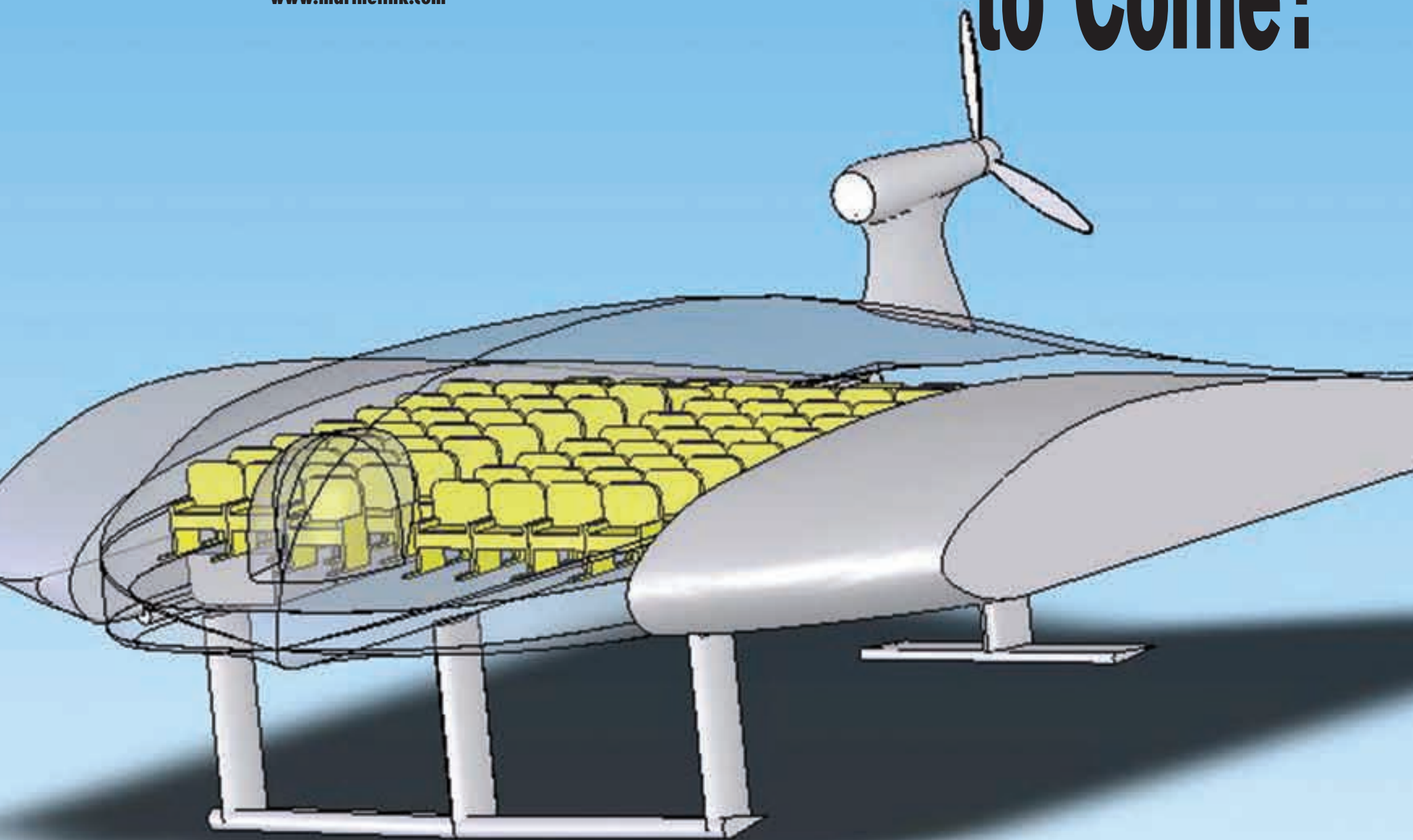


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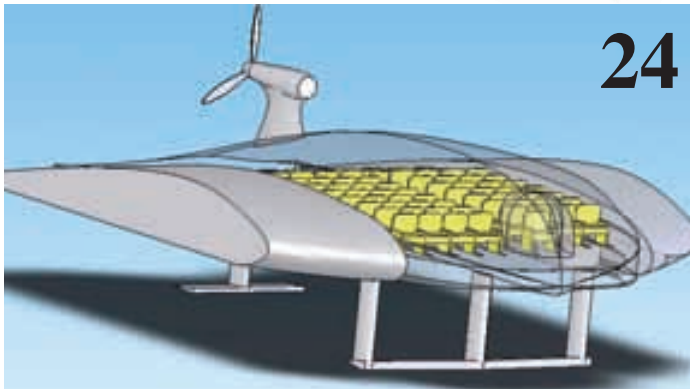


18 GOVERNMENT UPDATE 15 The Avian Flu

Dennis Bryant explains how an Avian Flu pandemic could seriously impact the shipping business in 2006 and beyond.

18 SVDR 18 Black Box for Ships

As new regulations regarding the outfitting of Simplified Voyage Data Recorders (SVDR) set to enter force, Joe Drenzo III and Chris Doane lay out important information for shipowners.



24 AUSTRALIA 22 Lighter, Faster

Australia has consolidated its position in the world as a leading force in the design and production of fast, light-weight ferries and high-performance craft, David Tinsley reports.



30 PASSENGER VESSELS 24 Above the Water

New designs and materials to make passenger vessels more efficient and cost effective.

27 GULF OF MEXICO 27 Raising Rhea

Hurricane's Katrina and Rita left a swath of destruction throughout the U.S. Gulf of Mexico area. As the region makes its comeback, Don Sutherland reports on some Herculean efforts to recover and rebuild.

30 PROPULSION TECHNOLOGY 30 Pods Perform

With two years of service experience under its belt, the Queen Mary 2 stands as a testament to pod performance.



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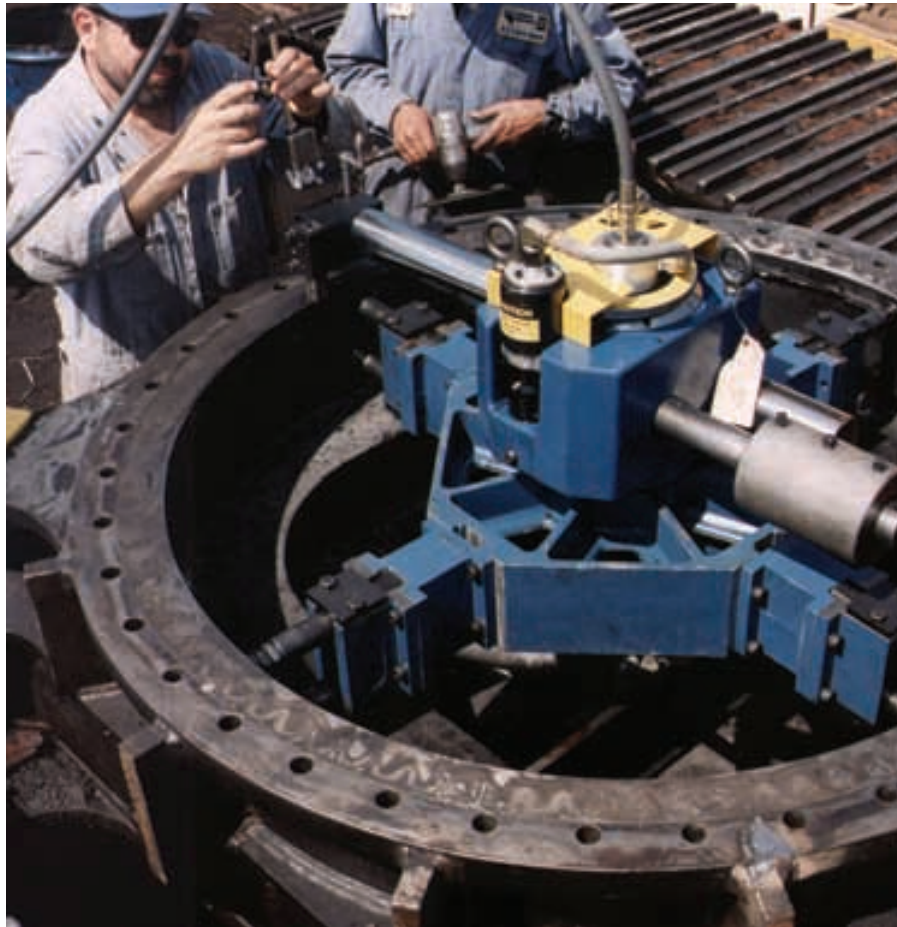
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Portable Machining Helps Improve Service

Time equals money, and every minute of downtime has a negative impact on margins and profits. That's especially true for service organizations involved in solving uniquely challenging problems within the maritime industry. Whether a ship is offloading crude in Bellingham, Wash., or restocking supplies for a cruise to the Bahamas, the driving objective of every person involved is getting out to sea and back to business.

How best to complete unusual repairs efficiently, reliably and cost-effectively is demonstrated by two companies presented with two tough engine maintenance challenges. Both Power Tech Inc. of Sequim, Wash., and L.A. Maritime Services Inc. in Long Beach, Calif., found a similar solution in a tool from Portland, Oregon-based Climax Portable Machine Tools, Inc. — its Flange Facer 6000.

Power Tech, which services various industries, has in the past successfully completed several onsite-machining jobs for Polar Tankers, a division of



Conoco Phillips. Struggling with a liner problem on its 16,000 hp, 7-cylinder engines, the company turned to Power Tech for help.

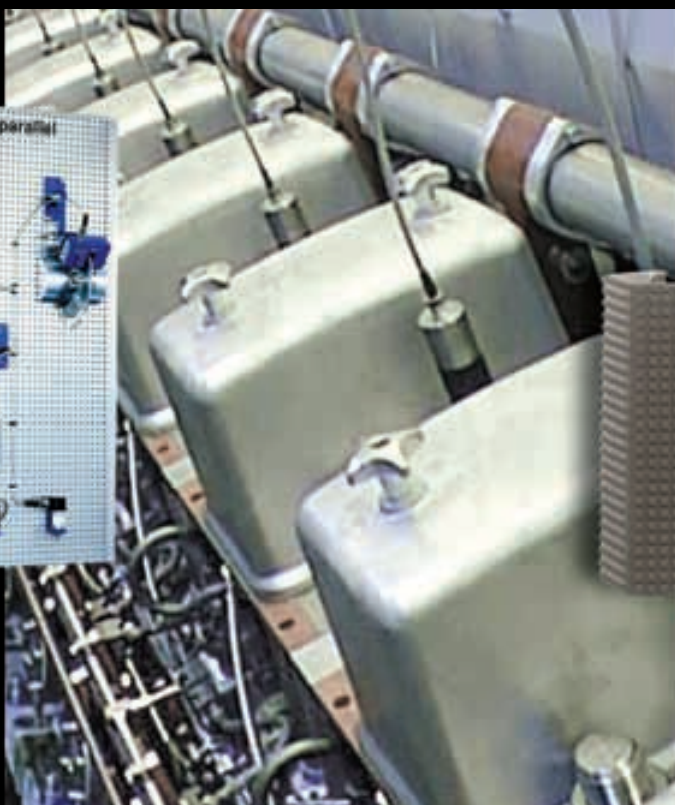
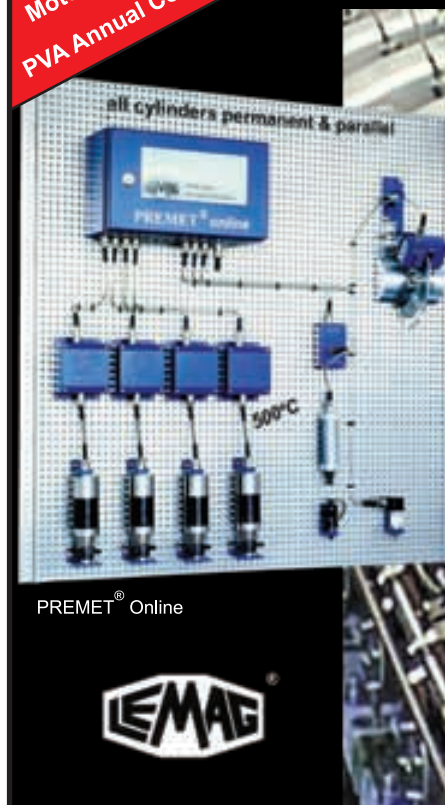
According to James Luna, CEO of Power Tech, the problem was caused by a build-up of carbon on the top of the pistons which polish the liners, causing a loss in ring feed. Successfully removing the carbon would improve engine performance and decrease emissions.

"The engine manufacturer's suggested process — removing the liners and repairing them at a machine shop — would have taken Polar Tankers' ships out of service for too long a period of time," said Luna.

Power Tech decided to do the job on site using the Climax Portable Flange Facer 6000 (FF6000). Luna first completed a test cut on a used liner, refined the tooling and the machining process, and designed special indicator tools to make the set up time quicker. Luna also designed a custom sealing device to contain the chips from cutting, to make the operation much cleaner.

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After an area was cut in the top of the liner with the flange facer, the piston-cleaning ring was installed and the head inserted in order to capture the ring. The high torque and versatility of the FF6000, led to a three-pass cut, beveling, and radius cut operations in a very short amount time, enabling the team to machine three liners per shift. Now when the piston comes up, it scrapes the carbon off the top of the piston, eliminating the build-up problem.

For this job and others, Power Tech relies on the Flange Facer 6000 for maximum efficiency.

It offers 550 ft. lbs. of torque at the cutter; a speed-enhancing radial feed of .076 - .813mm per revolution, and a swiveling head able to rotate 45 degrees in either direction. It also provides down-feed rates from .076 - .254 mm per revolution and a 76 mm diameter-turning bar to ensure a rigid tool platform.

The engine maker's senior Service Engineer, in charge of quality control, said, "Typically, this type of work is done in a workshop, but a portable tool eliminated the need to dismantle the engine, saving a lot of time and money."

An equally time-sensitive challenge was presented to L.A. Maritime Services, a company, which specializes in marine diesel engine repair and specialty engineering services.

One customer, experiencing cracks on the cylinder liners of one of its ship's diesel engines, commissioned the company to discover the cause of the problem, to repair the damage, and also offer a way to prevent it from reoccurring.

L.A. Maritime's solution combined the expertise of the engine's manufacturer and Climax.

Removing the liners would have been a time-consuming process and would seriously impact the customer's shipping schedule. Instead, L.A. Maritime rented Climax's Flange Facer 6000 and made the necessary repairs on-site.

The process entailed removal of damaged material, which was caused from excessive heat.

This not only eliminated existing cracks but also improved cooling of the cylinder liner to prevent new cracks from reappearing.

The repair of eight cylinders on each of the customer's several ships is scheduled to be an ongoing project, with one to three cylinders repaired each time a ship is in port.

Although the Flange Facer 6000 is designed for versatility — L.A. Maritime uses the tool for placement of

anti-polishing rings into cylinder liners, surface smoothing of engine block components, and repair of maritime cranes - reserving and renting the machine at the specific times it's needed has proven to be the most cost-effective option.

About the Author

Dieter Liebich is the founder of L.A. Maritime Services, Inc. (www.la-maritime.com), a ship repair and service company, specializing in marine diesel engine and machinery repair and supply

of spare parts for two and four stroke marine diesel engines and consumables for Boll & Kirch filters. The company is also authorized by major manufacturers to perform repairs and provide spares for deck machinery.

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Editor's Note

Another major world region reeling from the effects of mother nature's wrath and on the road to recovery; a contagious disease with ramifications to the international shipping industry; a concerted push to finally start rebuilding the U.S. Navy fleet to address current and evolving threats; 'new' marine technologies evolving from infancy to adolescence: a New Year (again), but some very familiar issues still at hand.

Welcome to 2006, where [a] the recovery of New Orleans and the entire Gulf of Mexico region; [b] the potential Avian flu pandemic; [c] the U.S. Navy's LCS program and U.S. Coast Guard's Deepwater program; and [d] emerging marine technologies, such as the extended acceptance of electric and pod propulsion promise to dominate headlines.

While the frequency of large, destructive storms seems to have numbed the public's reaction in the wake of the hurricanes in the Gulf of Mexico in 2004 and 2005, it cannot be forgotten that a large number of individuals and organizations are still struggling to rebuild. Specifically, for Gulf region marine companies there is an acute shortage of qualified workers to build and repair facilities and vessels. While recovery of this critical world maritime region is underway, the continued struggles and successes of its players will be covered in these pages and those of sister-publication *MarineNews* throughout the year. While the Avian flu and the potential for a worldwide pandemic may occupy only a spot on the evening news for some, Dennis Bryant warns that the international maritime community had better lay the foundation now for plans in the event that the disease spreads far and wide. As he writes, starting on page 15, "The major impact of an avian flu pandemic for the international maritime industry will be delays and diversions on a large scale. For a period of time (perhaps six months), commercial activity will operate at a fraction of the level immediately preceding the outbreak. Ship owners and operators with long-term contracts will be unable to fully perform or will find that their commercial partners will be unable to perform."

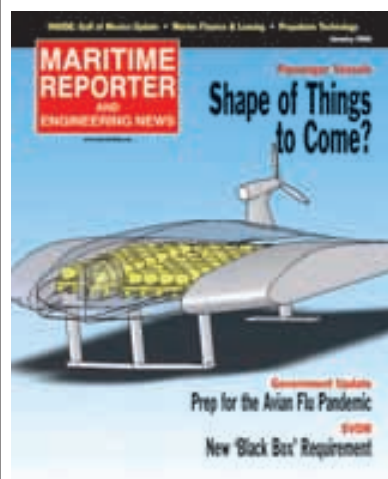
Prospects for new construction of ships and vessels for the U.S. Navy and U.S. Coast Guard has not been as vibrant in nearly a decade, as many indicators point to a prolonged upswing in defense dollars. The February 2006 edition of *Maritime Reporter* will offer an in-depth feature of the new Littoral Combat Ship (LCS) program, currently underway at Manitowoc in Wisconsin.



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On the Cover



On the Cover: Pictured on this month's cover is an artist's rendition of a futuristic ferry being developed by Maritime Applied Physics Corporation and A. James Clark School of Engineering researchers through the Maryland Industrial Partnerships Program.

See story on page 24.

- 9 VT Halter wins \$28M Deal
- 13 Book Review
- 17 Electronics Update
- 37 Ship's Store
- 38 Buyer's Directory
- 40 Ad Index
- 42 Classifieds

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MARITIME REPORTER

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ENGINEERING NEWS

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ISSN-0025-3448
USPS-016-750

No. 1

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

Publishers are not responsible for the safekeeping or return of editorial material. ©2005 Maritime Activity Reports, Inc.

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Aker Yards to Buy Alstom Marine

Aker Yards and ALSTOM will join forces in shipbuilding, seeking to create a shipbuilding leader focused on high value added ships, including cruise ships. The companies plan to establish a new company consisting of the shipyards in Saint-Nazaire and Lorient. Aker Yards will own 75 percent of the new company, and ALSTOM will keep the remaining 25 percent until 2010. Aker Yards currently has 13 yards in five countries.

The new company will offer some unique synergies, particularly on the cruise market segment, where Italy's Fincantieri has dominated in recent years.

The combined French and Finnish builders have produced a number of world class cruise ships through the years, including icons such as SS France, Queen Mary 2, the Voyager class and the Freedom class ships. Aker Yards will be in a position to fully leverage Chantiers de l'Atlantique's large industrial

capacity in cruise ships and naval vessels in Saint-Nazaire.

"By joining the forces of Chantiers de l'Atlantique and Aker Yards, we can create a unique position in the shipbuilding industry, ready to meet the ever increasing needs of tomorrows' demanding cruise passengers," said Karl Erik Kjelstad, President & CEO of Aker Yards.

Aker Yards will pay \$60.4 million for the 75 percent stake. Depending on the financial performance, the remaining 25 percent will be sold to Aker Yards for up to \$151 million in 2010.

An estimated \$423 million will be injected by ALSTOM into the newly formed company.

"The yard in Saint-Nazaire has a long tradition in building complex and specialized vessels, with state of the art technology, modern facilities and a very competent staff," said Patrick Boissier, President of ALSTOM Marine. "I do believe that a strong and

fruitful combination between Chantiers de l'Atlantique and Aker Yards can be achieved."

The proposed transaction is subject to a number of conditions, including finalization of the agreement between the parties, the effective setting-up of the new company, the requisite financing for the new company's activities, the authorization of the European authorities, the information/consultation of the work councils, confirmatory due diligence and other relevant conditions. It is expected to be concluded by the end of March 2006.

The transaction would be carried out as a "Sale of Assets" from Chantiers de l'Atlantique to Aker Yards. The LNG tankers under construction at Saint-Nazaire are not a part of the transaction. The LNG vessels would be completed by the new company as a sub-contractor to Alstom. Apart from the LNG vessels, the current order book, mainly consisting of four cruise vessels would be included in the transaction.

A New Standard of Quiet

Institutions through out North America are paying a lot of attention to the University of Delaware's new research vessel, Hugh R. Sharpe, recently delivered from Dakota Creek Industries of Anacortes Wash. The vessel is fitted with retractable transducer pod, articulating stern gantry, wet lab, dry lab, forward gear deployment boom and CTD handling system. It incorporates in one vessel many of the most sought after features found on scientific research vessels around the world. But it is the propulsion system that is setting the new standard in American research vessels.

The 146 x 32-ft. (44.5 x 9.75-m) diesel electric vessel is powered by four Cummins KTA19 -D(M1)-powered electric generators. The generators power two 483 kW, 600v dc propulsion motors mounted to a pair of Schottel Z-drive stern-mounted propulsion units. Although the vessel has a 12-knot cruising speed it can be operated in "quiet mode" at eight knots. Shutting down the two outboard generator sets and using only the two middle sets accomplish this

quiet mode. While all four engines have Christie and Grey resilient mounts, the two inboard engines are also mounted on a 9,275-pound floating deck that is also resiliently mounted. In addition to the Cummins-powered "quiet mode" gensets, the vessels contain extensive hull insulation, dampening tiles and custom built piping isolation hangers have been incorporated to prevent radiated hull noise, and to limit sound pressure levels within the vessel. "This has been my biggest challenge since I worked on submarines," said Dakota Creek Industries' project engineer Elwood Ide, going on to explain that the resilient mounting and sound dampening systems on the vessel are the commercial equivalent of what is put onto modern submarines. Even the bowthruster is resiliently mounted.

Tankage includes 2,320 gallons (8.78 cu. m.) for water, 13,590 gallons (51.44 cu. m.) for fuel, 375 gallons (1,420 liters) for lube oil, 635 gallons (2,366 liters) for dirty oil, 725 gallons (2,744 liters) for oily water, 834 gallons (3,157 liters) for black water and 834 gallons



(3,157 liters) for grey water. Aft of the engine room and forward of the Z-drive room is a winch room that will accommodate two winches leaving the main deck clear or with space for containers to be installed.

The large wheelhouse includes an aft facing control center, communication console and a desk for research computers in addition to a comprehensive set of navigational aids.

Accommodation is provided for 8 to 10 crewmembers, up to 12 live aboard scientists and up to 30-day trip scientists. The vessel is load lined and will carry a stability letter for unrestricted Ocean Service as an oceanographic research vessel. It is being delivered to the east coast by heavy lift ship through the Panama to off load in Florida in December.

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New Cat Technology for U.S. Virgin Islands



The Virgin Island Department of Planning and Natural Resources/Police has placed in active service its first aluminum catamaran from Sandusky, Ohio-based Mission Marine, Ltd. The boat is based at the DPNR/Police facility in St. Thomas. Measuring 29.5 x 11.5 ft., the Mission 338 has the capability for extended offshore patrol and is a multi-agency craft that serves a variety of missions including DPNR, Police/Law Enforcement, Fisheries, SAR, Homeland Security, Drug Enforcement, and Port Security.

The vessel is built for rough water capabilities to enable its use offshore, and it also sports a wide beam and advanced design affords extra stability and ride. This boat is powered by twin Mercury Verado 275 hp outboards.

Circle 3 on Reader Service Card

New Chinese Shipbuilder Unveiled

A new, bigger shipbuilder was unveiled in Dalian recently, as part of the restructuring of the city's shipbuilding industry, ShanghaiDaily.com reported. Dalian Shipbuilding Industry Co. was formed by the merger of Dalian Shipyard Co. and Dalian New Shipbuilding Heavy Industry Co. Dalian New Shipbuilding, established 15 years ago, was one of the country's biggest shipbuilders. Both the companies were subsidiaries of China Shipbuilding Industry Corp. The new shipyard expects to output vessels of 2 million tons next year and more than 2.6 million tons in 2007.

Four New Ships for Carnival

Carnival Corporation reached an agreement with Fincantieri for the construction of four new cruise ships worth more than \$2 billion, along with options for two additional vessels. The agreement calls for the

construction of four new vessels (one each for Costa Crociere, Holland America Line, Carnival Cruise Lines, and Princess Cruises); the two additional vessel options are for Carnival Cruise Lines and Holland America Line. Including the four new vessels, Carnival Corporation's capacity growth for 2008 and 2009 is now expected to be 8.2 percent and 6.4 percent, respectively. The company's order book now includes 16 new ships, 13 of which are being constructed by Fincantieri.

SMIT Acquires Brazilian Shipbuilder

SMIT recently acquired 50 percent of Rebras, Rebocadores de Brazil S.A. Rebras already owns three 55-ton BP ASD harbor tugs, which are chartered out on bare boat basis. The company, to be renamed SMIT Rebocadores do Brazil S.A., plans to operate a minimum of 20 tugs in the range 45 to 65 tons bollard pull. The company has a commitment from a Brazilian Shipyard for building twelve 45-ton BP and six 65-ton BP tugs to be locally financed. Delivery of the first tug is planned for 2007.

Contract for New Z-Drive Harbor Tug

A contract for the Hector P., a new 4,200 hp Z-Drive harbor tug to be built by Orange Shipbuilding for South Puerto Rico Towing Corporation was signed last month. Bristol Harbor Marine Design assisted in the harbor tug contract negotiations along with the acting buyer's agent, Eric Rivera from Harbor Bunkering Corporation of San Juan, Puerto Rico. "The Hector P. is going to raise the bar for tugboats in Puerto Rico," said Mr. Rivera. "This heavy, powerful boat is just what we need on our southern coast."

BHMD will also be serving as owner's representative throughout the duration of the project and will be responsible for project inspections and approvals. Design of the new vessel is being completed at Robert Allan, Ltd. of Vancouver, B.C. The design draws inspiration from the RAmports 3000 class tug - one of many standard series of proven tugboat designs offered by Robert Allan, Inc. And finally Westernbank of Puerto Rico, which has provided support to the marine industry for years, will

be the financing institution for this endeavor.

The vessel's design is intended as a dedicated assist tug, but it will include capabilities for tanker escort

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VT Halter Marine Wins \$28.8m Design Contract

VT Halter Marine Inc. announced a \$28.8 million contract award to develop a functional design of a Fast Missile Craft (FMC) for the Government of Egypt. The second phase of this program will include production design work and construction of up to three vessels. The program value could grow to more than \$450 million after Phase II is added to the contract. The Government of Egypt entered into agreements with the U.S. Government to purchase the Fast Missile Craft as a Foreign Military Sale (FMS), a program through which eligible foreign governments purchase defense articles, services, and training from the U.S. Government. The Fast Missile Craft will be designed to accomplish the roles of coastal patrol, surveillance, interdiction, surface strike, and naval battle group support for the 21st century. The vessels will be approximately 62 m long and will incorporate ship signature control technology. High speed and maneuverability are two of their primary assets to fulfill these roles. The vessels will also incorporate numerous combat system assets and electronic sensors that give them capabilities in anti-aircraft, anti-surface, and electronic warfare.

services, fire fighting, and aft towing. The 99 x 36 x 17-ft. tugboat will be classed ABS A1 Towing Vessel (Fire Fighting Capabilities) and AMS, as well as comply with MARPOL regulations as required. The 4,200 hp is provided by two remanufactured EMD 12-645-E7 engines along with two Schottel SPR 1212 FP 360-degree Z-Drives. A 55-ton minimum bollard pull will be provided and two hydraulic powered winches - a 75,000 lb. stern towing winch and an 8,000 lb. hawser winch - are included in the deck machinery.

Rolls-Royce Delivers Aircraft Carrier Propellers

Despite the significant impact of Hurricane Katrina, Rolls-Royce has delivered the first of four propellers for the USS George H. W. Bush (CVN 77),



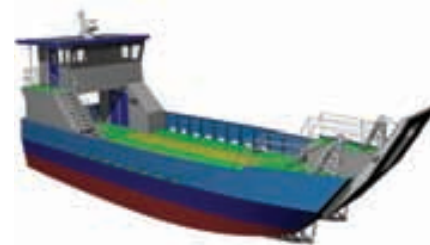
the U.S.' newest nuclear-powered aircraft carrier. The 60,000 lb. bronze propellers, 21-ft. in diameter delivering in excess of 70,000 hp, are the largest ever machined by Rolls-Royce. The first of the four was cast and finished at the Rolls-Royce foundry in Pascagoula, Miss., and transported overland to Northrop Grumman's Newport News Shipyard in Virginia. USS George H. W.

Bush (CVN 77), 1,092-ft. long and with a displacement of over 97,000 tons, is under construction at Newport News.

Coastwise Completes Landing Craft Design

Coastwise Corp. completed a landing craft design for Katmai National Park and Preserve in Alaska. The vessel is a shallow water RoRo passenger and vehicle ferry. The Juneau-based naval architecture and marine engineering firm designed this 65 ft. aluminum landing craft to operate on the Naknek River and Lake carrying passengers and heavy equipment to remote Brooks Camp, "Valley of Ten Thousand Smokes." This new 65 ft. vessel has a beam of 21 ft., travels at eight knots, operates with a crew of two and can carry 10 passengers. It was designed to carry full size

road graders, loaders, and tanker trucks. The vessel's aluminum ramp is designed to load these heavy vehicles from un-



65 ft Landing Craft Particulars

Designer	Coastwise Corporation
Certification	USCG Subchapter T
Hull Material	Aluminum
Tonnage	77.2 GT
Length, Main Deck	61.2 ft.
Beam	21.3 ft.
Depth	7.1 ft.
Draft	2.3 ft.
Service Speed8 knots
Propulsion	(2) Cummins QSL9
Output	285hp @ 1,800 rpm
Passenger Capacity	10
Vehicle Capacity	44,000 lbs

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improved beaches. Designated as a day-boat the RoRo landing craft will operate June to mid-September and be hauled out of the lake, prior to freeze up. Fully loaded the vessel draws just over three feet of water.

NASSCO Wins Repair Contract

National Steel and Shipbuilding Company (NASSCO) won a seven-year contract for the continuous maintenance and repair of four LSD-41/49 class ships and four LPD-4 class ships for the U.S. Navy. The contract includes one dry-docking and 12 non-docking availabilities and has an estimated total value of \$200 million over the seven-year period.

Contract for Double-Hull Tug/Barge Unit

The Manitowoc Company announced that Vane Line Bunkering, Inc. has awarded Manitowoc Marine Group (MMG) a contract for the construction of a 480-ft., 145,000-barrel, double-hulled hot oil tank barge and an accompanying 6,000-hp tug. The oceangoing articulated tug and barge (ATB) unit is slated for delivery in fourth quarter of 2006. This contract also provides Vane Brothers with an option for an identical ATB unit to be delivered in the third quarter of 2007. Other contract terms were not disclosed.

Singapore Launches Stealth Frigate

Singapore launched the Republic of Singapore Navy's (RSN) fifth stealth frigate, RSS Stalwart, from the Singapore Technologies Marine shipyard, according to a report on www.chinaview.cn. RSS Stalwart joined the RSN as the fourth frigate since the Ministry of Defense (MINDEF) started a Formidable-class frigate program a decade ago. According to the program, RSN will acquire a total of six new stealth frigates to replace its Missile Gunboats that have been in service for more than 30 years. Designed by Direction des Constructions Navales (DCN), the frigates are equipped with advanced sensor and weapon systems. The first of six, RSS Formidable, was built by DCN and launched in 2004.

Martek Equipment for Qatar LNGs

Martek Marine Ltd. won a contract for supply of engine emissions monitoring systems for a series of new LNG carriers built by DSME in South Korea. The vessels are being built on behalf of the

German owner PRONAV for the Qatar Gas II project and will transport LNG between Qatar and Milford Haven in the UK. The MariNOx systems will monitor emissions from two main and four auxiliary diesel engines, measuring NOx/SOx/CO2 emissions from each engine.

DEXTER Health Monitoring Software

MACSEA Ltd. recently announced the commercial release of DEXTER, version 4.0, targeted at Health Monitoring of Marine Equipment for the marine industry. DEXTER is software designed to automate the monitoring, analysis and

diagnoses of equipment health in marine environments. It targets both the warning signs of impending failure and the recognition of small problems that can lead to larger failures. It does this by detecting trends and patterns that even highly experienced engineers have difficulty seeing.

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- Taiwan International Logistics Association (TILA)
- The Co-operative Association of Japan Shipbuilders (CAJS)
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General Dynamics Acquires Anteon

Anteon International Corporation, an information technology, systems integration and engineering services company, has entered into a definitive agreement for Anteon to be acquired by General Dynamics for \$55.50 in cash for each outstanding Anteon share. The total value of the transaction, including General Dynamic's assumption of Anteon's debt, is expected to be approximately \$2.2 billion at closing. Anteon expects the transaction to close by the end of the second quarter in 2006.

W&O Supply Hires Two

W&O Supply has hired Michael Page as its controller and Scott Lane as director of information technology. Page has 25 years of financial management experience at Fortune 500 companies and mid-size businesses. He is now responsible for W&O Supply's internal and external financial reporting and accounting functions. Previously, Page held the positions of controller at Durango Paper Company, CFO for First Coast Energy, controller/director of finance at CSX Corporation and senior consultant at Coopers & Lybrand.



Page

Lane brings 20 years of information systems experience to W&O Supply, where he oversees the company's ERP systems and existing software, hardware and networking capabilities.

Wallem Promotes George

Wallem Shipmanagement, Inc. announced the promotion of K.O. George to President of Wallem Shipmanagement Inc. K.O. George took over the position from Swapan Biswas in October 2005. George started his sea career as a Marine Engineer in 1976 and joined Wallem in 1982. From 1990 to 1993 he left Wallem to do his Graduate Studies in State University of New York (SUNY) and joined back Wallem USA office as a Technical Superintendent in 1994 and later on as Technical Manager.

Hyde Marine Adds Technical Director

Hyde Marine, Inc. appointed Matt Granitto as Technical Director, responsible for engineering and production as well as product management of Hyde's fast growing marine environmental business unit.

"With fifteen years of multi-disci-



Granitto

plined engineering experience and strong problem solving capabilities based on a solid technical foundation, Matt is a natural leader with highly effective team building and motivational skills," said Hyde CEO Tom Mackey.

Stewart Honored

Northrop Grumman Corporation said that Becky Stewart, vice president of the submarine program at the company's Newport News sector, received the Women in Business achievement award from Inside Business for her demonstrated leadership, professional accomplishment and her commitment to the community. In her current position, Stewart leads thousands of employees who build and maintain some of the most complex machines in the world — nuclear-powered attack submarines. She oversees construction of the new Virginia-class submarines and planning and engineering services for the Navy's Seawolf and Los Angeles-class submarines.

Signal Wins New Construction Contract

Signal International, L.L.C. signed a contract with LeTourneau, Inc. to build a Tarzan Class jackup drill rig. LeTourneau is procuring the rig, the fourth Tarzan Class rig built for Rowan Companies, Inc., its parent corporation. Under the terms of the contract, LeTourneau will provide a license to Signal International and furnish the engineering and component kit for the elevating system, including, 445 ft. leg length.

Marquez Joins Law Firm

Preston Gates Ellis & Rouvelas Meeds added John Marquez to the firm's Maritime Practice as of counsel. He most recently serving as an attorney for the U.S. Maritime Administration in the office of the Chief Counsel.

ABB Wins \$140M in Marine Contracts

ABB recently won contracts worth \$140 million to supply its Azipod propulsion systems for three vessels and electrical power systems for 11 vessels and two semi-submersible drilling rigs. The orders, all booked during November 2005, include:

- Six 10 MW Azipod propulsion units for three Arctic shuttle tankers being

built for Russia's Sovcomflot at Samsung Heavy Industries.

- A drilling vessel for Mosvold Drilling, being built at Samsung.
- Electrical power system packages for two semi-submersible drilling rigs for subsidiaries of SeaDrill Ltd., to be built at Jurong Shipyard
- A contract to outfit three vessels at

Aker Langsten shipyard in Norway: one well intervention vessel and 2 AHTS'.

- High-voltage switchboards for four container vessels to be built at Daewoo for Hamburg Süd Group of Germany.
- High voltage switchboards and transformers for three LNG carriers being built for China LNG at Hudong-Zhonghua Shipbuilding Co.

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Telenor Launches BGAN

Telenor Satellite Services said that its Broadband Global Area Network Service (BGAN) is commercially available to customers in Europe, the Middle East, Asia and Africa. BGAN is the world's first global, mobile service to provide voice and broadband data simultaneously.

MacGregor Covers 10,000 TEU series

MacGregor is providing hatch cover design and key components for four 10,000 TEU container ships ordered from Hyundai Heavy Industries in Korea by China Ocean Shipping (Group) Company (COSCO). The vessels will be delivered between late 2007 and mid-2008. The 334 x 45.5 m ships have a speed of 25.8 knots. They are the

first 10,000 TEU container carriers to be built in Asia, and the largest such ships with a declared capacity to be built anywhere.

W&O Supply Named Exclusive Master Distributor for Hayward

W&O Supply, a supplier of marine valves, pipes, fittings and valve automation services, was selected as the exclusive master distributor of Hayward Industries' product line for the maritime industry. The agreement allows W&O Supply to offer highly competitive pricing to its customers.

Hayward Industries will now use the W&O Supply relationship to distribute its filtration and flow control lines, cast and fabricated strainer products as well as Wright Austin gas/liquid separators.

Altair Wins Korean Navy Deal

Altair Filter Technology won contracts to supply gas turbine air filtration systems to two new vessels for the Republic of Korea Navy. The first KDX III warship and two new LSFII hovercraft will be fitted with Altair's gas turbine protection.

The KDXIII is a new 7,000-ton warship being designed and built by Hyundai Heavy Industries. KDXIII is the Korean counterpart to the American DDG-51 class destroyers. The LSFII is a high-speed hovercraft landing ship under design construction by Hanjin Heavy Industries and Construction Company. These orders are the first contracts in connection with the Republic of Korea Navy for Altair.

Chevron Goes Live With ShipNet

Chevron entered into an agreement with ShipNet in June 2004 to provide solutions to manage Chartering, Operations and Voyage Accounting world wide. Recently, the company went live with ShipNet, after a significant project including more than 50 distinct modifications totaling more than 2,500 man hours of software development. The software is in place, the staff has been thoroughly trained and the solution is running smoothly. Chevron Corp. have implemented ShipNet Accounting, Operations, Purchasing, Disbursement Accounting, TC, Invoicing and the ShipNet vessel reporting system as well as a new terminal demurrage application and Alert System.



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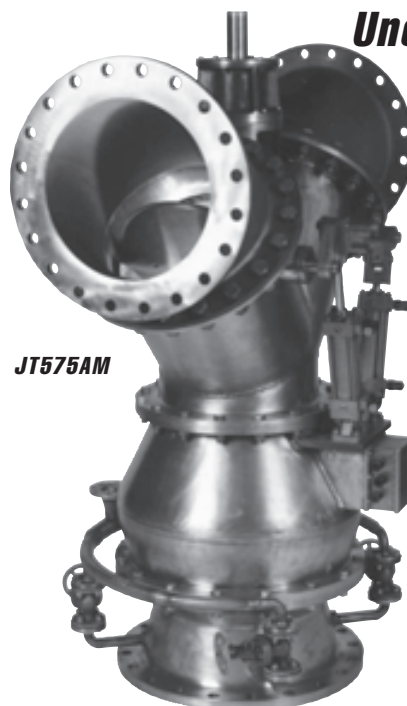
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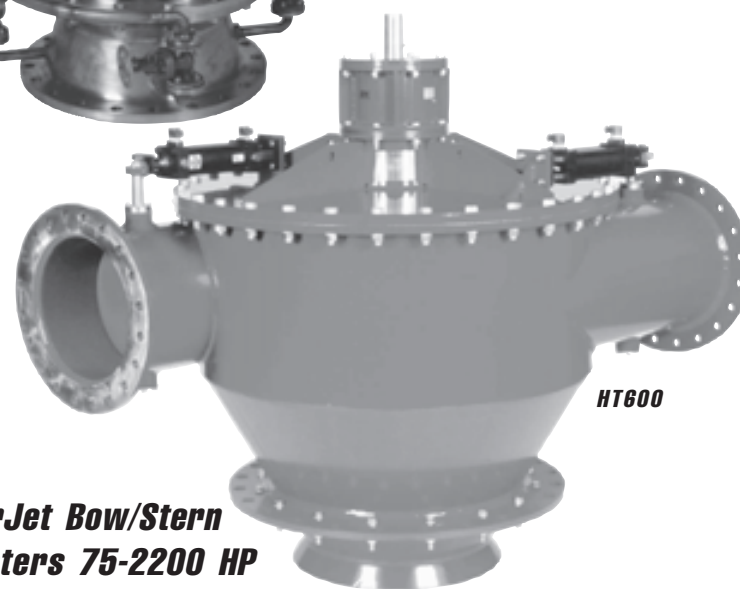


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Circle 234 on Reader Service Card

Preparing for the Avian Flu Pandemic

Scientists and health care experts are warning of the inevitability of an avian flu pandemic. Governments are starting to listen and take halting steps to address this perceived problem. The challenge for the maritime industry is determining likely impacts and initiating measures now to counter or mitigate those impacts.

What is it?

Influenza viruses are quite common, particularly in birds and to a lesser extent other animals such as pigs. Humans who come into contact with these infected animals may acquire one or more of the viruses inhabiting the animals. Most influenza viruses present minimal health risks to humans, as most of us have been exposed to them previously and have acquired some limited degree of immunity. For most people, the flu causes congestion, fever, and body aches for a few days and then goes away - sort of like a bad cold. For some people, though, particularly those with impaired immune systems, the common flu can result in severe health problems and possibly death. Flu vaccinations generally provide immunity, if the pharmaceutical industry can correctly anticipate the flu strain before it becomes wide-spread and design the vaccine to counter that strain.

Problems arise due to the ability of the influenza virus to mutate rapidly. As a result, a particular vaccine may be only partially successful in providing immunity. If the mutation is great or unanticipated, the vaccine may largely fail to protect humans.

In the past few years, scientists have detected a significant mutation in the influenza virus in some birds. This new virus is officially referred to as H5N1, but is commonly called the avian flu. It was first found in domesticated birds being raised in China and southeast Asia. It has since been found in wild

and migrating birds throughout Asia and in Europe. It is only a matter of time before the virus will have spread worldwide. Because the avian flu is significantly different from previous influenza viruses, humans have no immunity. The mortality rate for humans known to have been infected with the avian flu is quite high - over 50%.

Fortunately, in its current form, the H5N1 virus lacks the ability to infect one human from another human. Thus, almost all cases known to date involve persons who worked in close contact with birds on a daily basis. The concern is that eventually the avian flu will mutate again and acquire the ability to move easily (i.e., through airborne fluids such as in a sneeze) from one person to another. When that occurs, the stage is set for the human version of avian flu to move rapidly around the entire world, temporarily incapacitating a large percentage of the populace and resulting in the deaths of millions (It is estimated that 40 million people worldwide died during the 1918 Spanish flu pandemic).

What are the likely impacts for the maritime industry?

The major impact of an avian flu pandemic for the international maritime industry will be delays and diversions on a large scale. For a period of time (perhaps six months), commercial activity will operate at a fraction of the level immediately preceding the outbreak. Ship owners and operators with long-term contracts will be unable to fully perform or will find that their commercial partners will be unable to perform. The labor pool, both for sea-going jobs and maritime positions ashore - such as longshoremen - will be seriously depleted as employees become too ill to work or have to stay home to attend to ill family members. The labor pool for the jobs that manufacture goods for eventual shipment and the consumers who might

purchase those goods will face similar impacts.

President Bush recently asked Congress to appropriate billions of dollars to initiate the process of preparing the United States to deal with this threat. He also promulgated the National Strategy for Pandemic Influenza. The strategy outlines how the federal government intends to prepare, detect, and respond to a pandemic. It also outlines the roles envisioned for state and local governments, the international community, and the private sector. The pillars of the national strategy are: (1) preparedness and communication; (2) sur-

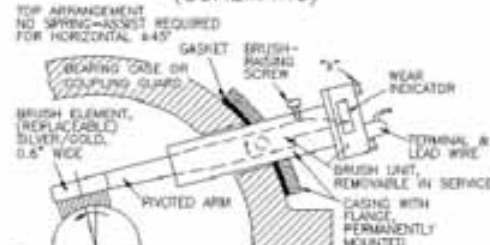
veillance and detection: and (3) response and containment. Surveillance and detection will involve, among other things, increased reporting and record-keeping from arriving ships and aircraft.

The U.S. Department of Health and Human Services (HHS) has issued a Pandemic Influenza Plan providing more details to supplement the National Strategy. (The UK Health Protection Agency issued a similar Influenza Pandemic Contingency Plan in October.) The Centers for Disease Control and Prevention (CDC) recently issued proposed rules that would modify and strengthen current quarantine regu-

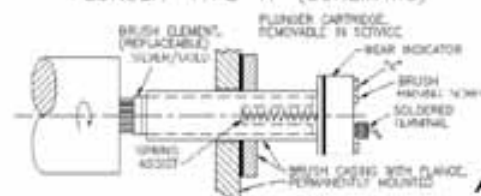
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Government Update

lations. Among the changes proposed to current regulations that might impact marine carriers are more detailed reporting requirements when persons on board are suspected of having a communicable disease, increased sanitation requirements when so directed by the CDC, and broader authority by the CDC to order various quarantine measures.

Governments, in an effort to slow the spread of avian flu to their citizens, will impose restrictions on ships arriving from foreign ports. These restrictions will include reporting requirements, particularly with

regard to prior port calls, the health of all persons on board, and keeping track of persons who might depart the ship. (In October, the Panama Canal Authority began requiring ships to include in their advance notice of arrival information regarding any birds that have died on board; whether any of the previous ten port calls were in nations identified as having outbreaks of avian flu; and whether any persons on board are experiencing flu-like symptoms.) It will be difficult, if not impossible, to fly in new crew members for routine crew changes or as replacements for ones who might

become ill. Ships may be delayed in port because they can't get their cargoes unloaded or get new cargoes loaded.

What can be done?

Governmental restrictions (sometimes called "restraint of Princes") and other delays will have major financial consequences. The party that bears the financial impact will be determined, to a large extent, by the various contracts and legal relationships between those involved. Most contracts in use today (charter parties, contracts of affreightment, insurance policies, etc.) were not drafted with consideration to avian flu. Thus, the parties, arbitrators, or the courts may have to ultimately determine the allocation of the financial consequences without benefit of knowing what the parties contemplated beforehand.

Fortunately, the maritime community has some time to plan ahead to address the challenges posed by the risk of an avian flu pandemic. The impact can be min-

Governmental restrictions (sometimes called "restraint of Princes") and other delays will have major financial consequences.

imized through good contingency planning. The financial consequences can be allocated through careful drafting of legal instruments.

Carriers and shippers should develop alternatives that can be utilized if some ports are closed. Ship operators and managers should carefully monitor the health of their crew members and shoreside employees and consider alternative crewing sources that can provide qualified seamen on relatively short notice to replace regular crew members who might fall ill or stay home to care for their families.

Charter parties, contracts of affreightment, and insurance policies should be redrafted to allocate the risks posed by the avian flu pandemic. In the long run, it matters less where the risk falls than that it be clearly allocated beforehand. Once the risk is allocated, parties will know who has the primary duty of preparation and who needs to obtain additional insurance or other coverage to protect their interests.



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



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Fixed vs. Float Free

It was quite noticeable that at this year's Norshipping exhibition that Simplified VDR was a hot topic. Now, while the subject of VDR has been around for several years, this was the first major exhibition since the IMO added Simplified VDR as a carriage requirement for existing vessels in December 2004.

Of equal interest to note was the swift introduction of capsule technology that was on display and the discussions that were taking place between the pros and cons of fixed versus float free.

In determining a suitable Simplified VDR for his existing vessels, an owner also has to decide on the capsule arrangement that he would prefer. So what is the owner looking for?

Price is clearly top of the list and even if an owner has an operational preference for type over another, is he willing to pay more for that preference should the cost be higher?

In the early days of VDR retrofits on passenger vessels, installing a compliant VDR was a very costly exercise. This was primarily driven by the interfacing requirements to existing equipment and the lengthy time to perform the installation. Admittedly hardware costs (VDR and capsule) also played their part. However, in those early days of drawing up the Simplified VDR regulations it could easily have been misconstrued that the capsule was the most expensive part and that by having a float free capsule more in line with today's GMDSS EPIRB, the Simplified VDR costs would be drastically reduced by around 75 percent.

With the Simplified VDR, the interfacing requirements have essentially disappeared and a reduced specification capsule has been accepted and accordingly the installation time is substantially reduced. These factors, together with the manufacturers own drives to reduce costs are the reasons why a Simplified VDR installation on a regular cargo vessel will be significantly less than a VDR installation on an existing passenger vessel. Is the price of the capsule more important than the key differences between the fixed and float free versions? Within the industry there is much talk of the float free being more advantageous because it "floats free" and can be quickly and easily recovered. But is that really so? Take a scenario where a vessel sinks in the middle of an ocean. A typical VDR float free capsule will have a minimum of seven days position transmitting power, so speed of recovery is key. The first thing that has to happen after the Search and Rescue operation is the launch of a capsule recovery mission. This has to be ordered and contract terms agreed and this in itself may not happen overnight and there is the journey time to the disaster site to also consider. Granted, there are trains of thought where other passing vessels might be asked to stop and pick up the capsule, but bearing in mind that this is something the same size as an EPIRB, and even with a Latitude/Longitude, a ship could be sitting on top of it and still not see it. How realistic is it to expect that vessel to take time out of a tight sailing schedule to search for the capsule?

In the case of the fixed capsule that sinks with the vessel it has the disadvantage that it has to be recovered by diver or ROV. Providing that the vessel does not sink in the Mariana Trench or other similar hole more than 6,000m deep, the investigating authorities have two years in which to decide if they even want to mount a recovery mission and more importantly how it will be funded.

In simple terms, with a float free capsule, if it is not recovered within a relatively short space of time there is risk that the data might never be recovered. With a capsule that sinks with the vessel, the data is not "lost" ... it just has to be recovered at some point in the following two years. If a vessel has such a catastrophic incident that it sinks so quickly, then this is the type of incident where in finding out what happened, data from the VDR will be of vital importance and as such, the most secure capsule might be the one that guarantees the data will be more recoverable. One theory suggests that 95 percent of all casualties do not sink or do not sink immediately. In those cases there is a good chance that VDR data can be taken off the vessel fairly easily and so it is only the 5 percent of catastrophic incidents where the casualty investigation will mostly need the VDR data from the capsule to assist in determining the cause. Getting back to good housekeeping and the original question above, is it reasonable to expect that an owner who might have a preference for one capsule type over another will pay more for it? Unlikely one would think. To be more to the point, the question to the owner might be: why do you care? Sir, how many vessels did you lose last year? The year before? The decade before? How many vessels are you expecting to lose next year or the next ten years? Unless you can conveniently arrange to lose your next vessel in shallow waters or close to port, then and only then will the above arguments have to be considered.

A VDR will definitely prove itself useful in the day to day operation of any vessel, but in reality, the capsule itself will almost never be used. Let us not get bogged down in what is really a very minor detail.

by Ian Bowles of JRC

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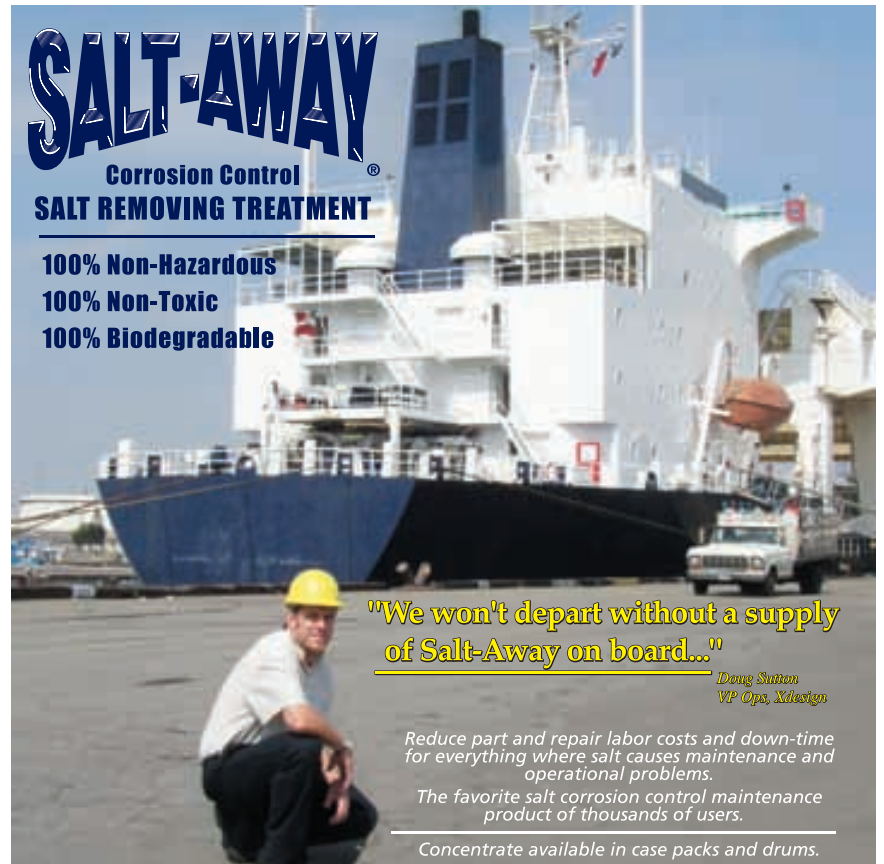
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S-VDR - Black Boxes For Ships



The 551-ft. log ship Forrest in the Bering Sea after losing logs overboard and listing in heavy seas. (USCG photo by Petty Officer Kevin Martin)

By Joe DiRenzo III and Chris Doane

Two ships collide at sea or in a shipping channel. A ship runs aground and oil is spilled. A ship founders and sinks. All of these are common maritime mishaps that must be investigated to determine why the accident occurred. Determining why is important to identifying potential modifications to safety requirements or practices that may prevent future mishaps. However, reconstructing events to determine the "why" is often a most difficult task for maritime accidents. Often investigators are faced with two conflicting stories and two sets of emotions, or worse no witnesses whatsoever. To resolve the uncertainty, they must search for more concrete evidence.

For centuries the Ship's Deck Log was the traditional method used to record vessel movements and was the primary document for reconstruction. As shipping modernized, more internal sources of ship movement information for investigators have been added to the mix. These include: the Engine Order Log, paper navigational charts, electronic navigational positioning systems such as LORAN and GPS, computer systems used to monitor engine performance, and the newest entry - electronic chart. All of these additional sources of information on a ship's position and move-

ments, when they could be recovered, significantly aided in the efforts to reconstruct what a vessel did and when it did it, but gaps remained.

There are also external sources of information on vessel movements, vessel interactions and even communications between vessels. Examples include; information recorded by the Coast Guard's Vessel Traffic System (VTS) in locations such as New York; Houston; Valdez, Alaska; or by Rescue Coordination Centers throughout the world. Additionally, the relatively new 2002 Maritime Transportation Security Act (MTSA)'s requirement for an Automated Identification System or AIS provides information on a ship's position and intended movement. Where available, these external sources of vessel movement information can provide supporting data to aid a casualty investigation, but still more "primary" information, provided by the vessel itself, is needed.

For years, the maritime industry, insurers, government officials, and other stakeholders have discussed the need for a reliable and durable method for more precisely determining vessel actions prior to a mishap in order to accurately judge causes, fault and liability. Amongst other data, investigators need to know exactly what heading a vessel

was on, what speed, what equipment was running and any changes before an accident occurred. Having watched the aviation industry and their "black boxes" help the U.S. National Transportation Safety Board (NTSB) and investigative agencies of other nations understand the conditions that led to airliner incidents, developing a similar system for ships seemed an obvious solution.

The U.S. NTSB, who along with the U.S. Coast Guard investigates maritime accidents, pushed for the use of event recorders on ships since the 1970s. "Drawing on its extensive experience with aviation and surface vehicle data recorders, the Safety Board has worked with the U.S. Coast Guard, other agencies, and marine industry companies in rulemaking efforts and development of technical standards for [Voyage Data Recorders]. The NTSB supports the use of these systems not only as accident investigation tools, but also as management tools." NTSB's position is the result of numerous marine accident investigations in which it "identified the need for VDRs and issued safety recommendations related to developing or requiring the systems." (Footnote 1)

In considering a maritime black box, several variables come into play. The system needs to survive an accident and

be readily retrievable. Location on the vessel is another consideration, should the system be on the bridge or the engine room adjacent to the systems to be recorded, or located with the emergency beacon or life rafts to enhance recovery. Another over-riding issue is industry's ability and desire to produce such a piece of equipment. Any such system needs to be adaptable to many types of ships plying the seas, highly reliable, of reasonable size, economical for ship owners yet profitable for manufacturers.

Enter the maritime version of a "black box". In accordance with the International Convention for the Safety of Life at Sea (SOLAS), a Voyage Data Recorder (VDR) is required on passenger ships and new construction cargo ships of 3,000 gross tons and up since July 1, 2002. Analogous to "black boxes" carried on commercial airliners, the VDR is intended to provide marine accident investigators with data critical to determining why maritime accidents occur. Existing cargo ships have been exempt from the regulation over concerns of VDRs interfacing with existing equipment.

VDRs proved their worth to investigators, ship owners and insurers. Post accident data from VDRs has been helpful in determining the true events lead-

ing to accidents on numerous occasions. With this information, owners have quickly identified and corrected deficiencies in procedures or training of bridge personnel avoiding future mishaps. Investigators have more accurately ascertained fault and insurers assigned liability. Still the large fleet of exempted cargo ships remains at sea, a significant gap in the ability to analyze maritime accidents. (Footnote 2)

The discussion on VDR requirements for exempted cargo ships began in earnest in December of 2002 when the IMO's Marine Safety Committee (MSC) adopted a resolution on the carriage of VDRs on existing cargo ships, calling for a "feasibility study to be carried out to ascertain the need for mandatory carriage of VDRs on these ships. The feasibility study, was conducted by the Subcommittee on Safety of Navigation taking into account factors such as practicality, technical problems relating to the retrofitting of VDRs, adequacy of existing performance standards including the possible development of simplified standards, experience in the use of VDRs on ships already fitted with them, including data that could not have been obtained

without VDRs, and relevant financial implications, including a cost-benefit analysis." (Footnote 3)

In December of 2004, after much deliberation, the IMO's MSC selected the Simplified Voyage Data Recorder or S-VDR as the maritime "black box" and mandated a phased installation on previously exempted cargo ships beginning on July 1, 2006. Specifically, the regulation requires that existing cargo ships on international voyages shall be fitted with an S-VDR as follows:

> "20,000 gross tonnage and upwards constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2006 but not later than 1 July 2009"

> "3,000 gross tonnage and upwards but less than 20,000 gross tonnage constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2007 but not later than 1 July 2010"

> "Administrations may exempt cargo ships from the application of the requirements when such ships will be taken permanently out of service within two years after the implementation date

specified above". (Footnote 4)

The S-VDR system has received significant support from the U.S. NTSB for years. Michael T. Brown, Marine Transportation Safety Specialist, of the U.S. NTSB at the 1999 International Symposium on Transportation Recorders, submitted the following statement:

"The S-VDR system is actually quite similar to an aviation black box in many ways. If an accident occurs and even if the vessel sinks the S-VDR is designed to provide information over the vessels previous 12 hour period, making reconstruction easier - more precise and much more accurate. In essence, S-VDR provides the missing link to all the data providers mentioned previously. A Deck Log may indicate a specific action at a specific time - the S-VDR confirms it!" (Footnote 1)

I.M.O. Performance Standard A.861(20) and the I.E.C. Technical Standard IEC61996 are the primary standards that help define requirements for S-VDRs. The performance standards for the S-VDR require that recorded data include (Footnote 5):

- Date/time
- Bridge conversations
- Alarm systems
- VHF communications
- Radar display and/or AIS target data
- Ship's position
- Ships speed
- Ships heading (true & magnetic)
- Depth
- Wind speed and direction
- Rudder order and response
- Engine order and response
- Statue of hull openings, water tight doors and fire doors
- Accelerations and hull stress

Clearly the S-VDR captures a comprehensive data set critical to any accident investigation.


IMO added to the S-VDR decision approving the fixed Protected Storage Unit System (PSU) in February 2005 and the float-free PSU in September 2005. These decisions allow vessel owners the opportunity to choose a system that is a perfect match based on size, mission and requirements. The need for

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SVDR Report

a fully integrated system is paramount, in which the unit designed to capture the information is fully protected. The thinking is the same as for airline black boxes. Black Boxes for the maritime industry - you bet - having a more accurate way to reconstruct movements, actions and decisions in the moments before a marine casualty will significantly improve the maritime community's understanding of why these accidents occur leading to improved processes and a safer industry.

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Kongsberg Secures S-VDR Contract



Kongsberg Maritime won a contract to supply Westfal-Larsen Management AS, Norway, with its S-VDR solution, the Maritime Black Box-S (MBB-S). The delivery of the fully DNV Type Approved MBB-S, including the approved 'float free' PSU (Protected Storage Unit) and 'fixed' PSU options, is designed to provide a flexible solution. Westfal-Larsen Management AS, which was incorporated in 1996 as the result of a demerger from Westfal-Larsen & Co. A/S, currently has eight general

cargo/container carriers, three chemical tankers and one LPG carrier that it manages. "Following a successful lunch seminar in Bergen with 10 shipping companies, earlier this autumn, Westfal-Larsen Management decided to order 12 S-VDRs for the whole fleet. Already this year we have delivered the first four S-VDRs to vessels in the Far East and the remaining vessels will be delivered in 2006," said Tom Remman, Kongsberg Maritime. It has been planned that the contract will be extended later this year with a Fleet Agreement for Kongsberg's MBB-S. Adding to the delivery will enable Westfal-Larsen Management to meet the requirement that all of its existing

cargo vessels above 20,000 gt are installed with an S-VDR before dry-docking, after July 1, 2006 and at the latest, by July 1, 2009.

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Netwave NW-4000 Series S-VDR

Netwave incorporates state-of-the-art micro-processor and digital signal processor technology to create a SVDR that is simple to install with a single wire cabling connection; compact and freely configurable data acquisition 'backplane' units; and a WaveNet Adaptor Module allowing connection to virtually any shipboard data source, including radar, ECDIS, GPS, AIS and Gyro.

Circle 5 on Reader Service Card



China Type approval for Kelvin Hughes S-VDR

Kelvin Hughes Manta Digital S-VDR has been given Type Approval from the China Classification Society. Manta Digital S-VDR was on display at the recent Marintec exhibition, along with its new float free data storage module.

Circle 6 on Reader Service Card

JCY-1700S S-VDR

Japan Radio received MED Type Approval for a Simplified Voyage Data Recorder (S-VDR), JRC's JCY-1700S. The JCY-1700S is a two-unit system using a distributed Ethernet solution allowing for efficient and cost effective installation with pre-configured VDR connections. The JCY-1700S allows ship owners to further enable training of

their crew both onboard and on-shore and allowing staff to monitor critical ship parameters from their cabins using an optional PC and connection.

Circle 7 on Reader Service Card

McMurdo C1 S-VDR

McMurdo launched the C1 S-VDR, a Float Free Data Capsule that is designed to duplicate and store critical voyage related information collected by the S-VDR. The built-in GPS EPIRB provides an aid to quickly locate and salvage the Data Capsule. In the event of a vessel sinking, the Float Free Data Capsule is automatically released from its housing by the integrated Hydrostatic Release Unit (HRU). The GPS EPIRB transmits location and homing signals for a minimum of seven days to enable the unit to be safely recovered so that stored facts can be retrieved.

Circle 8 on Reader Service Card

L-3 SVR

The L-3 Simplified Voyage Recorder (SVR) is a fixed design, which offers unlimited time for retrieval. The company touts an enhanced design which it claims can lower the total cost for acquisition, field servicing and installation. There are more than 3,000 operating units in the field. The L-3 SVR features a 2 gigabyte storage capacity, and is able to house more than 12 hours of radar, sensor and audio data recording time. It also offers an ethernet interface to the main VDR.

Circle 9 on Reader Service Card

Danelec Marine's DM300 S-VDR

The new DM300 S-VDR is second generation VDR's from Danelec Marine. The company touts the DM300 S-VDR as among the most compact and lightweight S-VDR on the market. A key feature is the External Radar Interface, which allows the Radar Interface to be installed either in the radar console or nearby. This will allow the distance between the S-VDR main unit and the Radar Interface to be up to 100 meters, using only a standard Ethernet cable.

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Australian Technology: Lighter and Faster



The basis of Austal's seaframe design is the 127-m trimaran hull employed for the Benchijigua Express, a milestone 2005 completion in Western Australia for the Canary Islands' ferry network maintained by Lineas Fred Olsen.

By David Tinsley

Having crafted and developed particular strengths in the design and production of fast, lightweight ferries and high performance craft, Australia's maritime industrial sector has consolidated its position as a leading player on the world stage in its target fields.

By far the greatest proportion of the business transacted by Australian shipbuilders results in capital exports for the country, and the industry's influence is such that it is thought to have a share of at least one-third of the global market for aluminum shipbuilding. Moreover, the growing involvement of Australian-based designers and technical consultancies in overseas projects for high-speed and light-displacement vessels gives added dimension to the uptake of the industry's technology and expertise, as does an increasing defense-related workload. Joint shipyard ventures in the U.S. have provided new platforms and outlets for Australian designs and marine technology.

A vibrant and innovative approach to vessel and craft design remains a key factor in the industry's success, while a

host of recent contracts secured on the basis of cost competitiveness as well as design and operating performance underline the yards' achievements in securing efficiency in quality production. The shipbuilding industry has reaffirmed its position in the vanguard of high-speed vessel know-how with fresh advances in the European and North American markets.

Within the last quarter of 2005 alone, the Austal Ships group augmented the fast ferry orderbook at its home yard in Henderson, Western Australia, and saw the official opening of new construction facilities at the joint venture shipbuilder Austal USA, just one month after confirming major contracts from the U.S. Navy and Hawaii Superferry.

The latest deal transacted with Istanbul Deniz Otobusleri (IDO) calls for two 88-m, RoRo equipped catamarans to be delivered in 2007 by the Henderson yard. The project holds special significance for the fact that the Turkish company, which is especially well-versed in high-speed ferry operations and in waterborne mass transit-type services, has been the earlier recip-

ient of a total of eight Austal ferries. Returning clients are always an indicator of vessel quality, customer support and past contractual performance.

The industry's typical lack of complacency is reflected in continuous design progression and refinement, and sustained build competitiveness, and such characteristics are demonstrated in IDO's next pair of vessels, each intended to carry up to 1,200 passengers and 225 cars, or 126 lane-m of trucks plus 158 cars, at speeds in excess of 36-knots. It is claimed that the newbuilds will be the first Turkish fast ferries to incorporate hoistable mezzanine decks, conferring greater flexibility to meet seasonal changes in RoRo requirements.

In the meantime, confirmation that Australian high-speed vessel design and build technology will be brought to bear on the U.S. Navy's Littoral Combat Ship (LCS) program was signaled by the recent announcement of a construction contract award. The go-ahead for the first of two planned Flight O vessels from prime contractor Bath Iron Works, a General Dynamics company which has teamed with Austal as the designer

and builder of the LCS seaframe, opens the way to the production of an Australian-conceived trimaran type at the much-extended and modernized Austal USA yard at Mobile, Ala.

The basis of Austal's seaframe design is the 127-m trimaran hull employed for the Benchijigua Express, a milestone 2005 completion in Western Australia for the Canary Islands' ferry network maintained by Lineas Fred Olsen.

The trimaran type, effectively a slender, stabilized monohull, whereby the two outrigger-like hulls move the displacement upwards and reduce the wetted surface, has been shown to give improved seakeeping, passenger comfort and efficiency properties relative to alternative or existing designs of high-speed passenger and vehicle ferry. The configuration also makes for a wide beam of 31.6-m, complementing the good deadweight payload possibilities offered by such a fast vessel, which is expected to achieve at least 36-knots at full deadweight on 90 percent maximum continuous power from the four-engine, all-diesel plant. The design's aviation capabilities coupled with shallow draft

and high maneuverability are especially pertinent to LCS requirements.

At the time the breakthrough deal was secured for Benchijigua Express, Austal had felt that the project would increase the potential use of fast ship technology because of the multihull type's claimed ability to maintain operations and schedules on routes that had previously been considered unsuitable for fast ferries. From the outset, it was considered that the concept offered substantial scope in the naval domain.

Australia's wherewithal for the production of future generations of larger, high-speed vessel is also encapsulated by Incat's facilities at Prince of Wales Bay in Tasmania, where a new undercover building hall houses the first of the yard's 112-m series of wave piercing catamarans. Designed to accommodate still larger vessels of 120-m and beyond, the Wilson's building hall and drydock is deeper and wider than the adjacent, equally impressive Coverdale's building hall, and has taken the undercover construction area at the yard to more than 50,000-sq. m.

Tasmania is also the location of a relatively new entrant to the field, North West Bay Ships, which cut its teeth on a 55-m fast passenger ferry embodying an innovative trimaran hull form, and delivered into Korean service in 2001. Testament to the vigorous business development policy pursued by the company, and to its propensity for bespoke newbuilds, 2005 production featured a 61-m luxury trimaran motor yacht, delivered as the e-motion to an unidentified owner.

North West Bay's main shipbuilding hall at the Margate yard allows for simultaneous fabrication of two multihull vessels up to 70-m length overall, and provides a 20-m clear space under the full-coverage, overhead gantry cranes. The hall features a completely level floor slab containing reticulated service lines for ease of access. Vessels can be launched and retrieved by an 800-ton capacity level platform. The creation of a substantial in-house design team has a signal bearing on the company's ability to respond to customers' individual needs and on its overall flexibility. Tasmania has always had strong skills in construction and engineering, and the build-up of the payroll and a diversified orderbook has also seen people drawn in from the industry on the western and eastern seaboard of Australia.

The first issue of the Margate yard had been laid down as a stock vessel under the name Triumphant. She was commissioned into service in 2001 with South Korean operator Hanil Mega Speed

Lines as the Dolphin Ulsan. The trimaran ferry maintains a daily return open-water crossing of the Korea Strait, totaling 250 nautical miles, between Ulsan and Kitakyushu, western Japan.

Designed to carry 473 passengers at 40-knots, the stylish design was claimed by its Tasmanian builder to be 25 percent cheaper to run than vessels of com-

parable speed and capacity. Important features of the class include its seakeeping properties and low-wash characteristics, and a three-engine diesel plant said to confer equivalent performance to that of similar-sized catamarans powered by four engines.

A landmark delivery during 2003 was the 40-m low-wash passenger catamaran

Red Jet 4, handed over to U.K. ferry specialist Red Funnel for the fast link between Southampton and West Cowes. The clutch of completions the following year included two 28-knot ferries for Bermuda's Department of Marine & Ports. Designed by the New Zealand firm Teknikraft, the 23-m sisters feature asymmetrical hulls and a lifting foil, and

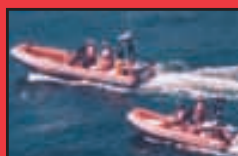
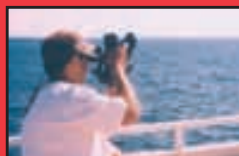
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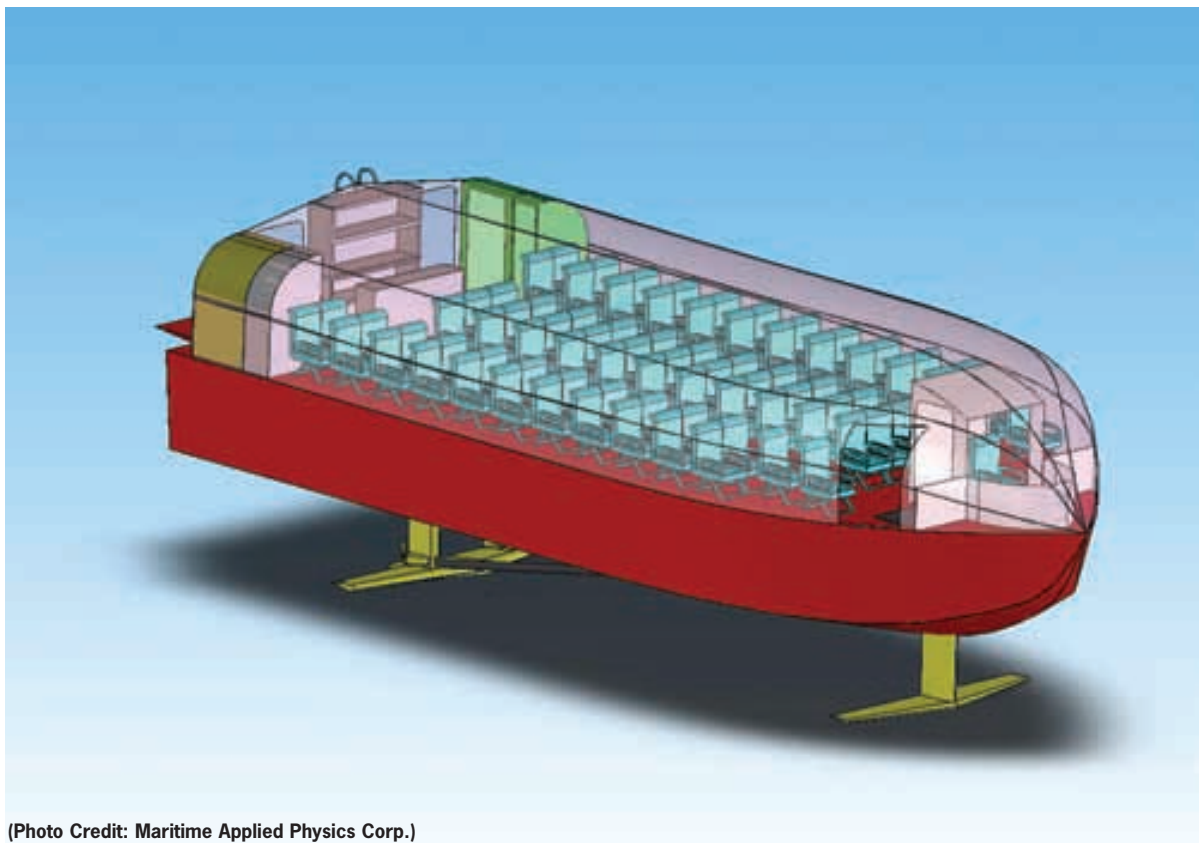
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Futuristic Vessels Will "Fly" Fast Above the Water



(Photo Credit: Maritime Applied Physics Corp.)

Maryland's far Eastern Shore may soon be a quick trip from Baltimore, thanks to a speedy, futuristic ferry being developed by Maritime Applied Physics Corporation and A. James Clark School of Engineering researchers through the Maryland Industrial Partnerships Program.

The plane-like boat, which could be in service year-round as early as summer 2007, will fly passengers 18 miles over the water from Rock Hall to Baltimore and back.

"Since the steamship days the Eastern Shore has held a certain allure for Baltimoreans," said P.A.M. Schaller, Director of Economic Development for Kent County. "Rock Hall has the flavor of a waterman's town. Nearby Chestertown has loads of 18th century architecture. Both have fabulous restaurants. It's like stepping back in time." The trip by car is 80 miles, requiring a drive either north into Delaware, or south to the Chesapeake Bay Bridge. Passenger ships ran the same route as recently as the 1960s, according to Schaller. A 155-acre amusement park called Tolchester Beach north of Chestertown serviced a ferry and as many as six steamers, attracting 22,000 visitors a weekend. The 85-year-old park closed in 1962. Rock Hall and its neighboring areas are getaway havens, with booming summer communities of vacationing boaters from Philadelphia, Delaware, New Jersey, and New York. The new, 80-passenger ferry will be part plane-flying close to the water, lifted into the air by its aerodynamic hull; it will be part hydrofoil, a type of boat with wing-shaped blades attached to struts under the hull that lift the boat out of the water as speed increases; it will also be part luxury vessel, with leather aircraft seating, a coffee bar, and outlets for laptops.

(Continued from previous page)

the draft of only 0.9-m, about half that of previous vessels in the fleet, offered scope for extensions to the service network.

Expressions of the builder's adaptability have included a catamaran harbor cruise vessel and a host of other one-off projects, while activity at the Margate premises during 2005 has included Silversonic, a 28-m catamaran designed for daily dive cruises to Australia's Great Barrier Reef.

The handover of the elegant e-motion has opened a new chapter in the development of North West Bay Ships, taking the company into the promising megayacht market. The adoption of a multihull configuration, unusual in the luxury motor yacht sector, reflected the client's interest and positive impressions of the trimaran ferry *Triumphant*, having sailed aboard her just after completion at the yard.

The seakeeping and ride properties of the 40-knot trimaran ferry, in combination with speed and handling, had led to the commissioning of a feasibility study into the use of the trimaran platform as a stable, comfortable and efficient 20-knot superyacht. A build contract ensued, and the all-aluminum e-motion is the product, incorporating interior and exterior styling by Sam Sorgiovanni Designs.

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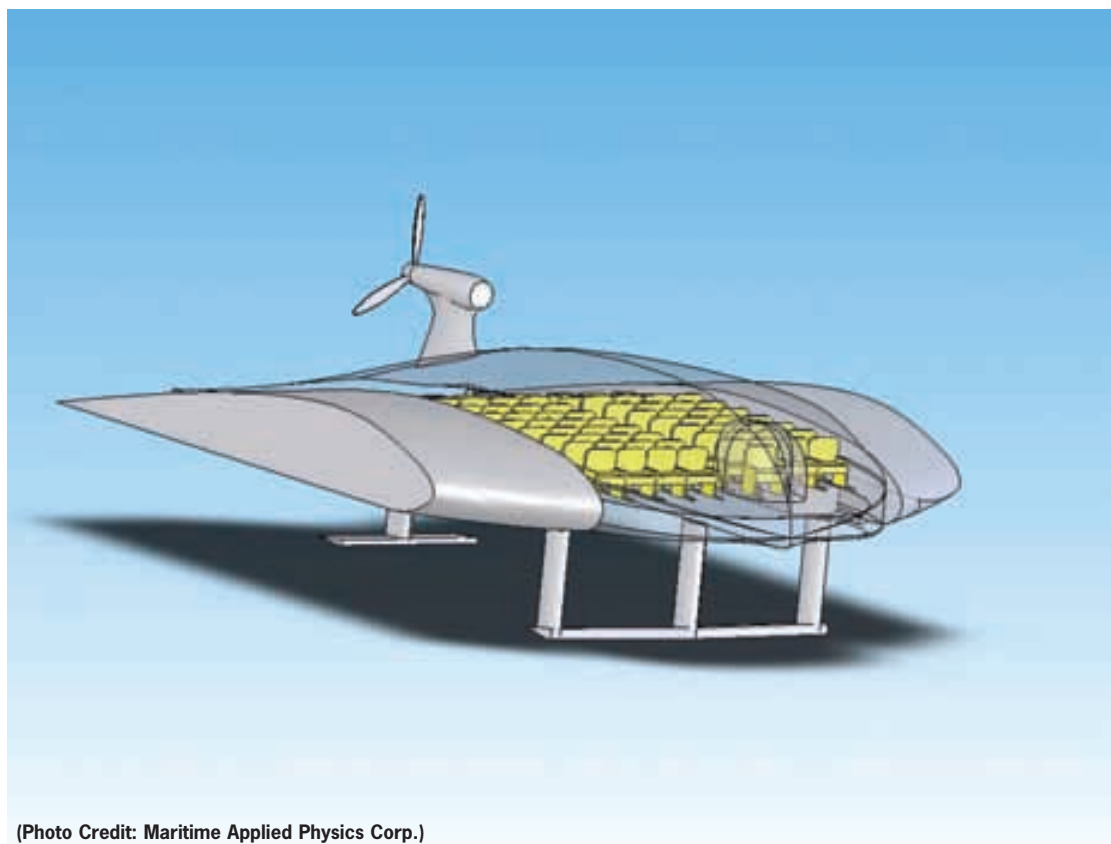
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(Photo Credit: Maritime Applied Physics Corp.)

The boat's hull design, unlike any other vessel, is designed to perform like an aircraft. That's where Jewel Barlow, director of the University's Glenn L. Martin Wind Tunnel, comes in. "The hull we're creating is shaped like a wing to create lift, much like a plane, at low clearances above the water," Barlow explained. "This lift, occurring as the boat reaches high speeds, will support the weight of the ship and reduce drag while avoiding reverse lift, which would push the boat back down into the water."

No other commercial hydrofoil-based ferry on the market produces this kind of lift, according to Mark Rice, president of MAPC. Less drag, he explained, means less fuel consumption, which means lower trip costs, and possible speed boosts. The ferry could go as fast as 68 mph.

"We're trying to get the fuel-used-per-passenger-mile ratio down," Rice explained. "We'd like the ferry to perform at least 25 percent better than the Boeing JETFOIL, the most technically advanced passenger hydrofoil ever built."

Burger Pioneers the Use of Proven Super Alloy

Burger Boat Company is shifting gears after more than 50 years of continuous aluminum fabrication experience to a new premium grade of the alloy called Alustar. Used for nearly a decade by Northern European custom shipyards and specified by leading yacht designers, naval architects and engineers, the material is now the standard for all new yacht construction at Burger Boat Company.

Both Sycara, a 143-ft. Fantail Cruiser and Sea Owl, a 142-ft. Tri-deck are being built using this ultra high strength and highly corrosion resistant alloy. Essentially, Alustar is more than 20 percent stronger both before and after welding than conventional aluminum alloy.

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"The intent is to find products made in the U.S. with a performance advantage that allow you to sell overseas," said Rice. "You can't go head-to-head with Asian builders on a product that can be built there for less. You have to add enough technical value to make up for the difference in purchase cost."

MAPC plans to build the first ten ferries, selling each for approximately \$2 million.

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Gladding-Hearn Starts Building New Ferry

Gladding-Hearn Shipbuilding, Duclos Corporation, has begun construction of a 350-passenger, high-speed ferry for the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority in Massachusetts.

The all-aluminum catamaran, designed by Incat-Crowther in Sidney, Australia, is 155 x 40 ft. (47 x 12 m), drawing 5.3-ft. (1.6 m). The vessel features Incat Designs' "S-Bow" hull shape to provide additional reserve buoyancy during very large seas. "The S-Bow hull shape has lower resistance and better seakeeping than a conventional catamaran hull," said Peter Duclos, Gladding-Hearn's president. "This hull has excellent directional stability and is more tolerant of changes in trim and displacement."

The Steamship Authority's second fast ferry will be powered by four MTU

12V-4000M70 diesel engines, each delivering 2331 bhp at 2,000 rpm and propelled by a Hamilton HM721 waterjet through a ZF4650D reverse-reduction gearbox. Equipped with a VT/MDI active interceptor motion control system, the vessel's top speed, in moderate sea conditions, is expected to reach 38 knots from the four engines (33 knots from three engines) when fully loaded with a deadweight of 51 metric tons at 100% MCR. Electrical power is supplied by two Northern Lights 175 kW generators.

With interior sound levels of 72 dba, the main and upper cabins will be feature Beurteaux Ocean Contour seats. Additional accommodations include five heads, heating and air-conditioning, a digital audio/visual public address system with nine displays throughout the vessel, and a snack bar in the main



cabin. A separate luggage room will carry more than 14,000 pounds of lug-

gage and 24 bicycles.

Circle 98 on Reader Service Card

Aker Yards Launches Tallink's Galaxy



December 1, 2005, was the christening and launching ceremony for the big cruise ferry ordered by Tallink at Aker Yards shipyard in Rauma. The contract, worth more than \$165 million, was signed in October 2004. The vessel will start cruises from Helsinki to Tallinn next spring. The vessel was christened Galaxy by Ms. Johanna-Iisebel Järvelill, daughter of Member of the Board of Tallink, Mr. Kalev Järvelill.

It will be one of the biggest cruise fer-

ries in the Baltic Sea, having capacity for 2,800 passengers. When delivered in spring 2006, the vessel will start regular cruises between Helsinki and Tallinn. On that route now, the cruise ferry Romantika, delivered from Aker Finnyards in spring 2002, will start cruising between Stockholm and Tallinn together with the sister ship Victoria, built in Rauma in 2004. In addition to Galaxy, Tallink has ordered a fast passenger day ferry from Aker Yards; and

signed option agreements for both vessels. MS Galaxy is designed to carry passengers, private cars and freight units, and has 1,130 lane meters of vehicle deck space. The vessel has a length of 212 m, a beam of 29 m and a gross tonnage of 48,300. Propulsion by four diesel engines totaling 26,240 kW will provide a service speed of 22 knots. Classification of the vessel is to the highest ice-class - 1 A Super.

Circle 11 on Reader Service Card

Acoustic Assessment of Martha's Vineyard Ferry

Noise Control Engineering, Inc. (NCE) recently completed sound and vibration analyses of the new 255 ft., double-ended ferry for the Steamship Authority (SSA). The ferry will operate between Woods Hole and the island of Martha's Vineyard in Cape Cod, Mass. The ferry is being designed and built by VT Halter Marine in Pascagoula, Miss. NCE has conducted three major studies for Halter. First an airborne noise prediction was performed using the new Designer-NOISE, noise prediction software, recently released by NCE and Proteus Engineering. NCE has also calculated the sound levels from all major HVAC systems in the ferry. Finally, NCE completed a full hull and superstructure Finite Element Analysis. This analysis was performed using MAESTRO and NE/NASTRAN finite element codes. The assessment evaluated compliance with ABS "COMF" vibration requirements from the "Guide for Passenger Comfort on Ships". NCE specializes in shipboard noise and vibration control.

Circle 12 on Reader Service Card

Gulf of Mexico Report: Raising Rhea

By Don Sutherland

In a world turned upside-down and backward, the definitions of "good luck" and "bad" are subject to revision. A drydock breaking free with a tugboat inside for an unsupervised tour of the Mississippi would normally be bad luck, but this was Hurricane Katrina. Neither had damaged the bridge, despite a grand potential to do so, and neither itself had been damaged along the uncharted course toward Gretna, nor the grounding on concrete at a considerable incline. That could be called good luck.

All the moreso, since the Rhea I. Bouchard was in town for an upgrade to a life in the notch, an Intercon coupler to be installed to pin her to her barge. For this addition there were two holes, about 10 x 10 ft., just above the waterline. Her propellers were off and the shafts removed, along with the engines, so she was not sealed as she'd be on the ocean. To counterbalance the weight of the new couplers forward — which were not yet installed — a steel ballast of 23 tons had been welded in place aft. We'd need the engineers again to describe how the Rhea would fare, given weight overall and its distribution, had she and Miss Darby parted company in the storm.

But once the storm was over, there would be an urgency to getting the pair back to the yard at Algiers. Luck soured a little, as Rita's prelude, main act, and epilogue pre-empted the lifting of a 450-ton object from a confined space on the end of steel cables. Rita

struck on a Friday, but it wasn't until the next Wednesday, September 28, that conditions were calm enough to hoist a tugboat.

"It took two weeks to prep the vessel for the lift," said Bollinger's project manager Rob Lance. "We placed pads — split pipe doublers — to keep the cable from squencing the hull. There were areas where the rigging went across the bulwarks, so we made temporary welds of some 3/8-in. plates to keep the cables from tearing into something significant. Because when you lift, the slings want to close-in on everything." Since the plan was to lower the Rhea into the water — the use of a barge had been previously considered — for towing back to Algiers, it was also prudent to cover the holes in the bow, and at the openings for the propeller shafts. An extra pump was hoisted in, just in case.

The plan was to raise the Rhea enough to clear the blocks, then ease her stern-first out of the drydock. As she moved laterally, she would also be turned about 90 degrees, bow-in to shore. This would require some careful maneuvering by the Shane-C, the Bisso tug that was moving the barge with the fixed crane upon it. A good fifty minutes passed, from the moment daylight first shone under the tugboat's hull to the time said hull eased into the water.



Crew working with T&T's 650-ton Big-T inspect a barge inventively displaced by Katrina's surge — the water is on the opposite side of the tank — and discover the tank is not empty. Donjon's Chesapeake 1000 was called in to minimize risk, and did the honors two days later.

(Photo: Don Sutherland)

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It's doubtful a storm surge, even one like Katrina's, would top trees this high, so how did the barge get in there? (Photo: Don Sutherland)

Darkness had fallen, but she remained in her sling awhile longer, as a leak in a valve was corrected, then finally set down for the trip to Algiers.

It was a long day after a long two weeks, and it would be two weeks more before Miss Darby came home. It was a good start for Bollinger Algiers. By late October, Bollinger Gulf Repair had at least one of its Katrina-disheveled drydocks back on an even keel. But long-term recovery from the Katrina catastrophe may take even longer than fixing drydocks, and involve things far outside the yard. The track of the storm surge raised questions — or to some in the area, reinforced them — about the course of the waterways themselves. Should they be changed? That question, in turn, raises more about how shipyards should rebuild and, maybe, where. And in a region that aims to come back just as quickly as possible, it adds the question of when.

Scope of Work

It would have been easy for those on the ground in southern Louisiana to think that some people didn't get it. Those would be the people outside — the rest of the country, for starters, and, heaven help us, the ones in charge.

The Coastal Gulf was indeed on the national stage, but it was Washington in the spotlight. The reflected glare could blind the eye to other issues of concern. What if it wasn't only the people in charge? What if bureaucracy can't handle a surge?

The scandals at New Orleans made the headlines, while the conditions in Plaquemines Parish went mostly unreported. But within the Parish, the scandals were well-known, and were bound to set the expectations for what to expect next. Parish officials had been contacted by individual salvors and Coast Guard representatives, but evidently the Big

Picture as laid-out in Alexandria had not been communicated to them in detail. Having been overlooked by the media, some wondered how central their situation was in the eyes of those leading the recovery.

The experiment in Alexandria had every reason to succeed, as the people on-site were no theorists. All had been doing what they were doing now, except now they were doing it together. When fixing-up damage is on your agenda, who do you call? No one more qualified than marine salvors. Theirs is a game of improvisation, to be played daily. The gents of the ASA, the ones with the big Yellow-Page listings, have the experience, and certainly the equipment, to improvise in behalf of the national agenda.

But time is relative. Three weeks? It's a blink of an eye in a recovering region, whose reconstruction will take months and years; but it's an eternity of wondering what's left of your home, your connections and future.

Benny Rousselle knew of no marine salvors as such that were based in Plaquemines Parish. But the Big Picture in Alexandria had supposed the use of local enterprise. That might include Kostmeyer Construction, then clearing the floodgate at Empire. By September 28, Timmy Couvillon for Kostmeyer thought he'd be raising boats in a week or so, after land-based contracts with KBR were fulfilled. Fort Jackson had to be pumped-out, as did a sports arena nearby, among others. Both national and local agendas had things ahead of local boats.

By October 5th, Coral Marine of Morgan City was ensconced at Venice, lifting beached boats off the shore with a 200-ton crane. The Big-T's capacity of 600 tons was assuredly the choice for larger steel shrimpers. In the case of a deck barge that had been carried upland,

to leave a massive dent in a tank that was quite full, the extra reach of the Chesapeake 1000 was summoned. "Some of this stuff, when you start looking up the levees," said Coral Marine's Gary Martin, "all the way up to Empire, it could be Christmas or first of year before everything is done, and then you still have quite a few new things showing up all the time."

Crane barges need tugs, committed tugs in the case of long-term operations away from home. The New Orleans tug operators we contacted said they had their hands full with shipdocking work, with the demand pent-up after the storms. Tending Coral Marine's rig was the tug Vivian, bearing the insignia of Renis F. Chermie of Cut Off, La.

T&T brought two pushboats, Brown Water I and Brown Water V, from Brownwater Marine of Rockport, Texas. Also making itself useful in T&T's behalf was the George C., a triple-screw lugger tug from Cvitanovic. Boat Service of New Orleans.

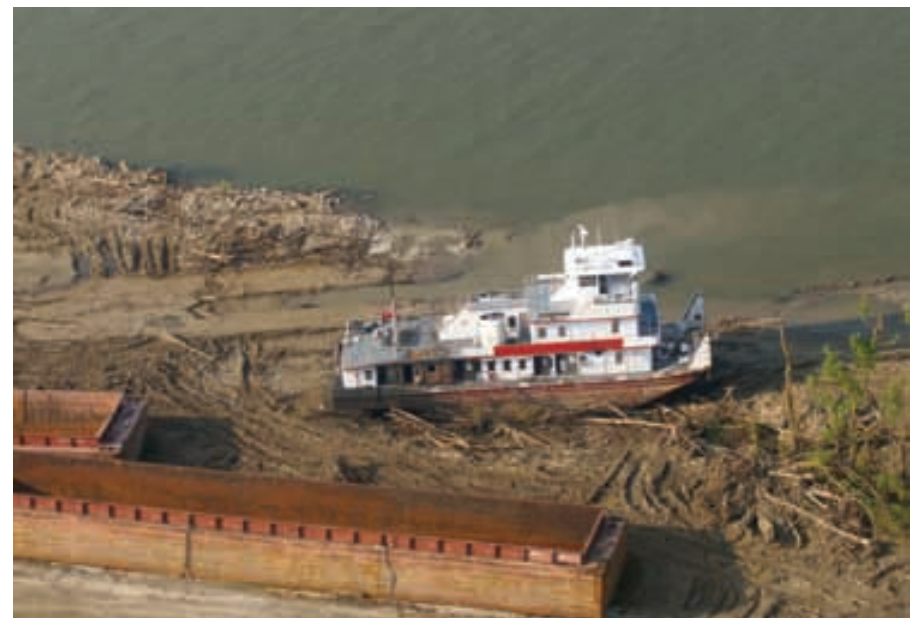
Against initial concerns that local contractors could be shut-out, Kostmeyer was by October 24 ready to start week two as a subcontractor to Donjon. "We've got 10 or 11 done — around two per day so far," said Mr. Couvillon. "I expect it will level-off at around 1.5 per day on average, but things are moving in the right direction. The average in the improvisational game of salvage is sometimes tricky to predict or maintain, however, some of the large cases — an overturned shrimper floating dockside at the Venice marina, for example — presenting time-consuming surprises. An overturned shrimper could have outspread riggers, which might catch on something around the dock. T&T's

diver, out to survey the matter, finds a leak in a fuel tank, something to patch in a hurry — and wait for the patch to harden. Everything is done with care and by the book, as attested by the focused attention and camera of Lt. Cmdr. Joseph DuFresne, P.E., marine inspector for the Coast Guard, who lived with the T&T crew on a barge.

Less closely scrutinized were the conduits for funding the undertaking. "Where's the money?" was a question asked in many quarters besides Plaquemines Parish, but it was certainly being asked there, too.

"As of today, we have not received a dime," said Timmy Couvillon on October 24, "except from the Parish itself. They say they need more details, they say it's coming, it's coming. We've duplicated our paperwork three different ways now. I'm having to order tons and tons of rigging and supplies for this next phase, and I'm on a COD basis with my suppliers, and we're in a real tight spot with funding. Everybody who's working for the government is not getting paid. I don't think anybody is trying to not pay us, it's a system problem. The system is messed up."

We spent a day with a Sea Tow crew, as they hauled-in a motorboat from Grand Isle, at the tip of a finger stuck out in the Gulf, approximately paralleling Plaquemines Parish. The number of commercial vessels damaged in the maelstrom was enormous — placed at various times between 1000 and over 2000 in Plaquemines Parish alone — and the number of recreational boats would be higher. "The problem we've been running into," said Capt. Raymond Griffen, whose well-equipped Sea Tow operation works out of Lafitte, approxi-



A fire during salvage efforts required multiple response, and is said to have destroyed the engine room of the Ann Peters, here with a few barges on the levee near Empire. (Photo: Don Sutherland)

How do you lift a 450-ton tugboat out of a drydock? Very slowly. The tug has just been raised off the blocks, angling toward the right. If set down now, the hull would no longer meet the blocks, so it looks like we're committed. (Photo: Don Sutherland)



mately midway between Grand Isle and Venice," is boats stacked on top of one another." It's a broad territory served by Capt. Griffen, with such unorthodox undertakings as the removal of boats from atop houses. We saw some up in trees.

Sea Tow franchisees from across the southeast set-up camp in Gulfport, Miss., alongside a vast field — we didn't count the acres — of recreational boats of all types and sizes and levels of ambition. Some were trashed, some looked good to the eye, and all, in normal times, would be settled by standard procedures.

"In past years," said Hank Johnson, who operates The Boat Doctor, in Harahan, "if a boat was totaled, usually the insurance company would give the customer the opportunity to bid on it and buy it back. Based on a number of reports I've heard, now apparently that's not happening. I had a gentleman call, an independent marine surveyor, and his response was they can't legally do that. Whether or not it's truly, totally illegal, I couldn't tell you." Mr. Johnson understands how insurers might need to trim steps in so vast a number of settlements. But what of boats written-off that are still fixable or, perhaps, better than that? Where do they wind-up? "On eBay? In Louisiana, we don't have titles for boats.

I have no reason to think there's anything suspicious, but it's important to ask who's doing the recycling."

"I Lost Everything"

While plenty of people voiced plenty of concerns about plenty of things south of I-10, the refrain most common was the three words above. It was stated matter-of-factly, with the same stoical routine as "I'm forty years old," or "six feet tall" Nowadays, in southern Louisiana, that's what is normal.

Aboard the Authority II, one of two firefighting launches of the Plaquemines port authority, a crewmember requested a brief stop ashore, to actually see what he'd already imagined — the place where his house once stood. Charles Bondi, on our airboat cruise down Highway 23, showed us the roof of his business. In more than three weeks, every skipper we met, every deckhand, engineer, crane operator who came from the region all said the same: "I lost everything." With almost a shrug.

"It's a remarkable thing," said John Witte, Jr., "a working environment where the lead organization didn't know where they were going to live, sleep at night, get their next meal." He was speaking of the Coast Guard. States a USCG website, "Many local Coast Guard employees continue to manage

the service's response to Hurricane Katrina yet face partial or complete loss of their own homes and possessions from this unnatural natural disaster." The instructions to employees on a Corps of Engineers website begins with this note:

"We are doing everything we can to assist our employees, but employees MUST begin the healing and recovery process for themselves and their families. If you have been impacted by

Hurricane Katrina, you should not delay in taking care of your personal business."

But besides the insurance adjusters, if you were insured, what do you have for personal business, if you've lost everything?

Well, there's the business you make — or that's been set-out for you. If you're lucky, there's still purpose. And on the Gulf Coast, Louisiana and elsewhere, rebuilding provides plenty.



The overpass near Empire, with the broken hulls and tangled outriggers of shrimpers marking where the surge met the highway structure, shoving then dropping whatever was on its course. (Photo: Don Sutherland)

A Worldwide Watch on Pod Performance

For anyone familiar with conventional ship propulsion systems the Rolls-Royce Mermaid pod propulsion system fitted to the QM2 comes as quite a surprise. Instead of the usual large diesel engine driving a shaft and propeller, four pods are suspended below the ship's hull: two are fixed and two can rotate 360°.

Each pod contains an electric motor with a small shaft that projects from the pod to provide the propeller mounting. Four diesel engines and two gas turbines drive the generators that provide 118 MW of electrical power - enough to power a city of 300,000. The propulsion system takes more than two thirds of this power with each pod drawing 21.5 MW during full power, to produce a top speed of 30 knots. The diesels operate at constant speed, with the speed of the pod motors controlled through transformers and frequency converters.

This means that the QM2 never emits huge clouds of sooty black smoke whenever it has to accelerate during a cruise. Un-burnt fuel and smoke associated with the acceleration of large diesels is eliminated.

Another surprising feature is that the QM2 has no rudder or stern thrusters. Steering and maneuvering of the ship is achieved by swiveling the two rotating pods. This significantly improves the ship's turning ability and gives unparalleled maneuvering potential in tight channels or ports.

On-line Condition Monitoring

To detect and give an early warning of any future mechanical problem in any of the four propulsion pods, an on-line condition-monitoring system is installed. The system used on the QM2 is a MasCon48 developed by SKF Condition Monitoring Center Luleå AB, an SKF company based in Luleå, Sweden

The system is designed to measure vibration, temperature, speed and other significant parameters. It then relays the presence of any anomalies to maintenance personnel on board together with advice for correcting any existing or impending condition. At the



same time the data is relayed via satellite to the SKF Condition Monitoring Centre in Luleå or to the Rolls-Royce Control Centre in Kristinehamn, Sweden.

Alarms are presented as clear text messages to the maintenance crew on board together with additional information showing the condition of different pod components such as; an unbalanced shaft, a bent shaft, cavitations, bearing condition, electrical faults etc.

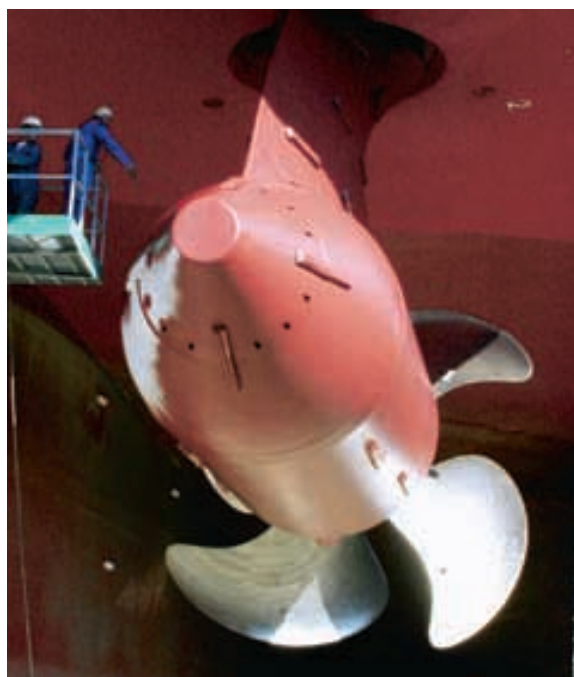
Satellite Transmissions

The satellite transmissions have two uses: first as a record of the condition of each of the four propulsion pods, and secondly for interpretation by on-shore propulsion pod specialists in case of trouble. The crew on board the QM2 is constantly changing whereas the people on shore are long-term specialists in propulsion pod operation with the necessary skills to fully evaluate the data.

Although the role of the on-shore specialists is mainly advisory they can if required set up special types of measurement remotely in order to troubleshoot. Normal, satisfactory performance of the pods is indicated by reading from sensors, which monitor the level and pattern of vibration, the temperature of motor windings and the bearings, and oil quality including particle content. Vibrations reading are obtained from sensors mounted on the pod bearing housings. Temperature readings are taken from sensors on the bearing housings and on the motor winding. Oil quality sensors and particle counters are mounted at the lubrication oil sump. One special problem that the MasCon48 system had to overcome is the pod operational environment. Signals from a pod have to be transmitted using slip rings (slipper rings). However, whenever the ship performs some maneuver, such as increasing speed or changing course, the pod vibration pattern is very different from the normal pattern when cruising. This disturbance of the vibration pattern continues for some time after the maneuver and must be taken into account by the SKF MasCon48 monitoring system.

To do this the system is designed with rule-based diagnostic and a special gating system that checks ships speed, shaft speed, and steering angle before deciding when conditions are stable enough for normal monitoring to be resumed. This provision prevents the saving of unreliable data and the generation of false alarms.

Circle 21 on Reader Service Card



Pods make the ship quieter and virtually free of vibration, even at a speed of 30 knots. Queen Mary 2 has four Rolls-Royce Mermaid pods, two fixed and two azimuthing.



New Vessel Control Unit from HamiltonJet



HamiltonJet introduced the MouseBoat controller for its new blue ARROW electronic control system. The MouseBoat is an intuitive low speed control device for single or twin waterjet-powered boats, which together with blue ARROW is designed to make maneuvering in even the tightest situations simple and safe.

The MouseBoat is a miniature boat hand piece that moves and acts much like a computer mouse. Whereas a standard mouse moves a cursor up, down and sideways across a computer monitor, movement of the MouseBoat results in the same movement of the vessel, be it ahead, astern, or sideways. The MouseBoat also adds a third axis, allowing rotation of the device to control vessel heading whether traveling ahead or astern, or in the "zero speed" mode.

It is designed to allow operators with little or no experience of waterjet propulsion to easily harness the full maneuvering capabilities twin waterjet units provide. For this reason the MouseBoat is ideal in situations where there is a high operator turnover, when time given to instruction and training is limited, or where operators are required to be multi-functional on a range of vessels, such as in military and quasi-military applications.

The device makes low speed and docking control intuitive, so the operator is able to react instinctively to changing situations without having to think about what combination of wheel, reverse lever and throttle is required to perform a particular maneuver.

The blue ARROW system translates commands from the MouseBoat into steering control and differential movement of the waterjet's Astern Deflectors to provide sideways tracking.

Along with steering and ahead/astern control, the MouseBoat also manages low speed engine throttle. This is either done by moving or rotating the device further in the desired direction to increase boat speed or rate of turn, or by using buttons on the top of the MouseBoat to increase or decrease engine rpm independently both in the

devices centralized position and the degree of span. Spring-center action returns the MouseBoat to the central "zero speed"/straight-ahead mode when released.

Circle 23 on Reader Service Card

Siemens: Trend Towards Electric Ship Propulsion Intensifies

In merchant and navy shipbuilding the trend towards electrical propulsion units has intensified, reports the Industrial

Solutions and Services Group (I&S), which is responsible for the shipbuilding sector at Siemens. "In their service profile, electrical propulsion units compared to conventional solutions are
(Continued on page 33)

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EcoSilencer Aids in Marpol Annex VI Compliance

By George S. Kaminis

MARPOL Annex IV

The existing regulations 14 and 18 provide that all ocean sailing vessels must burn fuels with less than 4.5 percent sulfur. They also define the first Sulfur Emission Control Areas (SECA), where the limit of sulfur is 1.5 percent, which is valid for all Passenger Ferries sailing between European Ports as well as all ships sailing in Baltic from May 19, 2006. North Sea and English Channel will follow August 11, 2007.

The International Maritime Organization (IMO) and the European Commission (EC) had initially given emphasis to the emissions of Sulfur Oxides (SOx) and Nitrogen Oxides (NOx), but not to the Particulate Matter (PM) of combustion which are carried with the combustion gases and also burden the environment. The 4.5 percent of sulfur is now considered outdated. A group of seven European nations proposed to the IMO stronger air anti-pollution standards. The Marine Environmental Protection Committee (MEPC) has committed to review within the next three years ANNEX VI, taking into consideration a second phase of three percent world limit, and 0.5 percent limit in SECA areas, where they will include Particulate Matter (PM).

Owners that choose to equip their vessels with advanced propulsion technologies — such as EcoSilencer, for example — will be ahead of the game, prepared to confront the new challenges.

The EcoSilencer Solution

In its meeting of July 18, 2005, MERC adopted Guidelines for Onboard Exhaust Gas SOx Cleaning Systems, accepting the application of new Cleaning Sulfur Technology "Abatement Technologies" with the Scrubber by sea water method, as is found in the EcoSilencer system. The guidelines provide confirmation that the regulatory limit of 6.0 g/kWh pertains to the ship and not each piece of combustion equipment on board a ship, allowing special consideration for vessels that achieve overall results well below the regulatory level: a target easily achieved by EcoSilencer equipped vessels, according to the manufacturer. This system is in line with the European Parliament's position that states "it is essential that the correct conditions exist to promote the emergence of new emission abatement technologies." This is



EcoSilencer installation on Pride of Kent of P&O. In his lecture at Interferry Athens 2005, John Garner, Director of P&O referred favorably about its performance, as did Mel Davies of BMT.

translated, that if EcoSilencer is installed on the main (and/or the auxiliary) engines, the boilers can be exempted if the limit of 6g/kWh is maintained per ship.

Installation and Principle of Operation

The EcoSilencer system is installed in the position of the engine's exhaust pipe. Its installation and operation is designed to be simple, and is not maintenance intensive, as neither chemicals nor filters with exchangeable elements are required. EcoSilencer is designed to be a simple nautical system incorporating the Scrubber by sea water technology, which has operated over last 30 years in the inert gas systems on thousands of tankers with success (Kaminco introduced its scrubber technology with the Inert Gas systems in 1978. George S. Kaminis analyzed its principle of operation in a detailed article published in the 5th Edition of the Hellenic Institute of Marine Technology in 1979). It directs the exhaust gas through a chamber, where it interacts with seawater. Sulfur dioxide emissions react with seawater to eventually produce harmless sulfites and sulfates. In addition the system acts as a water trap for the soot and the particulate matter. The resulting circulation water is then cleaned through a hydro-cyclonic filtration system (which does

not use re-changeable elements). The waste stream is diverted to a settling tank from where the soot and oils are siphoned to the ship's oily waste tank. The cleaned water is then discharged overboard. The EcoSilencer system continuously monitors the stream, ensuring that the water quality exceeds the U.S. EPA criteria for overboard discharge.

In the next 10 years shipping is estimated to face a deficit of fuels of 4.5 percent sulfur of about 150,000 metric tons daily, whereas there will be a surplus of about 300,000 mt daily — or 110 million mt yearly — of fuel with high sulfur content.

Many suppliers, and particularly those that are not signatories to MARPOL Annex VI, are not prompt to or can not supply the ships with a MARPOL Annex VI compliant Bunker Delivery Note (BDN) with each bunker delivery. Many ship operators are not yet aware of the new requirements that entered into force on May 19, 2005, according to which the bunker supplier is legally responsible to confirm in writing that its supply is in accordance with MARPOL Annex VI, regulation 14 and 18. Some operators may ignore whether they receive a non-compliant BDN, or simply may do not want to know. The question is also extended whether the fuel samples are correctly labeled by the supplier. This situation will change

when Port State Control Authorities start imposing fines for lack of MARPOL compliant paperwork. It is believed that all these questions and formalities will be simplified with the operation of EcoSilencer, which will allow the vessels to continue using lower priced high sulfur fuels, and still meet the 1.5 percent sulfur limit mandated by law.

Fuel Comparison

The extra cost of the worldwide limited quantities is currently about \$50 per ton. In comparison, with the installation and operation cost of EcoSilencer, which is amortized in about 3.5 years — for a ship consuming 20,000 tons of fuel yearly — this is translated to an extra yearly profit with the EcoSilencer of \$1 million for every after the equipment cost is factored. As previously noted, the maintenance cost of the system is minimal. The scrubber that is made of high quality super-austenitic stainless steel, resistant to very long use under extreme temperatures and aggressive chemical conditions.

Circle 22 on Reader Service Card

About the Author

George S. Kaminis, a pioneer in the research and application of new marine technology, is the founder of Kaminco, based in Piraeus, Greece. He has enjoyed a long career equipping and providing service to CP propellers, thrusters and water jets, supplied through his company to new and retrofitted cruise, RoPax, passenger ferries, patrol vessels, tankers, dry cargo ships and navy ships between 1985-2004. Today he is committed to assist his customers to solve the problem of sulfur in the fuels by introducing the EcoSilencer system of Canadian MES.



more flexible, more available and require less energy," said Hans-Werner Linne, who is responsible for Siemens' "Marine Solutions. In addition to cruise liner vessels, there are more and more supply ships, LNG carrier and container-ships which are using electric propulsion technologies."

"Greater safety requirements and stricter environmental regulations are requiring that shipyards and suppliers of marine equipment come up with new solutions," said Linne. In addition, competition is forcing the shipping companies and operators to continually increase the operational availability and safety of their ships, to make optimum use of every square meter of space on board and, at the same time, to reduce operating costs.

Siemens has expanded this platform strategy: "Siship PAX" for cruise ships and ferries are platform solutions for all the electrical and electronic equipment on board, linking propulsion technology, power generation and distribution, ship automation and data networks as well as the associated maintenance and spare-parts services. They also improve energy efficiency and operational safety and security on board. For use on LNG (Liquified Natural Gas) tankers, the "Siship Cargo" platform is designed to offer a complete solution, including cargo automation with a hybrid power generation, distribution and propulsion system, which enables the use of gaseous and liquid fuels at the same time. As a result, the boil-off of the liquefied natural gas as well as heavy-oil and diesel fuels can be used.

With Siship Drive LV, Siemens is offering an electric propulsion solution for offshore and special ships as a fuel-saving and highly dynamic kind of propulsion. This solution includes mostly pre-configured components that are specially designed to meet ship-building requirements, such as generators, converters, switchgears and propeller motors. Control and safety systems specially developed for this application ensure high availability and failure safety under practically any operating and ambient conditions.

Circle 24 on Reader Service Card

Sudanese Transport Minister visits Schottel


With his visit to Schottel in Spay, Germany, the new Sudanese Transport Minister Kol Manyang Jok underscored the major role played by the company and its propulsion systems in the development of transportation in his country. In July, at the Ministry of Transport in Khartoum in July 2005, a contract for

the modernization of 16 existing push boats with Schottel propulsion systems was signed. This conversion and modernization package is worth around \$7.5 million.


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Sudanese Transport Minister Kol Manyang Jok (right) and Mutasim Gorashi (left), Schottel representative in Sudan before a Schottel Navigator





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Propulsion Technology

GE Diesel Replaces Steam Turbine on Freighter

A new GE 7FDM medium-speed diesel engine recently replaced an existing steam turbine propulsion system to power Voyageur Marine Transport's Voyageur Independent straight-deck bulk freighter. The 16-cylinder engine provides 4,100 hp for this vessel, which is owned by Voyageur Marine Transport Limited, Ridgeville, Ontario, Canada. Voyageur Marine Transport's 642-ft. freighter underwent an extensive re-fit in the Port of Hamilton, Ontario, Canada. The Voyageur Independent, with the GE diesel engine, started successful operations on November 19, 2005, carrying mainly agricultural bulk products throughout the Great Lakes-St. Lawrence Seaway system. In fact, the vessel frequently crosses Lake Erie — nearby GE Transportation's manufacturing facility in Erie — as it brings grain from Thunder Bay, Ontario, Canada to the province of Quebec.

Circle 26 on Reader Service Card

Voith Expands Marine Portfolio

Voith Turbo Marine entered into a commercial cooperation with AIR Fertigung-Technologie GmbH & Co. KG and aims to expand its portfolio in the market for marine propulsion systems made from CFK.

Based in Hohen-Luckow (Mecklenburg Antepomerania), AIR was founded in 1993 by employees of Rockstock University and has since then presented significant and internationally acclaimed developments in propeller technology both for ships' propulsion systems and wind power stations.

The company currently produces Contur-Propellers made from fiber compound plastics, which automati-

cally adjust the propeller pitch independent of the thrust coefficient, so that optimum propulsion efficiency is achieved across the entire load range of the ship. Additionally, AIR works at the innovative drive concepts Inline Thruster and Vector-Prop, which will shortly be launched in the marketplace.

Circle 27 on Reader Service Card

Composite Bearings for Cutterhead Dredges

Thordon Composite cutterhead shaft bearings have been installed or ordered on six cutter suction dredgers in Europe, China and the Middle East.

Thordon Composite is a two-component elastomeric polymer alloy bearing specifically formulated to provide superior wear life in abrasive water conditions. Thordon Composite bearings operating in combination with a hard stainless steel shaft or hard coated shaft liner such as Ni-Cr-B are designed to significantly reduce maintenance downtime and costs over the operating life of the dredge.

"Archirodon Dredging Construction (Overseas) Co. S.A. of United Arab Emirates has been using Thordon Composite dredge bearings since 1999 and they have performed better than we expected," said Panos Zoglopitis, Mechanical Engineer for Archirodon Dredging Division.

"We have installed Thordon Composite on CSD Pontos and CSD Aetos and plan to continue using Thordon Composite bearings and staves."

Other Cutter Suction Dredgers to be equipped or having had Thordon installed recently include Zeeland II owned by Van Oord Ship Management B.V., Netherlands, Huta Sete 07 owned by Huta-Sete Marine



Water lubricated Composite bearings installed in self-propelled ocean going jumbo Cutter Suction Dredger, d'Artagnan, at IHC Holland.

Works Ltd., Saudi Arabia, Jin Hang Jun 215 owned by Tianjin Waterway Bureau, China and CSD 8060 owned by Jan de Nul of Belgium. National Marine Dredging Company of U.A.E has also been using Thordon Composite dredge bearings since 1996 with installations on five of their dredgers.

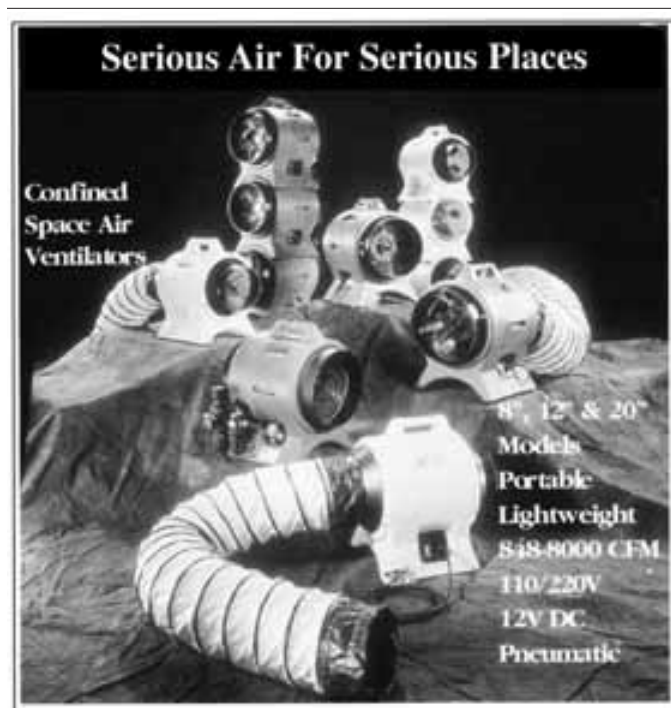
The recently built jumbo dredger, D'Artagnan, owned by S.D.I. S.A. (Société De Dragage International), France, also has water lubricated Thordon Composite intermediate lineshaft bearings installed in addition to the Composite cutterhead shaft bearings.

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The EPS Silent Thruster

The EPS Silent Thruster from Van der Velden Marine Systems won the Design at METS award. In addition to being overall winner of the DAME Award 2005, the EPS was also acclaimed winner of the Propulsion, Machinery, Electrical and Mechanical category. Technical Director of Van der Velden Marine Systems, Edwin van Buren, accepted the award for the system, which was developed following three years of development. "Many people said that it was impossible to create a thruster that could be silent, compact and lightweight. The project team, which included leading research institutes such as MARIN, overcame enormous technical problems to achieve this result and have developed a genuinely innovative solution." The EPS Silent Thruster has no gap between the propeller blades and the tunnel, removing the main source of noise pollution. This unique construction, without gear or propeller shaft, also means that the EPS Silent Thruster is compact. A flexible rubber mounting further eliminates noise and vibration. The EPS Silent Thruster is also designed to offer weight savings. Its lightweight blades were developed using the very latest computer technology. The blades are designed to be simple to fit and exchange. Moreover, it offers an equally powerful thrust to both port and starboard as well as impressive steering power and maneuvering accuracy. In addition to the fixed thrusters, Van der Velden Marine Systems is working on retractable systems as well as using the concept of the EPS as a means of propulsion. Tests are currently being carried out for the latter purpose in order to optimise the shape of the propeller blades. The first version of the EPS - the EPS 800 (110, 132, 160 kW) is already available. Models with the following power ratings will become available as follows.

- EPS 650 (75, 90 kW): End 2005
- EPS 550 (55, 75 kW): Start 2006
- EPS 450 (22, 37 kW): Start 2006

Circle 29 on Reader Service Card



New 30kW Marine Genset

Northern Lights presents a new solution for big power in a small package: the M944W. Cranking out 30 kW at 60 Hz (26 kW at 50 Hz), the M944W is built for long life at full load. Driven by a reliable Lugger engine, the M944W is designed a true workhorse with a cupronickel heat exchanger and a bronze/stainless gear-driven seawater pump. Customizable, the 30kW M944W even has the ability to deliver full engine power to a front PTO, enabling the captain to run winches, thrusters or deck gear at the touch of a button.

Circle 13 on Reader Service Card

New EPIRBs



Two new BV-approved float-free 406 MHz EPIRBs, Debeg 3545 and Debeg 3545 GPS, have been introduced by SAM Electronics. Conforming to latest COSPAS/SARSAT specifications and IMO guidelines for averting false alerts, both are designed for long-term use with a lithium battery life of five years. Transmission is instantaneous following water contact or can be activated manually using a protected on/off switch. Systems have already been commissioned for newbuildings undergoing construction in Chinese, German and South Korean yards.

Circle 16 on Reader Service Card

Impact-Resistant Marine-Rated Fluorescent

Phoenix Products Company, Inc. released the LFSB Series Snaplight Fluorescent light fixture, a UL listed, marine-rated fixture for use in indoor marine environments, engine rooms, cargo hold areas, offshore oil rigs, wastewater treatment areas, and other extreme environments. The LFSB Series Snaplight is built with a corrosion-free, high-impact fiberglass-reinforced, UV-stabilized nylon housing and a high-impact polycarbonate diffuser. A watertight silicone gasket provides a positive seal against moisture and dirt. To simplify relamping and maintenance, the diffuser is tethered to the housing, captive quarter-turn fasteners enable "tool-less" entry even into the ballast compartment, and all external hardware is captive and non-magnetic stainless steel. The standard ballast is 120V, 60HZ high power factor.

Circle 14 on Reader Service Card



Furuno Chart Radar



Furuno introduced its Chart Radar FCR-21x7/28x7 series, which is designed to meet the latest standards and resolutions set by IMO, IHO and IEC for ARPA Radar, ECDIS, HSC compatibility, Radar with chart facility, etc. The FCR-21x7/28x7 series Chart Radar features total integration of ARPA Radar and an ENC Display System into a single unit.

The FCR-21x7/28x7 is a new main module of Furuno INS Voyager. The FCR-21x7/28x7 consists of an antenna unit, processor units, a display unit and a control unit.

A high-resolution LCD (20.1 in. for FCR-21x7 series and 23.1 in. for FCR-28x7 series) presents clear images.

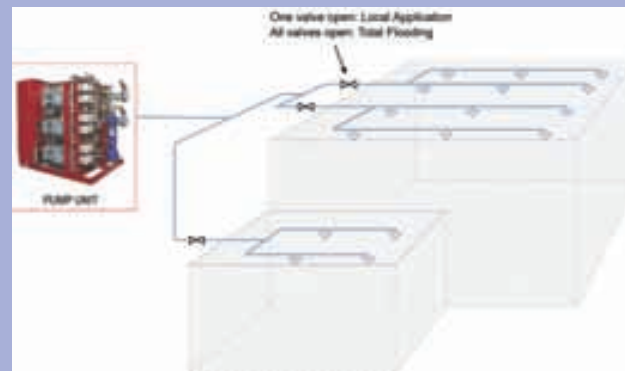
Circle 17 on Reader Service Card

HBM Offers New Pressure Transmitter

The new one-piece steel P2V pressure transmitter from HBM, the design similar to HBM's Blueline series because the monolithic measuring body eliminates welded seams and clamped connections connecting to the measurement medium.

New Machinery Space Fire Protection

Marioff offers a new machinery space flooding total fire protection system dubbed HI-FOG MT4. With the system, there is no need to evacuate personnel, seal the space or shut off the ventilation. By immediate activation, the fire is contained and extinguished in its infancy and the damage can be minimized. HI-FOG MT4 is designed as a feasible alternative to traditional fire fighting systems such as CO₂, foam and inert gases. The system has successfully passed the latest



IMO fire test requirements, as defined in MSC/Circ. 1165, adopted in May 2005. The first classification society type approvals have already been issued and additional ones are expected shortly. The extinguishing media is plain, fresh water in the form of water mist, so an activation will not result in equipment corrosion.

Circle 15 on Reader Service Card

This eliminates weak spots even when subjected to strong dynamic loads.

With an accuracy class of 0.2, the P2V series comprises six models with pressure ranges from 200 to 5,000 bar.

Circle 19 on Reader Service Card

Feedership With Chinese-built Hatch Covers

One of MacGregor's new partner plants in China is booked to produce five shipsets of hatch covers for a containership series to be built by Kyokuyo Shipyard Corporation.

Five feeder containerships ordered for Japanese and overseas owners from Kyokuyo Shipyard Corporation will be supplied with complete lift-away hatch cover sets manufactured by a MacGregor production partner in China. MacGregor will deliver hatch covers for two 831 TEU and three 907 TEU ships that have been booked at the Japanese yard for handover in 2006 and 2007.

Circle 20 on Reader Service Card

Wortelboer Debuts PBM-4

Th. Wortelboer has developed a new version of the PBM pipe end preparation machines.

The line of PBM machines will be extended with a small PBM-4. This machine is designed to have the same quality and endurance as the larger versions and is able to make a bevel in a few seconds.

The PBM 4 has a clamping range from 0.5- to 4-in. pipe diameter by a wall thickness up to 17 mm.

It only takes 40 seconds to make a 30 degree bevel on a duplex steel pipe of 4-in. with a 17 mm wall.

The standard PBM 4 is fully manual operated. With the heavy duty self-centering prism clamp the pipe is held firmly in place.

After starting the motor the tool head can easily be moved by hand towards the pipe to make a bevel. The PBM 4 and other PBM pipe end preparation machines up to diameter 24-in. pipe (O.D. 610 mm) can be used for offshore construction, shipbuilding, pipeline construction, etc.

Circle 18 on Reader Service Card

PBM-4, a new pipe end preparation machine.





**AIG Commercial Equipment Finance, Inc.
Marine Finance Division**

5700 Granite Parkway, Suite 850, Plano, TX 75024
www.aigcef.com
Kirk Phillips
tel: 972-987-3720 • fax: 972-987-3700 • email: kirk.phillips@aig.com

Marine Finance provides loans and leases to both the domestic and international maritime sector. Whether you are an inland towing operator, offshore energy service provider, or international transportation company, we have the experience and resources to help you meet your needs.

Circle 249 on Reader Service Card

Zurich

105 East 17th Street
New York, NY 10003
USA
www.zurichglobalenergy.com
Roy Salley
tel: 917-534-4587
fax: 917-534-4824
email: roy.salley@zurich.com



Zurich Financial Services is an insurance-based financial services provider with a global network that focuses its activities on its key markets in North America and Europe. Founded in 1872, Zurich is headquartered in Zurich, Switzerland.
Products: Ocean cargo, brown water hull, marine liabilities.

Circle 250 on Reader Service Card

American Marine Underwriters Agency

108 Greenwich Street, New York, NY 10006
www.boatinginsurance.com
Kathryn Martuscello Hoff
tel: (212) 349-3500, fax: (212) 698-5367
email:kathryn@boatinginsurance.com
Descr: Marine Insurance Broker
Products: Personal & Commercial Marine Insurance

ASCOMA Maritime

24 Boulevard Princesse Charlotte
Monaco, 98000 Monaco
www.ascoma-maritime.com
benjamin ROYER
tel: +377 97 97 29 37; fax: +377 93 25 08 22
email:maritime@ascoma.com
Descr: marine insurance broker
Products: Hull & Machinery, Cargo, Superyachts insurance

CG Commercial Funding

660 Newport Center Dr. #800
Newport Beach, CA 92618
www.cgcommercial.com
Ted Tobiasz
tel: 949-720-9511; fax: 949-720-9611
email:ted.tobiasz@cgcommercial.com
Descr: Asset Finance
Products: Financing arrangements for marine assets including Leases, Term Loans and other various Financing Products.,

**CitiCapital Commercial Corporation,
div. CitiGroup**

290 East Carpenter Freeway
Irving, TX 75062
http://www.citicapital.com/marine/i...
Joseph Pitch
tel: 972-652-4709; fax: 972-652-4796
email:joseph.m.pitch@citigroup.com
Descr: Financing and Leasing for New and Used Commercial Marine Vessels
Products: Construction and Term Loan, Bareboat Charter (Lease), Refinance, Repower & Refit Loan, Fleet Mortgage, Revolving Line of Credit and other bank products from CitiGroup,

Doll Shipping Consultancy

Ashdown Place
Forest Row, RH185LP, UK
www.dollship.com
Fred Doll
tel: +44 (0) 1342 825129
email:info@dollship.com
Descr: Strategic planning and market analysis for shipping companies and financial institutions world-wide
Products: Market analysis, project economics, business plan,

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Parklaan 2
Rotterdam, the Netherlands
www.dvbgroup.com
Laura Koedam
tel: +31 10 206 79 37
email:Laura.Koedam@dvbbank.com
Descr: Investment
Products: Shipping

Dynamar Overseas, Inc.

8 Elaine Drive

Sayville, NY 11782
www.dynamar.com
Kathy Leddy
tel: 631 218 0622; fax: 631 218 0626
email:dynamusa@att.net
Descr: Shipping Information & Consultancy
Products: Credit Reports, Maritime Investigation, Publications & Tailored Projects,

**AIG Commercial Equipment Finance,
Inc. — Marine Finance Division**

5700 Granite Parkway
Suite 850
Plano, TX 75024
www.aigcef.com
Kirk Phillips
tel: 972-987-3720
fax: 972-987-3700
email: kirk.phillips@aig.com
Descr: Marine Finance provides loans and leases to both the domestic and international maritime sector. Whether you are an inland towing operator, offshore energy service provider, or international transportation company, we have the experience and resources to help you meet your needs.

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Danbury, CT 06810

Steve Isaacson
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www.ge.com/capitalsolutions
Descr: GE Capital Solutions is a proven financial lender in the marine industry, dedicated to serving both privately owned and publically traded companies.

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www.gpwild.com
Peter Wild
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email:peterwi@gpwild.co.uk
Descr: Marketing & Consultancy
Products: Cruise/Ferries/Ports

Great American Insurance Company

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GreatAmericanOcean
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email:ewilmot@gaic.com
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Products: hull, P&I, pollution, shiprepairer, MCL, pier & dock, commercial package,

Healy & Baillie

61 Broadway, New York, NY 10006
www.healy.com

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email:goxton@healy.com
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Products: We also seize, transport and auction boats, yachts, and other vessels for the D.E.A., F.B.I., I.N.S. and The U.S. Marshals Service.,

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George Macleod
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email:george@neacreath.com
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Products: Ship Leasing, Ship Finance, Ship Owning, Ship Chartering, Brokerage, Tender Compilation and Legal Advisors,

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email:sealinkven@yahoo.es
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Shipping Intelligence

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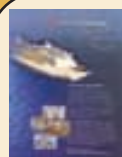
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Capital Solutions**

44 Old Ridgebury Road
Danbury, CT 06810
Contact: Steve Isaacson
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GE Capital Solutions is a proven financial leader in the marine industry, dedicated to serving both privately owned and publicly traded companies. We offer a customized approach and will tailor our products to the operator's needs. We can provide leasing and financing for new and used vessels as well as all types of port equipment. Other products include pre-approved lines of credit, consolidation of existing debt, financing for fleet acquisitions, and repower and conversion projects.



Circle 251 on Reader Service Card



American Technology

American Technology engineers comprehensive audio solutions to complete your security program. With NeoPlanar you can broadcast clear, intelligible messages across piers, decks, and terminals.

Circle 101



Autohydro

Autohydro is a hydrostatics and stability program that performs intact and damage analyses and produces customized stability reports which are accepted by all major governing approval bodies. ASC is known for CAD/CAM software used in phases of naval architecture and ship production.

Circle 102



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 is designed to be less strenuous and cleaner than conventional epoxy chocking methods; thus reducing labor costs, effort, installation time, as well as reducing cleanup and operator mixing errors.

Circle 103



ABB

ABB has supplied electric propulsion systems to ships for over 50 years and has the longest experience and highest number of deliveries of any company in the world. In 1983, they delivered the world's first AC electric propulsion system. In 1990, they delivered the first electric podded propulsion system, Azipod.

Circle 104



Harbor Offshore

The Port Security Barrier is developed by Navy Facilities Engineering and Service Center and employed into service. It provides a visual deterrence in addition to physical protection against boat attacks, and is composed of units ranging from 30 to 50 ft. segmented construction consisting of HDPE or steel pontoons, trusses, high capacity

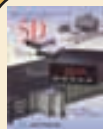
Circle 105



Van der Velden

The new EPS thruster from Van der Velden Marine Systems is designed to be a quiet, electrically operated system that offers sideways power. According to the manufacturers, the compact EPS takes up half the space a conventional bow or stern thruster and provide savings in weight.

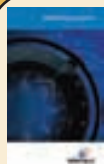
Circle 106



Daytronic

Daytronic has been in the business of solving unique, challenging measurement and control problems. A recognized leader in sensor-based signal conditioning, Daytronic is positioned to serve the needs of a fast-changing digital world using the proven capabilities of analog measurement technology.

Circle 107



Wärtsilä

Wärtsilä is a supplier of marine engines and propulsion systems for all types of vessels and offshore applications. As The Ship Power Supplier Wärtsilä is committed to serving the marine market with reliable, cost effective and environmentally sound marine power systems.

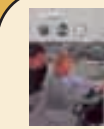
Circle 108



Mekanord

Mekanord specializes in equipment for Controllable Pitch Propulsion, which is advantageous in tugs, workboats, ferries and other vessels with varying work conditions. Their program includes C.P. gearbox, C.P. propeller and remote control system.

Circle 109



Side Power

Side-Power Thruster Systems manufactures joystick, remote or touch-controlled side thrusters for personal boat use, giving the driver control and allowing for maneuvering in and out of tight spots. Standard features include overheat protection and self-locking high pressure contacts, and easily installs from the front side.

Circle 110



KBR

KBR provides maritime services that can help you sail smoothly. Whether you are constructing plant and equipment, operating it repairing it or protecting it, KBR's life cycle focus ensures that you always have access to trusted support.

Circle 111



Kongsberg

Kongsberg Mesotech Ltd. is recognized as a leader in the manufacturing of underwater surveillance sonar systems. The company's detection sonars are deployed with the US Coast Guard in their IAS (Integrated Anti-swimmer) systems.

Circle 112



Kaeser

Manufactured by Kaeser Compressors, SmartPipe is made from smooth, calibrated aluminum with a low friction coefficient, eliminating risk of rust and corrosion. Full bore fittings minimize pressure drop and leak-free connectors prevent compressed air loss. Available in multiple sizes.

Circle 113



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 114



Federal Signal

Federal Signal re-introduced the UniStat Status Indicator. Federal Signal's team of engineers and technicians developed an improved circuitry design and LED array for the UniStat. The UniStat can now be fitted with a sounder module for added flexibility in work areas where visual and audible signaling.

Circle 115



Imtra

Imtra Corporation's low-wattage/high-brightness LED spotlight, manufactured specifically for marine applications, harnesses three Luxeon 1W PowerLEDs to produce illumination equivalent to that of a typical 20-watt halogen bulb, but with consumption of just 6 watts and an estimated life of 50,000 hours.

Circle 116



Hemisphere GPS

Hemisphere GPS, a designer and manufacturer of GPS products, announced the introduction of a new heading sensor module for Original Equipment Manufacturers (OEMs) that features Hemisphere's Crescent GPS technology. The Crescent Vector OEM module, a printed circuit board, is a complete GPS compass and positioning system.

Circle 117



Voith

For 75 years, Voith has been designing systems that are safe for man and environment. Voith offers tailor-made drive systems for a wide range of applications- for harbor assistance and escorting duties, ferries or naval applications up to special marine craft.

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



Shell

Shell Alexia LS is cylinder oil with a lower Base Number (BN), ensuring lubrication of modern low speed engines when burning Low Sulphur Fuel Oil. Its low BN means that the correct surface properties of cylinder liners are maintained and excessive piston deposits are avoided. Shell Alexia LS has good detergency and dispersancy

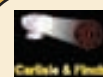
Circle 120



Marflex

Marflex is a designer and supplier of electric driven Deepwell pump systems for ships and offshore platforms. The new pump design is based upon the modern technologies, knowledge and experience of used cargo pumping systems. Marflex introduced a Deepwell pump with a unique oil lubricated drive shaft.

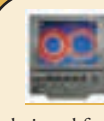
Circle 121



Carlisle & Finch

C&F uses the same precision optics as supplied to the U.S. Navy and Coast Guard, but incorporated within two Yacht Designs: Streamlined and Classic. A Precision-Optic reflector provides a deeper dish"parabola, which collects more light and the ability to focus the beam to a 1-degree, rather than 2-3 degrees.

Circle 122



Furuno

Furuno's dual-frequency searchlight sonar CH-300 is designed for a wide range of vessels. It incorporates both a low and a high frequency (60/153 or 85/215 kHz) transducer in one soundome. The high frequencies give a detailed search near and all around the vessel.

Circle 123



Wright Pump

Wright Pump has extended its sanitary product with the addition of a new family of centrifugal pumps, positioning The new TRA400 series of centrifugal pumps are available in five models in both volute and non-volute styles.

Circle 124



Fiber Sensys

SPIDEr's cable consists of a backbone-insensitive to vibration-and up to 50 individual sensor cable strands. Each strand is attached either to a perimeter fence or buried in soft soil nearby. If an intruder disturbs one of these zones, the APU detects a change in the pattern of conducted light from the corresponding sensor cable strand, resulting in an alarm.

Circle 125

BUYER'S DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

ACCOMMODATION LADDERS & GANGWAYS

Generon IGS, 11985 FM 529, Houston, TX 77041

AIR CONDITIONING & REFRIGERATION

Bailey Refrigeration, 4986-1 Euclid Road, Virginia Beach, VA 23462
 Cospolich Refrigeration, 14695 Highway 61, Norco, LA 70079
RW Fernstrum, 1716 11th Avenue, Menominee, MI 49858, 9068635553, 9068635634, seanf@fernstrum.com, Contact: Sean Fernstrum, www.fernstrum.com
 Stork Bronswerk Inc., 3755 C Boul. Matte, Brossard, Quebec J4Y 2P4, Canada

AIRHORNS/SIGNALING EQUIPMENT

Airchime Manufacturing Co., 5478 267th St., Gloucester Industrial Estate., Langley, BC V4W 3S8, Canada
 Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241

ALARMS, FACTORY-MUTUAL APPROVED

NREC Power Systems, 5222 Hwy 311, Houma, LA 70360

ALUMINUM BOATS

Island Boats, 6806 Highway 90 East, New Iberia, LA 70560
 Metal Craft Marine Inc., 347 Wellington St., Kingston, Ontario K7K 6N7, Canada
Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210
 William E. Munson Co., 18130 Sunset Way, Edmonds, WA 98026

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GJ Wortelboer Jr. B.V., P.O. Box 5003 , 3008 AA Rotterdam, Netherlands

ATTORNEYS

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AUCTIONEERS

Henderson Auctions, 13340 Florida Blvd., Livingston, LA 70754

AUTOPILOT SYSTEMS

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 ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada
 Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

BALLAST

Ballast Technologies, 4620 S. Coach Dr., Tucson, AZ 85714
 Redland Genstar Inc., 300 E. Joppa Rd. Suite 200, Towson, MD 21286

BEARING- RUBBER, METALLIC, NON-METALLIC

Cooper Bearing, 5795 Thurston Ave., Virginia Beach, VA 23455
 Craft Bearing, 5000 Chestnut Ave., Newport News, VA 23605
Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
 Thordon Bearings, 3225 Mainway, Burlington Ontario L7M 1A6, Canada

BOATBUILDER

AMERICAN MARINE HOLDINGS GOVERNMENT SERVICES, 1838 Turnbull Lakes Drive, New Smyrna Beach, FL 32168
 Blount Marine, 461 Water St., Warren, RI 02885
 Gladding Hearn, 1 Riverside Ave., Somerset, MA 02725
 Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210
 Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544

BOLLARDS

Maritime International, Inc., 204 Ida Rd., Broussard, LA 70518

BRIDGE SUNSCREENS

Martek Marine Blinds, Unit 46, Century Business Centre, Maversway, Rotherham, South Yorkshire S63 5DA, UK

BROKERS

Merrill Marine Services, Inc., 7909 Big Bend Blvd, Webster Groves, MO 63119, 800.394.6674, 800.230.5377 , pete@merrillmarine.com, Contact: Peter C. Merrill , www.merrillmarine.com

BULKHEAD SEALS/PANELS

CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109
 Thermax, 3115 Range Rd, Temple, TX 76501

CAD/CAM SYSTEMS

Cadmatic , Ostra Strandgatan 72 (Vita Huset), FI-20810 Turku, Finland

CAPSTANS

Superior Lidgetwood Mundy, 1101 John Ave., Superior, WI 54880

CARGO MANAGEMENT

Autoship Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoship.com, Contact: Ross Muirhead, www.autoship.com

CARGO MONITORING & CONTROL SYSTEM

Hermatic Inc., 4522 Center St., Deerpark, TX 77536

CAST IRON REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212

CHAINS

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CLOSED CIRCUIT TELEVISION

Hemis Scan Systems A/S, Postboks 619, NO_4809 Arendal, Norway

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Chugoku Marine Paints, P.O. Box 73 , 4793, Netherlands
 Ferro Corp., 1301 North Flora St., Plymouth, IN 46563
 Flow International Corp., 23500 64th Ave., South Kent, WA 98059
 Mascoat Products, 4310 Campbell Rd, Houston, TX 77041

NAPASCO, INC., 213 Main Project Road, Shriever, LA 70395, 985-449-0730, 985-449-0740, napasco@napasco.com, Contact: Pam Bartell, www.napasco.com

Sherwin Williams, 101 Prospect Ave., Cleveland, OH 44115
 Sigma USA, P.O. Box 816, Harvey, LA 70059
 Soken Trade Corp./ Noxudol, 15934 S. Figueroa Street, Gardena, CA 90248

COMMUNICATIONS

Inmarsat Ltd, 99 City Rd., London EUY 1AX, UK
 L-3 Communications, 6000 Fruitville Road, Sarasota, FL 34232
 Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851
 Pipeline Communications and Technology, Inc., 2800 Woodlawn Dr. Ste. 264, Honolulu, HI 96822
 World-Link Communications, 74 Main St., Framingham, MA 01701
 Xantic, PO Box 30012 , 2500 GA The Hague, Netherlands

COMPOSITE SHAFTS

Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559, 630-734-9600, 630-734-9669, bobl@centacorp.com

COMPUTER/ COMPUTER SOFTWARE

Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368
 Spec Tec , Professor Koth's Vey, 1366 Lysaker, Norway

CONSOLE- GMDSS

Mackay Communications, 2721 Discovery Dr., Raleigh, NC 27616-1851

CONSULTANTS

Captain R.J. Underhill & Associates, P.O. Box 1030, Groves, TX 77619
 Elliott Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107
 Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

CONTROL SYSTEM-MONITORING/STEERING

Amot Controls, 8640 N. Eldridge Parkway, Houston, TX 77041
 Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065
 Electrowave U.S.A., 6125 W. Sam Houston Pkwy., Ste 406, Houston, TX 77041
 G.R. Bowler, 2261 Lake Rd., Ontario, NY 14519
 Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada
L-3/TANO-EDI, 759 Hill Street, New Orleans, LA 70121, 504-831-9800, 504-833-4119, guy.hardwick@l-3com.com
 MMC International, 60 Inip Dr, Inwood, NY 11096
 Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada
 Tolem Plus Ltd, P.O. Box 164 , Herzliya 46100, Israel

CORROSION CONTROL

Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607
Ultra Strip, 3515 SE Lionel Terrace , Stuart, FL 34996

COUPLERS- TUG & BARGE

Intercontinental Engineering , PO Box 9055 , Kansas City, MO 64168

COUPLINGS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559, 630-734-9600, 630-734-9669, bobl@centacorp.com
 Mapeco Products, 91 Willenbrock Rd., Unit B, Oxford, CT 06478
 MMC International, 60 Inip Dr, Inwood, NY 11096

CRANE - HOIST - DERRICK - WHIRLIES

Davit Sales, PO Box 232, Jefferson Valley, NY 10536
 E. Crane, 241 Executive Dr., #3, Marion, OH 43302

CRANE TESTING

Imes Inc., 5139 Brook Street Suite E, Mont Claire, CA

CRANKSHAFT REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212
 Walz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

CUTTING & WELDING MACHINES

Bug-O-Systems, 3001 W. Carson St., Pittsburgh, PA 15204
 ESAB Cutting Systems, 411 South Ebenezer Road, Florence, SC 29501

DECK MACHINERY- CARGO HANDLING EQUIPMENT

Allied Shipbuilders Ltd., 1870 Harbour Road, Vancouver V7H 1A1, Canada
Burrard Iron Works Ltd., 220 Alexander Street, Vancouver, BC V6A 1C1, Canada, 604-684-2491, 604684-0458, sales@burrardironworks.com
Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, 228-832-7655, 228-832-7675, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com
 Davit Sales, PO Box 232, Jefferson Valley, NY 10536
 Global Incorporated, P.O. Box 24, 160 Cannery Road, Somerset, PA, PA 15501
 Intercontinental Engineering , PO Box 9055 , Kansas City, MO 64168
 Markey Machinery, P.O. Box 24788, Seattle, WA 98124
 Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016
 Norwegian Maritime Equipment AS, BOX 244, NO-5480 HUSNES, Norway
Rapp Hydema, 4433 27th Ave. West, Seattle, WA 98199, (206) 286-8162, (206) 286-3084, scotta@rappus.com
 Skookum , P.O. Box 280, Hubbard, OR 97032
 Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108

Superior Lidgetwood Mundy, 1101 John Ave., Superior, WI 54880
 W.W. Patterson, Inc, 3 Riversea Rd, Pittsburgh, PA 15223

DESALINATION - REVERSE OSMOSIS

Reverse Osmosis of South Florida, Inc., 150 S.E. 29th St., Fort Lauderdale, FL 33316

DIESEL ENGINE OVERHAUL

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 Man B&W Diesel A/S, Teigholmsgade 41, Copenhagen SV DK-2450, Denmark
 Man B&W Diesel AG, Stadtbachstrasse 1, Augsburg D-86153, Germany
 Marine Exhaust Systems of Alabama, P.O. Box 698, 757 Nichols Ave., Fairhope, AL 36533
 Marine Turbo & Diesel Inc., 1090 7th St., Richmond, CA 94801
 Mariso USA, Inc., 12783 Capricorn Dr., Stafford, TX 77477
 Motor-Services AB, Box 2115 , Ronninge S- 144 04, Sweden
 Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315
 Scardana Americas Bkg., 502 Empire St. , Greenfield Park J4V 1V7, Canada
 Wartsila Diesel, 201 Defense Hwy, Annapolis, MD 21401

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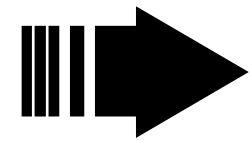
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Page	Advertiser	Product	R/S#	Page	Advertiser	Product	R/S#
6	ABB Turbocharger AG	turbochargers	200	31	Jets Vacuum AS	toilet systems	222
24	Allied Shipbuilders Ltd.	deck machinery	201	8	Kaminco Oceanic S.A.	marine technologies	223
36	ALG Commercial Equipment Finance, Inc.	Marine Finance	249	C4	Karl Senner, Inc.	marine propulsion equipment	224
34	Americ Corp.	portable ventilators	245	19	Kongsberg Maritime	S-VDR	225
16	Anchor Marine	anchor and chain	202	20	L3 Communications	AIS systems	226
12	Asia Pacific Maritime 2006	exhibitions & conferences	203	23	Maritime Professional Training	maritime and STCW training	227
33	Atlantic Marine	shipyard	204	41	Military Sealift Command	employment	NRSC
2	Aurand Manufacturing	surface prep tools	246	4	Motor Services Hugo Stamp Inc.	diesel engine spare parts	228
11	Boll-Filter	filters	205	24	Ocean Technical Services	ship repair	229
13	BP	employment	206	14	Ominthruster Inc.	thrusters	230
1	CapRock Communications	satellite communications	207	31	Pacific Coast Marine	doors & hatches	231
3	Caterpillar	marine power systems	208	17	Salt Away	salt removal	232
31	CSD North America	marine power systems	215	11	Sasakura	fresh water generators	233
C2	Damen Shipyard	shipyard	209	15	Simplex Americas, LLC	stern tube and shaft seals	234
16	Don Sutherland Photography	photography	210	24	Skookum	rigging products	235
21	Electronic Marine Systems	the ballast	211	15	Sohre Turbomachinery	grounding and earthing brushes	236
23	Electronic Marine Systems	the bubbler	212	33	Superior Energies, Inc.	insulation manufacturers	237
25	Electronic Marine Systems	the radar	213	7	Technical Marine Service, Inc.	engineering services	238
27	Electronic Marine Systems	the sea switch II	214	10	Thordon Bearings Inc.	stern tube bearings	239
41	Elliott Bay Design Group	naval architects	247	7	Twin Disc, Inc.	Display	240
5	Fairbanks Morse	engines	216	14	Viking Fender	fenders	241
36	GE Capial Solutions	financial services	251	20	Viking Life Saving Equipment	life rafts	242
9	Gislaved Folie AB	interior design foils	217	33	Waterman Supply	marine equipment	243
33	Gladding Hearn	boat builder	218	10	Western Fire & Safety	fire extinguishers	244
16	H.O. Bostrom	seating	219	41	Washburn	fire extinguishers	248
31	Imes, Inc.	lifeboat and crane testing	220	C3	W & O Supply	valve automation	252
17	In-Place Machining	crankshaft repair	221	36	Zurich	financial services	250

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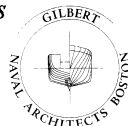
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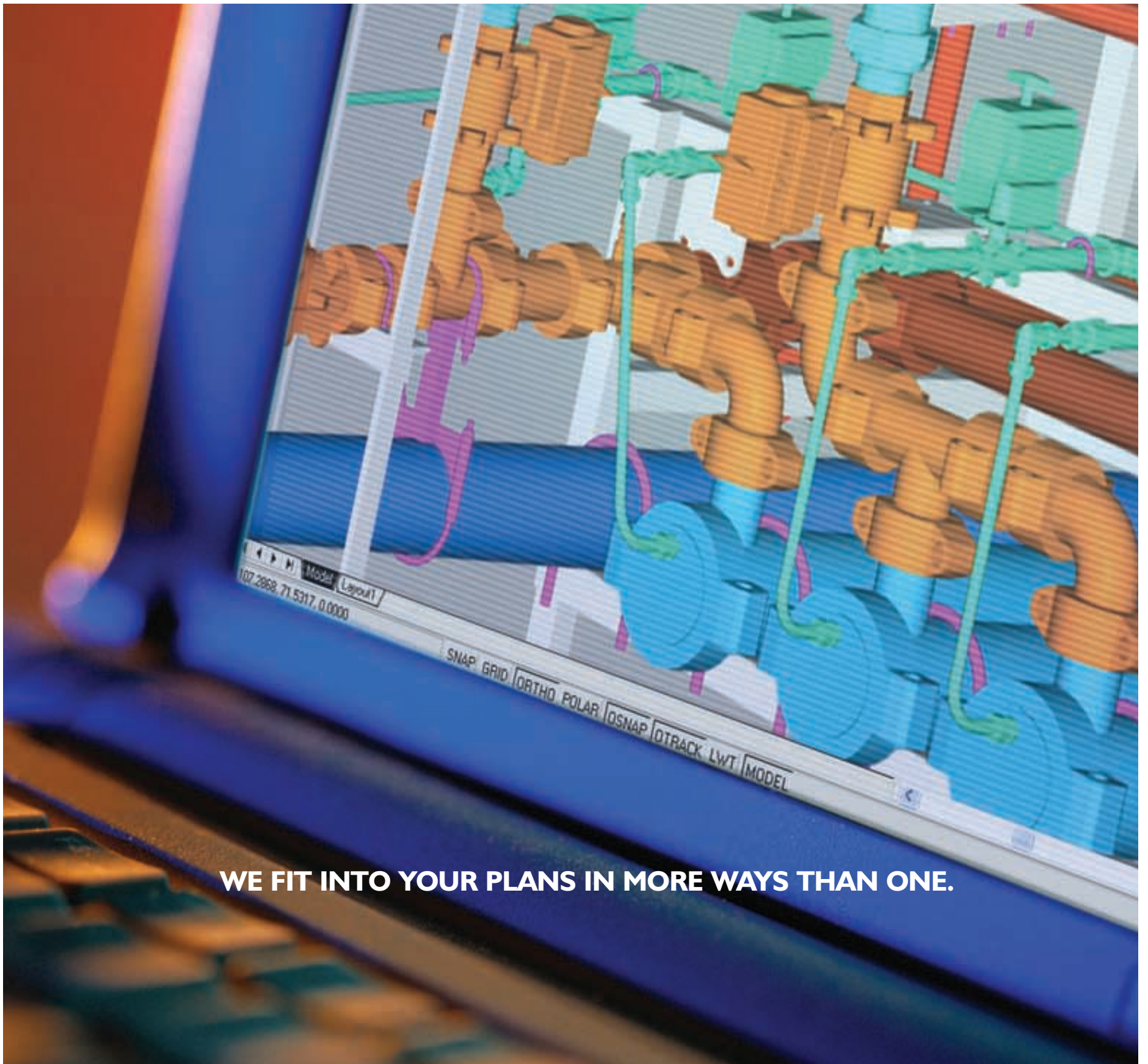
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