

October 2004

MARITIME REPORTER AND ENGINEERING NEWS

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The boom continues for

Majestic Megayachts

Asleep at the Wheel

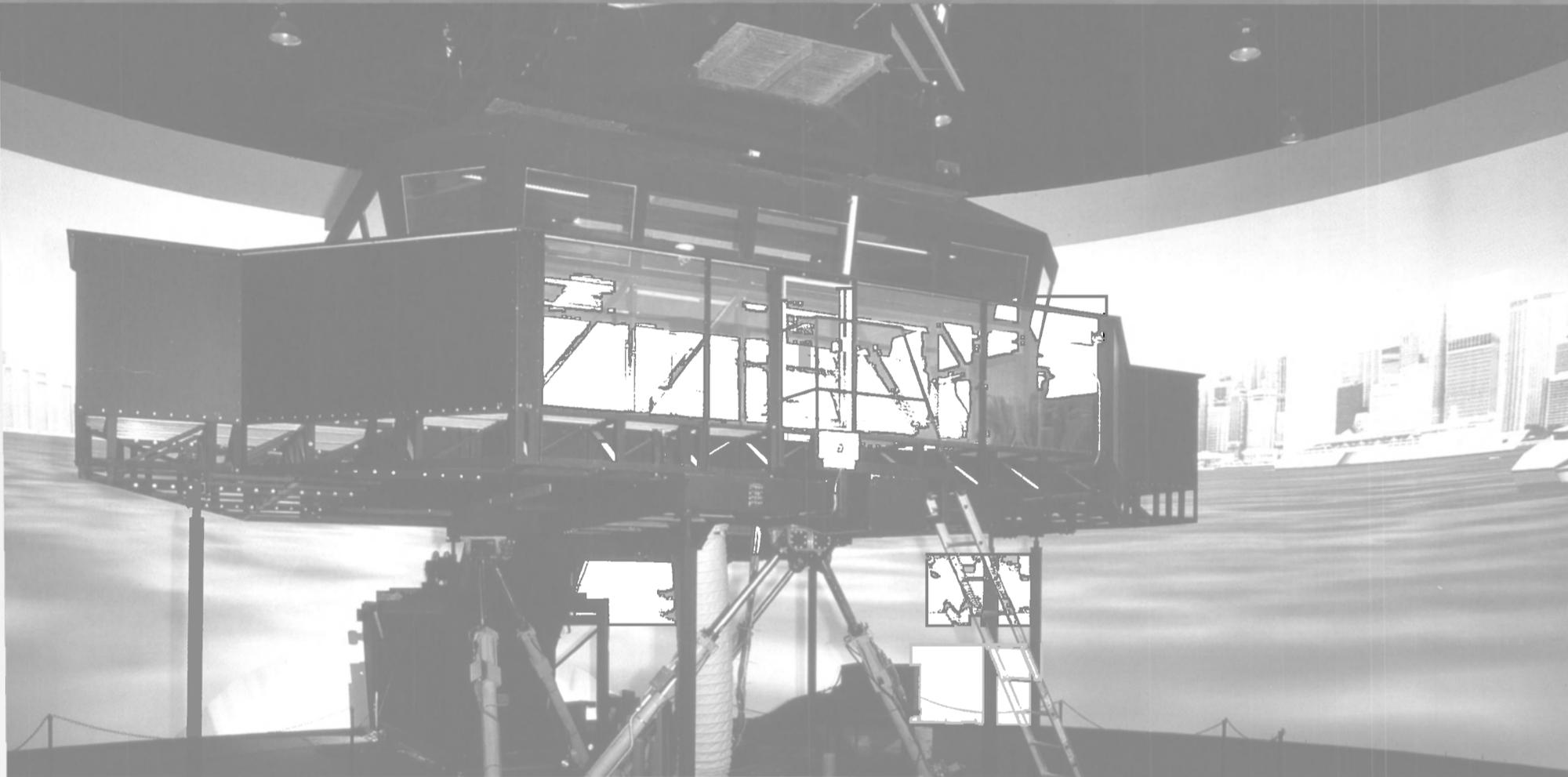
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Crew fatigue has long been touted as a top cause of marine casualties, but little has been done to remedy the situation.

— by **Dennis L. Bryant**

Marine Communications

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Finland

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Finland, a traditional powerhouse in the high-value ship technology market, has completed its latest transformation with the combining of major shipyards under the Aker Finnyards banner.

Megayachts

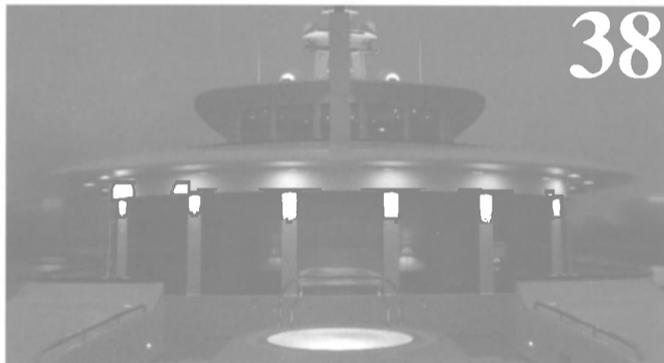
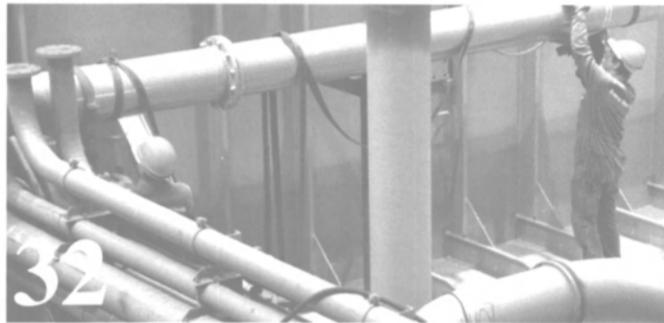
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Designer Hermidas Atabeyki and Blohm + Voss have conspired to develop a truly revolutionary megayacht.

38 Security Concerns Top the List

Superyacht management, never easy, has become appreciably more complex with the new maritime security measures.

40 Insulation, Pipes, Pumps & Valves



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118 E. 25th St., New York, NY 10010
Tel: (212) 477-6700; Fax: (212) 254-6271

e-mail: mren@marinelink.com • Web: [Internet: www.marinelink.com](http://www.marinelink.com)

FLORIDA • 215 NW 3rd St., Boynton Beach, FL 33435
Tel: (561) 732-1659 Fax: (561) 732-6984

Associate Publisher

Gregory R. Trauthwein • trauthwein@marinelink.com

Associate Editor • Jennifer Rabulan • rabulan@marinelink.com

Technical Editor • David Tinsley

Contributing Editor • Dennis L. Bryant
Senior Maritime Counsel, Holland & Knight

Editorial Consultant • James R. McCaul, president,
International Maritime Associates

PRODUCTION

Production Manager Michael Lowe • lowe@marinelink.com

Asst. Production Manager Irina Tabakina • tabakina@marinelink.com

CIRCULATION

Kristen O'Malley • omalley@marinelink.com

ADVERTISING SALES

Vice President of Sales

Lucia M. Annunziata • annunziata@marinelink.com

National Sales Manager

Rob Howard • howard@marinelink.com
Tel: (561) 732-4368; Fax: (561) 732-6984

North American Sales Manager

Brett W. Keil • bkeil@marinelink.com
Tel: (561) 732-1185; Fax: (561) 732-8414

Regional Sales Manager

Leonardo Maldonado • maldonado@marinelink.com
Tel: (561) 732-9670; Fax: (561) 732-8414

Classified Ad Sales

Dale L. Barnett • barnett@marinelink.com

Marketing Manager

Richard Grable • grable@marinelink.com
Tel: (561) 732-1659; Fax: (561) 732-6984

Manager, Information Services

Tina Veselov • veselov@marinelink.com

Manager, Accounting Services

Esther Rothenberger • rothenberger@marinelink.com

Manager, Public Relations

Mark O'Malley • momalley@marinelink.com

Sales Assistant

Nicole Sullivan • sullivan@marinelink.com
Classified Sales • Tel: (212) 477-6700

Manager, Information Technology Services

Vladimir Bibik • bibik@marinelink.com

PUBLISHERS

John E. O'Malley
John C. O'Malley • jomalley@marinelink.com

International Sales Operations

Managing Director, International Sales
TONY STEIN

12, Braehead, Bo'ness, West Lothian EH51 0BZ, Scotland, U.K.
Tel: +44 (0) 1506 822240; Fax: +44 (0) 1506 828085

Germany/Switzerland

TONY STEIN • stein@marinelink.com
Tel: +44 (0) 1506 822240; Fax: +44 (0) 1506 828085

Japan

KATSUHIRO ISHII
Are Media Service Inc., 12-6, 4-chome, Nishiike, Adachi-ku, Tokyo 121,
Japan, Tel: +81 3 5691 3335; Fax: +81 3 5691 3336

Korea

JO, YOUNG SANG • biscam@unitel.co.kr
Business Communications, Inc., Kwangwhamun P.O. Box 1916, Seoul, Korea
Tel: +82 2 739 7840; Fax: +82 2 732 3662

Scandinavia

STEPHAN R.G. ORN/LEON SCHULZ • leon@stephan-orn.se
AB Stephan R.G. Orn, Box 184, S-271 24 Ystad, Sweden
Tel: +46 411-184 00; Fax: +46 411 105 31

Spain

JOSE LUIS SEVA • jlseva@viaexclusivas.com
Via Exclusivas S.L., C/ Viriato, 69 SC., 28010, Madrid, Spain
Tel: +34 91 448 9136; Fax: +34 91 446 0214

CHARLES E. KEIL, Vice President, International Operations

215 NW Third Street, Boynton Beach, FL 33435
Tel: +561-732-0312; Fax: +561-732-8063
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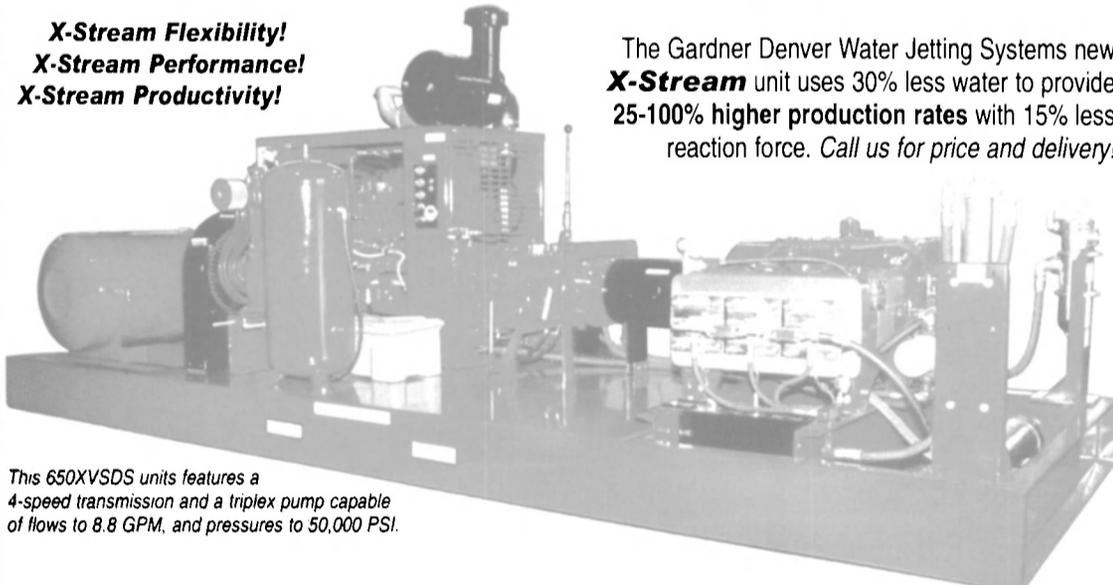


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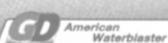
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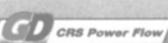
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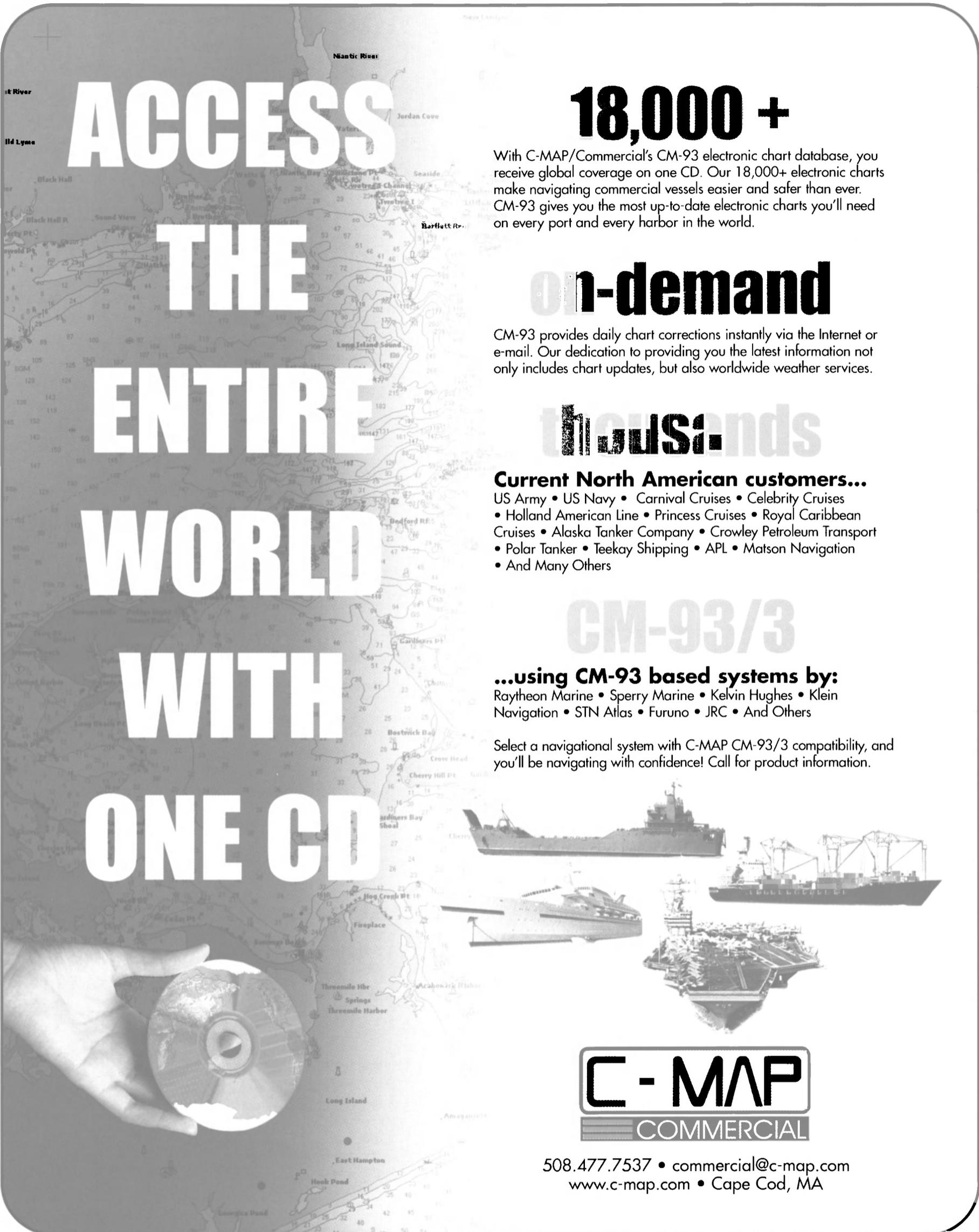









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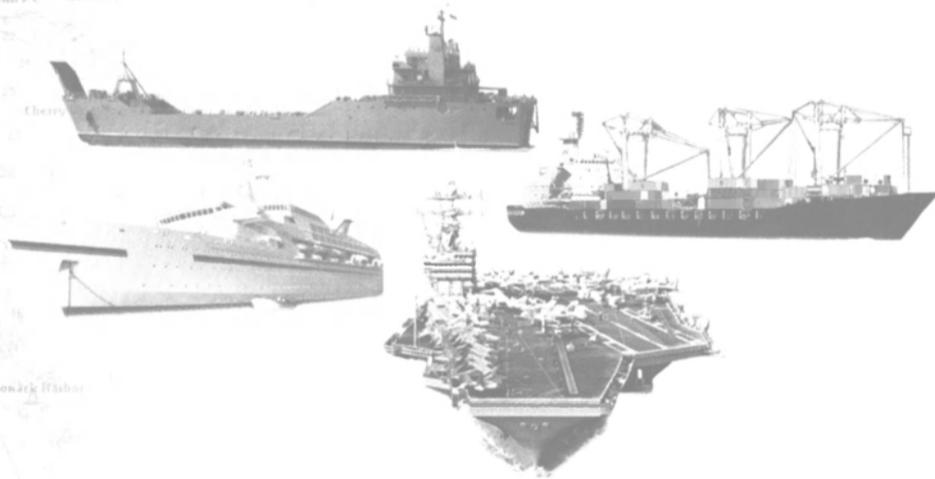
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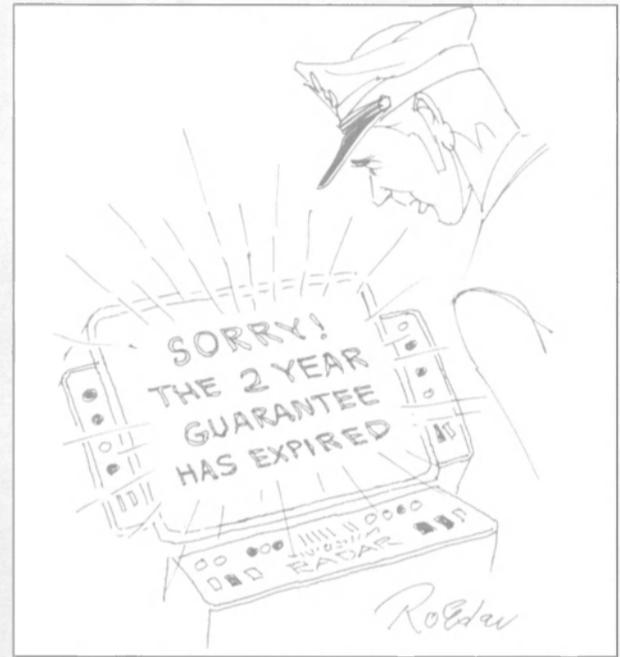
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Maritime Meanings

Gadget

A small device or mechanical aid or fitting on board ship used to help get things done. Often called by the seaman a "gilguy" or "gillickie." Adopted in the round by the landsman to describe things of similar nature. Probably from *gadage*, and early Scottish form of "gauge."

Source: *An Ocean of Words: A Dictionary of Nautical Words and Phrases*, by Peter D. Jeans; Birch Lane Press, 1998

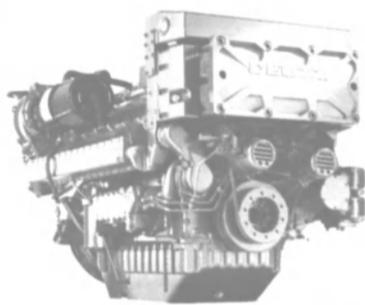


Clarification

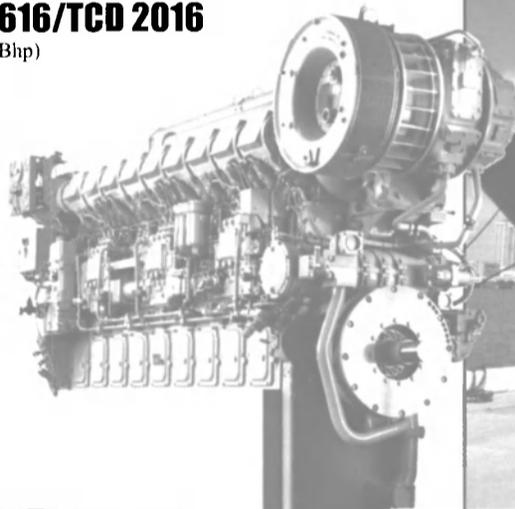
In the article "Flying High Again" published in August 2004, pg. 20, a dated SkyFile visual was used which showed an incorrect compression rate. The compression rate offered by France Telecom's SkyFile software is 80%, not 60%. Also, the correct spelling of the Marketing Director, Maritime is **Ghani Behloul**.

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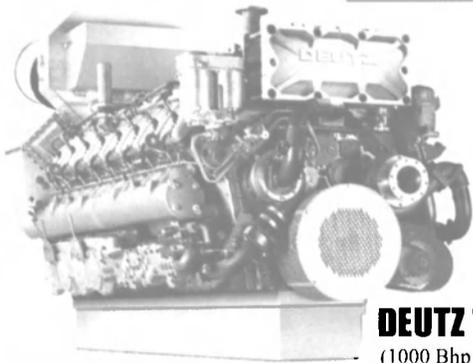
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Editor's Note

Frankly, I'm tired. Having passed yet another summer and now embarked upon the path of Autumn 2004, my schedule is packed not only with work and the requisite travel, but the schedule of a fourth grader and the myriad of after school and weekend activities, not to mention the pile of paperwork from school and clubs. To tell the truth, I would rather evaluate the merits of a corporate consolidation than be forced to decipher the nuances of my son's 'school picture' package. But my over tiredness has little real world consequences, the worst being a late afternoon nod-off in yet another meeting, or a missed 'snooze' alarm in the early Dawn, meaning I'm a half hour late to work.

For mariners, being tired has a completely different meaning. Tired for mariners can mean life and death; for themselves, their crewmembers and potentially the general public.

Fatigue has long been cited as a major factor in maritime accidents, yet according to Dennis Bryant and his 'Asleep at the Wheel' commentary in this month's Government Update (starting on page 9) precious little has been done to remedy the matter.

While technological development is often positioned as an answer to this conundrum, it is merely a factor in the equation, rather than the solution itself.

Bridge technology evolution has multiplied exponentially in the past decade, and there is nothing to suggest that the trend will not continue. Companies that continue to develop new and innovative solutions for the marine market: on the navigation, communication and total vessel management fronts; will prosper, as increasingly – whether it be by market demand or legislation – owners will continue to adopt these advanced solutions on vessels of every shape and size.

That said, the challenge for vessel operators becomes not only ensuring that the mariner is adequately outfitted for the task of safe and efficient navigation, but that its crews are appropriately trained, educated and managed.

This formula for success – technology, training and effective management – is not an option, it is a necessity.

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On the Cover



Pictured on this month's cover is one of the outstanding megayacht offerings from Germany's Blohm + Voss. Turn to page 34 to read about the yard's spectacular new M-147 megayacht, with exclusive insights from lead designer Hermidas Atabeyki.

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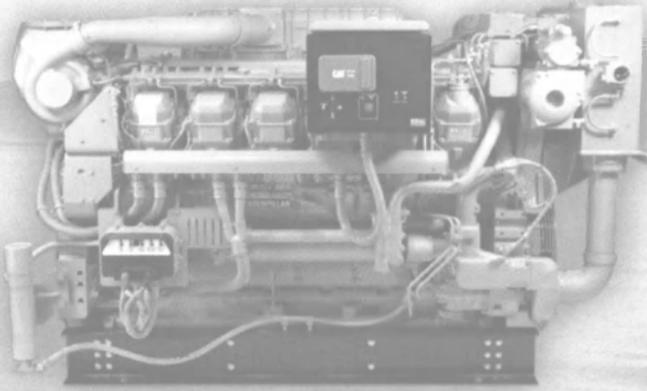
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NASSCO Starts Second T-AKE Ship

National Steel and Shipbuilding Company (NASSCO) has begun construction on the second ship in the T-AKE program, a new class of combat logistics force ships designated the Lewis and Clark class. Mrs. DeAnne Sutton, wife of U.S. Navy Commander George Sutton of the NAVSEA Program



DeAnne Sutton, wife of Commander George Sutton (R) of the NAVSEA Program Office, completed the first cut and signed off on the first steel piece for the second T-AKE ship, to be named the Sacagawea.

Office, made the first cut on the ship's first steel plate to signify the start of construction.

The U.S. Navy has awarded NASSCO contracts for six new dry cargo/ammuni-

tion ships for a total contract value of \$1.87 billion. The T-AKE contract includes options for an additional six ships, eventually creating a 12-ship fleet of new combat logistics force ships. If all the options are exercised, the 12-ship program would have a total value of \$3.7 billion and become the largest contract in NASSCO's history. The first T-AKE, which has been under construction at NASSCO for a year, will be named the Lewis and Clark.

This ship, the second T-AKE, is to be named the Sacagawea in honor of the Shoshone Indian woman who acted as guide and interpreter for Lewis and Clark on their expedition into the Northwest region of the United States from 1804-1806.

The T-AKEs will be 210 m (689 ft.) in length and 32.2 meters (105.6 ft.) in beam, with a design draft of 9.12 m (29.9 ft.). The ships will carry almost

7,000 metric tons of dry cargo and ammunition and 23,500 barrels of marine diesel fuel.

First Offshore LNG Deepwater Port Buoy Under Construction

ABS surveyors, onsite at Junoverken AB yard in Uddevalla, Sweden, monitor and inspect the fabrication of industry's first offshore LNG deepwater port buoy, designed by Advanced Production and Loading AS of Norway (APL).

The port buoy will be ABS-classed as an XA1 Single-Point Mooring (SPM). APL has contracted ABS to provide classification services for its Submerged Turret Loading (STL) system, a single-point mooring system (SPM) and an integral component of the industry's first offshore LNG terminal, destined for the Gulf of Mexico, some 116 miles offshore Louisiana.

Dubbed the Energy Bridge Deepwater Port, the terminal system incorporates APL's STL technology commonly used in the offloading of oil in regions including the North Sea, offshore China and offshore Western Australia. The STL buoy, planned for installation on West Cameron Block 603 in 280 ft. of water,

is scheduled for transport to U.S. waters this November. First cargo for the Energy Bridge Deepwater Port is scheduled for January 2005, with planned capacity to deliver base load gas volumes in excess of 500 million cubic feet per day. The 186-ton STL unit will allow specially built LNG carriers fitted with onboard re-gasification equipment to transfer gas through the buoy, which is connected to a pipeline end manifold (PLEM) on the seafloor.



ABS surveyors, onsite at Junoverken AB yard in Uddevalla, Sweden, monitor and inspect the fabrication of industry's first offshore LNG deepwater port buoy

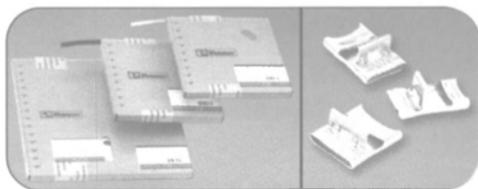
ABS' scope of work encompasses the submerged turret loading buoy; the mooring system for the buoy; and the riser to take the gas from the buoy to the PLEM.

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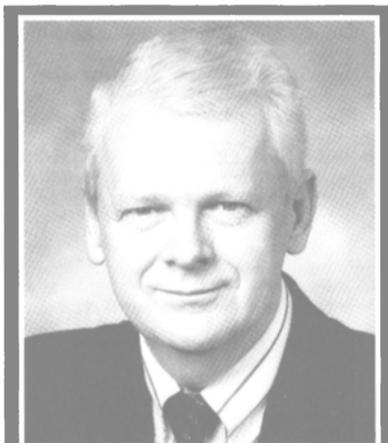
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Asleep at the Wheel



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

On the morning of June 29, 2003, the general cargo vessel JAMBO grounded off the Summer Islands on the west coast of Scotland. The primary cause of the grounding and subsequent total loss of the ship was that the chief officer on watch fell asleep and missed his intended change of course. He was awakened by the grounding. The root cause of the casualty was extreme fatigue - the result of a long period of standing six-on, six-off watches combined with cargo loading/unloading duties when the ship was in port. Unfortunately, this type casualty is not rare.

Marine casualties in U.S. waters in which seafarer fatigue was cited as a major casual factor include, but are not limited to:

- a) Grounding of the passenger car-ferry A. REGINA on Mona Island, Puerto Rico on February 15, 1985;
- b) Collision between the USS RICHARD L. PAGE (FFG-5) and the fishing vessel CHICKADEE in the Atlantic Ocean on April 21, 1987;
- c) Collision between the ferries NORTH STAR and CAPE HENLOPEN at Orient Point, Long Island on July 9, 1987;
- d) Grounding of the tankship WORLD PRODIGY off the coast of Rhode Island on June 23, 1989; and
- e) Grounding of the passenger ship STAR PRINCESS on Poundstone Rock, Lynn Canal, Alaska on June 23, 1995.

The marine industry and its regulatory bodies have recognized for some time the dangers posed by fatigue. Little has been done, though, to remedy the problem.

The UK Marine Accident Investigation Branch (MAIB) in each of its Annual Reports since at least 1998 has cited fatigue among seafarers as a significant risk factor. The U.S. Coast Guard and the New Zealand Maritime Safety Authority have also recognized the danger to marine safety caused by fatigue and sleep deprivation.

The Annex to the International Convention for the Safety of Life at Sea (SOLAS Convention) provides, at

Newspaper Notice

Washington State Ferries

NEW 130 - AUTO FERRIES DIESEL GENERATOR CONTRACT NO. 00-6678



REQUEST FOR PROPOSALS

Washington State Ferries, a division of the Washington State Department of Transportation (hereinafter called "WSF"), requests proposals from firms who wish to be considered for the following described project:

A procurement contract to provide WSF complete, new diesel generators, consisting of Ship Service Diesel Generator (SSDG) and Emergency Generator sets and related items for four (4) planned new 130-auto ferries. The Contract shall be for sixteen (16) generator sets (4 sets per vessel), consisting of twelve (12) SSDG sets (3 per vessel) and four (4) Emergency Generator sets (1 per vessel). The Contract shall also include spare components and special tools. The diesel generator procurement shall include: all design, manufacturing, fabrication, delivery, commissioning, training, testing and regulatory agency certifications for the new generator sets.

The Delivery Dates for all of the generator sets shall be as specified in the Request for Proposals (RFP). The delivery of the initial generator sets shall be no later than March 15, 2007, subject to amendment during the RFP process. The delivery schedule for the remaining generator sets shall be as specified in the RFP.

The generator installations will all be accomplished by the shipyard contracted by WSF to build the new 130-auto ferries, at a facility within Puget Sound, Washington, per estimated schedules listed in the RFP.

The proposal due date/time is 1:00 pm on October 26, 2004. This Contract will be partially funded by either the Federal Transit Administration or the Federal Highway Administration. Certified Disadvantaged Business Enterprises (DBE's) are encouraged to participate in the RFP process.

The formal RFP package for the project is available upon request for the **non-refundable** fee of \$100.00. The RFP will also be posted on the following WSF web site on or after September 28th: www.wsdot.wa.gov/ferries/contracts. Informational copies of the RFP package will be on file at various plan centers, WSDOT Support Services/Seattle SBA and at WSF.

Legal Services and Contracts Department
Washington State Ferries
2911 2nd Avenue
Seattle, Washington 98121-1012

Telephone: 206.515.3606 (recording)
Telefax: 206.515.3605

WSF assumes no obligation of any kind for expenses incurred by a respondent to this Notice or the RFP package.

Government Update

Regulation 14 of Chapter V, that contracting governments "undertake, each for its national ships, to maintain, or, if it is necessary, to adopt, measures for the purpose of ensuring that, from the point of view of safety of life at sea, all ships shall be sufficiently and efficiently manned."

Expanding on this general injunction,

the Assembly of the International Maritime Organization (IMO) adopted Principles of Safe Manning. These Principles provide, in part, that, in determining the minimum safe manning level of a ship, the ability to maintain safe watches and operations and respond to various emergency situations shall be considered. Administrations should also

take proper account of requirements dealing with, among other things, hours of work or rest. Every company is obligated by the Principles to ensure that shipboard personnel do not work more hours than is safe in relation to the performance of their duties and the safety of the ship. The International Safety Management (ISM) Code states that the

company operating the ship is responsible for ensuring that adequate resources are provided to meet the requirements of the ship's safety management program.

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) provides more specific guidance in this regard. It states, in section A-VIII/1 of the Code, that all persons who are assigned duty as watchstanders "shall be provided a minimum of 10 hours of rest in any 24-hour period." Part B of the STCW Code, forming recommended guidance, includes a section of prevention of fatigue and notes that excessive or unreasonable overall working hours are not to be undertaken. It is also suggested that Administrations adopt requirements for recording hours of work and hours of rest for seafarers and review their provisions on prevention of fatigue. In 2001, the IMO Maritime Safety Committee issued a Circular providing detailed guidance on fatigue mitigation and management.

U.S. law previously prohibited owners from requiring seafarers to work more than a certain number of hours each day, but did not prevent a seafarer from 'volunteering' to work additional hours. In recent years, provisions have been added to prohibit owners of many ships from permitting seafarers from work more than a certain number of hours (e.g., 15 hours in any 24-hour period or more than 36 hours in any 72-hour period) except in an emergency when life or property are endangered. The officer in charge of a deck watch on a U.S. vessel when leaving port must have been off duty for at least 6 hours within the immediately preceding 12 hours.

For a variety of reasons, including competitive pressures among carriers and among seafarers, these injunctions have not proven fully effective. Marine casualties continue to be caused by seafarer fatigue.

The National Transportation Safety Board (NTSB), among others, has evaluated the problem and made various recommendations. It has recommended that a coordinated research program be undertaken on the effects of fatigue, sleepiness, sleep disorders, and circadian factors on transportation system safety. It recommended that educational material for transportation industry personnel and management be developed regarding shift work, work and rest schedules, and proper regimens of health, diet, and rest. The NTSB also recommended that a review be undertaken of regulations governing hours of service for transportation industry personnel and that they incorporate the lat-

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Government Update

est research on fatigue and sleep issues.

The U.S. Coast Guard is moving ahead on the second of these three recommendations. It has established a Crew Endurance Management program. The mission of this program is to develop and disseminate a system for managing the risk factors that can lead to human error and performance degrada-

tion in maritime work environments. Crew Endurance Management practices involve using specific assessment techniques to identify endurance factors in specific operations; using light-management techniques to adapt seafarers to varying work and watch schedules; and using a host of practical techniques to control such operational risk factors as

stress, temperature extremes, caffeine use, and over-the-counter (OTC) drug use. It differs from fatigue management in that it attempts to address the full gamut of environmental, organizational, physiological, and psychological factors that affect seafarer stamina and alertness.

The Crew Endurance Management

program is in its early stages and only time will tell how effective it is in reducing marine casualties caused by fatigue and related human factors. But, it is clearly a step in the right direction. The New Zealand Maritime Safety Authority is undertaking a similar campaign. All reasonable measures for addressing this important problem must be explored and implemented as appropriate. Otherwise, we will continue to have seafarers asleep at the wheel.

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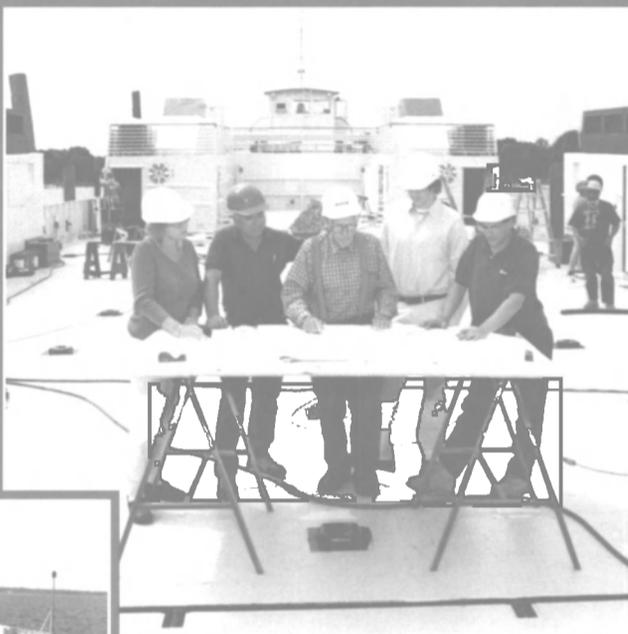
Hull 312: *Atlantica*, 130' Crowther-designed aluminum catamaran, 442 passengers, 35 knots. Delivery: July 2003



Hull 316: *Harbor Queen*, 84' upscale two-deck 149-passenger dinner boat. Delivery: October 2004



Hull 315: *Isleno*, 155', 3200hp, 14-18 knots, quadruple screw, shallow draft (7'-6" max), 200 LT capacity, 209 passengers, 8 trailers or 40 cars, ocean-route OSV-type vessel. Delivery: August 2004



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BC Ferry Contract Stirs Controversy

A contract to build three double-ended RoRo Ferries for the Canadian Shipping Company British Columbia Ferry Services Inc. has been won by Flensburger Schiffbau-Gesellschaft. The total value of the contracts is approximately \$325 million Canadian. The new ships are called "Super C-class" type. BC Ferries' specification for the new Super C-class vessels, which are planned to operate on BC Ferries' Horseshoe Bay-Departure Bay, and Swartz Bay-Tsawwassen routes, are for 525 ft. (160 m) vessels that can accommodate 370 vehicles and up to 1,650 passengers. The breadth is 94.5 ft. (28.2 m), the draft 18.8 ft. (5.8 m) and the service speed 21 knots.

While the order confirms the German yard's prowess, it has sparked a fair amount of controversy, particularly from Canadian shipbuilders.

The following was released by the Washington Marine Group:

On behalf of all BC Shipyards, their workers, and families, we at the Washington Marine Group are deeply disappointed at the awarding of the Super 'C' ferry construction contract to a German Shipyard.

We have contended all along that BC shipyards and their workers have been denied the opportunity to present a very competitive, risk-free bid package that would include acceptable delivery schedules at a guaranteed price.

Over the past 40 years, the BC ferry system has grown from two vessels and a couple hundred employees to over 30 vessels and 3200 employees. BC Ferry Services arguably sets the standard for world-class ferry systems. The ironic part of the current strategy of this management and this Board is that they are abandoning the very assets and people that helped them reach world prominence over those 40 years.

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We wish to thank our workers, the Shipyard General Workers Federation and the many Members of the BC Legislative Assembly (MLA's) and Members of Parliament (MP's) for their efforts in presenting the industry's case to the public of British Columbia and to

BC Ferry Services Inc. We certainly wish BC Ferries success in their current endeavor; the consequences of failure would certainly have an adverse impact on the transportation system that British Columbian citizens have become accustomed to. We stand

ready to play a role in the future success of BC Ferries and the success of this Province as a whole.

The first new Super C-class vessel is scheduled to leave Flensburger Shipyard in October 2007, the second in January 2008 and the third in May 2008.

Bollinger Delivers OSV for L&M Bo-Truc



Cheramie Botruc 38, Bollinger Shipyards latest new 191-ft. platform supply boat that meets all new regulatory requirements including DPSI and is under 200 gross tons.

Bollinger Shipyards, Inc. delivered the first of two new design offshore supply vessels to L&M Bo-Truc Rental Inc., of Golden Meadow, La. M/V Cheramie Botruc 38 the first of two identical offshore supply vessels was delivered early this summer and the second vessel, Cheramie Botruc 39, was to follow in late September after builder's trials. The vessels are the latest in a new Bollinger/L&M Bo-Truc 191-ft. platform supply boat design that meets all new regulatory requirements including DPSI and are under 200 gross tons. Slotted between Bollinger's new 166-ft. and 207-ft. supply vessels, the new 191-ft. boat can be compared to 180-ft. and 185-ft. OSVs, which were considered standards for Gulf of Mexico (GOM) service in the 1980's and 1990's. In addition to being 191-ft. in overall length, the new boats each have a beam of 46-ft. and a 15-ft. depth. Each is powered by two Cummins KTA50-M2 diesel engines developing 1,600 bhp each at 1,800 rpm. They drive NiBrAl propellers through Twin Disc MG 5600 reduction gears with a ratio of approximately 6:1. Liquid Mud capacity is 2,500 barrels and Dry Bulk capacity is 4,800 cu. ft.

USCG Targeted Flag List for ISPS-MTSA

The U.S. Coast Guard issued its 2004 Targeted Flag List for ISPS-MTSA. Nations for which 7 points have been assigned include: Bolivia, Cayman Islands, Netherlands, Russia, and Thailand. Nations for which 2 points have been assigned include: Antigua & Barbuda, Cyprus, Hong Kong, Malta, Panama, and Singapore. Non-SOLAS vessels flying the flags of Bolivia, Cook Islands, and Honduras have also been assigned 7 points. Under the USCG Security Boarding Matrix, vessels scoring 6 or fewer total points are only boarded on a random basis; vessels scoring 7-16 total points will be examined upon port arrival; and vessels scoring 17 or higher total points will be examined prior to port entry.

Maritime Reporter & Engineering News



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Chouest Continues Aggressive Newbuild Program

Edison Chouest Offshore (ECO) plans to continue its newbuilding program. Having already designed, built, owned and operated almost 70 new generation offshore vessels servicing the deepwater oil and gas industry over the past decade, the company plans for 11 new vessels, with options for an additional 14. Construction highlights feature three additional 280-ft. deepwater supply vessels, with an option for 10; four 160-ft. fast supply vessels, with an option for another four: three Norwegian-designed and built platform supply vessels; and a



Island Frontier

348-ft. survey support ship. The supply vessels and survey support ship are being constructed at ECO's shipbuilding facilities in Larose and Houma, La.; the fast supply vessels are designed and built at Breaux Brothers Enterprises in Loreauville, La.

The reasons for the aggressive program are simple, according to ECO President Gary Chouest. "We are continuing to honor our commitment to build the types of vessels our customers are requesting." ECO's shipyards have already delivered the first four in the series of 280-ft. deepwater supply vessels, all currently working in the GOM. The fifth in the series, the Kobe Chouest, was to be delivered last month. Three additional vessels in the series have been committed to by Chouest, the first to be delivered in March 2005 and the others by year's end. The 280-ft. series features a deadweight tonnage of 4,962 LT, as well as dedicated below deck tankage for 15,644 barrels of liquid mud and 1,826 barrels of methanol. The 160-ft. fast supply vessels will join a fleet of 11 oth-



Kobe Chouest, pictured at Edison Chouest's North American Fabricators yard in Houma, La.

ers currently operating for ECO domestically and internationally. The scheduled delivery dates for the four newbuilds are in March, July, September and December 2005.

The three Norwegian platform supply vessels will join a recently delivered

subsea support vessel operating for Island Offshore Shipholding LP, a joint venture between ECO and a prominent Norwegian partner. The Island Frontier, built in Norway by the Soviknes Verft AS on a Rolls Royce UT 737-L design, measures 348 x 78 x 28-ft.

The Island Frontier is capable of handling subsea installation and module operations, ROV operations, well intervention services, diving support, trenching, offshore pipe and cable laying, as well as transportation and loading of pipes, equipment and cargo.



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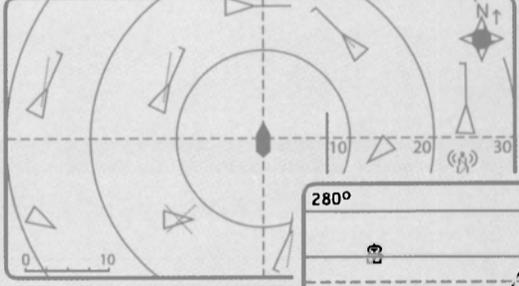
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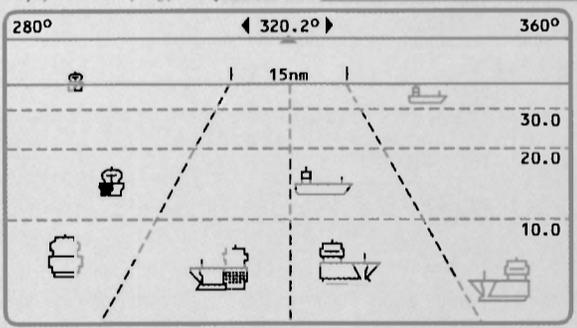
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News

New Head of Sales at Voith

Andre Korner joins Voith Turbo as its new head of sales as of September 1, 2004. During the last ten years, Korner worked as Senior Sales Manager at Siemens Marine Solutions. Koerner completed a training program in energy plant electronics at Lürssen Shipbuilders in Bremen-Vegesack and worked for a year on the cruise liner MS Columbus "C".



New Ventilation for HAL Ships

ABB Automation Technologie's division Marine Ventilation (former ABB Flakt Marine) in Gothenburg Sweden, has been rewarded the total retrofit of the HVAC-systems onboard the S-class ships (M/S Statendam, Maasdam, Ryndam and Veendam) for Holland America Line (HAL). four ships are included in a 3-year, \$225 million conversion program named "Signature of Excellence". The ABB scope includes conversion of the HVAC-systems in the following areas that will be totally upgraded or remodeled.

Wartsila Wins Offshore Contract

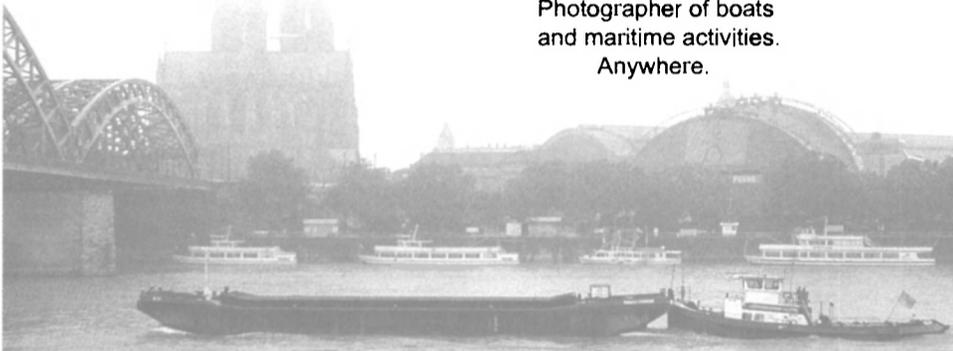
Wartsila won a contract by Ulstein Verft AS for a 23 MW power plant to be installed in a new offshore construction vessel being built for Solstad Offshore ASA and Single Buoy Moorings (SBM). The 124 m-long vessel, to be named Normand Installer, will be equipped with a diesel-electric power plant incorporating two Wartsila 16V32 diesel gensets and two Wartsila 8L32 diesel generating sets. The vessel is due for delivery in January 2006.

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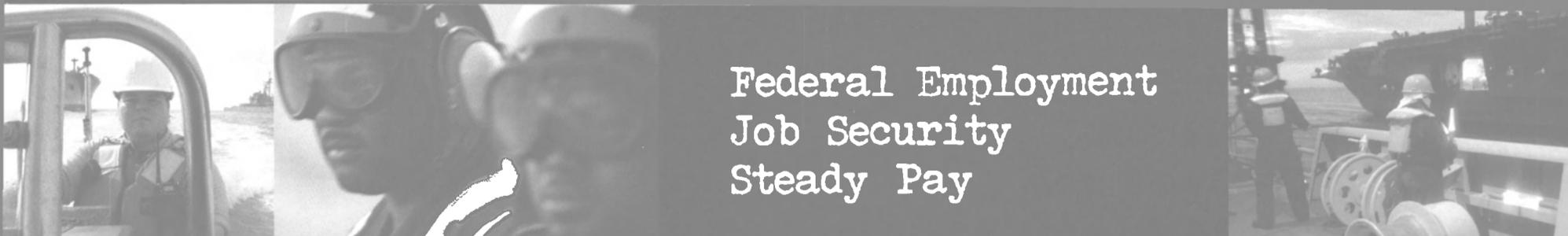


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The backbone of the fleet is SeaArk's 36-ft. Dauntless Class. The boat, powered by twin Caterpillar 3126 turbo-charged inboard diesel engines rated at 420 hp each, reaches speeds of 31 knots. The variable dead rise deep-V hull, designed by C. Raymond Hunt & Associates, is constructed of all-welded



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The Dauntless features a climate controlled patrol cabin and includes a storage/work counter in the forward cuddy, DGPS Furuno 1850 depth finder with plotter and sounder, ICOM M127B radio, police band radios and law enforcement light and PA package. An optional heavy-duty mast for mounting lights, radar and antennas is also included. Other outfitting consists of a 5.5 kW diesel generator, 30 amp shore power and a dive platform to assist in search and rescue operations.

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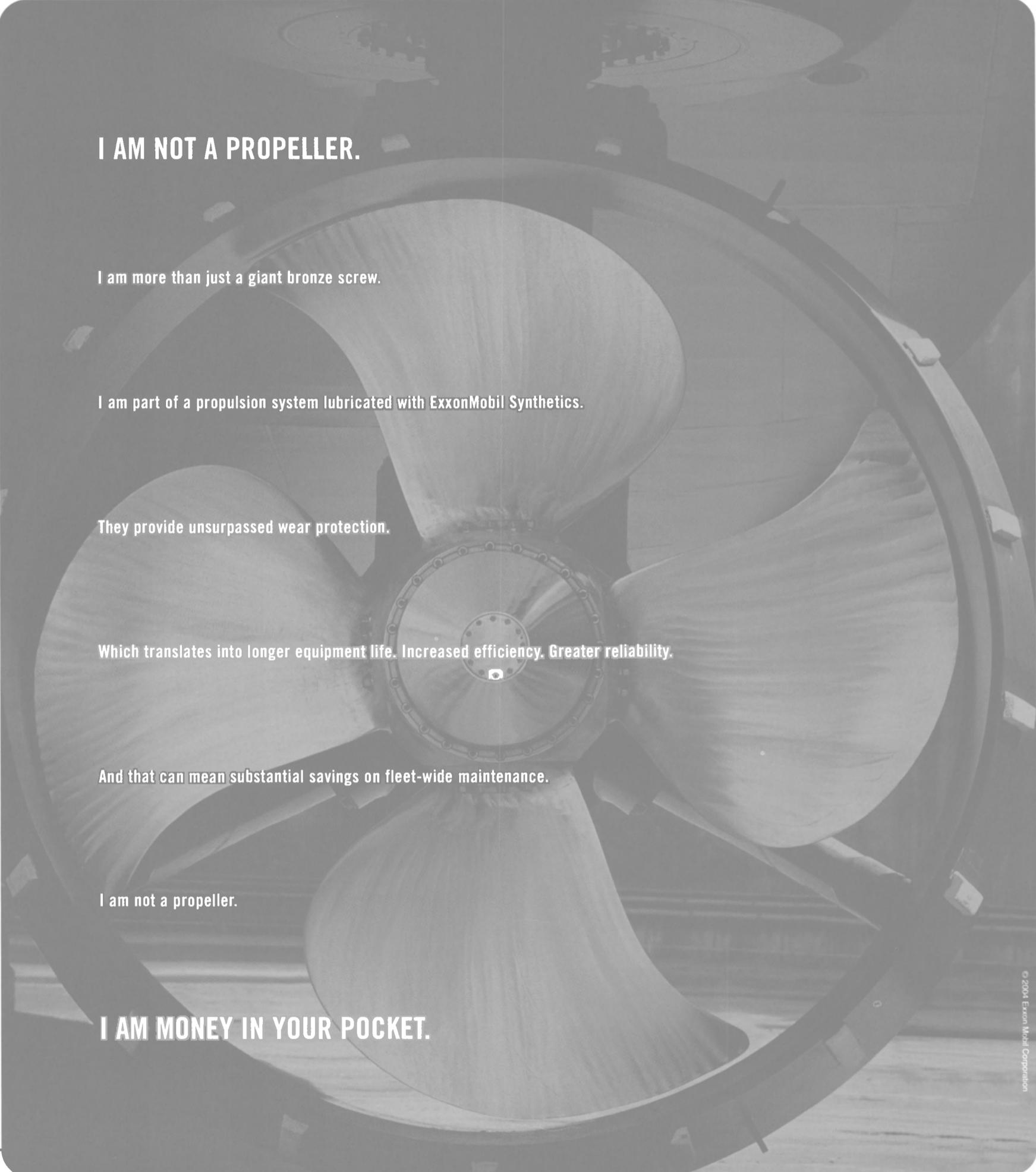
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News

New Debris Clearing Vessel Design

Alan C. McClure Associates (ACMA) completed its contract from the Guadalupe-Blanco River Authority (GBRA) to design and supervise the construction of a 32-ft. barge that will remove debris from the Blanco and

Guadalupe rivers and their tributaries as they flow through south and southeast Texas. After establishing the capabilities that would be required to operate in this specialized environment, ACMA developed the conceptual design, recommended equipment and propulsion systems, developed bid specifications, dis-

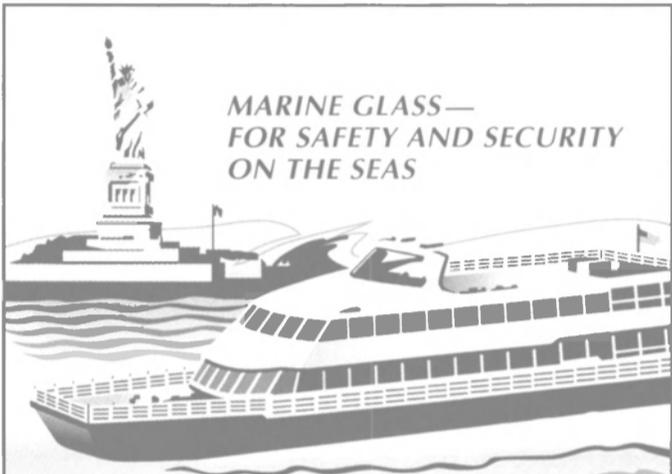
tributed specifications to shipyards for bids, evaluated bid packages, oversaw construction and provided owner's representation throughout the project. "Although this was basically a 'soup to nuts' assignment," said ACMA President, **Scott McClure**, "I'm not aware of any other vessel quite like this

one. Of course, the ACMA team always enjoys a new and challenging assignment and given our extensive analytical and shipyard experience, this is exactly the kind of assignment we specialize in."

Dubbed Miss Guadalupe II, the GBRA's newest vessel meets the challenge of operating in very shallow water, while still maintaining its ability to fit under low-level bridges along the waterways. To accommodate a drive-on front-loader that's positioned on the deck to remove different types of debris from the rivers, the craft's beam has been specifically designed to create a very stable environment. And, with its Thrustmaster hydraulic thrusters, the vessel is highly maneuverable. This vessel also has the advantage of being small enough to be truckable to any number of marine locations.

The Miss Guadalupe II was fabricated and constructed at Bollinger Houston L.L.C., a subsidiary of Bollinger Shipyards, Inc. "This was a great project for our Houston yard," said **Robert Socha**, executive vice president marketing and sales of Bollinger. "The facility is noted for its inland and offshore vessel services and this project provided the industry with another example of our Houston yard's many marine talents."

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Third Rigdon GPA 640 PSV Christened

Larry T. Rigdon, President and Chief Executive Officer of Rigdon Marine, announced that the third of its 10 platform supply vessels — MV Royal — was christened and delivered for service. Royal was immediately deployed to begin work in the Gulf of Mexico.

Mrs. **Mathilde Currence**, the wife of **Richard Currence Jr.**, Vice President, Operations christened the Royal at Bender Shipbuilding & Repair Company, Inc. of Mobile, Alabama. Royal joins the company's two other vessels, the Bourbon and the Orleans, which are also working in the Gulf of Mexico. "We are extremely pleased that drilling and seismic companies with operations in the Gulf of Mexico have vetted our vessels as being the most cost effective and operationally efficient ships available today," said Rigdon. "Their acknowledgement of our vessel's increased payloads and speed with reduced fuel consumption has come in the form of contracts to employ these technologically advanced ships." The Guido Perla and Associates designed (GPA 640) vessels are equipped with two stern-mounted Steerprop SP 20 azimuthing Z-drive units that are driven by two Alconza 2,100-hp variable-frequency AC electric motors, which provide the main propulsion. A further enhancement to the diesel-electric drives is the advanced dynamic positioning system and vessel management system from Alstom Power Conversion.

Maritime Reporter & Engineering News

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~Gary Carlson • Senior Vice President • Forest Oil Corporation



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AIS: Getting it Right from the Start

The Automatic Identification System (AIS) technology has received its fair share of critics up to present, mainly due to poor made installations and lack of training. The problems are currently taking the focus from the positive side where it has proven to be a most useful tool in enhancing safety and security. Lets start with going back and reminding ourselves the initial purpose with AIS as it was thought of when implemented by IMO in 1998 (IMO Performance Standard for AIS (MSC.74(69) Annex 3)).

"The AIS should improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS), by satisfying the following functional requirements:

1. in a ship-to-ship mode for collision avoidance;
2. as a means for littoral States to obtain information about a ship and its cargo; and
3. as a VTS tool, i.e. ship-to-shore (traffic management)."

These statements are clear and straight forward and should not be misinterpreted. To be able to accomplish the basic goals of the performance standard, the onboard user and operator needs to be involved in the process to secure the data transmitted. In this aspect there is a small conflict with the IMO performance standard since it states

"The AIS should be capable of: providing information automatically and continuously to a competent authority and other ships, without involvement of ship's personnel;"

I believe "...without involvement of ship's personnel;" it is impossible to comply with the requirement to input the required voyage related data and checking the integrity of the AIS system, hence the need for training that IMO not yet has regulated. IMO has however issued guidelines on the use of AIS (Resolution A.917(22) Adopted on 29 November 2001; "GUIDELINES FOR THE ONBOARD OPERATIONAL USE OF SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEMS (AIS)" amended A.956(23) December 5th 2003) that are quite clear and well written, but unfortunately they seem to be forgotten and not well known

among mariners. It would be a good idea for manufacturers to include the operational guidelines in their own operational manuals as an appendix. They do state that:

"The AIS information transmitted by a ship is of three different types:

- fixed or static information, which is entered into the AIS on installation and need only be changed if the ship changes its name or undergoes a major

er with the reason for doing so. The master should however restart the AIS as soon as the source of danger has disappeared. ... In ports AIS operation should be in accordance with port requirements."

If you talk to safety and security authorities most of them believe that the AIS should remain activated in most areas of the world to enhance the surveillance capacity and the capability to

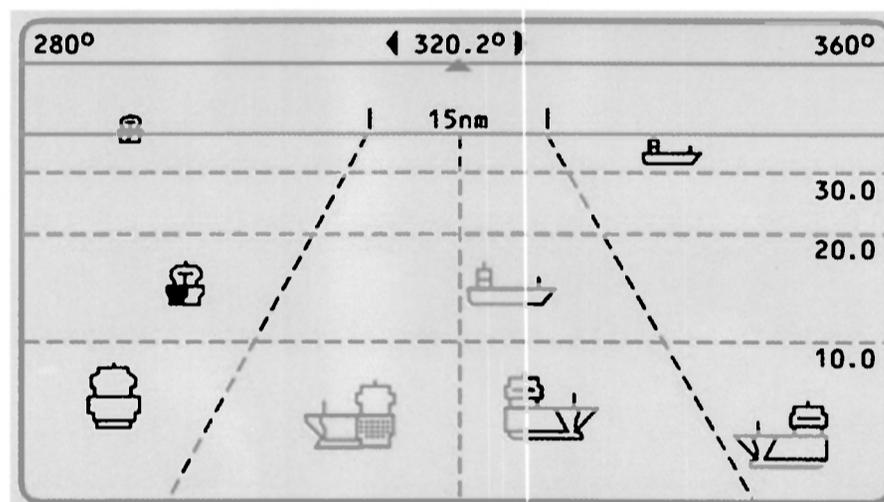
test and checking on their system regularly according to predefined procedures. Even so I felt that some things were missing according to the IMO guidelines that states:

"To ensure that own ship's static information is correct and up-to-date, the OOW should check the data whenever there is a reason for it. As a minimum, this should be done once per voyage or once per month, whichever is shorter. The data may be changed only on the authority of the master.

The OOW should also periodically check the following dynamic information:

- positions given according to WGS 84;
- over ground; and
- sensor information."

No routines existed to verify the geodetic data used by the position provided to the AIS but this is a minor problem since I believe a change to any other data than WGS 84 would quick give an indication on the general bridge system. The gyro used was a fully digital one so little risk existed, compared to older ships when transferring heading data from analogue to digital like on older ships, this was not checked but it would be obvious on other systems if errors would be occurring. The reference point of position for the AIS could not be easily accessed and verified; this was not necessarily the fault of the crew but perhaps the complexity of the Human Machine Interface (HMI). Snr. 1st Officer Laakkonen, also verified what is well known: that voyage related data like ETA, destination, draft and cargo are often not available on ships that they meet. The situation is however improving. Related to the input of voyage related data he saw a great risk in the wrong use of the input of the correct navigational status that in many cases seems to be wrongly input. Further he saw also that the identity of the ships in many cases is wrong or not defined. As I explained before I believe the officers of the Caribbean Princess are a good example of how to check and verify this data regular. The bridge crew was however very positive in general about AIS and saw mostly advantages with the implementation e.g. improved situation awareness, better identification of ships



Nauticast Navigationssysteme last month launched an innovative 3-in-1 graphical display solution for their X-Pack DS Class A AIS Transponder.

conversion from one ship type to another;

- dynamic information, which, apart from 'Navigational status' information, is automatically updated from the ship sensors connected to AIS; and
- voyage-related information, which might need to be manually entered and updated during the voyage."

Further down in a table the guidelines also states that the all the different voyage related data should be manually entered at the start of the voyage and updated when required. Also the answer to the discussion of how the AIS should be activated or not can be found in the IMO operational guidelines:

"AIS should always be in operation when ships are underway or at anchor. If the master believes that the continual operation of AIS might compromise the safety or security of his/her ship or where security incidents are imminent, the AIS may be switched off. This might be the case in sea areas where pirates and armed robbers are known to operate. Actions of this nature should always be recorded in the ship's logbook together

with the reason for doing so. The master should however restart the AIS as soon as the source of danger has disappeared. ... In ports AIS operation should be in accordance with port requirements."

Recently I had the pleasure of being onboard the Caribbean Princess on a cruise in the Caribbean. Captain **Giuseppe Romano** invited me to the bridge where I had a very interesting discussion about AIS with the Snr. 1st Officer **Heikki Laakkonen** and the 1st Officer **Andrea Spinardi**.

The Caribbean Princess is one of the most modern cruise ships on the market and has only been in operation since April after being delivered from Fincantieri in late March. She carries a most modern integrated bridge system that includes AIS integrated in all of the five independent radar and ECDIS workpositions. On this ship you can not even find the Minimum Keyboard and Display (MKD) on the bridge. The officer did not even know where the actual AIS unit could be found since the information from the AIS was fully part of the normal navigation system they used. The deck officers had according to my experience very good knowledge about AIS and did e.g. perform verification

Marine Communications

making VHF contact when required less possible of mistakes. Also a discussion we had regarding future use of AIS (Class B, AtoN and AIS shore stations) was thought as encouraging and positive for the system.

Operational Aspects

Apart from the Operational guidelines for AIS that describes the need for training of and interaction by the crew as well as clear and instructions and easy to use systems from the manufacturers.

"The users must be aware that transmission of erroneous information implies a risk to other ships as well as their own. The users remain responsible for all information entered into the system and the information added by the sensors.

The accuracy of AIS information received is only as good as the accuracy of the AIS information transmitted.

The OOW should be aware that poorly configured or calibrated ship sensors (position, speed and heading sensors) might lead to incorrect information being transmitted. Incorrect information about one ship displayed on the bridge of another could be dangerously confusing.

If no sensor is installed or if the sensor

(e.g. the gyro) fails to provide data, the AIS automatically transmits the "not available" data value. However, the built-in integrity check cannot validate the contents of the data processed by the AIS.

It would not be prudent for the OOW to assume that the information received from other ships is of a comparable quality and accuracy to that which might be available on own ship.

This brings us to another prerequisite about the AIS equipment in the aspect of having it to work correct both onboard and on land. Are they installed to function and operate in the correct way? IMO has as well in this aspect set forth guidelines for installation. (GUIDELINES FOR THE INSTALLATION OF A SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEM (AIS); SN/Circ.227, 6 January 2003). These guidelines are unfortunately not very clear in some aspects. An extensive work is ongoing — within mainly IALA — to get the "ship's course back on track" but the fact is a majority of the installations must be done in a short time, and a large number have already been installed.

Implementing an AIS system onboard is more complex than the industry origi-

nally envisioned. Current references from installations aboard tankers and passenger ships suggests that cost savings could have been realized with better planning and implementation. The question one must ask: are you are prepared go-ahead with a poor AIS implementation and risk higher costs, when experience from classification societies and port state control exists to mitigate such expenditures.

Having been "on the other side" as a manufacturer for Automatic Identification System (AIS) for several years I can only confirm that I have seen very few professional procurements during my time as sales responsible for one of the bigger AIS manufacturers. I as well believe the owners can save plenty of time and money by using professional help from the start when fitting their ships with AIS. The AIS has been seen by many owners as yet another mandated requirement. Regardless, owners operating vessels must take into consideration a number of requirements, including first the international requirements and guidelines with many cross-references, and secondly all of the local requirements such as the Panama Canal, St. Lawrence Seaway and EU's MED (Marine Electronic Directive).

The following process is an example of how to improve and reduce costs for the shipowners in the process of implementing the mandatory AIS equipment onboard their ships. From past experience, it is clearly shown that the current installations and procurements are more expensive than anticipated due to a higher complexity of the process.

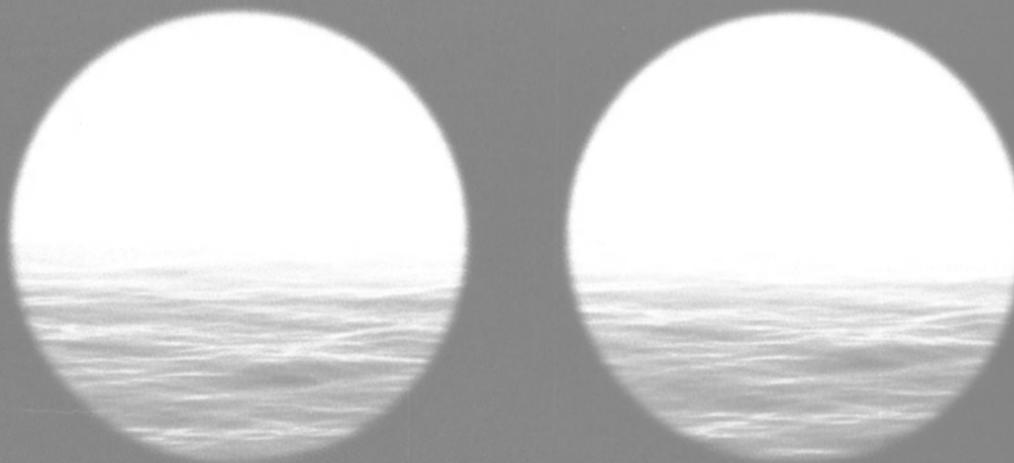
The first part of the "true" process for implementing AIS onboard should be to make a study of available products on the market and a selection for preferences among these products.

The next step is to take into consideration the required prerequisites for the ships on where the units are to be installed. This includes, but not limited to:

Antenna Positions

Evidentially many installations today have poorly placed antennas. During my visit onboard the Caribbean Princess the Snr. 1st Officer Heikki Laakkonen reported the different coverage on received targets from different angles. Even if the Caribbean Princess had a good coverage of about 60 NM due to its high antenna position (USCG has anticipated normal coverage of 20-30 NM for onboard use) I still believe it could have

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been even better since the radar did not have any problem to see 60 NM but the AIS faded at that distance. It should have been the opposite if there was a clear requirement to put the AIS antenna as high as the radar. Also to know where the GPS antennas for the AIS are placed is important.

Equipment Placing

The AIS Display equipment needs to be at the conning position if no other display system has been certified as its display system. Also where you put your AIS is for environmental reasons and to reduce the installation costs are vital factors to consider in the process.

Power Supply

The AIS has to, according to IMO installation guidelines, be connected to an emergency power source. IMO performance standard on AIS states "The AIS and associated sensors should be powered from the ship's main source of electrical energy. In addition, it should

be possible to operate the AIS and associated sensors from an alternative source of electrical energy." But what does it really mean? There was an additional recommendation on this made by COM-SAR 8 in February.

Interfacing Other Equipment

This is one of the most problematic issues when installing the AIS onboard. It could be interesting to know what the IMO performance standard says on the issue: "To enable a user to access, select and display the information on a separate system, the AIS should be provided with an interface conforming to an appropriate international marine interface standard.

- a means of processing data from an electronic position-fixing system which provides a resolution of one ten thousandth of a minute of arc and uses the WGS-84 datum;
- a means to automatically input data from other sensors meeting the provisions as specified in paragraph 6.2;"

Cabling

Depending on the IMO installation guidelines, your class, the equipment manufacturer and how the IEC standard is read not all cable types are allowed to be used for installation. This could have very costly effects if you need to do it all over again, since cabling is one of the more expensive parts of the installation.

Reliability

How reliable are the different manufacturer's products not only when it comes to failure rate but also when it comes to performing according to the standards? IALA did as late as during autumn 2003 issue concerns about how AIS equipment operated in various ways when transmitting or responding to mainly Safety and Broadcast Binary Messages. I have before expressed concerns about the testing of AIS and I stress the importance of a unified test process since the AIS system is a cooperative communication system depending on the same behavior of all participants in the network.

Maintenance and Support

The quality and cost for your maintenance and support will be different from manufacturer to manufacturer. Make sure that check the capability of your supplier before you fit your ship, otherwise you will end up with extra costs that mount fast.

Approval Procedures

The approval of your equipment and installation will be according to your class and flag state procedures and these could vary, but be aware that certain



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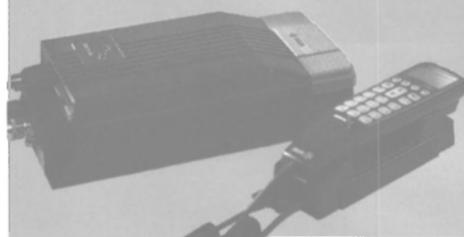
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minimum requirements will also probably be checked for instance during port state control inspections. Most manufacturers today have their equipment approved in Europe (EU), USA, China and some in Japan, Russia and Korea.

Training

Make sure that you have thought about how your deck officers will be trained. I do believe that even if AIS is not part of the collision regulations other than "by all means" it would be devastating in case of an accident not to have your crew trained on the AIS. Further there will also be a stronger requirement and enforcement for the ships to comply with the existing rules in a correct way. Currently training can be made through some marine universities as well as from Computer Based Training programs available on the market.

The selected provider should be contractually committed and his equipment tested before the installation process can begin. The installation should then be monitored and documented before final approval and payment. This means all the

installations should be fully approved, inspected, classified and documented taking into consideration both internal and external procedures.

I know that the cost for many of the initially installed AIS systems turned out to be more expensive than anticipated by the owner. But now we are facing a new category of ships with different owner groups in most cases as well as the fact that the ongoing international efforts to improve and correct the AIS standards needs to be considered. Getting help in procuring your AIS system is an investment well worth the money and would in most cases not even reach the cost for a single installation. But it is a good insurance for getting it right from the start.

The preceding was authored by Anders Bergström, a consultant at True Heading AB, a leading consulting company that provides the highest excellence and performance in the field of telematics and transponder technology. For more information on the services of the organization, visit www.trueheading.se.

CapRock Selects Intelsat

Intelsat signed a new long term contract for capacity on the IA-6 satellite with CapRock Communications, a leading satellite communications service provider focused on remote industrial markets — including oil-field, construction, maritime, mining, and disaster relief. Said **Mark Rasmussen**, Intelsat's Regional Vice President, North America Sales. "As an industry-leading provider of advanced corporate networks, CapRock brings an outstanding portfolio of services to the exploration and production industry and it's our role to help them make that happen." **Circle 16 on Reader Service Card**

Petrocom: Wireless Industry Must "Partner or Perish"

PetroCom hosted a discussion on the "Wireless Ecosystem" at the 2004 Offshore Communications Conference in Houston. Joining a panel of experts from Ericsson, Siemens, Air2Web, Sony Ericsson, Panasonic and Opto 22, the group discussed the concept of the "Wireless Ecosystem," which can be characterized as a partnering of companies that represents different elements of the wireless market. From the user, to the device, to the application, to the network, a movement toward partnering to provide solutions for customers is seen as critical. "The wireless industry is changing and is struggling to transition from a mature voice market to a nascent data market," says **Ken Wright**, PetroCom's Vice President of Engineering and Operations. "In order for industry leaders to stay current with this trend, they either partner or perish." **Circle 17 on Reader Service Card**

Saipem Upgrades Oil & Gas Communications

Intelsat was chosen by Telespazio to provide oil and gas industry contractor Saipem with voice and data services to support its worldwide on-shore and off-shore construction, drilling and deep water operations. Each of the 16 vessels will be equipped with a 2.4 meter C-band maritime antenna to communicate with Intelsat's satellite system. This network is integrated into Saipem's global terrestrial network which is managed by Albacom, a telecom provider. **Circle 18 on Reader Service Card**

MTN Expands Relationship with Intelsat

Maritime Telecommunications Network (MTN) and Intelsat signed a five-year contract under which Intelsat will provide MTN with additional capacity to expand the range of satellite-based services MTN provides to its maritime customers, including the world's largest cruise lines. The added capacity will enable MTN to offer a comprehensive suite of on-board services such as automated teller machine (ATM) transactions, daily delivery of up to 150 newspapers, high-speed Internet access and cellular telephone services to passengers and crew members sailing in the Atlantic and Indian Oceans and Mediterranean.

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MV Union Manta Selects Marlink Fleet F77 MPDS

The MV Union Manta, operated by the URS Towage & Salvage Union, Ltd., is designed to assist offshore lifting platforms in the construction of oil drilling rigs, oil and gas production plants, storage spars, and other related at-sea construction. The vessel was delivered on March 21, 2003, and currently operates throughout

the Gulf of Mexico. The vessel is fitted with three large winches used for the handling and positioning of offshore platform mooring anchors. Main power is supplied by two 10,000 hp diesel engines, producing 'pull power' of 205 tons. This makes the Union Manta one of the world's largest and most powerful Anchor-

updates on weather forecasts and maritime conditions. We also want our surveyors on board to have access to the Internet if needed to run their applications," said **Gert Bogaerts** of URS' ICT department.

"We also needed a way to manage these computer systems from our head-office. There are no IT person-

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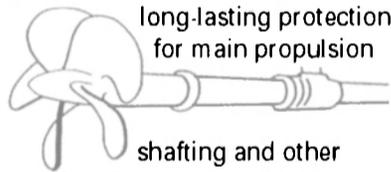
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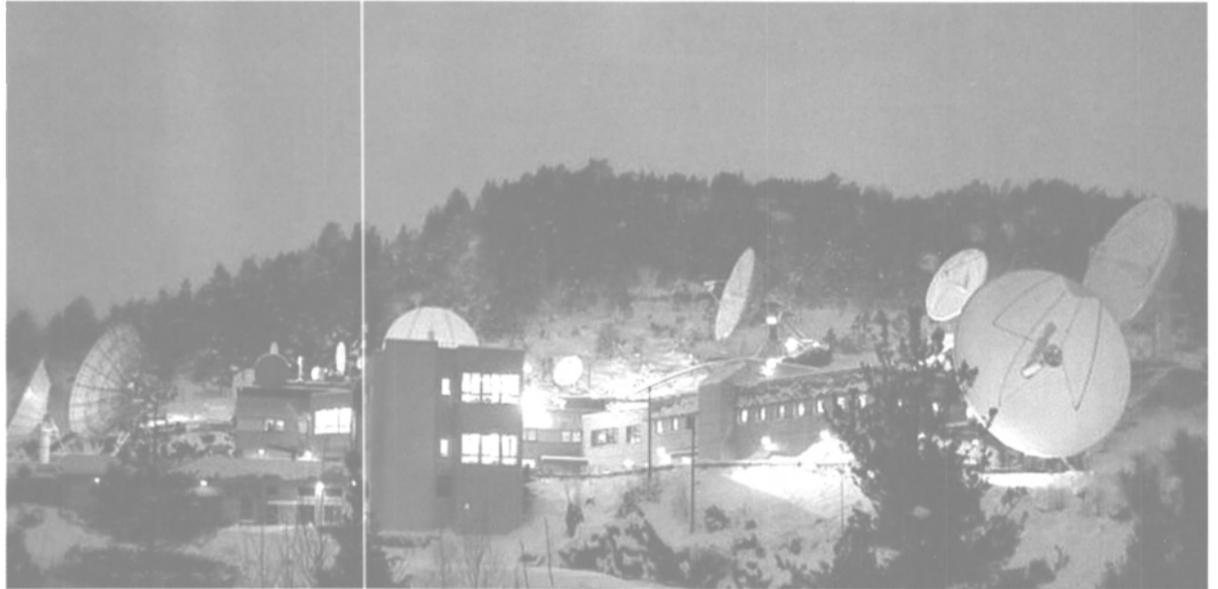
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In addition to these power features, the vessel is equipped for stand-alone remote operated vehicles (ROV) and survey jobs. The vessel is outfitted to accommodate up to 37 persons including a dedicated full-time crew of 15 and as many as 22 additional subcontractors. On board there are engineering specialists who operate the ROVs, which are small, unmanned submarines equipped with cameras and robot arms for operation down to depths of 6,000 ft. The ROVs are used to inspect existing pipelines, conduct pre-lay sea floor inspections, and position and fit pipeline protective covers on the seabed.

"Union Manta ship operations require a constant exchange of large streams of electronic data constant, around-the-clock, as well as the need for continuous

nel present on board of the vessel, so the IT department must have 24/7 access in case of a problem. Because of this, we needed a stable system which is 'always online' with highly reliable mail delivery," Bogaerts noted.

The owners of the Union Manta conducted a thorough evaluation of at-sea communications systems to find the best solution that delivers constant and reliable communications for the transfer of massive amounts of online data that is suited for a relatively small number of users.

"Marlink's Fleet F77 Mobile Packet Data Service (MPDS), via Inmarsat is the solution we chose to install and use aboard the Union Manta."

"For use on our newly-built Union Manta we were seeking a system that gives us the possibility to provide a business network on board while giving us the opportunity to provide a reliable mail system to both our crew and the surveyors," Bogaerts said. "Therefore, we decided to install a Windows 2003 server running MS Exchange Server with four client PCs. For the future, we are considering running other applications on this network with a real-time connection to our head-office in Antwerp, Belgium."

"To make this connection possible we opted in the first place for the Inmarsat Fleet F77 system from Thrane & Thrane. After the ship had been operational for about three months, we decided to add a second Fleet F77 system. This time, we chose the Nera System. This was done to provide a backup system in case the first unit is out of order.

"The Inmarsat Fleet F77 MPDS system, with service from Marlink, gives us a very easy solution for around-the-clock online communications. We can exchange e-mails whenever we want and we can contact the ship's computers for maintenance/troubleshooting from our head office using a VPN tunnel. The UDI connection may be faster but we prefer to have an 'always on' system." Bogaerts concluded.

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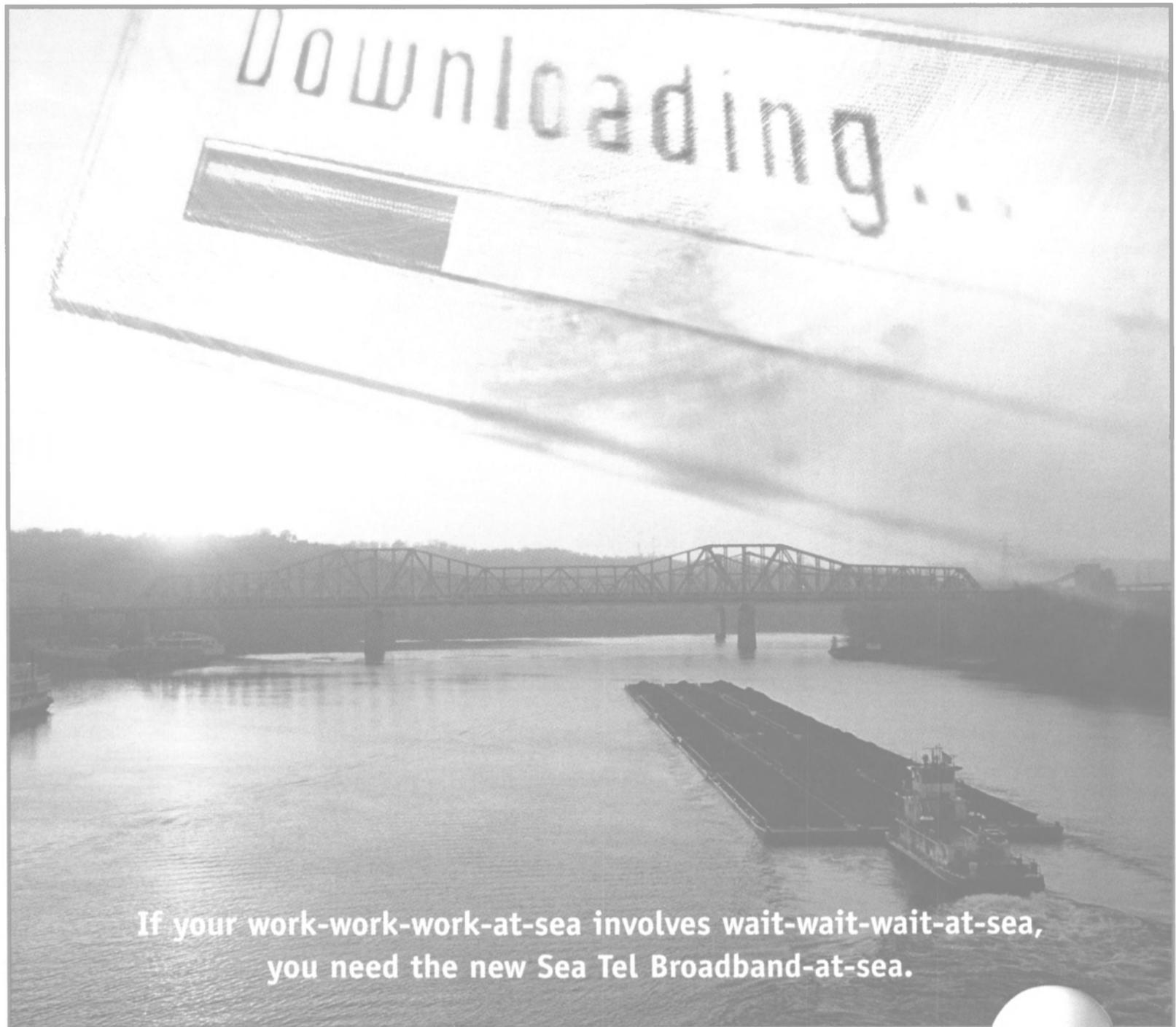
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Cost/GB	*1,000	\$16,640 ISDN \$36,000 MFPS	\$18,720

4.15.03. ¹Source: KVH website ²Source: Delta Communications website

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How to Choose a Fender System

fend-er: 5. Nautical. A piece of timber, bundle of rope, or the like, hung over the side of a vessel to lessen shock or prevent chafing.

This is the definition of a 'fender' taken from the American College Dictionary published in 1962. While the idea of ship fenders is ancient in concept, it has, like so many marine systems, evolved to a much higher level of technology and performance over recent decades. By extension, it is also of higher importance for vessel and facility operators and owners to put this technology to work successfully by choosing the best fender system.

Attracting new business is a necessary and vital component in today's financial planning strategy. Any facility that projects the image of being well maintained, professionally designed and whose goal is to offer the safest berthing for their customers is a facility seeking success. A clean, high performing fender system is an integral part of projecting that image to all your visitors. It is hoped that the following brief explanation of how to choose a fender system will provide some assistance in reaching this goal.

PHASE 1 - Review

Prior to selection of fender sizes and types, it is important to evaluate the specific operational requirements of a facility or vessel and the resultant fender performance criteria.

Important information to gather would include: Pier/wharf construction, the largest berthing vessel size, the vessel's maximum velocity, the allowable reaction force, the vessel's hull profile and the full range of vessel sizes. All of these factors can then be used in both the subjective and the mathematical evaluations used to define the fender's required capacities.

Subjective design elements include fender positioning and mounting hardware, weather conditions and fender spacing. The mathematical evaluation includes using mass and velocity calculations together with specific berthing coefficients to define the kinetic energy the fender system must dissipate during berthing and thus the fender size.

PHASE 2 - Design

Energy: To insure safe operations, the amount of energy generated by a moving vessel must be considered. When a poorly chosen fender system's energy absorption capacity is inadequate or the reaction force is too high, the vessel's energy is transferred to the vessel and shore structure in the form of high loads that result in fatigue or damage.

To prevent this damage from happening to you, it is necessary to calculate the energy expected to be generated under all possible conditions and then to choose a fender system in which each fender has the capacity to absorb that total energy. The idea of one fender being able to berth the entire vessel is important for safety factor considerations.



Energy calculations are complex with many variables to be considered. For this reason the support of a competent marine engineer should be sought where possible. Seaward does offer this engineering support at no charge to our customers.

Overload: Another important consideration is the potential for overload. Many rubber systems tend to bottom out after their rated compression is reached, resulting in the potential for severe damage to the vessel and shore facility. In contrast, Seaward's foam filled fenders continue to offer protection by absorbing large amounts of energy when overcompressed. Foam fenders also convert a considerable portion of the compression energy to heat, thus making that energy unavailable to 'bounce' the ship away from the dock, a common problem with pneumatic and some rubber fenders.

Compared to buckling column fenders, foam filled fenders are less stiff in the early stages of compression, which is important in the berthing of smaller ships. A buckling column fender reaches its design reaction force at approximately one half of its rated deflection, and one-third of its rated energy, during which time it is considerably stiffer than a foam filled fender. The foam fender, on the other hand, is softer during the initial compression stages, making it a good choice for berths that must accommodate a wide range of ship sizes.

Reaction Forces: Reaction force is the total load on both the vessel and the shore sides of a fender. This force must be held within allowable limits to avoid serious damage to the vessel and shore structure.

Each type of fender system has its own characteristic force / deflection curve. For example a buckling column fender will achieve its energy rating at a lower compression distance than a foam filled fender. However, while the foam filled fender reaches its rated reaction force only at the rated energy (full compression), the buckling column fender reaches its rated reaction force at about one-third of its rated energy, (one half of full compression). Because of this, the highest reaction force occurs during virtually every

berthing against buckling column fenders, which decreases the structure's life.

Standoff Distance: Standoff distance, as measured between the vessel hull and the shore facility face, may sometimes be an overriding consideration in the selection of the fender size. Considerations would include:

Crane reach, safety criteria, hull profiles, loading or walk ramps and environmental protection considerations.

Standoff distances for standard size SEA GUARD fenders are presented in the fender data tables available online at www.seaward.com.

PHASE 3 - Selection

Fender Size: After the design considerations are completed, the final step is to select the optimum fender. Fenders too large are unnecessary while fenders too small can represent an unsafe berthing. At this point in the process, the engineer will compile all the important design factors and select the optimum fender size. It must have adequate energy absorption capacity, acceptable reaction load forces, meet the minimum standoff distance, and provide at least two if not three fenders for the smallest vessel to berth against safely.

Quantity and Spacing: At least two fenders are required to keep a ship parallel to a dock, and usually three or more fenders are installed for larger displacement vessels or to provide protection along the entire length of a facility. A commonly used spacing for fenders is 30% of the length of the smallest ship. It should be kept in mind that fender contact can be maintained only along the parallel midbody of a ship.

PHASE 4 - Installation

Installation should be accomplished in accordance with the site plans if available, or using good engineering practices.

Hardware: There are various approaches to selecting the fender mounting hardware arrangement. A review of typical mounting installations is available by viewing the Seaward website at www.seaward.com.

The definition of a fender system today is much more comprehensive than it was in our maritime past. And so in kind are our investment strategies. For thirty years Seaward has grown with the industry, moved with new technologies, listened to the needs of our customers, and increased our knowledge of what is required to supply the best marine fender available today. For anyone facing the investment of a new fender system, assistance from the Seaward group is available by calling **540-667-5191**, or online at www.seaward.com

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Petters to Lead NG's Newport News Sector

Northrop Grumman Corporation has elected **C. Michael Petters** as corporate vice president and president of the company's Newport News sector, succeeding **Thomas C. Schievelbein**, 51, who has elected to take early retirement.



Petters will assume his new position on Nov. 1, 2004, and report to **Ronald D. Sugar**.

Northrop Grumman's chairman, chief executive officer and president. Petters,

44, currently serves as the sector's vice president of human resources, administration and trades, and most recently was instrumental in the successful collective bargaining agreement between the company and the United Steelworkers of America. "Mike's experience in heading vital sector functions makes him an ideal choice to lead the Newport News sector in the years ahead," said Sugar.

Petters graduated from the U.S. Naval Academy in 1982 with a bachelor's degree in physics. He earned an MBA from the College of William and Mary.

Bailey Wins \$10M USCG Contract

Bailey Refrigeration Co. won a 5-year, \$10 million contract by the United States Coast Guard. The company will supply and install new main air conditioning plants in nine classes of Coast Guard Cutters, ranging from 65' to 378'. "This contract involves a major commitment on our part," says **Ben Bailey**, the company's president. "Over the next five years, we anticipate installing about 120 air conditioning systems in about 60 ships." According to Mr. Bailey, "Our customized chillers are modular so they can be installed without cutting through the hull, and with minimum removal of interferences. All in all, this saves time and installation labor. In most cases, we can install our systems in the cutter's home port which can be anywhere from Maine to Key West, from the Gulf Coast to the Great Lakes, and from the West Coast to Honolulu." Mr. Bailey says he believes his company won the contract by combining the best technical and financial proposals with proven past performance. Mr. Bailey adds, "Having worked for the Coast Guard before, they were familiar with our high quality service record as well as our competitive prices. They are confident that we will deliver in an efficient and timely manner."

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The New Name of Finnish Shipbuilding

The announced merger of Kvaerner Masa-Yards and Aker Finnyards — both members of the Aker Yards Groups — draws to a conclusion nearly a decade of change within the Finnish shipbuilding community, while providing the technically talented and market capable company with a clear vision for the future.

Long an elite member of the world's select fraternity of "high value ship" builders, the Finnish maritime community has built and maintained a leadership in several technically demanding categories — cruise shipping, LNG carriers and ice ship technology, to name but a few — despite the country's relatively small size, environmental challenges and fierce competition from lower cost competitors in the Far East. Aker Yards Group recently announced the merger of Kvaerner Masa-Yards Inc. and Aker Finnyards Inc.; the new company to be named Aker Finnyards, with effect January 1, 2005.

The Deal

Masa-Yards will acquire Aker Finnyards share capital and change its

name into Aker Finnyards. In connection with the acquisition, the present Aker Finnyards will change its name into Aker Finnyards Rauma and function as a subsidiary to Aker Finnyards until next year, when the subsidiary will be merged with Aker Finnyards.

"Combining our two cruise- and ferry specialized shipyards bring valuable

synergies and strengthens their competitive position in the global cruise- and ferry markets. It is also a natural continuation to our efforts in streamlining our operations," said **Karl Erik Kjelstad**, CEO and President of Aker Yards. "We can easily draw parallels with this merger to the earlier mergers between our German shipyards in Wismar and

Rostock-Warnemünde and the ongoing merger between our Norwegian shipyards, Aker Brattvaag and Aker Langsten." The integration process will be lead by **Yrjö Julin**, who will continue as President of Aker Finnyards, (the previous Kvaerner Masa-Yards). The management team will consist of Senior Vice President, Business Development and Shipbuilding Projects **Bo-Erik Blomqvist**; Senior Vice President, Finance **Jyrki Heinimaa**; Senior Vice President, Design **Sauli Eloranta**; Senior Vice President, Purchasing **Jussi Voima**, Senior Vice President, Production **Erik Skogström**, and Senior Vice President, Human Resources **Marko Konu**. Mr. Blomqvist will also function as Deputy to the President. He will also be responsible for Marketing and Sales.

"Kvaerner Masa-Yards and Aker Finnyards strategies complete each other. The merger gives us a firm foundation to further develop our strategy to be the global market leader in the cruise-, ferry- and technically complex vessel business. After the merger we can con-



The Ultra Voyager cruise ships — the second recently ordered by Royal Caribbean — will be the largest cruise ships in the world at 160,000 gt. The ships will be 15 percent larger than the original Voyager class ship, which is pictured here.

concentrate on further improving our products and services for our customers," said Julin.

The new company will employ 4,500: 1,000 at the Rauma shipyard; 2000 at the Turku shipyard; 1250 at the Helsinki shipyard; and 250 at the cabin manufacturer in Piikkio and Paimio. The combined revenues of Kvaerner Masa-Yards and Aker Finnyards for 2003 was roughly EUR 1 billion.

Currently, Aker Finnyards shipyard in Rauma is building a cruise ship for Birka Line and a third Hamina-class fast surface combatant for the Finnish Navy. Kvaerner Masa-Yards shipyard in Turku is building the world's largest cruise ferry for Color Line as well as the world's two largest cruise ships, Ultra Voyager, for Royal Caribbean International, and the shipyard in Helsinki is working on two orders from Russia, one ice breaking supply and stand-by vessel as well as an arctic container vessel. In addition to the two shipyards, Kvaerner Masa-Yards has an arc-

ships are approximately 15 percent larger in space and passenger capacity than the earlier Voyager-class vessels. "We are satisfied that we together with Royal Caribbean International and the subcontractors have been able to make this an attractive project considering the challenging euro-dollar conditions," said Julin.

"Additionally, we are extremely proud of building these two giants for the cruise market."

"We are delighted to continue to make cruise-ship history with Kvaerner Masa-Yards," said Royal Caribbean International Chairman and CEO Richard D. Fain. "They are truly masters at their craft and are worthy partners."

The new Ultra Voyager's will measure 1,112 x 126 ft. by (339 x 38.6 m) and will stand 18 decks high. Their gross tonnage is around 160,000, which make them 6 percent larger than today's largest cruise ship. The ships will carry 3,600 guests, 500 more than its predecessors in the Voyager-series, and 1,400 crewmembers.



Yrjö Julin, President for Aker Finnyards

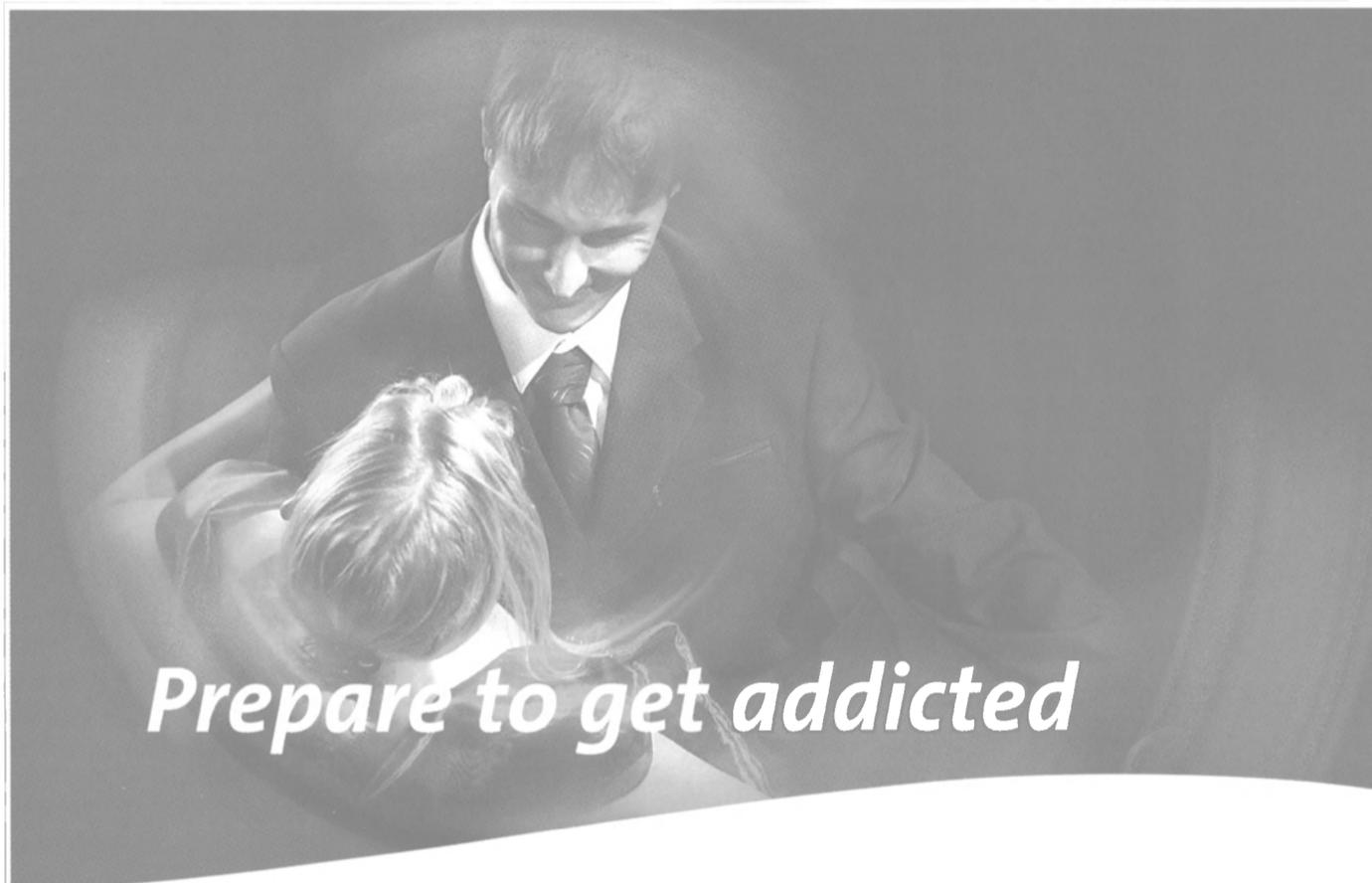
tic technology research center and a sister company, Piikkio Works Oy, is a manufacturer of prefabricated cabins.

Second Ultra Voyager Booked

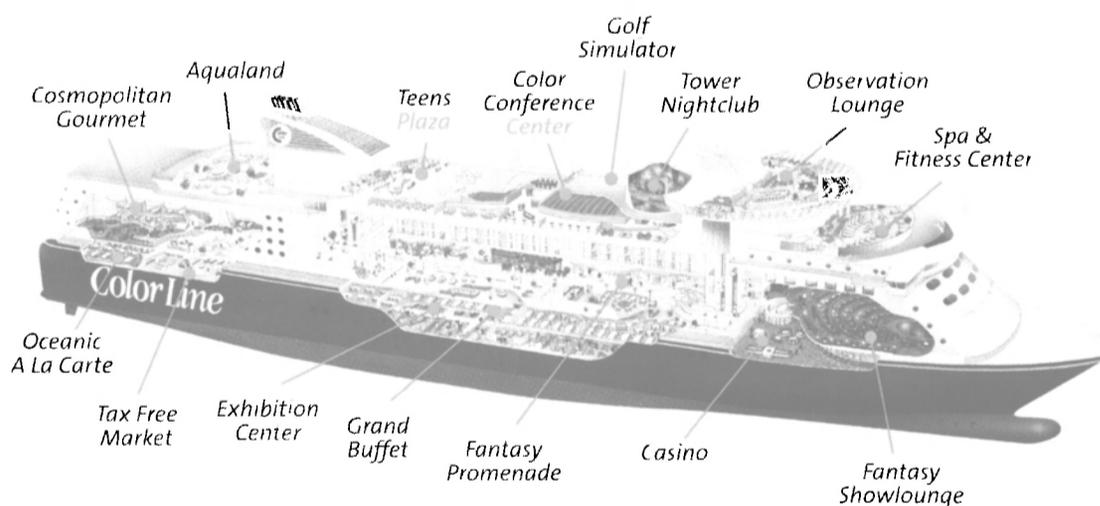
In early September Royal Caribbean confirmed the order of a second Ultra Voyager — the world's largest cruise ship. Valued at approximately \$711 million (€580 million), it is the world's largest cruise ship order in year 2004. Kvaerner Masa-Yards Inc.'s Turku Shipyard, which is a part of Aker Yards, will build both of these ship, with the first to be delivered in May 2006 and the second ship in Spring 2007. These new

Ultra Voyager Main data

Length o.a.	339 m (1,112 ft)
Breadth waterline	38.6 m (126 ft)
Gross Tonnage	approx. 160,000
Passenger capacity, lower bed	3,600
Crew capacity	1,400
Speed, service	22 knots



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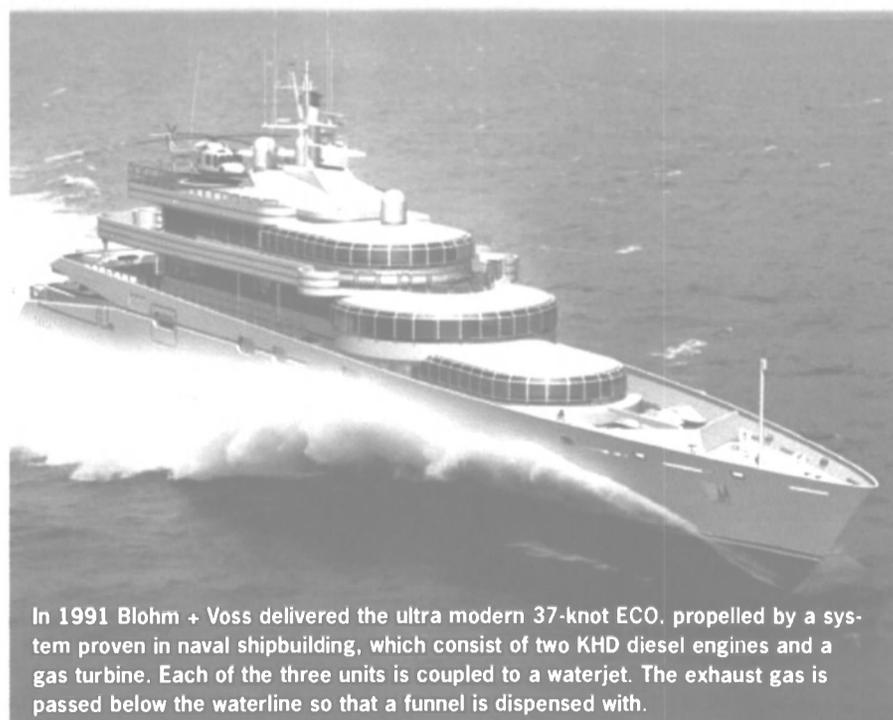
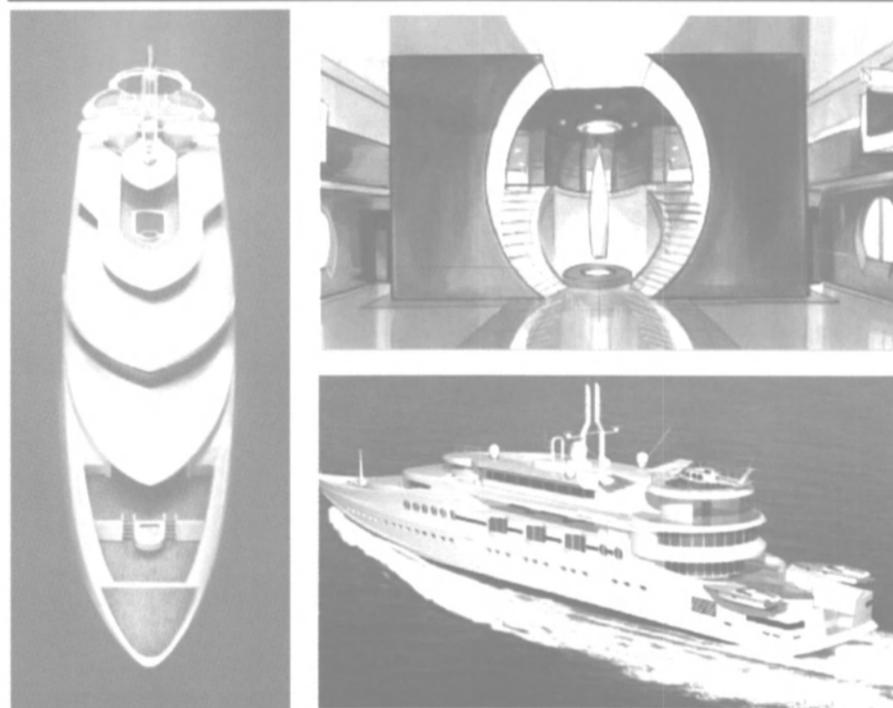
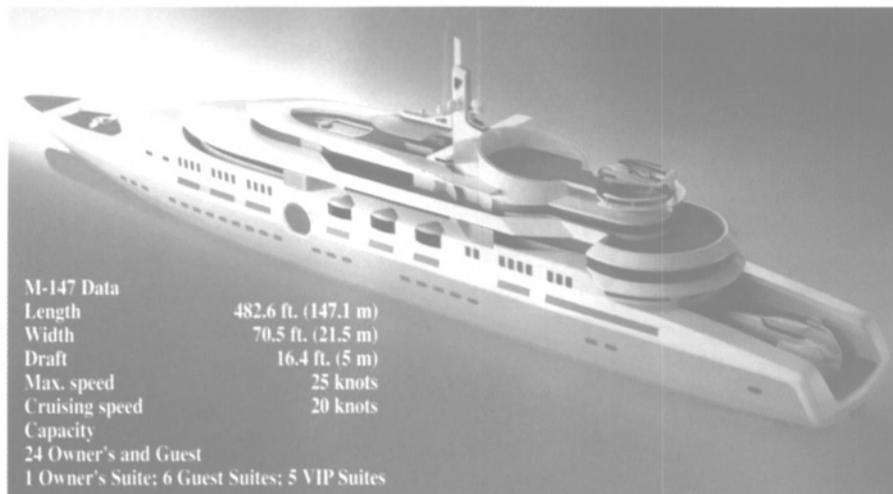
The M-147 Megayacht Makes its Debut

Blohm + Voss GmbH in Hamburg, which has built ships of all variety, shape and size for more than 125 years, has a tradition building megayachts since the mid-1980s. The latest project from its burgeoning stable is the M-147, a 482-ft. (147-m) long luxury yacht, which aims to set new standards in design, outfit and functionality.

M-147 was created in collaboration with the designer **Hermidas Atabeyki**, Paris. His fundamental idea was to develop several thematically different spatial elements instead of long continuous decks and at the same time to retain spaciousness and grand scale. The result is various loggias, balconies, oriels and sun decks. A special characteristic of the M-147 is, among other things, a loggia which stretches over the whole width of the yacht, linking the main salon with the dining room. In the stern a round shaped room with a continuous glass front provides an impressive 270-degree panorama view. In addition the yacht is equipped with a swimming pool on the upper deck, a cinema and a disco. The yacht has a garage for a submarine, with which the owner and guests can go on discovery trips through the underwater world, and a helicopter pad. An 18 m long tender has been integrated into the silhouette. Blohm + Voss took its first yacht building steps before WWII with the Savarona. The 408 ft. (124.4 m) long ship was delivered to the US billionaire couple Cadwaladar on July 24, 1931. With the most luxurious outfit and a speed of 21 knot the Savarona attracted worldwide attention at the time. Following a thorough refurbishment, which included reinstating the fixtures and outfit to the style of the 1930s, the Savarona is still in service today.

The Katalina is the first of the newer yachts which have been built by Blohm + Voss since the mid 1980's. Special attention was paid to reducing vibration and noises when designing this 214 ft. (65.2 m) long yacht. In the case of the 250.6 ft. (76.4 m) Golden Odyssey, Blohm + Voss took on sole responsibility for the design and construction. The exhaust gases of this yacht are discharged directly underneath the surface of the water — an innovative solution for a boat of this size. In 1991 Blohm + Voss delivered the ultra modern 37-knot ECO, propelled by a system proven in naval shipbuilding, which consist of two KHD diesel engines and a gas turbine.

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Q&A with Hermidas Atabeyki, Paris, Designer of the M-147

Q: What makes the M-147 so unique?
A: It goes without saying that part of the uniqueness of the M-147 is due to its grandeur and aesthetic beauty. It would have been easy to rest at that however. I did not set out to create another beautiful boat with good design except on a larger scale. For me it was primarily a question of rethinking the whole concept of living on board. I envisaged a certain way of life in my head and tried to put that down on paper. So throughout the creative process it was not only a question of how good I make it look, but even more importantly how can it better and how can it contribute to the life and



Hermidas Atabeyki

pleasure of those on board. It is this lifestyle concept behind the design that makes the M-147 so unique. And that was the challenge which I think was overcome and accomplished pretty well.

Q: What aspects and currents in modern thinking inspired you to design this yacht? What design elements incorporate these modern aspects, for example?
A: I did not really follow any modern trends in design per se other than to adhere to the fundamental design distinctive to boats. I firmly believe that 'good' design must necessarily reflect the function and utility of the end product. Without a functioning and utile concept behind it, a product, whether a car, boat or object, cannot withstand the test

of time based on aesthetics alone. What is fashionable now becomes outdated very quickly. So my intention from the beginning was to design something that would not only look good 10, 20, 50 years from now, but also function equally well. Following this thinking, I utilized classic geometric forms throughout the vessel while making maximum use of space and volume. Nothing was designed haphazardly, but with the specific intention of how best to optimize each person's experience on board.

Q: Your basic design concept for the yacht provides for various spatial elements such as loggias, balconies, oriels, and sun-decks rather than the traditional long, continuous ship's decks. What are you aiming to achieve here in terms of the atmosphere on board the yacht and the feelings that the passenger experiences?

A: In keeping with the lifestyle concept, the goal was to imagine every possible scenario owners and guests would want to experience on board and to make that a reality. In doing so, I paid particular attention to ensure each person's privacy. For example, guests and owners have the option of enjoying the outdoors in complete privacy should they choose to do so as each cabin is fitted with a private sundeck. On the loggia one can enjoy the outdoors without being directly exposed to the elements. Other unique features include a helicopter deck designed to allow three helicopters to be stored, maintained and refueled out of sight via descending elevators; a port housing a 12-person submarine which can descend directly into the water completely undetected so as to ensure maximum privacy; and a sundeck equipped with a bar and fully adjustable canopies which can even be lowered to completely cover the bar area and its contents during high speed cruising. So it was really a question of providing various options and flexibility for those on board without constraints. It would have been foolish to follow traditional interior and exterior layouts (ie. narrow and long ship decks surrounding a central living area) for a vessel of this magnitude. That same feeling of grandeur that the M-147 exudes from the outside must be felt on board as well. Another goal was to create a different rhythm of life on each deck and that is why each deck has its own personality and mood — the living and dining areas are on one deck, the cabins on another deck, the leisure areas such as the salon and disco on yet another.

Q: The stern cabin provides a 270-

degree panoramic view with which you give passengers a feeling of infinite distances, and which will have its greatest effect when she is leaving port. What was your intention here?

A: Again, the intention was to create a scenario, an atmosphere of eased luxury yet maximum impact — to be able to

entertain guests in a grand living room and walk leisurely through an unusually expansive open air loggia into a circular dining room with 270 degree unobstructed views no matter where one is seated - that is all part of the fantasy and enchantment of entertaining on this level. To heighten the drama, I ensured

that the glass panels surrounding the dining room could be easily opened up so that you can experience the sensation of dining on the water virtually without any enclosure. This same dramatic impact is also evident in the main entrance where you can immediately observe not only all the decks above but

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Megayachts

also the bottom of an immense glass swimming pool, a technically challenging feat to accomplish in itself. Whether during the day with the sun shining through it or whether at night with the interior pool lights lit, each scenario is equally dazzling and impressive.

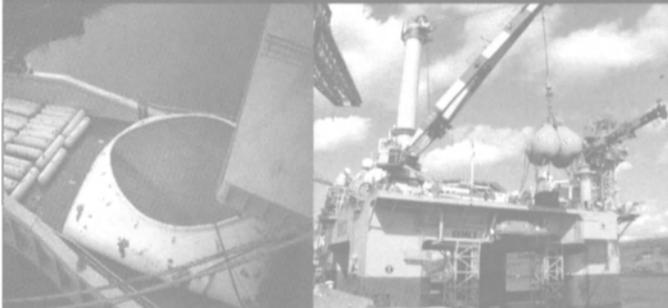
Q: One special feature of the M-147 is the loggia, which runs from the saloon and dining room across the whole width of the yacht. Is this area designed to form a counterpoint to the various parts of the deck? How do you think it will be used?

A: The loggia is in fact one of the distinguishing features of the M-147 and one of the most flexible. It can serve as a transition between the living and dining areas, it can be used as a main, less formal entertaining area and it can be used as a social gathering point. It pro-

vides you with an area where you can actually sit inside yet continue to feel as if you are outdoors or it can be completely enclosed due to the movable glass panels. I think the loggia will be the one common area which will be utilized and enjoyed the most.

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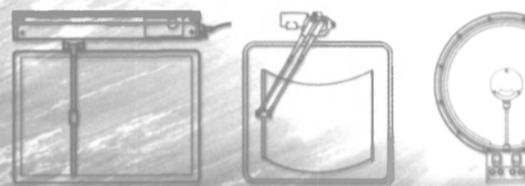
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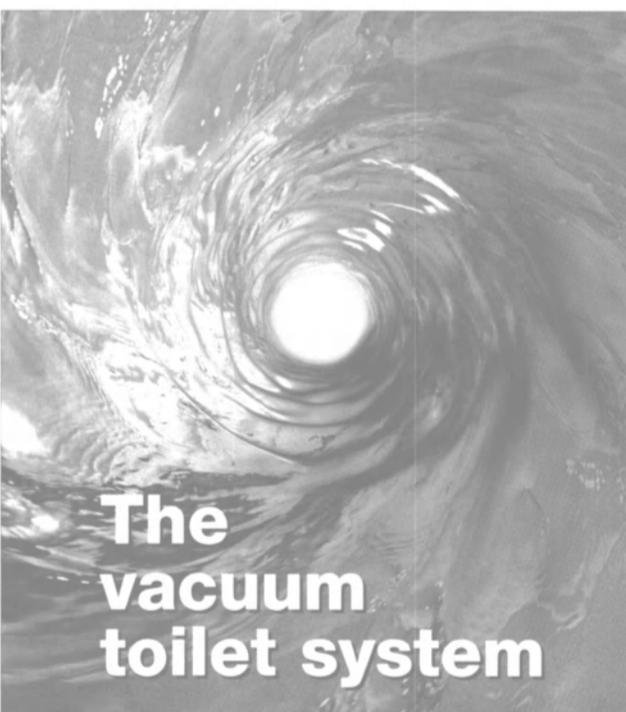
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Burger Boat's on a Binge



Burger Boat Company of Manitowoc, Wis., has emerged as a premier builder of U.S. megayachts, with a number of projects in the pipeline, most notably the Mirgab V (pronounced meer-gahb). In fact, history was made when the company announced Mirgab V, as at 144-ft. (44 m), the Tri-Deck vessel is the largest single, new yacht construction project in its 141-year history: The project represents a quantum leap for the builder who just eight months before this contract was announced had launched the largest Burger ever, the 127-ft. Tri-deck for **Mr. and Mrs. Charles Walgreen, Jr.** "There has been an unprecedented amount of interest in larger vessels and securing this very special project validates our commitment to this vital segment of the market," said **David Ross**, President & CEO of Burger Boat Company. In order to accommodate the larger range of yachts, the company built new facilities in the form of a state-of-the-art, 42,000-sq.-ft. world-class manufacturing complex, which was completed in July 2004. Mirgab V was commissioned by the Alshaya family, a well-known and highly respected Kuwaiti family who has owned several yachts and plans to base the vessel in the Mediterranean on the French Riviera. Mirgab V will be ABS certified and will be Burger's first fully MCA compliant yacht which will further elevate the company's impressive reputation for quality construction. Mirgab V will have several very unique features including side deck bulwarks that fold down into a verandah, an integral swim platform that converts to a grand stairway to the sea, a pneumatic circular elevator that raises three deck levels, seven staterooms in the owner's party and five in the crew's area. Delivery is scheduled for the summer of 2006.

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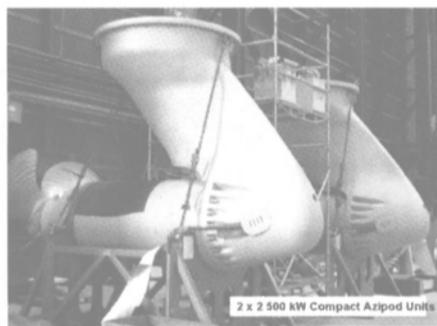
China Enters Market

Despite having no market for the product in its homeland, at least one prominent Chinese entrepreneur is trying his hand at the burgeoning megayacht market. According to a recent edition of the *New York Times*, **Roger Liang** is a Hong Kong hotel and real estate developer who is the owner and managing director of Kingship Marine, a company that built and runs a yacht factory. Angling for export sales — not a foreign concept for Chinese manufacturers — Kingship Marine is hoping to leverage its lower costs into increased sales. Some estimates indicate that a \$10 million yacht bought elsewhere could be sold for as little as \$7 million from the Chinese yard.

While the market for megayachts around the world continue to boom, market watchers will monitor closely the progress of Kingship, particularly given general misgivings regarding the quality to be expected from a start-up operation in China.

According to the *New York Times*, its first yacht has already been sold to a European buyer, and a second deal is imminent.

Pod Power



The Compact Azipod propulsion solution from ABB has been found to be of benefit on several new high profile new-buildings, including *Ambrosia III* at Benetti in Italy. In addition, the innovative propulsion system is currently being installed on three megayachts under construction in Europe, and according to the company, there are a number of projects — for installation in vessels ranging from 180 to 500 ft. — in negotiation.

The Compact Azipod propulsion unit is a modular design with a relatively low number of components, which helps it maintain a low maintenance requirement. As with other pod solutions, this system provides unprecedented advantages in terms of space availability and arrangement, and is particularly suited to the megayacht market as it is a comparatively low noise and low vibration solution.

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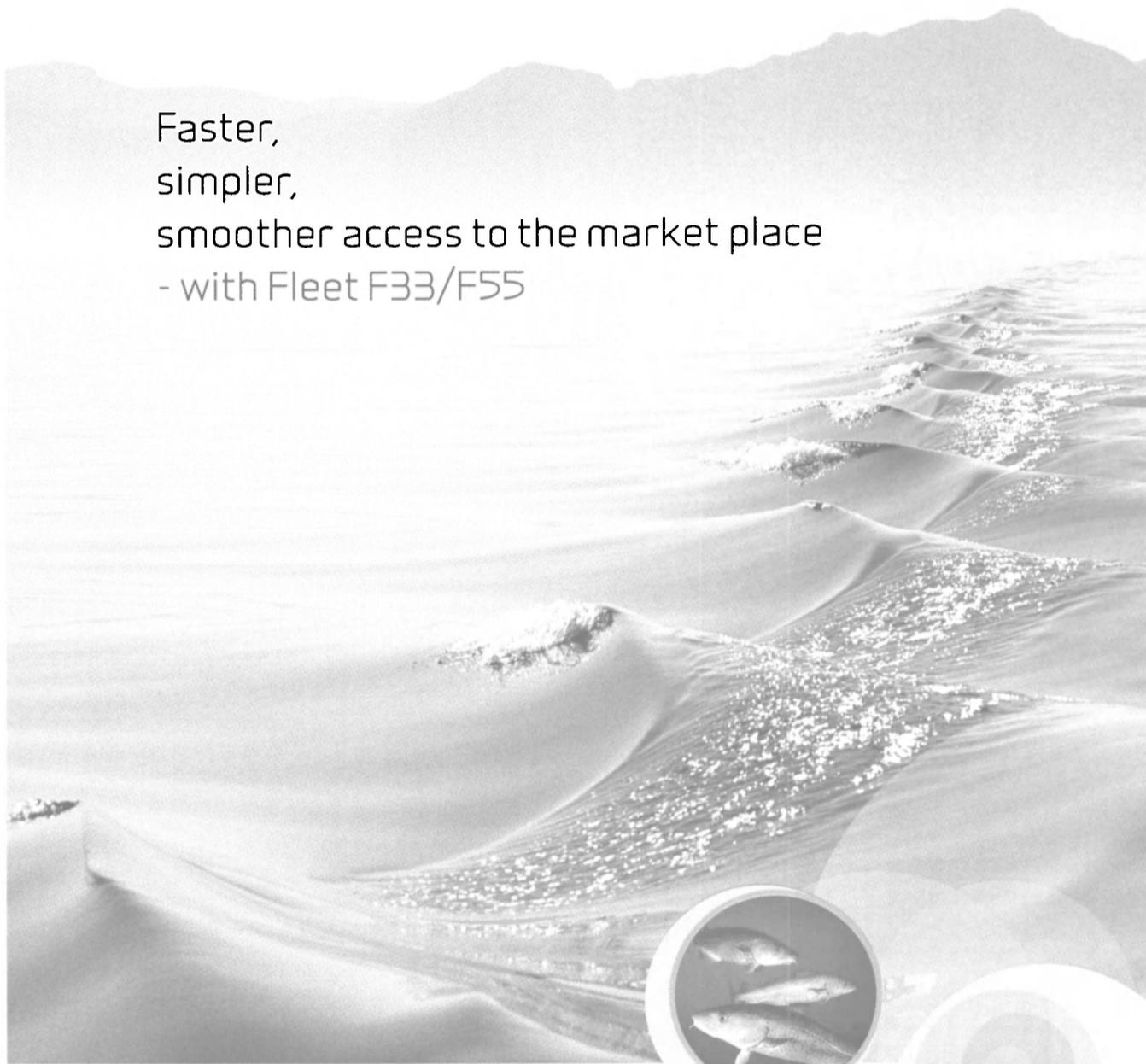
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Utopia: Real, Not Imagined

The largest Feadship to date has just been completed by the De Vries Shipyard, a 235 ft. (71.6-m) vessel named Utopia, which is currently being offered for sale. Utopia was initially part of a two-Feadship order placed in 2001 by a repeat owner, who passed away

before the projects could be completed. His widow decided to finish the other boat for herself and her children, and took delivery of the 126.5 ft. (38.6-m) Katrion in fall 2003. Utopia had been her husband's dream project, however, and so the family reluctantly asked

Feadship to complete the yacht on spec and put her up for sale on behalf of the estate. Utopia is arguably the most complex Feadship yet built. The two-story engine room, with its separate control and generator rooms, is immaculate in every way. The helicopter deck includes a wealth of safety measures, such as a special device originally developed for French military purposes, which attaches the helicopter to the deck within a fraction of a second. Two tender bays on the lower deck house a Chriscraft Launch 28 and a custom-built Ribtec Riviera 850, launched by crane through hydraulically operated doors in the hull. Dedicated entirely to watersports equipment and toys, the lazarette is gigantic.

While being extraordinary in technical terms, Utopia is also very much a family boat. The middle deck is devoted entirely to the owners, and there are five guest suites; three on the main deck and two on the lower deck. While a yacht of this length could easily have accommodated several more cabins in a different layout, the emphasis here is on spaces that are very generous in size. This



onboard residence concept is further supported by top-of-the-range living facilities. There is a myriad galley and pantry options spread throughout the yacht, for example, as well as excellent accommodations for up to 18 crew members.

Utopia has enormous windows that give a bright and almost al fresco feel to



Security Concerns And Superyacht Management

by Erika Carver

Running a superyacht in 2004 is just not as easy as it used to be - if it ever was. Classification society regulations, crew qualifications, port and flag state rules, safety and security issues are a few of the newest responsibilities owners, or more likely, captains have to manage.

These additional procedures have brought about a new trend in the yacht management industry with the creation of more shore-based yacht support teams geared towards facilitating the ease of a superyachts' operational concerns.

The new regulations in ISPS security and ISM safety, in particular, have sent luxury yachts in search of shore-based support because of the requirement for a "Designated Person Ashore" and "Company Security Officer" for commercial yachts over 500 Gross Tons.

"Non-compliance with ISPS can be very awkward for a commercial yacht because it can restrict the vessels' movements or delay her. All U.S. ports and

various other countries are becoming increasingly vigilant in respect to ISPS," said Graham Thompson, Senior Project Manager of Superyacht Technologies, a Technical Management company based in Fort Lauderdale, which specializes in technical solutions for superyachts, such as class registration, ISPS and ISM Management, new construction and refit consulting.

Yacht management companies aim to provide shore-based support ranging from financial accounting administration to ISM code compliance. Delegating some of the more awkward tasks and tedious paperwork to a specialist company can provide much needed assistance to over-burdened captains.

"As a Management Company, we view hundreds of documents per month relating to legislation, safety and security issues, commercial yacht regulations and endless government warnings. We disseminate the relevant information to our fleet Captains, ensuring that they are informed and in compliance. This leaves them the time to get on with the job of

running their boats," said Peter Baker, Managing Director of Superyacht Technologies.

The trend in management companies seems to be twofold. Large parent companies acquire or enter alliances with brokerage houses, builders and management companies thereby creating a conglomerate of services like charter marketing, brokerage sales, yacht builds, technical management, and crew placement.

Some examples are CamperNicholson International/Rodrigues Group, which acquired Bob Saxons and Associates, and the latest merger between Benetii, Frasers and VYachts.

On the other end are the small, independent firms with no brokerage ties like Superyacht Technologies and Hill Robinson Yacht Management Consultants in Antibes that focus only on technical assistance like ISM, ISPS, budgeting and account management for a set fee.

A tricky area for these companies is the word "management." Most Captains

don't like the idea of having a shore side company tell them how to manage their yacht.

But according to Baker, the company plays more of a consultant role in the yacht's affairs. "We advise the Captain on how best to achieve the standards of excellence required of him and his team, but of course the final decisions on operational matters rest with him. However, we do review procedures onboard the yacht and advise immediately if there are areas that could be improved," he said.

As yacht operation becomes more complex, it's evident that the role of Yacht Management Companies is set to increase.

The new MCA Large Yacht Code is likely to have a requirement for a Safety Management System for all commercial yachts under 500 tons. With a majority of luxury yachts registered under a red ensign flag, new regulations could guarantee continued work for companies providing technical assistance.

Circle 15 on Reader Service Card



taken up to the ceiling cornice. The interior decor has classic influences in terms of its paneling, while the furniture pieces are modern and somewhat stylized. The light oak with mahogany inlays and inlaid burl panels used in

most areas enhances the contemporary feel. Overall, interior designers Redman, Whitely, Dixon, working initially with the owner's interior stylist **Michael Mcquiston**, have succeeded in retaining a sense of continuity through-

out the vessel while also introducing subtle levels of variation in the carpets, fabrics and marbles. The result is a flowing interior that exudes understated elegance within a luxurious environment.

Circle 6 on Reader Service Card



many areas. High ceilings enhance the immense feeling of space, as does the way in which the door heights have been

Leadship Hull 667

Utopia main characteristics

- Length, o.a. 235 ft. (71.6 m)
- Length, waterline 200.5 ft. (61.1 m)
- Beam, molded 37.5 ft. (11.4 m)
- Depth (midships) 20.4 ft. (6.20 m)
- Draft (loaded) 11.8 ft. (3.6 m)
- Flagstate Cayman Islands
- Max. cont. sailing speed (half loaded) 16 knots
- Cruising range at 12 knots 5,000 nm
- Helicopter capable
- Fuel capacity 41,400 U.S. gal.
- Freshwater capacity 9,900 U.S. gal.
- Clean lub oil capacity 680 U.S. gal
- Dirty lub oil/sludge capacity 600 U.S. gal
- Grey water capacity 2,950 U.S. gal
- Helicopter fuel capacity 1,000 U.S. gal
- Gasoline capacity 250 U.S. gal
- Tenders : (1) Chriscraft Launch 28
- (1) Ribtec Riviera 850 custom built RIB
- (1) Ribtec Riviera 500 RIB

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..... by Redman Whiteley Dixon

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- Cont. rating ... 1492 kW (2000 bhp) at 1600 RPM
- Gearbox Reintjes
- Gensets (3) Caterpillar
- Emergency Generator Caterpillar 3306B DITA
- Shafts (2) Akerboom "MP" oil bath systems
- Propellers (2) Van Voorden 5-blade
- Steering Gear Van der Velden/Barkemeijer
- Rudders (2) Barkemeyer flap type
- Bowthruster Jastram
- Stern thrusters (2) Jastram
- Fire Fighting Hifog
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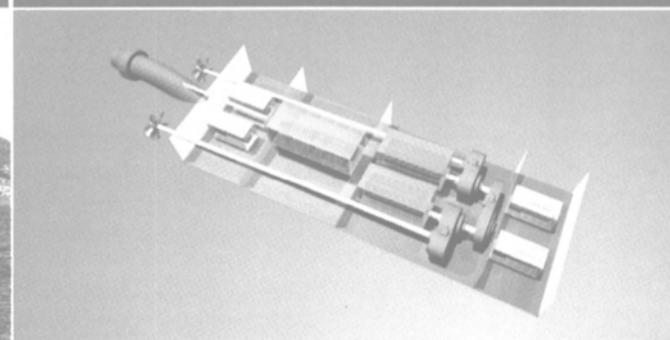
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SEI: Intent on Keeping Customers Cool

The engine room has, is and will always be the heart of safe, efficient marine and offshore operations. As tragedies of the past have proven, investing a little more from the start usually reaps big dividends in terms of running and maintaining a safe and efficient operation.

One company that is solely geared to ensuring offshore and vessel operators maintain a safe engine room is Superior Energies Inc. (SEI) of Groves, Texas, a manufacturer of thermal insulation blankets or covers, acoustical blankets and fire proofing blankets or covers for marine, industrial, power generation and engine markets. Geared primarily to serve the needs of the international offshore drilling/production platforms, marine vessel and propulsion, markets, SEI's product line is broad, and includes

- **Temp-Set Covers**, a high temperature thermal solution for exhaust systems, engine manifolds, and silencers. Addressing personal protection, better engine performance, and emission reductions.

- **Accousta-Set Covers**, for noise attenuation or decibel reduction.

- **High-Temp Accousta-Set Covers**, for the high temperature applications needing decibel reduction.

- **Fire-Temp Cover**, for actuated valves and systems requiring fireproofing to enable operation in the event of fire.

- **Spray-Shield**, protection from flange gasket failure.

Fire-Temp Covers — fire proofing for actuated fuel valves in the event of fire — is the latest addition to the SEI line-up, and has effectively helped the company further expand its expertise in the

marine field. These covers are designed to provide a window of opportunity to shut off the fuel source to prevent catastrophe. ABS design approved for UL1709, & ASTM E119 Rapid Fire Test ABS Rule: 4-6-4/13.5.3 SVR & 4-4-4/3.7 90 Meter A 30. As the marine industry has evolved, so to has not only the SEI product line, but its approach to marketing and selling its products. The company today is much more involved on the ground floor, having established relationships with manufactures of engines and components such as exhaust silencer or muffler companies, to help sell its products as an accessory.

As environmental regulations continue to tighten and the quest to minimize thermal issues in the engine space become ever more critical to running a safe and efficient propulsion system,



Company at a Glance

Name	Superior Energies, Inc.	
	Groves, TX	
Tel - 409-962-8549	—	Fax - 409-962-4027
Web	http://www.insulationsei.com	
E-mail	sei@insulationsei.com	
Contact/Title	Sean Scott, Vice President	
No. of Employees	70+	

SEI sees opportunity, becoming more ensconced with the engine and exhaust manufactures to position its products as accessory items. To further ensure its long-term prospects, SEI is becoming a direct OEM, certifying its product lines through ABS, and it continues to develop knowledge on the latest equipment advances so that its current and future products are engineered to best address thermal, acoustical, fire proofing, personal protection and emission issues.

Circle 2 on Reader Service Card

Parker Fluid Control

Parker Fluid Control Division, manufacturers of the Skinner and Gold Ring lines of solenoid valves and Sinclair Collins line of process control valves, now offers the Valve Actuation Series of solenoid valves, designed for applications in which solenoid valves must predictably and reliably actuate the movement of larger process valves to control the flow of liquids or gases. The Valve Actuation Series includes the 7300 and 2300 lines, which are available in both pipe- and Namur-mounted models. They are constructed of hard-coat anodized aluminum, brass (7300 Series only) and stainless steel, and offer both three-way normally closed models and four-way directional control models. All Valve Actuation Series solenoid valves are compatible with lubricated or dry air, inert gases, and other gases compatible with the materials of construction. They have a pressure range of 30 to 150 psi and a temperature range of -40 to 75 degrees Celsius. The valves can achieve a cycle life of up to 2 million with lubricated air, providing long-lasting dependability for applications.

Circle 20

Hoffer Flow Controls

Hoffer Flow Controls presents the CAT Series of flow electronics, a new compact design of flow conditioners, amplifiers, and transmitters for use in combination with Hoffer turbine flowmeters. This trio of microprocessor based devices is capable of providing signal conditioning and amplification, as well as signal transmission depending on cus-



tomers needs. Several enclosure options are available including general purpose with and without DIN rail mount, NEMA explosion-proof and ATEX-approved explosion-proof. CE compliant units are optionally available. The architecture of these units utilizes a combination of different circuit boards to create the many different options. Each unit is capable of holding 3 boards.

Circle 21

W&O Supply

W&O Supply, a marine supplier of pipes, valves and fittings, represents many manufacturers of PVF products. In addition to these products, W&O Supply has designed and manufactured a line of cast steel valves under the trade name SPACE. The SPACE cast steel valve line is U.S. Coast Guard Accepted, is ABS Type Approved (Certificate Number JS 301531) and has been used in the industry for over 30 years. SPACE cast steel valves are available in gates, globes, checks and angles in size ranges of 2 in. through 24 in.

The SPACE line is available in hard-to-get marine sizes such as 3.5 and 5 in. SPACE cast steel valves are available in marine bronze, CR-13, 316 Stainless, monel and full stellite trims. The company's valve shop can customize and modify SPACE cast steel valves with indicators, by-passes, reach rod systems, actuators and many other options upon a customer's request.



SPACE has a proprietary design that prevents common problems of galling. In the common size non-rising stem valves, W&O Supply has upgraded the stem packing with high-quality packing that provides higher lubricity and better protection for the valve stem. W&O Supply tests and certifies each valve. Once tested and inspected, the valves are documented, tagged and distributed to one of the 14 W&O Supply branches located throughout the United States and Europe. SPACE valves are used throughout the world on barges, container ships, tankers, offshore rigs, ferries and fishing boats.

Circle 22

Maricollar

Vulnerable points where plastic pipes pass through steel decks and bulkheads can be simply and cost-effectively protected from fire with a user-friendly device developed in the UK for shipbuilders and repairers. Maricollar, available from Belview Distribution, is a 2.4 in. (60mm) deep collar, made from 316 grade stainless steel and containing layers of intumescent graphite material. It is simply clipped around a plastic pipe with a stainless steel toggle fixing and screwed to the deck or bulkhead. A second collar, fitted in the same way on the opposite side of the deck or bulkhead, completes the installation. In the event of fire, the graphite layers inside the collar expand in the heat to crush the plastics pipe as it softens. This seals the opening through the deck or bulkhead with a thick, intumescent char, which, says Belview, will hold back fire and smoke for up to 60 minutes. Maricollar is available in a range of diameters, with layers of intumescent material that vary in thick-

ness to suit pipes of different materials and sizes - including polybutylene pipes with diameters between 0.6 in. and 3.5 in. (16 mm and 90 mm); polyethylene pipes up to 4.3 in. (110 mm) in diameter; and uPVC pipes up to 6.3 in. (160 mm) in diameter.

Circle 23

Midland Manufacturing

Midland Manufacturing announced a newly revised Service Manual incorporating up-to-date information for the Installation, Operation, Inspection and Maintenance for its eight pressure relief valve product lines (A-1000 through A-3700 series). Highly detailed, the manual presents meticulously outlined procedures, including highlighted warnings about critical processes. Instructions are supported by liberal use of line drawings and four-color photographs as guides to the proper procedures. All Midland pressure relief valves are AAR Approved and manufactured in accord with Midland's ISO 9001:2000 Quality program.

Circle 24

World Wide Metric

New Pipe Couplings and Repair Clamps from World Wide Metric. These couplings offer quick installation for all types of pipes and require no special tools for assembly. Completely corrosion free and lightweight space saving construc-

tion makes these couplings easy to install even in restricted spaces. Ideal for use in Agriculture, Heavy Constructions, Off-Highway, Shipbuilding, Offshore, Water and Gas supplies, Building Construction and Civil Engineering, Power Plants, Machinery, Design Work, Industrial Plants and Plant Maintenance. Available in Flex and Grip type, hinged or double locking and repair clamps.

Circle 25

Spence Engineering Company

Spence Engineering Company announces its' Figure 31 Bronze Series Safety Relief Valves which meets ASME Section I & VIII Code for Steam, Air and Non-hazardous Gas Service. The Figure 31 Series Bronze Safety Relief Valves are ideal for over-pressure protection of steam boilers, unfired steam pressure vessel service and lines, pressure reducing stations, accumulators, sterilizer, air compressors, pneumatic systems and OEM equipment.

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Circle 26



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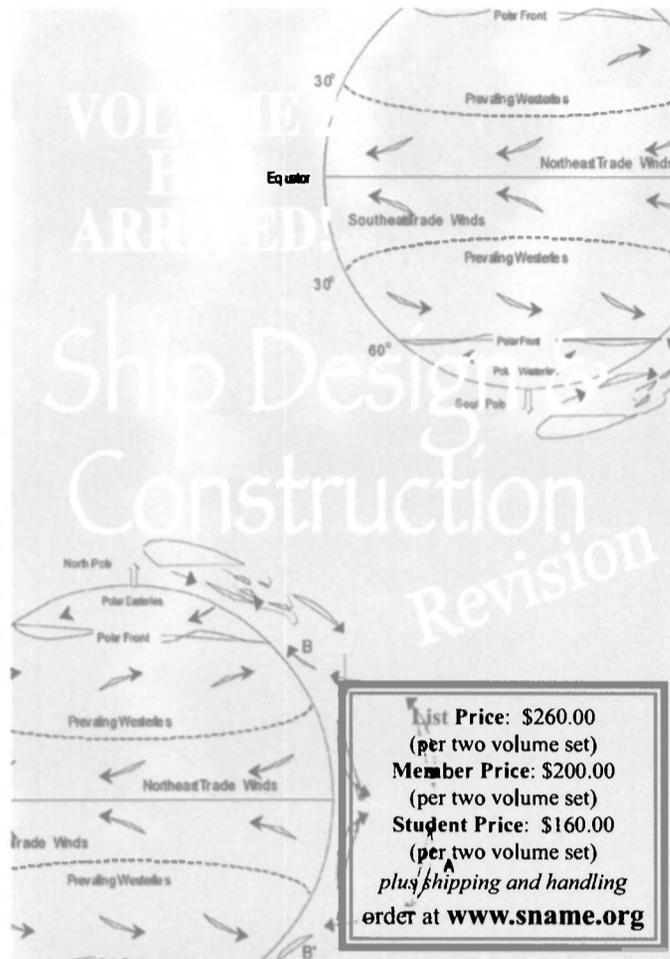
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RIB Guide

Azimuth, Inc.

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 Contact: Craig Hartzell;
 Email: corp@azimuthinc.com
 Web: <http://www.azimuthinc.com>

Company description: Azimuth, Inc. is a service-connected disabled veteran owned small business.



Azimuth's Engineering group is an ISO 9001:2000 registered facility. Azimuth's Rigid Inflatable Boat (RIB) -- Integrated Bridge System (IBS) represents our third generation of extreme-duty electronics designed specifically for operation on high speed, open and closed cockpit patrol boats. The system supports: • Craft monitoring • Navigation • EO sensors (FLIR) Comprehensive, intelligent alarms monitoring and management • Communications (Military and civil) • Situational awareness

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SeaArk Marine

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Contact: Cheryl Berryman
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Web: www.seark.com

Company description: SeaArk Marine, Inc. manufactures all-welded aluminum, work, patrol and excursion boats. Most recently, SeaArk Marine, Inc. delivered three distinct mission-specific patrol craft to the Baltimore City Police Marine Unit. The 36-ft. Dauntless is powered by twin Caterpillar 3126 turbo-charged inboard diesel engines rated at 420 hp each, reaches speeds of 31 knots. The variable dead rise deep-V hull, designed by C. Raymond Hunt & Associates, is constructed of all-welded marine grade aluminum.



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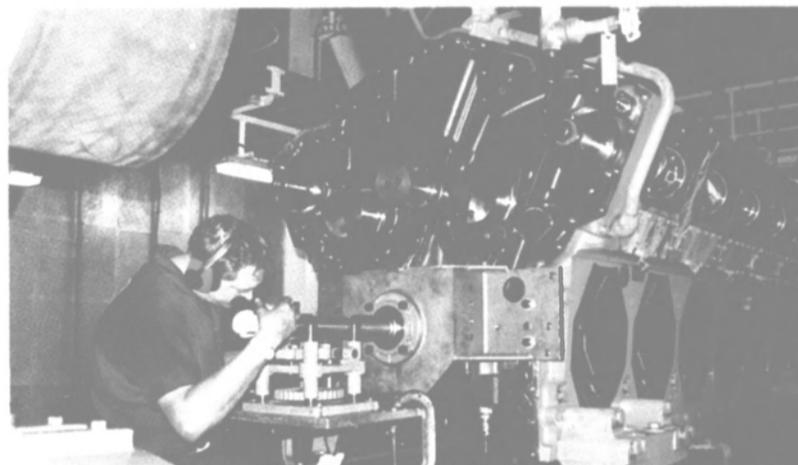
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Recland Genstar Inc., Executive Plaza IV, Hunt Valley, MD 10912-1031

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Thoron Bearings Inc., 3225 Mainway, Burlington, Ontario L7M 1A6, Canada

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Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544

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Albacore Research LTD., 304-3960 Quadra St., Victoria, B.C. V8X 4A3, Canada, 250 479-3638, 250 479-0868, Marketing@ShipConstructor.com, Contact: Silke Sommerfeld, www.ShipConstructor.com
Autoship Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoship.com
Cadmatic, Ostra Strandgatan 72 (Vita Huset), FI-20810 Turku, Finland
Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368

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Skookum, P.O. Box 280, Hubbard, OR 97032
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Marine Fenders International, Inc., 909 Mahar Avenue, Wilmington, CA 90744, 310-834-7037, 310-834-7825, jerry.thermos@mpowercom.com, Contact: Jerry Thermos
Maritime International, 100 E. Vermilion St. #212, Lafayette, LA 70501
Schuyler Rubber Co., 16901 Woodred Rd., Woodville, WA 98072
Trelleborg Engineered Products, P.O. Box 98, Clearbrook, VA 22624
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Viking Fender Co., 1160 State St., Perth Amboy, NJ 08861

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Boli Filter, 9822 General Drive, Ste. 180, Plymouth, MI 48170
Hellan Strainer, 3249 East 80th St., Cleveland, OH 44104
US Filter, 2 Milltown Ct., Union, NJ 07083

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Waltz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

K-9 DETECTION

Sun Slate Specialty K-9s, 1500 Beville Road, Daytona Beach, FL 32114

KEEL COOLERS

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950.

Contact: Richard Spangler

LASER ALIGNMENT

Ludeca, Inc., 1425 NW 88th Ave, Miami, FL 33172

LEAK REPAIR

Indumar Products Inc., 2500 Tanglewilde, Suite 260, Houston, TX 77063

LIFEBOAT TESTING

Water Weights, Inc., 5139 Brook St., Suite E, Mont Clare, CA 91763

LIFEBOATS/DAVITS

Umoe Schat-Harding, Inc., 912 Hwy 90 East, New Iberia, LA 70560

LIFEBOATS/RAFTS

DBC Marine Safety Systems, 101-3760 Jacobs Rd., Richmond, BC V6V 6T3, Canada

Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

Wolong International, 151 Chin Swee Road -03-14, Manhattan House, 169876, Singapore

LIFESAIVING EQUIPMENT

C.M. Hammar AB, August Barks Gatan 15, 421 32 Vastrå, Frolunda, Sweden

Umoe Schat-Harding, Inc., 912 Hwy 90 East, New Iberia, LA 70560

Viking Life Saving Equipment, 1400 NW159th Street Suite 101, Miami, FL 33169

LIFT EQUIPMENT TESTING

Water Weights, Inc., 5139 Brook St., Suite E, Mont Clare, CA 91763

LIGHTING PRODUCTS

Phoenix Products Co., Inc., 8711 West Port Avenue, Milwaukee, WI 53224

LIGHTING SYSTEMS/ EQUIPMENT

ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247

L.C. Doane, P.O. Box 975, Essex, CT 06426

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, 775-832-2422, 775-832-2424.

maritimeas@charter.net. Contact: unknown. www.marinesigns.com

LINE & NET CUTTERS

Spurs Marine, 201 S.W. 33rd St., Ft. Lauderdale, FL 33315

LUBRICANTS/LUBRICATION SYSTEMS

Benjamin R. Vickers & Sons Ltd., Airedale Mills, 6 Clarence Road, Leeds, W. Yorkshire LS10 1ND, UK

MACHINERY MAINTENANCE, REPAIR & TESTING

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

MANEUVERING EQUIPMENT

Schottel GmbH & Co. KG, Manjer Str. 99, D-56322-Spay, Rhine, Germany

MARINE & OFFSHORE SIGNAGE

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, 775-832-2422, 775-832-2424.

maritimeas@charter.net. Contact: unknown. www.marinesigns.com

MARINE DECKING & FLOORING

Lonseal Flooring, 928 East 238th Street, Carson, CA 90745

MARINE DIESEL ENGINES

W rtsil North America, Inc., 16330 Air Center Boulevard, Houston, TX 77032

MARINE ELECTRONICS

ACR Electronics Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247

Comark Marine, 93 West Street, Medfield, MA 02052, 800-280-8522, 508-359-2267.

sales@comarkcorp.com

DRS Technologies, 5 Sylvan Way, Parsippany, NJ 07054

Hatleland Display, Bogstadveien 19, N-0355 Oslo, Norway

Jotron Electronics, Box 85, NO-3280T Jodalving Norge, Norway

Marine Electronic Solutions, 1522 Crabapple Cove, Jacksonville, FL 32225

Midwest Instrument, 6500 Dobry Dr., Sterling Heights, MI 48314

Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden

MARINE ENGINEERING

Elliott Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107

Heger Dry Dock, Inc., 13 Water St., Holliston, MA 01746

Ocean Crest, 2 Pidgeon Hill Dr., Sterling, VA 20165

MARINE EQUIPMENT

Rasmussen Equipment Co., 8727 5th Ave S, Seattle, WA 98108

Scardana Americas Bkg., 502 Empire St., Greenfield Park J4V 1V7, Canada

Waterman Supply, P.O. Box 596, Wilmington, CA 90748

MARINE FURNITURE

Deansteel Mfg., 111 Merchant St., San Antonio, TX 78204

MARINE GLASS

ProCurve, 3535 Davisville Rd., Hatboro, PA 19040

MARINE HARDWARE

HMS Marine Hardware, 333 W. Merrick Road, Valley Stream, NY 11580-5219

MARINE HAZARD RESPONSE

Marine Response Alliance LLC, 1102 SW Massachusetts St., Seattle, WA 98134-1030

MARINE LIGHTING & ELECTRICAL SUPPLIES

Manning Electric Inc., 154 27th Street, Brooklyn, NY 11232, 718-832-2488, 718-832-2493.

info@manning-electric.com. Contact: Anthony Menditto, www.manning-electric.com

MARINE MANAGEMENT

Hornblower Marine Services, P.O. Box 112476, Campbell, CA 95011-2476

MARINE POWER PLANT SYSTEMS

Auramanne Ltd., Box 849, FI-20101 Turku, Finland

W rtsil North America, Inc., 16330 Air Center Boulevard, Houston, TX 77032

MARINE SERVICES

International Shipping Agency, Freeport Harbour Complex Bldg #2, Ste. #9, Freeport F41109, Bahamas

MARINE VENTILATORS

Tuthill Energy Systems, PO Box 8000, milbury, MA 01527

MARITIME TRAINING & SCHOOLS

Maine Maritime Academy, MMA, Castine, ME 04420-5000

Marine Safety International, Marine Terminal, Laguarda Airport, NY 11371

METALIZING

Climax Portable Machine, 2712 E. 2nd St., NEWBERG, OR 97132

Cutting Edge Metal Processing Inc, Po Box 42, Mobile, AL 36601

DMC Clad Metal Division, Po Box 680633, Houston, TX 77266

International Metalizing & Coatings, PO Box 201, Cherry Hill, NJ 08003

MONITORING SYSTEMS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884

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

Pnme Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

MOORAGE FACILITY

Sea Ark Marine, P.O. Box 210, Monticello, AR 71655-0210

MOTION CONTROL SYSTEMS

Seastate Ply.Ltd., 2 Egmont Road, Henderson WA 6166, Australia

MOTOR PROTECTION

Marine Safe Electronics, 261 Milway Ave. -12, Concord, Ontario L4K 4K9, Canada

NAV/COMM EQUIPMENT

C-Map Commercial, 133 Falmouth Rd, Mashpee, MA 02649

Chartco, New North Road, Hainault, Ilford Essex 166 2UR, UK

Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065

Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607

Hose-McCann Telephone Company, 1241 W. Newport Center Drive, Deerfield Beach, FL 33442, 954-429-1110, 954-429-1130, mchp@hosemccann.com

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

NAVAL ARCHITECTS, MARINE ENGINEERS

A.K. Suda, Inc., 3004 19th St., Metairie, LA 70002-4989

Arthur D. Darden, Inc., 3200 Ridgelake Dr., Suite 403, Metairie, LA 70002

Band, Lavis, & Associates, Inc., 900 Ritchie Hwy, Suite 203, Severna park, MD 21146

Bay Engineering, 253 N. First Ave., Sturgeon Bay, WI 54235

Bristol Harbor Group, Inc., 103 Poppasquash Road, Bristol, RI 02809

C. Baxter & Associates, P.O. Box 9006, Mobile, AL 36609

CDI Marine Co., 9550 Regency Square Blvd, Ste 400, Jacksonville, FL 32222

Computer Sciences Corporation-Advance Marine Center, 1201 M St. SE., Washington, DC 20003

Elliott Bay Design Group, 5301 Shishole Ave. NW, Ste. 200, Seattle, WA 98107

Guanno & Cox, 639 Lotus Drive, N., Suite 3, Mandeville, LA 70471

Jamestown Marine Service, 1084 Shenecossett Rd., Groton, CT 06340

John J. McMullen Associates, 4300 King St., Suite 400, Alexander, VA 22302

KVAERNER MASA MARINE, 1818 CORNWALL AVE, VANCOUVER, BC V6J 1C7, Canada

Kvaerner Masa Marine Inc., 201 Defense Highway, Ste 202, Annapolis, MD 21401

MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626

McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454

MIL Systems, 200-1150 Morrison Drive, Ottawa, Ontario K2H 8S9, Canada

Nautical Designs, Inc., 2101 S. Andrews Ave., Ste 202, Fort Lauderdale, FL 33316

The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104

VUYK Engineering, P.O. Box 204, 9700 AE Groningen, Netherlands

Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544

NAVIGATION

ComNav Marine Ltd., 13511 Crestwood Pl., Ste 15 15, Richmond, BC V6V 2G1, Canada

D & B Technologies, 1458 OCEAN SHORE BLVD #132, ORMOND BEACH, FL 32176-3613

Nauticast AG, Marahiler Strasse 50/211, A-1070 Vienna, Austria

Scandinavian Micro Systems, 1001 South Andrews Avenue, Suite 120, Fort Lauderdale, FL 33316

OIL SPILL RESPONSE

Donjon Marine, 1250 Liberty Avenue, Hillside, NJ 07205

MARINE PRESERVATION ASSOCIATION, 877 N GAINNEY CENTER DR, SCOTTSDALE, AZ 85258

Marine Response Alliance, 1102 SW Massachusetts St., Seattle, WA 98314-1030

Marine Spill Response Corporation, 220 Spring Street, Suite 500, Herndon, VA 20170

OIL/WATER SEPARATORS

Alfa Laval Separation, Inc., 955 Meams Rd., Warmminster, PA 18974

Alfa Laval Tumba AB, 147 80, TUMBA, Sweden

MMC International, 60 Inip Dr, Inwood, NY 11096

PAINT APPLICATOR

Mr.Longarm, Inc., P.O. BOX 377, Greenwood, MO 64034-0377

PAINT MARKERS

Sakura of America, 30780 San Clemente St., Hayward, CA 94544, 800-776-6257, 510-475-0973

PARTS LOCATOR SERVICE

Inventory Locator Service, 3965 Mendenhall Rd., Memphis, TN 38115

PIPE FITTINGS/CUTTINGS/CONNECTING/SYSTEMS

RAMCO Manufacturing Co., 365 Carnegie Ave., Kenilworth, NJ 07033

W & O Supply, 3485 Evergreen Ave., Jacksonville, FL 32208

PIPE LEAK REPAIR

CSD North America, 880 Candia Rd., Unit 10, Manchester, NH 03109

PLANNED MAINTENANCE SYSTEMS

Design Maintenance Systems, Inc., 340 Brooksbank Ave, Ste. 100, North Vancouver, BC VTJ 2C1, Canada

PNEUMATIC LINE THROWERS

Eurocom Industries AB, Box 7071, DK-9200 Aalborg SV, Denmark
France Telecom Mobile Satellite Communications, 16,bvd du Mont d'Est-BP 14-93161. Noisy le Grand, France. +33556223231, mobilesat@francetelecom-mobilesat.com, Contact: unknown, www.francetelecom-mobilesat.com

Furuno USA Inc., 4400 NW Pacific Rim Blvd, Camas, WA 98607

KVH Industries Inc., 50 Enterprise Center, Middletown, RI 02842
Land Sea Systems, 509 Viking Drive, Suites K.L.M, Virginia Beach, VA 23452
MX Marine, 23868 Hawthorne Blvd., Torrance, CA 90505
Nera Satcom AS, Box 91, NO-1375 Billingstad, Norway
Petrocom, 5300 West Sam Houston Parkway North, Houston, TX 77041, 1-800-PETROCOM, 713-580-4150, sales@petrocom.com
Stratos, 1501 Metcalfe St. Ste 1900, Ottawa, Ontario K2P 1P1, Canada
Teienor Satellite Services-Marlink, NO-1331, Fomebu, Norway
Thrane & Thrane A/S, Lundtoftegardsvvej 93D, DK-2800 Lyngby, Denmark

SCARIFIERS

Desmond-Stephan, P.O. Box 30, Urbana, OH 43078

SEALS

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234

Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 312, NY, NY 10017, 212-967-5575, 212-967-6966, hawkins@kobelco-eagle.com

Orkot Composites, 2535 Prairie Rd, Unit D., Eugene, OR 97402

SEATING

H.O. Bostrom, 818 Progress Ave., Waukesha, WI 53186

SECURITY

Control Screening, 2 Gardiner Rd, Fairfield, NJ 07004
GE Ion Track, 205 Lowell Street, Wilmington, MA 01887
Loronix Video Solutions, 1120 W. 122nd Ave. Suite 200, Denver, CO 80234

Smiths Detection, 30 Hook Mountain Road PO Box 410, Pine Brook, NJ 07058, 973 830-2131, 973-830-2200, susan.cooper@smithsdetection.com, Contact: Susan Cooper, www.smithsdetection.com

Vingcard Marine, Bryan Oaks Business Park 1500 N.W. 1st Street, Dania, FL 33004

SECURITY BARRIERS

Seacor Environmental Products, P.O. Box 3535, Seattle, WA 98124

SECURITY CONSULTANTS

Solutions Group, 9663 Santa Monica Blvd. Ste 175, Beverly Hills, CA 90210

SENSORS

3 Point Solutions, 810A Tradesmans Park Loop, Hutto, TX 78634
Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065

SHAFT SEALS

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234

SHAFTS

American Vulkan, 2525 Dundee Rd, Winter Haven, FL 33884
Centa Corp., 815 Black Hawk Drive, Westmont, IL 60559

SHIP MANAGEMENT

Crowley Maritime, 9487 Regency Sq Blvd, Jacksonville, FL 32225
Eurasia Group, 22A Floor Chinachem Exchange Sq., 1 Hoi Wan St., Quarry Bay, Hong Kong
OCEAN TECHNICAL SERVICES, MILITARY OCEAN TERMINAL BAYONNE UNIT #8-FOOT OF 32ND STREET, BAYONNE, NJ 07002

SHIP REPAIR

HALIFAX SHIPYARD, 3099 BARRINGTON ST, HALIFAX, NS, Canada
Manitowoc Marine Group, 1600 Ely St., Marinette, WI 54143-2434
NORSHIPCO, PO BOX 2100, Norfolk, VA 23501-2100
Trident Technologies, 4011 C Highway 377 S., Fort Worth, TX 76109
United Marine Enterprises Inc., P.O. Box 22077, Beaumont, TX 77720

SHIP SIMULATORS

Kongsberg Maritime AS, PO Box 1009, 3194 Horten, Norway

SHIPBUILDING-REPAIRS, MAINTENANCE, DRYDOCKING

American Ship Repair, 1011 38th St, Brooklyn, NY 11219
Atlantic Marine, Inc., P.O. Box 3202, mobile, AL 36652
Austal USA, 100 Dunlap Dr., Mobile, AL 36633
Blohm & Voss, P.O. Box 10 07 20, D-20005 Hamburg, Germany
Blount Marine, 461 Water St., Warren, RI 02885
Bollinger Lockport & Larose, P.O.Box 250, Lockport, LA 70374
Curacao Drydock Co., Box 3012, Willemstad, Curacao, Netherlands Antilles
Damen Shipyards, P.O. Box 1 Gorinchem, 4200AA Holland, Netherlands
Enavi Reparos Navais Ltda, 169 Barreto., Niteroi, RJ 24110-200, Brazil
Fincantieri Cantierieri Navali Italiani Spa, Merchant Shipbuilding Div., 34123 Trieste, Italy
Gladding Hearn, 1 Riverside Ave., Somerset, MA 02725
Grand Bahama Shipyard, PO BOX F-42498-411, Freeport, Bahamas
In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212
Leevac Industries, LLC, P.O. Box 1190, Jennings, LA 70546
Motor-Services AB, Box 2115, Ronninge S- 144 04, Sweden
NASSCO, 2798 E HARBOR DR, SAN DIEGO, CA 92113
Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607

Signal International LLC, 1011 S.Hwy 6, Ste 108, Houston, TX 77077
United Defense, 1525 Wilson Blvd., Ste 700, Arlington, VA 22209-2444
United Marine Enterprises Inc., P.O. Box 22077, Beaumont, TX 77720
VT Haller, PO Box 3029, Gullport, MS 39505
Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544
Willard Marine Inc., 1250 N. Grove St., Anaheim, CA 92806

SHIPYARDS

Alabama Shipyard, P.O. Box 3202, Mobile, AL 36652
Atlantic Marine, Inc., P.O. Box 3202, mobile, AL 36652
Bollinger Shipyards, 8365 Hwy 308 South, Lockport, LA 70374, 985 532-2554, 985 532-7225, Roberts@bollingershipyards.com, Contact: Robert A. Socha, www.bollingershipyards.com
Bradford Marine, 3051 State Rd 84, Fort Lauderdale, FL 33312
Derecktor Shipyard, 311 E. Boston Post Rd., Mamaroneck, NY 10543
Jeffboat, 1030 E.MARKET STREET, JEFFERSONVILLE, IN 47130
Kvaerner Masa-Yards Oy, BOX 132, FI-00151, Helsinki, Finland
Leevac Industries, LLC, P.O. Box 1190, Jennings, LA 70546
Offshore Inland, 3521 Brookdale Dr. S., Mobile, AL 36618
United Defense, 1525 Wilson Blvd., Ste 700, Arlington, VA 22209-2444

SILENCERS

Silex Inc, 6659 Ordan Dr., Mississauga, ON L5T 1K6, Canada

SIMULATION TRAINING

Marine Safety International, Marine Terminal, Laguardia Airport, NY 11371
Maritime Institute of Technology, 5700 Hammonds Ferry Rd., Linthicum Heights, MD 21090
Poseidon Simulation AS, Box 89, NO-8370 Leknes, Norway
Transas Marine Overseas Ltd., 12 Obukhovskoy, Oboroni, St. Petersburg 193019, Russian Federation

SKILLED LABORERS

MK Production Resources Inc., 1610 Reynolds Street, Brunswick, GA 31520

SLIDING DOORS

Waltz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

SOFTWARE

Autoshop Systems Corp., 611 Alexander Street, Suite 312, Vancouver, BC V6A 1E1, Canada, 604-254-4171, 604-254-5171, sales@autoshop.com, Contact: Ross Muirhead, www.autoshop.com
Creative Systems Inc., P.O. Box 1910, Port Townsend, WA 98368

Design Maintenance Systems, Inc, 340 Brooksbank Ave, Ste.100, North Vancouver,BC V7J 2C1, Canada
Loadmaster International, St. Varvsgraten 11B SE, 211 19 Malm, Sweden
Resurgence Software Inc., 2021 Lakeshore Dr., Ste 21D, New Orleans, LA 70122

STEERING GEARS/ STEERING SYSTEMS

A. Van der Velden B.V., Dorpsstraat 67a, PO Box 2061, 2930 AB Krimpen a/d Lek, Netherlands
CS Controls Inc., 101 Dickon Road, Houma, LA 70363, 985-876-6040, 985-876-0751, info@cscontrols.com, Contact: Paul Srigley, www.cscontrols.com

Jastram Engineering, 467 Mountain Hwy, North Vancouver, BC V7J 2L3, Canada
Kobelt Manufacturing Co., Ltd., 8238-129 Street, Surrey, BC V3W0A6, Canada
Offshore Inland, 3521 Brookdale Dr. S., Mobile, AL 36618

STERN TUBE BEARINGS/ BUSHES

Duramax Marine LLC, 17990 Great Lakes Parkway, Hiram, OH 44234, 440-834-5400, 440-834-4950, Contact: Richard Spangler
Orkot Composites, 2535 Prairie Rd, Unit D., Eugene, OR 97402
Thordon Bearings Inc., 3225 Mainway, Burlington, Ontario L7M 1A6, Canada

STERN TUBE SEALS

Superbolt, PO Box 683, Capetia, PE 15106

STRAINERS

Hellan Strainer, 3249 East 80th St., Cleveland, OH 44104

SUN PROTECTION SYSTEMS

Solar Solve Marine, 7 St. Hilda Industrial Estate, South Shields NE33 1RA, UK, +44 191 454 8595, +44 191 454 8692, info@solasolv.com, Contact: Paul Hopkins, www.solasolv.com

SURFACE PREP TOOLS

Aurand Mfg., 1210 Ellis St., Cincinnati, OH 45223
Dalseide Shipping Services, NO-5397, BEKKJARVIK, Norway
Flow International Corp., 23500 64th Ave., South Kent, WA 98059

SURVIVAL EQUIPMENT

Brookdale International, 1-8755 Ash St., Vancouver, BC V6P 6T3, Canada

SWITCHBOARDS

Industrial Power Svstems, 3010 Powers Avenue Unit 16, Jacksonville, FL 32207, 904 731-8844, 904 731-0186, marine@ipsjax.com, Contact: Glenn Beaupre, www.ipsswitchgear.com

TANK LEVELING INDICATORS

Ian Conrad Bernan, 3119 North Davis Highway, Pensacola, FL 32503, 850-434-1286, 850-434-1246, sales@icbergan.com, Contact: Ron Monell, www.icbergan.com
King Engineering Co, PO Box 1228, Ann Arbor, MI 48106
Saab Marine Electronics, Box 13045, 402 5Goteborg, Sweden
Technical Marine Services, 6040 North Cutter Circle, Portland, OR 97217

TESTING SERVICES

Wyle Laboratories, 7800 Govern's Dr. S.W., Huntsville, AL 35807

THICKNESS GAUGES

StressTel Ultrasonic Testing, 2790 West College Avenue, State College, PA 16801-260

THRUSTER SYSTEMS

Omnithruster, 30555 Solon Industrial Parkway, Cleveland, OH 44139, 440 542-9260, 440 542-9265, widmer@omnithruster.com, Contact: Kurt Widmer, www.omnithruster.com

TRAINING

International Maritime Training, 910 SE 17th St., Ste 200, Fort Lauderdale, FL 33316
SUNY Maritime College, 6 Pennfield Ave, Bronx, NY 10465-4198
USMMA- Global Maritime and Transportation School, 300 Steamboat Rd., Kings Point, NY 11024

TRAINING VIDEOS

Coastal Training Technologies Corp., 500 Studio Drive, Virginia Beach, VA 23452
Moxie Media, PO Box 10203, New Orleans, LA 70181

TRANSMISSIONS

Karl Senner Inc., 25 W Third, Kenner, LA 70062

TRAVEL SERVICES

MarineTravel Services, 200 Golden Oak Court, Suite 120, Virginia Beach, VA 23452

TURBOCHARGERS

ABB Turbo Systems AG, CH 5401, Baden, Switzerland

TURBOCHARGERS- REPAIRS

Motor-Services Hugo Stamp, 3101 S.W. 3rd Ave., Ft. Lauderdale, FL 33315
Napier Turbochargers, P.O. Box 1, Waterside, South Lincoln LN5 7FD, UK

ULTRA HIGH MOLECULAR WEIGHT MARINE FENDERING

Ultra Poly, Inc., 2926 So.Steele Street, Tacoma, WA 98409

ULTRASONIC TESTING

M.A.C.E. 5910 NE 15th Ave., Fort Lauderdale, FL 33331

ULTRATHIN (UHMW) NON-SKID DECKING

Ultra Poly, Inc., 2926 So.Steele Street, Tacoma, WA 98409

UNDERWATER SURVEILLANCE SONAR

C-Tech LTD, P.O.Box 1960, Comwall Ontario K6H6N7, Canada

VACUUM EQUIPMENT

Industrial Vacuum Equipment Corporation, N6091 Maple Street, Ixonia, WI 53036, 800-331-4832, 920-261-7117, randy@industrialvacuum.com

VACUUM TOILET SYSTEM

Envirovac Inc, 1260 Turret Dr., Rockford, IL 61111
Jets Vacuum Sewage System, P.O. Box 14, N-6060 Hareid, Norway

VALVES & FITTINGS

Leslie Controls, 12501 Telecom Dr., Tampa, FL 33637
William E. Williams, 38-52 Review Ave., Long Island City, NY 11101

VENTILATION SYSTEMS / PRODUCTS

Delta T Systems, 858 West 13th Court, Riviera Beach, FL 33404
Dry Air Technology, 313 North Oak St., Burlington, VA 88233

VIBRATION ANALYSIS

Ludaca, Inc., 1425 NW 88th Ave, Miami, FL 33172
Manitech, LLC, 100 Powermill Rd., Acton, MA 01725

VISCOMETERS

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

VOYAGE DATA RECORDERS

Rutter Technologies Inc., 22 Pearl Place, P.O.BOX 427, St. John's NL A1C 5N8, Canada

WASTE WATER TREATMENT

FAST@Systems, 8229 Brentwood Industrial Drive, Brentwood, MO 63144, 314-645-6540, 314-645-6131, solutions@marinefast.com, Contact: Alan Fleischer, www.marinefast.com
Marine Environmental Partners, 3874 Fiscal Ct, Suite 200, West Palm Beach, FL 33404
RWO, Leerkampe 3, D- 28259 Bremen, Germany

WATER JET CLEANING

Flow International Corp., 23500 64th Ave., South Kent, WA 98059
Gardner Denver Water Jetting Systems, 12300 N. Houston Rosslyn Road, Houston, TX 77086

WATER PURIFIERS

Alfa-Laval Separation, Inc., 955 Meams Rd., Warminster, PA 18974
Everpure, 502 Indiana Avenue, Sheboygan, WI 53081, 866-873-7506, 866-203-7361, customerservice@plymouthwater.com, Contact: Jerry Letcher, www.everpure.com
Gardner Denver Water Jetting Systems, 12300 N. Houston Rosslyn Road, Houston, TX 77086

WATERTIGHT CLOSURES

Waltz & Krezner, 91 Willenbrock Rd., Oxford, CT 06478

WELDING PRODUCTS & POWER EQUIPMENT

ESAB Welding and Cutting Products, 411 S. Ebenezer Rd, PO Box 100545, Florence, SC 29501, 843-664-4411, 843-664-4258, dterry@esab.com, Contact: Donna Terry, www.esabna.com

WINCHES & FAIRLEADS

Coastal Marine Equipment, Bldg 9114 MISAAP Ind. Complex, Stennis Space Center, MS 39529

Coastal Marine Equipment Inc., BLDG. 9114 MISAAP Industrial Complex, Stennis Space CTR., MS 39529, 228-813-1700, 228-813-1709, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

CS Controls Inc, 101 Dickon Road, Houma, LA 70363, 985-876-6040, 985-876-0751, info@cscontrols.com, Contact: Paul Srigley, www.cscontrols.com
Intercontinental Engineering, PO Box 9055, Kansas City, MO 64168
Jeamar Winches, 1051 Clinton St., Buffalo, NY 14206
Markey Machinery, P.O. Box 24788, Seattle, WA 98124
McElroy/Catchot Winch Company, Inc., P.O. Box 4632, Biloxi, MS 39535-4632, 228-875-6327, 228-872-7880, hcatchot@bellsouth.net, Contact: Harold Catchot, www.mcelroycatchotwinch.com

MMC International, 60 Inip Dr, Inwood, NY 11096
Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016
Skookum, P.O. Box 280, Hubbard, OR 97032
Smith Berger Marine, 7915 10th Ave S., Seattle, WA 98108
Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880
Timberland Equipment Ltd & Almon Johnson, 459 Industrial Ave., Woodstock, ON N4S 7Z2, Canada

WINDLASSES (ANCHORS)

Coastal Marine Equipment, Bldg 9114 MISAAP Ind. Complex, Stennis Space Center, MS 39529

Coastal Marine Equipment Inc., BLDG. 9114 MISAAP Industrial Complex, Stennis Space CTR., MS 39529, 228-813-1700, 228-813-1709, sales@coastalmarineequipment.com, Contact: Ralph Waguespack, www.coastalmarineequipment.com

CS Controls Inc, 101 Dickon Road, Houma, LA 70363, 985-876-6040, 985-876-0751, info@cscontrols.com, Contact: Paul Srigley, www.cscontrols.com

McElroy/Catchot Winch Company, Inc., P.O. Box 4632, Biloxi, MS 39535-4632, 228-875-6327, 228-872-7880, hcatchot@bellsouth.net, Contact: Harold Catchot, www.mcelroycatchotwinch.com

WINDOWS

Deansteel Mfg., 111 Merchant St., San Antonio, TX 78204

WINDSCREEN & WINDOW WIPERS

Bae Systems, 550 South Fulton St., Mt. Vernon, NJ 10550
Hepworth Marine International, Hepworth House, Brook St., Redditch, Worcestershire B98 8NF, UK
Wynn Marine, Ltd., Wynn House, Lansdown Estate,Cheltenham, Gloucestershire, UK

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Products



Autoship
Autoship Systems Corporation is releasing Autohydro 6.0, its latest hydrostatic and longitudinal strength program. 3-D modeling, inclusive of all tanks, holds, spaces, etc, gives unrivaled accuracy and flexibility - making Autohydro perfect for simulating damage, grounding, or capsizing in any wind condition. After 20 years, Autohydro remains the best value for the dollar.
Circle 101



Furuno
The FA-100 is a universal shipborne AIS capable of exchanging navigation and ship data between own ship and other ships or coastal stations. The FA-100 consists of VHF/GPS antennas, a transponder unit and several associated units. The LCD panel displays all required information about Static data, Dynamic data, Voyage related data and Short safety-related messages.
Circle 102



Kistler
In the future, smart sensors will simplify measurement tasks, significantly increase process security and improve data quality. Kistler has already begun manufacturing its own line of PiezoSmart accelerometers and pressure sensors with automatic sensor identification.
Circle 103



Lubmarine
Aurelia XL has been formulated, using an additive technology to cope with the environment of marine engines. Its clean formulation reduces oil consumption by maintaining the ring pack in good condition. Its resistance to oxidation and thermal break down reduces oil viscosity increases leading to an improvement in lubricants life.
Circle 104



MMC
MMC Couplings provide the quickest, safest possible flanged connection on a wide variety of applications. The helical cams are rotated into place with the average connection taking less than one minute. Each cam is individually locked into place resulting in a vibration proof, leak proof, twist proof connection.
Circle No. 105



Hatteland
Today the company develops and manufactures a complete range of high quality and type approved displays, panel-computers and stand-alone computers.
Circle 106



Polyspec
PolySpec L.P. announced that LITE LATEX Light Weight Polymer Modified Underlayment has received Certificate of Approval under the IMO's newly established International Application of Fire Test Procedures (FTP Code.) Lite Latex joins PolySpec's FLEX-IMO Vinyl Chip Seamless Floor and 7K Deck Top Magnesite Insulation as the third PolySpec product to receive IMO certification.
Circle 107



Samson
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Circle 108



Simrad
Simrad's new CF Series marine monitors will be offered in 15, 17, 19 and 23 in. versions, to accommodate bridge layouts and helm stations of various sizes. With its TFT MVA Premium technology, this series is designed to provide clarity, realistic colors and superior definition whether displaying sonar, echosounder, radar, chart plotting or other fishfinding or navigation data.
Circle 109



Stork
Stork-Kwant designs and manufactures nautical instruments for over 60 years. The range of products consists of: Control Units, Telegraph Systems, Rotating and Speed Control Units (RSCU), Electric Shaft Systems, various types of Indicators etc. Latest developments: small control unit BUK-G, RSCU Mark 3 Star and Mark 4, Joystick 96 x 96 mm.230V models.
Circle 110



Wortelboer
G.J. Wortelbower Jr. B.V. is specialized in the supply of marine products, essentially anchors, chaincables, winches and windlasses, with deliveries on a worldwide basis. Its headquarters are located in Rotterdam where a substantial stock is kept, guaranteeing immediate delivery of virtually any port in the world.
Circle 111



Wartsila
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Circle 112



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Circle 113



Ultra Poly
Forklift traction on wet surfaces is an ongoing problem. Spinouts and sliding make the driver's work difficult and unsafe. Special features include easy installation and the sheet can be turned over if wear or damage does occur and the non-skid surfaced backside reinstalled. Ultra Non-Skid is corrosion resistant, and a permanent replacement for non-skid tape or paint.
Circle 114



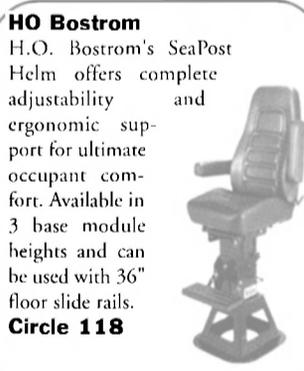
Ultra Dynamics
Ultra Dynamics manufactures high efficiency single-stage axial flow pump waterjet propulsion system with a variety of control options, including Joystick controls. UltraJet waterjets excel when more thrust is required to quickly accelerate the boat, to permit getting on plane with a full load, and to maintain planing performance at cruise throttle settings, even in tight turns.
Circle 115



AKA
AKA specializes in customized automated control systems, the development of which requires a high level of data management and project control. The company has been in operation since 1996 carrying out engineering activities in the areas of software development, automation, systems engineering, and technical training and documentation.
Circle 116



IMC
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Circle 117



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Circle 118



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Circle 119



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Circle 120



SeaLife
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Circle 121



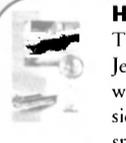
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Circle 122



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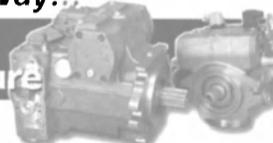
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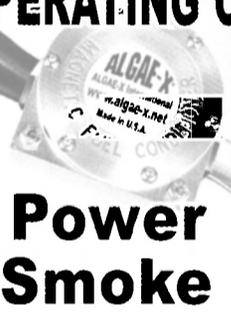
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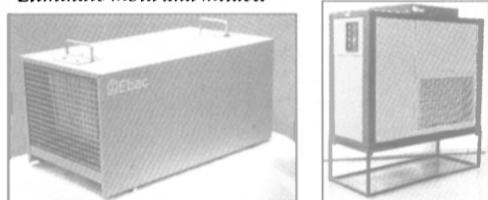
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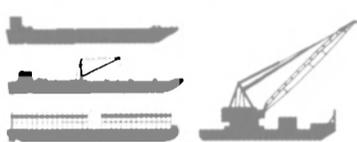
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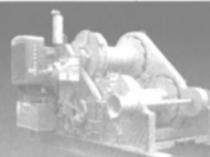


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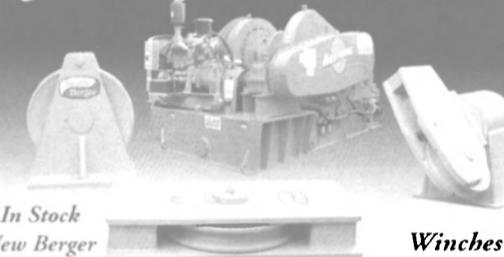
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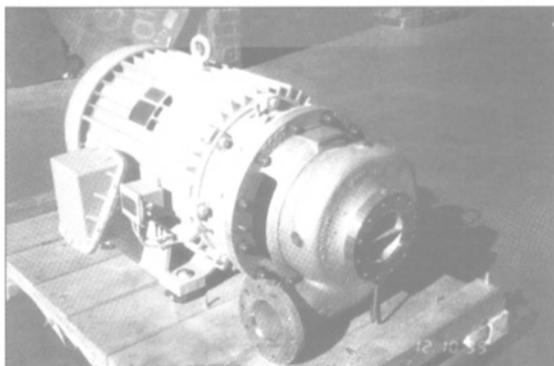
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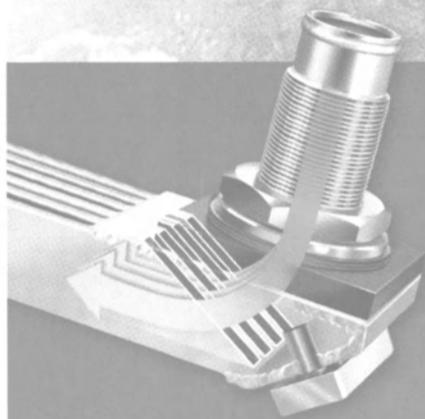
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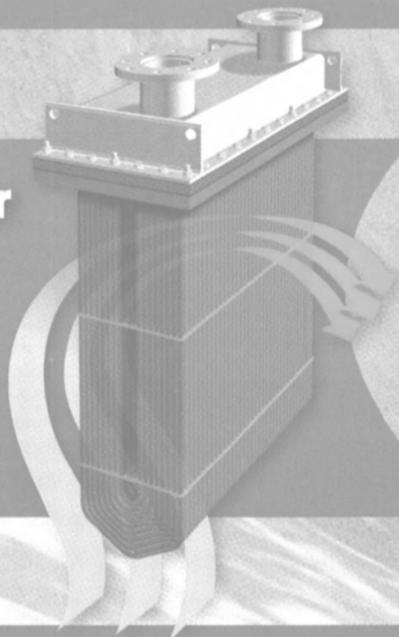


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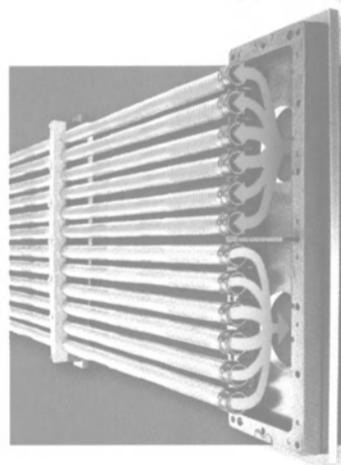
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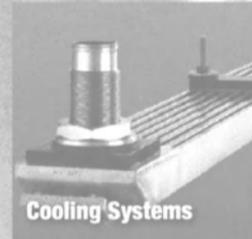
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