

MARITIME REPORTER AND ENGINEERING NEWS

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Repair Report

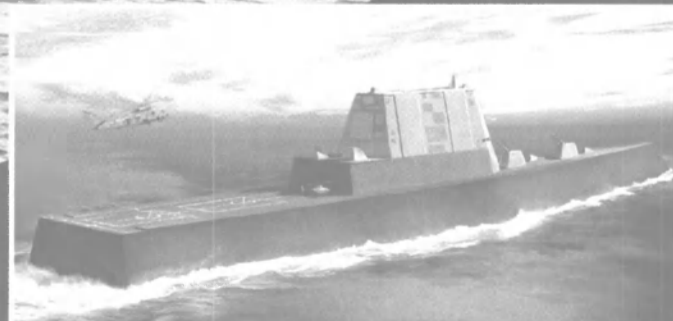
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Murillo

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Legal Beat

Uninspected Vessels Not Immune to OSHA



Gold Team Takes DD(X) Contract



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Features

10 Uninspected Vessels Are Not Exempt

Standards onboard vessels, even those uninspected, are not immune to applicable OSHA Rules — by Charley Havnen

12 The Lush Life

The World of ResidenSea has set the stage for a new generation in the luxury cruising sector. — by David Tinsley, technical editor

16 Merrily Rolling Along

Legislative change and technological innovation has driven progress in the RoRo sector.

20 AIS Is Here & Now

The push is on to expedite AIS technology on the world's waterways.

26 A New Kind of Treatment

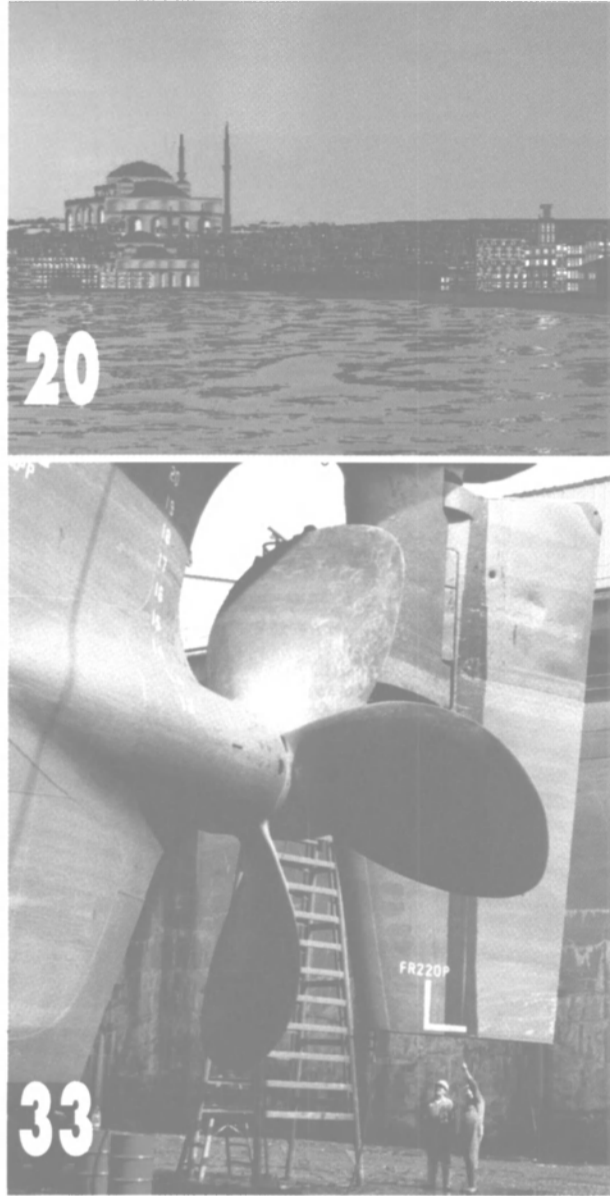
Developed jointly by Sarva Bio Remed and Safety Zone, SpillRemed (Marine) is hailed as a new innovation, via biodispersion, in the treatment of ballast water. — by Satya Ganti, Sarva Bio Remed; and Stewart Hutcheson, Safety Zone.

33 GMD Stays Busy on the Hudson

The GMD Group has established itself as the New York-Metro area's premier provider of ship repair services. With more than 6,000 vessels entering into the Port of NY/NJ each year, GMD is poised for a boom. — by Regina P. Ciardiello, managing editor

52 30 Equals 1,000

Hyundai Heavy Industries recently celebrate its 30th anniversary with its unprecedented 1,000th delivery.



MARITIME REPORTER AND ENGINEERING NEWS

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U.S. Navy: AMCV Ships Are No Go

Subsequent to recent reports that the U.S. Navy had a vested interest in the half-completed cruise vessels for American Classic Voyages now-defunct U.S.



The USS Coronado (AGF 11) was to have been replaced by one of the partially-built AMCV cruise ships for U.S. Lines for the U.S. Navy's replacement Joint Command ships.

Lines, the Navy has confirmed that it is no longer interested in pursuing the vessels, which are currently at Northrop Grumman in Pascagoula, Miss.

According to Adm. **Vernon Clark**, the Navy had reached the decision after its engineers examined one of the ships at the yard.

Clark confirmed the Navy's decision when he appeared before the Seapower Subcommittee of the Senate Armed Services Committee by simply stating that the ships were not suitable for Naval use.

Delta Queen Makes A Comeback

Following the decision to enter into bankruptcy this past October, American Classic Voyages has agreed to sell two of steamboats — Delta Queen and Mississippi to Chicago-based investment firm Waveland Investments LLC for \$3.75 million. The company, which is privately-held, plans to take over the boats, effective next month.

Mississippi Queen, which ceased operations in October, will resume its itinerary on May 7, while Delta Queen, which halted its schedule in January will begin sailing again on August 26.

While the sale of the vessels was confirmed this past weekend, there is still a possibility that the vessels could be passed off to another buyer when they are auctioned off in Chicago on May 3.

Uniworld to Bid for Delta Queen Steamboat

Uniworld intends to bid for the assets of New Orleans-based Delta Queen Steamboat Company. The assets include the Delta Queen Steamboat trademarks and logos plus the Mississippi Queen and Delta Queen, the classic American river steamboats. Uniworld operates its Europe river cruises through its wholly owned European subsidiary Global

River Cruises. With 15 ships under ownership or long-term lease, Global River Cruises is Europe's leading river cruise line. Uniworld's president and CEO, **Serba Ilich**, said he would locate the North American headquarters of Global River Cruises in New Orleans to take advantage of the synergies presented by the acquisition of Delta Queen Co.

HDW Stake To Go To MAN Unit

A unit of Germany's MAN AG confirmed that it would buy a 15 percent stake in Howaldtswerke-Deutsche Werft (HDW) by October 1.

The move follows a surprise takeover of the shipyard by U.S.-based One Equi-

ty Partners last month who freed the yard from the control of ailing engineering firm Babcock Borsig.

The head of MAN unit Ferrostaal AG, reportedly stated that the firm agreed to buy a 15 percent stake offered by One Equity soon after it gained control of 75 percent of HDW's shares.

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USS Cole Returns to Fleet



it's Back...USS Cole departs Northrop Grumman Ship Systems in Pascagoula, Miss., on April 19 for its homeport in Norfolk, Va.

The Aegis guided missile destroyer USS Cole returned to the U.S. Navy Fleet following a 14-month restoration project at Northrop Grumman Corporation's Ship Systems. The ship departed Pascagoula on April 19 to return to her homeport in Norfolk, Va.

Following the terrorist attack in Aden, Yemen, Cole was transported to Northrop Grumman Ship Systems on the heavy lift ship Blue Marlin, and arrived in Pascagoula Dec. 13, 2000, after a six-week journey.

The repair and restoration process began shortly thereafter, and included returning the ship to her construction area for structural and system restoration, combat system upgrades, replenishment of ship storerooms and supplies, crew training and post-delivery testing.

The ship was originally built in Pascagoula by the company's Ingalls

Operations, and was delivered to the Navy in 1996.

The company has delivered a total of 16 Aegis guided missile destroyers to the Navy, with nine more ships under contract.

Headquartered in Pascagoula, Northrop Grumman Ship Systems includes facilities in Pascagoula and Gulfport, Miss., and New Orleans, La.



Drawing by Peter K. Hsu Honoring the 17 Navy sailors who perished aboard the USS Cole.

USS COLE Restoration Details

- 550 tons of steel removed and replaced
- Shafts, blades, hubs, air tubes and valve rods refurbished and reinstalled
- Starboard main reduction gear replaced (80 tons)
- 1A and 1B main engine and modules replaced (27 tons each)
- New universal engine controllers installed
- Stern flap installed (increase speed and fuel efficiency)
- Four air conditioning plants CFC upgrades completed
- Replaced three gas turbine generators
- 350,163 feet of electrical cable replaced

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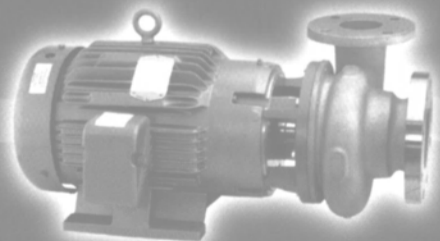
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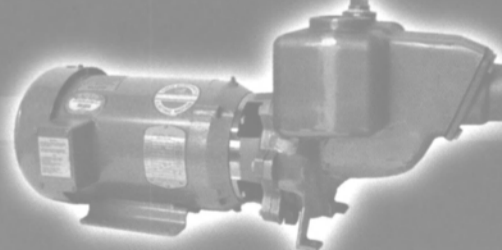
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As this edition goes to press, news from Washington, D.C., is good for companies involved in the design, construction and outfitting of U.S. Navy ships. The much anticipated contract to design the new family of warships — dubbed DD(x) — has been awarded to the Gold Team, headed by Northrop Grumman and Raytheon. The nearly \$3 billion deal will culminate in the design and eventual construction of a new family of ships that rely less on people and more on computers and communication integration technologies, literally changing the shape and face of the Navy to come. The announcement can be found on page 57, with expanded coverage to come in June.



The awarding of the contract to Northrop Grumman's Gold Team over the Blue team, headed by General Dynamics, was considered a mild upset by some industry insiders, but it appears that Northrop Grumman's addition of Litton Industries and Newport News Shipbuilding provided the edge. On the morning following the announcement an exhibition both for the Blue Team, on display at the ASNE Day exhibition held at the Hyatt Regency in Crystal City, Va., sat ominously dark, uninhabited and cloaked in a blue drape, while the Northrop Grumman side was buzzing with activity.

According to an article in the April 30 edition of *The Washington Post*, the contract to actually produce the ships, which is expected to be signed in 2005, could encompass 50 ships and revenue of \$60 billion.

While the DD(x) decision was expected, a surprise from Capitol Hill came in the form of the push by Congress for an additional billion dollars for the Navy, now, to build more ships. While a final decision on the matter will not be resolved before the presses for the May edition role, it can be assumed that the continued lobbying efforts by shipbuilders and naval leaders has finally paid dividend, as consensus now appears to feel the need to bolster the Navy shipbuilding program now, not later.

Gregory R. Trauthwein

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On the Cover



Maersk Geelong, a 4,300-TEU container ship built by Hyundai Heavy Industries, scheduled to be delivered to A.P. Moller on June 28, 2002. HHI recently celebrated its 30th anniversary with its 1,000th delivery. Read about the company, and its close relationship to the Greek shipping market, starting on page 52.

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Also in this Issue

- 3 Cruise Ships in Limbo
- 4 USS Cole Returns to Fleet
- 7 Avondale Christens Tanker
- 14 Shell Welcomes Asprella
- 15 Can Incat Come Back?
- 24 Crowley Christens New ATB
- 38 Cascade General Stays Busy
- 40 Insulation, Pipes, Pumps
- 43 Fuel & Lube Report
- 46 Posidonia 2002/
Greece Report
- 49 Ship's Store
- 57 Duel Fuel Gets New Backers
- 54 Buyer's Directory
- 56 Advertisers Index
- 58 Classified Ads

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MARITIME REPORTER

AND
ENGINEERING NEWS

ISSN-0025-3448
USPS-016-750

No. 5

Vol. 64

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

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

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

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

Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 0970700. Printed in U.S.A.

Publishers are not responsible for the safekeeping or return of editorial material.
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Polar Discovery Christened at Avondale

Polar Tankers, Inc. unveiled its third state-of-the-art Endeavour Class double-hulled tanker, Polar Discovery, during a christening ceremony on April 13, at the

The tankers are built with double hulls, which exceed regulatory requirements, as well as two independent engine rooms, twin propellers and twin rudders. The Endeavour Class vessels will isolate cargo, fuel and lubricating oils from the ship's side by ballast tanks

or void spaces. The vessels also will meet pending regulations for air emissions from engines, and are painted with tin-free anti-fouling paint in deference to proposed regulations.

Polar Discovery and its four sister vessels measure 895 x 152 x 86 ft. (272.6 x 46.2 x 26.3 m), and are powered by twin 11,060 kW (15,000 bhp) slow speed diesel engines. The ships have a 2,206

kW (3,000 hp) bow thruster, and can move at 16.6 knots loaded and 16.9 knots in ballast. The carriers will hold just over one million barrels of cargo at maximum capacity, and will be equipped with the latest electronics to ensure safe and efficient operation.

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Northrop Grumman Ship Systems Avondale shipyard in New Orleans, La. Phillips Petroleum Company, parent of Polar Tankers, is building five Endeavour Class tankers. The contract cost of the Polar Discovery is valued at \$168 million.

The Endeavour Class tankers, also known as the Millennium Class, are the first crude-oil carriers being built for the Alaska trade in compliance with the federal Oil Pollution Act of 1990. The first tanker, the Polar Endeavour, arrived in Valdez, Alaska, on its maiden voyage in July 2001.

The new Polar Discovery tanker will join the Polar Tankers fleet in 2003, and Polar Resolution will enter the Alaska trade this summer. Polar Adventure will be delivered in late 2004, followed by the fifth ship, the Polar Enterprise, in 2005.

NGSS Avondale Operations currently has four 140,000-swt crude oil carriers under construction for Polar Tankers.

The Endeavour Class tankers are being built to meet and/or exceed existing and proposed environmental regulations and are setting new standards for innovation and environmental protection. They were designed specifically for the transport of crude oil from Valdez, Alaska, to the West Coast of the United States, through some of the most severe trade routes in the world. The ships also will deliver cargo to Hawaii.



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Heidenreich Marine Reorganizes Companies

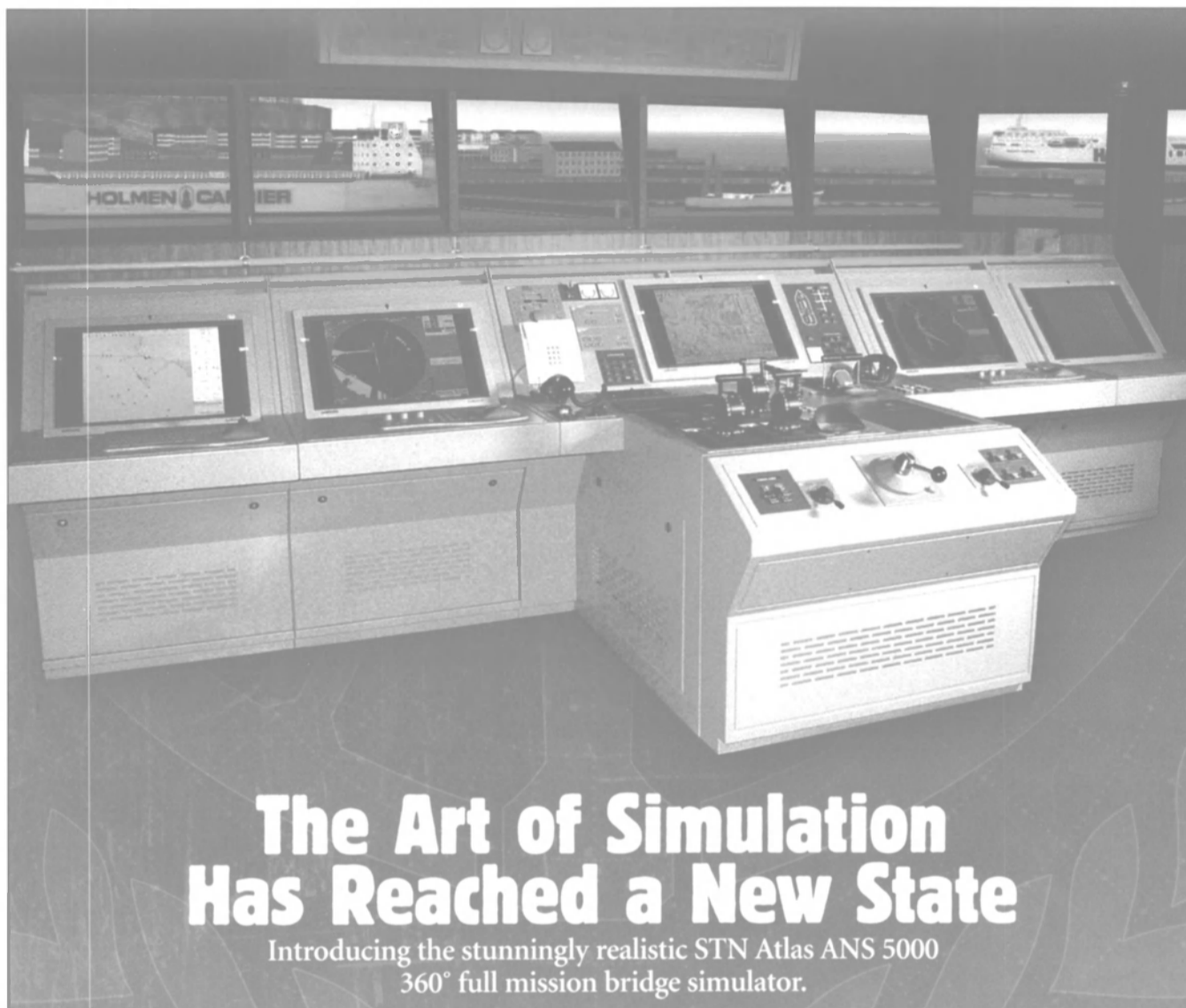
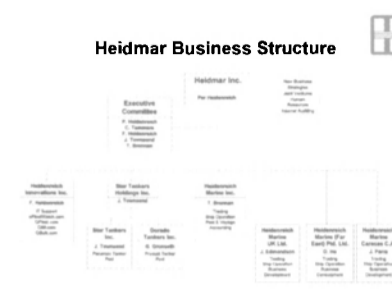
Heidenreich Marine has reorganized to pool partners and to facilitate Heidmar's growth in oil transportation and related industries.

A new parent company, which will be called Heidmar Inc. will be formed to provide oversight of all the Heidmar

companies and to manage the strategic growth of the organization. **Per Heidenreich**, currently the president of HMI, will become the Chairman and CEO of Heidmar. **Charles Tammara**, who is currently a vice president and CFO of HMI, will become an executive vice president and CFO of Heidmar.

Timothy Brennan, who has been with

HMI for almost ten years and is currently a vice president and general manager of Chartering and Operations, will become the new President of HMI. HMI will continue to be responsible for the commercial management for all vessels under Heidmar's commercial control and will continue to serve as the general agents for the Star Tankers Pool



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and the Dorado Tankers Pool.

All Information Technology activities within the Heidmar group will be consolidated into one company, which will be called Heidenreich Innovations Inc. Fritz Heidenreich, who is currently HMI's Vice President of Information Technology, will become the President of HII.

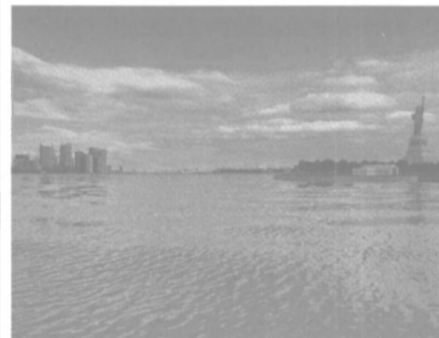
In addition to providing shipowners with Q88.com and QBulk.com, HII will also market its

Vessel Management System as QFleet.com, which will provide shipowners, ship managers and charterers with a web-based program that calculates voyage results, maintains voyage statistics, keeps track of vessel positions and provides real-time voyage information.

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Transas Breaks Through Visual Technology

Transas is introducing the next generation of its visual presentation system based on the new Transas visualization technology.



The new software, which has been named Seagull_Vis 4000, represents the synthetic environment in the most realistic form, and also includes a number of advanced effects designed specifically for marine applications developed to further improve the efficiency of simulator-based training.

In this visualization version, extensive work has been performed to achieve the best possible quality of the running time representation application using the latest developments in the OpenGL technology.

Specifically, the new Transas visualization system incorporates a super-quality 3-D sea model with dynamic bump mapping surface texturing.

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Horbeck-Leevac To Build Eight OSV's

Hornbeck-Leevac Marine Services, Inc. has approved a new vessel construction program for its wholly-owned subsidiary, Hornbeck Offshore Services, LLC. This is the company's third such program since its inception five years ago — the first two were seven and six vessel programs, respectively.

The current plan is to build eight additional state-of-the-art, deepwater OSVs, with construction of four 240-ft. (73.1-m) DP-2 Class vessels to commence as soon as a definitive agreement has been signed with the selected shipyard. The company has signed a letter of intent for the first four vessels with one of the shipyards currently constructing vessels for Hornbeck and, therefore, anticipates prompt contract execution.

All of the first four vessels are expected to be delivered by the end of 2003, with the first vessel due out in June 2003. Construction costs for the first four vessels will be funded by current cash and projected free cash flow from operations. The company also has available an undrawn revolving credit facility, which it does not expect to use to fund the first four vessels. Hornbeck is currently seeking price bids from shipyards for the last four vessels.

According to **Carl Annessa**, the company's vice president and COO, "The first four vessels in the newbuild program are an enhancement of our highly successful New Breed 240-ft. "E-class" design that we used in constructing the HOS Innovator and HOS Dominator, both of which are currently working for Sonsub. We have designed the vessel to increase its deadweight capacity and have also added additional service functionalities.

Navibulgar Initiates Fleet Renewal Program

Navigation Maritime Bulgare (Navibulgar), the nationally-owned Bulgarian shipping company and the country's fourth largest business enterprise, has placed three tween-deckers on the sale and purchase market as part of its latest fleet renewal program.

Last month the company invited tenders for the three 11,750-gt. Bulgarian-flag vessels in a new move to upgrade its fleet as it prepares for a possible privatization decision from the Bulgarian government.

In a related development, Navibulgar announced its intention to invest in enhancing its fleet of over 50 bulk carriers, which are engaged in worldwide trading on the international charter market.

Navibulgar owns and operates a diverse fleet of almost 100 ships, including containerships, chemical tankers and specialized rail ferries in addition to

bulk carriers.

The containerships trade between North Europe and the Mediterranean/Black Sea under the Bulcon brand, one of the market leaders. They were upgraded in the mid-1990s and are performing satisfactorily, according to Capt. Gueno Guenov, Director General of Navibulgar.

Navibulgar Finalizes Varna Shipyard Deal

Navigation Maritime Bulgare (Navibulgar), has confirmed its acquisition of Varna shipyard, which has been in administration since January.

Payment of the purchase price of \$16.1 million was completed on April 8 and gives Navibulgar ownership of the assets of the yard. The asset purchase

transaction does not involve Navibulgar taking over any existing debts. Navibulgar has stated that it intends to complete work in progress on vessels under construction at the yard.

In addition to the bulk carriers Trapezitza (21,500-dwt) and Doli (42,000-dwt) on order for Navibulgar, the yard has a further two ships on which work is well advanced.



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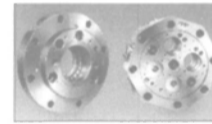
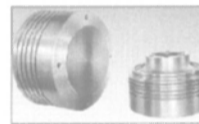
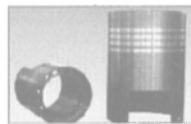


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OSHA Standards Applicable on Uninspected Vessels

By Charley Havnen

There has been much ado over the recent Supreme Court ruling that a commercial uninspected drilling vessel must comply with applicable Occupational Safety and Health Administration (OSHA) standards since the vessel was not regulated by under the USCG inspected vessel standards. Those in the know within the industry do not regard this ruling as anything of great consequence, but rather a return to nationally uniform rulings of the law.

The case *Choa V. Mallard Bay Drilling, Inc.* involved an explosion onboard the inland drilling barge RIG 52 in June of 1997. The RIG 52 was in Louisiana waters and was nearing completion of a well when an explosion occurred killing four crewmen and injuring two others. The USCG investigation found that the inland drilling vessel had never been inspected by the USCG nor was there any requirement that it be inspected or hold a Coast Guard issued Certificate of Inspection. Their report noted that the USCG "does not regulate mineral drilling operations in state waters, and does not have the expertise to adequately analyze all issues relating to the failure of an oil/natural gas well." The USCG investigation focused on vessel related issues. The USCG determined that natural gas leaked from the well, spread throughout the barge, and was most likely ignited by sparking originating in electrical equipment in the pump room.

Based principally upon the USCG investigation, OSHA issued three citations concerning the operating company's failure to evacuate their personnel, failure to have an emergency response plan and failure to train employees in emergency response. An Administrative Law Judge (ALJ) found that the uninspected inland drilling vessel was a "workplace" under the OSHA standards and that the citations were appropriate.

When the case got to the 5th Circuit Court of Appeals in New Orleans, they reversed the ruling, indicating that the uninspected vessel standards of the USCG that were applicable to RIG 52 were sufficient to establish exclusive USCG jurisdiction even though many of those same standards did not apply to RIG 52 because it was not self-propelled.

The 5th Circuit ruling went counter to all other jurisdictions in the US and was generally considered to be an aberration.

The Supreme Court entered the fray to resolve the difference between the 5th Circuit and the rest of the country.

The Supreme Court ruled that the USCG regulations for uninspected vessels were in this case not adequate to preempt application of the OSHA standards. There is broad general agreement that the USCG inspected vessel standards preempt the application of OSHA standards to those vessels holding USCG Certificates of Inspection. It is the normally accepted premise that the USCG uninspected vessel standards do not preempt the application of OSHA standards to uninspected vessels. The Supreme Court indicated that uninspected vessel regulations do not address occupational safety and health concerns faced during inland drilling vessel operations.

While this ruling is narrow and only applies directly

to uninspected (by the USCG) inland drilling vessels, it nonetheless provides a fairly clear direction and restores the US to one overall national view concerning the relationship between OSHA and the USCG.

It now seems inevitable that OSHA standards will be applied to most if not all uninspected vessels. This list will probably include inland industrial vessels, inland and seagoing towboats, inland and seagoing cargo barges and inland drilling vessels.

There has been talk about various maritime segments seeking legislation from the Congress, bringing their specific vessels under USCG inspection to protect themselves from OSHA. The rationale behind this move would be based upon the belief that it is better to work with the USCG than it would be to work with OSHA. It is not at all clear that many companies endorse this policy.

At this time it does not look like there will be any mass petitioning of the Congress to broaden the various classes of vessels currently inspected by the USCG.

OSHA has been around for more than 25 years. The Congress has limited their budget as a means of preventing them from overly aggressive industry inspections. Despite this OSHA has had and will continue to have major impact upon all elements of the maritime, even upon USCG inspected vessels, although indirectly.

Confined space entry, HAZWOPER training, in depth personal protective equipment standards, and competent person inspections are a few of the OSHA generated issues that now tend to impact everyone in the maritime. It is anticipated that future USCG rule makings will include more extensive occupational safety components.

The USCG has already started this process by the inclusion of these issues in the December 1999 proposed changes to the Outer Continental Shelf Activities rules at 33 CFR Subchapter N. While it is not at all clear that these proposals will all become final rules, the proposal demonstrates present USCG thinking on the subject. Many would say that these proposed OSHA type rulings should be applicable to all commercial inspected vessels and not just those vessels engaged in the offshore oil industry.

The specific USCG OCS proposed workplace safety and health standards included:

Personal Protective Equipment

- Eye and face
- Head
- Feet
- Hearing
- Clothing
- Respiratory
- Fall arrest
- Radiation
- Airborne Substances
- Infectious material

General Workplace Conditions

- Electrical work
- Lockout/Tagout
- Noise



Charley Havnen

- Machine guards
- Equipment use and maintenance
- Slings
- Personnel transfer nets

Confined space entry

- General
- Entry requirements
- Prior to entry
- Preparing space for entry
- Calibrating atmospheric test equipment
- Atmospheric testing
- Permits, Certificates & logs
- Restrictions on equipment and work
- Testing and protective Equipment
- Personnel training
- Rescue team
- Offshore competent person

Does it really matter if these standards come at the industry from OSHA or the USCG? In the past it was often said that the USCG understood the maritime far better than OSHA. It is also true that the USCG's empathy with the maritime in recent times has not been particularly favorable as evidenced by the USCG methodology involved in the implementation of the Standards of Training, Certificating, and Watchkeeping (STCW).

It would seem that eventually OSHA standards will apply directly to uninspected commercial vessels and OSHA type standards will be issued by the USCG for all inspected vessels. Unfortunately, implementing these issues will probably be the USCG's current focus on security issues and other long term Administration funding problems.

Final resolution of all occupational safety and health issues in the maritime will likely take 10 years or more to resolve.

Charley Havnen is a Commander USCG Ret. His organization can help you with your vessel construction project, regulatory problems, vessel manning issues, procedure manuals, accident analysis or expert witness. His organization can do what you can't or don't want to do. He can be reached by contacting the Havnen Group: (800) 493-3883 or (504) 394-8933, fax: (504) 394-8869.

Munson Delivers PACKCAT to U.S. Navy

The Naval Facilities Engineering Command (NAVFAC) recently received a pair of 30 x 10-ft. (9.1 x 3-m) PACKCAT catamaran landing craft designed and built by the William E. Munson Company of Mount Vernon, Wash.



Developed for the NAVFAC Oil Spill Response Program, each vessel is outfitted with twin 200 hp Mercury outboards, providing a 45 mph response speed. Additional outfitting includes a 5 x 5 ft. (1.5 x 1.5-m) wheelhouse elevated for maximum visibility, cargo deck tie down rails, three-in. D guard rubber, 200-gallon fuel system, towing package, work light package, VHF, GPS, and depth sounder.

The standard 74 in. wide bow door, large self-bailing cargo deck and 5,000-lb. cargo capacity and provides versatility. The PACKCAT's patented tunnel hull catamaran design incorporates twin 16-degree vee hulls providing increased stability, superb rough water performance and shallow draft.

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U.S. Navy Awards Northrop Grumman \$1.3B LHD Contract

The U.S. Navy awarded a \$1.3-billion construction contract to Northrop Grumman Corporation to construct the eighth ship of the USS Wasp (LHD 1) class of



USS IWO JIMA, the most recent of the LHD fleet, was delivered to the U.S. Navy in June of 2001.

multipurpose amphibious assault ships. Construction of LHD 8 is expected to begin in May 2003 at Ingalls Operations, which is part of Northrop Grumman's Ship Systems sector.

This contract includes \$360 million previously awarded for advance work

on the ship, including design, equipment procurement and fabricating selected ship assemblies.

Ingalls has delivered seven LHDs into the fleet, the most recent being USS Iwo Jima (LHD 7), which was commissioned in June 2001.

The most significant enhancement for LHD 8 will be the introduction of gas turbine propulsion, replacing classical

steam propulsion in previous ships of the class.

The challenge for the propulsion system design team has been the upgrading of specifications to include two 35,000-hp turbines, which will be the largest ever in U.S. military marine applications.

Other major enhancements include a controllable pitch propeller, allowing the

ship to change speeds through the adjustment of propeller blade pitch. Also, a reverse osmosis system will be installed for the ship's water supply. The ship will have six diesel-electric generators and will use a new zonal system to distribute electrical power.

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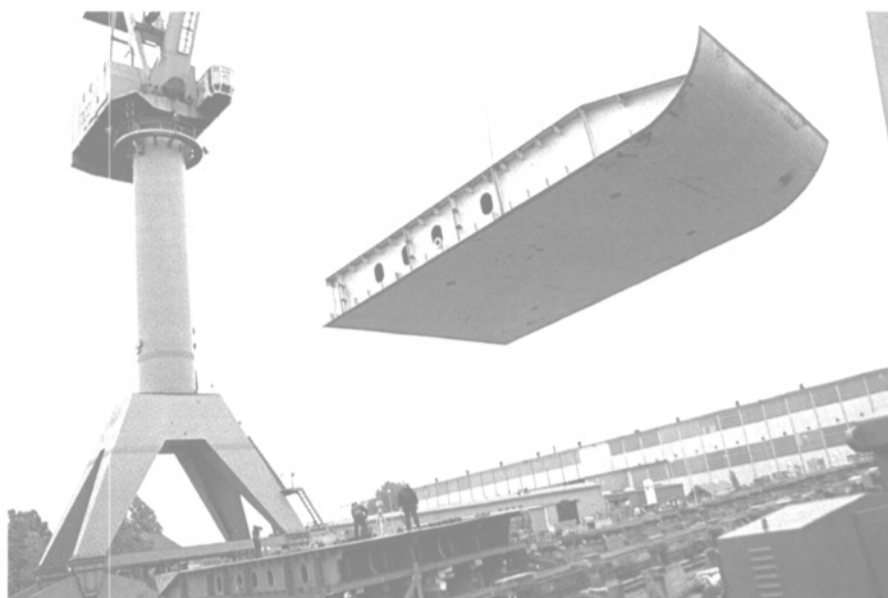
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Shipboard Life in Style



ResidenSea's keel was laid in Landskrona, Sweden on September 18, 2000.

A new concept in luxury living and travel has been brought to realization with the completion of the much-vaunted ResidenSea ship. The World, which made its service debut at European ports during April.

The unique vessel, home to a resort community continuously circumnavigating the globe, is the brainchild of **Knut U. Kloster Jr.**, and is a testament to the Nordic maritime sector's propensity for innovation. Mr. Kloster was former chairman of Royal Viking Line and Norwegian Cruise Lines, and his father

was a pioneer in the cruise industry, operating vessels out of Miami in the early 1960s.

Several prominent cruise, shipping and hospitality industry investors have joined Kloster in funding the company ResidenSea, registered at Freeport, Bahamas.

Wholly distinct from cruise ship vacations, the offering from ResidenSea is described as a 'lifestyle product,' founded on a perception of a niche market opening for a resort vessel incorporating privately-owned apartments.


THE WORLD
of ResidenSea

Its 110 residences, ranging in size from 1,106 to 3,242-sq. ft. and commanding prices between \$2.2 million and \$7.5 million for ownership on a long-term, leasehold basis, are complemented by 88 guest suites available for the high-end vacation market. All-inclusive fares for guests start from approximately \$4,000 per person for a seven-day voyage.

At a presentation aboard the 43,524-gt vessel moored off London's historic Greenwich waterfront on April 8, ResidenSea's chief executive Fredy Dellis said approximately 80-percent of the apartments had been sold, with some 40-45-percent of the buyers coming from the U.S.

As to when the company will give the green light for the construction of a second such vessel remains to be seen. For sure, though, The World is a new showcase for Norwegian shipbuilding and the associated maritime cluster, putting main contractor Fosen Mek Verksteder among a select league capable of fulfilling major passenger vessel projects.

A key aspect of the ResidenSea operating philosophy is the extended stay times for the ship in port, allowing longer tour programs and more time ashore. In addition, the itineraries of five to 17 days dovetail with major sporting and cultural events, such as the Monaco

Grand Prix, Cannes Film Festival, and the British Open Golf Championship. In the course of her global meanderings,



by David Tins'ey,
 technical editor

The World's sojourns in port will typically be from two to five days. The vessel's operating systems reflect the unusual service profile, whereby time in port is expected to amount to some 250 days per year.

Although owners of the residential apartments will of course determine just how much time they spend on the ship, it is thought that they will typically be aboard for periods ranging from a few weeks up to as much as six or nine months, although some may choose to live on the vessel throughout the year.

Since The World is effectively a place of domicile, rather than a floating hotel with an ever-changing population, the particular challenges presented by the technical newbuild project included meeting the most stringent criteria relating to noise and vibration levels.

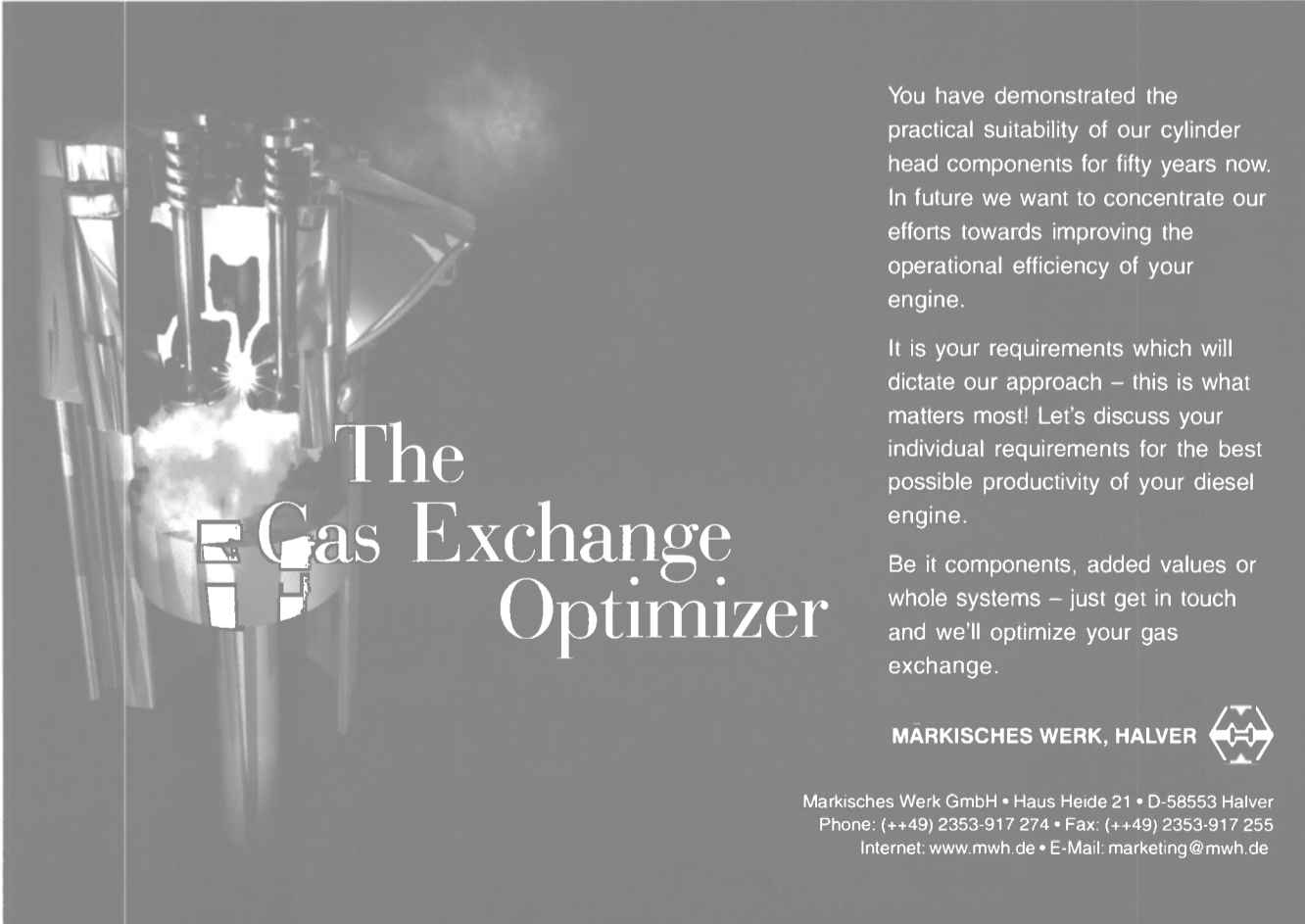
The knowledge that perceptions of quality in all its manifestations would be vital to the long-term business success of a residential, resort ship venture gave added dimension to the ResidenSea technical program.

Power and propulsion system supplier Wartsilä applied its skills in hydrodynamics, advanced design and flexible propulsion control to meet the requirements relating to noise and vibration, while classification society Det Norske Veritas carried out comprehensive studies to ensure that the highest standards of its Comfort Class notation would be met.

While a maximum speed of 19 knots is attainable with the ship's diesel-mechanical drive, optimization and flexibility of installed diesel power for energy needs both at sea and in port, and low drive train and propeller noise under all conditions have been more pressing requirements than high speed.

The novel approach to domestic life at sea has also resulted in the incorporation of a kitchen in each of the apartments. The fact that this has imbued the ship with 110 private galleys, each posing a fire risk, has also called for a circumspect and comprehensive technical approach.

Under a solution developed by the owner and shipyard in cooperation with DNV, every kitchen has been treated as a galley from a regulatory standpoint. Each kitchen has accordingly been surrounded by class A fire boundaries, and fitted with a dedicated exhaust and fire extinguishing system.




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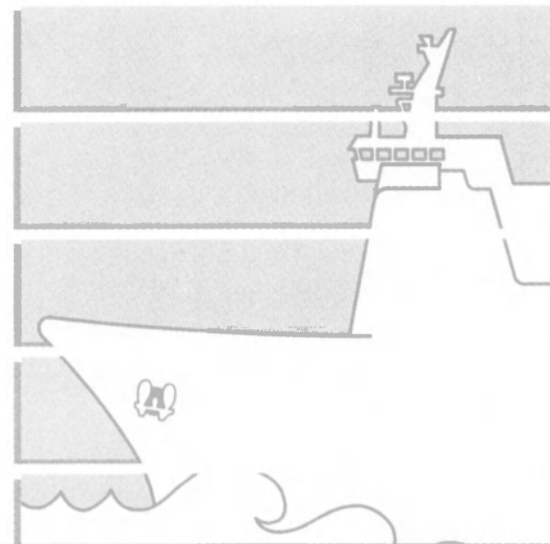
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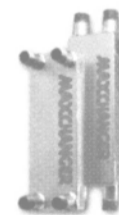
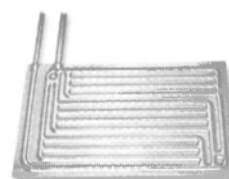
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Shell Employs Shallow Draft Asprella

A new 10,000-dwt product carrier built specially with a shallow draft was built at the Frisian Shipyard, Welgelegen in the Netherlands.

Known as Asprella, the double-hulled vessel, leased from Pritchard Gordon Tankers Ltd. and chartered by Shell, is



The 'Asprella'

purpose built for shallow draft trade, and will be employed by Shell for trade on South American Rivers for Shell's activities based in the Caribbean.

Asprella will be managed by Shell International Trading & Shipping in London.

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Coast Guard Cutter Shrike Joins Fleet

The 87-ft. (26.5-m) Coast Guard Cutter Shrike officially entered Coast Guard service at a commissioning ceremony in March. The ceremony, which occurred at Coast Guard Station Port Canaveral in Cape Canaveral, Fla., involved the vessel's christening by its sponsor **Nancy Weldon**, wife of Congressman **Dave Weldon**, (R-Fla.), who served as a civilian advocate for the ship and its crew.



Shrike, which is known as the 42nd Marine Protector Class built for the USCG, will conduct search and rescue and law enforcement duties off the east coast of Florida. The vessel employs the latest technological advances in navigation and marine technology, mainly a fully integrated electronics suite coordinates RADAR, satellite navigation, gyrocompass, autopilot and computer generated charts to form a compact but user-friendly command and control system for all of the ship's missions.

Wynn to Supply Offshore Patrol Vessels

Wynn Marine has won the contract to supply the window wiper systems for three offshore patrol vessels (FOPV) currently under construction at Vosper Thornycroft, U.K. The contract is to supply 13 Type C Straight Line Wipers to each vessel, which will be operated by the Wynn Series 2000

Construction of the first of the three River Class FOPV's commenced at Vosper Thornycroft's Woolston shipyard in May 2001 and the first vessel will enter service with the Royal Navy in November 2002. The new vessels will replace the five existing Island class vessels currently used for Fishery Protection duties and will fulfill a wide variety of offshore policing, patrol and military support roles.

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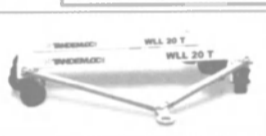
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Has the Fast Cat Come to A Halt?



INCAT chairman and CEO, Robert Clifford has ensured customers that the company's recent financial woes will not affect Bollinger/INCAT USA.

Long hailed for its innovative "fast cat" vessels that were developed by Robert Clifford and Phil Hercus in the 1980's Incat Australia delivered not a new cat last month, but news of an impending bankruptcy. Could this be the end of the fast cats that have dominated the aluminum shipbuilding world for the past 20 years?

During the first week of March the Hobart shipyard admitted that it was suffering from financial difficulties, and responded by laying off several hundred employees. In fact, according to Australian news sources, the yard has 1,000 less employees than it did one year ago — despite having won an \$80 million contract from the U.S. Military for a 101-m high speed support vessel — transporting American troops throughout the Japanese Islands for the next three years. Known as the HSV X1 Joint Venture, the vessel is currently being transferred from the U.S. Navy to the U.S. Army for a trial period.

In order to enable its ships to be sold to the U.S. Armed Forces and Government, the company established an alliance with Bollinger Shipyards in Louisiana at the end of 2000. The joint venture, which was created to also further aluminum shipbuilding in the U.S., according to Incat's CEO, Robert Clifford, will not be affected by the parent company's financial troubles.

In response to curious customers who have been inquiring about the status of the Australian shipyard, a statement was issued at the end of March by Incat's Nick Wells. *MR/EN* obtained a copy of the statement, which has been excerpted as follows: "For the past 24 months, the commercial market has been slow and Incat have, as a private company, tried to maintain a high output capability, to take advantage of anticipated market movement. This has resulted in a high level of craft assets. Doing this may not have been the best approach and has resulted in recent downsizing the Incat workforce and finance constraints. The solutions rest in selling craft."

Reassuringly so, Wells adamantly said that it will not. "Our relationship with Bollinger/Incat USA and their customers continues to grow at a very pleasing rate.

The situation in Tasmania has no effect on the Bollinger/Incat USA relationship and does not effect availability and sup-

port of Tasmanian built product from the Incat side of the partnership. We will also continue with our plans to lay keels of Incat WPC at Bollinger."

When contacted by *MR/EN*, Incat's


CEO, Robert Clifford was equally up front as well as upbeat about the Bollinger Incat alliance, "We (Incat Australia) owed our bank around \$70 million, a figure that was reduced considerably when we sold a vessel during the middle of April." Clifford said. "Another deal is on the table, which if complet-

ed will retire the bank debt.

"Several other deals are also being considered, which when completed, will mean that the company will be trading profitably.

"Bollinger/Incat and Incat USA will not be affected," he added.

— Regina P. Ciardiello



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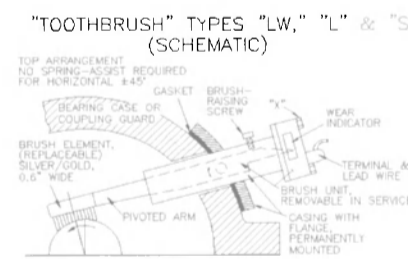
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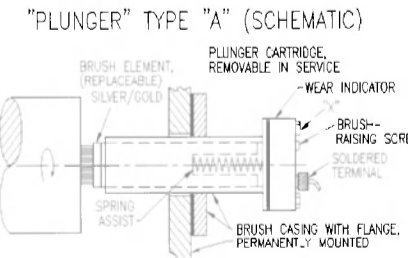
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Market Changes Mold RoRo Ship Conversions

A number of commercial and regulatory factors have contributed to growth in the RoRo ship upgrading and conversion market over the past year, particularly in the North European arena:

The abolition of tax-free sales on ferries in intra-EU traffic forced shipowners to find new sources of revenue. A declining number of passengers can be countered by converting ships to carry more cargo: for example, by reconfiguring car decks or exploiting former passenger cabin and amenity areas to accommodate more trucks and trailers — and fewer cars.

- Continual search for higher profitability from existing assets rather than investment in new tonnage dictates maximization of cargo capacity and optimization of handling to speed traffic flows and shorten times in port. A conversion to allow loading and discharging on two levels may be considered, for example, and the retrofit of auto-mooring equipment.
- Safety issues, with maritime authorities and classification societies dictating upgrading/conversion measures by shipowners to maintain certification.
- Trade within the European Union has increased and demanded more cargo transportation capacity.

Increasing road congestion and air pollution call for less-polluting transport solutions. An EU program aims for improved inter-modal freight services, easing the movement of cargo between land, river and sea, and stimulating shipowners to seek more flexibility and efficiency from their fleet units.

- Low interest rates, making investment in upgrades and conversions more attractive.
- Competition from new players entering an arena, such as the Baltic, influencing established ferry operators in the region to execute upgrades or conversions to sustain business.

Swift and cost-effective upgrades/conversions to suit a ship for a different service, freight mix or terminal — or to meet new safety rules — are valued by RoRo passenger and freight ferry operators in changing market conditions. Such projects help to maintain or increase revenues on an established route or to redeploy tonnage in more profitable trades.

Tapping experience from what it claims is the world's largest installed RoRo equipment base, MacGREGOR has executed numerous modernization and conversion projects — often on a turn-key basis embracing initial study, technical solution, design, manufacturing, installation and commissioning. Specialist teams aim to



eliminate or minimize downtime by performing as much work as possible while the ship is in service.

Participation by MacGREGOR as an invited specialist in the post-Estonia disaster committee contributed to the Nordic Rule proposals — covering the strength, securing and locking arrangements for bow doors and visors — subsequently adopted by the International Association of Classification Societies (IACS). These addressed the first line of defense (preventing water from entering the vehicle deck).

MacGREGOR has since supplied inner bow doors and carried out bow reinforcements for numerous ferries. In tackling the second line of defense (improving the ship's survivability if water enters the vehicle deck), the company has undertaken numerous retrofits of flood control doors on RoPax ferries.

Dividing the car deck into watertight compartments with longitudinal or transverse barriers is an efficient

way of improving the survivability of damaged RoRo ferries. Flood control doors prevent the free water from spreading over the whole car deck, and thus decrease the total free surface effect and its potential to capsize the vessel.

Side-stowing and top-stowing jalousie types as well as hemicyclic and telescopic doors can be selected from a MacGREGOR portfolio developed to minimize loss of cargo space, operational interference, first cost and weight. Reliability and low maintenance demands were also sought by the designers. Effective 'defense barrier' hardware is vital but some RoRo ferry casualties have underlined the importance of owners and crews being committed to a rigorous operational regime and to maintaining equipment subject to arduous duty. A pro-active approach is urged by MacGREGOR, embracing regular inspections and reports by specialists to secure sustained ship safety and

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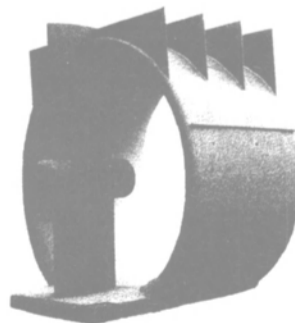
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MacGregor has worked tirelessly with International regulators to ensure that RoRo and RoPax ships maintain stability despite the potential ingress of water.

cargo handling efficiency.

Operators can take advantage of continual equipment and system refinements, with relatively small investments often proving highly cost effective. Upgrading hydraulic or electric systems, for example, is a common option as original equipment ages and components needing replacement become more difficult to source. These can be replaced by contemporary equivalents or by more modern alternatives.

A typical upgrading is the replacement of a manually-operated system by an electro-hydraulic PLC-controlled system, which, via push-button operation, controls the sequences and leaves the PLC to check the signal when the operation is completed.

A new development proving attractive for RoRo ship newbuildings as well as retrofit projects is MacGREGOR's COREX panel for creating fixed and hoistable car decks/ramps. The stainless steel sandwich construction yields a significantly reduced profile (approximately one-third the depth) and about half the weight of an equivalent conventional steel panel.

The resulting lower lightship weight, reduced molded depth and increased stability can be exploited to maximize the operational flexibility of a RoRo ship and extend payload configurations. Improved profitability and a higher second-hand value are thus promoted.

Weight reduction was a prime factor in Samsø Linien's decision to retrofit light-weight COREX panel-based hoistable car decks to its small vehicle/passenger ferry Sam-Sine. A larger free height above and below the hoistable car deck was also sought. Replacing the existing hoistable deck with a 98 x 13 ft. (30 x 2.4m) COREX version secured a weight reduction of 10 tons and extra free height on the main vehicle deck. The Danish owner can also anticipate lower maintenance costs from the stainless

steel construction.

Ships with conventional car decks and a trailer deck free height suitable for accompanied trailer traffic can be converted to take unaccompanied trailers or to accommodate higher trailers by installing COREX decks. The standardization and modularity of a car deck built from COREX panels foster short lead times for conversion projects, says

MacGREGOR, and the container-friendly decks and associated components can be shipped pre-assembled or for final assembly close to the customer.

Hyundai Heavy Industries ordered COREX panels for the hoistable car decks and ramps of two Seapacer-class RoPax ferries booked by the Swedish owner Stena RoRo. COREX panels were selected for the car decks because

of their impact on lowering weight and their significantly reduced thickness compared with conventional car decks. The latter characteristic enabled the designer to meet the owner's strict specifications for maximum free height on the cargo deck without compromising the stability of the ship.

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Seville Delivers RoPax Ferry

IZAR's Seville yard has delivered the largest RoPax ferry ever to sail under Spanish flag to owner Trasmediterranea. IZAR's delivered on March 14 its yard number 291, the 6,900 dwt RoPax Murillo. As the largest RoPax vessel

ever owned by a Spanish company and sailing under Spanish flag, it exceeds the dimensions of any other vessel in Trasmediterranea's fleet, even the recently delivered 564-ft. (172-m) RoPax sisters Sorolla and Fortuny.

Seville has introduced substantial improvements in cargo and accommodation capacities on the Murillo, a project that followed the successful design carried out on the Merchant series of four vessels for Cenargo. Payload cargo has been increased, as the accommodation, for instance, has been more than doubled. Murillo has 123 cabins of dif



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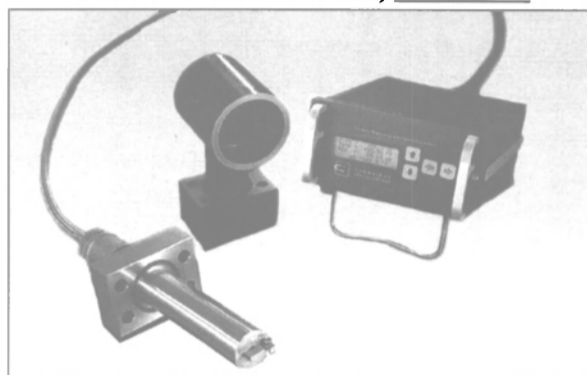
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Main Particulars — Murillo

Length, (o.a.)	591 ft. (180 m)
Length, (bp)	553 ft. (168.70 m)
Breadth, (molded to main deck)	79.7 ft. (24.3 m)
Depth to main deck	31.5 ft. (9.6 m)
DWT	6,900 tons
GT	24,813
Draft, design	21.3 ft. (6.5 m)
Speed, service at 85% MCR	22.8 knots
Maximum trial speed	23.25 knots at 85% MCR
Main engines, output	4 x 5,940 kW at 600 rpm
Accommodation	123 cabins for passengers/51 cabins for crew
Maximum passenger capacity	600 persons on board
Vehicle capacities	1,070 lm on deck 5
	830 lm on deck 3
	180 lm on deck 2
	216 lm on deck 1
Stem ramp	.56 x 62 ft. (17 x 19m)
Ramps	From deck 3 to deck 2, 76 ft. (23.3 m)
	From deck 2 to deck 1, 66 ft. (20.2 m)
Lifesaving equipment	2 Semi-Enclosed Lifeboats
	2 Rescue Boats
	2 MES (Marine Evacuation System), 225 persons (unit MES capacity)

ferent sizes compared with the Cenargo vessels' 57 — an increase in the number of passengers up to 396 in cabins and 150 in seats.

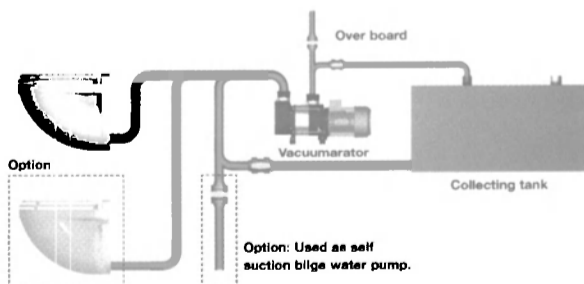
Also, Murillo has 2,396 vehicle lane meters (1,900 lane m for trucks and 400 lane m) for cars on four decks where Cenargo vessels performed 2,000 lane meters on two decks. The lower cardeck is located on the tank top with the upper one mounted directly above it. Access is provided by a fixed ramp between the decks, which in turn can be accessed via a fixed ramp from the main deck. Two lifting ramps provide access to and from the upper deck.

Murillo is powered by four Wartsila 9L38 four-stroke engines developing 5,940 kW at 600 rpm arranged in pairs in separate engine rooms with separate feed systems, and equips Flender gearboxes.

Lips propellers are used on Murillo, which incorporates two Brunvoll bowthrusters. Stabilizing is done via an Interling anti-roll system. This is further enhanced with the addition of Mitsubishi retractable hydraulic fin stabilizers. The quick construction time also is remarkable. The advanced delivery has given a 20-month construction time.

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Crankshaft Care Key to Vessel Profitability

Mark van Schaick Marine Services is a relatively new company, based in Schiedam (Port of Rotterdam) specializing in crankshaft repair, repair of engine and industrial parts, technical consultancy, and marine and industrial spare parts.

The company has capacity at its workshop for grinding crankshafts up to 20 ft. (6 m) on a lathe built by Naxos Union. As a result of a co-operation with Mitchell Shackleton in the U.K., crankshafts up to 39.5 ft. (12 m) can be repaired. Every possible kind of crankshaft can be checked, ground, polished, straightened, hardchrome-plated and hardchrome-ground. If a client requests, the company will undergo inspection by certification and classification societies. Repairs can also be carried out on turbine parts, engine blocks, connecting rods and pistons.



Avoid Serious Crankshaft Damage

As maintenance is becoming more important with high output diesel engines, especially when it comes to crankshaft failure, the company offers the following advice to potential clients:

In the past, the material used for a crankshaft was, for example CK40, which after a bearing failure and overheating does not show extreme cracking or increase in hardness. This meant that such shafts could be ground undersize and re-used without any restriction.

Today, engines have high-tensile steel crankshafts with non-hardened or hardened running surfaces; after a bearing failure and overheating most of these shafts are beyond repair. The non-surface-hardened shafts react on an overheated bearing with very hard spots up to Brinell 600 (about Brinell 300 is allowed), bending and often severe cracks. The available undersizes are normally not enough to salvage the shaft.

Surface-hardened shafts, on the other hand, lose their hardness when a bearing gets overheated and will often crack as well. This is also a reason for rejection because the hardness is totally gone in particular locations and will not come back when the shaft is ground undersize.

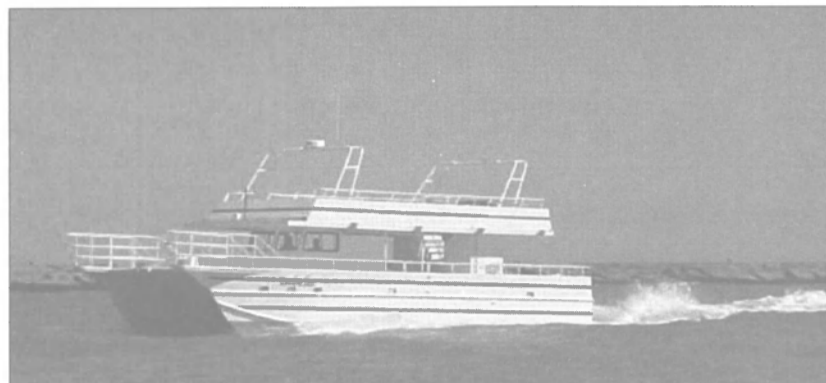
Rejection of the shaft can be avoided by keeping an eye on the following points:

- Keep the oil in good condition, take samples and have them examined.
- Check the big ends of the connecting rods and repair them if ovality exceeds the limit.
- Check the ovality of the crank pins and the wearstep between the webs. If there is a serious wearstep between the crank webs do not fit new bearings without removing it.
- Check the torque of the connecting rod bolts and main bearing cap bolts. Use a calibrated torque-wrench.
- Renew bearings according to maker's specifications.
- Renew connecting rod bolts according to maker's specifications.
- Make sure that the engine has no misalignment.
- Check vibration damper according to maker's specifications.

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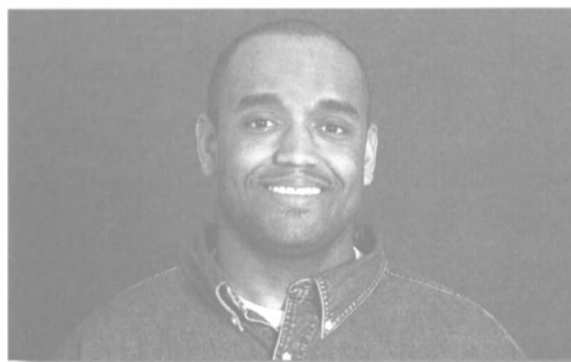
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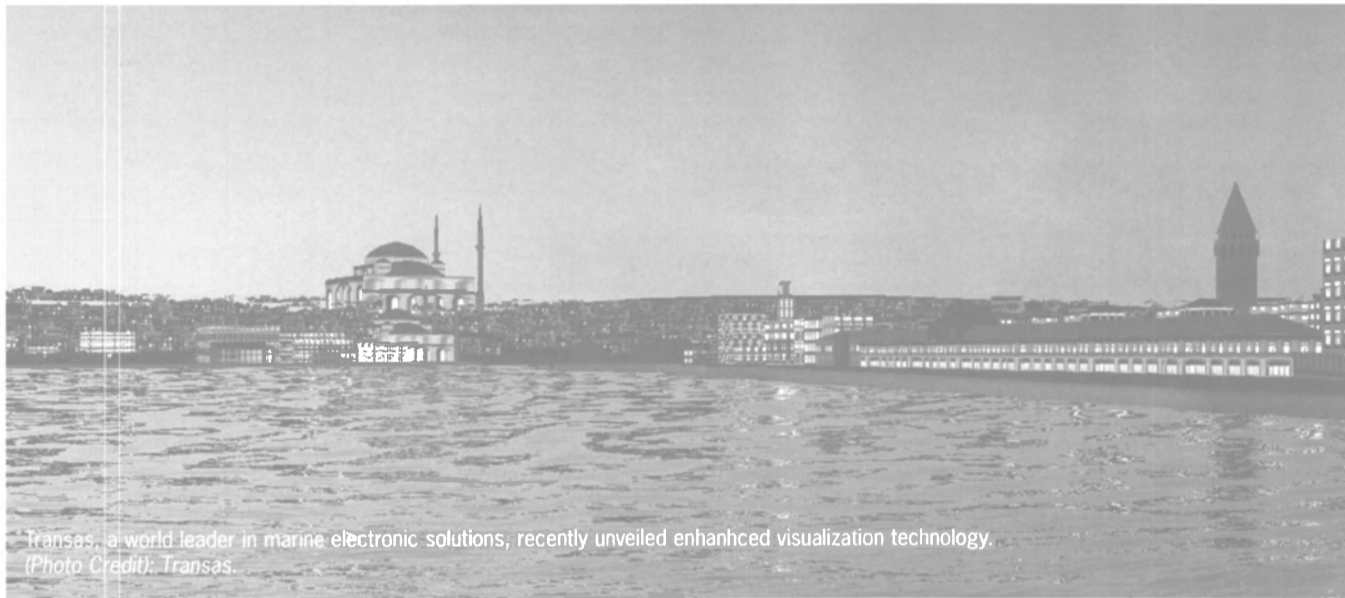


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AIS: When & Where? Here & Now!



Transas, a world leader in marine electronic solutions, recently unveiled enhanced visualization technology. (Photo Credit): Transas.

The events of September 11, 2001 will continue to have lingering effects on the world indefinitely. The most visible remnant in the maritime world is the drastically heightened sense of safety and security, as officials in countries around the globe seek to secure their borders from the threat of attack — either direct or covert — via ship.

Many of the issues currently on the legislative fast track were already in the works pre-September 11. False crew documentation, enhanced vessel tracking and beefed-up harbor controls were much-discussed topic in previous years. As is the case more often than not,

though, a disaster of some proportion is inevitably the impetus in moving from discussion to action.

Such is the case with the Automatic Identification System (AIS), which has quickly become a top agenda item in the fight to ensure maximum maritime security.

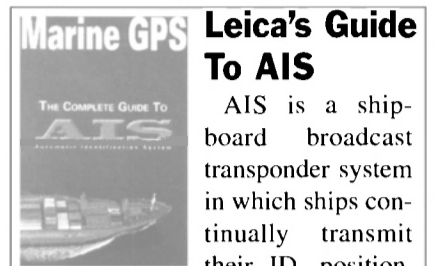
The matter of fast-track implementation for AIS has been taken up by the U.S. Coast Guard through the International Maritime Organization, with urgent suggestions to implement mandatory AIS on vessels of 500 gt and above on international voyages as soon as possible, with the final implementation to

be decided at a meeting in December 2002.

What is an AIS?

As described in a booklet entitled "A Complete Guide to Automatic Identification Systems" by Leica Geosystems, a pioneer in AIS technology, AIS is a ship-board broadcast transponder system in which ships continually transmit their ID, position, course, speed and other data to all other nearby ships and shore-side authorities on a common VHF radio channel. AIS is designed to operate in one of the following modes:

- In a ship-to-ship mode for collision



Leica's Guide To AIS

AIS is a ship-board broadcast transponder system in which ships continually transmit their ID, position, course, speed and other data to all other nearby ships and shoreside authorities on a common VHF radio channel. AIS is designed to operate in one of the following modes: In a ship-to-ship mode for collision avoidance, as a means for coastal states to obtain information about a ship and its cargo and as a traffic management tool when integrated with a Vessel Traffic System (VTS).

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avoidance

- As a means for coastal states to obtain information about a ship and its cargo
- As a traffic management tool when integrated with a Vessel Traffic System (VTS)

The primary operating mode for AIS will be autonomous ship-to-ship reporting. In this mode, each ship transmits its data to all other AIS-equipped ships within VHF range. The unique communications scheme permits these data transmissions to take place independently without the need for a master control station.

Position and other data are fed automatically from the ship's sensors into the AIS system, where the data is formatted and transmitted in a short data burst on a dedicated VHF channel. When received on the other ships, the data is decoded and displayed for the officer of the watch, who can view AIS reports from all other AIS-equipped ships within range in graphic and text format. The AIS data may optionally be fed to the ship's integrated navigation systems and radar plotting systems to provide AIS "tags" for radar targets. The AIS data can also be logged to the ship's Voyage Data Recorder (VDR) for playback and future analysis.

In coastal waters, shoreside authorities may establish automated AIS stations to monitor the movement of vessels through the area. These stations may simply monitor AIS transmissions from passing ships, or may actively poll vessels via the AIS channels, requesting data such as identification, destination, ETA, type of cargo and other information. Coast stations can also use the



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AIS channels for shore-to-ship transmissions, to send information on tides, notices to mariners and local weather forecasts. Multiple AIS coast stations and repeaters may be tied together into Wide Area Networks (WAN) for extended coverage. AIS data can be logged automatically for playback in investigating an accident, oil spill or other event.

Systems Available

Not surprisingly, most major marine electronics manufacturers have answered the call to outfit the fleets of the world with AIS technology. While systems differ per usual — price depending on the number of bells and whistles sought by the owner — each must meet certain standards for international acceptance.

While shipowners will have the bear the cost of acquiring, installing and maintaining this new technology, they will also undoubtedly see costs rise as ports and other maritime authorities similarly raise the level of technology and security, and pass along the cost. Such is the case with the Panama Canal Authority (ACP), which is making major investments to improve security and reduce the risk and vulnerability of its facilities. Because of these investments, though, which include expanding the Canal's electronic monitoring and tracking systems, a new fee will be assessed on all transiting vessels as of June 1, 2002. Among other things, improvements include adding new computerized systems and collecting data from all ships that arrive in Canal waters. The ACP is currently working on the Automatic Identification System (AIS), to be test-activated in 2002 and mandatory by July 2003. AIS will permit identifying and tracking of all vessels before they enter Canal waters and during their transit. In view of this and other major investments, the ACP has established a new security fee per vessel, per transit, based on net tonnage. Accordingly, the tariff will be implemented on June 1, 2002. For vessels weighing up to 3,000 PC/UMS tons, or 5,392 displacement tons, the fee is \$50. Vessels weighing more than 3,000 PC/UMS tons or 5,392 displacement tons, will pay a fee of \$400.

The St. Lawrence Seaway also announced that AIS will be mandatory on all ships that use the St Lawrence Seaway starting in 2003, the Seaway Management Corp has announced. The Management Corp plans to have the IMO-compliant system in operation this July and all ships using the system will be required to pay a levy of \$0.0037 per GT until the end of June 2002. The levy, to a maximum of \$3,200/vessel/year, is being collected by the Seaway Corp. to help pay for the cost of installing shore-based AIS equipment. The money is being collected under an agreement reached in 2000 with the Canadian Shipowners Association and the Shipping Federation of Canada. CSA president **Don Morrison** said the Seaway took the initiative on this project, and "it is a good example of how we have to partner to get things done. It allows a vessel to know exactly where it is and where all nearby vessels are."

Saab TransponderTech

Involved in Finland AIS Implementation

Saab TransponderTech AB was awarded the contract to supply nine AIS Base Stations to the Finnish Maritime Administration through its local partner Navielektro ky. In addition, the company has supplied several mobile units to the inland waters of Saimen lakes in Finland, and the company is touting the combined effort as the first operational inland water AIS system in the world. The system will be integrated in

the Finnish AIS Network Solution also provided by Saab and Navielektro and the equipment has already been delivered for installation within the next few weeks. Saab has already provided 10 AIS Base Stations for the first phase of AIS installations in Finland along the Aland archipelago and the Gulf of Finland.

Orders for China, Korea

Saab TransponderTech AB has received orders for newly-built ships from Saab Rousemont Marine and Consilium to supply Dalian New Shipyard and Daewoo Shipyard with fully IMO compliant AIS transponders.

Saab TransponderTech has, with its partner Saab Rousemont Marine, received orders from Daewoo shipyard in Korea to supply Daewoo Hull 5178 / 5179 — Oak Maritime 105K TDW Crude Oil Tanker with AIS. These are the first AIS orders for new built in Korea direct to a shipyard and more are to wait in the near future.

Also Consilium Marine has ordered five AIS transponders for National Iranian Tanker Company-building at Dalian New Shipyard in China.

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Japan Radio Company

JRC Demonstrates UAIS to MCA

The Japan Radio Company (JRC) demonstrated successfully its Universal Automatic Identification System (AIS) to the Maritime and Coastguard Agency at Southampton. This is a significant event for MCA as the Agency has been pressing for AIS since Lord Donaldson's Report "Safer Ships, Cleaner Seas" was published in 1994. The AIS successfully worked with the

AIS: IMO Carriage Requirement

The 73rd Session of the IMO's Maritime Safety Committee decided the following ships will be required to carry AIS equipment.

All ships of 300 gt and upwards engaged on international voyages and cargo ships of 500 gt and upwards not engaged on international voyages and passenger ships irrespective of size shall be fitted with AIS, as follows:

- ships constructed on or after July 1, 2002;
 - ships engaged on international voyages constructed before July 1, 2002;
 - in the case of passenger ships, not later than July 1, 2003;
 - in the case of tankers, not later than the first "safety equipment survey" after July 1, 2003;
 - in the case of ships, other than passenger ships and tankers, of 50,000 gt and upwards, not later than July 1, 2004;
 - in the case of ships, other than passenger ships and tankers, of 10,000 gt and upwards but less than 50,000 gt, not later than July 1, 2005;
 - in the case of ships, other than passenger ships and tankers, of 3,000 gt and upwards but less than 10,000 gt, not later than July 1, 2006;
 - in the case of ships, other than passenger ships and tankers, of 300 gt and upwards but less than 3,000 gt, not later than July 1, 2007; and
 - in the case of ships not engaged on international voyages constructed before July 2002.
- Many U.S. ships subject to the Bridge-to-bridge Radiotelephone Act may also be required to carry AIS equipment.

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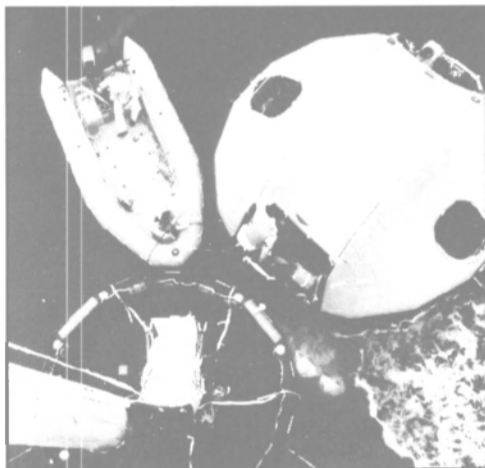
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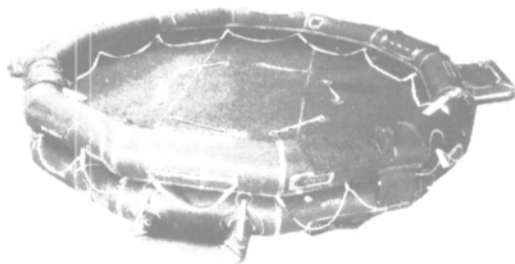
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shore network operated by HM Coastguard, the Vessel Traffic Service (VTS) operated by the port of Southampton and other ships in the area.

Kim Fisher, Head of Navigation Safety of the MCA said "This is the first example of a Universal AIS meeting IMO performance standards that we have seen. JRC is to be congratulated on producing such a fine device."

The report Safer Ships, Cleaner Seas was published after an investigation into marine safety following the wreck of the tanker Brear on the Shetland Isles in 1993. Among the recommendations was a recommendation to the U.K. Government to remove the anonymity of shipping by the use of identification transponders.

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Transas

AIS Boosts Transas' Range

Transas last year added the Automatic Identification System, AIMS MIII to its range, providing the technological solution in cooperation with Marine Data Systems from South Africa, via a distributor agreement which was signed in June 2001. AIMS MIII is designed in accordance with, and is fully compliant with, the IMO's functional standard for UAIS. An important application of AIMS MIII is its use as a ship-borne mobile AIS Station for work on all types of vessels, or on buoys and other aids to navigation.

In this case, it can be efficiently connected to a man-machine interface such as Transas Navi-Sailor electronic chart systems. Another important application for the Transas AIS include the AIS Base Station and AIS Communication Controller (ACC), for existing and future VTS centers.

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STN Atlas Marine Electronics

New Universal AIS Offered

A new Universal AIS which can be used to provide alphanumeric and graphic target and traffic information on radars and Chirpilot ECDIS workstations, the Debeb 3400, has been introduced by STN Atlas Marine Electronics. The unit is designed for stand-alone use or as part of an integrated bridge.

Operating in SOTDMA (Self-Organized Time Division Multiple Access) mode, the system can be switched from normal to autonomous operation to either assigned or polling modes by external VTS traffic monitoring

ObsTek: USCG Approves To Supply AIS Systems

ObsTek and its partner SML Technologies, manufacturers and distributors of vessel traffic management and port safety systems have already been awarded a contract, and have been approved, by the United States Coast Guard for the demonstration of a Universal Automatic Identification System (UAIS) in the port of New Orleans.

The demonstration consisted of two UAIS transponders: one connected to a desktop system and one to a portable system; the demo took place in the spring of 2000. The Coast Guard has solicited public comments on its proposal to the IMO before it presented draft recommendations at an intersessional meeting of the Maritime Safety Committee (MSC) in February. The MSC will meet again in May to develop amendments to the Safety of Life at Sea Convention (SOLAS) that IMO will vote on at an international conference on Maritime security scheduled for December 2002. The initiatives the Coast Guard is considering proposing range from vessel equipment to increased portside security and would apply to vessels currently subject to SOLAS (vessels over 300 gt engaged on intentional voyages, and vessels over 500 gt on any voyage).

In addition to proposing an accelerated schedule for the AIS, the Coast Guard is expected to propose port vulnerability assessments, point of origin container identifications and four other items related to security.

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authorities.

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Sailor

UAIS 1800 Offered

The Automatic Identification System — AIS will increase the safety at sea due to the fact that vessels carrying AIS will be able to get an overview of other AIS-equipped vessels within VHF range as the transponders will communicate automatically and as the information can be displayed on different kinds of display systems, which may include electronic sea charts.

Sailor UAIS 1800 (Universal Automatic Identification System) is a Class A ship borne transponder designed to comply with the IMO Resolutions MSC.74(69), Annex 3, for compulsory installation on SOLAS Convention vessels.

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SKANTI

UAIS 2000 and KDU 2000 Keyboard Display Unit

The SKANTI UAIS 2000 has been developed according to IMO's requirements and fulfils the requirements for Class A ship borne equipment of the Universal Automatic Identification System (AIS). It is designed according to, among others, IMO resolution MSC.74(69) Annex 3., "Recommendation for performance standard of UAIS"; ITU.R.M.1371 "Technical characteristics for an Universal Ship borne Automatic Identification System"; IEC 61993 Part 2 "Universal Ship borne Automatic Identification System (AIS). Operational and Performance Requirements, Methods of Testing and Required Test Results"; and IEC 61162 "Maritime Navigation and Radio Communication Equipment and Systems — Digital Interfaces."

The KDU 2000, Keyboard Display Unit, fulfills the IMO requirements for a control and display unit. However, the UAIS 2000 will typically be connected to more advanced display systems, which may already be installed on board the vessels.

SKANTI UAIS 2000 is an advanced integrated system with a GPS and a VHF data-link built into the transponder. This makes the system very reliable as only few connections are required. Only a display system, a VHF antenna, a GPS antenna and power are needed to make the system operational.

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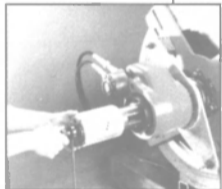
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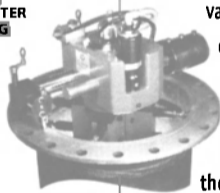
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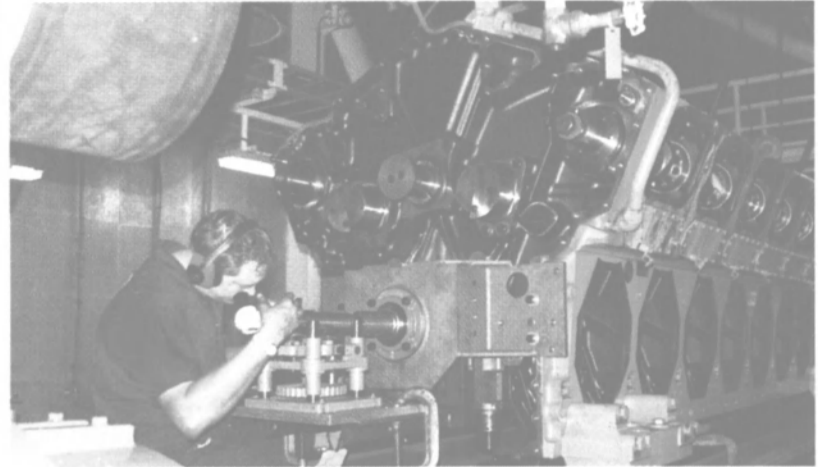
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Crowley Subsidiary Christens ATB

Crowley Maritime's Vessel Management Services, Inc., christened the first of four Articulated Tug-Barge (ATB) tank vessels on April 25 in New Orleans — the 9,280-hp tug Sea Reliance and the 155,000-barrel barge 550-1.

Intrepid Ship Management, a subsidiary of Marine Transport Lines, will charter the Halter Marine-built ATB from Vessel Management Services and operate it. Marine Transport is a Crowley subsidiary and part of its Contract services segment.

The ATB tank vessel was jointly designed by Vessel Management Services and Halter Marine to incorporate the latest advances in environmental and safety while addressing increased efficiencies in hose handling, anchoring, mooring, discharge and loading of product. The barge 550-1 was built at Halter's Port Bienville shipyard in Pearlinton, Miss., and the Sea Reliance at its Moss Point Marine shipyard, in Escatawpa, Miss.

The 550-1 is double hulled and the tug is double sided for maximum environmental protection and safety. The barge, built, documented and maintained to the requirements of American Bureau of Shipping (ABS) SafeHull, has an inert gas system as well as an enhanced cargo system and a fully redundant ballast system.

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Ballast Water Treatment Through Biodispersion

By Satya Ganti, president, Sarva Bio Remed; and Stewart Hutcheson, president, Safety Zone

The process of bioremediation of waste oil through patented biodispersion technology, consists of a breakthrough in ballast water treatment, which has been discovered via research based on the evaluation of SpillRemed (Marine), which was developed on the basis of biodispersion technology for remediation of bilge water on boats and ships in an effort to develop an environment friendly solution to the problem of operational discharges by ships.

A study was conducted on board cruise ships equipped with oil water separators. SpillRemed (Marine) is considered a suitable replacement to chemical dispersants.

Although in volumes as large as found on such ships, it is not possible to completely remediate the bilge water, by dispersing the oil in the water it will be pos-

sible to improve the separation of oil water separators.

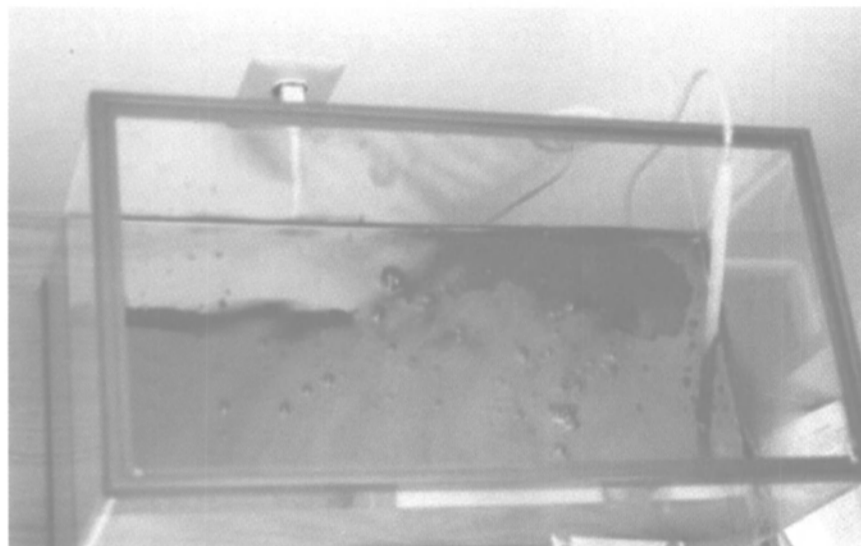
The following is a selection of preliminary results based on the research conducted on a variety of ship types.

Introduction

According to a United Nations Environment Program survey of 1997, more than 30,000 mt of oil is released in the oceans every year. Ships contribute a very small share of 12 percent through discharges regulated by the MARPOL 73/78, which has been accepted by most of the maritime and flag nations in the world.

Bilge water stored in the bottom part of the ships does not contribute in this for the simple reason that ships are not allowed to discharge bilge water containing more than 15 ppm of oil.

This has put heavy responsibility on the ship operators. In order to achieve the international standards of discharge, the ships will have to install oil water separators to separate oil and discharge water as per the international guidelines.



Dispersion of bilge water subsequent to being treated with SpillRemed (Marine) for 48 hours.

The ships will have to keep the waste oil exceeding the above limit in their holds and should discharge only at receiving facilities available at each port.

However, there have been a couple of incidents where these discharges have been made by the ships in violation of

the guidelines indicating that these ships may have found it difficult to follow the protocol since it affected their schedule or from operational necessity. Bilge water is probably the single largest source of waste oil produced from maritime activities, and it does not find any

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special use on shore. Yet it imposes a great burden on the ships and ports for collecting and disposal of the waste oil. Federal bodies like navies have their own facilities on shore where the naval ships can unload their bilge water without ships paying for the facility, but that is not the case with private operators.

The problem of bilge water disposal is same for small boats and their operators as for the bigger ships.

In situ Remediation through Biodispersion Technology

In view of such vast amounts of oil present in association with water, there is a need to treat this pollution at source and help reduce the "hidden" overheads incurred in treating oil pollution. Remediation at source needs to have the following properties to be a successful solution:

- Should be environmentally safe
- Should be Fast acting and remediation should take place in days.
- Should not disturb the existing ecosystem.
- Should be available in a Ready-To-Use (RTU) form
- Should not require supplementary addition of nutrients.
- Should require little or no human intervention.
- Should not contain any genetically modified bacteria

Products developed on the basis of patented 'Biodispersion' technology developed by Sarva BioRemed is one such solution to the problem by treating waste oil on site without affecting the environment. SpillRemed (Marine) and SpillRemed (FreshWater) can be employed in salt water or fresh water situation respectively.

Both these products are available in a Ready To Use (RTU) form and the treatment does not require any addition of nutrients.

Remediation of Bilge Oil on a Cruise Ship

Unlike studies on boats, studies on larger vessels were carried out in three phases namely, bench scale studies, compatibility studies and direct service trial.

Bench Scale Studies

Samples of bilge oil were directly collected from the cruise ship during transfer of the oil to the receiving facility. The oil was thick, black, viscous and hot at the time of collection suggesting that a greater component of low boiling point fraction may have been removed during transfer. The thick oil was brought to the laboratory and a small quantity was added to a fish tank containing 20 gallons of salt water

The water was aerated using a fish tank bubbler locally available. It was found that the oil became uniformly dispersed in 48 hours of time suggesting that SpillRemed (Marine) was effective on the complex mixture of oil and was under active remediation.

Compatibility Studies

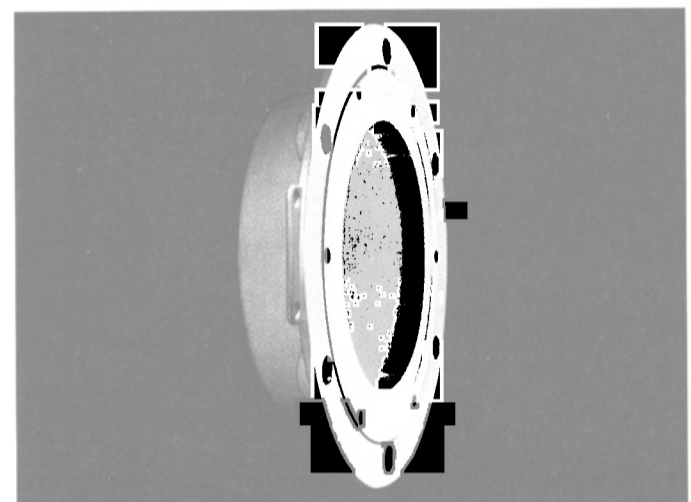
Once it was observed that SpillRemed (Marine) was effective on the complex mixture of oils in the bilge, it was decided to explore the possibility of using SpillRemed (Marine) in the bilge tank equipped with an oil water separator manufactured by Marine Flocc of Sweden. The Superintendent Engineer of the cruise line suggested that we determine the compatibility of SpillRemed (Marine) with the OWS as a first step in the trials on board their ship. Sample of SpillRemed (Marine) was sent to MarineFloc for their evaluation of compatibility with their OWS. The manufacturing company carried out their evaluation and submitted their report indicating that SpillRemed (Marine) was compatible with their OWS. Report of the manufacturer is submitted as an appendix to the paper.

Ship Board Trials

The ship board trials were initiated after completion of all the above formalities and the Superintendent Engineer was shown the test reports. A total of 200 liters of SpillRemed (Marine) was supplied to the ship. Although the ship left New York, the trials actually began on the return journey to Florida.

The bilge water contained 30 percent of oil and the

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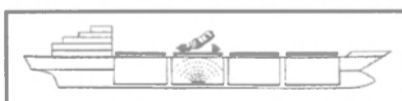
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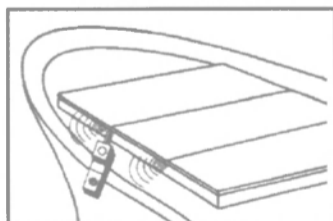
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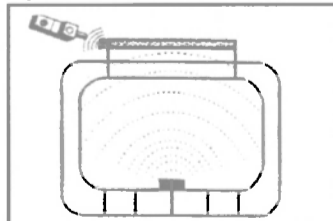


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volume was 10 tons of water in 80-ton sludge tank. The volume of SpillRemed (Marine) added was 55 gallons and no aeration was provided. The ship staff reported that there was no visible reduction of oil. It was also ascertained from the ship that the residence time for remediation by SpillRemed was just four

days with fresh additions of waste oil during the period. It is obvious that there was no time given for bacteria in SpillRemed to interact with the bilge oil before it was discharged to the port receiving facility.

Unfortunately, the trials were not continued and it is believed that if the reme-

diation was carried out in the bilge tank containing OWS the amount of oil would have been reduced considerably and load on the OWS would also have been less.

Cost Evaluation

In the case of bilge water treatment

using SpillRemed (Marine) there is neither installation cost nor any cost of transportation of wastewater. Bilge water is treated at the site itself and if the residence time of bilge water is adequate, the bilge water can be treated on the ship itself.

Unlike bilge water transport cost, which consists of both oil and water, cost of SpillRemed (Marine) is based on the concentration of oil only. One gallon of SpillRemed can treat 10 gallons of oil and works out to be less than \$1 for every liter of oil.

It is estimated that bilge water would contain about 10 percent oil of the total volume. Computing this value would indicate the total cost of treatment of bilge water employing SpillRemed (Marine) even on shore in centralized systems.

There is neither need of transportation of wastewater nor any liability when the oily wastewater is treated with SpillRemed. SpillRemed can thus contribute directly in a most cost effective manner in reducing the oil pollution at source either in the ship itself or at the shore receiving facilities.



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BALLAST EXCHANGE

- Minimizing transfer of unwanted organisms

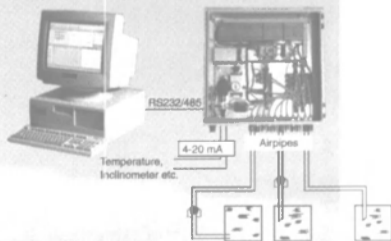


Transfer of invasive species like bacteria, plankton, invertebrates, spores, eggs, larvae etc from one biotope to another is considered to be one of the major threats to the ocean.

Kockum Sonics newly developed concept Ballast Exchange is an important tool when minimizing transfer of unwanted organisms by ships ballast water.

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Acknowledgements

We would like to express our gratitude to I. Mikedis, Superintendent Engineer, Celebrity Cruises for giving us an opportunity in conducting a shipboard trial. We would like to thank the ships Chief Engineer Georgios Mylonakis for providing samples of bilge for bench scale studies and also providing facilities during trials of SpillRemed (Marine).

We would like to take this opportunity to thank all the members of the engineering department for their help and encouragement during trial period.

Trials on the ship could not have been initiated but for the evaluation of compatibility of SpillRemed (Marine) with MarineFloc Oil Water Separators by Martin Gombrii of the manufacturing company in Sweden. We are grateful to the company for conducting the evaluation without any cost.

We are thankful to Alan Tweten, President Aquatech Enviro Sys Ltd. for his help in conducting trials on the wooden boats and providing with a sample of bilge water for analysis.

Also, Glen Phillip, Owner of Celtic Charter Services for his help in evaluation of SpillRemed on Aluminum boats in California.

LR Enviro Standard Employed On LNG Newbuilds



Lloyd's Register made three significant strides with one announcement when last month it divulged that Mitsubishi Heavy Industries (MHI) is applying the Lloyd's Register (LR) Environmental Protection notation to four LNG ships under construction at its Nagasaki yard. This news is significant for LR as it confirms the strength of its push on the environment and the LNG market, and is the first time this environmental standard has been applied to either LNG or Japanese built ships.

Compliance with Lloyd's Register's Environmental Protection standard is voluntary. The notation promotes a standard of environmental performance beyond that covered by ISM and MARPOL, both in terms of design and the on-going operation of the ship.

The first ship, Abadi, a joint venture between the Brunei Government, Mitsubishi Corporation and Shell, is due to be completed in June 2002. The remaining three, Galea, Gallina and Gemmata, are scheduled for delivery from September 2002 through to May 2004 and will all be delivered to Shell.

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LNG Breakthrough For Wärtsilä

Wartsila Corporation received an order to supply four Wärtsilä 6L50DF dual-fuel engines to power a 75,000 cu. in. LNG carrier contracted by the French gas holding company Gaz de France at the French shipyard Chantiers de l'Atlantique.

Due for delivery in 2004, this newbuilding is breaking away from traditional practices in the propulsion of LNG (liquefied natural gas) carriers. It will be the first LNG carrier to be powered by electric propulsion, and one of few to have internal-combustion engines instead of the more usual steam turbine plant.

The four dual-fuel engined generating sets will meet all the ship's propulsion and ship-board electrical requirements. The Wärtsilä 6L50DF engines each develop 5,700 kW at 514 rpm.

This membrane-type vessel (GTT-CS1) will be employed transporting LNG from Skikda in Algeria to Fos near Marseilles. This round voyage will take about one week at a service speed of 16 knots, which can be achieved with three of the four generating sets.

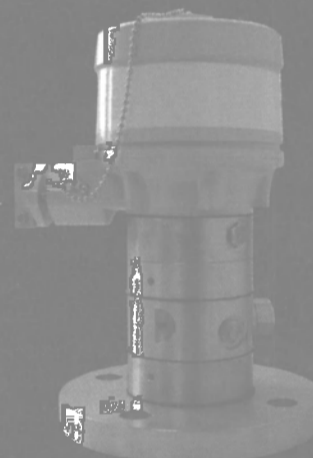
The ship is also designed for spot market trading, such as voyages to the U.S. For such times, the service speed can be 18.5 knots using all four generating sets.

Compared with the alternative power plants, the Wärtsilä 50DF engines have distinctive benefits in LNG carriers. While making maximum use of the gas fuel (boil-off from the cargo of liquefied natural gas) to develop useful power, the high efficiency of these engines calls for a much lower fuel consumption overall and thus lower operating costs than the conventional steam turbine plant. The Wärtsilä 50DF engines also have much lower stack emissions than a steam plant. Their low NOx emissions are about one-tenth those of the equivalent diesel engines. The combination of the engines' low fuel consumption and their

maximum use of natural gas means the 50DF engines also have low CO2 emissions. The Wärtsilä 50DF engines have cylinder dimensions of 500 mm bore by 580 mm piston stroke. Available in configurations with six, eight and nine cylinders in line, and 12, 16 and 18 cylinders Vee-form, the 50DF engines develop 950 kW per cylinder MCR at 500 or 514 rpm for 50Hz and 60Hz electricity generation, respectively.

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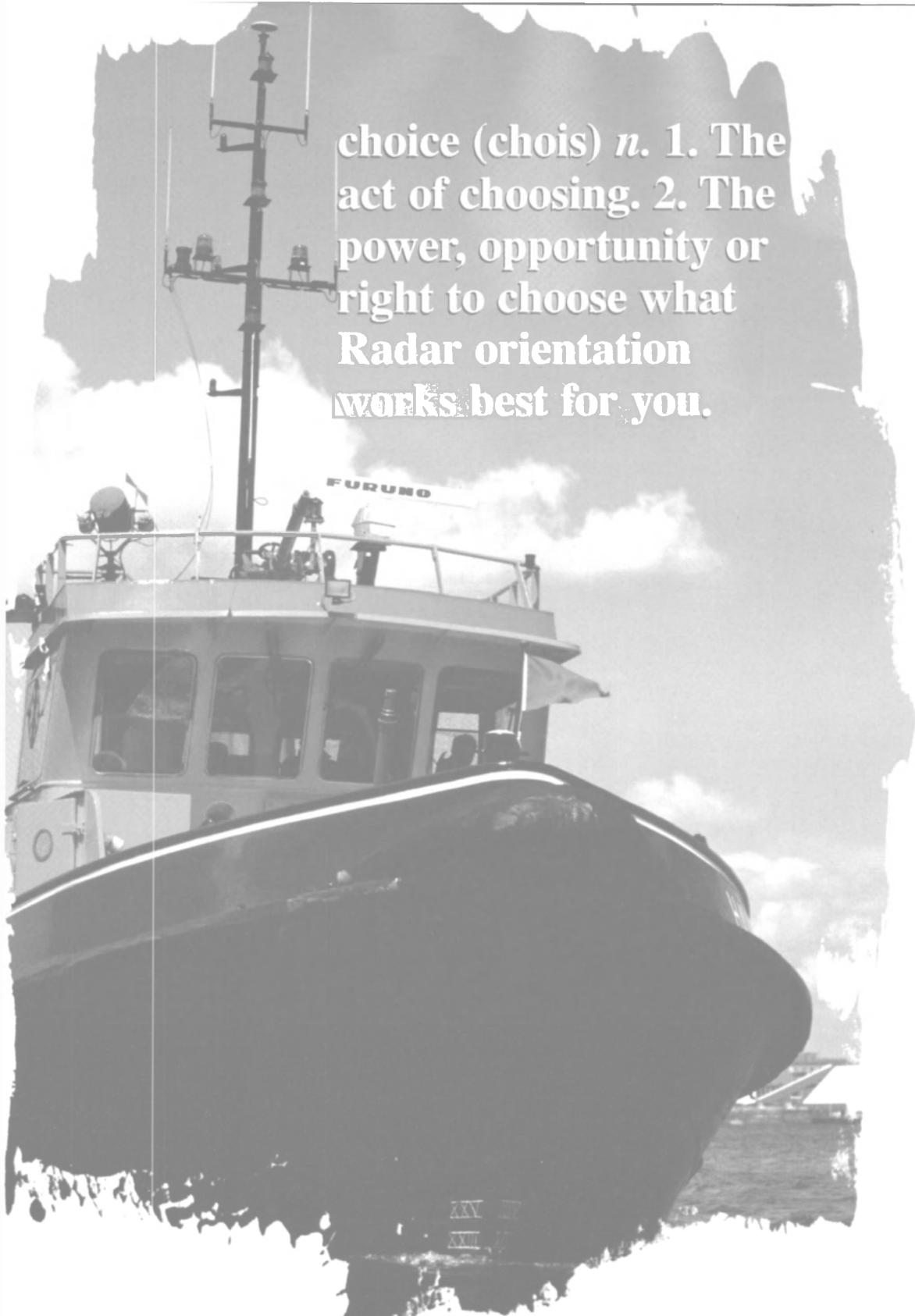
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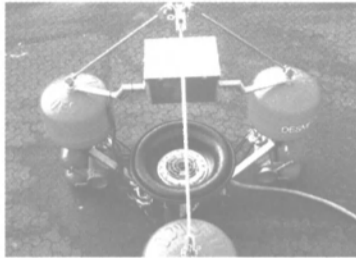
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Oil Skimmers Go Electronic

Ro-Clean Desmi A/S has taken the functionality of oil skimmers to the next level. Well known for their range of skimmers such as the Desmi Terminator and Desmi Termite, Ro-Clean Desmi introduced a simple propulsion system mounted on the arms of the Desmi Terminator.



This system comprises two hydraulically operated thrusters each capable of delivering up to 80 kg / 175 lbs. of pushing power, sufficient to pull the skimmer with its associated

hoses along in the water. Hydraulic levers, positioned by the diesel engine power pack on the deck or quayside, control these thrusters.

Ro-Clean Desmi has now advanced this system even further with the introduction of electronic remote controls for the skimmer and thrusters.

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ATC Awarded For Safety, Quality Assurance



Alaska Tanker Company, LLC (ATC) based in Beaverton (Portland), Ore., has achieved "Safety, Quality

and Environmental (SQE) Certification" including Accredited International Standards Organization (ISO) 14001 Certification to the Environmental Management System Standard on November 21, 2001. This accomplishment makes ATC the first U.S. flag seagoing Shipping Company to attain SQE and ISO 14001 Certification from the American Bureau of Shipping (ABS). This feat was achieved within 2.5 years of ATC's inception.

The attainment of Certification to the International Safety Management (ISM) Code as well as ISO 9001 (Quality Management System Standard) and ISO 14001 demonstrates the Company's commitment to be a World-Class tanker operator. Additionally, ATC has also submitted for compliance with Washington State's Exceptional Compliance Program (known as ECOPRO).

Nalfleet Marine Tests Kittiwake's Equipment

Nalfleet Marine Chemicals, the marine division of specialty water treatment company, Ondeo Nalco, has selected Kittiwake developments for its test kits and equipment.

Nalfleet, which supplies on-board water treatment chemicals, maintenance products, automation systems and associated services to the worldwide shipping industry, also provides a comprehensive range of test kits, replacement reagents and analytical equipment for this purpose.

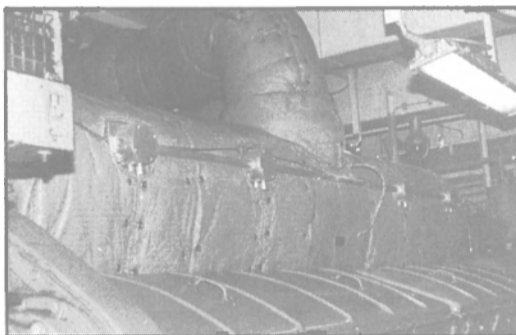
Other improvements included a complete revision of test kit instructions to a more user

friendly and durable format and offering to consolidate all Nalfleet's deliveries for export, an activity that they previously had to do in-house, while still achieving a substantial saving over the existing arrangement.

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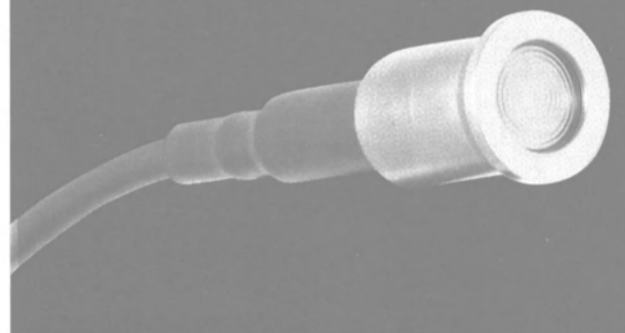
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New Measures on Ballast Water Management Approval

"Back to the drawing board" is the message to designers of new vessels, as ballast water management is to become a major consideration in the design of new vessels following the approval by IMO of a series of measures aimed at reducing the effects of marine organisms transported in ballast water and the risks involved in some ballast water management techniques. The 47th session of the International Maritime Organization's Marine Environment Protection Committee (MEPC), which met in March in London, approved a Circular containing design suggestions for ballast water and sediment management options in new ships.

The Circular says that ballast water management and the processes chosen to achieve it should be considered as a basic component of a ship's design and that ballast tank design should facilitate all aspects of ballast water management. Among the new equipment sought, the

Circular notes that installation of recording equipment should be considered for all ballast water operations and treatment actions and it should be possible for these records to be readily available to appropriate authorities that may request copies.

It goes on to say that ballast water system designs should take special account of the increased need for content sampling, with an aim to enhancing the quality and ease of sampling of ballast water and sediments, without the need to enter potentially dangerous spaces or to partially fill ballast tanks.

Where ballast water exchange at sea is the chosen method, the overall design, strength and stability of the ship should be sufficient to permit its execution on all ballast voyages and in all except severe weather conditions. For the guidance of the master, the maximum sea state and swell conditions identified by the builder, if any, in which ballast water exchange can safely be

carried out should be recorded in a Ballast Water Management Plan, which should be created for every ship. This plan should give guidance on safe and effective operation of the various ballast water management and treatment options that are considered appropriate for the ship. The design of the ship should include consideration of the consequences of ballast water exchange at sea including: stability, hull girder strength, shear forces, resonance, sloshing, stemming, propeller immersion, limitations brought about by insufficient strength in various parts of the ship when the tanks are sequentially emptied and appropriate strengthening incorporated to allow this operation to be conducted safely. A draft international convention for the control and management of ships' ballast water and sediments as well as associated guidelines for its implementation is being developed for consideration and adoption by a diplomatic conference scheduled for 2003.

Compact Compliance

The International Marine Organization (IMO) has announced a standard for a Universal AIS and mandatory fitting schedule under the new Charter V of SOLAS for merchant ships which begins July 2002 and extends to 2008.

AIS provides the identity of a ship and its position together with other information such as course, speed and destination. It is very suitable for automating reporting systems along coastlines, for aiding VTS operators and also can provide information to ships to assist in collision avoidance.

JRC has developed a unique AIS transponder combining VHF and GPS antennas in one cabinet using hybrid antenna technique. This enables JRC AIS equipment to be composed of three units: unique transponder, display unit and connection box, featuring space-saving and easy installation onboard existing ships.

New AIS Automatic Information System

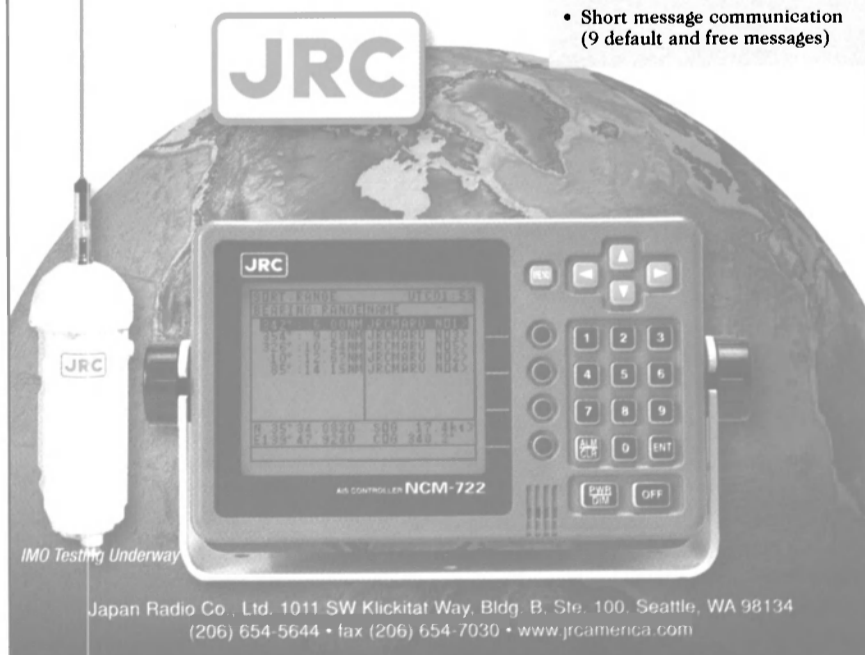
JHS-180 AIS

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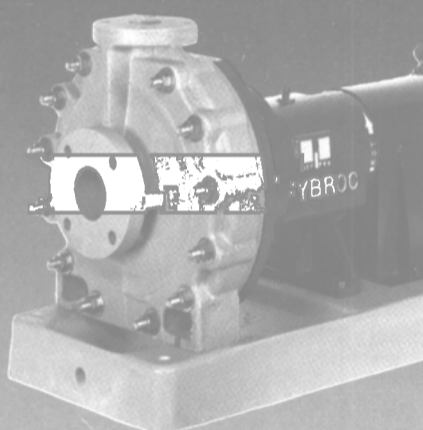
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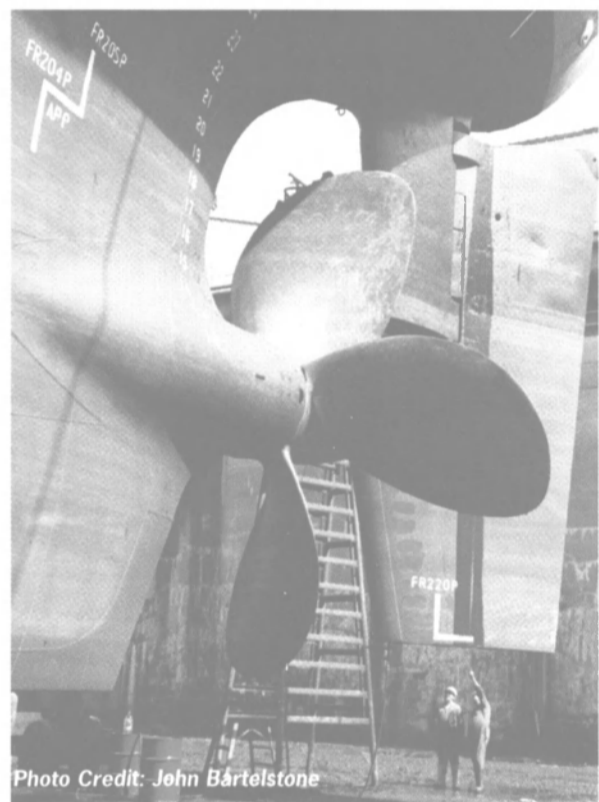
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The GMD Group - A Young, Ambitious Team

Priding itself on its drydock capabilities in both New York and New Jersey, the GMD Group is comprised of a young, ambitious team of individuals, who work together to provide ship owners with the quickest turn-around possible on each job that comes into its yards. Comprised of GMD Shipyard in Brooklyn, N.Y., Bayonne Drydock & Repair Corp. in Bayonne, N.J. and JenMar Electric in Staten Island, N.Y., the parent company has all its bases covered in terms of full ship repair service for its clients, which range from cruise ship owners to local tug boat companies.

By Regina P. Ciardiello, managing editor

Situated on a piece of New York history is GMD Shipyard, which is housed in Building #595 of the historical Brooklyn Navy Yard. The yard, which was decommissioned in 1966, had been absent of vessels in drydock — until GMD came along and established its presence on the New York side of the Hudson River.



Seeing a need for an additional location on the New Jersey side of the Hudson, the GMD Group established Bayonne Drydock & Repair, to serve the more than 6,000 vessels that pass through the Port of New York/New Jersey each year. GMD is poised for growth, as its capabilities consist of (in Brooklyn) two 1,090 x 150-ft. (332.2 x 45.7 m) graving docks, in addition to 1,100 ft. (335.2 m) of wet berth. According to The GMD Group's marketing director, **Kyriakos (Kerry) Demou**, "The Port of New York/New Jersey is experiencing a great resurgence within the repair industry."

The company's Bayonne yard, which recently completed a two-year renovation project, operates its facilities on the site of the former Military Ocean Terminal, holding a graving dock that measures 1,090 x 148 ft. (332.2 x 45.1 m), with a dock floor load capacity of 99,000 tons. "Bayonne was acquired to handle New York's repair traffic," Demou said. "Since its acquisition, the yard has been involved in the repairs of various cruise vessels and containerships."

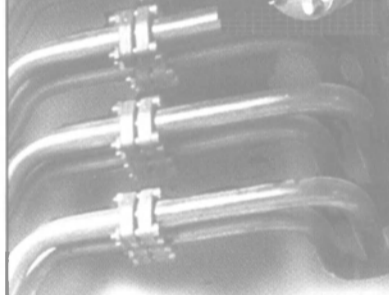
In addition, just a stone's throw from Bayonne — in Staten Island, N.Y., is GMD Group's third company — JenMar Electric Service Corp. This electrical and top-side repair company that was acquired one year ago by GMD specializes in 24-hour emergency services, such

as overhauling of electrical motors, power panel troubleshooting and navigational electronic sales. "JenMar was established as a repair facility for our customers when less than ship yard capabilities were required," Demou said.

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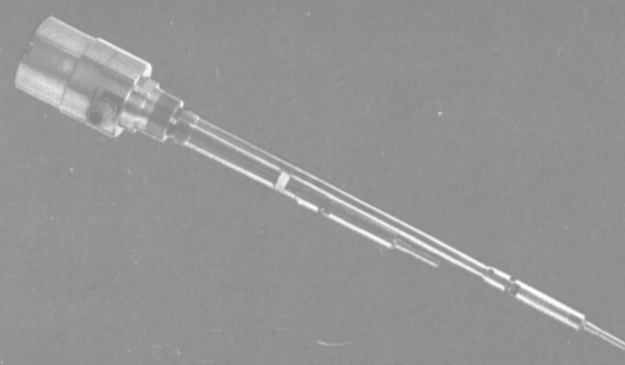
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Ship Repair

GMD to the Rescue

While both of GMD Group's yards have performed a large selection of general maintenance repairs on vessels ranging from deep-sea, to tankers and cargo ships, the company has also been the saving grace for vessel owners, who have needed repairs in a pinch. Most recently, the motor tanker *Leader* arrived at GMD Shipyard for substantial emergency repairs. Another motor tanker, *Sun*, visited GMD for emergency repairs after it grounded off the Port of Philadelphia. The vessel, according to Demou, spent 26 days at the Brooklyn yard, departed during the first week of April as good as new.

With both yards holding the versatility to perform all types of repair jobs, according to Demou, "cruise ships and containerships are preferred at Bayonne, while Brooklyn is known for its alongside work capabilities."

In fact, during the last 12 months, both yards of the GMD Group have made progress within the passenger vessel realm, mainly with a contract with Staten Island Ferries for work on fleet members *Andrew Barberi* and *Herbert Lehman Barberi*, which was docked at the Brooklyn yard for approximately 2.5 months this past fall, underwent routine, long-term overhaul, and plating and steel work, which in turn extended the life of the vessel for more than 20 years. As a result, Staten Island Ferries has signed a commitment with the GMD Group for scheduled drydockings of an additional four ferries. The workflow remained steady on the passenger vessel side this fall at GMD when Holland America Line approached the Bayonne yard for work on its propellers. Apparently, the seals on the vessel's Azipod propulsion system were leaking and in need of replacement. Holland America, along with the propellers'

manufacturers, ABB, called on the GMD Group to fix the problem. According to Demou, a job of this magnitude would traditionally take more than two weeks, but GMD's Bayonne yard was able to get the vessel up and ready in nine days — a major bonus for a cruise ship. Since GMD turned the vessel around quickly, Holland America agreed to hire the yard again, and did so by making a firm commitment for a scheduled drydocking of Rotterdam, which is due to arrive on May 1. "After three successful cruise ship dockings in the last two years," Demou said. "The GMD Group is looking forward to establishing relationships with the various cruise lines."

An Ideal Situation

"Based on location, speed and turn-around times, we are largely on target with our customers' budgets," Demou said. "More than 6,000 ships call on the Port of New York/New Jersey each year, which puts us in an ideal location."

In addition to the larger vessels that call on the Port, the smaller vessels that help these vessels in and out of the port also need repair work too. GMD Group has a firm hold on the tug and barge industry within the area, performing routine repairs for owners such as K-Sea, Penn Maritime, Allied and an oceangoing barge and tug for Leevac.

And things don't end there for the GMD Group, according to Demou, the company has several jobs pending and is currently enjoying a pre-booking status of up to 45 days.

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Seven Seas Mariner Undergoes Pod Adjustment

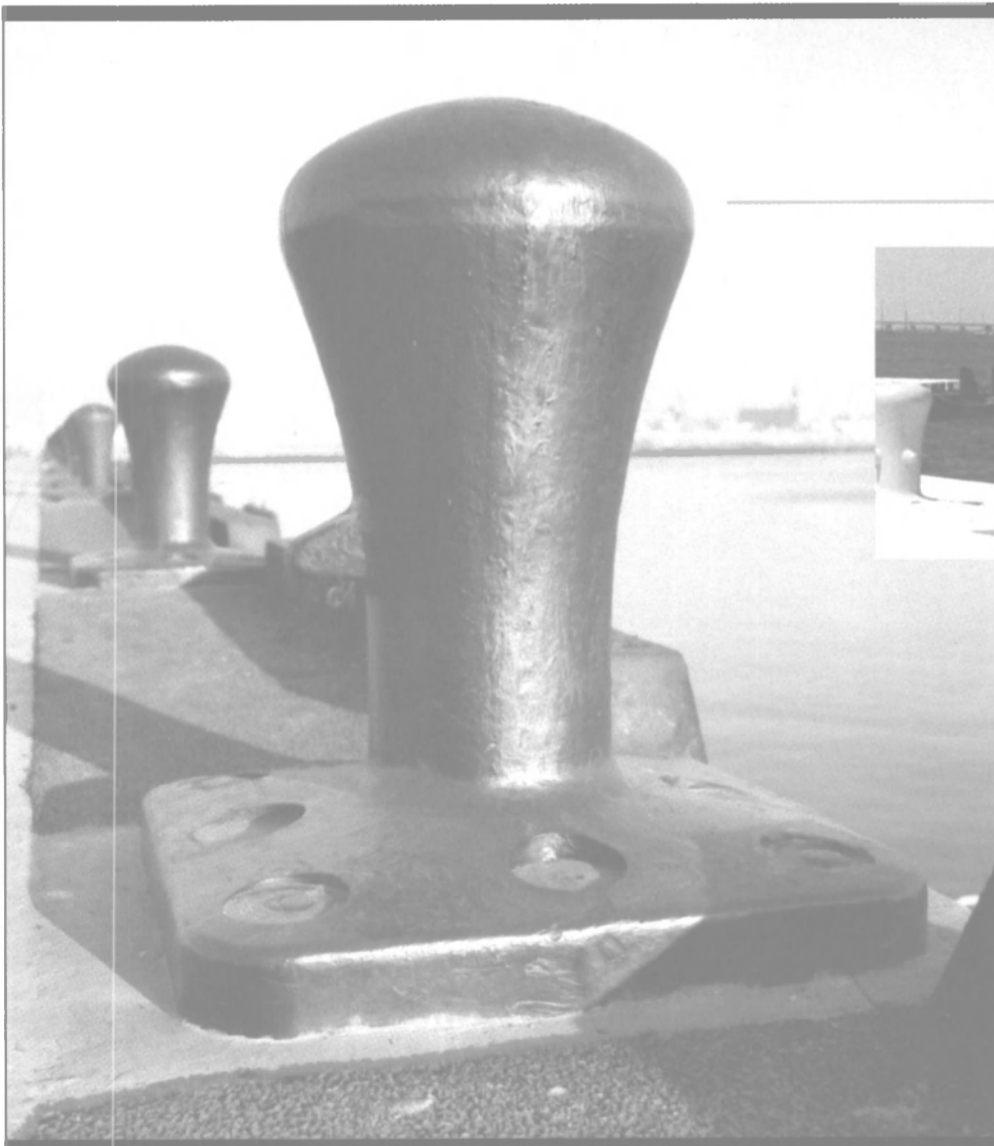
Radisson Seven Seas' 700-passenger *Seven Seas Mariner* entered dry-dock for 24 days during April to undergo repairs to one of the two pods in its pod propulsion system. As a result, the line has had to cancel the vessel's April 22, 26 and May 9 cruises.

The vessel is expected to return to service on May 26, where it will commence a seven-night voyage from Venice to Rome.

The unscheduled dry-dock is viewed as a preventive as well as corrective measure. Alstom Marine & Rolls Royce Marine - joint manufacturers of the *Seven Seas Mariner's* Mermaid Pod Propulsion system - have advised the cruise line that bearings in one of the pods have suffered damage and will fail unless prompt action is taken.

Given that a failure of the bearings would lead to the failure of the entire pod, the line decided to place the vessel in dry-dock immediately.

Other ships, such as *Celebrity's Infinity* and *Summit*, which employ similar systems have also had to be temporarily dry-docked for repairs to pod bearings.



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DRYDOCK 1

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Breadth	33.5m	(110ft)
Vessel draft	9.1m	(30ft)
Lifting capacity	30,000	tonnes

DRYDOCK 2

Length	300m	(985ft)
Breadth		
between fenders	56.5m	(228ft)
Vessel draft	9.1m	(30ft)
Lifting capacity	82,500	tonnes



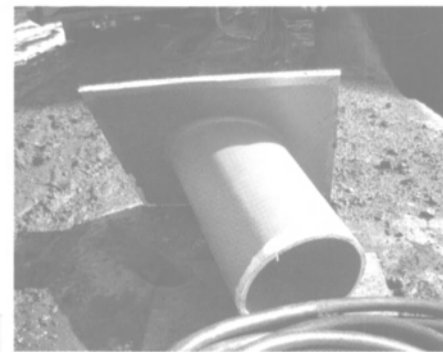
Teekay Foam's Discharge Pipe Repaired in Bilbao

When Teekay Foam established a water leak within the internal pipe of the scrubber overboard system, UMC was called in to provide a solution. The leak was between the sea valve and the aperture, and a concrete box had been previously installed to temporarily resolve

the situation. UMC's repair squad attended the vessel upon its arrival at Bilbao equipped for two possible solutions, which had been previously discussed and agreed with Teekay Shipping. One solution was to crop out the section of hull around the aperture and insert a new plate containing a stub pipe as per UMC's class approved permanent

insert procedure. The other was to crop the pipe internally and refit a new section.

Both methods were reliant upon the fitting of a UMC cofferdam, by the diving team, externally over the scrubber overboard aperture thus rendering inboard as watertight. Once in place, the existing concrete box could be removed



and diagnosis could begin. It was subsequently established that the water leak in the pipe was, in fact, inboard and that the pipe could therefore be removed and a new section reinstated using full penetration TIG root pipe welding techniques. On completion of the welding, the internal and external walls of the 250 mm diameter pipe were also coated as per the client's specification.

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Dubai Drydock Accident Kills More Than 20

Late in March, a serious mishap involving the collapse of a floodgate on a massive drydock at Dubai Drydocks resulted in the death of more than 20 individuals, and the serious injury of several more.

The American Bureau of Shipping (ABS), which has 12 surveyors in its Dubai office, immediately reported that all were safe.

Of the vessels in dock, three were afloat and relatively unscathed; two were touching the dock bottom and were refloated as soon as possible. These vessels are the CB-1 and the SEP-350 both barges belonging to NPCC of Abu Dhabi.

With the reason for the failure of the two dock gate panels is under investigation, the first indication is that Dock 2 was expected to be open by mid-April.

Unithai Inaugurates Floating Dock

Unithai Shipyard and Engineering Ltd., a member of the Thailand-based Unithai Group of Companies and allied with the international IMC Pan Asia Alliance Group, has commissioned its second floating dock — Chomphoo-phukha — at its shipyard in Laem Chabang, Thailand. The yard, which has been in operation since 1994, already has one floating dock of 140,000-dwt, measuring 925 x 154 ft. (282 x 47 m), with a lifting capacity of 40,000 tons.

The new floating dock is capable of accommodating a Handymax vessel and has the provision for future expansion for Panamax vessels.

The first vessel dry docking has just been successfully completed.

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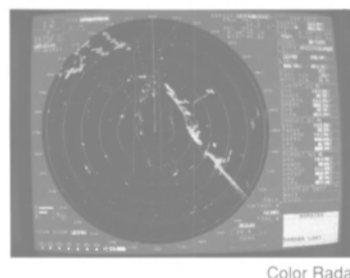
② JMA-9800 Color ARPA Radar

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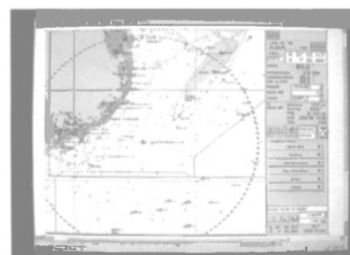
③ JAN-3598 ECDIS Total Navigator

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Government Ships Spend Time At Cascade



This past winter, Portland, Ore.-based Cascade General saw the arrival of several government-owned vessels from homeports such as Southern California and Alaska. The 418-ft. (127.4-m) M.V. Columbia, owned by Alaska Marine Highways was at Cascade for most of the winter for modernization of its public areas in the restaurant and cafe, refurbishment of the car-deck doors, installation of a laundry elevator from the car to cabin deck, and replacement of all windows in the vessel's solarium.

The 30-year-old vessel will undergo an upgrade consisting of new furnishings and food-serving facilities, as well as replacement of galley equipment. Columbia, which carries 941 passengers and 174 cars on the Inland Passage from Bellingham, Wash. to Skagway, Alaska, operates during the summer months. Cascade has worked on the entire Alaska fleet, including the company's newest, the 382-ft. (116.4-m) M.V. Kenicott, which was launched in 1998.

The first of two naval support ships to call on Cascade, was the 668-ft. (203.6-m) MarAd self-unloading containership SS Grand Canyon. The vessel, which is based in Alameda, Calif., was lifted into the yard's Drydock 3 for blasting and coating. The tail shaft and propeller were removed for a complete inspection and repairs were also made to the hatches.

SS Grand Canyon was followed by San Diego-based USNS Guadeloupe, which is a 677-ft. (206.3-m) MSC oiler that is the second in its class to receive a new stern-seal system at the yard. The upgrade consisted of the opening of the stern tubes for installation of new piping. Shafts were pulled and the C.P. propellers were dismantled for inspection during this period. The vessel's bottom was also blasted and coated, while a 10 x 70-ft. (3 x 21.3-m) section of sidshell was renewed.

A frequent guest at Cascade's drydock paid another visit this past winter — The Corps of Engineers 350-ft. (106.6-m) dredge vessel Essayons. The vessel, whose territory includes the U.S. West Coast, including Alaska and Hawaii, spent 56 days at the shipyard. Its entire hopper area was staged for a complete steel survey after it was determined that all deteriorated steel be destroyed or replaced. Planning has already commenced in the yard for the vessel's next visit this fall when its entire dredge control system will be replaced with innovative computerized equipment.

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ASRY Continues Brisk Repair Pace

With a turnover of more than 50 percent, 2001 proved extremely successful for ASRY — the yard repaired more than 104 vessels — 18 of which were more than 175,000 dwt. Dock occupancy remained high throughout the year with the graving dock achieving 97 percent occupancy and two floating docks achieving 86 percent and 92 percent occupancy.



Singapore-based World Wide Shipping's World Prelude paid a visit to ASRY recently for painting and blasting work.

Steel work at the yard increased with a total of approximately 6,734 tons of steel renewal being performed - an increase of approximately 52 percent on the previous year. Partly responsible for this increase was the conversion of Abouzar 1200 from a derrick barge to a deep water pipe lay barge, which utilized more than 1,200 tons of new steel. In addition, ASRY also made headway within the painting and blasting arena, completing more than 3.1 million sq. m. of painting and 778,751 sq. m. of blasting.

With the world wide tanker fleet being the main market for ASRY throughout the past year, various owners have decided to call on ASRY for work on their ULCCs and VLCCs. Owners such as, Vela Corp., Bergesen, Kuwait Oil Tanker Co., Wilh. Wilhelmsen, Andros Maritime and SembCorp.

Seeing the demand for repair work in the gas and chemical market, ASRY has continued to grab hold of this area with Odfjell as its main customer. In total, seven chemical carriers were repaired at ASRY, including the Bow Eagle, Bow Viking, Bow Puma and Bow Eagle. Repairs were also performed on three additional chemical carriers and a trio of LNG carriers.

So far this year, ASRY has been able to enjoy the continual flow of steady work. The yard was filled to capacity during the first two months of the year, beginning with two VLCCs from Saudi Arabia's Vela Corp. - Mirfak Star and Polaris Star, both of which were dry-docked.

These vessels were followed by the 301,550 dwt Hamal Star and the 284,553-dwt Awadah, which arrived from Kuwait Oil Tanker Company.

World Prelude (265,553 dwt), from

Singapore's World Wide Shipping was also docked at ASRY for painting and blasting. This particular job involved more than 100,000 sq. m. of ballast tank blasting and coating utilizing Sigma TCN systems — giving the vessel necessary service life up to 25 years.

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Local Chain Ferry Docks at A&P Falmouth

A&P Falmouth was granted the contract to perform repairs onboard the chain ferry Tamar this past April. The vessel is operated by the Tamar Bridge and Torpoint Ferry Joint Committee, and A&P Falmouth has performed regular dry docking and refit operations on

the Tamar and its two sister vessels the Plym and Lynher since the vessels were constructed more than 30 years ago. A&P Falmouth also carried out lengthening projects on all three vessels to increase their vehicle carrying capacity between April 1986 and April 1987.

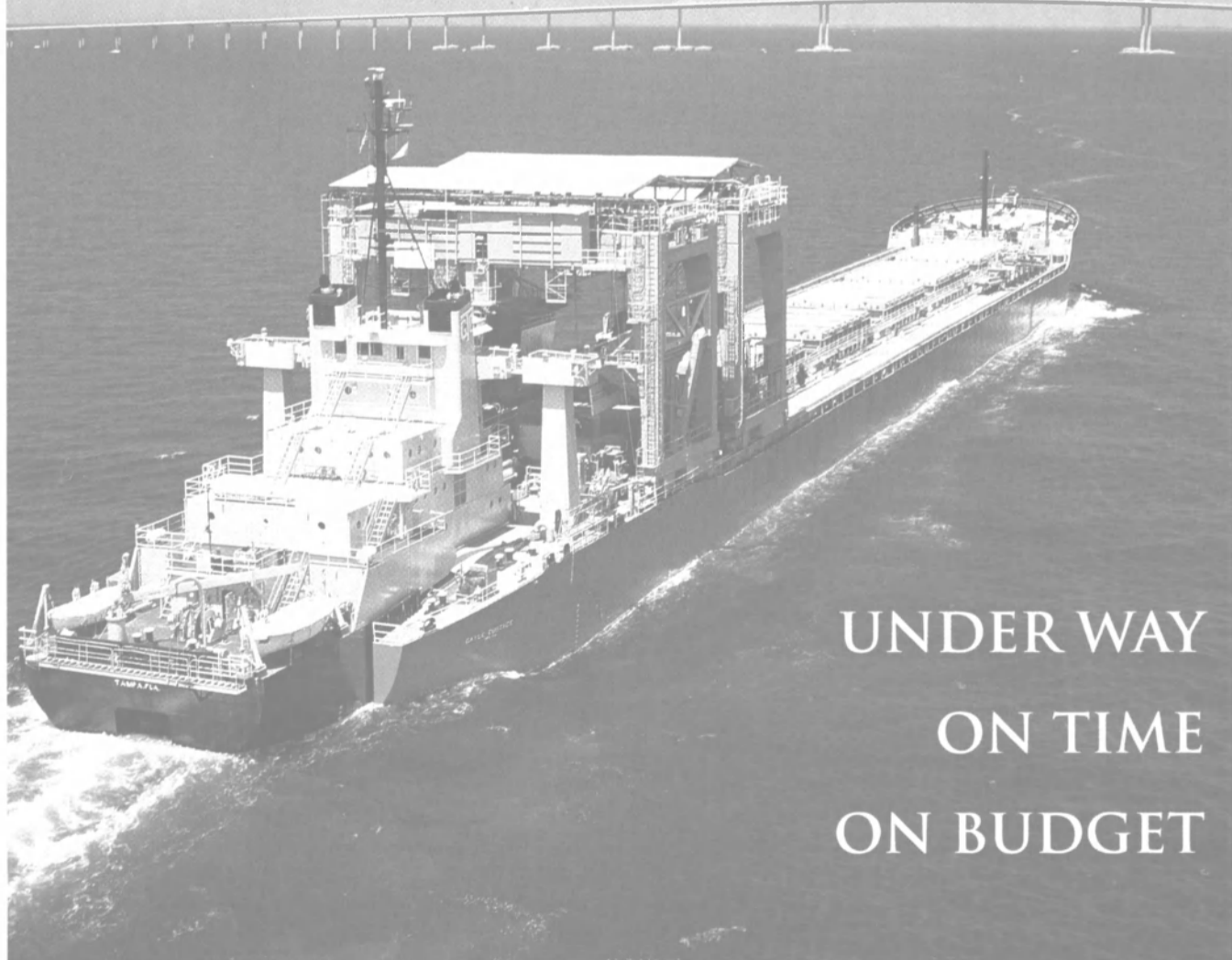
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FRP Pumps Offer Lasting Results

There's hardly a marine application — onboard or ashore — where seawater pumps are not considered critical to a vessel's operation or purpose. The ability to pump seawater aboard most vessels represents only a part of their liquid pumping requirements; in many cases other liquids such as caustics, corrosives, and alkalis need to be transferred, either from ship to shore or vice versa.

Corrosion, Erosion, and Pitting

For these kinds of harsh applications many shipboard pumps are constructed of metals designed to withstand the continuous flow of severely corrosive liquids. Typically, these metals include Monel and K-Monel, titanium, nickel bronze, alloy 20 steel, and 316 stainless steel. Even though these metals are extremely hard, they are still subject to corrosion, erosion, and pitting

as a result of the harsh liquids in contact with them and the abrasive content of seawater.

The rate of corrosion (crevice and galvanic) is a function of the liquid in contact with the metal as well as the specific metal used for pump construction. For example, alloy 20 steel in continuous contact with seawater might corrode at a rate of .002-.006-in. per year; for 316 stainless the corrosion rate is about .002-in. per year. While these are seemingly insignificant rates of corrosion, as internal clearances in the pump widen, performance and efficiency are compromised, and premature pump failure or performance degradation is likely to occur. When 316 stainless is in contact with salt water, its surface also ultimately corrodes: the corroded surface takes on a "protective" layer known as "passivation." This passivation layer is formed as a result of a 12 percent (or greater) chromium content in



the steel, which combines with oxygen in the atmosphere to form a thin layer of chrome-containing oxide. The passivated film protects the underlying metal from further corrosion; however, the film also requires oxygen to self-repair. In seawater, chlorides from the salt attack and destroy the passive film quicker than it can be repaired in a low oxygen environment. But this



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only explains part of the problem with using metallic pumps in seawater applications.

Erosion, on the other hand, is a different issue, and it does have a negative affect on the passivation layer. Also, as corrosive or abrasive liquids contact metal parts in the pump, another wear factor is introduced: fluid velocity across the surface. With high fluid velocity the protective passivation layer will erode quickly, exposing new metal to start a new cycle. For this reason, corrosion is essentially continuous, since new metal is being constantly exposed to the corrosive liquid.

FRP Pumps — An Alternative

An alternative is, Fiberglass Reinforced Plastic (FRP) pumps. FRP pumps have proved to be extremely durable in difficult marine environments. They are widely employed in many on-shore and shipboard applications for seawater circulation and bilge pumping, in seawater cooled air conditioning systems, reverse osmosis systems, for liquid chemical transfers, and on land in aquariums and industrial facilities for pumping seawater and other difficult liquids.

Large, ABS certified vertical FRP pumps are used on chemical barges today. These pumps extend from the deck to the bottom of the tanks, and incorporate long columns and shafts with associated discharge piping. In addition to reliability and long-life, FRP pumps help reduce overall weight substantially. This is particularly noticeable when comparing FRP pumps with exotic metal vertical pumps. The lighter weight of FRP pumps also offers an obvious advantage for oil-carrying tankers and barges, which incorporate double hull construction.

FRP pumps are built for the difficult liquids encountered in the marine environment such as brine, acids, caustics, bleaches, solvents and abrasives. Hydrochloric acid — a particularly difficult liquid — is also transferred with shipboard FRP pumps. They have proved well suited for this application, and their light weight has made a substantial difference in available payload capacity when many large pumps are required. In fact, light weight imparts two key benefits: first, when large pumps must be removed for service they generally require expensive, time consuming labor and heavy riggings equipment; second, aboard any vessel weight is always at a premium — the more equipment weight, the less payload capacity. Instead, FRP pumps can generally be repaired in place, with basic fiberglass technology thus reducing maintenance costs while minimizing downtime. Spare parts cost — particularly impellers made of metals — must

also be considered, since their costs alone, in many cases, exceed the total cost of a complete, comparable FRP pump. Mainly, however, the use of FRP pumps can provide an extended service life, sometimes by an order of magnitude over the metal pumps they are designed to replace.

A number of different composite materials are used to manufacture FRP

pumps. These include vinyl ester resin, and different grades of epoxy resin. Generally vinyl ester resin pumps are used for most acids, caustics, bleaches, salt water, or other inorganic chemicals. Epoxy resins (which can also handle some acids) are more commonly used for solvent based chemicals such as toluene, benzene, high concentration sulfuric acids, and similar chemicals.

FRP pumps are produced in horizontal and vertical configurations, and in a wide variety of sizes and capacities to accommodate most marine applications.

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The preceding was authored by **Ted Beck**, Mechanical Engineer, Fybroc Division/Met-Pro Corp.

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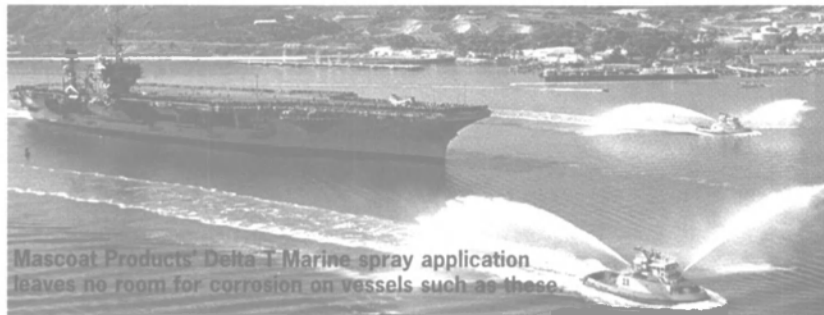
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Spray-On Insulation Cuts Maintenance Costs

One of the common items found on almost every vessel constructed that is frequently overlooked is thermal insulation material. As vessels increase in age, it is safe to say that the insulation systems start to degrade with time and abuse. In fact, if moisture is ever intro-

duced to the insulation from a leak or poor repair job, it can appear as though none (insulation) was used at all.

In 1995, Mascoat Products, Houston, Texas developed a new spray application thermal barrier system, which has been successfully used on more than 180 vessels worldwide. The system is a water based acrylic binder that encapsulates



Mascoat Products' Delta T Marine spray application leaves no room for corrosion on vessels such as these.

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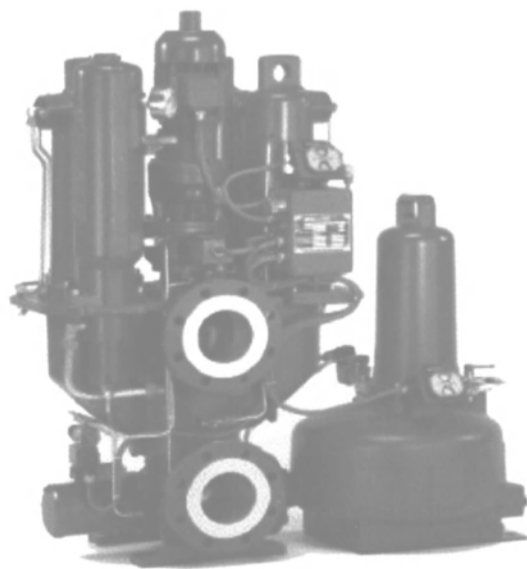
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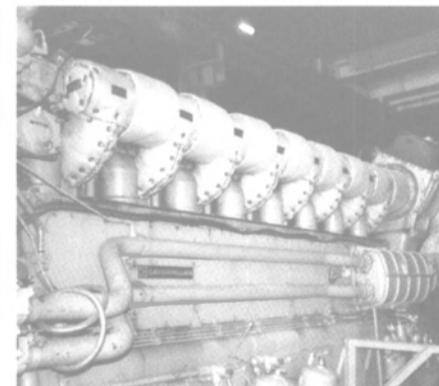
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air filled particles to help reduce or eliminate most radiant heat/cold transmission. Sprayed on the inside shell of most modern vessels at one millimeter (0.020-in.), Delta T Marine bonds directly to the substrate leaving no room for development of corrosion under insulation. Most vessels are now insulated and protected from corrosion and thermal transfer of roughly an R9-13 factor as compared with conventional insulation.

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SEI Temp-Set Reusable Insulation Covers

Superior Energies Inc. (SEI) offers Temp-Set Removable/Reusable (R/R) insulation covers, and is in fact one of the largest and oldest manufacturers of these products. SEI is established as the largest provider of R/R insulation covers for engine manifolds. The company offers patterns for EMD, Caterpillar, Alco (Fair Banks-Morse), Detroit Diesel, Cummins, and other engines.



SEI's Temp-Set covers are designed for engines such as the CAT 3608.

Temp-Set covers are designed for robust conditions, and will not break-down from vibration of the exhaust. The covers — which can be custom fit for installation on any engine, anywhere — are touted for their ability to insulate the engine manifolds, which helps to reduce emissions while increasing horsepower without additional fuel consumption. In addition, maintenance of Temp-Set covers is simple, requiring no specialized training or tools.

SEI is available to provide a variety of numbers showing how its Temp-Set product is the most cost efficient and economical solution for this market niche.

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EU to Develop Sulfur Strategy

The EU is limbering up to set new restrictions on sulfur in marine fuels, if MARPOL Annex VI is not implemented quickly, explains **Ian Adams**, secretary general of the International Bunker Industry Association (IBIA). At the same time, the European Commission aims to clarify its own directive on sulfur limits for marine diesel oil, which have been subject to different interpretations in different countries.

The EC believes that for sulfur oxide, the cost of reducing emissions from ships is now considerably lower than further abatement measures in other sectors. So shipping is in the frame, says Adams.

An EU study now underway will quantify ship emissions of SO₂, NO_x, CO₂ and hydrocarbons in the North Sea, Irish Sea, English Channel, Baltic Sea, Black Sea and Mediterranean, on the basis of year 2000 ship movements. The commission is also taking advice on the costs to the oil industry of providing more low-sulfur marine fuels in the future, and likely price premia for these fuels.

As far as sulfur is concerned, the main document at present is Directive 1999/32 on the Sulfur Content of Liquid Fuels, which already sets sulfur limits for marine distillate oil used in Community territorial waters, and also commits the Commission to "consider which measures could be taken to reduce the contribution to acidification of the combustion of marine fuels other than distillates, and, if appropriate, make a proposal."

MARPOL Annex VI designates two Sulfur Emission Control Areas — the North Sea & English Channel, and the Baltic Sea — where fuel burned by ships must be below 1.5 percent sulfur. These requirements will be monitored using bunker delivery notes and ship log books. Alternative methods such as exhaust scrubbing, which limit emissions to the equivalent level are also permitted, provided these are verifiable and enforceable. The EC hopes to publish a proposal to modify directive 1999/32 on the sulfur content of liquid fuels. The proposal will aim to clarify the existing requirements on marine gas oil. Depending on progress with ratification of Annex VI, the proposal may also extend the scope of the directive to include marine heavy fuel oils.

Directive 1999/32 currently prohibits the use of marine gas oils having over 0.2 percent sulfur in community territorial waters. The directive's definition of

marine gas oil includes DMA, DMB, DMC and DMX grades — thereby including marine diesel oils.

There is an exemption for fuel used by ships coming from third countries. DG Environment has recently stated that its interpretation of this exemption is that these ships may burn whatever marine gas oil they have in their tanks until they make their first stop at a community port. Thereafter, like all intra-EU shipping traffic, if they are burning gas oil, these ships must use only gas oil which has a sulfur content below 0.2 percent while in community ports and until they leave Community territory.

In transposing the directive, some Member States (Sweden, Belgium and France) have also prohibited the sale of the higher-sulfur marine gas and diesel oils in their territory.

The community might authorize or require the use of flue gas desulphurization (scrubbing equipment) as an alternative to the use of low sulfur fuels. Various scrubbing systems are being developed, particularly in North America, and the technology offers considerable potential. However, nothing has been decided, and market-based measures are also under consideration.

Several ports in the EU already differentiate their dues to favor ships using low-sulfur fuel and/or NO_x reduction technology. Sweden has introduced environmental differentiation to its national fairway dues.

The EU is considering a port-administered system of levies and rebates. The levies and rebates would be based on NO_x and SO₂ emissions and distance traveled, and not on ship tonnage. The principle would be for a "standard" charge, for emissions in a designated sea area, which is paid unless the ship provides evidence of lower emissions.

The idea of emissions trading for NO_x and/or SO₂ emissions from ships in certain sea areas is being explored by the Commission and others, and IBIA endorses this approach.

DG Environment proposes to let a study contract during 2002 to consider in more detail the possible EU-wide application of various market-based mechanisms.

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Sep-
arately,
the Swedish
Maritime Admin-
istration and BP

Marine are both taking forward work on emissions trading on SO₂ and NO_x for ships. The EU still hopes IMO and MARPOL will do the job, but it looks much more likely that during 2003 we shall see proposals for new regional rules in Europe.

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EMMF Scheme Is Quality

ExxonMobil Marine Fuels has introduced a quality guarantee scheme. The scheme will apply to fuel contracted directly from EMMF and supplied through EMMF's contracted barge fleet. "We observe the most rigorous product quality standards in all our refineries and terminals throughout the world. We also have the highest standards in the industry for all our own and contracted barge operations. This combination ensures that those customers who receive deliveries direct from EMMF can be confident that the operation will be conducted properly, safely and efficiently," says Peter Healey, head of EMMF. "But in cases where our product is on-sold through an intermediary, this may not be enough. We cannot, for example, guarantee the quality of fuel originally sold by ExxonMobil in good faith to an intermediary and then delivered on board a vessel by that intermediary as bunker fuel."

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CITGO Offers "No Sheen" Aquamarine Oils

Effective maintenance of hydraulic equipment operating near marine environments represents a double-tough challenge. Pumps and equipment must be protected from the wear and corrosion caused by excess moisture, but safeguards have to be in place to prevent leakage into fragile aquatic habitats and the development of "sheen on the water."

CITGO Petroleum Corporation's new Aquamarine Oils provide a premium-quality answer to both challenges. Specifically designed for both offshore and inland waterway operations, these high-performance, anti-wear hydraulic lubricants will not leave sheen, are non-toxic, inherently biodegradable and are easily recycled.

Additionally, the oils offer a high level of protection against moisture and wear for a variety of applications, including: Offshore drilling rigs and platforms; Power packs; Lifts and cranes; Diving devices; Cranes and draw bridges; Tugboats and ferries; and Pile drivers and dredges and kelp cutters.

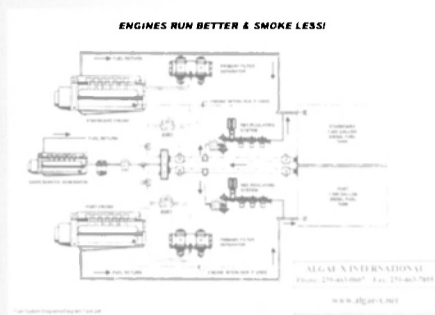
CITGO Aquamarine Oils and the Environment

Under the Clean Water Act (CWA), discharge of hydraulic fluid that violates applicable water quality standards or causes sheen on the surface of the water is prohibited. Recognizing the pressures and harsh environment of marine operations make it unrealistic to totally avoid hydraulic fluid discharges, the Envi-

ronmental Protection Agency (EPA) recently stepped-up regulatory enforcement efforts, adding the possibility of government-imposed fines to existing liabilities for clean-up costs and damages. CITGO Aquamarine Oils address regulatory compliance concerns by providing environmentally acceptable (EA) fluids manufactured from biodegradable, aromatic-free, food grade white mineral oils. The non-toxic oils pass the U.S. Coast Guard Static Sheen Test and meet U.S. EPA LC50 toxicity standards for environmentally sensitive areas.

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Good Fuel = Good Profits



More than ever, emphasis on fuel quality — what goes in and what comes out — is a top agenda item of lawmakers and vessel owners alike. With ever tightening pressure on vessel owners to lower consumption and emission numbers, similar pressure has been applied to the maritime supply market to make engines, systems and products that help achieve this end.

Algae-X offers a line of fuel conditioning products that it touts as helping owners, both large and small, to meet and exceed the rigors of running profitable, environmentally compliant vessel.

"The Port of Everglades Pilots have been using the Algae-X unit for almost two years, and we can honestly say it works," said a letter from the Pilot Association's Boat Maintenance Department, distributed by Algae-X. "We use in excess of 50,000 gallons of diesel fuel

each year for our pilot boats ... we have found that fuel filters and fuel are much cleaner."

Engine manufacturers, it can be assumed, build the best possible quality engines, incorporating the latest technology. However, engine manufacturers have no control over the stability and quality of the fuel going into the engines. Similarly, it is also generally assumed that the fuel supplier always tries to sell the best possible quality fuel. However, the supplier does not make the fuel and has no control over the storage and delivery systems of suppliers. Fuel that meets ASTM specifications at the supplier level, does not automatically prevent fuel related problems, such as poor engine performance, injector problems, loss of RPM, excessive exhaust, smoke, filter clogging and tank sludge at the end user level.

Getting Good Fuel

Poor fuel quality will increase maintenance, fuel consumption and emissions. Ultimately it will ruin engines, turbines and shut down emergency power systems. Just like any other organic fluid, fuel quality will deteriorate. Fuel quality and chemistry are affected by transportation, storage and as the result of factors such as oxidation, water, microbial contamination, incompatible additive packages, etc.

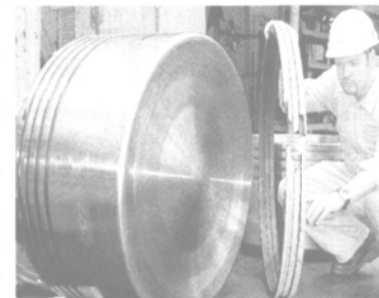
Algae-X's Magnetic Fuel Conditioner is installed in the fuel line between the tank and the filter. It continuously treats and conditions the fuel directly before

combustion and before it returns to the tank. The Algae-X product range to improve fuel quality includes:

- LG-X units accommodate port sizes ranging from .25- to 2-in. with a flow rate between 25 and 2,500 gph.
- The FC Series can accommodate port sizes range from 1.5 to a 48-in. flange and can handle flow rates up from 60 GPM to over 450 GPM. Larger equipment for pipelines and tank farms are built to customer specification.
- AFC-705 Fuel Catalyst is a full spectrum additive designed to provide superior fuel quality for engines and storage tanks. It is designed to eliminate the build up of tank sludge, improves combustion and reduces harmful exhaust.
- The MTC-1000 is a Mobile Tank Cleaning System that is designed to remove sludge and water that accumulates in the bottom of storage tanks for fuels and oil.
- The Water Eliminator is designed to remove water from fuel storage tanks, reducing the potential for microbial contamination and accumulation of sludge in tanks.
- Liqui-Cult test kits are designed to detect microbial growth in fluids, in the laboratory and in the workplace. Areas of application included metalworking fluids, circulating cooling and process water, hydrocarbons, and other liquids such as cleaners, cosmetics, liquid soaps and detergents, etc.

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Lubes Keep Step With Diesel Development



Marine diesels are constantly evolving, with today's 12-cylinder monsters already weighing 2,000 tons and developing as much as 93,000 hp. Tomorrow's propulsion units are going to be even bigger and more powerful and will need high-performance lubricants to match.

Today's ocean-going vessels are driven by two main types of engine, both operating on heavy fuel oil: medium-speed (300-1,000 rpm) and low-speed (60-300 rpm) engines.

Medium-Speed Engines

Medium-speed engines use a trunk-piston design where the connecting rod is linked directly to the piston, and they are connected to the propeller via reduction gearing. Their power rating can go as high as 2,010 kW per cylinder, with up to 18 cylinders in V-configuration. The largest bore used is 640 mm and the stroke/bore ratio can be as high as 1.4 maximum combustion pressure reaches 180 bar for a mep of 25 or 26 bar.

The leading designer-builders are MAN B&W, Wartsila Corp. and Caterpillar, with engines also built under license by other firms all over the world.

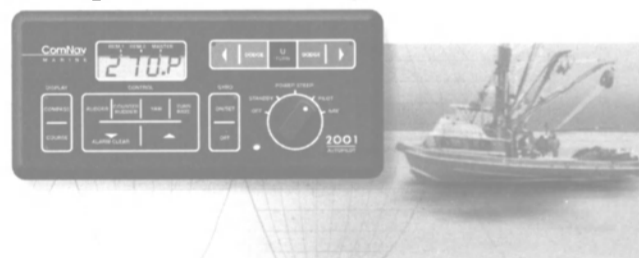
Low-Speed Engines

The basic structure of low-speed engines is different to medium-speed units, with the cylinder section of the engine separate from the crankshaft section. Low-speed engines use direct drive to the propeller and can develop up to 5,710 kW per cylinder, with as many as 12 cylinders. The largest bore used is 980 mm, the stroke/bore ratio can be as high as 3.8 and rotation speed can go as low as 60 rpm. Maximum pressure reaches 150 bar for a mep of 19 bar. Three designers dominate the market, MAN B&W, Wartsila Corp. and Mitsubishi Heavy Industries, with the first two having 90 percent of the market in terms of installed power.

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The preceding was excerpted from *Lubmarine News*, No.6.

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Jeamar's Winches Are Made To Order

Jeamar Winches, known for heavy-duty hand and power winches, has made a major push into the custom arena with built-to-order products.

Besides its major focus on the marine industry with rugged seaworthy capstan, power and hand winches, Jeamar has evolved into a true cross-industry provider. A look at its customer list reveals everything from aerospace to steel, grain-handling, railroads, power generation, pharmaceuticals and the theatre. And while Jeamar is largely known as a Canadian manufacturer, its client base spans the globe.

Among its most recent projects, Jeamar has engineered:

- A 32,000 lb. gate winch for a major U.S. dam.
- A 20,000 lb. lifting winch for a ship loading conveyor.
- A 30,000 lb. pulling winch for a dry-dock application, and
- Two 32,000 lb. synchronized lifting winches for a steel mill

But few of its accomplishments compares to the successful completion and installation of a mammoth rail-car puller, which was custom designed and manufactured as part of an international effort to build a sulfur refining facility in the Kazakhstan region of the former Soviet Union. The winch is integral to an equipment package designed to load bulk sulfur into railcars at the refinery. Included with the winch are portable conveyors, a belt feeder hopper and a dust-suppression system.

The Jeamar electric-powered winch is used to free up shunting engines at the site and reduce the fuel and maintenance required by the locomotives. To take the place of the locomotives, the winch had to be engineered to pull as many as 10, fully loaded, 70-ton-capacity railcars at one time through the sulphur-loading facility, stopping and starting the unit as each car is filled.

Jeamar was asked to design the winch to pull the string of cars over a distance of 250 ft., with the

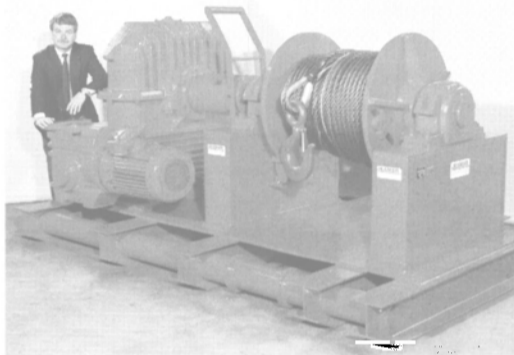
individual cars indexed every 12 minutes. Increasing the challenge, Jeamar was told to allow for rolling stock and track conditions that were clearly in need of repair.

In addition, the winch would be fixed to a single pivot point and must be able to self-adjust to correct for fleet angle. After pulling the cars through the loading facility, the rope and hook had to be spooled out to repeat the process with another string of cars.

Jeamar was also tapped to propose a solution to spool out the more than 600 lbs. of cable and hook - a task that simple labor could not accomplish.

"We knew we had a challenge on our hands," recalls Jeamar sales manager for special products, **Chuck McClelland**. "The toughest part was making decisions based on educated guesses.

Jeamar's solution was a massive electric winch that develops a line pull of 47,000 lbs., able to wind in the 250-ft. rope at 10 ft./min. A clutch, installed on the winch, converts it quickly from pulling to free spooling, and a special rubber boot was designed to protect the clutch from fine sulfur



dust.

The toughest challenge - to allow a winch the size of an average compact car to pivot - was met with a specially engineered skid base, securely anchored, but able to slide from side to side as fleet angle changed.

To pay out the rope, a second 3,500-lb. electric hauling winch was designed to be mounted at the rail-car attachment point. With a much lighter rope weight, its sole function is to drag the line and hook from the main winch.

From initial drawings, through assembly and test, to final shipment of the winch, Jeamar was asked to complete the job in 10 weeks. When the product left the Jeamar assembly plant on schedule, its dimensions measured 10 x 8 x 6-ft. (3 x 2.4 x 1.8-m), with a gross shipping weight of 14,000 lbs.

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Princess Cruises' Sun Princess will pay a visit to Victoria Shipyards this fall.

Victoria Shipyard Racks Up Cruise Ship Jobs

First making headlines this past summer, when the Vancouver-based yard performed the emergency pod repair on Celebrity's Infinity, Victoria Shipyards has booked an additional five cruise vessels that are scheduled for routine repairs and drydockings from May 9 through the middle of October. With the departure of Cascade General's Number Four drydock last year to Grand Bahama Island, Victoria has gained a foothold in the realm of West Coast ship repair for cruise vessels that frequent the Alaska and Vancouver areas.

According to **Malcolm Barker**, Victoria's manager of Ship Repair, the yard has scheduled five cruise vessels for the remainder of 2002, beginning with Princess Cruises' Dawn Princess, which will arrive on May 9 for 10 days. While at the yard, the RINA-classed vessel will undergo underwater rear hull blasting and painting, minor topside modifications, refurbishment of lifeboats and sea valve replacement — in addition to usual array of classification surveys. Barker ensured that the vessel would be up and running again by May 19, at which time it will depart to its homeport in Vancouver for its next Alaskan cruise itinerary.

The autumn will also be a buzz of activity at Victoria with four more vessels coming in for repair work. Celebrity has called on the yard for its expertise, for the drydocking and refit of Mercury in early September for approximately 10 days. Mercury will be followed by another Princess vessel, Sun Princess; Crystal Cruise Lines' Crystal Harmony at the end of September; and Holland America's Zaandam in mid-October. According to Barker, the yard also has had inquiries into 2003, planning to schedule anywhere from two- to-three more cruise vessels into the drydock.

"We've always gotten one or two cruise orders a year," Barker said. "But now with our track record of cruise repairs, coupled with our strategic location, makes us the only yard in the area that can accommodate these vessels."

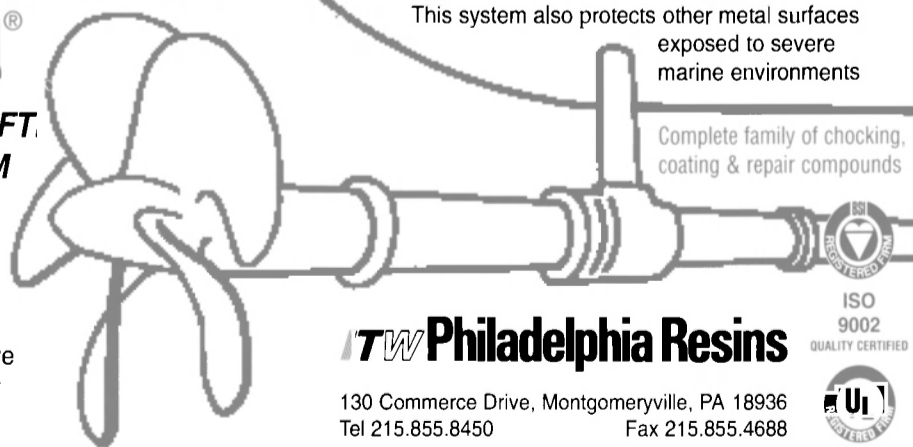
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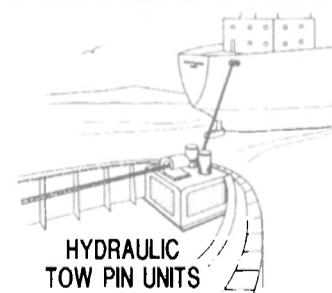
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Targeting Greek Shipping's \$16B Budget

Around the world, people involved with shipping are booking flights to Greece and preparing to do business at the Posidonia 2002 International Shipping Exhibition, held on the Piraeus waterfront from June 4-7, 2002. With the Greek market worth a conservative \$16 billion per annum, there is plenty of incentive.

The business week begins with The Posidonia Congress and a program of high level international presentations and debate, at the Megaron, Athens Concert Hall on Monday, June 3.

Posidonia's attraction for exhibitors and visitors is not hard to see. Greek shipowners control the biggest fleet in the world. Their drive towards fleet renewal and regeneration is creating multi billion dollar opportunities throughout the international maritime industry. Current Sale & Purchase (S & P) deals average \$86 million a week.

Greek owners control some 4,000 ships totaling more than 155 million dwt. Enormous business potential flows from this. Just to keep this massive and highly diverse fleet trading costs around \$5 billion a year.

In April 2002, the Greek shipowners' order book stood at about 250 newbuildings, worth almost \$7 billion - shipyards around the world now regard Greek buyers as their most important customers.

And Greek operators dominate the second hand ship market. Last year, S&P and demolition transactions involved 547 ships worth \$4.65 billion.

Posidonia typifies Greek shipowners' ability to combine the serious business of world shipping with close



personal business relationships, warmth and hospitality. "It is a wonderful and unique opportunity to see and be seen, to make new contacts and strengthen existing relationships," is how the CEO of one company put it.

There is a huge social calendar. Receptions range from the formal and lavish, for over 2,500 guests, to smaller, more intimate gatherings. They start the week before Posidonia opens and continue long after the exhibition has closed.

Posidonia 2002 is the 18th biennial International Shipping Exhibition to be held in Greece. It already looks set to break all records. Exhibition space at the Piraeus Port Authority Exhibition Centre on Akti Miaouli has been increased by over 10 percent to cope with demand.

Germany and Singapore return with national pavilions at Posidonia after several years' absence. They join current national pavilion exhibitors including Croatia, Cyprus, Denmark, Finland, France, Japan, Korea, Malta, The Netherlands, Russia, Turkey, Ukraine, United Kingdom, U.S., Hong Kong SAR and Romania.

The Posidonia Congress

The 2nd Posidonia Congress 2002 starts the business week, on Monday, June 3. It has already attracted leading industry figures, both as speakers and delegates. The Congress has two clear objectives. The first is to examine the role of sea transport in a rapidly changing world. The second is to evaluate the public image of shipping.

Keynote addresses will be given by:-

- **George Anomeritis**, Greek Minister of Mercantile Marine
- **Loyola de Palacio**, Vice President of the European Commission

Speakers include:

- **Kenneth S. Courtis**, Vice Chairman - Asia, Goldman Sachs
- **Phillipe Louis-Dreyfus**, President of the French Shipowners Association
- **Stelios Haji-Ioannou**, Chairman of easyGroup

(Continued on page 47)

Posidonia Exhibition Details

Venue: OLP, Piraeus Port Authority Exhibition Center

Tuesday, June 4 to Friday, June 7, 2002
 Tuesday, June 4 11:00 to 7:00 p.m.
 Wednesday, June 5 11:00 to 7:00 p.m.
 Thursday, June 6 11:00 to 7:00 p.m.
 Friday, June 7 11:00 to 5:00 p.m.

* Admission to the exhibition is free to all those involved in the sea transportation industry. To receive your visitor pass, register at <http://www.posidonia-events.com>

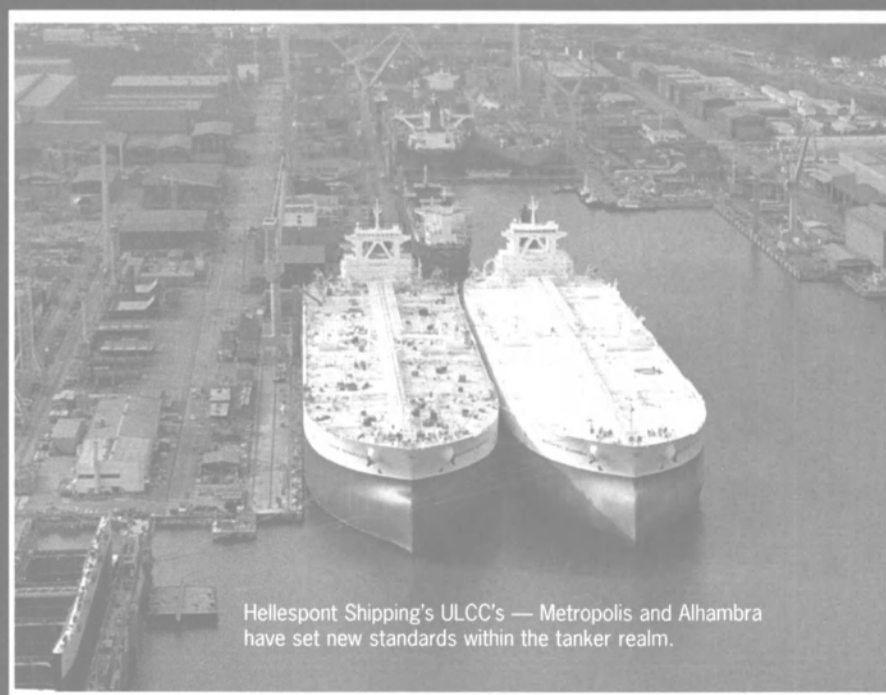
Hellespont Names First of Unique Double-Hull ULCCs

Piraeus-based Hellespont Shipping Corp named the first of its series of four unique double-hull ULCCs at a ceremony in Dubai on April 3, 2002. The 442,000 dwt vessel was named Hellespont Alhambra.

Basil Papachristidis, chairman of the Hellespont Group, says, "We are proud to set new standards with these ships. The Hellespont Alhambra is the largest double hull tanker ever built. The vessel sets new benchmarks for safety, longevity, commercial flexibility and ease of maintenance. And she extends frontiers of efficiency and economy in the ocean transportation of oil."

The series will continue with the Hellespont Metropolis, which was delivered in April, and two sister ships, the Hellespont Fairfax and the Hellespont Tara, both to be delivered in the second half of 2002. Built at Korea's Daewoo yard to LR and ABS class, the vessels elevate standards for large tanker strength and speed and will have a number of unusual features, including full-time inerting of the ballast spaces for safety and corrosion protection and a white paint system to protect internal coatings.

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Hellespont Shipping's ULCC's — Metropolis and Alhambra have set new standards within the tanker realm.

Elefsis Helps Speed LNG Retrofit



With the LNG market heating up and owners needing to move quickly to take advantage of profitable opportunities, the work of three companies —Texon, Elefsis Shipyard and ABS — will be remembered fondly.

In less than four weeks, Sweden-based Texon fulfilled a retrofit of the integrated control system for a 72,000 cu. m. LNG-carrier, Polar Alaska. The order for this turn-key project was originally placed last summer for design & development, construction and installation of boil off gas controls, combustion controls, burner management and auxiliary controls, as well as monitoring systems including all related field equipment. The original scheduled delivery date, according to this contract, was March 2002. However, due to extraordinary circumstances, the delivery was suddenly moved forward by six months and the installation was completed in four weeks.

This conversion was carried out at Elefsis Shipyard, Greece, and in accordance with classification society, ABS, with an expected system life span of 15-20 years. Despite the extremely short delivery time, the overall performance of the system has proven to be very satisfactory. Fuel oil consumption has been reduced to a minimum, savings up to 90 percent, due to safe "gas only" operation capabilities of the boilers has been recorded over a complete voyage. The increased combustion efficiency does also result in savings of gas to boilers by two to five percent. The maintenance costs for the control system are reduced by 70-80 percent compared to the originally fitted system as learned from previous conversions. Also, a significantly reduced mechanical maintenance of the boiler, as well as a safer overall operation of the vessel is the result of this retrofit.

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(Continued from previous page)

- **K.H. Koo**, Chairman of The Hong Kong Shipowners Association
- **Harald Kuznic**, Head of Shipping, Landesbank Schleswig-Holstein Girozentrale
- **Tom Mangold**, Senior Investigative Reporter, BBC TV Current Affairs

- **Nicho Stelmar** Set to Expand Fleet
The Posidonia Congress is held under the auspices of the Union of Greek Shipowners and the Greek Shipping Cooperation Committee and will be chaired by **John C. Lyras**, President of the UGS.

HELMEPA, which celebrates its 20th anniversary this year, is hosting a special Congress reception.

(Greece • Posidonia coverage continued on page 51)

The Society of Naval Architects and Marine Engineers

ANNUAL MEETING

International Maritime Exposition

IME_{xpo}

BOSTON, MA
SEPT. 25-28, 2002



SHIP
PRODUCTION
SYMPOSIUM



United We Stand

QUICK FACTS

For the first time ever, SNAME's Annual Meeting and IMExpo will be joined by the Ship Production Symposium! Individually, each of these meetings offer superior technological information and networking. This year in Boston, these two programs will overlap and provide you with an opportunity to attend the technical sessions and programming of both SNAME and SPS. And, "the show will go on!" IMExpo, which is SNAME's International Maritime Exposition, will incorporate the SPS Expo, and the result will be new and increased attendance for exhibitors, and a wide range of products and services for attendees!

Save the date: September 25-28, 2002.

Location

The Westin Copley Place
10 Huntington Avenue
Boston, MA 02116-5798
(617) 267-9600

Travel & Hotel Information

Hotel:

Guest Room Rates \$228.00 Single/Double
plus 9.7% tax.

**RESERVATIONS MUST BE RECEIVED
BY SEPTEMBER 1, 2002.**

Phone: (617) 262-9600

Reservation Code: SNAME Annual Mtg/IME_{xpo}

Air Travel:

Special discounted rates have been negotiated with
US Airways.

Phone: (877) 874-7687

Reservation Code: Gold File No.16612014.

Car Rental:

Avis Car Rental has offered special rates.

Phone: 1-800-331-1600

Reservation Code: AWD J866402

Preliminary Program

Wednesday, 9/25

- Ship Production Symposium
- SNAME Professional Development Courses
- President's Reception

Thursday, 9/26

- Ship Production Symposium
- SNAME Technical Program
- IMExpo (with SPS Pavilion)
- Banquet Reception
- Banquet

Friday, 9/27

- SNAME Technical Program
- IMExpo (with SPS Pavilion)
- President's Luncheon/Business Session
- Alumni Functions

Saturday, 9/28

- Golf Tournament

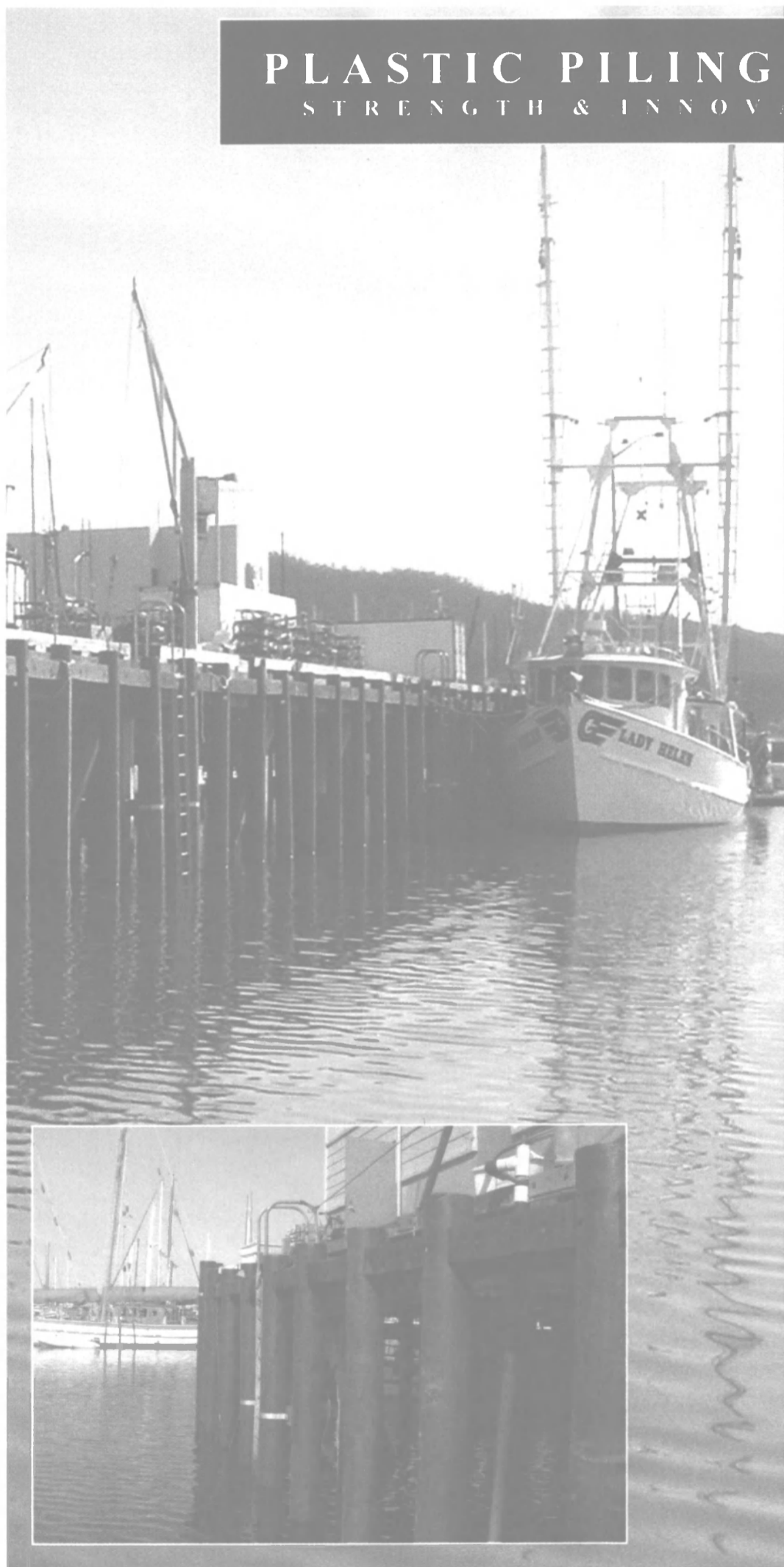
Questions?

Call SNAME Headquarters at (201) 798-4800
or check out our web site at www.sname.org

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PLASTIC PILINGS INC.

STRENGTH & INNOVATION



Plastic Pilings, Inc. (PPI) is a world leader in the development of recycled composite plastic and steel or fiberglass reinforced pilings, lumber and camels. PPI's ability to adjust the core strength provides for a wide range of physical properties.

All PPI products are manufactured using a patented method to provide for a marine product that is guaranteed against UV deterioration and corrosive intrusion.

Pictured at left is a recently completed project for the San Mateo County Harbor District. Wood pilings were replaced with PPI's 13" diameter Steel Re-bar Cage Core Plastic Piles at Johnson Pier. Strength and durability of our pilings were among the deciding factors for San Mateo County.

Contact PPI for your design or specification questions.



Plastic Pilings, Inc. 1485 S. Willow Ave. Rialto, CA 92376 USA 909-874-4080 Fax: 909-874-4860 www.plasticpilings.com

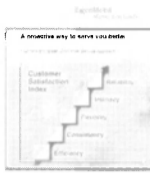
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Products

ExxonMobil Marine Lubricants

ExxonMobil Marine Lubricants has developed a new European customer service approach. The European Customer Service Center of Excellence was created on November 5, 2002, with the transition of the former service center in Milton Keynes, U.K. to Breda. ExxonMobil Marine Lubricants' eight remaining service centers will move to Breda in successive order, with the final move made from Italy during the second quarter of 2002.

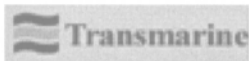
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Transmarine

Transmarine is a leader in the design, supply, installation and servicing of cargo access and handling equipment to ships and ports worldwide. The company has earned a reputation for successfully working with clients to solve problems or create opportunities, both as a product supplier and as a consultant. As part of the International Maritime Group of Companies, whose various companies are linked by a common maritime logistics thread, Transmarine can call upon the exceptionally broad range of services and products relating to ship and port developments.

Circle No. 102
www.maritimereporterinfo.com



Detroit Diesel

Detroit Diesel is committed to providing the broadest line of high-quality, technologically-advanced engines in the marine industry. Detroit Diesel currently has strategic distribution and servicing agreements for proprietary propulsion products from AlliedSignal (USA) and MTU (Germany). The company also has technology exchange agreements with MTU and Allied Signal to further develop new power systems for the future. Detroit Diesel offers marine engines in horsepower ranges from 25-10,000-hp.

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Paramatic Filter Corporation

A single-point source for filtering equipment and systems, Paramatic Filter Corporation provides innovative solutions for demanding shipboard requirements. The company's lines include filtering equipment for air, fuel, lubrication oil, hydraulics fluid, and other fluids as well. In related areas, we furnish oily water-separators and engine air intake moisture separators.

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Luber-finer

Luber-finer has three newly updated catalogs: the Automotive & Light Truck Applications, the Medium & Heavy Duty Applications, and the Cross Reference & Principal Applications. These catalogs provide product and application information for over 4,000 lube, air, coolant, fuel and hydraulic filters. In the back portion of the Cross Reference & Principal Applications catalog you will find information about filters for fuel dispensing pumps, coalescer fuel/water separators, coolant filters and maintenance kits and important service bulletins.

Circle No. 105
www.maritimereporterinfo.com



MAN B&W

MAN B&W's publication, *Diesel Engines and the Environment-Noise*, explains what noise is; how it can be measured and the primary sources of noise on a two stroke diesel engine. Furthermore, the noise limits, as specified by acknowledged bodies, at different locations on board the ship are described.

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ChevronOronite

Chevron Oronite is one of the market leaders in marine lubricant additive technology. A complete suite of blend components, global supply capability and product development



expertise provides a powerful platform to support customers' lubricant needs. Oronite's Global Marine Team conducts research activities in Richmond, Calif., performance analysis in Rotterdam, Netherlands and provides business support activities in Houston Texas, Rotterdam, Netherlands, and Windsor, U.K.

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William E. Williams

The Williams Emergency Shut-Off Valves (ESOV) are utilized in major refineries, petrochemical plants, dockside marine installations, fuel storage terminals, pipeline distributions, and offshore rigs throughout the world. They are recognized for their quality and dependability. In addition to the basic ESOV, Williams offers six modified emergency valve systems: Pneumatic actuated, Nema-7 Solenoid, High Pressure switch, Temperature Sensitive, High Level Shut-Off and Gas Overpressure Shut-Off.

Circle No. 108
www.maritimereporterinfo.com



Lord Engineered Adhesives

Lord Corporation is a pioneer and world leader in bonding technology with more than 40 years experience in developing and manufacturing engineering adhesives. The company's broad line of Lord acrylic, epoxy, urethane and cyanoacrylate adhesives can meet the demands of virtually any application. Lord adhesives offer consistent performance under the toughest environmental operating conditions.

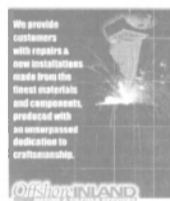
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Offshore-INLAND

Offshore-INLAND Marine & Oilfield is the premier topside repair, inside/outside machining, and engineering resource on the Gulf Coast. They provide tubing, piping, steel fabrication, and installation for the marine and offshore drilling industry. They travel to your facility, go offshore, or provide pier space for you near their Mobile, Ala. Facility. Experience and in-house engineering allows them to provide custom design, superior technical support, and complete turnkey solutions.

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www.maritimereporterinfo.com



Schmidt

The new Schmidt Valves and Controls brochure includes six pages of information about the company's abrasive metering valves, pneumatic actuator valves, electric deadman controls, and unique safety enhancing products. Included is the new Thompson Valve II, a patent-pending, next-generation Thompson Valve designed to provide the ultimate in abrasive metering performance. The valve features over 16 major design changes, based on input from leading industry specialists.

Circle No. 111
www.maritimereporterinfo.com



National-Spencer

National-Spencer has released a new brochure that introduces the new N-S Diamond Selection line of RAASM industrial-grade lubrication transfer and storage products. The new brochure details each product's features, benefits and specifications as well as recommended uses. Products include oil and grease pumps, hose reels, a waste oil drain, grease handle, oil bar and more.

Circle No. 112
www.maritimereporterinfo.com



Viking Pump

Viking Pump has released a new product range brochure. This comprehensive piece covers eight series of industrial-duty Internal Gear pumps including the Viking Mag Drive; eight series of sanitary and industrial Rotary Lobe pumps; and Viking's high-pressure and composite-material External Gear pumps. The brochure also presents Gerotor pumps for OEM applications, Viking gear reducers, basket strainers and the Viking Flow Manager meterless flow and proportioning controller.

Circle No. 113
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Denison Hydraulics

Denison Hydraulics is offering a new brochure that covers four new models of single and double vane pumps recently added to the company's extensive line of fixed-displacement units. Applications for these pumps include equipment such as machine tool power units, filter carts, fork lifts, utility trucks, compactors and bailers.

Circle No. 114
www.maritimereporterinfo.com



Leslie Controls

Leslie Controls has launched its new Control Valve Handbook. This new manual details Leslie's complete product line of general and severe service control valves, which includes linear, rotary, three-way and electric actuated control valves. The handbook describes valve sizes and pressure ratings. Control valve spec sheets are provided for each style of valve and complete data for valve and actuator sizing is given. Code selection charts allow the reader to make detailed selections of the optimum products for specific applications.

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CONTROL VALVE HANDBOOK

BOLLFILTER

The Boll automatic filter SELF-CLEAN TYPE 6.60/6.61 is equipped with several filter chambers, where each filter chamber contains a filter insert made-up of a number of filter candles, each candle is made from a spiral-wound support structure over which high-grade filter mesh is drawn. Large filter surfaces with high "free passage" areas guarantee a low pressure differential. As each filter chamber becomes dirt-loaded, it is isolated from flow and regenerated by back-flushing, each in sequence.

Circle No. 116
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Products

Kleen Tank

Owens has provided Type II MSD's to the commercial marine industry for over thirty years. These units have been used on every type of vessel and have become the sewage treatment standard for inland waterway transportation. Kleen Tank offers stock availability and is nationally distributed.



Circle No. 117
www.maritimereporterinfo.com

MSE of Canada

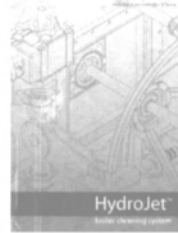
Manufactured by Marine Safe Electronics of Canada, Ltd., the FailSafe Insulation Fault Detectors are used to continuously and automatically monitor the insulation resistance of motors, generators, and power and control systems. In addition to being used by several Navies (including U.S. and Canada), the FailSafe insulation fault detector is currently used in the Cruise Ship, Merchant Marine and Offshore Platform sectors.



Circle No. 118
www.maritimereporterinfo.com

Diamond Power

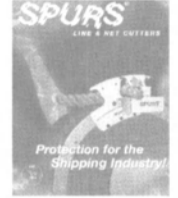
Diamond Power Specialty Company introduces the new HydroJet boiler cleaning system. One HydroJet device can replace a complete furnace wall of sootblowers, and is designed to clean division, furnace, and wing walls. It can even clean across the entire width of the furnace inside many utility boilers. The HydroJet boiler cleaning system sets a new standard for precision, reliability and water efficiency.



Circle No. 119
www.maritimereporterinfo.com

Spurs

Spurs Marine Manufacturing has engineered and developed a cutting system to protect aft oil seals from rupture and failure due to line and net intrusion. Spurs cutters are a combination of two or more rotary cutting blades mounted on the propeller forward face and one stationary cutter blade assembly welded into the rope guard. The cutter system ensures that lines or nets do not have a chance to enter the seal area, as they are cut and washed away before allowing a build-up on the propeller.



Circle No. 120

Shave Away

Shave Away, Europe manufactures and sells the Dust Muzzle, a patented dust collection shroud that is flexible, transparent and only \$24.95. Easily attached with a hose clamp it accepts a standard 1.25-in. vacuum hose and removes up to 95 percent of the airborne pollutants caused by angle sanders, die grinders and random orbit sanders, and retrofits over 1,200 tools. No special backup pads or sand papers are required.



Circle No. 121
www.maritimereporterinfo.com

Mariso

As a reliable solution for the marine diesel engine and turbocharger parts supply-service-repair, Mariso is committed to provide the value-added service to the global marine industry at competitive prices coupled with guaranteed quality, timely delivery, multi-location inventory, technical support and the worldwide sales/service network.



Circle No. 122
www.maritimereporterinfo.com

Thordon Bearings

Thordon Bearings, a pioneer in the development of pollution free bearing designs offer a choice of sealed or open, water lubricated propeller shaft bearing systems. The ThorLube sealed stem tube system combines proven XI bearings with Thor Lube, a water soluble, non-polluting lubricant. Thordon's open water lubricated system choices are COMPAC, XI and composite; each offering specific advantages in different water environments.



Circle No. 123
www.maritimereporterinfo.com

Goltens

For more than 60 years, Goltens-New York Corp. has provided high quality, worldwide, 'round-the-clock' diesel engine repair, maintenance and parts. All Goltens' services and products are available in port, at sea, in dry dock, in-site, on-site or at one of Goltens' worldwide fully-staffed facilities. Crankshaft Grinding, Engine Overhaul, Fuel Equipment Repair, Rebabbitting of Bearings, Line Boring, Steel & Pipe Fabrication, as well as Cogeneration Services.



Circle No. 124
www.maritimereporterinfo.com

McMillan Designs, Inc.

The Sea Catch Toggle Release is an innovative mechanical quick release used in the safe release of any object or line under load. Now offered in over 24 models, it enjoys wide maritime usage such as rescue boat releasing, tug-tow connections, ship launching, and mooring deployment.



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LeMag

The Lehmann & Michels permanently mounted Lemag Premet Online measures the cylinder pressure continuously, from each cylinder at the same time. Once installed, you receive continually indicated power, max. cylinder pressure, main trend etc. on your PC.



Circle No. 126
www.maritimereporterinfo.com

Thermax

Thermax, non-combustible, non-toxic, marine construction boards are used worldwide for joiner bulk heads, panels, liners, ceilings, door and furniture cores. Thermax has all major regulatory body certificates (USCG, Canada, DNV et al) and meets the requirements of IMO/SOLAS resolutions. Thermax is sold, distributed, warehoused laminated and cut to size in North America by PSI.



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www.maritimereporterinfo.com

GS Hydro

GS Hydro provides innovative solutions to high and low pressure pipe jointing problems, and is rightly known as the world's leading supplier of "piping without welding". GS Hydro provides substantial cost savings and other major benefits to clients around the world. GS piping systems are inherently clean, leading to reduced flushing costs and warranty claims.



Circle No. 128
www.maritimereporterinfo.com

Desmond-Stephan

Desmond-Stephan's Swirl-Off is a tool that can remove paint, rust, scale and other hard coatings from almost any hard surface. Features for this tool include: built-in safety guard, balanced design for easy operation, operates underwater, environmentally safe, fits 5/8 in. - 1 1/2 in. shaft, no lubrication or maintenance required, drive adaptors for 3/8 in. or .5 in. drill chuck available and cutters for all models are interchangeable and self-cleaning.



Circle No. 129
www.maritimereporterinfo.com

Climax

Climax's line of more than 25 machine tools provides effective solutions for repairs at sea and valuable alternatives to costly off-site machining in ship repair or refurbishing operations.



Circle No. 130
www.maritimereporterinfo.com

Liebherr

LIEBHERR-Werk Nenzing GmbH, located in Austria, was founded in 1976 for the purpose of designing, selling, manufacturing and providing after-sales service for ship and offshore cranes. Since then the product range has extended to include crawler cranes, as well as harbor mobile cranes. The network of Liebherr service stations throughout the world provides a continuous and reliable after-sales service for all our customers.



Circle No. 131
www.maritimereporterinfo.com

G.J. Wortelboer

G.J. Wortelboer Jr., B.V. specializes in supplying marine products; essentially anchors chain-cables, and windlasses — with deliveries on a worldwide basis. The company is headquartered in Rotterdam, where a substantial stock is kept, guaranteeing immediate delivery to virtually every port in the world.



Circle No. 132
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Royal Olympic Takes Olympia Explorer

Blohm+Voss GMBH delivered the new fast cruise ship, Olympia Explorer, to Royal Olympic Cruise Lines Inc. The vessel immediately sailed from the Blohm+Voss shipyard to the Port of Piraeus in Greece.

Royal Olympic Cruises' CEO, Yiannos Pantazis, said that the delivery of the Olympia Explorer "made us all proud."

The Olympia Explorer, together with her sister ship, Olympia Voyager, are the fastest cruise vessels of their size, performing unique cruises at speeds of up to 30 knots.

"The new itineraries Royal Olympic Cruises will offer with this vessel have created considerable interest in the cruise market.

The first cruises are already fully booked," added Pantazis.

Stelmar Set To Expand Fleet, Receives Tanker

Stelmar Shipping Ltd. has taken delivery of the Rubymar, a new 69,697 dwt Panamax tanker from the Daewoo Shipbuilding and Marine Engineering Company Ltd. of South Korea.

The Rubymar has entered into a previously announced 24-month time charter with SONAP (National Oil Company of Chile) for \$17,500 per day.

Rubymar is a sister ship to the Jade-mar and the Pearlmar, which were delivered in the first quarter and entered into previously announced 24-month time charters with Adam Maritime Corporation.

Stelmar Shipping Ltd. — headquartered in Athens, Greece — announced, for the first quarter, a net income of \$7.9 million, or \$0.67 per basic share, compared with \$3.9 million or \$0.72 per basic share, for the first quarter of 2001. Operating income increased to \$12.2 million from \$7.2 million in the first quarter of 2001. EBITDA for the quarter was \$19.8 million compared with

\$11 million for last year's first quarter. On a time charter basis, revenues for the quarter were \$30 million, an increase of 93 percent over the \$15.5 million recorded in the first quarter of last year, mainly due to the expansion of the fleet. Time charter earned revenues for the first quarter of 2002 were \$26.6 million approximately 89 percent of revenues, as opposed to \$14.1 million or 91 per-

cent of revenues, on a time charter basis, for the same period last year.

Including the two newbuildings to be delivered in the second quarter of 2002, Stelmar has 27 ships with a total of 1,528,438-dwt-cargo carrying capacity. Twenty-four of these ships are deployed on time charter.

Seven time charters were signed during the first quarter of 2002, bringing

time charter coverage to 77 percent and 43 percent of the net operating days for the fleet for 2002 and 2003 respectively. The durations of the charters signed over the course of the quarter range from six months to 18 months.

The average hire for the six months time charters is approximately \$12,000 per day with the longer duration time charters exceeding \$13,500 per day.



Focusing on your needs

Only an operational ship is a profitable ship. So at GL we devote all our expertise and experience to ensuring your ships stay operational – with a flexible range of engineering and advisory services focused on every phase of your ships' operations. For example as early as the pre-project and -contract phase when our consulting service helps you optimise planning and save money. Our block-fee contracts offer you a tailor-made planning tool while our Head Office Task Force is on call 24 hours a day, 7 days a week to deal with all your needs. Just some examples of how GL engineers are working to put your mind at rest – and ensure you steer a profitable course, now and in future.

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Germanischer Lloyd
OPERATING 24/7

Stelmar Shipping: Select Details

(All amounts in thousands of U.S. Dollars - except share and per share data)

	For the Three Month Periods Ended March 31	
	2002 (unaudited)	2001 (unaudited)
Revenues		
Revenue from vessels	\$32,528	16,148
Voyage expenses	(2,476)	(573)
Revenue on a time charter basis	30,052	15,575
Commissions	(711)	(349)
Revenue from vessels, net	29,341	15,226
Expenses		
Vessel operating expenses	8,009	3,498
Depreciation	7,173	3,515
Amortization of deferred charges	423	221
General and administrative expenses	1,440	712
Operating income	12,296	7,280
Fixed Assets		
Advances for vessel acquisition /under construction	26,541	46,558
Vessels	668,130	569,975
Accumulated depreciation	(85,337)	(78,152)
Net Book Value	582,793	491,823
Property and equipment, net	955	817
Total fixed assets	610,289	539,198

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HHI: To Infinity & Beyond

Thirty years ago when Greek shipowner **George Livanos** met with Hyundai Heavy Industries (HHI) founder **Chung Ju Yung** met on a sandy

beach on the tip of the Korean peninsula where the new HHI shipyard would stand, little did they know that 30 years later, HHI would have delivered 1,000

ships of 75 mdwt to 188 shipowners in 42 countries. HHI is celebrating its 30th anniversary in a manner most any other commercial shipbuilder would enjoy,



Lloyd's List *events*

Presents

ShipRepair & Conversion

The Ship Maintenance Exhibition and Conference

27th & 28th November 2002
Grand Hall Olympia, London

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with the delivery of its 1,000th vessel, or the equivalent of 77.5 million dwt. Rival shipyards and political organizations in Europe, the U.S. and Japan often question the manner in which HHI and its shipbuilding colleagues in South Korea garner such large market share, with the dreaded word "subsidies" used with great earnest. Politics, innuendo and denial aside, the inescapable fact though, is that since its inception during the ground-breaking ceremony in 1972 in Ulsan, the company has evolved into one of the most prolific shipbuilding organizations the world has seen, setting a new world record in shipbuilding history for producing the largest-ever volume of ships in the shortest period of time.

By its own account, HHI currently accounts for 15 percent of the world shipbuilding market, and in 2001 alone delivered 56 vessels (or, slightly more than one ship per week) of nearly five million dwt. HHI has delivered ships to more than 188 companies in 42 countries, including 82 vessels to Greece; 75 to the U.S.; 69 to Germany; 64 to Norway; 49 to Denmark; and so on.

By ship type, HHI has delivered 276 bulk carriers (25 million dwt); 228 tankers (35.4 million dwt); 180 full containerships (8.8 million dwt); 52 pure car carrier/RoRo ships (802,000 dwt); 39 gas carriers (one million dwt); etc.



Greek shipowner **George Livanos**, above, met with HHI founder **Chung Ju Yung** on a sandy beach to agree on the first ships to ever be built by the fledgling company. Mr. **K.S. Choi**, President and CEO of HHI, right, is charged with the task of keeping the shipbuilder on track.



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30 Years in the Making

In 1972, construction began on HHI's shipyard in Mipo Bay, Ulsan, which was then a small fishing village with bleak sandy beaches. Carrying a blueprint of the beach site where the Hyundai Shipyard was to be built, **Chung Ju Yung**, founder of HHI, met with **George S. Livanos**, a Greek shipowner, and won the order for two 260,000-dwt VLCCs.

Work proceeded simultaneously on the shipyard and the two VLCCs. And 27 months later in 1974, a simultaneous ceremony was held to commemorate the completion of the shipyard and naming of the two VLCCs. Up to that point, the largest ship Korea had ever built was a 17,000-dwt cargo ship, and Korea's market share in world shipbuilding was less than one percent. Within 10 years of the first VLCC delivery, HHI delivered 231 vessels, exceeding 10 million dwt of ship production in 1984. Since then, the shipyard delivered an aggregate total of 389 vessels (20 million dwt) by 1988, 566 vessels (40 million dwt) by 1994, and 671 vessels (50 million dwt) by 1997, setting new world records for production. Upon completing its shipyard in 1974, HHI was the first Korean company to reach \$100 million in exports and has since exported 80 percent of its products each year. Last year, the Shipbuilding Division alone recorded an export performance of \$3 billion.

The Future is Now

Though the last three decades has resulted in the world's largest shipbuilder, by volume, residing in South Korea, the trip has had its fair share of bumps. The latest has been an EU argument that South Korea has granted substantial subsidies to its shipyards, contravening the WTO's 1994 Subsidies Agreement. South Korean shipbuilders deny EU charges that they benefit from illegal subsidies. In 1997, the Far East financial crisis deeply wounded many of Korea's largest corporate entities, resulting in a much more streamlined and cost-effective business model to bring products to market.

HHI has set its eyes on \$7.85 billion in new orders for 2002, to secure a stable work volume. The Shipbuilding Division has established its 2002 new order

target at 56 vessels and \$3.1 billion in order to maintain a stable workload and has targeted to zero in on expansion of gas carrier, FPSO, and special ship production. To briefly summarize HHI's 2001 performance, orders totaled \$6.4B

and exports totaled \$4.1B. HHI's 2002 new order target is \$7.8 billion.

In 2002, facility investment will decline 6.5 percent, keeping in mind a stabilized financial structure and steady cash flow, while investment in research

and development will rise 13.5 percent, to ensure a long-term technological advantage and the top position in core technology.

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Page	Advertiser	Product	R/S#	Page	Advertiser	Product	R/S#
6	ABB Turbo Systems AG	turbochargers	200	28	Kockum Sonics AB	ballast exchange	233
41	ABS	classification society	201	3	Liebherr-Werk Nenzing	marine cranes	234
4	Ampco Pumps Co.	pumps	203	42	Marine Safety International	simulation training	235
31	Anchor Marine	marine equipment	204	9	Mariso USA	spare parts	271
21	Arion International Inc.	marine thermal imager	205	21	Maritime Associates	marine & offshore signage	236
42	Boll Filter Corp.	filters	206	34	Maritime International	bollards	237
18	Cambridge Applied Systems	viscometers	207	12	Markisches Werk Halver	engine components	238
16	Capt. R.J. Underhill & Assocs.	consultants	208	15	Mascoat Products	coatings/marine insulation	239
16	Carnival	cruise line employment	266	19	Military Sealift Command	employment	272
24	Clean Seal	extruded rubber product	209	8	MITAGS	simulator training	240
23	Climax Portable Machine	portable machine tools	210	27	Muldoon Marine Services	ultrasonic hatch cover testing	241
44	Comnav Marine Ltd.	navigation	211	C4	Navy League of the U.S.	maritime service support org.	282
C3	Companion Products	oil safe professional lubrication systems	213	40	NLB Corporation	surface prep equipment	242
38	Conam Inspection	marine services	281	28	Orkot	bearings	243
14	Cospolich Refrigeration	refrigeration	202	29	Owens Kleentank	waste water solutions	278
20	Creative Systems	software	212	45	Philadelphia Resins	coating systems	244
22	DBC Marine	safety equipment	276	48	Plastic Pillings	navigational marker	245
21	Desmond Stephan	swirl off scarifier	214	44	Rust 2002	exhibitions	269
23	Eagle Insurance	insurance	215	53	RWO	water technology	246
27	Electronic Marine Systems	tank level indicators	216	1	Rydex:An Immarsat Ventures Co.	marine data solutions	247
29	Electronic Marine Systems	tank level indicators	217	18	Sea Techonology	training and education	248
31	Electronic Marine Systems	tank level indicators	218	7	Seaward International	fenders	249
33	Electronic Marine Systems	tank level indicators	219	25	Sherwin Williams	coatings	250
2	Envirovac	sanitation systems	220	52	Ship Repair & Conversion-Infoma	conferences	268
38	Fast Systems	waste water treatment	279	18	Skookum	rigging products	251
30	Furuno	navigation	275	47	SNAME	trade show	270
32	Fybroc-Division of Met-Pro	centrifugal pumps	265	15	Sohre Turbomachinery	grounding brushes	252
43	G.J. Wortelboer	chains	221	40	Spurs Marine	line and net cutters	264
51	Germanischer Lloyd AG	classification society	222	5	Standard Horizon	marine electronics	253
37	GMD Shipyard	shipyards	263	31	Superior Energies	insulation	254
53	Goltens Marine Co.	diesel engine repair	223	14	TandemLoc Inc.	container lift spreaders	255
35	Grand Bahama Shipyard	shipyards	267	20	TEEX Center for Marine Training	STCW training	256
33	GS-Hydro	non-welded piping	224	13	Tranter Inc.	heat exchangers	257
26	Hagglunds Drives AB	drive systems	225	C2	Uniservice Americas	water treatment	280
16	Harrington Marine	kort nozzles	226	11	Urethane Products	foam filled fenders	258
15	Hepworth Marine	windscreen/window wipers	227	15	Waterman Supply	marine equipment	259
23	In-Place Machining	crankshaft repair	228	45	Western Machine Works	deck machinery	260
39	International Ship Repair	ship repair	229	24	William E Williams	valves	261
19	Island Boats	boat builders	230	14	Wynn Marine Ltd.	windscreen/window wipers	262
17	IZAR	shipyards	274				
36	Japan Radio	communications	273				
32	Japan Radio	communications	277				
9	Jeamar Winches	winches & sheaves	231				
18	Jets Vacuum AS	toilet systems	232				

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Dual-Fuel Finds A New Backer

A long and determined endeavor to promote the dual-fuel engine concept in the deepsea LNG carrier sector, one of the last bastions of the steam turbine, has been rewarded by a powering deal covering a new breed of French gas tanker.

The installation selected for the 75,000-cu m new-build contracted by Gaz de France at Chantiers de l'Atlantique not only gives Wartsila's DF series its head in the LNG carrier segment, but also signals a breakthrough for electric propulsion in the gas tanker market.

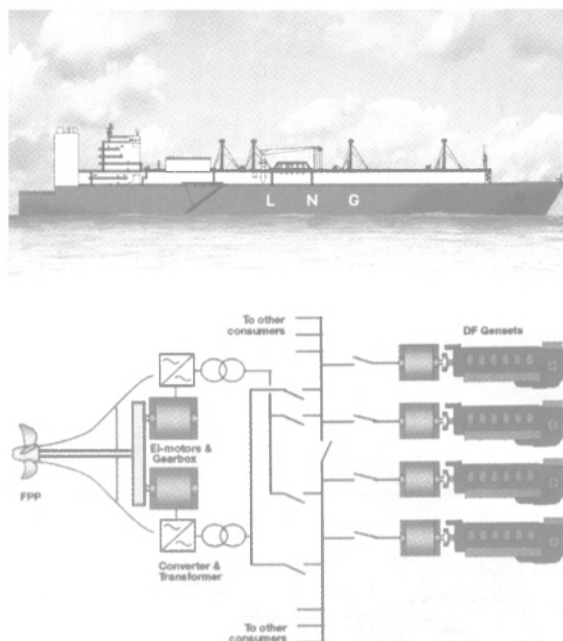
The four L50DF, six-cylinder dual-fuel engines will drive generators to meet the ship's entire electrical power needs for propulsion and shipboard services.

The machinery will maximize usage of cargo boil-off as gas fuel, and Wartsila claims that the high efficiency of the engine type promises much lower fuel consumption overall, and substantially lower stack emissions, compared with conventional steam turbine plant. Rated at 5,700-kW apiece and derived from the successful Wartsila 46 medium-speed diesel, the engines allow for automatic switchover from gas to marine diesel oil in the event of an interruption to the gas supply, while continuing to deliver full power.

The Gaz de France project also represents another milestone as the first to adopt the CSI membrane cargo containment system newly-developed by specialist engineering firm Gaztransport & Technigaz (GTT).

Due for handover by the St. Nazaire yard in 2004, the seminal class of LNG carrier will be allocated to the trade between Algeria and France, transporting LNG from Skikda to Fos, near Marseilles. The schedule calls for round-voyages of about one week at a service speed of 16-knots, achievable using three of the ship's four main gensets.

The vessel is also likely to be deployed for spot market fixtures, such as shipments to the U.S. For transatlantic passages, a speed of 18.5-knots should be attainable with all four gensets in operation.



U.S. Navy Selects Gold Team For DD(X)

Northrop Grumman Corporation has been contracted by the U.S. Navy to complete system design for the Navy's advanced, 21st century surface combatant, DD(X). The initial design contract, which spans over four years has a total value of approximately \$2.9-billion.

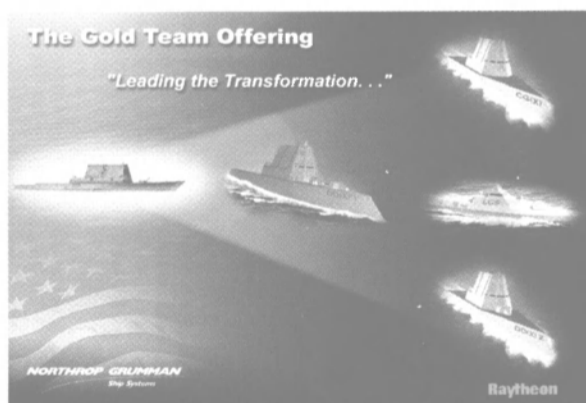
Northrop Grumman's Ship Systems sector will lead the system design, engineering prototype development and testing of the DD(X) System under a \$265 million contract awarded today by the Navy. The team includes Raytheon Company as mission systems integrator and more than 30 of the nation's top engineering and maritime industrial companies.

This family of ships includes destroyers, cruisers and littoral combat ships, as well as technology to be backfitted into today's existing fleet of Aegis-equipped cruisers and destroyers.

In addition to four other Northrop Grumman sectors — Newport News, Information Technology, Electronic Systems and Integrated Systems — the DD(X) Gold Team will include United Defense and Raytheon. The team will also be joined by DD(X) Blue Team members General Dynamics' Bath Iron Works and Lockheed Martin Corporation.

This phase of the program will initially employ more than 350 Northrop Grumman Ship Systems management, engineering, operations and logistical support personnel over the next four years.

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Packing Solutions Help Bear Set Sail

In August 2001, the Delamar Company received a call from the Engineering Officer aboard the 270-ft. (82.2-m) USCG Cutter Bear. He described an oil leakage problem from the #1 (starboard) reduction gearbox.

The stern outdrive shaft's stuffing box could not maintain a good seal for any length of time, and would allow the leaking gear oil to sling off the rotating shaft onto adjacent clutches. Different types of compression packing had been tried, including graphite-impregnated, but none proved successful against the frictional heat and oil pressure.

Additionally, the shaft was suspected to be skewed and misaligned in relation to the gearbox. Bear was scheduled to leave port in just a couple of days for duty, and this leakage wasn't acceptable during operation; it had to be fixed immediately.

The Solution

After hearing the details of the situation, discussing the operational range of the machinery, and learning what types of packing had failed, Delamar recommended Slade 3300-G general-purpose packing for this application. This is a unique packing of cross-braided proprietary carbon fiber & vermiculated graphite yarns.

The 3300-G can withstand temperatures from 400 to 5,400° F, and handles pressures up to 5,000 psi at the same time. The construction and content of the 3300-G also allow it to seal against worn rotating equipment and without flush-water or seal-water at shaft speeds up to 4,800 ft./min. The 3300-G will also seal well in chemically active environments, with a pH range from one to 14.

The ship's crew removed the gland follower ring, and pulled out the old packing. The inside of the stuffing box was cleaned and new rings of 3300-G were cut to the proper length. Ring ends are cut at a 45-degree angle, and joints are staggered as each ring is installed into the stuffing box. Additionally, each ring of 3300-G is fully compressed before adding the next one. This application required only three rings, so the compression procedure is very important. Because of the shaft misalignment, each ring needed to squeeze each ring before installation.

The usual .5-in. clearance between the shaft and stuffing box was less than 3/8-in. on one side and over 5/8-in. on the other. Hammering the 3300-G to accommodate the inconsistent clearance has no detrimental effects on the packing. Once the rings are installed and fully compressed by the tightened follower ring, they are die-formed into the stuffing box's geometry.

The Engineering Officer decided to test the repacked reduction gearbox by turning the shaft in port for about eight to 12 hours. There were no leaks, and he determined the repair to be seaworthy so Bear set sail for duty on time. During the first two weeks of the cruise, two minor tightening adjustments were made to the follower ring nuts to eliminate a slight oil drip.

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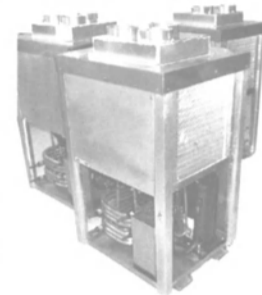
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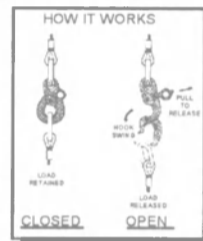
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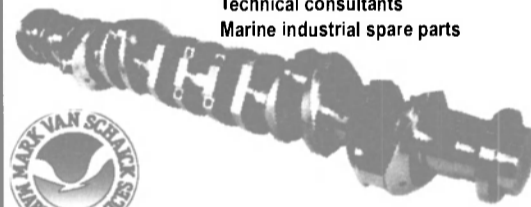
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Marine Field Service Engineers

MaK Americas Inc., a Caterpillar Company, has openings for Field Service Engineers at the MaK Service Excellence Center in Miramar, Florida.

This facility is the headquarters for MaK Americas Inc., and has responsibility for total customer support of MaK marine engines and related systems operating throughout North and South America. This Center has new equipment and offers complete support of all MaK engine customer needs.

This facility is the primary source for field repairs, engine maintenance, commissioning of new engines, engine component rebuilding, and has a fully stocked parts department.

Our current need is for field engineers to work in and out of the Service Excellence Center on marine and power station installations. Therefore, candidates should live in the Southeastern Florida area, or be willing to relocate.

Characteristics of qualification

1. Organization and execution of repairs, overhauls and major repairs of all types of MaK engines in cooperation with technical inspectors, yards, classification representatives, subcontractors and operating company personnel.
2. Troubleshooting mechanical, hydraulic, pneumatic, electric and electronic issues.
3. Commissioning of new installations in coordination with subcontractors, yards and building inspectors.
4. Good knowledge of English, written and spoken. Written documentation (service reports, minutes of meetings, etc.).
5. Basic knowledge of electronics, in particular electronic speed governor.
6. Good knowledge of engine ancillaries, such as separators, heavy fuel modules, automatic filters, viscosimeters, gearboxes, propeller automation, etc.
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We offer a complete benefits package and training for all series MaK engines operating within the Americas. Salary is commensurate with experience.

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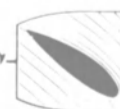


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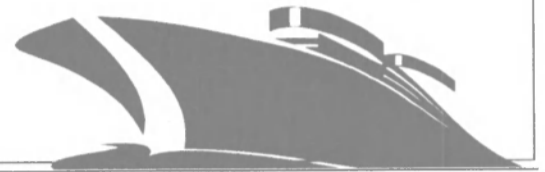


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3. Commissioning of new installations in coordination with subcontractors, yards and building inspectors.
4. Good knowledge of English, written and spoken. Written documentation (service reports, minutes of meetings, etc.).
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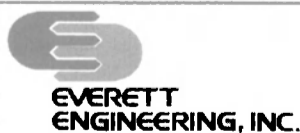
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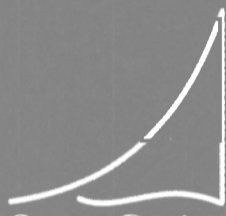
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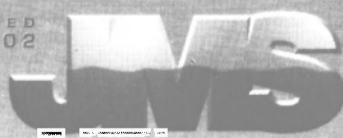


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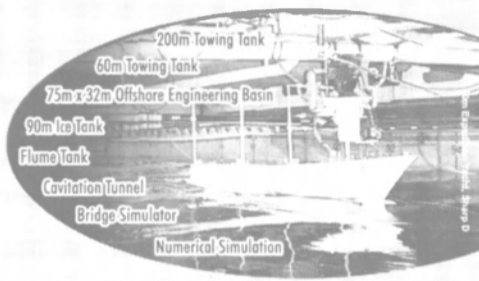
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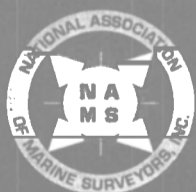
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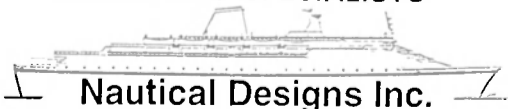
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