.

Japanese-built for Labrador Run

While Japanese shipbuilding's manifold attributes include the volume production of price-attractive, standard-design bulk carriers, competitiveness in the construction of bespoke tonnage is demonstrated by an impending new delivery for a Canadian transportation project. Fednav's 31,500-dwt icebreaking bulker Umiak-1, nearing completion at Universal Shipbuilding Corporation's Maizuru yard, will serve a long-term contract covering the movement of nickel concentrates from the Voisey's Bay mine development



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Mitsubishi Launches Hatsu Smile



On February 4, 2006, Mitsubishi Heavy Industries' Kobe shipyard launched Hatsu Smile, the fourth in a series of ten 7,024 TEU S-type container vessels that the shipbuilder is constructing for the Evergreen Group. The ship will be operated by London-headquartered Hatsu Marine Ltd. Hatsu Smile was named by Mr. Chang Kuo-Cheng (K C Chang), Vice Group Chairman of Evergreen Group and Chairman of Evergreen Marine Corp. The honor of cutting the ceremonial rope sending the traditional bottle of champagne against its bow to launch and send the vessel on its way down the slipway was given to Mrs. Kuo Yeh Chiung-Yu, wife of Captain S Y Kuo who is also Vice Group Chairman for the Evergreen Group. The Evergreen Group is taking delivery of 18 large post-Panamax containerships over the period 2005 to 2008 - 10 S-types and eight 8,063 TEU C-types. Hatsu Smile is due to be delivered to Hatsu Marine towards the end of May and will commence her maiden voyage to Europe shortly thereafter.

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in northern Labrador to the St Lawrence River.

Although the loading terminal at Edward's Cove is located just south of the 60-degN parallel, outside the Arctic Circle, winter ice conditions are more demanding than those in many high Arctic areas. Navigation along the 50-km channel between the loading point and the sea, and the run down the Labrador coast, will present the Umiak-1 with some of the world's most rugged ice conditions faced by commercial shipping, including the presence of icebergs off the coast.

The new, geared bulker will be larger and more powerful than Fednav's 1978-built, 28,400-dwt Arctic, and will incorporate many design and operating features derived from experience with the existing ship's winter voyages to the Raglan mine in northern Quebec state. Besides an icebreaking bow, and bow wash system to help reduce friction in ice, the newbuild will have a V-shaped stern and ice knife to protect the rudder. Canadian technical expertise will also be applied through the installation of a state-of-the-art navigation system developed by Fednav's associated company Enfotec.

Newbuild surge for VLCCs?

Primarily the domain of South Korean and Japanese yards, with an increasing involvement by Chinese shipbuilders, the VLCC orderbook of around 95 vessels equates to one-fifth of the existing fleet. London broker Galbraith's anticipates that the resulting growth in worldwide capacity through 2009 will exert downward pressure on freight rates, but that the picture should change subsequently as more single-hull crude carriers are removed from the market.

In a detailed report* on future prospects for the sector, Galbraith's considers that there will be a substantial withdrawal of tonnage resulting from regulations governing the phase-out of single-hull tankers, spurring increased demand for VLCC newbuild deliveries in 2009 and 2010.

It is estimated that shipyard capacity for VLCCs could amount to some 80-90 vessels for 2009 and 2010 combined. However, cost is already proving a deterrent to some owners, given the fact that VLCC newbuilds are currently commanding almost twice the price levels pertaining in 2002. Should this situation persist, and should delivery positions be lost to other types of vessel, very tight VLCC market conditions

could be experienced in 2010/2011 if demand continues to develop.

"If tanker demand grows more strongly than expected, and this is combined with a relatively low level of ordering and a situation in which more flag states,

port states and charterers become unwilling to accept single-hull tankers, this would imply a severe shortage of tonnage," counsels Galbraith's.

The in-depth report analyses the dynamics of the VLCC market, and pro-

vides a number of different scenarios for future supply and demand, reflecting both on the requirement to order replacement tonnage and the capacity of shipyards to deliver such vessels. Notwithstanding the generally buoyant

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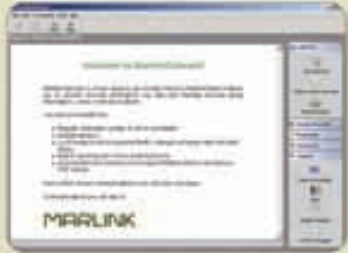
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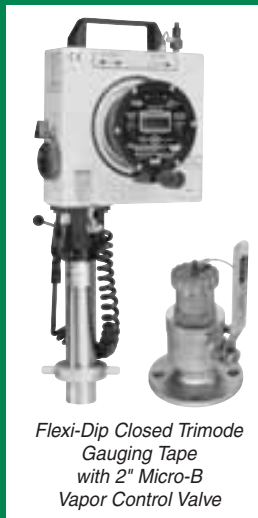
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outlook for crude carriers, the study considers the wider possibilities. In the event of a situation of over-supply in 2009/2010, for instance, it is suggested that a clear two-tier market could develop, with double-hull vessels attracting higher rates than single-hull tankers.

In addition to market analysis and evaluation of future developments, the new volume includes full listings of all known VLCCs in the trading fleet and on order as at January 1, 2006, reflecting both beneficial and disponent ownership and employment.

*'VLCC Market Outlook to 2010 and Fleet Ownership and Employment Analysis', available at US\$750 from Galbraith's Research Department, London tel +44 (0)20 7898 5537, e-mail: research@galbraiths.co.uk

Green ships for Evergreen

The new S-type containerships for Evergreen are noteworthy in that they incorporate new environmental features that go beyond current and soon-to-be-introduced international requirements. Dr. Chang said "We should not wait for legislation to be introduced. We should use the latest technology as soon as it is available so as to minimise the impact of container shipping operations both on marine life and on port communities. Although our market is price-driven and highly competitive, with our customers all seeking to achieve the lowest shipping costs, we know that most of them are also very aware of the environmental issues. We can assure them that Evergreen will provide first-class services whilst maintaining the highest environmental standards." The S-class incorporate a double-skinned hull and all fuel tanks have been located within the transverse bulkhead spaces, helping to minimize the risk of oil pollution or fire as a result of grounding or collision. A high capacity oily water separator enables the oil content of waste water to be reduced below 15 ppm while much larger separator bilge oil and bilge oil holding tanks provide more storage capacity than normal, enabling the vessels to avoid any discharge when sailing in sensitive areas and to maximise the amount of waste that can be held for ultimate disposal in specialised shore facilities.

Similar arrangements have been made for handling sewage and so-called grey water, including water from the cargo hold bilges, when the vessels are in port or close to shore.

The main engines and generators incorporate low NOx technology while the ships are also able to switch to low sulphur fuels when sailing in restricted areas such as the Baltic Sea.

'Cold-ironing', the ability to shut down all shipboard generators while in port, switching to shore-based electricity supplies, is also a feature of the S-class vessels. So far, only the Port of Los Angeles has initiated an Alternative Maritime Power (AMP) programme that requires ships to shut down their diesel generators while in port but Evergreen expects many more ports to follow LA's lead. The Group estimates that the cost of meeting AMP requirements amounts to approximately \$2m per vessel. The latest tin-free anti-fouling systems are also being used for the underwater hull coatings of the S-types and are being applied to other vessels in the Evergreen fleet when they undergo routine drydockings. These new coatings are replacing systems that, although highly efficient and widely used globally, were found to have a negative impact on marine life. Evergreen has chosen to class those S-class vessels allocated to Hatsu with Lloyd's Register (LR) while those for operation by Evergreen Marine Corporation will be classed with the American Bureau of Shipping (ABS). It will be applying to LR for EP (environment protection) notation and to ABS for the equivalent ES (environment safety) notation. With an overall length of 300 m and a beam of 42.8 m, the S-class vessels are able to carry containers 17 rows across on deck and 15 rows across below deck. They have a deadweight of 78,700 tons on a service draft of 14.2 m. Each vessel has a single 10-cylinder Mitsubishi Sulzer 10RTA96C main engine developing 74,700bhp (54,900KW) to provide for a service speed of 25.3 knots.



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The duties and responsibilities include, but are not limited to, the following:

- * Attends assigned vessels as required to have in-depth information of current material condition of vessel. Prepares Ship Visit report to document conditions observed. Reviews vessel reports to monitor operating condition and efficiency.
- * Reviews all vessel engineering logs, including, but not limited to, boiler water analyses, fresh water treatment, purging routines, megger and cathodic protection, to insure compliance with equipment guidelines.
- * Reviews all vessel maintenance and engine logs to insure that company policies and procedures are being followed in terms of equipment maintenance and inspections.
- * Inspects vessel planned maintenance programs and machinery histories. Makes recommendations for improvements in maintenance cycles; develops equipment change-out plans.
- * Monitors the vessel work requests in the SAFENET system. Evaluates requests for completion by most effective means on vessel or in shop, arranges vendors and material, confirms repair activity, monitors quality and cost, and finalizes the repair cost for accounting. On monthly basis reviews the open items for resolution and cost accrual.
- * Monitors that purchase requisitions are accurate and contain the information necessary to meet operational and quality criteria.
- * Prepares specifications for projects or dry-docking events. Coordinates the project or dry-docking, including the ordering of material, scheduling tech reps or specialists, sending specifications for quotation, evaluating bids, recommendation of vendors/dry-dock, on site management of project, maintains cost records and reports to management as directed, negotiates the costs, and communicates to Operations Dept. vessel schedule as needed.
- * Maintains ongoing knowledge of current conditions of assigned vessels. Has ready file of pending work and keeps upper management notified of any work that may have schedule impact.
- * Assists in preparation of repair, project, and dry-dock budgets.
- * Provides technical consultation to vessel as required during routine or emergent repairs.
- * Coordinates regulatory inspections/surveys with ABS and USCG. Monitors existing OSR s or deficiencies and plans resolution in timely manner to minimize impact on schedule.

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First Littoral Combatant Takes Shape in Midwest

By Edward Lundquist

The future of the U.S. Navy is taking shape today, hundreds of miles from any

ocean. The first Littoral Combat Ship (LCS), USS Freedom (LCS 1) is being built at the Marinette Marine Shipyard

in Marinette, Wis., on Lake Michigan.

Three years ago, a ship like this was just an idea. As the Navy recognized the

need for capabilities to defeat asymmetric threats in the littoral, or coastal waters, of the world, studies and campaign analyses pointed to a sizeable number of fast, reconfigurable focused-mission combatants as the best solution. After a competition evaluating multiple concepts and designs, two teams headed up by Lockheed Martin and General Dynamics were chosen to build the first two LCS platforms.

For the first time, the Navy is developing the basic "seaframe" hull apart from the modular combat capability, which will be switched out as operational requirements dictate. This flexibility makes LCS a focused-mission ship, able to take on the three most important missions in littoral warfare: mine warfare, anti-submarine warfare and anti-surface warfare.

The Lockheed Martin (LMCO) team's LCS is being designed by naval architect Gibbs and Cox, based on the semi-planing monohull design of the Italian shipbuilder Fincantieri.

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Fairbanks Morse Engines for LCS

Fairbanks Morse Engine recently delivered the second of two Colt-Pielstick, 16-cylinder diesel engines for installation aboard the U.S. Navy's first Littoral Combat Ship (LCS). USS Freedom (LCS-1) will be the first LCS to join the Navy's surface fleet and is currently being produced by defense contractor Lockheed Martin at Marinette Marine Corporation in Marinette, Wis. The ship is expected to launch summer 2006 and will be home ported in San Diego.

The two Colt-Pielstick 16-cylinder PA6B STC engines manufactured by Fairbanks Morse will provide more than 17,000 bhp for Freedom, and will propel the ship by operating independently or jointly with two gas turbines to drive four water jets. Fairbanks Morse delivered the first LCS engine in early January 2006.

"These engines will provide economical, compact, dependable propulsion power for Freedom," said Norlen Meton, LCS Program Administrator at Fairbanks Morse Engine.

Circle 27 on Reader Service Card

the same type hull, holds the trans-Atlantic crossing record with an average speed of 53 knots. They have also built 3000-plus ton ferries utilizing that same hull design with top speeds of 40 knots. Two shipyards will build the LMCO seaframes, Marinette Marine of Marinette, Wis., and Bollinger of Lockport, La.

"We can build three ships a year in each shipyard," says Joe North, LCS program director for Lockheed Martin. LMCO must deliver the first ship in 24 months and based on learning curves should be able to deliver subsequent ships in 18 to 20 months each.

LCS will be unlike any U.S. Navy combatant ever built. Key to the modular design are the standard interfaces, so different mission packages can "plug and fight" with either the LMCO or General Dynamics seaframes.

LCS will have a great deal of interior volume for carrying mission modules.

"We've mapped our tools and processes across all members of our team," says North. "If Gibbs and Cox updates drawings, that change will appear instantly at both Marinette and Bollinger. There will be no differences in the ships produced by the two yards."

The first LCS will be an international product. The gas turbines and water jets (the largest water jets the U.S. Navy has

ever used on a combatant) come from Rolls-Royce. The diesels are made in the U.S. by Fairbanks-Morse. The European consortium EADS will provide the TRS 3-dimensional radar. Navantia of Spain is making the gunfire control systems for the BAE Systems Swedish-built BOFORS 57mm guns.

LCS will have a combined gas turbine and diesel power plant, with shafts that will power the water jets. Two of the four water jets are steerable and reversible, eliminating the need for traditional rudders and provided exceptional maneuverability.

Unlike previous classes of combat-

ants, the warfighting power of LCS will reside in offboard systems. The ship can carry two MH-60 helicopters or one helicopter and three vertical take-off unmanned aerial vehicles, and will have stern and side doors for launch and recovery of boats and remotely operated surface and underwater vehicles.

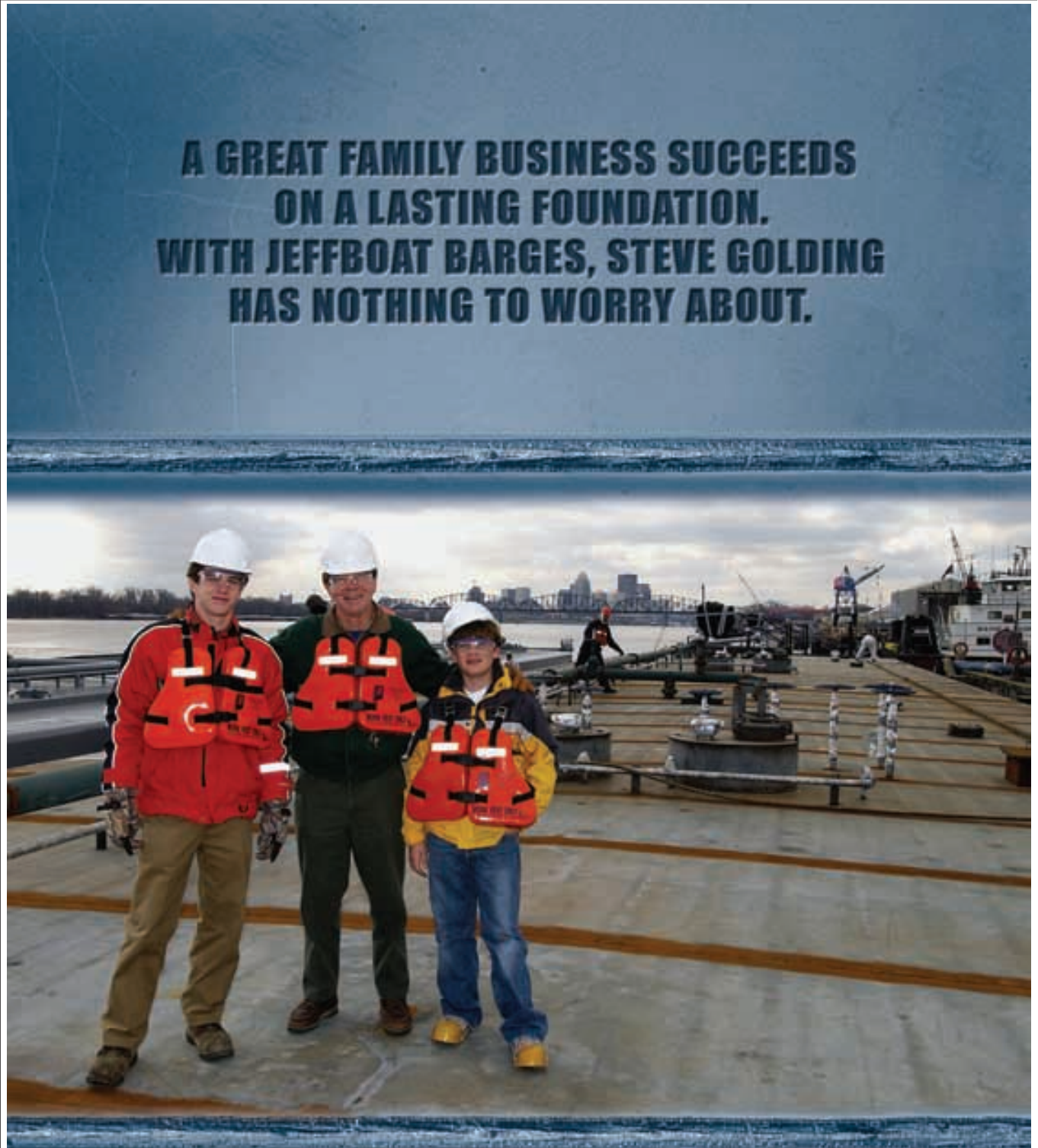
Lighter, Quieter Power Generators for U.S. Navy Ships

A Northrop Grumman Corporation-led team has been selected by the Naval Sea Systems Command (NAVSEA) to begin a design of a 40-MW high-temperature superconductor (HTS) generator intended to provide a smaller, lighter and quieter main power source for future surface combatants.

Northrop Grumman Marine Systems, teamed with American Superconductor Corporation, will complete a concept design and explore different configurations of the HTS generator while assessing the impact on generator characteristics associated with voltage, phase-count, pole-count and cooling selection.

The Navy has an option to exercise an additional three-year contract worth \$3.9 million to continue the trade studies that will help evaluate differences from conventional generator designs while validating weight, size, acoustic performance and cost for a 40-MW high-temperature superconductor generator.

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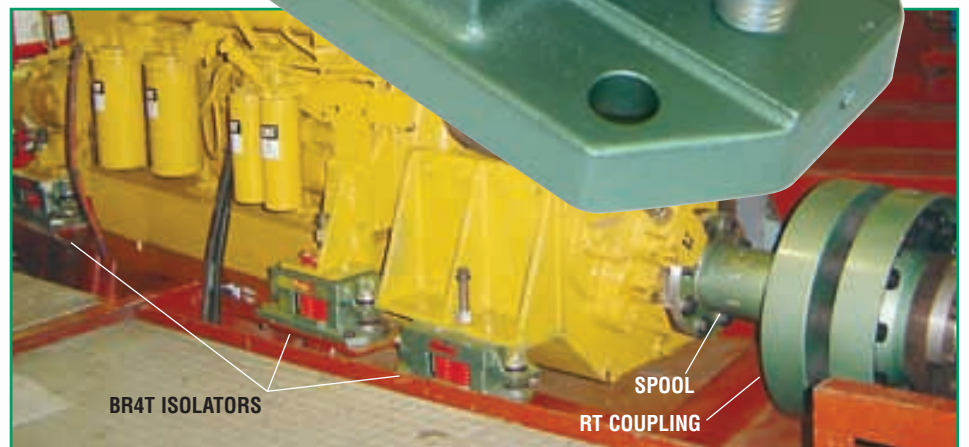
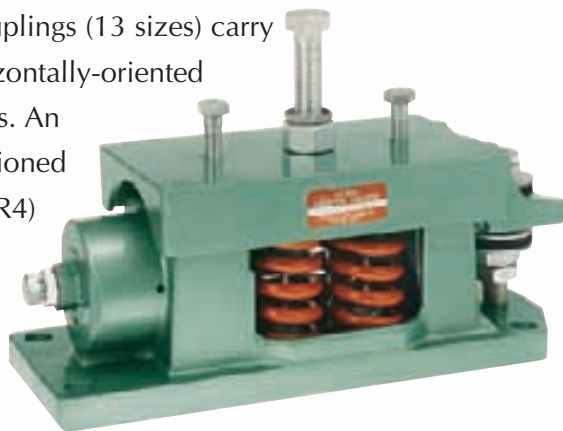
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Innovative Construction Techniques for LCS

By Edward Lundquist

Marinette Marine, a division of the Manitowoc Company, is building the first Littoral Combat Ship (LCS) at its Marinette, Wis., shipyard. Many new and special techniques are being employed to build this new class of ship. LCS is being built to the "Navy Vessel Rules" standard, and will be the first U.S. Navy combatant classified by the American Bureau of Shipping.

The first ship must be built in 24 months, but subsequent ships, and a learning curve should allow the team to complete future ships in 18 to 20 months.

With any first of a class vessel, the challenge and the opportunity are in overcoming the learning curve. "We're learning as we go along," said Al Bernard, Marinette's senior vice president.

Marinette is using a new type of welding for LCS, called "Surface Tension Transfer Welding." It's faster, uses less heat, and has less distortion," said Kevin Shaver, Marinette's director of manufacturing.

The ship will be assembled upside down. "All of our work is hands down instead of working upright into awkward positions. This makes it easier for the welders and the quality is better," said Shaver.

To achieve high speeds, LCS must be much lighter. LCS will have a HSLA 80 steel hull, with smaller, lighter frames and a thinner, stronger skin.

The lighter steel requires more accurate welds since LCS is being built to very tight tolerances. Every seam is vacuum box checked by Marinette workers under the supervision of ABS and the Navy's Supervisor of Shipbuilding (SupShip).

"Plate is thinner than a traditional Navy cruiser or destroyer hull, but is equal to or improved over frigate hulls. Thinner plate means less weight, and less weight means more speed," said Shaver. "There is added 'structure' up in the bow because of the high speed and the slamming against the thinner plates."

"All of our work is done indoors," said Bernard. That's important because Marinette gets 40 inches of snow a year, and the average temperature in the winter is 19-degrees (F)."

Marinette is employing extensive "pre-outfitting," where piping, wiring and insulation are installed into the sections of the hull and superstructure

before erection. "Each section will be about 80 percent complete when it is mated with the rest of the ship," said

Shaver. "All we have to do is join up the wiring and piping."

"When we roll the ship out, it will be

80 to 85 percent complete before it goes into the water," he said. "Then we'll put on the masts and other items that we



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can't do in the assembly building."

Bollinger will use similar technologies for jig designs and cutting on the same panel lines.

"Bollinger has representatives working along side us here, and we have people down in Louisiana," Shaver said.

"Bollinger is building one of the hull sections for LCS 1 at their yard in Louisiana which will be brought here for final assembly."

The steel for the LCS hull is made in the U.S. The superstructure will be made from aluminum. That requires a

different assembly area and tools because steel and aluminum contaminate each other.

According to Bernard, steel has the combined advantages of being relatively inexpensive — as opposed to composites and other alloys — and immensely

strong. Aluminum is best used in the deckhouse where its lighter weight will increase stability, vice below in the hull where slamming and stresses are higher. The problem of attaching one to the other was solved by a 'detacouple,' a bimetallic strip whose upper portion is aluminum and the lower is steel, with the halves bonded together explosively. This permits welding of aluminum-to-aluminum, steel-to-steel, thereby eliminating the obvious problems of a bolted and gasketed connection.

Joining the sections together requires precision. When in place, the drive train from the engine to the reduction gear, shaft, and water jets will be more than 100-feet long, and all must be in perfect alignment.

LCS will have more horsepower than a cruiser. "It will be just like a warship," says prospective commanding officer Cmdr. Don Gabrielson, "only faster."

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The USS San Antonio (LPD 17) is the first Amphibious Transport Dock Ship of the 12-ship San Antonio Class. Special innovations in the ship's design enable the San Antonio Class to perform multiple missions. This class of ships is the functional replacement for four earlier classes of less capable amphibious ships. The San Antonio LPD17 Class Ship is the first amphibious ship designed to accommodate the Marine Corps' Expeditionary Fighting Vehicle (EFV), Landing Craft Air Cushion (LCAC), Landing Craft Utility (LCU) and the new tilt-rotor MV-22 Osprey for high speed, long range tactical-lift operations. Deployments of this ship class will provide naval expeditionary forces with enhanced operational flexibility; operating as part of an Expeditionary Strike Group (ESG) or as a single ship operating independently. The LPD 17 class may directly support SEALs, joint U.S. forces and other forces because of her design mission flexibility. LPD 17 is the first U.S. Navy ship named for the city of San Antonio, Texas. The city of San Antonio was founded in 1718 by Father Antonio Olivares when he established the Mission San Antonio de Valero. The legend of this mission became permanently etched in the history of Texas as The Alamo. In 1836, 189 Texans commander by Colonel William Travis defended the Alamo and held the old mission against 4,000 Mexican troops under the command of General Santa Anna for 13 days. USS San Antonio (LPD 17) was commissioned at Ingelside, Texas on January 14, 2006. The ship's motto is "Never retreated, Never surrender." (Text & Image: Peter Hsu, Anteon)

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Hybrid Sailors will be Mission-Oriented

The Navy's new Littoral Combat Ship (LCS) will have a small but highly capable crew. The first on a new class of warship, USS Freedom (LCS 1) is being built in Marinette, Wis., and will join the fleet in 2007.

LCS will have a highly cross-trained crew, referred to as "hybrid Sailors," according to Freedom's prospective commanding officer, Cmdr. Don Gabrielson. LCS will have two crews, Blue and Gold, each with 40 Sailors, all with sea duty experience. The Blue crew has already filled 38 billets, and the Gold crew billets will be filled very soon. Detailing for the next crews has also begun.

The aviation detachment will bring another 20 people aboard, and the mission package will arrive with 15 mission specialists, for a total crew of 75. "Every LCS Sailor and Officer will have been to sea already. It will be the norm," said Gabrielson.

"Having an 'off crew' provides depth," said Freedom Gold crew PCO Cmdr. Mike Doran. "It's a 'bullpen' for reach back."

Gabrielson adds, "There are two crews but only one team in Freedom. It's how we have to operate to win, and that won't change even with two, five or fifty ships. We're standardizing everything we can, all the way down to instructions and stowage, we're even looking at standing orders."

Since the crew will be small, each member will have to be able to do more than one job. The traditional rating and Naval Enlistment Classification (NEC) assignment method won't work. Instead, LCS will have hybrid Sailors who have multiple skills.

"We're not going to be one deep in anything," Gabrielson said. "The amount of cross training is very high. It doesn't matter what the rating badge says."

"Our IT1 Smith has Information Systems Technician (IT), Electronics Technician (ET), and Fire Controlman (FC) NECs," said Gabrielson. "He's currently going to the Computer Technician School baseline technician for AEGIS computers."

"IT1 Smith is not the exception," Gabrielson said. "He is the norm."

For example, the crew's Chief Quartermaster is going to JTIDS school (Joint Tactical Information Distribution Systems) school. An Engineman, Gas Turbine Specialist and Damage

Controlman are going to welding school. A GSE (Gas Turbine System Technician, Electrical) will be attending

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qualified in submarines.

Even the Command Master Chief, who normally focuses on being the senior enlisted advisor, will be a watchstander. He's currently in navigation school.

With such a comprehensive training

pipeline, a petty officer will be assigned to LCS and will probably be a CPO by the time they complete their tour. This means that the rest of the Navy will benefit from the experience of LCS Sailors, and it will change the way the entire surface navy is trained and detailed in the

future.

Doran said the Navy realizes you can't train people for two or three jobs and expect them to work two or three times as hard. "The crew will be focused on the execution of its mission. We're getting the nickel and dime workload off the ship," he said.

Much of the maintenance, administrative and supply functions will be accomplished at the ISIC (Immediate Superior in the Chain of Command) level.

The LCS crew will have a very tactical role, in much the same fashion as a P-3 crew has when they go out on a maritime patrol mission. "We're eliminating overhead so people can focus on their jobs. You have to have PMS and 3M, but much maintenance will be jobbed out to maintenance support teams," says Gabrielson.

There will be no fire parties suited up in a repair locker waiting for the ship to

take a hit during General Quarters. Instead, everyone will be fighting the ship. But everyone will be well trained in damage control. "Even though the ship has autonomic fire fighting capabilities, something can fail, and we'll have to save the ship," according to the Damage Control Assistant, DCC Charlie Lopez.

There will be no first-termers on LCS. Everyone will have sea time. "This is no place to hide. No time to learn your job, and no place to hide someone who doesn't already know what they need to do to get the mission done," said Gabrielson. "You'll have to be able to go to work. There's no place for unions in this program."

The Enlisted Surface Warfare qualification program will be the backbone of the training program. But it won't be a list of questions and answers, a multiple choice "Trivial Pursuit" game. It will be

Maritime Professional Training

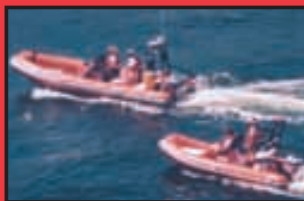
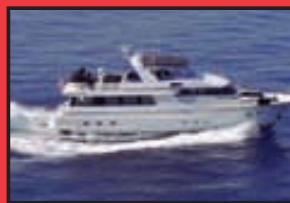
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Gridley (DDG101)

Gridley (DDG101), the 27th Arleigh Burke Class Destroyer built at Bath Iron Work and the 51st ship of the class, was christened February 11, 2006 in Bath, Maine. Her namesake, Capt. Charles Vernon Gridley, was born in Logansport, Ind., on November 24, 1844. Charles Gridley grew up in Hillsdale, Mich. In 1860 the 16 year old Gridley was appointed to the U.S. Naval Academy. He graduated in 1863 and reported for active duty on October 1, 1863.

Gridley's first posting was in 1864 aboard the USS Oneida, a steam powered sloop serving under Rear Admiral David Farragut, in the West Gulf Blockade Squadron where Ensign Gridley faced his first combat in the Battle of Mobile Bay. Gridley rose rapidly being promoted to Master in 1866, to Lieutenant in 1867 and to Lieutenant Commander in 1868. In 1882 Gridley was promoted to Commander and commanded the sail-training ships USTS Jamestown where he applied his teaching and leadership abilities.

In 1892 Gridley was ordered to report to the Asiatic Squadron and take command of the USS Marion, where he acquired first-hand knowledge of the Manila Bay harbor that would prove useful five years later.

On March 14, 1897, Gridley was promoted to Captain and selected to command the USS Olympia (C 6), the flagship of Commodore George Dewey. On May 1, 1898 following the sinking of the USS Maine in Havana, Commodore Dewey's Asiatic Squadron, with Gridley's ship in the lead, steamed into Manila Bay. Through seriously ill at the time, Gridley stood in his post and firmly declined Dewey's offer to retire from action. "Thank you Commodore, but she is my ship and I will fight her" Gridley insisted. After maneuvering his forces into position, Dewey calmly passed his famous order to his flag captain,

"You may fire when you are ready Gridley"

In a matter of hours the Spanish Fleet under the command of Admiral Montojo was defeated. Soon after the battle, Captain Gridley was mortally ill, bed ridden, and was relieved to begin a long journey home from Hong Kong aboard a commercial steamship. Gridley died enroute home on June 5, 1898 and was cremated in Yokohama. His ashes were returned to his family in Erie, Pa., for burial. Cathy W. Forst - is the great-great granddaughter of Capt. Gridley - is the Gridley DDG101 ship sponsor. There were three previous warships honoring the namesake. The first was a four "piper", USS Gridley (DD 92), a Wicks Class Destroyer commissioned March 8, 1919. The second was the Gridley Class Destroyer, (DD 380), commissioned June 24, 1937. The third USS Gridley was a Leahy Class Guided Missile Destroyer Leader, (DLG 21), commissioned May 25, 1963. Commander Steve Shinego, USN is the prospective commanding officer of the fourth Gridley (DDG 101). The honorable Dr. Delores M. Etter, assistant secretary of the Navy for Research, Development, and Acquisition was the principal speaker in the christening ceremony.

(Text & Image: Peter Hsu, Anteon)



based on demonstrated performance, much like Submariners have to do to qualify for their Dolphins. Early on, the CMC and PCO recognized the need for a comprehensive new program that expects more performance and real knowledge.

Despite the challenge of an LCS

assignment, Lt. Cmdr. Kris Doyle, Freedom's prospective executive officer, said many Sailors are very interested in LCS. "I've had a lot of people contact me about how they can get involved in LCS."

Everyone will participate in seamanship evolutions such as underway

replenishment and launching and recovering of aircraft and unmanned systems. Everyone will be fully qualified with weapons. Most will be qualified and participate in boarding parties.

"If the .50 cal. gun jams, you can't step back and wait for a Gunner's Mate to come and fix it," said Gabrielson.

There won't be any special insignia for LCS qualified Sailors. But LCS Sailors will stand out. "The proof will be in their assignment history," said Doran. Adds Doyle, "It will say USS Freedom on your rocker."

— Edward Lundquist

DRS Receives \$34M Navy Deal

DRS Technologies was awarded several new contracts with a combined value of approximately \$34 million to design and produce power conversion, distribution and control equipment, and advanced propulsion equipment for next-generation and existing classes of U.S. Navy combatant surface ships and submarines.

The contracts were awarded to DRS by the Naval Sea Systems Command (NAVSEA) in Washington, D.C., Defense Advanced Research Projects Agency (DARPA) in Arlington, Virginia, and various U.S. Navy shipyards and prime defense contractors. For these orders, DRS will design, manufacture and test advanced instrumentation and control, power distribution and shipboard propulsion equipment for both low- and medium-voltage shipboard conventional and nuclear powered electric plants supporting U.S. Navy combatant submarines and surface ships.

DRS also will perform significant after-market repair activity for electric plant control and monitoring system components.

"The receipt of these new contracts supports our strategic intent to become a full line supplier of complete shipboard electric power plant systems, including control, distribution and propulsion equipment and all associated integration and support services for new and updated legacy fleets," said Steven T. Schorer, president of DRS's C4I Group. "The systems and components built by DRS under these and other contracts are vital to current and future classes of surface and submarine combatants.

As a key supplier of integrated power systems equipment to the U.S. Navy shipbuilding industry, DRS is a leading force in shaping the future of the Navy's high-performance, integrated electrical systems and in providing critical power technology refresh for the existing fleet."

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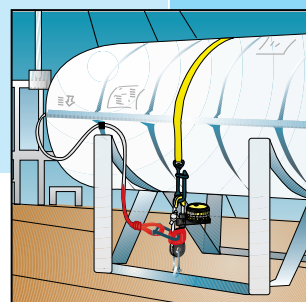
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Forrest Sherman (DDG 98)

Forrest Sherman (DDG 98) is the 23rd Aegis Guided Missile Destroyer built by Northrop Grumman in Pascagoula, Miss., and it is the 48th ship of the Arleigh Burke Class. The guided missile destroyer honors the famed World War II strategist and former Chief of Naval Operations. Forrest Percival Sherman was born in Merrimack, N.H., on October 30, 1896. He entered the U.S. Naval Academy in 1914 and graduated in June 1917. Sherman served in the European theater in World War I in the gunboat Nashville and the destroyer Murray. He took command of Barry in 1921. After flight training in Pensacola, Fla., Sherman was designated Naval Aviator in December 1922 and served on the USS Lexington during the carrier's first year in service.

He twice held squadron commands aboard the USS Saratoga and served as navigator of the USS Ranger prior to joining the staff of commander, U.S. Fleet. When World War II began, he served in the war plans division under the chief of naval operations. After assuming command of the USS Wasp in May 1942, he attained the rank of captain and earned the Navy Cross for his leadership of that ship during early phases of the occupation and defense of Guadalcanal in the Solomon Islands. After a Japanese submarine sank USS Wasp on Sept. 15, 1942, he became chief of staff, to Commander Air Force, Pacific Fleet and served in that capacity until November 1943, when he became Deputy Chief of Staff to Admiral Chester W. Nimitz. Sherman was present and stood next to Admiral Nimitz, General McArthur and Admiral Halsey onboard the USS Missouri for the surrender of the Japanese empire on September 2, 1945. He earned a Distinguished Service Medal for his role in planning the captures of the islands of the Gilberts, Marshalls, Marianas, Western Carolines, Iwo Jima, and Okinawa. Following a brief tenure as commander, U.S. Naval Forces, Mediterranean, Sherman became the youngest man ever to serve as chief of naval operations on November 2, 1949. He served as Chief of Naval Operations from November 1949 until his death on July 22, 1951. Forrest Sherman's 81 year-old daughter, the DDG 98 ship's sponsor, gave the order to "man the ship and bring her to life" at the Commissioning Ceremony in sunny Pensacola, Florida. Commander Michael G. Van Derrick, USN is the first commanding officer.



(Text & Image: Peter Hsu, Anteon)

New Rolls-Royce Coastal Protection Vessel Unveiled



Rolls-Royce last month unveiled the latest design in its family of coastal protection vessels at the Pacific 2006 exhibition in Sydney, Australia. The latest design, the UT527, delivers firefighting, emergency towage and pollution control capability and can hold up to 320 survivors of a marine disaster. A medium-sized helicopter and two smaller daughter craft are also available for specific missions. It can remain at sea for up to three years without return if required, changing crew and being replenished at sea. The 92-m ship, powered by Rolls-Royce Bergen diesel engines, would be capable of more than 20 knots and have an un-refuelled range of 20,000 nautical miles at 16 knots. The company has identified three naval markets for its ship designs - Coastal Protection (Exclusive Economic Zone) vessels, Underway Replenishment ships, and Fast Logistics vessels.

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M. Ship Launches Experimental Vessel

M. Ship Co. launched the M80 Stiletto, designed as an operational experiment for the Pentagon's Office of Force Transformation (OFT) and an example of the next generation of military vessels that combines new materials (carbon fiber), with a networked architecture and a revolutionary hull.

The M80 Stiletto initiative is part of OFT's Wolf PAC Distributed Operations Experiment, conducted in association with USSOCOM, to explore command and control of geographically dispersed, but networked, autonomous and semi-autonomous military forces. This new concept of operations by the Department of Defense is in response to diffuse threats that are perceived as emerging in the future.

"We are confident that the M80 Stiletto's design is superior to all other existing technologies. Nothing else is out there than can achieve the qualities important to brown water vessels at a relatively low cost with short design and production cycles," said Chuck

Robinson, co-founder of San Diego-based M Ship Co. and a former deputy secretary of state with Henry Kissinger.

The 88-ft. long vessel features M Ship Co.'s patented M-shaped hull that is designed to provide a stable yet fast platform for mounting electronic surveillance equipment or weapons, or for conducting special operations.

The hull design does not require foils or lifting devices to achieve a smooth ride at high speeds in rough conditions. Its shallow draft means the M-80 Stiletto can operate in riverine environments and potentially allows for beach landings. The fuel-efficient M-80 Stiletto is equipped with four Caterpillar engines, yielding a top speed in excess of 50 knots (nearly 60 miles per hour) when fully loaded and can be outfitted with jet drives for shallow water operations and beaching.

The M-80 Stiletto is also notable because it is the largest U.S. Naval vessel built using carbon fiber composite and epoxy building techniques, which yields a very light, but strong hull.

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Breakthrough for Next-Generation Ship Radars and Communications

The push to develop smaller, lighter, efficient, cost effective military communications technologies in University of Idaho laboratories has reportedly led to some breakthrough research in materials fabrication. Professors Yang-Ki Hong, David McIlroy, Richard Wells, Wei Jiang Yeh and Jeffrey Young of the Microelectronics Research and Communications Institute (MRCI) have been working to develop thick hexaferrite films for use in wideband circulator devices essential to military communications. Ferrite is magnetic material comprised of iron oxide and other chemical compounds. It is used in devices like circulators, which allow microwave communications systems to receive and transmit electromagnetic signals simultaneously. In such applications, ferrite films are expected to reduce manufacturing costs, increase microwave communications efficiency and result in smaller, light-weight communications devices. Ferrite films can also be used effectively in filters, isolators, inductors and phase shifters, which are also critical devices in military systems. The Navy, particularly, has demonstrated interest in materials science that might lead to improved technologies. Office of Naval Research (ONR) grants support the UI's Advanced Microwave Ferrite Research (AMFeR) project, which began in March 2004.

They have reportedly had unprecedented success in two key areas of the research: the growth of 107 micron single crystalline hexaferrite films and the fabrication of several wideband microwave circulators for radar applications. The breakthroughs have not gone unnoticed by the ONR, which has recognized, in particular, professor Hong's strides in the development of magnetic thick films. Hong and his students are the first in the world to produce 107 micron thick, c-axis oriented, single crystalline hexaferrite film in the out-of-plane direction. The Navy praised Hong's results as "outstanding" and has congratulated the team for making progress toward "the Navy's next generation agile-bandwidth RF goals."

Hong's research surmounted many long-standing obstacles in film growth development by considering a wide variety of techniques and materials.

"We are dealing with some very fundamental scientific issues of how to work with magnetic materials in an integrated circuit or on a chip," said Young. "This is fundamentally changing the way we fabricate and integrate magnetic materials into existing commu-


tions circuitry."

"We are looking at how to make a circulator wider band, so more information can be processed through it; make it more efficient, so we don't lose too

much energy in the system; and, if we can, to make it smaller and lighter weight," said Young.

Once the device emerges from UI labs, the technology will be transferred

to the Navy and evaluated for use in large-scale shipboard systems, including missile guidance and targeting systems. The UI team hopes to have a prototype built and tested by the end of 2007.



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Primorsk Tanker Features Hyundai-Transas "Intelligent" Bridge

Late last year Pavel Chernish, a new tanker built by Hyundai Heavy Industries, was delivered to Primorsk Shipping Corporation (PRISCO). Pavel Chernish is a vessel of ice class 1A according to the DNV classification and fully complies with the requirements of Exxon Neftegaz Ltd, subsidiary of Exxon Mobile. The tankers are designed for oil transportation within the Sakhalin - 1 project. Hyundai Heavy will build a total of five vessels during the project.

The Transas Group equipped these tankers with the new integrated navigation system, Hyundai-Transas Intelligent Bridge System (HTiBS).

The basic configuration of the integrated navigation system comprises five multi-functional stations. Each can be used as radar, ECDIS or conning display, depending on the navigator's requirements, thus improving the working conditions on the navigation

bridge. The vessels of this series are fitted with eight working stations. The system is currently in the final stage of examination by DNV. This joint development by Hyundai and Transas is set to become the first navigation system certified by DNV, NAUT-AW class C.

Dmitry Lagoutin, Deputy Sales & Marketing Director of Transas Ltd, said, "The pilot project at the Hyundai Heavy Industries Shipyard was technically difficult and of crucial importance. Cultural differences and the unusual climatic conditions of the eastern region also presented a challenge however, our teams from the navigational and new-building departments met the deadlines whilst maintaining our high standards. We hope that the first five vessels of the 1599-1603 project will provide an excellent founda-

tion for effective co-operation between the Transas Group and the Global leader in the shipbuilding industry — Hyundai Heavy Industries Ltd".

Circle 35 on Reader Service Card

Pavel Chernish, the first of five ice class tankers built by Hyundai Heavy Industries for Primorsk Shipping Corporation, features the new integrated navigation system, Hyundai-Transas Intelligent Bridge System (HTiBS).



ACR Electronics Forms Bridge Information Group

ACR Electronics has a new suite of ACR-branded bridge information technologies that, with agency approvals, will soon be made available to commercial shipping and yachting customers. The products stem from the earlier announced alliance with Norwegian-based Maritime Information Systems AS MARIS.

The new product line includes:

- RapidTrack Simplified Voyage Data Recorder (S-VDR), with either a hardened capsule or a float free 406 memory capsule. The ACR-designed Float Free 406 Memory Capsule (awaiting agency approvals) records and stores a retrievable record of the ship's nautical, technical and safety data from the S-VDR main unit.
- EcditTrack Electronic Chart Display and Information System (ECDIS). Available in desktop, split solution and pedestal versions, ACR's EcditTrack offers a total navigation situation appraisal on one integrated display, including

charts and, when integrated, ARPA radar and AIS, thus eliminating the need to move between instruments.

The EcditTrack is designed in accordance with IMO/IEC requirements for Integrated Navigation Systems. The EcditTrack displays official HO S-57 ENC's along with raster charts produced by several official hydrographic offices including Admiralty Raster Charts.

- PilotTrack is a real-time harbor pilot navigation tool based on ECDIS software with enhanced log, annotation and data update features that allow harbor pilots to work wirelessly through a bluetooth-enabled laptop and a special bluetooth transceiver plugged into a ship's AIS through the pilot plug. The PilotTrack system is designed to provide a clear display of AIS targets on top of S-57 ENC's all in a compact portable package.
- RadarTrack PC Radar Kit. An ARPA radar overlay allows users to turn a PC into an advanced radar and tracking system. The PC Radar Kit can be combined with a compatible ECDIS or Electronic

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Marine Electronics

Chart System to display the radar image on top of the chart. The ACR tracking system has a capacity of up to 3,000 targets (Pentium IV), which are tracked automatically and displayed on request. RadarTrack, with multi-ARPA licenses, may be installed on several computers operating on a local area network.

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Kongsberg's New Marine Information Station

Kongsberg Maritime has developed a PC-based system designed to integrate several key shipboard functionalities, providing owners with a tool to help reduce costs. The Marine Info Station is primarily designed as a means to make better use of Voyage Data Recorder

(VDR) and Simplified-Voyage Data Recorder (S-VDR) and to save time and money through the DNV-approved Remote Annual Survey.

VDR and S-VDR systems require a yearly survey in order to continue operating as required by international standards. This requires an authorized surveyor to visit the vessel and physically



test the system onboard, which is an expensive and ongoing cost. The Marine Info Station is designed to help reduce costs by providing DNV approved Remote Annual Survey of VDR/S-VDR, using functions of the Kongsberg Maritime FleetMaster Electronic Log Book. The ship's personnel will complete and sign an inspection procedure (annual survey report) and extract recorded data from the VDR/S-VDR. The extracted data is copied to a DVD via the Marine Info Station and sent to Kongsberg Maritime by mail or courier service. The report and the extracted data are examined and a new Certificate of Compliance for VDR/S-VDR is issued by Kongsberg. This negates the need for a surveyor to visit the ship and can save owners the costs that this entails. Kongsberg claims that, typically, a 50-vessel fleet can save the owner approximately \$960,000 over a five year period, by using the VDR/SVDR Remote Annual Survey function of the Marine Info Station.

"Users of Remote Annual Survey on the Marine Info Station will recoup the initial cost of the system very quickly, and will not expect any further key VDR/S-VDR survey costs for the life of the system," said Bjarne Bjorkan, Product Manager, Kongsberg Maritime. "Costs are further reduced and operations improved with functionality for Electronic Log Books, a separate electronic chart station and replay of valuable VDR data for training and evaluation purposes."

Circle 36 on Reader Service Card

United States Marine Inc. Wins Navy Contract

United States Marine, Inc., Gulfport, Miss., is being awarded an \$8,836,911 firm-fixed-price, requirements contract for the acquisition of services and material for the Naval Special Warfare, 11-meter rigid, inflatable boat service life extension program to restore 32 boats to like new condition. Work will be performed in Gulfport, Miss., and is expected to be completed by February 2011. Contract funds in the amount of \$500,000 will expire by the end of the current fiscal.

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Moose Delivers Security Boat



Moose Boats has delivered another Moose M2-37 security and patrol vessel to the Suisun Bay Reserve Fleet, Benicia, Calif. This is the second delivery of a two-boat contract that was awarded through GSA (General Services Administration) by the Department of Transportation, Maritime Administration (MarAd).

The Suisun Bay Fleet consists of dry cargo ships, tankers, military auxiliaries and other types of reserve ships in the custody of the Maritime Administration. The Moose M2-37s will be used intensively for security patrol operations up to 16-hours-a-day, seven days per week in the Suisun Bay. The Moose M2-37 is a 37.5-ft. all-aluminum jet powered catamaran with twin Cummins 380 hp turbo diesels and is propelled by Hamilton 292 water jets. It can attain a top speed of over 34 knots, cruise at almost 30 knots, and come to a full-speed stop in less than two boat lengths. Its 21-in. draft allows all of this to be done in less than three ft. of water.

Circle 17 on Reader Service Card

Jumbo Cat Ferry Features Six Waterjets

The 223-ft. (68 m) catamaran Maria Dolores will soon go into service with Malta-based Virtu Ferries on the company's Malta - Italy route. The vessel will run at a speed of about 36 knots with the engines running at 90 percent of full load, linking Valetta with Catania in three hours, with Pozallo in 90 minutes and provide a service to the Italian mainland at Reggio Calabria in four hours. Maria Dolores was designed and built by Austal in Western Australia, to suit the owner's requirement for a fast ferry capable of carrying trailers, coaches and other high vehicles together with cars and 600 passengers. Virtu Ferries wished to maintain engine compatibility with its existing fleet, and it was not easy to supply the power requirement with a conventional quadruple engine layout. A six-jet solution has therefore been developed, with three engines in each hull,



March 2006

Moose Boat Specs

Length, o.a.	37.5 ft.
Beam	13.5 ft.
Draft hull/max.	21 in.
Deadrise	15°
Displacement	16,000 lbs. (dry)
Fuel	300 gal.
Water	20 gal.
Maximum speed	34 knots +
Cruise speed	28 knots
Range	300 nm
Main engines	2 x Cummins QSB5.9, 380hp Turbo Diesels
Waterjets	2 x Hamilton HJ292
Marine Gears	Twin Disc MG 5075
Generator	5kw Northern Lights
Electronics	Simrad

all connected to individual Kamewa 80 S II series waterjets from Rolls-Royce through reduction gears, in what is thought to be the first six waterjet installation on a fast ferry. Power per unit is 2,465 kW.

To find space for three waterjets in the transom of a slim catamaran hull involved some interesting engineering of the intakes and drivelines. Two steerable and reversible water jets are installed side by side in each hull and a booster jet without steering is placed above and between the steerable units. The lower jets are driven by two engines in the forward engine room, while the upper booster jet is coupled to an engine in the aft engine room which is raised to give the correct driveline height.

Circle 18 on Reader Service Card

Wärtsilä Power for Geo Vessel

The new offshore support vessel of Aker ROV 06 design will be equipped with Wärtsilä main engines. Wärtsilä won the \$3.2 million contract in November 2005 from Aker Yards ASA to supply main engines for the new off-



shore support vessel contracted by the Norwegian subsea operations company Geo ASA. The vessel will be constructed at Aker Yards' Søviknes shipyard in Norway, with delivery due in May 2007. Its main engines will be four six-cylinder Wärtsilä 32 diesel engines with a combined output of 11,520 kW at 720 rpm. Of the Aker ROV 06 design, the vessel will be employed in subsea operations, primarily for the offshore oil & gas industry. It will be capable of worldwide operation, including the northern oceans. The vessel will principally serve as a mothership for unmanned remotely-operated subsea (ROV) vehicles which can be launched by crane over both sides of the vessel as well as through a moon pool.

Geo ASA carries out subsea operations in three main fields: seabed mapping of topography and other levels of sediments; inspection, maintenance and repair of offshore installations; and offshore construction support with ROV. Geo ASA is a subsidiary of DOF ASA, a major owner and operator of offshore vessels.

Circle 19 on Reader Service Card

Keel-Laying of Third T-AKE

General Dynamics NASSCO on February 14, 2006, held the keel-laying ceremony for USNS Alan Shepard, the third ship in the U.S. Navy's T-AKE program. Designated the Lewis and Clark class, the new T-AKE ships fulfill combat logistics force requirements.

U.S. Navy Rear Admiral Carol M. Pottenger, Commander, Military Sealift Fleet Support

Command, was the honoree for the event, welding her initials into the keel to signify the beginning of full-scale production of the new ship.

"We are very pleased that Rear Admiral Pottenger was able to participate in this ceremony," said Fred Harris, president of NASSCO. "It is an honor that a ship we will build under her command will bear her initials throughout its many decades of service."

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U.S. Navy Rear Admiral **Carol M. Pottenger**, Commander, Military Sealift Fleet Support Command, was the honoree for the keel-laying event, welding her initials into the keel of the TAKE 3, the USNS Alan Shepard. With her are **Dave Morton**, Program Manager, Naval Fleet Auxiliary Force Program (L) and **Art Diaz**, MSC Ship Construction Senior Owners Representative.

This third ship is named the USNS Alan Shepard in honor of the first American in space, Rear Admiral Alan B. Shepard Jr. Shepard piloted the Freedom 7 spacecraft on May 5, 1961, the first manned launch of Project Mercury, the NASA program that determined man's capabilities in a space environment.

Circle 20 on Reader Service Card
Navy Dive Boat gets

UltraJet Propulsion

In December 2005 a new UltraJet powered Tornado Dive RIB complying with SOLAS regulations was accepted by the Portuguese Navy. The Navy will use the RIB for diver deployment and logistic support.

The 27.8 ft. (8.5 m) RIB is powered by a single UltraJet 251 waterjet driven by a Steyr MO256K43 250 hp/184 kW diesel engine at 4,300 rpm with a ZF63 gearbox, ratio 1.25:1. During sea trials, speeds of 31 knots were recorded.

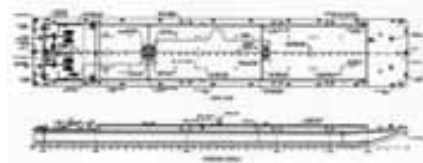
The Tornado hull is designed to be extremely sturdy, with a deep V hull and an arched, sheer bow, preventing contrary sea to flood the boat. It is designed to climb quickly onto the plane, to support quick turns and achieves high directional stability at fast speed and in rugged seas. The RIB can carry 12 divers and their diving equipment.

Circle 23 on Reader Service Card
Bollinger to Build 28,000



BBL DH Tank Barge

Bollinger Marine Fabricators, LLC,



(BMF) Amelia, La., signed a contract with Progressive Barge Line, Inc., New Orleans, La. for the construction of a double hull OPA '90 Lakes, Bays and Sounds tank barge. Bollinger hull #505 will have capacity of 28,000 barrels (BBL) and is a near sister ship to four similar hulls also under construction at the active BMF facility for another operator. Elliot Bay Design Group performed the design and engineering package in support of Bollinger.

Hull #505 will be built primarily for bunkering services on the Mississippi River and throughout the port of New Orleans. The barge will be built in accordance with ABS rules and certified by USCG for rivers, lakes, bays and sounds service for carriage of Grade A products and below. It will be subdivided into six cargo tanks, each with pipe coils for heating cargo. The heater sys-

tem will be a four million BTU Hopkins Volcanic, with two inch piping coils lining the bottom of each cargo tank for optimum heat distribution.

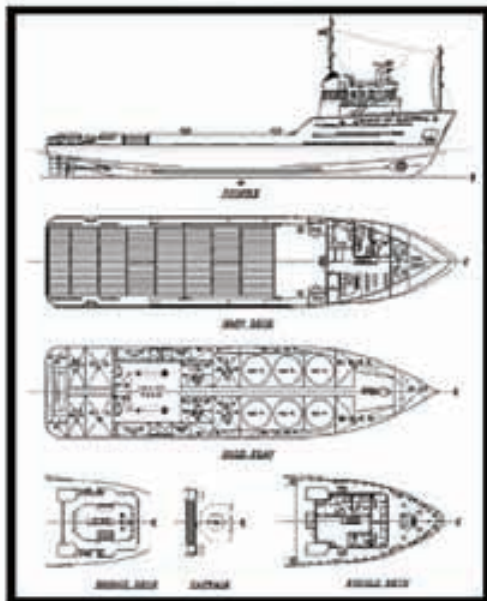
Mission Marine Delivers to St. Croix

Mission Marine recently delivered the Mission 452, a 34.8 x 13 ft. (10.6 x 4 m) Pilot House to the Department of Planning and Natural Resources located in Frederiksted on the island of St. Croix, USVI. Custom made to accommodate the DPNR's special and varied usage requirements, she was chosen because of her multi-mission platform, stability, extraordinarily smooth ride, offshore capabilities, and ability to take rough seas. Given the climate of the islands, she has a fully enclosed pilot-house with air conditioning and has state-of-the-art electronics to assist the officers.

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Circle 280 on Reader Service Card

Wärtsilä's Announces Executive Changes

Jaakko Eskola, 47, MSc (Eng.) has been appointed Group Vice President, Ship Power and a member of the Board of Management. Eskola joined Wärtsilä in 1998 as Managing Director of Wärtsilä Development and Financial Services Oy. Before taking up this position



Jaakko Eskola

he worked since 1986 in project financing positions for Kansallis-Osake-Pankki and Merita Bank in Luxemburg, London and Helsinki, and in 1997-1998 for PCA Corporate Finance Group Oy. Eskola is currently Vice President, Sales and Marketing for the Power Plants business in Wärtsilä.

Executive Vice President **Mikael Mäkinen**, who currently heads the Ship Power business, leaves Wärtsilä to join another company on April 1, 2006.



Mikael Mäkinen

Christoph Vitzthum, 36, MSc (Econ.) has been appointed Group Vice President, Power Plants and a member of the Board of Management. Vitzthum started with Wärtsilä as a foreign exchange dealer in 1995. He has since held financial controller positions in both Power Plants and Ship Power units in Strasbourg, Zürich and Helsinki. Since 2002 Vitzthum has been Managing Director of Wärtsilä Propulsion, based in Havant, Great Britain.



Christoph Vitzthum

Matti Kleimola, Prof. CTO, Group Vice President, Technology and Environment, retires on May 1, 2006 having reached the retirement age stipulated in his employment contract. Although retired, Professor Kleimola will continue to act as an advisor to the Board of Management in matters related to



Daniel Paro

Wärtsilä's field of technology. **Daniel Paro**, 60, Wärtsilä's Senior Vice President who has played a decisive role in the development of the current engine portfolio, will retire on March 1, 2006. Paro was head of the Research Center in Vaasa and also Wärtsilä's entire engine development activities in the 1980s and 1990s, the period during which current successful products like the Wärtsilä 32 and Wärtsilä 46 were developed. Additionally, he has had a decisive impact on the introduction of gas and common-rail technologies in Wärtsilä engines.

ITS Names Myslivy as Senior VP

ITS Corp., a provider of information technology and engineering solutions to the U.S. government, announced **Guy Myslivy** as its new senior vice president of ITS Noesis Business Unit. Myslivy will be responsible for the management and oversight of all activities associated with ITS' newest business unit, which is focused on providing senior level technical, engineering and management support to DoD, Office of Naval Research (ONR), Department of Homeland Security, National Coordination Office for Information Technology Research and Development and other agencies.



Guy Myslivy

MTS Appoints New CEO

Rune Mejer Rasmussen, Executive Chairman of the MTS board, will replace **Brynjar Gevelt** as CEO on March 1. Rasmussen will take on the task of leading MTS through its next phase of expansion. MTS aims to strengthen its industrial positioning, and achieve profitable growth in a rapidly growing e-business market. Rasmussen comes from the position as Chief Information Officer in Unitor. He has been a member of the MTS board since 2001 and its Chairman since 2003. Gevelt has been with MTS since the establishment in 2000 and has held several positions, ending up as CEO in 2003. Brynjar has now decided to step down for personal reasons.

W&O Supply Forms New Division

W&O Supply has restructured the company to form the Engineered Products and Automation (EP/A) Division. The restructuring emphasizes core strengths, streamlines operations and adds technical expertise and service support to the company's client base and 14 branch network. Newly promoted or hired to lead the EP/A Division are **Jim Baur**, **Fred Loomis**, **Edmon "Gus" Bell**, **Donna West** and **Steve Hartsaw**.

Jim Baur, former general manager of the Automation Division, has been promoted to lead the new EP/A Division. Baur will also concentrate on building market share within the oil and gas industry as well as the cruise market segment. Fred Loomis, who led the Engineering Products Division, will manage special projects on a nationwide basis and serve as a sales and project manager for Northeast and Great Lakes customers. The company recently hired a nationally recognized industrial and marine automation veteran, Edmon "Gus" Bell, to lead its Automation Product Group. With 35 years of valve automation experience and a wealth of industry knowledge, Bell will continue to develop W&O Supply's automation portfolio as well as define automation systems and equipment for clients. He has worked in management at QTRCO, AMRI, Bray Valve & Controls and Emerson Valve Automation (Bettis) throughout his career.

"This world-class team has outstanding awareness about the complex valve automation and engineered products industries," said **David Turner**, CEO of W&O Supply. "Their technical capabilities and vast experience will richly benefit customers, naval architects, engineering firms and approval societies around the world. They move us toward our goal of becoming the premier global provider of total piping solutions in the marine industry." Additionally, Donna West has been hired as an automation engineering specialist. West will use her extensive automation expertise to assess client needs, develop and package automation systems, provide technical assistance, manage orders and track production and delivery on budget and on schedule. Hartsaw has also been promoted to sales engineer overseeing the engineered products side of the business.

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Høegh Appoints Cutrone, Goversen

Høegh Autoliners Inc. announced the appointment of **Jasper Cutrone** to Senior Manager, Quality Assurance and

Morten R. Goversen to Port Captain.

Cutrone holds a Master's Degree in Total Quality Management and a Bachelor of Science in Business Management from Dowling College, Oakdale, New York and an Associate

Degree in Professional Aeronautics from Embry-Riddle Aeronautical University, Norfolk, Va.

Based in Jericho, New York, Cutrone will head up the quality assurance programs for Høegh Autoliners in the U.S.

He is certified as an ISO 9001:2000/AS9001B Standards Lead Auditor and is a member in good standing of the American Society for Quality Organization.

A native of Arendal, Norway, Goversen moved to the United States with his family in 1978. He is a graduate of the University of Delaware with a Bachelor of Science in Management.

Crowley Promotes Johnson

Barbara Johnson has been promoted to manager of port and terminal operations for Crowley's Gulfport terminal replacing **Bob Weist** who has been



Barbara Johnson

promoted to director, inland operations for the company's Puerto Rico/Caribbean group. In her new position, Johnson will remain domiciled in the Gulfport office and will report to **Mike Hopkins**, vice president, operations.

AVEVA Makes Inroads in China

AVEVA recently announced a pair of contracts signed with Chinese shipyards. The company signed a contract to provide its design and production solutions to China's New Century Shipbuilding (NCS). NCS, located southeast of Jingjiang, will use AVEVA's software to enhance its shipbuilding capabilities on its latest project — the design and manufacture of a 4,250 TEU Containership prototype.

Earlier in the month, the company announced that it was awarded a contract by Dalian New Shipbuilding Heavy Industry (DNS) in late 2005. DNS, one of the top 10 shipyards in the world, has extended its application of AVEVA's Marine solutions for both its shipbuilding and offshore businesses. Additionally, AVEVA will provide professional training and onsite consulting services to DNS to ensure efficient and optimised utilisation of AVEVA's Marine software. AVEVA recently established a China Marine Division.

Circle 7 on Reader Service Card

MAN Diesel SE - A New European Company

MAN Aktiengesellschaft is converting its Diesel Engines Business Area into a European Company (Societas Europaea) in the course of this year. At the same time, MAN B&W Diesel AG in

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Circle 218 on Reader Service Card

Augsburg is to be renamed MAN Diesel SE. "In a European company we will think and act on an even more international scale, which is absolutely essential in the face of global competition," said **Håkan Samuelsson**, Executive Board Chairman of MAN AG.

A Societas Europaea (SE) is a corporate form under European law. This new legal form will allow for stronger integration of MAN's international business activities. The MAN Diesel SE boards will be international bodies. While retaining its parity structure, the supervisory board should in future include members from other European countries in addition to employee representatives from Germany. The SE works council will also be made up of international representatives. The corporate centre for the new MAN Diesel SE will be located in Augsburg.

The MAN B&W Diesel Group develops two-stroke and four-stroke engines (1,080 to 136,000 HP), turbochargers and marine propellers. MAN's diesel division employs some 6,700 people in Germany, Denmark, the U.K., France, the Czech Republic and in China.

Circle 8 on Reader Service Card

Blue Chip Casino Vessel Delivered

Jamestown Metal Marine has delivered the completed M/V Blue Chip 2 casino vessel to Blue Chip Casino, Boyd Gaming's riverboat operation, at Blue Chip's Michigan City, Ind., facility. The new vessel — which is the centerpiece of a new \$170 million hotel and casino expansion — replaces the former vessel. The M/V Blue Chip 2 is a 402 x 208-ft. gaming vessel with self-powered propulsion. It can fully operate on shore-power, and provides about 65,000 sq. ft. of gaming area on a single deck. In addition to the gaming area there is another 82,000 sq. ft. of back of house and future gaming areas on other decks. Jamestown began the on-site construction project in the late fall of 2004 with the erection of steel units in the construction basin specially constructed for the project. Over the succeeding 14 months Jamestown, working with its subcontractors and suppliers, produced the largest casino vessel ever built in the U.S., including hull fabrication and erection, machinery and mechanical installation, electrical installation, interior finishes, and the gaming facilities. Jamestown's on-site project management staff coordinated all aspects of this fast track project in concert with Blue Chip Casino's local construction management team. The vessel is moored to its pavilion offering ground level access from the vessel to Blue Chip's adjoining



hotel and parking facility.

"The Blue Chip 2 is the largest U.S. Coast Guard certified passenger vessel built in the United States, with 65,000 sq. ft. of gaming area for up to 6,000 passengers. Another 25,000 sq. ft. is also available for future expansion," said **Guido Perla**, of Guido Perla & Associates.

It took more than 7,000 tons of steel to construct Blue Chip 2. Among the vessel's features is an advanced HVAC system that provides guests with a perfectly tempered climate controlled environment year round. **Robert Marra**, Project Director for Blue Chip LLC, worked in conjunction with Dan Koch and the general contractor, Jamestown Metal Marine of Boca Raton, Florida.

Circle 9 on Reader Service Card

Octel Changes Name

Octel Corp. announced that effective today it has changed its name to Innospec Inc. to more closely align the company's branding with its innovative and growing specialty chemicals businesses.

ABG Shipyard to Buy Repair Units

Private sector shipyard ABG Shipyard is reportedly planning to acquire ship repair units in the key shipping routes' network, including Singapore and China. ABG Shipyard has already acquired a ship repair unit at Fujairah, UAE, for an undisclosed amount. The company is planning to develop Fujairah as a ship repair hub in a phased manner. The company has recently acquired a Canadian shipbuilding equipment facility for \$5.6 million.

ABS Introduces Dynamic Checklists

ABS introduced electronically prepared, vessel type-specific, dynamic checklists for surveys of ABS-classed vessels. The new checklists are generated for the attending surveyor at the time the survey is ordered. The surveyor is automatically provided with a checklist specific to the type of vessel he or she is attending based on 13 different parameters that are considered by the system.

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People & Companies

The dynamic checklist module can produce approximately 600,000 unique checklists from those parameters. And the system does not allow the surveyor to close the survey report without addressing each item on the checklist. The parameters are: Survey Task; Facility (Vessel or Company Office for Audits); Vessel Function, Type, Age, Length and Deadweight; whether Single or Double Hull; Flag (drawn from 240 possibilities); the vessel's Service Restrictions; and applicable Notations (drawn from 290 different possibilities).

Circle 10 on Reader Service Card

Knightsbridge Announces Results

Knightsbridge Tankers Limited reported a net income of \$15.9 million and earnings per share of \$0.93 for the fourth quarter of 2005. The average daily time charter equivalents earned by the company's five VLCCs in the quarter was \$58,600 compared with \$34,700 in the immediately preceding quarter. This increase reflects the strengthening of the market experienced in the fourth quarter. During the fourth quarter, the vessel TI Qingdao (formerly named Kensington) was drydocked at a cost of \$515,000 and resulting in approximately 13 days offhire. The vessel TI Ningdo (formerly named Hampstead) is scheduled to be drydocked in the first quarter of 2006. Following this, all of the company's five vessels will have completed their

scheduled 10-year drydocking and special survey. For the financial year ended December 31, 2005 the company reported an annual net income of \$44 million and earnings per share of \$2.57 compared with \$85.8 million and \$5.02, respectively in 2004. The average daily TCE's earned in 2005 were \$47,100 compared with \$68,700 in 2004.

Wheelabrator Under New Ownership

Wheelabrator Group has announced new ownership. Mid Europa Partners (MEP), through its Emerging Europe Convergence Fund II, L.P. has completed the acquisition of all outstanding WG equity from an investment group led by Bard & Company.

Rolls-Royce Wins Orders

Color Line, Viking Line and Tallink have all specified Rolls-Royce CP propeller systems and tunnel thrusters for new vessels they have ordered to be built in Finland. The value of the contract to Rolls-Royce is about \$14.3 million. Color Line (SuperSpeed) has ordered two 1,900 passenger RoPax vessels capable of almost 30 knots. Each vessel will have two 5.25m diameter Kamewa Ulstein ice class 1B controllable pitch propellers with 19.2MW per shaft line. Three tunnel thrusters per ship have also been

specified; two rated at 2,400 kW each at the bow and a single 1,200kW unit at the stern. Both these 211 m long vessels will be built at Aker Yards in Rauma and are scheduled for delivery in February and May 2008.

Viking Line ordered a 185-m, 2,500-passenger RoRo ferry for delivery in February 2008. It will have two 5.3-m diameter four-bladed CP propellers made of stainless steel and designed to ice class 1ASuper. Four engines (20 MW per shaft line) will give a maximum speed of 26.8 knots. Three tunnel thrusters will be installed in each vessel. Two 1,500kW thrusters will be located at the bow and one unit of the same power at the stern. A 212m long passenger cruise ferry for the Baltic Sea, capable of carrying 2,800 passengers, is to be built in Helsinki for Tallink. The vessel will have two 5-m diameter four-bladed CP propellers made of stainless steel and designed to ice class 1ASuper. The four engines (16 MW per shaft line) give a maximum speed of 24.8 knots.

WW Posts 2005 Results

Wilh. Wilhelmsen ASA (WW) reported net operating profit was \$232 million, while total operating income came to \$2.2 billion. Profit before taxes was \$209 million. WW's net operating profit for the fourth quarter of 2005 came to \$67 million, with total operating income at \$608 million.

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Smit Intl. Earnings Up 40%

Smit International NV announced that net earnings for 2005 have risen by nearly 40 percent to \$45.9 million. Despite facing a heavier tax burden of 30% (up from 24% in 2004), the divisions Harbor Towing, Terminals and Transport & Heavy Lift achieved better results in comparison to 2004.

SMIT has served the maritime sector for more than 160 years, and its services are organized into four Divisions:

- Harbor Towing: harbor towing services and related maritime services.
- Terminals: towing services and related maritime and management services to offshore and onshore terminals.
- Salvage: salvage, wreck removal, environmental protection and consultancy.

- Transport & Heavy Lift: barge rental & transport, ocean, coastal and river towing, heavy lifting and marine support to a variety of civil and offshore projects.

Aker Kvaerner Sells Subsidiary to Wärtsilä


Aker Kvaerner sold the Stord based subsidiary Aker Kvaerner Power and Automation Systems (AKPAS) to Wärtsilä for \$16.2 million. This includes approximately \$2.2 million in net cash holdings. AKPAS — which is a two-year old company with 135 employees — supplies power and automation systems to the marine market, the oil and gas market and segments of the industrial market. With the newly developed, compact and modern frequency transformers as an important part of their

range of products, the earlier division of Aker Kvaerner Elektro was established as a separate company from January 1, 2004. During the two years that have passed, the products from Aker Kvaerner Power and Automation Systems have been well received by clients both in the marine market and in the oil and gas market. "AKPAS is a success story with respect to the Aker Kvaerner organization's capabilities for industrial development. We have found that the best way to continue this remarkable development is to find a permanent home for this business, where this range of products and technologies will be part of the core business" said Torleif Gram, Executive Vice President of Aker Kvaerner's Business Area for Maintenance, Modifications and Operations.


LR to Class First Common Rules Tanker


The world's first tankers to be specified with the Common Structural Rules (CSR) for tankers of 150 m and above has been ordered to Lloyd's Register class at New Times Shipbuilding Co., Ltd., in China for a large Cyprus-based owner. The order is for four Aframax tankers of 114,000-dwt. It is anticipated that the keel of the first ship will be laid in July 2007, with delivery in July 2008.

The IACS CSR for tankers were published on January 15, 2006 and come into force on April 1, 2006. The new Rules are the result of a four-year-long joint research and development project between Lloyd's Register, ABS and DNV, with the Rules having been unanimously adopted by IACS Council on December 14, 2005.



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Circle 259 on Reader Service Card

NACE Coating Inspector Program (CIP)—A Smart Choice for the Marine Industry

By Lou Vincent, Director Coating Services, Corpro Companies, Inc.,

Someone once said that steel was a "dumb" material of construction. It did not know whether it was part of a bridge, a chemical plant, or a ship. In much the same way, it could be said that protective coatings are "dumb" materials for corrosion prevention. Coatings also have no concept of whether they are being applied to bridges, plants, ships, offshore platforms, etc.

This begs the question, "Where can industry utilize 'smart' procedures and/or processes to reduce the cost of corrosion?" Smarts-or intelligence, to use a better term-begins with a properly written specification, proceeds to selection of an appropriate coating system for each corrosive environment, and culminates with the proper surface preparation, application, and curing of that coating system by a qualified contractor.

Once that surface preparation and application sequence begins, there is one very intelligent way to achieve the best corrosion protection with whichever protective coating system has been specified. That way is the use of coating inspectors who have been trained in the NACE Coating Inspector Program (CIP).

The first week (Level I) of this intensive two-week training program concentrates on the basics of surface preparation and application of protective coating systems. While the main focus is on carbon steel, attention is given to alternative surfaces such as stainless steel, aluminum, and glass-reinforced plastics (GRP). There are sections dealing specifically with surface preparation standards developed by NACE, SSPC, and ISO. Quite a bit

of time is devoted to a presentation of the main generic types of protective coatings such as epoxy, polyurethane, polyester, acrylic, latex, phenolic and alkyd. The intent is to give the inspector an understanding of the requirements for proper selection, application, and curing according to the service environment. An entire day is spent at a blasting and painting facility where each student prepares his own piece of steel and applies a two-coat system of zinc primer and epoxy topcoat.

The students receive intensive hands-on training in the use of non-destructive inspection instruments such as magnetic dry film thickness gauges, wet film gauges, low voltage and high-voltage holiday detectors, and environmental measurement instruments.

During the second week (Level II) of this course, the students are given detailed training in destructive inspection instruments such as the Tooke gauge and pull-off adhesion gauges, along with eddy current dry film thickness gauges for use on non-ferrous substrates and various detection kits for surface contaminants such as chlorides, sulfates, and nitrates. In addition, complete chapters on concrete, galvanizing, thermal spray, rubber linings, and other specialty coatings are presented. There is a complete section on waterjetting and the various new standards and visual aids developed for this fast-developing technology.

After this two-week period, sometimes given concurrently and other times with time in between the two courses, the students who have successfully completed the courses are given the opportunity to sit for a Peer Review by three experienced instructors. In Peer Review, students verbally answer a



series of six technical questions and four practical, job-site questions designed to judge their ability to properly use the knowledge they have gained. Then and only then can they become NACE-certified Coating Inspectors.

In order to meet the needs of persons who cannot get away from their jobs for two weeks, NACE has also developed a series of CD-ROM/DVD training modules for both Level I and Level II, whereby students can study at their own pace until they feel they are ready for the practical portion, which is only three days followed by the same examination as is given for the complete course. This has proven to be very effective in the marine industry for nations in Asia and Southeast Asia.

In 1997, NACE developed the Marine Inspection Course. This was developed in response to industry asking for greater clarity on who can work in there area. The program is three days and focuses on ships and marine structures. This is a NACE General Education course that is open to anyone, not just coating inspectors. Many engineers take this course in order to be more knowledgeable about what goes on during the new building and maintenance painting of ships. The basic inspection skills are still identical to what is covered in the two-week course leading to NACE CIP Coating Inspector certification, but they are presented more as a matter of general knowledge rather than as a preparation for certification. Instruments are discussed, but there is no hands-on training in abrasive blasting, application, or inspection. The successful attendees who already have CIP status are given a new wallet card

with a stamp denoting that the individual has successfully completed the Marine CIP program. The successful attendees who do not have CIP status receive a certificate of attendance.

In recognition of the requirements for greater levels of training being imposed on the marine industry by (spell out IMO and SOLAS) IMO and SOLAS requirements, NACE is currently developing an intensive program that will contain the basic elements of CIP inspection, but will also focus on marine coatings technology plus IMO and SOLAS requirements. In recognition of the fact that the marine industry is truly global in nature and that much of the work is conducted in countries that are on the metric system, the new course will focus on the comparisons between these standards.

Whereas the CIP training program began on the North American continent, it is now offered in many international locations including Europe, Asia, Australasia, South East Asia, the Middle East, and South America.

In summary, NACE is constantly answering various industry needs while never wavering from the basic tenets of the CIP, which focuses on getting the coating applied properly, regardless of the industry.



Cat Delivers Genset as MCS-Certified Package

The 3412C marine genset from Caterpillar Marine Power Systems now arrives at shipyards as a complete MCS-certified package. Vessel builders receive the ready-to-install genset as a complete package to be installed as a single component on-board in a simple "plug and play" fashion. Caterpillar provides Marine Classification Society (MCS) certification direct from its factories. In addition, the genset arrives complete with a functionally tested alarm and protection system. Builders only have to connect the system to on-board components and test the panel with the ship's system to confirm proper operation. The 3412C genset features a



27-liter, turbocharged-aftercooled diesel engine. It is available with two different cooling systems: an engine-mounted radiator or a gear-driven, self-priming auxiliary seawater pump combined with a gear-driven centrifugal jacket water pump. The exhaust system consists of a watercooled manifold and turbocharger and a dry elbow and flange. The engine is IMO compliant for emissions regula-

tions. The genset base rails distribute the unit's weight over a large area, allowing vessel builders to install it just about anywhere. Caterpillar has moved traditional genset production steps in-house to now provide factory built, packaged, tested and type approved marine gensets to its dealers and customers. MCS certification of several Caterpillar facilities allows the company to produce gensets like the 3412C according to MCS quality standards.

Circle 31 on Reader Service Card

Alfa Laval Freshwater Generators

During 2005, Alfa Laval delivered 895 freshwater generators to shipyards around the world, and last year, shipyards and shipowners ordered an additional 1,188 freshwater generators from Alfa Laval. Alfa Laval offers three freshwater generators models: the JWP series, the DPU series and the MEP



series. Designed for high thermal efficiency, these generally cover the capacity needs for freshwater requirements on board throughout a ship's lifetime. Compact and highly efficient, the distillers are manufactured from top-grade materials that ensure an economical service lifetime. In addition, all Alfa Laval solutions for generating freshwater are designed to help reduce the impact of a ship's operation on the environment.

Circle 2 on Reader Service Card

3412C Genset Ratings and Fuel Consumption

	ekW at 0.8 pf	KV·A	Aspiration	rpm	U.S. gph	L/h
60 Hertz	400R	500	TA	1800	32.5	123.0
	425	531	TA	1800	32.5	123.0
	500	625	TA	1800	37.3	141.3
	550R	688	TA	1800	43.9	166.1
	590	738	TA	1800	43.9	166.1
50 Hertz	350	438	TA	1500	26.3	99.7
	385R	481	TA	1500	29.9	113.1
	405	506	TA	1500	29.9	113.1
	480R	600	TA	1500	36.1	136.8
	500	625	TA	1500	36.1	136.8

ekW - electrical kilowatts
L/h - liters per hour
pf - power factor

R - radiator cooled only
TA - turbocharged aftercooled
U.S. gph - U.S. gallons per hour

	JWP series	DPU series	MEP series
Capacity range	0.5-100 m ³ /24 h	20-75 m ³ /24 h	200-3000 m ³ /24 h
Operating principle	Vacuum distillation	Vacuum distillation	Steam evaporation/ condensation
Mode of operation	Automatic	Automatic	Automatic
System type	Single stage	Single and two-stage	Multi effect
Maximum salinity	2 ppm	2 ppm	5-10 ppm
Materials			
- Frame	Stainless steel	Stainless steel	Stainless steel
- Plate	Titanium	Titanium	Titanium



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Omegadyne

The PX2471 Series Pressure Transducers are designed and tested to meet the new Marine Pressure Standards MIL-T-24742(SH) and ASTM F2070 when invoked. Applications include naval ship-board use, both on surface and sub-surface vessels, as well as general marine uses on new construction and ship overhauls.

Circle 101



Feteris

Feteris supplies the latest joysticks and potentiometers for DP and Thruster applications. Configure your joystick from a list of standard models and options, or custom design a handle to meet your specific needs. Feteris joysticks and potentiometers are suitable for all types of marine applications and conditions.

Circle 102

Fixturlaser



The Fixturlaser Cardan Fixture is a set of fixtures to be used together with the laserbased shaft alignment systems, Fixturlaser Shaft200 or Fixturlaser Shaft300. The new cardan fixture is rigid and can be mounted anywhere on the machine's flange. Its features result in high measurement accuracy and repeatability.

Circle 103

Hernis



Hernis Scan Systems A/S have recently received DNV type approval for their camera systems, fulfilling all strict requirements for cameras intended for onboard installations on vessels or on oil platforms. Increased cameras use for safety applications results in a demand that the products should continue to function.

Circle 104

Altair



The Altair Single-Gas Detector from MSA Instrument Division features three sensor options: carbon monoxide, hydrogen sulfide and oxygen. Carbon monoxide and hydrogen sulfide versions can operate for over two years. Advanced design offers superior dust and water protection and high resistance to RFI.

Circle 105



MAN B&W

The L16/24 engine has a 450-990 kW power range and operates at 1200 rpm, but uses the same fuel as the vessel's propulsion engines, reducing overall cost. All support functions have been collected in a single front-end box. Each complete cylinder assembly can be removed as a unit for maintenance or replacement, and mounts reduce vibration.

Circle 106

NLB



The 605 Series water jet pump units from NLB Corp. offers up to 600 hp and 143 gpm. A simple conversion kit lets users operate at any of five pressures to suit their applications: The NLB 605 Series units all feature an internal gear pac instead of a traditional external drive.

Circle 107



Miller

Miller Electric's new Dynasty 700 AC/DC TIG/Stick inverter features Independent AC amperage control and four AC waveshaping options. It can dramatically increase travel speeds while decreasing cycle times and the need for rework.

Circle 108

Thermo Electron



Thermo Electron Corporation announced the AutoCO2. The AutoCO2 measures carbon dioxide concentrations in natural gas to maintain gas quality control at delivery points. It detects CO2 in natural gas using non-dispersive infrared technology (NDIR).

Circle 109

Herrin Design



In 1982 Herrin Design contracted with Hazen Tide Gauge, International to complete the design of Hazen's Model HTG5000 Tide Gauge, a telecommunications-linked tide monitoring system that became the industry standard for dredgers and ocean surveyors.

Circle 110



DesmondStephan

The Swirl-Off scarifier tool, from DesmondStephan Mfg., removes paint, rust, scale, barnacles, and other hard coatings from metal and concrete surfaces without heavy pressure. Using pneumatic tools, it removes marine growth underwater. Easier, faster, and safer than scraping, sandblasting, or chemicals.

Circle 111

FilterEze



Offers disposable pre-filter socks and blankets that are designed to extend the life of an air filter indefinitely. Pre-Filter Socks filter out salt, dust, belt debris, soot, fine particles and more without compromising air flow. Many Pre-Filter Socks are in stock that fit Airsep, Donaldson and k&N Filters.

Circle 112



Mercury Propellers

Mercury Propellers unveiled the Enertia propeller. Using exclusive Mercury technology, the propeller improves the acceleration and top speed of many outboard- and stern-drive-powered boats. Enertia is cast from Mercury's patent-pending X7 Alloy.

Circle 113

Dynamold



Dynamold is a manufacturer of pre-catalyzed-filmed epoxy chocking material for engine and component installation. The pre-catalyzed DMS-4-828 filmed epoxy chock material's application is easier, and cleaner than conventional epoxy chocking methods.

Circle 114



Western Fire & Safety

The AFFF 2.5 Gallon is a USCG approved foam fire extinguisher. It is designed to prevent re-ignition of fires. It features a stainless steel cylinder with brass valve body to prevent corrosion and rusting. The Schraeder valve design allows for easy, self, field recharging. It boasts penetrating ability for class A Fires.

Circle 115



Markey

The Markey DESM-18 is a rugged single-drum electric mooring winch designed to handle soft-line or wire rope. It features power-in/power-out operation and the 20HP marine-duty electric motor generates line speeds of up to 30 ft. per minute, with maximum pull of 20,000 lbs.

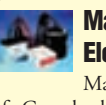
Circle 116



Metals USA

Metals USA is a provider of large sheets of steel for shipbuilding with facilities. The facilities use a Wheelabrator Blast and Paint Line System. Designed to blast 12-ft. wide raw steel plates and small structural shapes, the machine is primarily used to blast plates for shipbuilding.

Circle 117



Marine Safe Electronics

Marine Safe Electronics of Canada Ltd. incorporated in 1972 and operating as MSE of Canada Ltd., manufactures and distributes insulation fault detectors for electrical motors, generators, transformers, power and control systems. Recently specified by Alstom and ABB for LNG owners/operators.

Circle 118

Comnav



Designed to work with the ComNav ComPilot Advanced Autopilot System, the 203 has a backlit graphical display so system information is easy to read. The watertight case has sealed openings and is made from high-impact material that is resistant to most chemicals so the unit can withstand the harsh marine environment.

Circle 119

Marine Gangways



Marine Gangways maintains an inventory of common component parts allowing for quick response to critical near-term requirements of clients. The company not only provides new products, but can repair and update existing gangway. The products are assembled from component parts by a G-3 certified welder.

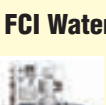
Circle 120



Lexycom

Lexycom Technologies Inc. introduced the Tiamis-800 - a data diverse, 824-960 MHz, OEM, software defined radio. The Tiamis-800 is a fully digital, user programmable data transceiver that utilizes frequency hopping spread spectrum technology. The Tiamis-800 would be an off the shelf match for use in AUV applications.

Circle 121



FCI Watermakers

FCI Watermakers offers the Neptune, now available in a wall-mount configuration, ideal when water demands are high, but space is limited. Combining modular flexibility with the convenience of a framed unit, the Neptune is suitable for large yachts and commercial vessels.

Circle 122



Specialty-Weld

This filter, which will fit into a standard Kirby Morgan welding assembly provides a welding or cutting accessory, as there is no need to continually lift the assembly up and down, as the diver can see through the filter. The diver can also see for easy and accurate re-striking, making for improvements in weld quality.

Circle 123

Sener



Sener celebrates its 50th anniversary. Founded in 1956 by Enrique de Sendagorta, Sener was the first Spanish private engineering company that burst into the economic panorama. Sener has offices in Barcelona, Bilbao, Buenos Aires, the Canary Islands, Lisbon, Madrid and Valencia.

Circle 124

Adveto



Adveto Advanced Technology from Sweden celebrates its 20th Anniversary by launching three versions of its new type approved ECDIS-4000 full scale systems offering precision navigation together with ECDIS and ENC's

Circle 125

INFORMATION

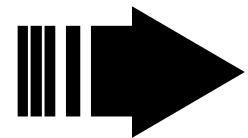
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Maritech, LLC, 100 Powermill Rd., Acton, MA 01725**VISCOMETERS**

Cambridge Applied System, 196 Boston Ave., Medford, MA 02155

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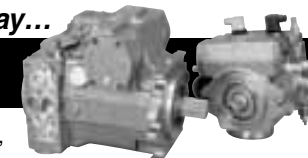
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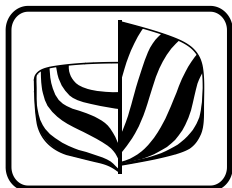
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