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International Operations

CHARLES E. KEIL Vice President

215 NW Third Street

Boynton Beach, FL 33435

Tel: +561-732-0312; Fax: +561-732-8063

24-hr Tel/Fax: +561-998-0313;

Mobile Tel: +561-716-0338

e-mail: bkeil@marinelink.com

AustralAsia, United Kingdom

TONY STEIN, International Sales Manager
12, Braehead, Bo'ness,
West Lothian EH51 OBZ, Scotland, U.K.
Tel: +44 (0) 1506 822240;
Fax: +44 (0) 1506 828085

Benelux PAULA TACQ

Maritime Media NL, Otweg 18 2771 VX Boskoop, Netherlands Te:+31 172 230707; Fax:+31 172 230708

China TED GREEN

Zhejiang International Advertising Corp. 596 Tiyuchang Road, Hangzhou, Zhejiang 31007 Tel:+86 571 5150937; Fax:+86 571 5150444

Germany/Switzerland

TONY STEIN, International Sales Manager
12, Braehead, Bo'ness,
West Lothian EH51 OBZ, Scotland, U.K.
Tel: +44 (0) 1506 822240;
Fax: +44 (0) 1506 828085

Italy VITTORIO NEGRONE

Ediconsult Internazionale Piazza Fontane Marose, 3-16123 Genoa, Italy Tel:+390 10 583684; Fax:+390 10 566578

Japan AKIOISHII

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

Korea Jo. Young sang

Business Communications, Inc. Kwangwhamun P.O. Box 1916, Seoul, Korea Tel:+82 2 739 7840; Fax:+82 2 732 3662

Seandinavia STEPHAN R.G. ORN/LEON SCHULZ

AB Stephan R.G. Orn, Box 184 S-271 24 Ystod, Sweden Tel:+46 411-184 00; Fax:+46 411 10531

Spain

JOSE LUIS SEVA

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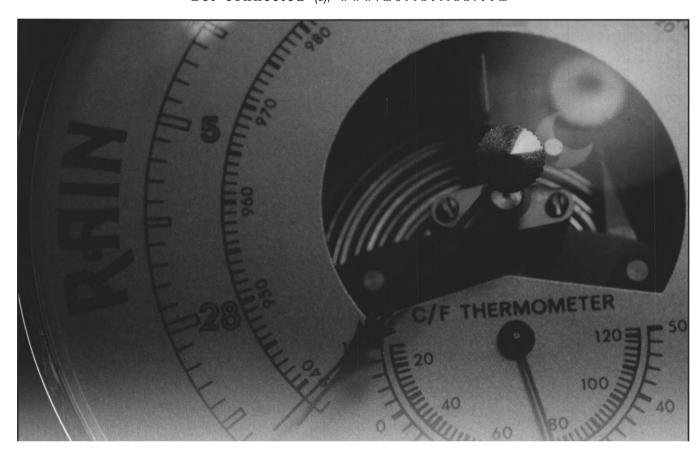
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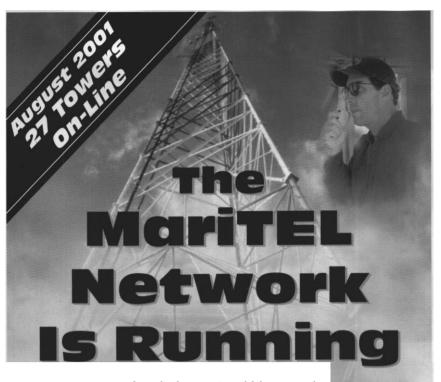
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On the Cover: Detyens Shipyard recently completed a technically challenging reactivation and conversion of the LNG carrier Galleoma (formerly Arzew). See page 32 tor details. (Photo credit: E. DuBose Blakeney IV, Mt. Pleasant, SC, tel: (843) 856-0779)

Two for One

A new generation of vessels for the Israeli fruit and vegetable trade could help shape the future of the palletized reefer sector. — by David Tinsley, technical editor

24 U.S. Report

The teaming of Bollinger and Incat has seemingly accomplished "Step 1," as the military will trial one of the Australian-design high-speed craft. Senior Editor Regina Ciardiello offers a peek into the company's future.

- Fast Company: Fast ferry construction in the U.S. is set to quadruple.
- Gassed to Go: Detyens recently completed a challenging reactivation and conversion on an LNG carrier.

36 Offshore: This is a Boom?

The fickle, cyclical business of discovering and recovering resources offshore has hit a lull, but appears capable of moving forward once again. Companies such as Offshore Inland Marine & Oilfield Services are well positioned to capitalize.

42 Charting a New Path

Electronic chart information has forever changed the look of the bridge.

49 RIBs: Bigger, Stronger, Faster

Innovative material usage, new designs and fierce competition have all helped the RIB market to expand into new areas.

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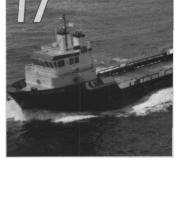
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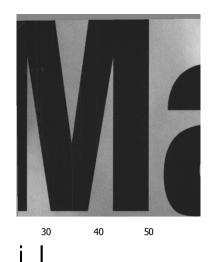
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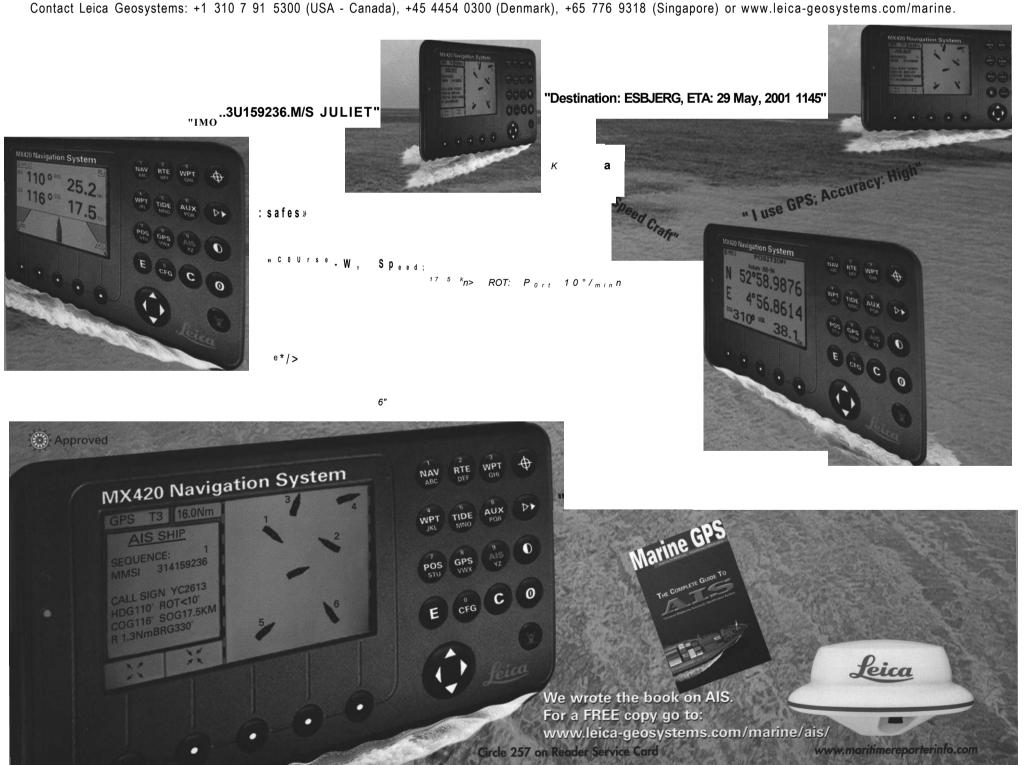
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Janet M. McAllister Welcomed To NY

It's ironic that New York City's most dressed smartly in a sailor suit, chrispowerful tugboat is named after two year old Janet M. McAllister, who,

tened her namesake in a ritual at New York City's South Street Seaport in late July. She is the daughter of Buckley McAllister, vice president and general counsel of the family-owned company.

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SSP-2101 is suitable for use in a broad range of applications either as a standalone rust stripper and/or where short term/in-process rus protection and pre-paint preparation is desired in a single product

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Production Description/Application

SSP-2200 is a liquid product specially designed for simultaneous cleaning and phosphate conditioning of metals prior to painting. This one-step metal treating ability eliminates the need for multiple products and is an advantage when there is limited processing space

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The event, to welcome the 96-ft. (29.2 m), 5,000-hp, Eastern Shipbuildingbuilt tugboat home, drew a crowd of industry and non-industry gawkers as the vessel was put through its paces off of Pier 16.

Powered by a pair of EMD 12-645 E7B diesel engines which generate 5,000 hp for the Schottel SRP 1212 Steerable Kort Nozzle Rudder Propellers, the vessel is able to achieve a free running speed of 13.6 knots.

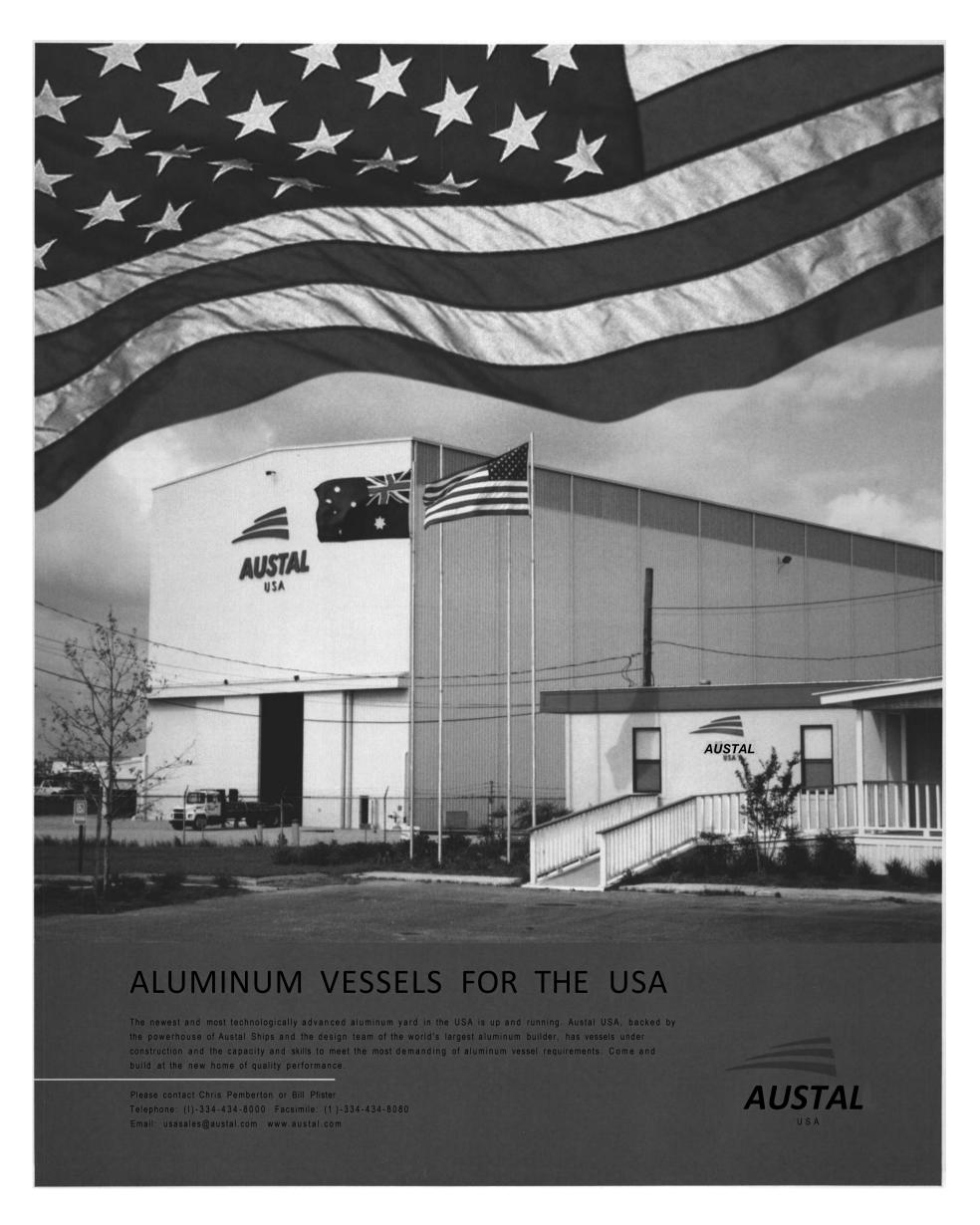
As is to be expected from a vessel of this type, maneuverability is, in a word, incredible; a fact surely confirmed by the hundreds of people that stopped to stare as the vessel approached the pier at full speed, turning at the last second and initiating a series of tight circular spins. Designed by Jensen Maritime Consultants of Seattle and classed by ABS, the vessel is capable of developing 120,000 ponds of push or pull in any direction.

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The contingent of well-wishers gathered at New York City's South Street Seaport, Pier 16, to welcome the city's most powerful tugboat, the 5,000-hp Janet M. McAllister, included (above) an Irish bagpipe band and (below), Maritime Reporter's vice president of sales, Lucia Annunziata (left), and MR Regional Sales Manager Jennifer Truman.





Editor's Note

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boat or the storied towing company. But just as interesting was the throng of New York natives and tourist fixated on the event, as the vessel was put through her paces.

For an industry that is often portrayed as low-tech and slow to change, one would have been hard-pressed to confirm that opinion on Monday, July 23 at Pier 16. Janet M. McAllister, with her full complement of advanced machinery and electronics, including EMD diesel engines and Schottel steerable Kort Nozzle Rudder Propellers, put on an impressive display that included a number of rapid fire turns, twists and circles, moves which officials admit would not be needed 90 percent of the time, but maneuverability that would be invaluable in a time of need.

The event hammered home the fact that the industry has changed in a very fundamental manner, and that companies seeking to survive and prosper must strive to develop, manufacture and incorporate higher levels of technologically advanced marine equipment and systems.

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118 E. 25th St., New York, NY 10010
Tel: (212) 477-6700; Fax: (212) 254-6271
e-mail: mren@marinelink.com
Internet: www.marinelink.com

FLORIDA

215 NW 3rd St., Boynton Beach, FL 33435

ASSOCIATE PUBLISHER

Gregory R. Trauthwein * traulhwein@marinelink.com

EDITORIAL Senior Editor

Regino P. Ciardiello • ciardiello@marmelink con

Editorial Intern

Technical Editor
David Tins.ley
Editorial Consultant
James R. McCaul, president, International Maritime Associates

MARKETING

Vice President of Marketing

Marketing Manager Richard Grable • grable@morinelink.com Tel: (561) 7321659; Fax: (561) 732-6984

PRODUCTION
Production Manager

Sharon Griffin • griffin@marineiink.com

Asst. Production Manager
Oksono Mortemy • martemY@marinelink.co

CIRCULATION
Groulation Manager
Dole L. Bornett • bamett@marinelink.com

ADVERTISING SALES
Vice President of Sales
Lucia M. Annunziata • annunziata@marineiink.com

National Sales Manager

Robert C. Howard • howord@marineiink.com Tel: (561) 732-3001; Fox: (561) 732-6984

Regional Soles Manager
Jennifer Truman • Iroman@marinelink.co

Regional Sales Manager Brett W.Keil • bkeil@marinelink.com Tel: (561) 732-1185: Fax: (561) 732-6984

Regional Sales Manager/Electronic Product Sales Joe Trubinsky • trubinsky@marinelink.com Tel: (561) 732-4368; Fax: (208) 575-3217

Assistant to the Vice President of Sales
TinoAngelino•angelino@marinelink.com

Accounting Manager
Angelica Rivera • arivera@morinelink.com
Classified Sales
Tel: (212) 477-6700

PUBLISHERJohn E. 0'Malley
John C. 0'Malley • jomalley@morinelink.com

Chief Financial Officer

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Publications

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FLORIDA

215 NW 3rd St., Boyatoa Beach, FL 33435

ASSOCIATE PUBLISHER

Gregory R. Trouthwein • Iraulhwein@marinelink.com

EDITORIAL

Senior Editor Regina P. Ciardiello • ciardielh@marinelinli.coi

Editorial Intern

technical Editor
David Tinsley
Editorial Consultant
James It. McCoul, president, International Maritime Asso

MARKETING

Vice President of Marketing
Susan Cosme • co5me@marinelink.con1

Marketing Manager
Richard Grable • grable@marinelinlc.com
Tel: (561) 732-1659: Fax: (561) 732 6984

PRODUCTION
Production Manager

Asst. Production Manager
Oksano Martemy • mar1emy@marinelink.com

Sharon Griffin • griffin@ma

CIRCULATION

Groulation Manager

Dale L Barnett • barnen@marinelink.com

ADVERTISING SALES
Vice President of Sales

Notional Sales Manager

Robert C. Howard • howard@morinelink.com Tel: (561) 732-3001; Fax: (561) 732-6984

Regional Sales Manager
Jennifer Truman • Iruman@marinelink.com

Regional Sales Manager Brett W. Keil • bkeil@marinelink.com Tel: (561) 732-1185; Fax: (561) 732-6984

Regional Sales Manager/Electronic Product Sales Joe Trubinsky • IrrubiiKky@marinelink.com Tel: (561) 732-4368; Fax: (208) 575-3217

Assistant to the Vice President of Sales

Accounting Manager
Angelica Rivera • arivera@marinelink.com
Classified Sales
Tel: (212) 477-6700

PUBLISHER
John E. O'Molley
John C. O'Molley

Chief Fiaancial Officer
Al Adinolfi

Publications

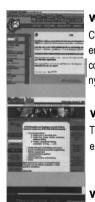
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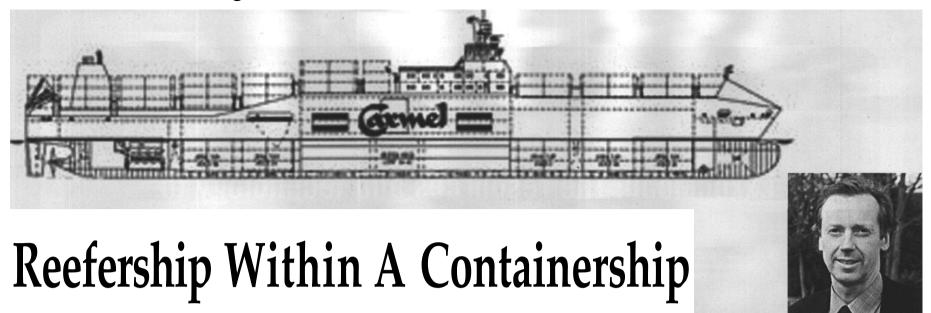
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Investment in Design



By David Tinsley, technical editor

Embodying a multi-tweendeck section for fresh farm produce in a hull otherwise given over to containers, a new generation of vessels for the Israeli fruit and vegetable trade could help shape the future of the palletized reefer sector. Highlighting the propensity for innovation and technological advance in Israel's export-minded agricultural

industry, two 15,000-dwt newbuilds will combine the requisite capacity and quality control for premium, perishable goods with a broader cargo carrying capability.

While refrigerated cargo transportation by sea is increasingly gravitating to the containerized mode, Tel Aviv-based marketeer and exporter Agrexco has blended its logistical preference for palletized reefer capacity with a vessel type offering greater cargo scope and flexibility over the long-term.

This pragmatic approach to trading and shipping needs has resulted in a unique design, developed by the Hamburg technical consultancy Schiffko with input from Agrexco, whereby a sixdeck, reefer 'block' is built into a containership hull. Known as the Flexcon 21, the 15,000-dwt type marries an approximate 465,000-cu. ft. bale reefer

volume, of a similar order to that of many conventional reeferships, with a total box intake of about 880-TEU.

The two newbuildings will be phased into a weekly service from Ashdod, in Israel, to Marseilles and Barcelona, conveying palletized fruit and vegetables plus containers. On the return run from the western Mediterranean, the ships will earn revenue from shipping cars loaded in the reefer compartments, as

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Investment in Design

well as from carrying all manner of containerized compl freight. The decision to initially incorporate 100 With sockets for reefer containers will provide Agreeco ships

with added shipment scope in its produce range and for providing through-movement logistic solutions. The vessels will be fitted and equipped to facilitate a subsequent increase in the reefer box

Innovation

on the fjords

An initiative to develop a new breed

of medium-speed, economical and

environmentally compatible, com-

muter ferry for Norwegian trunk

routes has won early approbation

from the service operating fraternity. The Norwegian Public Roads Admin-

istration has sanctioned the start of

construction of the first of the mold-

breaking FerryCat design at the Fjell-

strand yard. It is understood that a

contract will shortly be finalized

between the aluminum shipbuilding

specialist and the Bergen-based

owner-operator Hardanger Sunnhord-

landske (HSD). The double-ended,

catamaran ferry design, using the new

Azipull azimuth thraster, was formu-

lated in response to the Public Roads

Administration's strategic decision to increase sailing frequency on key

routes throughout the coastal fjord

service network, without necessitat-

ing a large increase in fleet strength.

Gains in productivity and route unit

costs are promised by the 400-passen-

ger/120-car catamaran shuttle ferry,

which might also prove an attractive

option in applications beyond the Norwegian fringe. The FerryCat sig-

nals a substantial increase in fjord

ferry speed to some 20-22 knots com-

pared with the 12-15 knots typical of

existing vessels. Even at 15-16 knots,

the design is claimed to require 20-30

percent less power than existing ves-

sels of comparable car capacity. The

thrusters, one mounted at each end of

each hull, will confer a very high degree of maneuverability, combining

the advantages of a 'pulling' rather

than 'pushing' propeller with freedom

of choice as to installation of mechan-

ical or electrical drive. The FerryCat will give Fjellstrand a new outlet for

its expertise in friction stir welding

(FSW) techniques. The modular ves-

sel type will be built using FSW sec-

tions accounting for some 75 percent

of the aluminum structure.

rotatable

Azipull

360-degree

complement to a maximum of 260 units.

With the superstructure mounted over the midships reefer section and the funnel casing sitting relatively low right aft, the Flexcon 21 class will cut a new profile in an established trade. Outward indication of a role other than container carrying will be afforded by a big side door built into the

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starboard shell; the conduit to a highly compartmentalized, temperature-controlled cargo area spread over six deck levels.

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Some readers might recall two vessels of a unique design built in the U.K. nearly 30 years ago for the former British India Steam Navigation Co. The Zaida and Zira were fully insulated, side-loading, multi-deck pallet carriers originally intended for the New Zealand chilled lamb carcass trade from New Zealand to the Middle East, and subsequently switched to the Australia-Japan

About four years after entering service, the vessels began charters in 1976 to Agrexco for the Israeli Mediterranean traffic, and were subsequently sold to other Israeli interests while retaining the Agrexco charter.

The Tyneside-built sisters remain in Agrexco employ under the names Carmel Exotic and Carmel Topaz, 25 years of continuous engagement in the trade having seen the ships enlarged and modified at various stages for improved pallet intake. Experience gained with the sideloading cargo handling arrangements has colored the latest newbuild project.

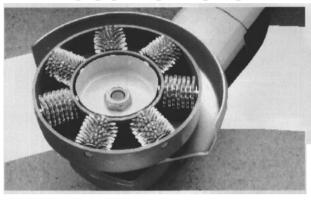
The contract award for the construction of the two new vessels of the Flexcon 21 type was made to Portuguese shipbuilder Estaleiros Navais de Viana do Castelo through MPC Munchmeyer Petersen Marine. The Hamburg shipping and investment house will charter the pair to Agrexco for a minimum of 12 vears. It is understood that there are options on the construction of further vessels of the class.

Another contributory element to the innovative nature of the project is Agrexco's endorsement of an advance in two-stroke propulsion technology, through the selection of a new design of low-speed diesel using common-rail fuel injection and full electronic control. The Sulzer RT-flex concept nominated for the ships offers a high degree of operationally flexibility, including lower fuel consumption at part load and reduced exhaust emissions.

Up till the Agrexco fleet program, only one owner worldwide had previously put its name to a newbuild fitted with RT-flex machinery. Each of the MPC-Agrexco vessels will have a camshaftless, seven-cylinder RTflex60C engine, offering a maximum continuous output of 22,470-bhp (16,520-kW) and a service speed of 21knots.

The consideration given to various engineering and equipment features bearing on the environmental impact of the vessels is indicative of a broader Agrexco ecological agenda, expressed, for instance, in its encouragement of environmentally-friendly agri-technology. As a partnership between the Israeli government, production and marketing boards, and growers' cooperative, Agrexco is the country's largest exporter of fresh agricultural produce, handling some 300,000-tons per year.

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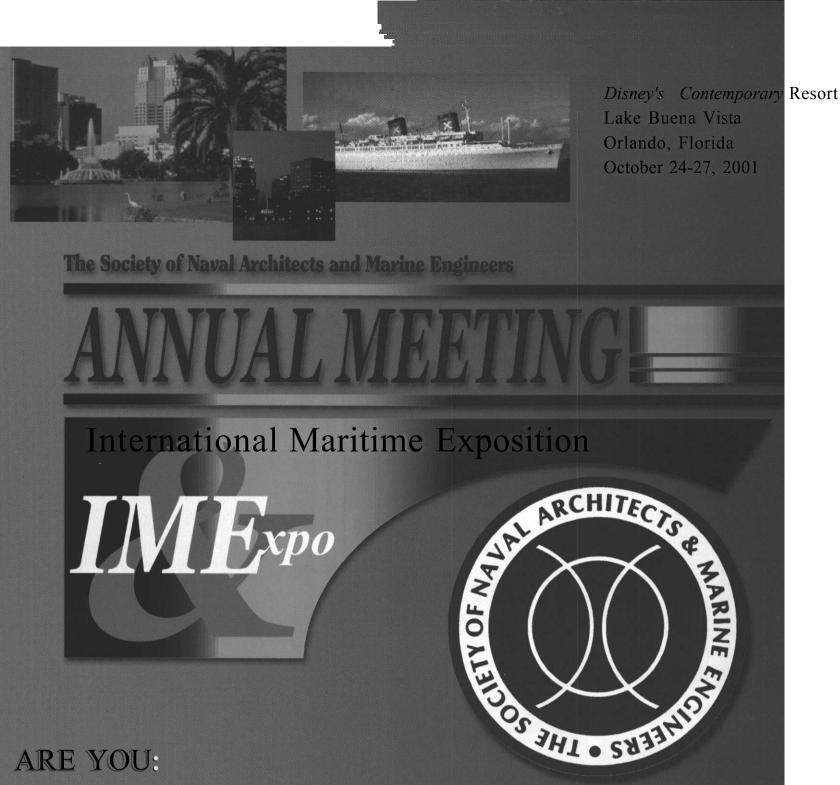
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Shipping Internet: Where next?

The shipping dot.com epidemic will not be remembered for its abundance of straight talk. However, one unusually candid comment from a fraught CEO has stuck. Staring at the bleak prospects for his high profile start-up at the beginning of this year, the CEO shook his head - "It just seems amazing to me that everything we've built up over the past year will be wasted."

If insiders have only a vague notion of what was actually achieved with their Internet millions, outsiders can be forgiven a little head scratching. Without a considerable shift in emphasis, it is difficult to see any of the class of 2000 taking early retirement. Taken in the context of the evolution of the Internet in shipping, however, the experience was certainly not wasted.

We like to think of last year as 'Shipping Internet Version 1.0', of the - build it, and they will come - school of thought. This approach relied on what was then believed to be the Internet's ability to transform old business models into revolutionary exchange processes. The overriding goal was that of removing the middleman, regardless of the cost or benefit.

Shipping Internet 1.0 was an exploratory phase. It was characterized by multiple business plans, a nasty habit of dictating to customers and a blind race to market. The end product was little more than a bundling together of market info, brochures, e-mail and auction models.

It turned out, rather unsurprisingly, that customers required significant incentives to upset their established business practices. None were offered. In fact the Internet was in most cases adding to the complexity of transacting. Independent shipping Internet hubs quickly dried up through an inability to generate liquidity. The parallel development of consortia Internet hubs could at least guarantee a foundation of liquidity, but suffered from the same inability to develop a product capable of drawing in third party business.

There is no doubt that the survivors of the first round of shipping Internet have become wiser. They have, for a start, begun to listen to customers. They have ditched the idea that there is something magical about the global reach of the Internet. In Shipping Internet 2.0, as we will call it, companies treat the Internet as a means to an end, rather that the end in itself. They are exploiting

the Internet as a tool to make huge quantities of data immediately available across the globe in a secure environment. More importantly, in version 2.0 more attention is being paid to business processes. The focus is now on seamless information processing and integration with back-office systems. The Internet players have realized the need to establish industry bodies to develop a set of standard industry-wide data definitions that will allow different databases to communicate with each other. Though we believe this may take longer than many expect, it opens the scope for huge business efficiencies and cost savings.

And with this new understanding of the shipping-Internet, dot.coms are once again testing the market. The reaction? A broad acceptance that the past year has inspired some very clever applications.

Unfortunately for shipping-Internet version 2.0, this is all it has done. As frustrating as it may be for the ecommerce visionaries at their helms, shipping dot.coms are increasingly being viewed as little more than high cost software firms.

The problem is that, for all its clever technology, Shipping Internet 2.0 is still exclusionary. Highly centralized and rigid, these 'one-stop-shops' for shipping services and information deny the industry its ingrained 'ice cream shop' approach to picking a selection of products and services. By forcing trading parties to push their information through a gatekeeper, they impose a business structure that the industry is neither prepared, nor required, to adopt. In today's climate, technology is the servant, not the master, and shipping companies are less likely than ever to be dictated to.

This zero-sum game approach to e-commerce, in which there are winners or losers, is a major stumbling block of version 2.0. Backing the wrong horse costs shipping companies time and money and the market is in no rush to commit either.

More importantly, while they wait, technology is moving inexorably towards a pick 'n' mix system of web-services based on standard languages for transferring data over the web. In essence, these structures for 'common definitions', like XML and SOAP, minimize the software and data compatibility issues that once



Companies that jumped at the first round of shipping e-commerce solutions were likely frustrated and disappointed in the result.

served as the rationale for one-stop-shop Internet companies. We believe that a new breed of tech-savvy established industry players is already taking advantage of this flexible approach to information technology. Enter Shipping Internet Version 3.0.

As we see it, the next phase in the evolution of shipping Internet involves handing control of information technology back to shipping firms. Rather than relying on individual Internet companies for all their information and transaction requirements, shipping companies prefer, given half a chance, to bring these services inhouse. This gives them greater control over the source, integrity and use of information on which their transaction decisions depend, as well as over the process of transacting itself.

Version 3.0 will be based on bundling a range of complimentary internal and external web-based applications onto a private "peer-to-peer" portal-style web platform. Intranet or extranet portals are already well established in other sectors. The 'enterprise decision portal', as it is known, is one of the big growth areas in an otherwise lackluster tech sector.

The main attraction of the portal approach is its flexibility. On a transactional level, firms can now choose the channels through which they deal with customers or suppliers - direct, through an intermediary, through an exchange. They can now control what information they divulge to whom in order to facilitate a transaction. Unlike version 2.0, under version 3.0, companies are no longer reliant on the information services of one provider. This is of critical importance to energy companies that require multiple information sources for their day-to-day activities. They can now select from best-of-breed applications, historical data and thirdparty database maintenance. If standards on one or other of these data services slip over time, the portal administrator can now simply switch provider. Shipping firms can develop their own applications that aggregate feeds from multiple sources and integrate them with their back-office systems.

Most importantly, by licensing third party applica-



tions, these firms become the beneficiaries of the often-heavy investment made by others. And by outsourcing the maintenance of selected applications and databases, they cut the cost of inputting data manually.

For information providers like Poten, this approach has the obvious advantage of allowing firms to concentrate on their core-competencies. Shipbrokers, for instance, are still the only source of real-time vessel and cargo position and fix-ture transparency in the market. As such, they are clearly in a strong position to maintain this information electronically as a service to others. Port information, on the other hand, is the realm of, say, the port agents, and should be maintained by them. Vessel databases, one would like to think, should be maintained by the ship owners. And so on.

For all the logic of Shipping Internet 3.0, we are not there yet. Standards such as XML lay the foundations for industry-wide compatibility of information, but without common data definitions in the shipping industry, this means little. As the Internet comes to be viewed more as a servant of the bottom line than a revolution in business practices, service providers, shipbrokers among them, stand at an interesting juncture.

If the pain endured by Shipping Internet 1.0 has taught us anything, it is that the structure imposed by 'gate-keeper' Internet companies is too inflexible to satisfy the information and transaction needs of today's ocean transportation industry. Without undermining their own business models, Version 2.0 Internet companies will, we believe, fall at the same hurdle.

This article is one of a series of e-business opinions published by Poten & Partners (www.poten.com), a leading provider of brokerage, consulting and project development services to the energy and transportation industries.

Marine Software Ltd. Supplies Program For Byron Marine

U.K.-based software company Marine Software Ltd., has provided its software program - Marine Storekeeper for Windows - to Byron Marine for M.V. Dorada, the Falkland Islands Fishery Protection vessel. Byron has also ordered Marine Planned Maintenance for Windows for the vessel, together with commissioning Marine Software to carry out a skeleton setup of the planned maintenance database. The skeleton setups involve setting up the planned maintenance database from the classification society master list, adding a PM Job Card for each item on the master list, together with the survey job routine.

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Mahachai Dockyard: Freezers for Southern Waters

In late May of 2000, the Malachai Dockyard was crowded with 16 boats under construction, measuring any-

where from 66 to 125 ft. (20 to 38 m). Located on the Gulf of Thailand in the province of Samutsakom, the yard is a leading builder of steel fishing boats.

In late June 2001, there was much more space in the yard with two boats

recently launched and being fitted out while two others, one a Bangkok restaurant boat, were under construction. The two boats in the water were similar to many of those being built last year. One, a 600 hp Cummins KTA19-powered





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www.maritimereporterinfo.com www.maritimereporterinfo.com 108 x 23 x 14 ft. (33 x 7 x 4.2-rn) fish carrier was fitted with six insulated holds for carrying iced fish from northern Indonesian waters. With a total capacity for 180 tons of fish, this boat is capable of making the six-day round trip from Thailand to Indonesia with additional days there to collect fish and returning with fresh product.

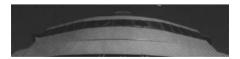
For the distant southern Indonesian waters it is necessary to freeze fish in order to deliver them to Thailand. To this end, an increasing number of freezer trawlers are being built in Thai yards. One of the boats being fitted out at the Mahachai Dockyard was a 95 x 23 x 11 ft. (29 x 7 x 3.5-m) freezer trawler with three holds including one for freezing and two for storage. The boat has a 150-ton capacity. Although smaller than the fish carrier, this boat is equipped with a larger 12-cylinder KTA38-M0 Cummins engine rated at 850-hp at 1,800 rpm to provide trawling power.

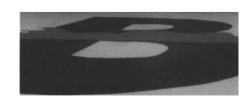
Still under construction was another freezer trawler. This one with the same 12-cylinder Cummins but designated KTA38-M1 and rated for 1,000 hp at 1,800 rpm. At 125 x 26 x 15 ft. (38 x 8 x 4.5 m) the boat has four freezer holds with a total capacity of 400 tons of fish. The hull features a bulbous bow and rolling chocks. When fishing south Indonesian waters with a crew of 30, it will make a typical voyage of four years, returning only for overhaul.

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Rodriquez Cantieri Navali Delivers Newest Fast Ferry

Federico Garcia Lorca, a 377-ft. (115-m) TMV 115 monohull fast ferry, was delivered to its new owners, Balearia Eurolineas Maritimes on June 25 - one week ahead of the contractual date. The vessel will immediately make the short trip to Spain to commence operations





between Valencia and the Balearic Islands - Majorca and Ibiza.

Rodriquez Cantieri Navali SpA, builder of advanced aluminum vessels including fast ferries, patrol boats, and luxury yachts, constructed TMV 115 at its Pietra Ligure yard located outside of Savona, Italy.

The sea-trials were concluded successfully and a testament to the high degree of engineering and expertise that went into the construction of this all-aluminum vessel. Specifically, the vessel achieved a better than expected service speed of 38.3 knots with the four Caterpillar 3816's at 90 percent MCR, with 400 tons of deadweight, and with the ride control system installed and active.

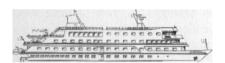
The ride control system was designed and manufactured by Rodriquez Marine Systems, a subsidiary of Rodriquez Cantieri Navali SpA, and consists of four anti-roll fins with forward and aft T-foils all centrally controlled by an advanced bridge mounted system. Integrated into the aft T-foil skegs are trim tabs that are used to steer the vessel at speeds over 15 knots thereby allowing the waterjets to remain in their optimal thrust position.

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Main Particulars - Aquastrada TMV 115

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Draft	
DWT	
Engines 4 x 7,200 kW Diesels	
Waterjets 4 x steerable Lips	
Ride Control SystemRodriquez Marine Systems	
Passengers 900	

Elliott Bay Develops Eco-Tourism Vessel



Elliott Bay Design Group (EBDG) has created a design for a new 230 ft. (70.1 m), 127-passenger Eco-tourism vessel for Nisa Navegacion of Santiago, Chile. Known as Mare Australis, the vessel will join the existing 210-ft. (64-m), 90-passenger Terra Australis in providing one-week excursions from Punta Arenas to the Straits of Magellan, Tierra del Fuego, and Cape Horn.

Elliott Bay's designers worked to ensure that three important requirements were met during the vessel's construction; beginning with the idea that the design had to be as close a possible to that of Nisa's existing vessel, while complying with current SOLAS requires • =.' •

ments. The second point was to provide the utmost in seakeeping characteristics while maintaining an easy-to-build hull form. Thirdly, because the new boat will be constructed in Chile, the design has to incorporate both metric-size plate thicknesses, as well as English-measure structural shapes and piping.

The all-stateroom vessel will feature two lounges and will provide daily shore excursions for passengers via onboard RIBs. The company's contract design is currently undergoing review for classing by ABS, and construction is expected to commence during the third quarter 2001, with delivery occurring in the fourth quarter 2002.

The steel vessel will have a beam of

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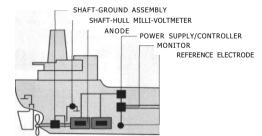
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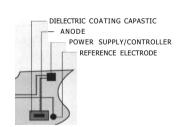
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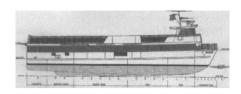
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44 ft. (13.4 m) and a draft of 9 ft. (2.7 m). Power will be provided by two 680bhp main engines providing a cruising speed of 12 knots; auxiliary power will come from a pair of 225 kW gensets, along with a 115 kW harbor generator and a 125 kW emergency generator. The vessel will be able to hold 26,400 gallons of fuel oil and 42,200 gallons of potable water.

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Blount-Barker Delivers New Vessel to Fire Island Ferry

Measuring 85 ft. (25.9 m), Fire Island Flyer, which was designed and built by Blount-Barker Shipbuilding was deliv-

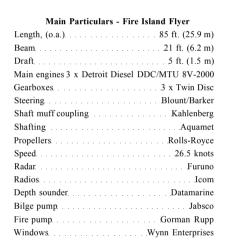


ered to Fire Island Ferry in Bay Shore, L.I. on June 18. The 400-passenger, allaluminum commuter boat will operate on the Great South Bay at 26.5 knots.

Based on the original design of the Firebird, which was constructed for West Ferry in 1984, this will be the seventh Blount vessel to be operated at its Long Island terminal in Bay Shore.

Certified under U.S. Coast Guard, subchapter K Rules and Regulations, the triple screw vessel is powered by 3-GM 8V2000 DDEC Series diesel engines, with an output of 645 hp each. The main engines drive three alternators, handling all electrical power required for the vessel.

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Bollinger Delivers 145-ft. Supply/Utility Boat To Bordelon

Bollinger Shipyards, Lockport. La., has delivered the 145-ft. (44.1 m) supply/utility boat Wes Bordelon to Bordelon Marine - the first of three nearly identical supply/utility vessels under construction at Bollinger for Bordelon.

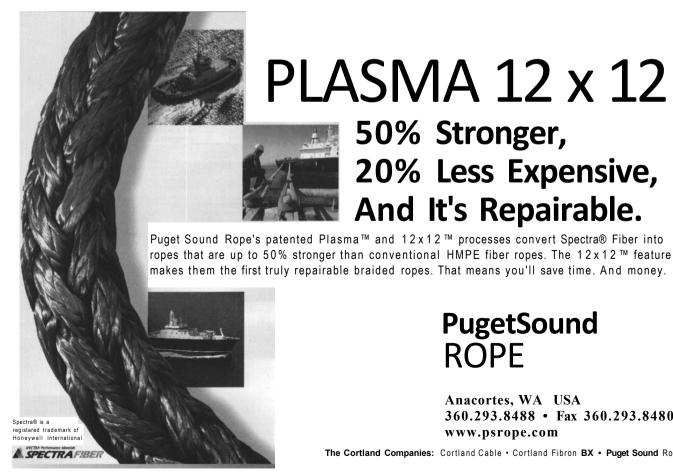
Like others named after Bordelon family members, Wes Bordelon measures 145 ft. (44.1 m) with a 36-ft. (10.9 m) beam and a draft of 11.5 ft. (3.5 m). The vessel is powered by two Cummins KTA-38MO diesel engines rated at 750 bhp at 1,600 rpm, driving Bollinger 72 x 57-in., four-blade propellers through Twin Disc reverse/reduction gears with a ratio of 4.96:1. Hydraulic steering is installed at two pilothouse stations and a 272 hp Schottel, STT-110 bowthruster aids steering.

The Cummins engines feature a package" that meets new IMO (International Maritime Organization) emission standards with direct drive liquid mud pumps off of the main engines thereby eliminating belt systems. The



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vessel's electrical power is provided by two Cummins diesels driving two Cummins 99 kW generators.

Wes Bordelon, which is named for Bordelon Marine's co-owner and vice president of Operations, is equipped with four liquid mud tanks with a total capacity of 49,332 gallons. It can hold 28,675 gallons of fuel, 400 gallons of oil, 250 gallons of hydraulic fluids and 13,776 gallons of potable water. The boat's 95 x 32 ft. (28.9 x 9.7 m) aft decks can carry up to 390 long tons of cargo.

Accommodations onboard can hold two officers, four crew and 10 guests, while the galley can serve 25 persons.

A partial list of navigation and communications equipment] includes: two Furuno radars; a Furuno GPS unit with plotter; an autopilot; two Furuno VHF radios; Nautex antennas and Motorola cell phones.

Meyer Werft Delivers KM Doro Londa

Meyer Werft of Papenburg, Germany delivered the 21st passenger ship to the Directorate General of Sea Communication, Jakarta/Indonesia on June 30. The 14,800-gt vessel named Doro Londa, was christened by Linda Amalia Sari, wife of Indonesian Minister Gen. (ret.) Agum Gumelar.

Similar to its predecessors, Doro Londa is also different in a variety of aspects. The third member of a new, technically advanced series of passenger ships for Indonesia featuring improved container transport facilities, Doro Londa is 481 x 77 ft. (146.5 x 23.4 m) and can transport 2,170 passengers.

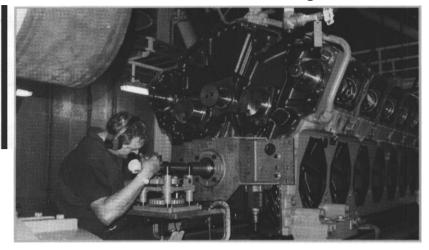
Built in compliance with Indonesian classification society BKI and under the survey of Germanischer Lloyd, Doro Londa was scheduled to depart Papenburg on July 3 for arrival in Jakarta, Indonesia approximately three weeks later. Subsequently, the vessel will establish the Indonesian seaport of Lembar as its homeport.

Two passengers accesses each are provided port and starboard on deck four, and 14 motor lifeboats and 50 liferafts with a capacity of 1,740 and 1,250 persons, respectively are provided onboard - meeting the highest requirements of SOLAS 1992/94.

The vessel is divided into four zones; a smoke and fire detecting system is installed throughout. In addition, a fire alarm, which is connected to a central fire alarm system located on the bridge, can be manually released in all areas of the vessel.

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Gladding-Hearn Delivers Cape Fear Pilot Boat

Gladding-Hearn Shipbuilding, The Duclos Corporation has delivered a new pilot boat, Cape Fear Pilot II, to the Wilmington-Cape Fear Pilots Association. The new launch, which shuttles

pilots nine miles from Southport, N.C. to ships entering the Cape Fear River en route to the port of Wilmington, works alongside another pilot boat built by the Somerset, Mass. yard in 1974.

Measuring 52 ft. (15.8 m), the all-aluminum boat was designed by C. Raymond Hunt Associates of Boston and

Gladding Hearn. It has a 17 ft. (5.1 m) beam and draws 5 ft. (1.5 m). The vessel is powered by twin Caterpillar diesel engines, each rated for 480 bhp at 2,100 rpm for a top speed of 24 knots. The engines turn the five-blade Hall & Stavaert bronze propellers via Twin Disc reverse/reduction gears. The 10 kW

• o n f f i M j

Northern Lights genset, is cooled by a split-pipe keel cooler to prevent marine growth from fouling the heat exchanger.

Fiberglass/lead acoustical insulation is installed overhead, under the deck and against the engine-room bulkheads reducing onboard noise to less than 80 Dba at cruising speed.

According to its designer, Cape Fear Pilot II incorporates recent subtle changes and improvements to Ray Hunt's deep-V hull design as it was first adapted for pilot service in 1978.

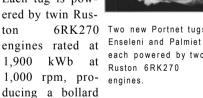
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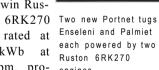
Main Particulars - Cape Fear Pilot II Main engines Caterpillar Twin Disc Hall and Stavaert Propellers. Engine controls Morse MT Twin Gensets Northern Lights Furuno VHF Icom GPS. Northstar Ritchie Compass

Ruston Engines Power New South African Tugs

Ruston engines have been selected to

power two new Enseleni tugs, and Palmiet, which are part of the Portnet fleet. Each tug is powered by twin Rus-



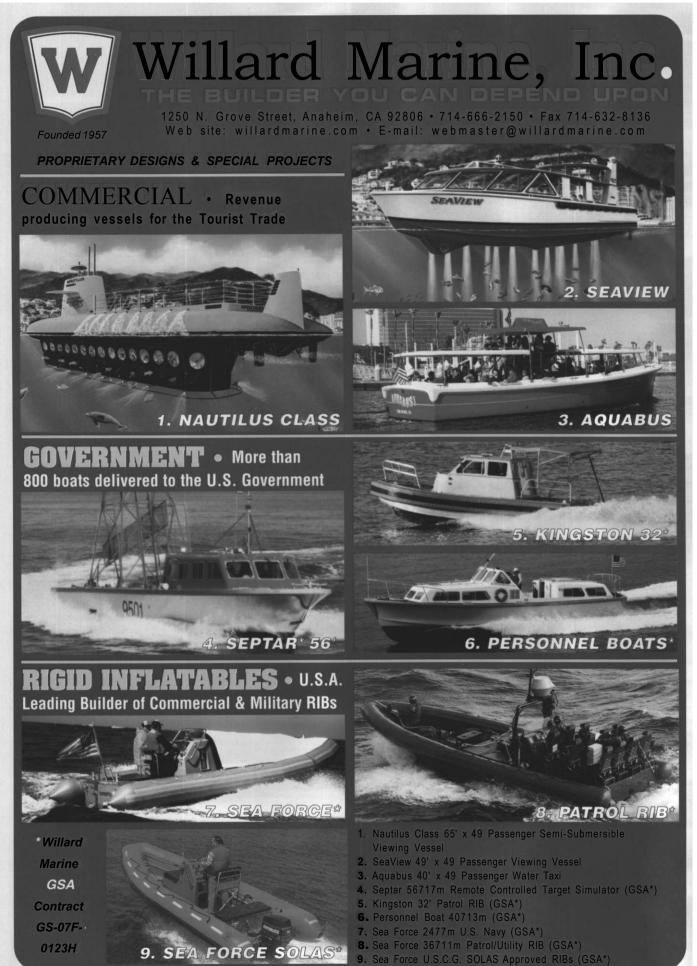


24 knots

pull of 50 tons and a free running speed of 12 knots. Measuring 98 ft. (30 m), the omnidirectional tugs, which were designed by Mctay Marine of Liverpool, U.K. and built by Safbuild of South Africa, boast Voith Schneider propulsion units. The vessels are currently running in and around Durban Harbor and Richards Bay, South Africa, the latter port serving approximately 1,700 commercial ocean going vessels with more than 3,500 shipping movements.

Subsequently, Ruston has received an additional order to supply two more 6RK270 marine propulsion engines for a third Portnet tug, which will also be built by Safbuild.

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News

Shipbuilding R&D Supported

The National Shipbuilding Research Program announced last month the selection of four new Advanced Shipbuilding Enterprise (NSRP ASE)

research projects as part of the Navy/Industry co-

funded portfolio of 33 projects. The four new projects are valued at \$10.3M, including industry cost share. A brief description of each project with a list of participants and funding follows:

A Lean Enterprise Model for **Project:** U.S. Ship Construction, Overhaul, & Repair

Participants: Atlantic Marine Holding Co., Todd Pacific Shipyards, Bath Iron Works, Puget Sound Naval Shipyard, and

Funding: 3.8M NSRP ASE, \$3.8M industry cost share.

Description: The principal objective of this project is to complete a comprehensive model for the application of lean manufacturing concepts to multiple market segments of the U.S. shipbuilding and repair industry. The enterprise-wide model will address lean design, materials, and manufacturing practices. It is anticipated that this model will result in a 20+ percent improvement in overall productivity within 36 months. The project focuses on implementation of world-class shipbuilding and lean enterprise practices in seven U.S. shipyards covering four key market segments with the scope of full or partial implementation in the participating shipyards.

Project: Development and Commercialization of Laser Assisted Oxygen Cut-

Participants: Bender Shipbuilding and Repair, Caterpillar, BOC Gases, Alabama Laser, and Electric Boat.

Funding: \$672K NSRP ASE, \$672K industry cost share.

Description: The project team will develop and exploit an experimental technology for laser assisted oxygen cutting of

thick section (> .25-inch) steel plates which is currently in a laboratory stage of development at BOC Gases. The technology will greatly enhance U.S. shipbuilders' ability to accurately and cleanly cut thicksection steel, possibly greater than 100 mm, without increasing laser power output beyond 6kW. The potential exists for clean and accurate cut edges in both a square and bevel configuration, with minimal secondary part processing after removal from the laser-burning table. The project will provide near term benefits to both Bender Shipbuilding and Repair and Electric Boat, with both cost and quality improvements in ship and submarine construction. Through commercialization and technology transfer, the project will also provide additional impetus for other U.S. shipbuilders to invest in laser-cutting technology, which



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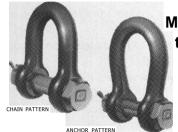
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News

has demonstrated significant benefits at Bender Shipbuilding and Repair.

Project: Harvest: Finishing the Ship Product Models

Participants: STEP Tools, Electric Boat, and Product Data Services.

Funding: \$376 industry cost share.

Description: The Harvest project seeks to complete the international standardization of the shipbuilding STEP Application Protocols: AP-218 (Ship Structures), AP-216 (Ship Molded

\$318K NSRP ASE, Forms), and AP-215 (Ship Arrangements). This entails the working groups and the editing of the standards documents. Completion of the STEP Shipbuilding Application Protocols will allow the U.S. shipbuilding industry (and the Navy) to "harvest" the invest-

ment it has made in the development of product models for ships. In the final rounds of approval, the primary goal is to ensure the viability and completeness of the standard. This includes validation of information requirements, implementation considerations and harmonization with other STEP and related standards. These models will give the shipbuilding industries new options for collaboration, for transferring data between different systems and different versions of the same system, and for managing data across the product life cycle.

Project: Enhancement of Evolution of STEP

Participants: Kvaerner Philadelphia Shipyard and Sener

Funding: \$390K NSRP ASE,

\$398K industry cost share.

Description: The objective of this proposal is to broaden industry participation in the ongoing Evolution of STEP (ESTEP) task of the ISE project. Specifically, this project would provide commercial translators for another CAD vendor (Sener and their FORAN product) for the three primary shipbuilding application protocols (structures, piping, and hull forms). FORAN is used by Atlantic Marine Holding Co., Friede Goldman Halter, and Kvaerner Philadelphia at the current time. The problem being addressed by ESTEP is the capability to transfer data from one ship product model to another (CAD-to-CAD Interoperability). ESTEP will help enable shipyards with different ship design programs to exchange information easily and quickly.

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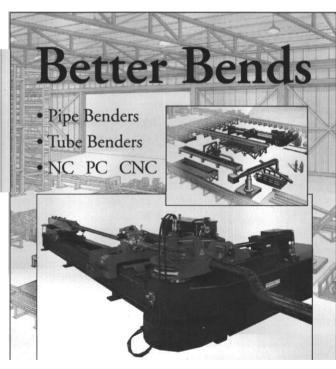
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BLA Helps State of Delaware Acquire Research Vessel



The State of Delaware awarded Band, Lavis and Associates (BLA) a contract to support the acquisition of a research vessel for its Department of Natural Resources and Environmental Control, Division of Fish and Wildlife. BLA evaluated numerous vessel options and configurations, developed concept designs, evaluated the effects of different requirements on cost and performance, and prepared design and build specifications for the water craft. BLA then worked with the state to review and evaluate proposals and assisted in the final selection of the builder, Derecktor Shipyards of Mamaroneck, New York.

News ffltiffl

Top Navy Officer Supports DD-21

Admiral Vernon Clark, the chief of naval operations and the top U.S. Navy officer, last month was reported as recommending that the service stick to its plan to build a multi-billion-dollar class of new destroyers despite a crunch on funds for new warships. "I'd love to have DD-21," Adm. Clark is reported as saying, referring to the Zumwalt- class destroyer designed chiefly to support Marines ashore with long-range fire-power. He called the program central to our transformation effort for the 21st century.

The DD-21 is one of the biggest U.S. arms programs apparently in danger of being killed in Defense Department strategy reviews under way. On May 31, the Navy announced it was delaying the selection of a team to build as many as 32 of the ships at a combined value of up to \$30 billion pending the outcome of the studies.

The rival teams - headed by General Dynamics Corp.'s Bath Iron Works

Shipyard and Lockheed Martin Corp. on the one hand and by Litton Industries' Ingalls shipyard division and Raytheon Co. on the other - had been scheduled to make their "best and final" contract proposals to the Navy in early June.

The budget provides for six new ships and 88 naval aircraft next year, three fewer than needed to sustain the approximately 316-ship Navy recommended in the 1997 congressionally mandated Quadrennial Defense Review, the most recent such blueprint.

The budget also provides continued research and development funds for the DD-21, which features electric-drive engines, reduced manning concepts, advanced radar technology and a powerful new gun. At current funding levels, the Navy would shrink to 230 ships over time, not enough to cover the force projection requirements of the United States for the foreseeable future, Clark said. Low orders were also undercutting the defense industrial base.

Austal Breaks Into U.S. Military

Austal Limited has signed a premiere contract with the U.S. Marine Corp to charter a 331 ft. (101-m) high speed Theatre Logistics Vessel, which is being chartered by the Third Marine Expeditionary Force (III MEF) for the rapid deployment of Marine battalions and equipment in the Western Pacific.

The contract involves an initial 'proof of concept' period of approximately two months but it is anticipated that this will be extended for a longer period once the vessel demonstrates its ability to meet the Marines' needs.

Operations will be conducted between White Beach Okinawa, Yokosuka Naval Base, Iwakuni, and other ports in Japan. The vessel will be named Westpac Express in recognition of the Western Pacific region in which it will operate.

Austal developed the high speed Theatre Logistics Vessel to enhance the capability of military organizations to rapidly move large numbers of troops and cargo during military operations. The vessel has large bow and stern ramps enabling it to load and unload military vehicles in low infrastructure ports. With strengthened decks, internal

hoistable ramps and mezzanine decks the vessel can carry a wide mix of military vehicles.

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\$30M For Title XI Guarantees

The House Committee on Appropriations approved a bill that would provide \$30 million for Title XI loan guarantees in Fiscal Year 2002, the highest level of Title XI funding reported out of the House Committee since its Fiscal Year 1998 Appropriations bill. "We're pleased that the Committee has provided \$30 million in loan guarantees to fund this vital program," said Allen Walker, president of the Shipbuilders' Council of America. "But that level will only guarantee a small fraction of the \$5 billion in projects pending Title XI approval." The bill, which also includes \$4 million for administering the program, is expected to be considered on the House floor next week. If approved, the funding provided by the House Committee will be a major victory for supporters of the Title XI program, particularly since the Administration's Fiscal Year 2002 budget request eliminated Title XI funding.

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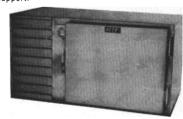
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News

GD Receives \$712M

AAAV Contract

The U.S. Marine Corps awarded General Dynamics Land Systems, a wholly owned subsidiary of General Dynamics, a \$712 million contract for the Systems Development and Demonstration phase of the Advanced Amphibious Assault Vehicle (AAAV) program.

Under the cost-reimbursable contract General Dynamics will provide all required material, services, personnel and facilities to complete the design and

development of the AAAV, manufacture and test nine new prototypes, refurbish three early development prototypes, support the Marine Corps initial operational test and evaluation, and prepare for the production phase of the program.

The contract begins the next phase in

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the development of the world's most advanced amphibious assault vehicle, which started with award of a \$200 million-plus demonstration/validation contract to General Dynamics Land Systems in June 1996.

The Marines plan to purchase 1,013 vehicles through fiscal year 2015 to replace the 30-year-old and less capable AAV7s. The new system will weigh 76,000 lbs. when loaded with a crew of three and 17 combat-ready Marines and will be capable of speeds up to 45 mph on land and 25 mph in rough seas. Lowrate initial production of the AAAV is scheduled to begin in 2004, followed by full-rate production in 2006. Its next major event is the service-led early operational assessment this fall.

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Flender Werft Receives Containership Orders

Hamburg-based shipping company, Claus-Peter Offen has placed a double order (with an option for one more) with Flender Werft Aktiengesellschaft for the construction of 3,600 teu containerships. The vessels, which will measure 804 ft. (245 m) with a depth of 64 ft. (19.4 m) and a draft of 41 ft. (12.5 m), will have a dwt of 44,000. Able to move at more than 24 knots, the vessels will be propelled by a MAN 32,500 kW diesel engine.

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Todd Gets U.S. Navy Contract

Todd Pacific Shipyards has been awarded a contract renewal from the U.S. Navy for the phased maintenance of the four AOE class supply ships home ported at Bermerton, Wash. The contract is a six-year, cost reimbursable agreement, which Todd has held in three previous five-year increments since 1985. Work under this new contract will be performed at the option of the Navy, which has estimated the total value for the work to be approximately \$180 million over the six-year period commencing this October.

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OMI Acquires Product Tankers

OMI Corporation has ordered two 69,000-dwt product carriers from Daewoo Shipbuilding & Marine Engineering Co. — both of which will be delivered in the Spring of 2003. The company also announced that it had exercised an option to have an additional 47,000 dwt product carrier constructed by Onomichi Dockyard Co.

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Salvage

Titan Maritime Rolls Out The Bunker In Portugal

wreck removal of M/V Coral Bulker in Viana de Castelo, Portugal. The 28,454dwt bulker went aground with a cargo of wood chips and timber en route from Tallinn to Viana de Castelo. Rough seas and high winds forced the vessel to ground next to the port village's breakwater on Christmas Morning 2000. As a result, the vessel's double bottoms were breached, which led to the flooding of the engine room. Upon award of the contract, Titan immediately began mobilization of equipment. A total of 25 Titan personnel, including a salvage master, diver/salvors, on-shore coordinator and hydraulic engineers were sent to the site. Titan's approach to this wreck removal was different in that they proposed to roll the whole ship onto the breakwater, enabling them to dismantle the vessel while working in the dry. Rather than using pulling forces to right a vessel, forces were applied to roll the vessel over. Titan proposed a reverse pairbuckling operation, which was accomplished by first emptying the ship of its entire cargo of wood chips and timber. With the cargo holds empty,



Ship Repair And Conversion Expected To Grow 15%

Ship Repair and Conversion 2001 is celebrating its 10-year anniversary. Held once again at London's Grand Olympia Hall, the show, which will be held from November 28-29, is expected to boast 15 percent more exhibitors than last year's event.

Subsequent to the success of last year's exhibition, more than 360 exhibitors are expected to participate, and according to Lloyd's List events, visitor attendance is expected to be bolstered as well.

Ship Repair and Conversion 2000 set attendance records in London last November with a 10 percent increase on the previous year's best of 2,400 visitors - 10 percent of which are at the managing director or chairman level. Approximately 317 exhibitors from 30 countries are expected at this year's venue.

The exhibition also features the Ship Repair and Conversion 2001 Conference, which will explore all areas of the Ship-Care industry. Topics that are planned for discussion include: Strategic Review of the Global Shiprepair & Conversion Market; State of the Industry Debate; New Business Technologies; and Critical Industry Issues.

To receive a conference agenda, log on to www.shiprepairex.com or call +44(0) 20 7553 169, for further information.

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structure. Titan then cut the vessel in two by using a 17-ton drop chisel suspended and repeatedly dropped from

Titan Maritime recently completed a Titan began removing the ship's super- one of the vessel's deck cranes, which I was intentionally left for this purpose.

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Bollinger Incat USA - Marking Its Territory

Known for its sleek, fast and high-performance wavepiercing catamarans, Incat Australia expanded its reach to U.S. shores with its decision last year to partner with Lockport, La.,-based Bollinger Shipyards for the construction and design of a new breed of high speed, aluminum fast craft for operation in the U.S. Wanting to break into the U.S. military market, Bollinger Incat USA is poised to establish a new breed offast ferry construction that will meet the needs of the U.S military forces. The company also plans to position its vessels as a means to alleviate traffic on highways with its plan for high-speed, high-performance freight vessels, which will be able to carry a mix of semi-trailers and freight vehicles. Currently, the company is eyeing a potentially lucrative prize, the award of the Theatre Support Vessels (TSV) contract, which will be utilized by the U.S. Army in times of battle.

— By Regina P. Ciardiello, senior editor

It is safe to say that the construction of the aluminum fast ferries is by no means, a large part of the U.S. ship-building make up. While the recent strengths of U.S. yards have lied mostly within the naval, workboat and



offshore realms, the aluminum fast ferry market is one that is poised for a profitable and long run.

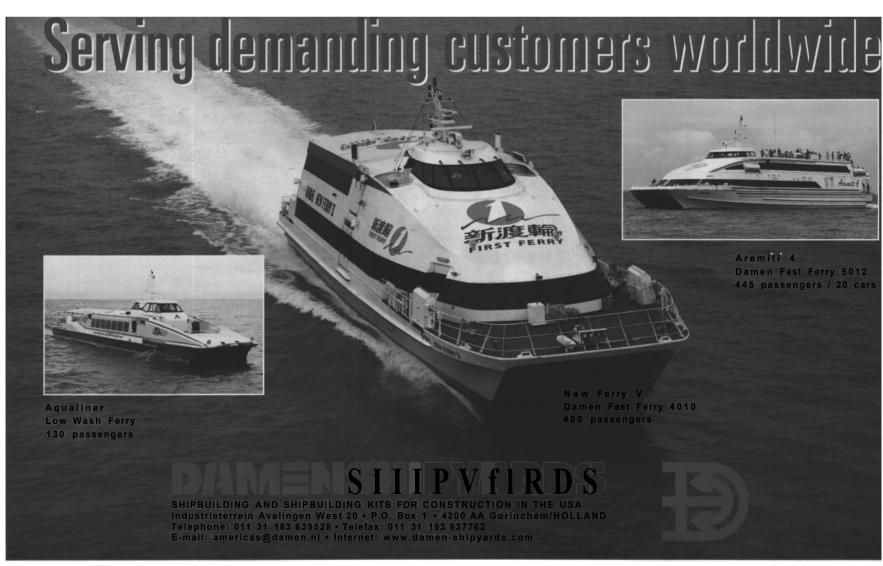
Last year was significant for this market as it marked the entrance of two major Australian competitors partnering with two top Gulf of Mexico shipyards. It was the alliance between Austal in Perth, Australia and Bender Shipbuilding in Mobile, Ala. to form Austal USA that initially raised eyebrows. More recently, however was the partnering of Tasmania-based Incat Australia and Bollinger Shipyards. Although no vessels have even been constructed yet by the new U.S. companies, the competition is already at a boil.

A recent battle between the two companies has been for two charter proposals for the U.S. Military. The first, which was a two-month high-speed craft charter in Okinawa was granted to Austal USA. Incat however, is expected to garner a one year charter, (with an option for an additional year), from the military for one of its high-speed vessels to operate along the U.S. East Coast. The vessel, according to Incat's military marketing consultant, **Richard Lowrie**, will be used for "evaluation and demonstration trials to determine the use of future acquisitions." Lowrie, who is confident that the U.S. military will call upon Incat for this project, does not feel threatened by competition in the U.S. from its neighboring yard - Austal USA. "We (Incat) have been in competition with them (Austal) for several years in Australia," Lowrie said. "We focus on perfecting one product, which are our wave piercing cats."

Lowrie added: "We are constantly trying to improve the Incat 'breed,' which encompasses more than 40 percent of the world market." While, according to Lowrie, the military charter "would be a massive development," Bollinger Incat USA is hopeful that the charter award will further propel the company into the development of its military vessel designs.

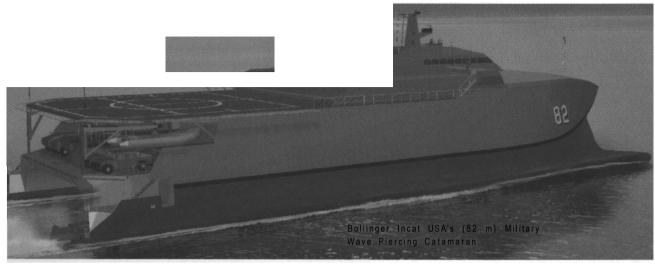
Development of Two

Incat Australia, not be confused with Incat Design, which is a separate entity of the former, was created



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more than 20 years ago by Robert Clifford and Phil Hercus. Both men worked to develop the company's signature world-class wave piercing catamarans, which have graced the waters around the world with their sleek designs and ability to move at speeds over 40 knots. The former company, which has had relationships with yards, such as Nichols Bros, and Gladding Hearn, who until now could only build under license for Incat, made a strategic move in the late 1980s when Clifford and Hercus decided to part ways. Clifford continued with the operation of the construction arm of Incat, while Hercus went on to head up Incat Design, which sells designs to builders.

Clifford kept up Incat's pace with the wave piercing cats, and went on to introduce the wave piercing car

catamaran in 1990. His innovation caught on, with increasing demand for the product over the years as Incat has continually improved its design.

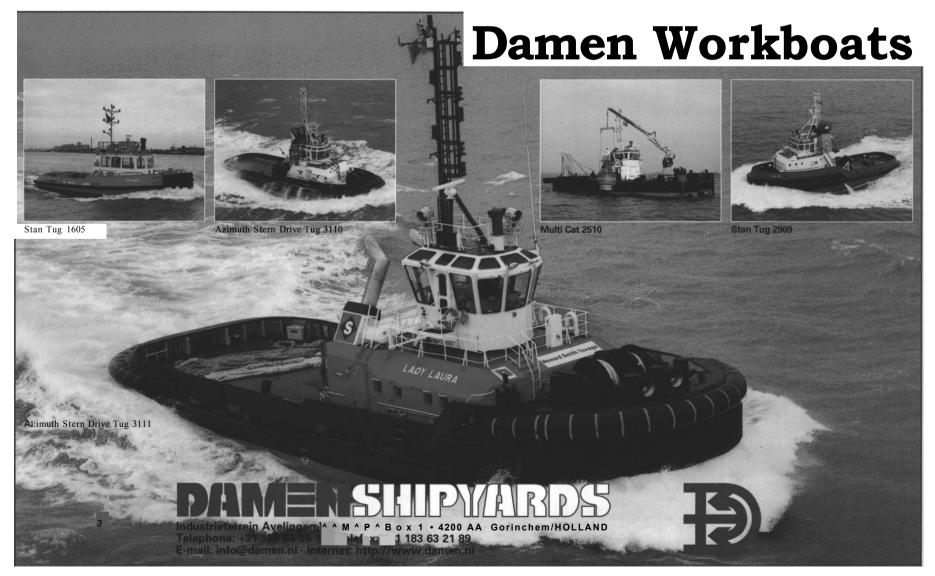
While Incat the builder enjoyed the fruits of its labor, Incat Design, for the most part has performed profitably as well, but recently received a blackeye via its involvement in the BC Ferries Pacificat fiasco in Canada. As a result, according to Lowrie, the military was a bit skeptical at first when approached by Bollinger Incat USA, as they associated the failure of the BC Ferries project. Lowrie stresses that Incat Design - not the shipbuilder - played a role in this project, and as two distinct companies, the latter played no role in design of these vessels.

The U.S. took notice of Incat's 282 ft. (86 m) HMAS

Jervis Bay, which was chartered to the Australian Navy for operation as a peacekeeping force during the East Timor crisis. The U.S. Military then opted to charter for evaluation purposes Incat's Black Cat, which normally operates from Nova Scotia to Bar Harbor, Me. for Bay Ferries. In the southern summer season the vessel normally operates on what is the world's longest and roughest ferry route - the Bass Strait between Tasmania and mainland Australia.

When news of the U.S. Army's interest in high speed craft broke, Bollinger's interest was piqued. The company contacted Incat Australia in January 2000, specifically mentioning their interest in the Army's TSV project. A meeting between Incat's Robert Clifford and Bollinger executives was set up at a ferry conference last year in Nice, France, at which time a deal was reached - joining the two companies in an alliance that is beneficial on both sides: Incat is waived of the Jones Act and Bollinger enters a market that it previously had little experience.

While a new Bollinger Incat USA facility has yet to be erected, the new headquarters, according to Lowrie, (who, at the moment is based in Lockport, La.), will be located somewhere in the Gulf of Mexico region. He stressed that the new facility will boast the same level of training and education that is present at Incat Australia. The company's "aluminum school," which was initiated with the Tasmanian Government, could be compared to a small "college" for the education of Incat's employees. Upon completion of the training school, Incat employees receive certificates stating that



U.S. Report

they are accredited to work in a shipyard. This allows them to in the future gain work at another international or domestic yard, and it also serves as documentation that they are certified to work in aluminum shipbuilding. "We will work to develop training for Bollinger Incat USA that is different from steel welding," Lowrie said.

Similar to Incat's high-speed cargo carrier, the TSVs will be able to transport tanks, trucks and cars on both the military and commercial sides. The vessels incorporate a high level of technology, and will be able to enter and unload supplies into a larger number of ports

otherwise restricted by draft for conventional vessels. In the past, according to Lowrie, the military wanted a ship that could be everything to everybody. "Most of these ships would be weighed down with heavy equipment and multifunction capabilities and not mission-specific," he said.

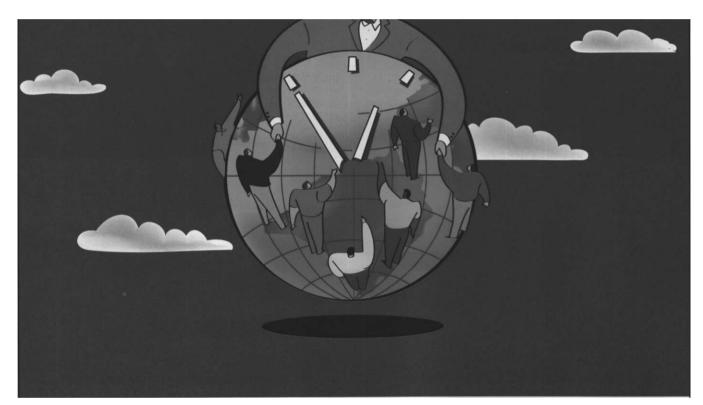
"For the first time, the American military is starting to realize the need for high speed craft and is now beginning to think of a design that is achievable," Lowrie said. "We do have the vessel designs and the capabilities to deliver what the U.S. Military wants."

Bollinger Incat USA has presented its ideas to other arms of the military, including the U.S. Coast Guard and Navy Seals. The company aims to provide the USCG with high-speed craft that can deploy helicopters for rescue, as well as RIBs, while still moving at high speeds. According to Lowrie, each craft would be module specific allowing greater operational flexibility. Similar to Incat's 321 ft. (98 m) design, high speed craft meant for picking up illegal immigrants while on border patrol would contain detention cells, while a search and rescue craft would boast temporary beds and medical capabilities. These vessels, which have the ability to travel the high seas, are equipped to handle the rescue of passengers on a mega ship that can hold as many as 2,500 passengers. With more than 24,000 sq. ft. of deck space, vehicle deck and passenger seating, the vessel is more than equipped to bring a full cruise ship of passengers to safety. "These vessels will cut down on assets and crewing, which are two issues that the USCG is struggling to meet right now," Lowrie said.

Moving Offshore and Beyond

Bollinger Incat USA also plans to profit from the offshore market. Bollinger Incat USA will bring a new breed of vessels into this arena with its High Speed Offshore Crew and Supply Vessels. Blending Incat USA's aluminum expertise with Bollinger's OSV construction know-how, the vessels will be able to transport a much larger quantity of crew and supplies to rigs at up to 40 knots in seas higher than 20 ft., seemingly an attractive feature given the fact that Exploration & Production continues to push further offshore to deeper waters. The vessels will offer a costeffective method of transportation as they will be able to complete a supply/crew run in half the time as OSV, as well as being able to visit five to seven rigs at one time - thus alleviating the amount of downtime for the rig crews, which inevitably saves operators money. "We will basically work to supply vessels to the Military, Coast Guard, oil industry and commercial freight and ferry market," Lowrie said. "We also hope to export that technology to other countries beyond the U.S. A lot of other militaries look to see what the U.S. comes out with, and hopefully they'll take notice of what Bollinger Incat is developing for these operations."

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Ready to Burn: Fast Ferry Market Looks Good

Predicting business trends in the notoriously fickle marine business is difficult if not impossible. Yet when developments transpire as they have in the fast craft niche of the ferry business, it is difficult to not read the writing on the wall. The business of designing, building, outfitting and operating fast ferries in the United States is set to take off, as increasing pressures from traffic and environmental concerns force more people to the waterways.

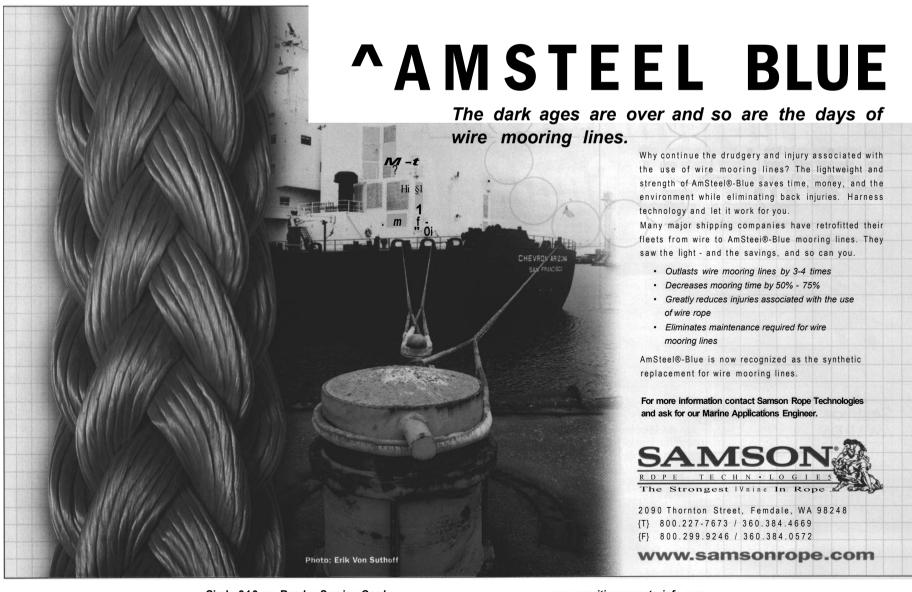
U.S. waterborne passenger transport already is large, according to Tim Kelley of Dalton & Kelley, who gave a presentation on the matter at the 17th Fast Ferry Conference, held March 13-15, 2001 in New Orleans. Currently there are 400 operators carrying more than 205 million passengers and 31 million vehicles annually.

The largest U.S. ferry operator is Washington State Ferries, with 20 conventional speed car/passenger and five all passenger ferries, serving 20 ports

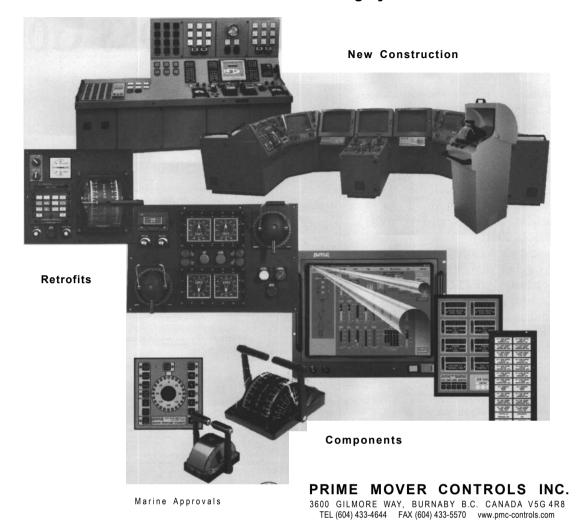
and carrying 23 million passengers. The largest U.S. fast ferry operators are Boston Harbor Cruises with five vessels, and Catalina Channel Express with nine fast ferries (six capable of carrying 149 passengers). Operators in Seattle, San Francisco, Alameda, Long Beach, Boston and New York either have already or will acquire additional all-passenger fast ferries in 2001.

The push for speed reaches far beyond the swagger of owning the largest, fastest vessel. Rick Nolan, president of Boston Harbor Cruises, explained at a recent SOCP meeting held at the Massachusetts Maritime Academy that the investment in the company's fast craft fleet helped the company double its business, from 900,000 passengers carried to 1.8 million passengers carried per year, in only three years. "We're very happy with the boats and their effects on our operations," Nolan said. Each of the company's smaller (121 ft. (37 m), 400 passenger) vessels are powered by four





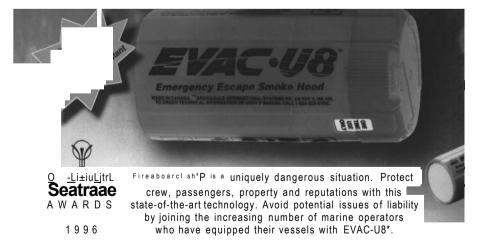
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U.S. Report

Cummins KTA 38 diesel engines, while the new 45 m boat, scheduled for delivery earlier this summer, is powered by four Caterpillar 3512 engines. At the time of the meeting, Nolan said another order for a new vessel was imminent.

Nolan saw an immediate impact on the company's whale watching excursions, as the faster vessels helped to cut a five hour trip to only three hours.

About a dozen U.S. shipbuilders offer newbuilds larger than 150 passengers, of which two (Gladding Hearn and Nichols Brothers with Incat) have together already built 55 units. Austal, with its extensive Australian-based trade record of 50+ vessels, has just opened on the U.S. Gulf Coast and is building one 82 ft. (25 m) spec vessel.

Two yards have built four to five boats (Derecktor with Nigel Gee and Dakota Creek with AMD), and the others offering larger fast ferry newbuilds have built one or none.

Several smaller U.S. yards have built vessels capable of carrying less than 150 passengers, with the most prodigious being SeaArk (more than four dozen with typical 49-passenger capacity), Westport (many excellent 149 passenger GRP monohulls) and Kvichak (with Crowther and several aluminum 149 passenger catamarans).

U.S. yards are currently building about 10 all-passenger, 150-passenger capacity fast ferries at a gross contract value of about \$60 million. This will change rapidly and dramatically. The largest current U.S. all-passenger end is quite similar to its international fast ferry complement: e.g. Nichols/Incat 37-knot, 400-450 passenger floating house with four engines and full ride control system (RCS), costing about \$8 million. The State of Alaska Marine Highway System last year put out to tender for a fast vehicle/passenger ferry capable of about 450 mt dwt capacity (configured for 15 heavy trucks, 60 light vehicles and 300 passengers) for a 37-knot calm water service passage and full RCS.

U.S. annual fast ferry newbuild contracted production volume by 2004 should be around the \$250 million level, a level, which is likely to grow by \$50 million or so annually thereafter. Increased demand will come from public or quasi-public local and metropolitan transit authorities, private operators, export buyers and the U.S. military. Tapping into the vast potential of U.S. military applications was, in fact, a primary driver which brought Australian vessel builders Austal and Incat physically to U.S. shores last year, in arrangements with Bender and Bollinger, respectively.

Palmer Johnson Teams Up With Atlantic Dry Dock For SuperYacht Refit Facility

Palmer Johnson Savannah and Atlantic Dry Dock Corp. have entered into a joint effort via a letter of intent for the establishment of Palmer Johnson @ Atlantic (PJA) on the site of the 60-acre Atlantic Shipyard facility near Jacksonville, Fla. The new Palmer Johnson division will specialize in providing service and refit for yachts measuring 197 ft. (60 m) or larger.

According to Phil Friedman, president and CEO of Palmer Johnson, the new venture will be able to haul, service and refit basically any yacht in the world.

"The combination of Palmer Johnson's highly skilled finish craftsmanship and yacht project management expertise with Atlantic's extensive shipyard experience and facilities will produce a capability second to none in the world," Friedman said. "Given Palmer Johnson's established track record in service and refit of high-end megayachts, and Atlantic's experience in handling large vessels of all types, we expect Palmer Johnson @ Atlantic to draw clients from a global market."

Friedman's sentiments were echoed by Atlantic Dry Dock president Ed Fleming, who reiterated that Atlantic has, on several occasions, "utilized its exceedingly strong shipyard capabilities in the hauling and servicing of larger yachts." More specifically, the company recently hauled and completed bottom work on Limitless, which at 350 ft. (106 m) is reportedly the largest special built yacht in the world.

"With space available at our 60-acre facility, we have for some time wanted to reach seriously into superyacht and refit," Fleming said. "We therefore determined that the most effective way to move quickly to the upper end of the market was to join forces with Palmer Johnson."

Located at the mouth of the St. John's River, just inside the Jacksonville inlet, Atlantic Dry Dock is less than two hours away from Palmer Johnson's 30-acre refit and service facility in Savannah, Ga. A dedicated area at the Atlantic ship-yard will be sectioned off specifically for PJA's yacht work. In addition, plans for the erection of a 300-ft. tracked building that will enable paint and other yacht work to be performed under cover are also in the works.

PJA will focus on providing seamless service to both superyacht owners and captains, specifically in the realm of estimating/bidding, general contracting, project management and single-source billing for all yacht work at the Jacksonville facility. The company will have its own offices, workshops and dedicat-

ed on-site project management team; labor, logistical and administrative support will be provided on a joint basis by both companies.

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Completions Center will be granted by Palmer Johnson Savannah for cabinetry and joiner work.

Located outside Pooler, Ga., PJ's Interior Completions Center recently

received acclaim for refit work on the 155-ft. (47.2 m) Feadship m/v Charisma.

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August, 2001

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U.S. ReportAmerica's CruiseLine Faces DeliveryDelays, Job Cuts

As part of a comprehensive cost reduction program, American Classic Voyages (AMCV) announced in June that it would eliminate 70 full-time positions form its shore-based staff of 470 full-time personnel. The cuts are also attributed to the fact that the company,

which previously held offices in Chicago, 111. and New Orleans, La., decided to combine its subsidiaries under one main location in Sunrise, Fla.

"Although this was a difficult decision, we need to be leaner and more efficient to ensure continued success,

AMCV CEO **Phil Calian** said.

Calian was quick to point out that aggressive sales and marketing efforts have driven demand for AMCV's Hawaii cruises of more than 2,800 net bookings per week for the past eight weeks, a 70 percent increase compared to 1,650 net bookings per week average achieved from January through mid-April. AMCV also reported that its two vessels that are cur-



Phil Calian



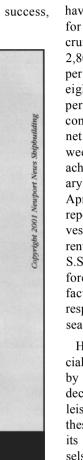
Rod McLeod

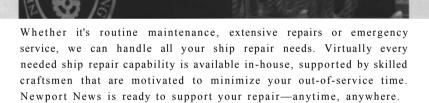
rently operating Hawaiian itineraries, S.S. Independence and ms Patriot, are forecast to sail with a combined load factor of 110 percent and 96 percent, respectively for the summer vacation season.

Hopefully, the company, whose financial performance was recently impacted by both a broad national economic decline and competitive pricing in the leisure industry, will be able to keep these numbers going when it launches its two additional Hawaiian cruise vessels, which are scheduled for delivery sometime during 2003. As reported in the July 2001 edition of MR/EN, (see "Voyage Cancellations, Late Deliveries Continue to Plague Cruise Industry" on page 23), AMCV's president and COO Rod McLeod admitted at a press conference in New York City that, "while the vessels were about 20 percent complete, AMCV is still looking at a delay of about four to nine months."

Currently being constructed at Litton Ingalls Shipbuilding in Pascagoula, Miss., the vessels are expected to rejuvenate U.S. cruise ship building. However, the production process at the yard has fallen behind, pushing the original delivery date of January 2003, to an indefinite month during that year.

An AMCV spokesperson acknowledged the difficulties that the company has been having with Litton Ingalls, citing claims from the shipyard for certain interior finish work, which could involve both time delays and interior costs. "We believe these claims are unwarranted and will fully protect our interests under the fixed price contract," the spokesperson said. "We are concerned about the shipyard's progress in its steel fabrication and hull erection, and are closely monitoring this situation."





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Floating Dock Departs Cascade General

Grand Bahama Shipyard's Floating Dock No. 2, known as the former Portland Floating Dock No. 4, left the Cascade General Portland Shipyard in Oregon on July 6, commencing its five-anda-half month tow to its new home at the Grand Bahama Shipyard in Freeport, Bahamas.

Measuring 984 x 2,296 ft. (300 x 700 m), the floating dock is capable of lifting 87,000 tons and is one of the largest in the western hemisphere able to accommodate vessels of up to 150,000 grt or 250,000 dwt. Via a marine management contract with Seaspan, the yard has chartered Global Towing Alliance Ocean Going Tug, De Yue. Measuring 299 ft. (91 m) with installed power of 20,800 bhp, De Yue provides a bollard pull of 200 tons from its twin-screw configuration. Initially built as a deep-sea



USN Confident Of Raising Sunken Fishing Vessel

The U.S. Navy was confident that it would successfully raise the Japanese fishing vessel sunk off Hawaii in February by one of its nuclear submarines, and was hopeful of recovering some of the bodies of the nine people killed in the accident. Final preparations were being made at press time. Rear Adm. William Klemm, the officer in charge of the \$40 million operation to recover the Ehime Mara, rated the Navy's chances of successfully raising the ship as high as 80 percent. The Navy has hired a civilian ship, Rockwater 2, to gently raise the 190-ft. (58m) Ehime Mara off the ocean floor 2,000 ft. (610 m) below the surface, carry it in a giant sling 13 n.m. and set it down in shallow 115ft. (35-m) waters where divers can enter and search for bodies. The Ehime Mara, a trawler used to teach Japanese high school students about the fisheries industry, was about 9 miles (14 km) off Oahu, Hawaii on Feb. 9 when it was rammed by the USS Greeneville during an emergency surfacing drill and sank. Twenty-six people survived but nine people, including four teen-age boys, were never found. The Navy promised their relatives that every attempt would be made to recover their bodies, but Klemm said he expected divers to only find five to seven of the missing people. The Ehime Mara will probably be moved in late August and divers will likely attempt to recover bodies in September. More than 45 divers will work from a barge anchored over the ship in shallow waters, and they expect to have to force their way through mangled passageways and watertight doors. The 5,991-ton Rockwater 2 has thrusters to keep it stationary during the recovery operation in which remote submersibles will attach 4-in. (10-cm) thick cables to the Ehime Mara.

salvage tug, De Yue is owned by Guangzhou Salvage of China and was selected by Grand Bahama for its high bhp and large bunker capacity.

The 20,000 nm tow is expected to take 170 days with an average tow speed of approximately five knots. Arrival in the Bahamas is expected around Christmas

2001. The routing, which is mapped to avoid major weather patterns in each of the Pacific, Indian and Atlantic Oceans, allows for stop-offs for bunkering in four locations, currently intended to be Davao or Cebu, Dijbouti or Singapore, Suez or Cape Town, and Gibraltar or Fortaleza.

Preparations are currently underway at the shipyard to prepare for the arrival of the dock and this work will be going on in conjunction with a major investment in the rest of the facilities at the yard to cope with the expected increase in workload that the new dock will generate.





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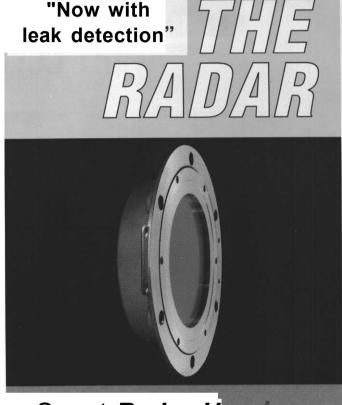
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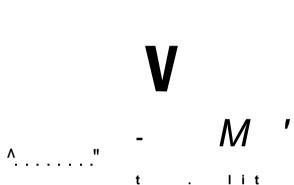
U.S. Report

Detyens Concludes Largest U.S. Conversion

In May Detyens Shipyard concluded LNG carrier Galleoma (formerly the largest commercial reactivation and the reactivation and conversion of the Arzew), finishing what the yard termed conversion in the U.S. this year.

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Located in Charleston, S.C., Detvens work on the technically challenging project helped to establish it as a competitive player on the world commercial ship repair market, and helped to reenforce the notion that the LNG market in the U.S. is set for rapid expansion.

"To be successful in the competitive world of ship repair we knew that we would have to start with small commercial repair jobs and work our way up to the larger, more complex jobs," said Loy Stewart, president, Detyens Shipyard. The renewed ship is on charter from Argent Marine Services to Shell Bermuda Overseas, Ltd.

The Galleoma job, based on its complexity, certainly bears out the claim that Detyens is indeed a formidable competitor. Following are the technical details of the job which have helped to reestablish the yard.

New Compressed Air System

Existing ship service aircompressors were removed with their controls and receivers from their location on the 30ft. flat in the engine room. A new

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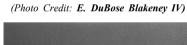
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machinery space was created by using a store room on the 60-ft. flat, and fabrication of a tunnel through the number one and two stability tanks which created a passageway into the main engine room. In the new machinery room three, Ingersoll Rand SSR 60 rotary screw air compressors with dryers and air filters were installed, the existing air receiver was relocated to this space and the installation of one air liquid Nitrogen generation unit was accomplished. An Intellisys control system was installed, allowing the whole air system to be operated with minimal crew involvement. In addition, the system can be operated remotely from the engine control room.

New Steering Gear

To comply with current SOLAS requirements, the existing two ram Lidgerwood steering gear was replaced with a Mitsubishi four-ram electro hydraulic unit. The crosshead was removed from the rudderstock and machined to accommodate the new unit. The existing system was removed with all its components and foundation. The removal of the stern anchor winch and hawse pipe provided the necessary

access for rigging the units in and out. The electrical and control hook-ups were made in conjunction with the integrated bridge upgrade, allowing for new feedback units for automatic pilots, new

emergency steering set up, new angle indicators and feedback back units.

Mooring Arrangement Modification

Oil Companies International Marine

Forum (OCIMF) required a major upgrade of the vessel's entire mooring system. Ten lakeshore winches, the forward and aft first line ashore assemblies, the aft anchor windlass and hawse pipe

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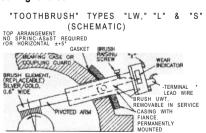
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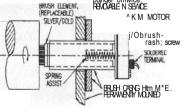
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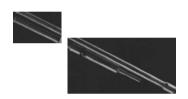
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August, 2001

U.S. Report

and all related bits, chocks and fairleads were removed from the ship.

The new installation and modification included the installation of eight new double split drum Pusnes Maritime 400 HW winches, complete with all related bits and chocks and fairleads, which are all upgraded in size, mostly from 12 to 10 inches. All new hydraulic piping was run from the HPU's to the winches.

The major challenge here was maintaining a safe mooring arrangement for the vessel while new installation was accomplished. 120 tons of steel were installed in the unreduced stiffening upgrade of the new mooring arrangement.

Integrated Bridge Upgrade

All existing navigation and communication equipment was removed, cables were pulled back and some reused for new equipment installation. The entire bridge went through a major overhaul. A new IBS console was installed, and two new control consoles were mounted on the port and starboard bridge wings. The main mast was outfitted with two

new radars ad wave guides, and all new running lights and antennas. A third radar was mounted on the forward mast. Route planning and plotting monitor and keyboard was a new installation on the chart table.

Main Engine Room

The propulsion plant, an 1,100 lbs. steam plant, underwent major work, all of the main steam piping and generator steam lines were hydro-tested, and the main condenser, atmospheric condenser, etc., were all hydro-tested and repaired, as needed.

The LP turbine covers were lifted and the diaphragms removed, and the LP rotor was removed and unshipped through the ballast tank, and shipped to Houston so that it could be dynamically balanced.

Two new Alfa Laval distilling plants and all of the resultant piping and controls were installed, as well as new steam and electric hot water heaters. A new Thorlube system was installed to support the lubrication of the new Thordon strut bearing and stern tube bearings.

Cargo Tank Work

The work items related to the cargo tanks are an addition to the experience of Detyens. As the membrane tanks are fragile, special care and precautions were taken while work was going on in the tanks.

A total of three cargo pumps were changed out with their wiring, and the rest of the cargo pump wiring underwent an upgrade, with flexible cryogenic pigtails installed between all of the cargo pumps and the mineral insulated cable power supply cable, together with nitrogen purged and pressurized explosion proof connection boxes where the cable exits the cargo tanks and meets the powercable coming from the cargo control house.

A new Saab tank radar level indication system was installed, with new still pipes and temperature probes. In the cargo control room, a workstation for the system was installed.

Life Boat Modification

The existing lifeboat davits were removed and new Schat Harding Davits

and boats were installed.

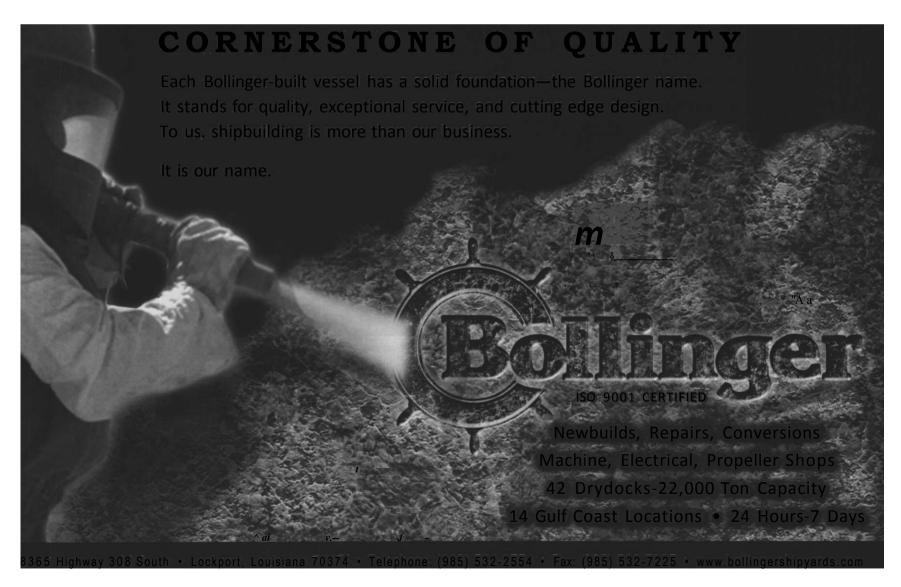
A catwalk was fabricated and installed to allow embarkation from the trunk deck instead of the old configuration, where the embarkation took place from the main deck.

Fire Main & Sprinkler System

The existing firemain line ran under the main deck in the port and starboard. This system was simplified by running a new main line, above deck, from the accommodation to the focs'le, on the port and starboard side slopes from the main lines the system branches off to the relocated fire stations on the trunk deck. In addition to the firemain module, a new Unitor dry powder firefighting system was installed.

Electric Motors

Every electric motor on the vessel, varying from forced draft fan motors to fan motors for galley ventilation, was removed and sent to Excel Apparatus for an overhaul, and reinstalled, aligned and hooked up.



Offshore Update

IZAR Lands FPSO Order

IZAR has been awarded a contract to build a 900,000 bbl Floating, Production, Storage and Offloading (FPSO) unit for Belgium's Exmar Offshore. The unit is scheduled to be delivered at the end of January 2003 and is intended to be operated by Exmar at the Aquitaine field, in the Mediterranean sea, off Libya. The design is characterized by moderate dimensions such as 691 x 144 x 75 ft. (210.6 x 43.8 x 22.8 m) and 54 ft. (16.5 m) design draft if, compared to its huge 900,000 bbl storage capacity.

This newbuilding will actually be the largest ever delivered by the Spanish builder in terms of capacity despite having constructed several large FPSO units in the past, notably Kerr-Mcgee's (EGryphon A' and Texaco UK's (Ecaptain', both in the 550,000 bbl capacity, and even the (Ealba' Floating Storage Unit (FSU) for Chevron U.K., with an oil storage capacity of 850,000 bbl.

The Aquitaine field unit will be built at Astillero Fene (the former Astano yard of the Astilleros Espanoles group) that,

ABB's Compact Pod Makes Mark In \$42M Deal

ABB has struck a landmark deal to supply its new compact podded propulsion system on a semi-submersible drilling rig. Santa Fe International Corp. has awarded a \$42 million contract to ABB in Norway for the supply of electric propulsion systems and power plants to two new semi-submersible drilling rigs. In addition, the contract includes an option for a further two rigs. The two new deepwater rigs, of Friede & Goldman ExD design, will be built by PPL Shipyard PTE Ltd. of Singapore with delivery of the first rig scheduled for late 2003. ABB's delivery to each rig includes a complete package solution consisting of generators, high and low voltage switchboards, drilling and propulsion drives and eight Compact Azipod podded propulsion units with a total output of 25.6 MW. In total, ABB has delivered electrotechnical solutions to more than 50 drilling vessels worldwide. The Compact Azipod - available in a power range from 400 kW to 5 MW - utilizes permanent magnet motor technology with direct cooling to the surrounding seawater. Accurate speed and torque control are provided by a frequency converter and the system allows for full thrust in all directions. The Compact Azipod unit is underwater dismountable, and combined with standardized ABB technology, this ensures simplified and cost-effective maintenance and operation.

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since mid-eighties, has developed a consistent experience working for the offshore oil industry.

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delivered 10 FPSO's and three ultradeep water dynamically positioned dual drilling units for Transocean Offshore (Discoverer Enterprise, Discoverer Spirit and Discoverer Deep Seas), four FSU/FSO (Alba for Chevron, Petrobras 47 for Petrobras, Sitala for Shell International and Polysaga for Rasmussen), two semisubmersible units (Petrobras 26 for Tenenge/Ultratec and Drillmar for Repsol) and one heavy cargo barge (Castoro XI for Saipem U.K.).

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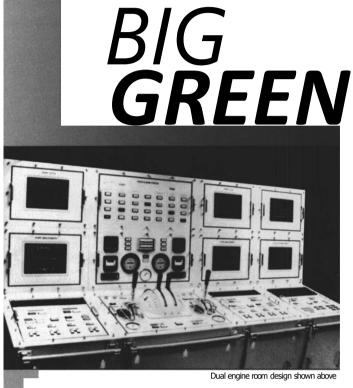
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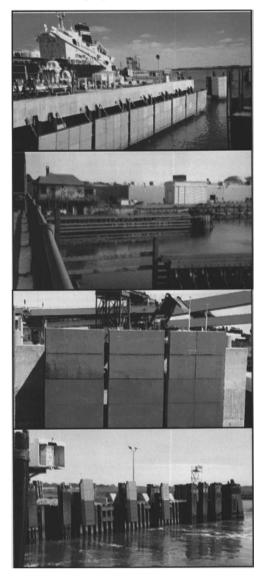
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Offshore Update

Offshore Inland:

Poised To Pounce On Offshore Upturn

Offshore Inland Marine & Oilfield Services of Mobile, Ala., is a wholly owned subsidiary of Offshore Inland Services that commenced operations on December 1, 2000. The fledgling operation timed its entrance into the market perfectly, and despite its short time of operation it is considerably long on references.

Offshore Inland Marine & Oilfield Services - which is ISO 9000 compliant - primarily is involved in the following business operations: turn-key hydraulic system engineering; hydraulic/pneumatic tubing & piping; steel renewals & fabrications; inside & outside machinists; and providing class certified welders.

The organization's expertise has been utilized on many of the world's most sophisticated offshore structures and vessels. For the DPDS' Jack Ryan and Russ Luigs, the company manufactured and commissioned HPU's for the vessel's drill floor. For Cal-Dive International's Q-4000, it designed and manufactured HPU's and Solenoid Cabinets for the Ballast Control System and Deck Machinery. Again for Cal-Dive, this time on Uncle John, Offshore Inland Marine & Oilfield Services redesigned and installed a new hydraulic lift and roll system for the vessel's drill floor. It also re-certified and repaired the vessel's two Aker 75-mt cranes, and renewed miscellaneous piping and tubing throughout the vessel.

For Ensco, the company installed new S.W. cooling systems for Ensco 7500's thrusters. It also designed and installed a new remote shutdown system for the JP5 fuel system, and installed a new hydraulic filtering system for the vessel's thrusters.

For U.S. Ocean Rig Inc.'s Bingo II (Eirik Raude) the company installed a number of tubing systems, including ballast control, H.P water wash down; hydraulic watertight doors; hydraulic hatch covers; choke & kill tubing; hydraulic ring main components; and derrick hydraulic piping.

For Noble Drilling, Offshore Inland Marine & Oilfield Services worked on three vessels - Max Smith, Paul Ramano and Jim Thompson. For the trio, it designed, built and installed a subsea tree lifting system including the HPU's. It also designed, built and installed an automated P-Tank system, and installed LMRP and BOP hydraulic tubing.

Offshore Inland Marine & Oilfield Services also provides hydraulic component reconditioning services (pumps, motors and cylinders), offshore and onshore crane repairs, gearbox repairs and steering gear ser-



Pictured is progress shots of Offshore Inland's turnkey project aboard Cal Dive International's M/V Mystick Viking. The company has assumed the responsibility for engineering, project management, project manning and material procurement.



vice engineers. The organization has extensive technical expertise supported by its own engineering department including AutoCad Draftsmen. The company's professional engineers are trained and certified by the National Fluid Power Society.

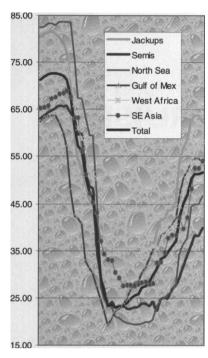
The parent company, Offshore Inland Services, began operations in 1983, and currently has six locations across the nation. Offshore Inland also employs NFP trained and certified technicians, with expertise in trouble shooting and problem solving.

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Big Jets, Big Capacity For New Crew Boat

McCall Boat Rentals, long known for innovation in crew boat development, have done it again. With the christening of its latest boat from Gulf Craft, the 165 x 30-ft. Keith G. McCall, the company has taken the use of jets up another notch. The four Hamilton model HM 811 jets, each with an impeller diameter of approximately 32 in., are reportedly the largest jets used in a crew boat to date. Power for the jets is provided by four of Cummins' 16-cylinder KTA50 M2 engines rated for 1,800 hp each at 1,900 rpm, giving the new boat a total of 7,200 hp. Between the engines and the jets are Twin Disc 6848 gears with 2.47:1 reduction so that the impellers turn at 769 rpm at maximum engine rpm. Speeds are anticipated to be well over 30 knots. The new boat, christened on July 11, has an 82 x 24.5-ft. open cargo deck with a capacity for 200 long tons. This allows for a relatively large cabin to accommodate up to 90 passengers in comfortable business class-type seats. Entertainment for passengers as well as vending machines and a communications area are also provided. Tankage includes 32,150 gallons of rig water and 26,850 gallons of fuel. A second boat, to the same design, is under construction at Gulf Craft's Patterson Louisiana Yard.

GLM Score Up Despite Softening GOM



GLM's SCORE movement for the past four years.

Global Marine's (GLM) Summary of Current Offshore Rig Economics (SCORE) rose 0.6 percent in June 2001, despite a reduction in the Gulf of Mexico. "Softening jackup rates due to declining natural gas prices have taken a toll on the Gulf of Mexico SCORE," said Bob Rose, GLM's chairman, president and CEO. "However, strong oil prices have continued to fuel improvement in international offshore rig markets."

First Wove Marine Files Reorganization Plan

First Wave Marine, Inc. has filed with the U.S. Bankruptcy Court for the Southern District of Texas, a Plan of Reorganization in the Company's Chapter 11 proceeding. The filing of the Plan should pave the way for the company's emergence from bankruptcy in early fall after requisite Bankruptcy Court approvals can be obtained. The Plan calls for an exchange of all of First Wave's 11 percent Senior Notes for 96.7 percent of the common stock of the company, which will significantly improve the balance sheet and financial strength of the company. The Committee of Unsecured Creditors has stated that it will support the Plan.

On February 5, First Wave filed for relief under Chapter 11 of Title 11 of the United States Code in the Southern District of Texas. Immediately after filing, the company secured \$20 million in post petition financing to provide working capital during its restructuring. At the same time, First Wave obtained Bank-

ruptcy Court authority to pay employees and certain qualifying critical vendor and subcontractor pre-petition payables on an uninterrupted basis. Since its Chapter 11 filing, First Wave has successfully maintained normal operations.

First Wave president, **Grady Walker**, said, "filing this Plan represents the

achievement of a major milestone in our efforts to restructure the company and paves the way for a speedy emergence from bankruptcy. Additionally, the Plan dramatically reduces the long-term indebtedness of the company, thus improving its financial and competitive strength. The original majority share-

holders, Messrs. Sam Eakin, Frank Eakin and David Ammons, have elected to resign their positions as officers and directors upon Bankruptcy Court approval to pursue their interests in other companies. Upon approval, H. Grady Walker III, Frank R. Pierce and Suzanne B. Kean will be appointed



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Offshore Update

as directors of the company. Messrs. Walker and Pierce and Ms. Kean will also continue in their current respective management positions.

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FMC Inks Deal With Statoil

FMC Technologies, Inc.'s FMC Energy Systems business has signed an agreement with Statoil ASA to provide equipment and technology solutions for the Sigyn Development Project in the Norwegian sector of the North Sea. The contract is valued at approximately \$19 million. The Sigyn Field is a tie-back to the Sleipner A platform. The subsea completion solution will be provided by FMC Kongsberg Subsea, a s, the company's Norwegian-based subsidiary.

Exmar Announces LNG Deals

Exmar, CMB's gas tanker division, together with Mitsui O.S.K. Lines, confirms the long-term charter party with El Paso Corporation of two further liquefied natural gas (LNG) tankers, thus bring the total to four vessels. They will be built by Daewoo Shipbuilding & Marine Engineering Company, Ltd. Each vessel will be constructed using the membrane system and have a capacity of approximately 138,000 cu. m.

Danish Contingent Strong

At OE2001

The joint Danish stand at Offshore Europe 2001 (OE2001) brings together 21 Danish manufacturers and suppliers of a multiple range of products and services for the international marine and offshore industry. The companies constitute Offshore Denmark - The Marine and Offshore Technology Group, which forms the framework for Danish turnkey projects and innovative solutions for customers world wide. Three Danish companies in particular, Orskov Steel Shipyard, MAN B&W A/S Alpha Diesel, and Aalborg Industries A/S, were featured on Stand No 959/859.

Orskov Steel Shipyard (www.orskov.dk) is a full service ship builder with conversion and repair facilities in two floating docks and two dry docks up to 705 x 111 ft. (215 x 34 m), strategically located at the northern tip of the European continent, with very short deviation from the North Sea and the Baltic area. Orskov has completed contracts for multifunctional AHTS Vessels, container and offshore vessels and LPG carriers.

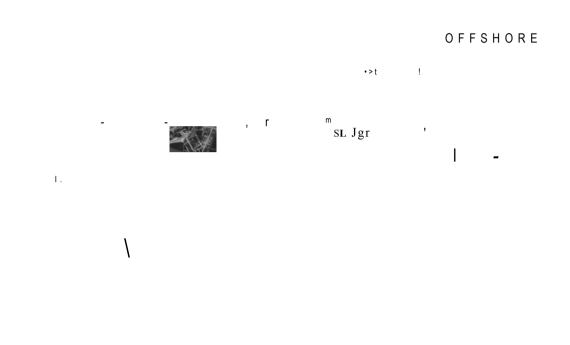
MAN B&W (www.manbw.dk) is the total supplier of auxiliary propulsion systems for two-stroke engine plants, four stroke engine powers for 800-7,680 kW (1,090-10,400 bhp) per engine and

CP propeller systems. This June MAN B&W has been selected as the supplier of their innovative high-tech seven cylinder GenSets each delivering 1,400 kW at 100 rpm, 50 Hz, contracted by DFDS Tor Line at the Flensburger Schiffbau-Gesellschaft.

Aalborg Industries (www.aalborg-industries.dk) is the manufacturer of boilers for steam, hot-water or thermal fluid and combustion equipment, specially designed to meet the requirements onboard FPSOs, FSOs, and rigs. Aalborg Industries has just signed new con-

tracts for boilers and combustion equipment worth \$10.5 million from among others Korean shipyards.

For information on the companies, circle the appropriate number on the reader service card in this edition, or visit www.maritimereporterinfo.com.



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August, 2001 www.maritimereporterinfo.com 36C

Containership Volume To Slow

The giant containerships, which act as a floating conveyor-belt for international trade, are struggling to maintain volumes in the face of global slow down, shipping analysts said.

Analysts said it was the container car-

rying behemoths on the trans-Pacific trades that had started to suffer first, largely because of U.S. slow down.

Many can load over 6,000 truck-sized units at once, packed with anything from refrigerated fruit and shellfish through to televisions and cars.

The Commonwealth Group estimated

the Pacific decline at 10-15 percent since a year ago. The result is that earnings will fall.

Clarksons said on top of the threats to shipping demand, there was also the danger of huge oversupply.

The orders were placed during the two boom years of 1999 and 2000.

Shipping database Lloyd's Register-Fairplay lists over 100 new giant ships under construction, each capable of carrying over 5,000 truck-sized containers. Many smaller ships are also in the pipeline.

While the Japanese are reportedly the most exposed, the Germans have taken a heavy hit as well.

Between them, Japan's NYK, K-Line and Mitsui O.S.K Lines had placed about a third of the big orders, while German tax-incentive schemes were also responsible for about a third.

Traditional European operators had been less involved. Germany's Hapag-Lloyd and A P Moller, Britain's P&O and Greece's Costamare had between them only contributed to one tenth of the glut. One outcome could be consolidation within the market, and many smaller players could disappear.

Alstom Wins French

Navy Contract

Alstom SA secured a contract from military shipbuilder Direction des Constructions Navales to help build two military transport vessels for the French armed forces. Alstom's Chantiers de l'Atlantique yard on France's west coast will provide forward accommodation sections for the 656-ft. (200-m) ships, designed to transport 450 military personnel.

The vessels, to be delivered in the second quarter of 2005 and the first quarter of 2006, would each house six helicopter pads and four smaller barges in which troops would disembark. Alstom did not disclose a price for the contract but said that the work carried out on the two ships would be equivalent to that involved in building one medium-sized cruise ship.

Hyundai Logistics Plans To Own Freighter

Hyundai Logistics Co. Ltd., one of South Korea's top three delivery companies, has reportedly planned to operate its own freighter in 2007 for use between Korea, China and Japan.

Market share of the 13-year-old latecomer rose to over 10 percent this year from less than three percent in 1995.

Evergreen Marine Sales Down Nine Percent

Taiwan's Evergreen Marine made sales of T\$1.55 billion (\$44.7 million) in June, down nine percent from the same month a year earlier. That brought accumulated sales in the first six months of 2001 to T\$8.88 billion (\$256.1 million), an 8.5 percent drop from the same 2000 period. However, June sales were higher than May's T\$1.24 billion (\$35.7 million).

a i

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SSPC 2001 Set For November in Atlanta

Scheduled to be held November 11 - 15, 2001 at the Georgia World Congress Center, Atlanta, Ga., SSPC 2001 (The Society for Protective Coatings) is the conference and exhibition for the protective coatings industry. While the marine business is not the solitary focus of the event, as SSPC encompasses a wide variety of industries and applications, the industry is well represented and informed at the event.

Primarily, the event attracts Industrial Painting Contractors; Public and Private Facility Owners; Metal Fabricators; Specifying Engineers; Architects; Industry Consultants; and Industry Suppliers.

"I learn something new at every SSPC conference," Robert R. Hafer, Paint

General Foreman, Newport News Shipbuilding, is quoted as saying. "The wide mix of companies, contractors, and suppliers help you pick up little things that may make your operations more effective. Everyone at the conference is open and ready to help. The contacts you make may not help you today, but I have found that before the year is out you're calling on your new-found SSPC members."

Attendees are encouraged to select from a wide variety of topics to develop their own combination of technical presentations, workshops, and panel discussions from four topic tracks: Surface Preparation, Coatings and Application, Project Management, and Business Strategies. In addition, SSPC committee meetings, various special meetings, and valuable networking opportunities remain an important part of the SSPC 2001 program. SSPC is the only non-profit association focused on the protection and preservation of steel, concrete, and other industrial and marine structures and surfaces. SSPC is the leading

source of information on surface preparation, coating selection, coating application, environmental regulations, and health and safety issues.

To Register for SSPC 2001, or for more information, contact: **Dee Boyle,** Conference Administration Coordinator, tel: (412) 281-2331, ext. 202 (from outside the US); Toil-Free: (877) 281-7772, extension 202 (from within the US); Fax: 1-412-281-9993; Email: boyle@sspc.org; or, Register On-Line at www.sspc.org.

List of SSPC 2001 Exhibitors (Partial)

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Badger Mining Corporation
BEI/PECAL
Barton Mines Company, Inc.
Chesapeake Specialty Products
Meadowbrook Company
Oglebay Norton Industrial Sands
Olimag Sands
Universal Minerals, Inc.*
TDJ Group, Inc.
Western Garnet, Int'I.

COATINGS APPLICATION
Covercat Spray Systems
Glas-Craft, Inc.
Graco, Inc.
Gusmer Corporation
Midwest Rake Company
Perma-Tech Industrial Coatings
Thermion Metailizing Systems, Inc.
WIWA LP

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Superior Environmental Products

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SAFETY EQUIPMENT Bullard Warwick Mills, Inc.

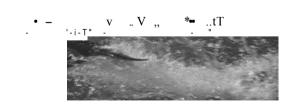
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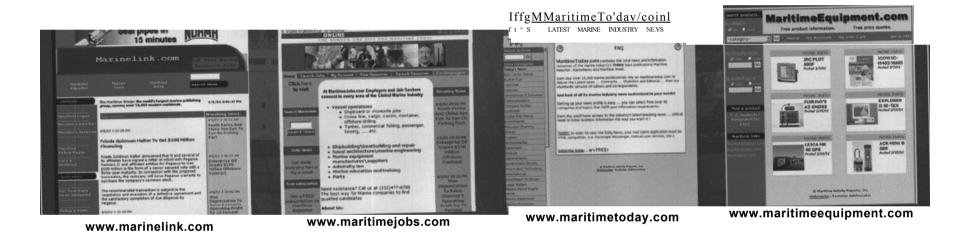
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Sherwin Williams Offers Troubleshooting Guide

A new Troubleshooting Guide for epoxy coatings from Sherwin Williams Industrial and Marine Coatings group offers tips and techniques for selecting and applying epoxy coatings to achieve maximum



performance. The eight-page brochure is filled with useful information on basic epoxy coating chemistry, common causes for irregularities and finish defects, and key issues to consider during selection and use of epoxies.

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Trelawny Captures Coatings Without the Dust

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in compliance out airborne dust. with OSHA and EPA standards.

Trelawny's prep tools are available in electric and air models with 3M brand Heavy Duty Roto Peen hubs or with star cutters or hammer hub assemblies for tough coating removal. Electric models are standard 120 volts and air powered

units operate on 90 psi and 30 scfm. Scaling hammers provide heavy duty percussive power for fast coating removal on both concrete and steel substates, fracturing thick and tough to remove materials; they are available in single and triple head configurations.

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helps participants understand the principles of surface preparation equipment components, apply appropriate preventive maintenance practices, and control and reduce operating costs.

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Hempel Celebrates 50 Years

Hempel Farben GmbH, headquartered in Pinneberg, Germany reached a milestone, as its recently marked 50 years of service to the marine industry.

Since May 1951, when Germany had just begun to rebuild following WWII, JC **Hempel** established what came to be Hempel Farben (Deutschland) GmbH in Hamburg. The rapidly increasing amount of German shipowners formed a solid platform for the growth of the German Hempel company, as well as vessels of foreign shipowners calling at

Joint Marine Environment Coating Research Receives Recognition

The University of Rhode Island (URI) team was recently recognized by the university for work in the area of material coatings research. At the URI Annual Recognition Luncheon for Outstanding Research, Outreach and Intellectual Property, NUWC employees Dr. Wayne Ticker, ah engineer in the Missile & Platform Systems Department, and Maria Medeiros, chemist in the Division's Torpedo Systems Technology Department; joined Dr. Richard Brown of URI's Chemical Engineering Department, to receive the award for their project entitled "A Non-Chromate Primer for Paint."

For several years, this team has been researching the development of a non-toxic, antifouling coating for application on US Navy surface ships, submarines, and support equipment below the waterline. The effort was initiated after the Department of Defense mandated the elimination of hexavalent chromium in corrosion conversion coating.

The team has successfully tested chromium replacements in the laboratory, which will meet military specifications for salt spray testing. To date, no other alternative has been able to match chromium in the 30-day test. Full-scale testing will begin this year, with the hope of providing the Navy with a non-toxic replacement for chromate systems. - By Gary Steigerwald, Public Affairs Officer, NUWC Division Newport, A Naval Undersea Warfare Center Div.

German ports for drydocking or loading/discharging — thus creating a demand for marine paints. With the German shipbuilding industry reaching rapid expansion, what better time than Hempel to be called upon by Aristotle Onassis to coat a fleet of whaling vessels that the shipping magnate has placed with German shipyards. This, coupled with an order by Onassis for what were the biggest tankers in the world at that time, placed Hempel Group at the forefront of the marine paints industry.

Ten years after the company's inauguration, the demand for Hempel's marine paints to Germany increased at such a pace that supplies could no longer be covered from production abroad and through a license factory in Hamburg. In 1964, the Pinneberg production plant was established as the 14th factory within the Hempel Group.

Initially focusing solely on marine paints for newbuildings and vessels in service, the segments corrosion protection for industry and yacht paints were added in the early 1970s. The acquisition of the paint company Kemp & Wessel in 1989 was an opportunity for Hempel to enlarge its product assortment.

Hempel Germany also produces protective coatings, as well as container and yacht paints.

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Sealcoat Protects S/V Nena

In a ceremony held at Mega Marine Yacht Services in Fort Lauderdale, Fla. on June 22, the 110-ft. (33.5 m) yacht, S/V Nena had its aluminum bottom coated with SealCoat's environmentally friendly poison and solvent free antifouling and corrosion preventive system. SealCoat is a Swedish invention that has developed and patented a new antifouling method geared toward the prevention of marine fouling development on submerged surfaces without poisoning the life cycle.

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Advantages of Marine Guard Foam Filled Marine Fenders

Urethane Products Corporation's Marine Guard™Foam Filled Marine Fender offers many significant advantages over Hard Rubber and other types of fenders. Foam filled marine fenders are fabricated from a closed-cell resilient foam that absorbs significant quantities of energy when compressed. The foam is protected by a thick, filament-reinforced outer elastomer skin. This construction offers a number of important features and advantages.

High Energy Absorption With Low Reaction Force

Marine GuardTMFoam filled fenders have both high-energy absorption and low reaction force. Reaction forces at rated compressions are lower than most other fenders at comparable energy levels. The low reaction force of the foam filled fender is an important consideration in the design of piers and quay walls, where significant economies can be made if forces on the walls can be kept to a minimum. Other economies are produced by eliminating the need for load-spreading panels, which are required for most large hard rubber fenders. Foam filled fenders dissipate a significant portion of energy internally and do not cause the vessel to rebound from the berth as readily as pneumatic or hard rubber fenders.

Tough Outer Skin

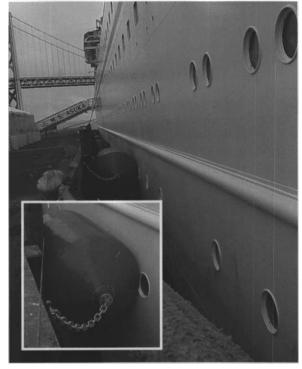
Foam filled fenders have a rugged polyurethane elastomer outer skin, with nothing to snag hull protrusions or dock fittings. To provide added strength, the thick skin is reinforced with nylon filaments. Independent tests have shown that this gives the outer skin of the fender a tear strength improvement of 4 to 6 times than that of an equivalent thickness of unreinforced skin. Other types of fenders with a layered construction are subject to delamination between the layers of fabric reinforcing and rubber membrane. The urethane elastomer skin is far more resistant to the degrading effects of oil, chemicals, ozone and UV radiation than is the vulcanized rubber used in other types of fenders. Urethane is also very abrasion resistant. Formulated specifically for marine fenders, the outer fender skin undergoes strict quality control at the manufacturing plant.

Custom Sizes and Colors

In addition to traditional fender sizes, foam fender manufacturing processes allows the fenders to be designed and supplied in custom sizes, capacities, configurations and colors.

Laboratory and Field Tests

Marine Guard^{rM}Foam filled fenders have been extensively tested to verify their performance, ruggedness and durabili-



ty. Compression tests are conducted in a certified laboratory using one of the world's largest compression testing machines. These fenders consistently excel in all other required tests, including energy absorption; capacity and reaction forces; ultimate compression; cyclic compression (dynamic and sustained loading); transverse pull tests; and longitudinal pull tests. Years of field operation with foam filled fenders have confirmed the ability of these fenders to take the rugged service for which they are designed.

Quality

Materials testing, verification and inspection are in accordance with the standards and practices of:

- ASTM (American Society for Testing and Materials)
- ISO (International Organization for Standardization)
- AWS (American Welding Society)
- AISC (American Institute of Steel Construction)
- SSPC (Steel Structures Painting Council)

Statistical quality techniques include statistical process control and sampling plans. Quality systems have been audited and approved by the many organizations including:

- ABS (American Bureau of Shipping) system and type approvals
- DCMC (Defense Contract Management Command)
- DGSC (Defense General Supply Center)
- ISO (International Organization for Standardization)

Simple Installation

Installation of Marine Guard™ foam filled fenders is simple compared to hard rubber fenders, which require specialized mounting fixtures. The fenders use standard chain pendants attached at each end of the fender. Load-spreading panels between the ship and the fender are not required. Fender transportation using standard rigging methods is easily accomplished.

Total Buoyancy

The natural buoyancy of foam filled fenders also allows them to be installed in a floating position between a ship and dock or another vessel. This is particularly beneficial in areas with large tidal or seasonal water level fluctuations since, unlike fixed fendering, the floating fender can rise and fall with changing water levels. The floating fender remains at the water line of the vessel for optimum fendering.

Burst Resistance

When a Marine Guard™ foam filled fender is compressed, the compression force is resisted by the pressurization of many small, completely closed foam cells and by the buckling of the cell walls. Because of the strength of the cell walls, the resistance to cell bursting is very high. The fender skin is not a pressure containment boundary; therefore, there is no need for pressure relief valves or inflation valves on the outer cover.

Safety

Because of the foam filled fender's unique design, it will not explode or sink. It retains its energy absorbing and standoff capabilities even if the skin is damaged. This extra margin of safety can be vitally important in docking, marine salvage, offshore construction or ship-to-ship transfer operations.

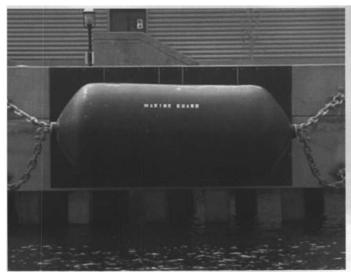
Low Maintenance

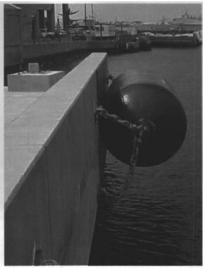
The foam filled fender has been designed to resist environmental conditions. The exterior is highly resistant to ozone, hydrocarbons, ultraviolet radiation, seawater and other environmental factors, and the skin color is integrated into the elastomer.

Reliable Performance

All of the above factors combine to eliminate many of the post purchase maintenance and potential replacement costs of other fenders. Years of successful performance in the field have established the foam filled fender as the standard fendering solution for the industry.

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EIM Provides Shipboard

Valve Control Network

A pair of advanced newbuilds from NASSCO will feature an onboard digital valve-control network, a feature according to the manufacturer — that has never been on any other ship. Manufactured by EIM Controls, Inc., the Controlinc network, in conjunction with EIM Series 2000 electric actuators, will provide remote open/close and modulating service for 126 butterfly valves, gate valves and ball valves throughout the ship's ballast control, bilgewater, seawater cooling, fire main and fire main sprinkler systems. The entire network is designed to be monitored from a single master unit aboard the ships, which are TOTE Orca Class Trailerships. A redundant standby master control unit provides bumpless control transfer in the event of a problem. EIM Controls worked closely with NASSCO to develop the concept and specifications for the control network, and will provide valve/actuator packages, oversee installation and start-up.

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DOE Enables Exploration of Normandy Coast

Deep Ocean Engineering Inc. (DOE) — a supplier of products, services and operations for the ROV and underwater industries — recently delivered a customized version of the new Phantom series to the Navy Surface Warfare Center (NSWC) Carderock Div. Headquarters. The vehicle's first mission is the exploration of WWII ships and cargo off the coast of Normandy. The delivery of this Phantom expands NSWC's fleet to four DOE vessels.

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Lehigh Heavy Forge To Make

Aircraft Carrier Shafts

Newport News Shipbuilding awarded Lehigh Heavy Forge Corp. a contract for more than \$2 million to produce eight propulsion shafts for the U.S. Navy's newest Nimitzclass nuclear powered aircraft carrier. NNS is expected to complete CVN 77, the last of 10 ships, by 2008. Lehigh Heavy Forge has been forging components for the Navy since 1885 in Bethlehem.

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Bender Protests LSV Award

Bender Shipbuilding & Repair Co., Inc. filed a protest at the General Accounting Office challenging the recent award to Halter Marine, Inc. by the U.S. Army's Tank-Automotive and Armaments Command of a contract to design and build up to three Logistics Support Vessels. The LSVs are part of a strategic plan to get equipment and supplies to the U.S.' fighting forces. Bender's protest is based on the fact that its proposal to TACOM was essentially equal in technical and performance risk to Halter's proposal, that Bender scored higher than Halter in logistics and that Bender's price was significantly lower than Halter's, whose price exceeded the ceiling price set by TACOM. The protest automatically stays contract performance.

MAAG Supplies Gearboxes For Navy Vessels

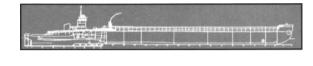
MAAG won a \$13.8 million order to supply gearbox systems to a Spanish shipbuilding group. The order is for five high efficiency, ultra-low noise combined diesel and gas turbine propulsion gearbox systems to be installed in frigates to be built for the Norwegian navy by Spanish shipbuilder IZAR, one of the world's leading producers of naval vessels. Delivery of the gear sets is due to start in 2002 with the order scheduled for completion in 2006.



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Point of Contact for Registration is Kelly Bentley Marks, (703) 836-6727 E-mail: kbentley@navalengineers.org

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Izar Ferrol Repairs Eight Vessels At Once

The shiprepair yard of IZAR Ferrol surpassed previous occupancy records recently, as it simultaneously worked on eight vessels. The yard facilities were fully busy and there was no room to accommodate any other vessels at the yard's two dry docks of 1,083 x 164 ft.

(330 x 50 m) and 673 x 82 ft. (205 x 25 m) and 5,577 ft. (1,700 m) long quays.

One of the vessels, a tanker owned by Spain's CLH, is the first example of the cooperation capacity between the repair yards of Ferrol and Fene (the former Astano), now part of IZAR since the

company took over the facilities of Bazan and AESA.

The repair order for the crude oil carrier was awarded to Ferrol, but the vessel had to be docked at Fene due to the high occupancy of Ferrol facilities. It was repaired there by Ferrol workers

helped by their Fene's mates.

The Guardian, a 801 ft. (244 m), 95,920 dwt tanker owned by Conoco Shipping, was also visiting Ferrol for a full review of its refrigeration pipe system and general hull repair works.

The Carenas Ferrol yard received this same week two additional tankers: the Golar Freeze 945 ft. (288 m) and 66,200 dwt of British owner Osprey Maritime, for steel works in her tanks, and the Genmar Ajaz 797 ft. (243 m) and 96,183 dwt, which is owned by U.S. company Universe Tankships and is currently under progress at the yard's dock No. 3.

The yard is also working in the Larbi Ben M'Hidi, a 856 ft. (261 m) and 70,328-dwt LNG carrier owned by the Algerian company Hyproc. This is a very significant project as the tanker's five cargo tank seats are being strengthened, as well as the propulsion boilers' pipes renewed. A full review of every gas cargo tanks is also being carried in a smaller LNG carrier 656 ft. (200 m) owned by this same company, the A1 Hassi R'Mel. These are repeat orders from the same customer, which in 2000 had the 66,746 dwt LNG carrier Bachir Chinani at the shipyard for nearly four months, for strengthening of the five cargo tank seats, blasting and coating in ballast tanks and hull, and engine room equipment maintenance. A special order has been the pre-delivery review and works on the Navion Odin, a 764 ft. (233 m) and 96,900-dwt FPSO. The yard is also carrying out maintenance work to the refrigerated compartments of the Semeli, a fishing vessel from the Moroccan owner Lucky Martin Enterprises.

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Japan Ship Exports Up 69%

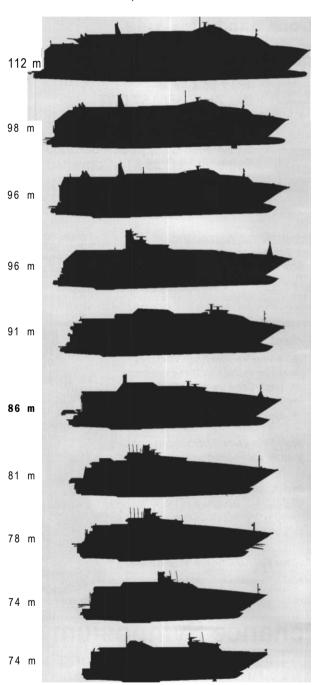
Ship export contracts concluded by Japanese shipyards in June rose 68.8 percent from a year earlier to about 1.36 million git, or 27 vessels, the Japan Ship Exporters Association said. Of the 27, three were freighters, 10 were bulk carriers and 14 were oil tankers, the association said. The monthly data cover orders received by association members for steel vessels of at least 500 grt.

Orders at South Korean Yards Down 36.9%

South Korean shipyards won ship-building orders of 4.2 million cgt during the first half of this year, down 36.9 percent from a year ago. The orders in dollar terms amounted to \$6.8 billion in the period, down 25.4 percent from the previous year. Ship-related exports in the first half of 2001 rose a record 44.1 percent to \$5.7 billion, helped by exports of steel structures for oil drilling in the sea.

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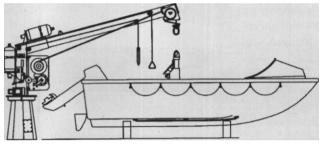
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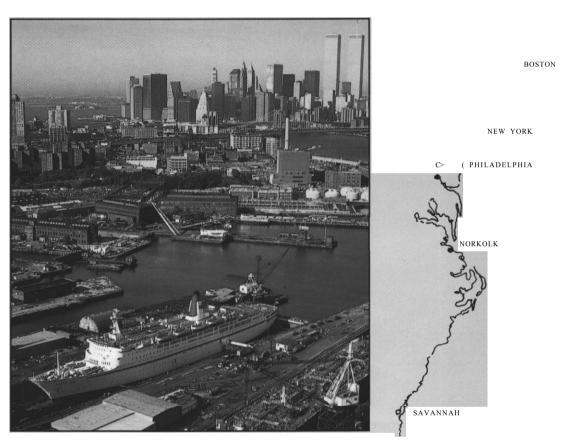
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Deck Machinery, Cargo Handling Equipment

P&O Ports Chooses Kalmar

P&O Ports has chosen Kalmar rubber-tired gantry cranes (RTGs) to handle containers at its new Napoleon Avenue Container Terminal in New Orleans. The 55-acre high-density terminal facility is being built by the Port of New Orleans on the former site of the port authority's Napoleon Avenue wharves A and B. The terminal is scheduled for completion in the second quarter of 2002 and will have a capacity of 360,000 metric tons of cargo per year.

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Allied To Manufacture Lantec Hydraulic Winches

Allied Systems Co. will manufacture a new line of hydraulic winches under a license agreement with Lantec Industries, Inc. The addition of a Lantecdesign hydraulic winch extends Allied's market presence from the logging winch applications to the crane and marine industries. Lantec is known for its modular planetary gear design. "The addition of hydraulically driven winches will open up new markets for us, such as marine, industrial and crane industries," said **Bill Chan**, senior vice president. "It will also complement our existing marine cranes."

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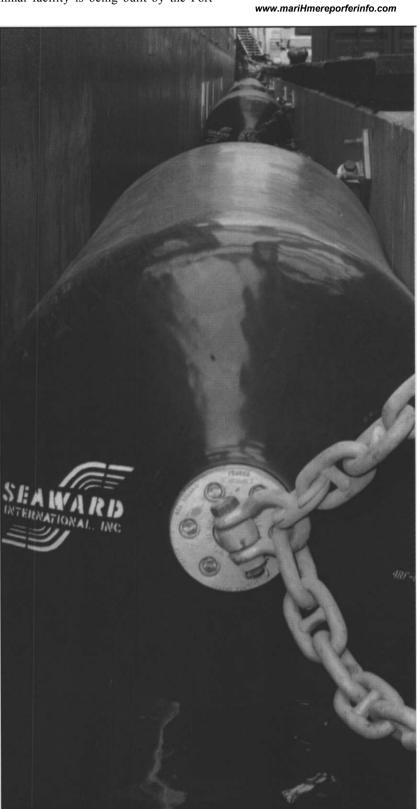
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Loose Cable Contributed To Crane Collapse

The collapse of a giant, brand new gantry crane which killed 36 people in a Shanghai shipyard may have been caused by loose steel ropes, state media and an engineer at the crane's designer said in published reports. At press time, Chinese authorities and officials at Hudong Shipbuilding Group were still investigating the accident. The collapsed crane is one of the largest gantry cranes to be built and designed in China, capable of carrying 600 tons. The H-shaped structure weighed a total of 4,900 tons and consisted of two legs and a 3,000ton crossbeam. More than 30 workers, mechanics and engineers at Hudong Shipbuilding Group in Shanghai's Pudong district were raising the crane at 8 a.m. when a steel rope fastening the crossbeam to its leg reportedly came loose. Workers were reportedly trying to repair the loose steel rope when it snapped, sending the two legs and the 330-ft. (100-m) crossbeam crashing to the ground. An engineer reported that two steel ropes had blocked the crossbeam from being lifted any higher than its 155 ft. (47-m) position, 110 ft. (33 m) short of its destination. Workers apparently first realized the problem at a ceremonial inauguration for the crane. Chinese authorities and shipyard officials declined to comment. Xinhua said an investigation was being organized by the Industrial Safety Committee of the State Council, China's cabinet.

Deck Machinery, Cargo Handling Equipment

Raising the Standard for Bulk Carrier Cranes

A new generation of cranes purpose-designed for bulk carriers of up to 60,000 dwt has been introduced by MacGREGOR Cranes. The MacGREGOR-Hagglunds GLB-2 bulk crane is a two-wire model with a maximum hoisting capacity of 30 tons, and is available with a range of jib lengths from 59 x 98.5 ft. (18 to 30 m). Optional equipment includes electro-hydraulic motor grabs of any type to handle all kinds of bulk cargo. The new crane incorporates proven features from existing MacGREGOR-Hagglunds crane types, but also benefits from new design techniques and component

philosophy to significantly improve operating cost. The GLB-2 design was developed in close consultation with shipowners and shipyards, and was subject to an extensive QFD (quality, function and deployment) analysis before entering production. Key to the design are three independent closed-loop hydraulic systems for reliable and independent luffing, slewing and hoisting operations. These systems are controlled by MacGREGOR Cranes' CC2000 computer-based control system.

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load and discharge via the vessel's larger stern ramp for freight units and via special side doors for cars. There is no bow access.

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Amclyde Wins Contracts

FGH Engineered Products Group announced that its AmClyde unit has signed new contracts in excess of \$13.5 million with customers in Freeport, Texas and Abu Dhabi, U.A.E.

"AmClyde is very pleased to receive these key orders from our long-standing customer NPCC (National Petroleum Construction Company) of Abu Dhabi in the United Arab Emirates and our new customer Cabett Subsea Products, Inc. of Houston, Texas," said **Dick Juelich**, AmClyde President.

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Four specialized four-wire MacGregor-Hagglunds K-series cranes have been installed on the Norwegian owned 70,120-dwt bulk carrier Balsfjord.

To discover the black gold

Liebherr Supplied ICTSI

International Container Terminal Services Inc. (ICTSI) acquired two new quay cranes and three rubber tired gantries for the Manila International Container Terminal (MICT). The new cranes will be able to make 25 moves per hour, versus the old equipment, which allowed only 15 per hour.

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Hamworthy Specified On Ferries

The world's largest passenger ferry currently in service, P&O North Sea Ferries 60,000-grt, 823-ft. (251-m) Pride of Rotterdam, has entered service in Europe. Built by Fincantieri, the ship will soon be joined by sistership Pride of Hull, and both incorporate a cargo access equipment package designed by Hamworthy KSE. The vessels incorporate a great deal of freight with the passenger capacity, and offer 3,355 lane meter capacity. It is able to

Belotti Handling Reinvents The Reach Stacker Machine

Belotti Handling S.p.A., which invented the Reach Stacker machine for container handling in 1969, offers today a totally new and innovative unit with automated and sophisticated systems. The new machine is the result

of a collaboration between Belotti and Pininfarina, with design and the most advanced know how studied and developed by the University of Robotics in Genoa. The new machine is already provided by five international patents, which ensure originality and innovation in this particular range of rubber tired cranes.

In fact, the unit is provided by a container self docking system (SDS) developed jointly with the University of Robotics in Genoa, which is well-regarded for the design of independent robots and marine working arms. By means of special digital cameras and optical sensors, when the spreader is at 1.5 meter of distance from the container, the automatic approach mode is actuated till the locking is made. This operation avoids wasted time due to the

usual attempts of the operator before he succeeds in getting the spreader in the container twist locks holes. As the total operation is completely automated, it is possible to perform the same, even without physically see it.

The new Belotti Reach Stacker is also provided by a particular roller system for the N.4 front wheels, which enabled the user to get more use (up to 400 percent additional wear) from the tires.

This unit also includes an on-board mounted Modem/GSM system for remote assistance in real time, anywhere the machine is working. It has even the possibility of being interfaced with the Customer software for the automatic management of the entire stacking area. The rear axle is provided with a patented suspension system, making the Belotti Reach Stacker extremely stable. The operator cabin will be developed directly by Pininfarina Design, and it will be outfitted with modern electronic systems for easy operation and maximum safety. The steering wheel has been replaced by two modern joy sticks, which allow a better comfort of operation and a complete front visibility downward. The ergonomic driver seat is fully rotating together with the onboard instrumentation, designed to ensure perfect control of the machine in every position. The Reach Stacker will have impressive speed, as the manufacturer claims it is more than twice a s fast as any unit on the market. In addition, it has the capability of stacking 9.5-ft. containers on second row 5 high (while 6 high on first row).

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Chartco: The Best of Both Worlds

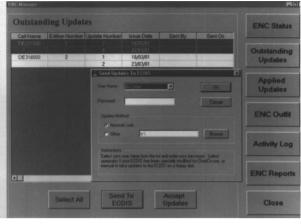
Created just three years ago, Chartco embraces a small company's flexibility and innovative attitude but is supported by a big company bankroll. Dr. Andy Norris, Chartco's managing director, recently spent some time with MR/EN to discuss the present and future of electronic charts.

The realization of electronic charts replacing their paper brethren has been slow in coming, to say the least. For a number of technical, political and economic reasons, the fight to develop and implement a universally acceptable solution and standard has yet to be accomplished. This is not to say, though, that tremendous strides have not been taken, as the quantity and quality of electronic charting products and systems has grown exponentially in recent years.

Despite the numerous stops and starts, Dr. Andy Norris, managing director of the dynamic U.K.-based company Chartco, believes that the tide is surely turning and acceptance of the new technology is now, as the technical specifications are done and type approval for the equipment is imminent. In fact, Norris predicts that between 2002 and 2005 there will be a big push towards electronic charts, and that by 2007 electronic charts will have displaced paper charts in terms of maket share.

Chartco is a global broadcaster of marine information via satellite, launched in 1998 to broadcast updates for paper navigation charts to ships using the Inmarsat satellite Point to Multi-Point service. The company is small by many accounts, yet it is jointly owned by two corporate heavyweights; Smiths Group (which also owns Kelvin Hughes) owns 60 percent and Fugro owns 40 percent. At the helm, Norris delivers a careers of technology expertise, including eight years as the technical director of Kelvin Hughes.

In addition to its broadcast of chart updates - a crucial service which helps vessels comply with international standards, for example, by enhancing crew time management (STCW), and by providing a chart correction audit trail - the company has added a number of additional informational products for broadcast to ships at sea. For example, services now include packages such as MetManager weather forecasting and routing service. At the recent NorShipping exhibition



in Oslo, the company also announced an agreement with Norway's Primar that allows ChartCo to provide updates to ENCs over its Inmarsat satellite broadcast service, direct to vessels at sea. The new service, dubbed oceanXpress, delivers updates to electronic charts for use in conjunction with Electronic Display and Information Systems.

The introduction is viewed as particularly significant because it ushers in the movement towards full adoption of electronic navigation charts at sea. The full operational service, following proof of capability via shore-based and sea trials, was scheduled to commence this month.

Primar is a European collaboration between national hydrographic offices that was set up to provide mariners with an official Electronic Navigational Chart service as sson as possible. Denmark, Finland, France, Germany, The Netherlands, Norway, Poland, Portugal, Spain, Sweden and the U.K. have all agreed to supply their S57 Ed. 3.0 ENC data through the European ENC Coordinating Center, or Primar.

Chartco has also expanded its product offering to include daily and weekly news services onboard ships at sea. "The matter of getting and keeping crew is critical, and the small cost of offering e-papers is modest, and need," said Norris." The electronic paper, though, is simply "toes in the water" as far as crew entertainment is concerned, and Chartco evidently has plans to expand its offering again in the future.

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U.S. ENC Availability Starts To Gain Speed

It is no secret that acceptance and incorporation of electronic charting systems has been more widespread in Europe than in the U.S., as European governments and commercial organizations collectively have worked more diligently together and built and maintained a lead in this area. The gap, however, is closing, as the era of the electronic chart is quickly arriving in the U.S.

In a recent Advance Notice of Proposed Rulemaking (ANPRM), the U.S. Coast Guard announced that it is considering the feasibility of allowing commercial vessels to use electronic charting and navigation systems as their primary means of navigation in U.S. waters. It would have to meet ECDIS standards as supplied by the IMO. In the ANPRM, the Coast Guard proposes that vessels equipped with electronic charting equipment meeting the IMO standards be exempt from mandatory compliance with the requirements for paper charts and navigational publications in 33 CFR part 164. Comments on the ANPRM were accepted up to July 2.

The National Oceanic and Atmospheric Administration, NOAA, announced that beginning July 15, the agency will distribute digital Electronic Navigational Charts (ENC) of U.S. waters on the Internet.

Initially, the charts will be prototypes of the nation's 40 major ports that will not be supported by regular updates, but as resources become available, the site's coverage will be expanded. NOAA's National Ocean Service (NOS), which is spearheading the project, does not intend to limit access to the ENC, but is planning specific procedures to satisfy chart carriage requirements mandated by SOLAS and the U.S. Code of Federal Regulations. Users can access the charts at www.chartmaker.nos.noaa.gov. Also, the New Orleans District U.S. Army Corps of Engineers announced the release of new electronic navigation charts (ENC) on the Atchafalaya River. The Atchafalaya river ENC comes in three parts, and available free is for www.mvn.usace.army.mil/eng/s-57/atchafalaya.asp

"The Corps' goal is to make river ENCs as readily available to our customers as GPS receivers are

(Continued on next page)

Corpus Christi - Sept. 11th -

The Lift Boat GULF ISLAND V, a 3-legged jack-up, sank off Corpus Christi, Texas. The vessel sank in 100 feet of water on to her port side with half her deckhouse beneath the sea bed.

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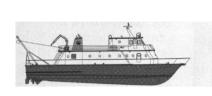


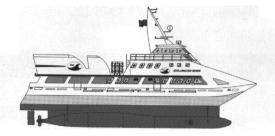
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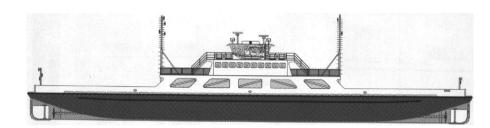




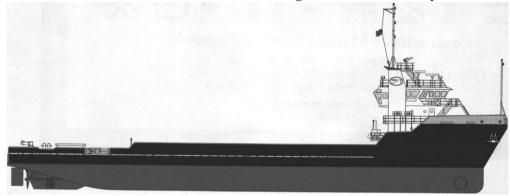
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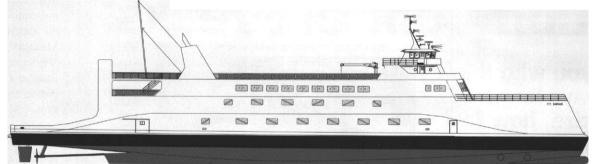
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Marine Electronics: Charts

today," said Mark Nettles, a New Orleans District cartographer.

"To that end, the New Orleans District's Website will provide free and easy access to current and future river ENCs."

PMI To Train CMS Tugboat **Operators On ECDIS**

Gregg Trunnell, Director of Pacific Northwest Maritime Institute (PMI), announced that Crowley Marine Services (CMS) has appointed PMI to train

its Seattle based crews in the operational use of Electronic Chart Display and Information Systems (ECDIS). The 16hour instructional course will be given over a two day period and will train CMS deck officers in the basic functions of Transas Marine's NaviSailor 2500®. CMS will continue to install Electronic Chart Systems on their vessels over the next five years. In December 2000, the USCG granted approval to PMI for a 35-hour ECDIS Course, the first such

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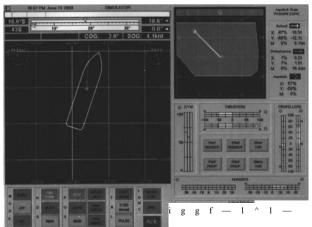
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approval in the country.

U.S. Coast Guard Is Going Paperless

Marine Electronics Solutions, Inc. (MES), the supplier of all the navigation and external communications equipment for 50 US Coast Guard Protector Class cutters being built at Bollinger Shipyards, has confirmed: "The U.S. Coast Guard issued an all Coast Guard message that sanctions the use of the Marine Electronics Solutions, Inc./Transas NaviSailor 2400 ECDIS for paper-less navigation."

MES' ECDIS solution includes more than 7,000 Transas full content vector charts in the master as well as backup ECDIS stations. The master station is located in the bridge console while the backup station is located on the, now "obsolete," chart table. In addition to using the system for paperless navigation, the crews also utilize the playback feature with primary and secondary tracks, radar overlay and acquired targets. Marine Electronics Solutions, Inc. trains each crew in the usage of the Transas NaviSailor 2400 ECDIS two weeks prior to the delivery of each vessel to the USCG

Polar Tanker Chooses C-MAP

Polar Tanker, Inc. selected C-MAP's electronic chart database, CM-93® Edition 3 along with Raytheon's Pathfinder MK2 ECDIS for the Tanker Endeavor, a millennium class double-hulled crude oil carrier. Eric James, Operations Manager for C-MAP/Commercial said, "Perhaps one of the most powerful features of CM-93 is its ability to perform online updating via an Internet connection. CM-93 charts may be updated by an automatic procedure based on electronic Notice to Mariner corrections sent to the user via the Internet." C-MAP's CM-93 is distributed in a highly compressed format requiring only one CD for the entire world. It has been designed to be compliant with S-57 Edition 3.0, the international standard issued by the IHO defining the format and contents of electronic charts for use with ECDIS. C-Map also added to its family of OEM chart plotter manufacturers. With the introduction of its C-MapNT compatible CND (central navigation display) GPS/chart plotter, Brookes & Gatehouse (B&G) become the 38th chart plotter manufacturer worldwide to select C-Map.

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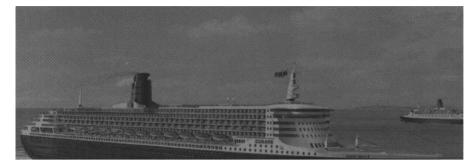
Kelvin Hughes Bridge Chosen For Queen Mary 2

Kelvin Hughes has earned its way onboard the most prestigious current cruise ship newbuild project. Cunard selected Kelvin Hughes' fully integrated bridge system is to be installed on board its eagerly anticipated new flagship, Queen Mary 2.

At over 1,132 ft. (345 m) long, Queen Mary 2 will be the largest passenger liner ever constructed. Construction is due to commence in January at the Alstom-owned yard, Chantiers de l'Atlantique in Saint Nazaire, France, which has had a key role in the equipment specification process. She is expected to be launched in 2003.

Kelvin Hughes will supply a flat screen bridge system comprising eight screens from which Queen Mary 2's navigation systems, radars, dynamic positioning system, engine monitoring capability, can be controlled.

"This is going to be the most spectacular ship in the world and we are absolutely delighted that our technical excellence, tailored design specifica-



Cunard's new flagship will house a bridge outfitted by Kelvin Hughes.

tions and world-leading abilities, have been recognised by two internationally important marine businesses," said **Ron Nailer**, Kelvin Hughes' Managing Director. "The prestige that we derive from receiving this contract is invaluable, as we continue to develop services and equipment to meet the needs of the cruise ship sector."

"The Integrated Bridge System will be

a crucial component for operating the next great Transatlantic Liner," said **Gerry Ellis,** Cunard's Manager of New Builds. "Cunard Line has a long association with Kelvin Hughes and we are very pleased to be working together again."

Kelvin Hughes will begin work on the bridge in September 2001 when construction of Oueen Mary 2's hull is due to begin. The top-end navigation system is scheduled for installation the following year.

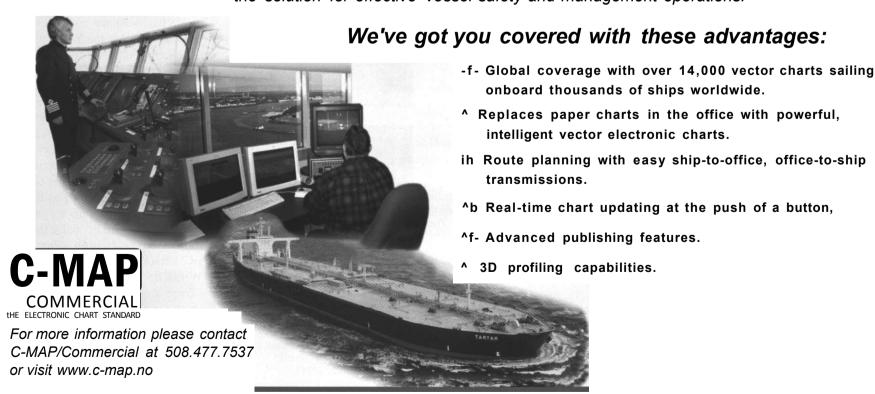
The new cruise ship will boast a full suite of Kelvin Hughes products, including the Kelvin Hughes Nucleus 7000 ECDIS & ARPA Displays. The bridge display system comprises of eight 23.1-in. TFT workstations, having two at two separate conning positions on the main bridge console and two at each bridge wing station. The design philosophy allows the displays to be configured in a manner similar to the KH "Manta" integrated display system, allowing the screens to be fully user selectable to display any function at any position. The primary functions on these displays will be:

An IEC61174 type approved ECDIS display system, which can be used in two modes, ECDIS and Conning Display, with the option of CAAS whilst in Conning Display mode.

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Marine Electronics: Charts

Raytheon To Supply T45 With IBS, Nav Package

Raytheon Marine GmbH won the contract with Raytheon Systems Limited U.K., to supply the Navigation suite and Integrated Bridge equipment, for the first batch of the new Type 45 Anti-Air Warfare Destroyers. Raytheon, in close partnership with the U.K. PCO, will develop this opportunity to promote the Navigation and Bridge systems as a leader in state-of-the-art, fully integrated and innovative integration technology. Raytheon Marine, Kiel is responsible for the complete supply (Hard and Software) of all Navigation System equipment, and the development and subsequent supply of major components



physically integrated Bridge. Raytheon Systems Ltd. maintains leading tasks in the Program, and ILS Management.

IBS Innovation

The contract with the PCO is a major step forward in developing the first fully Integrated Bridge ever designed into a British Royal Navy Warship. Raytheon, in close partnership with the PCO, will design, install and integrate a fully operational bridge covering everything from re-configurable displays to the Captains

Raytheon has developed the initial 2 and 3-D models and is currently preparing a virtual reality simulator to allow the Design authority and the MoD to fully participate in the interactive approach to the design.

Electronic Charts

All sea charts are stored on the Chart Server/Compiler in (W)ECDIS SENC format which minimizes the compilation time on the Multi function Consoles working in (W)ECDIS mode.

The Chart Server/Compiler is the only Chart base within the Navigation system. This ensures that there is only one valid chart version in the system at any one time. Preplanned routes for track steering are also stored as a single source on the Chart server/Compiler. The system uses two exchangeable hard drives, one containing the standard ECDIS based commercial sea charts and the other contains the Warship Tactical data charts.

The Chart Server/Compiler is able to compile the following chart formats: S57, Official IMO Standard; NIMA, Nato Standard; C-Map, Industry standard; ARCS, British Admiralty standard. To provide radar overlay on (W)ECDIS, the Multi-Function Consoles are equipped with Radar Scan converters and are connected to the Interswitch & Video distribution Units of the Radar system. Additionally the ARPA Tracks synthetic constructs from all four ARPA trackers can be indicated on the (W)ECDIS Multi-Function Consoles.

There are 6 Multi-Function Consoles which can run in ARPA, ECDIS, or (W) ECDIS mode. Four are integrated into the Bridge, one is located in the Chart House and one in the OPS room.

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Enhanced Safety and Operating Efficiency

IBS is a comprehensive bridge system developed by JRC with three aims: energy conservation, reduced labor demands, and greater safety. A host of unique electronics technologies—in fields ranging from radar, ECDIS and navigation data display to IRCS and INMARSAT—contribute to enhanced safety at sea with significantly lighter demands on the steersman.

O SJD-1206 **IRCS Workstation**

With this one workstation it is possible to operate a multitude of radio communication facilities. A user-friendly design ensures easy operation by all operators.

OJMA-9800 Color ARPA Radar

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

© JAN-3598 **ECDIS Total Navigator**

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



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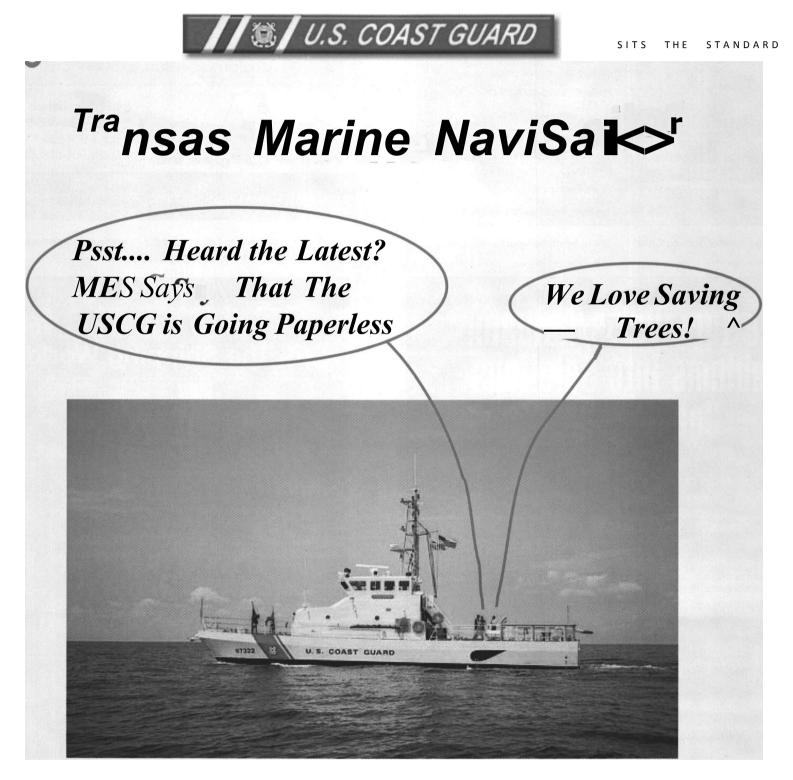
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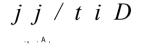
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RIB Technology Makes Stronger, Faster Boats

The business of building better Rigid Inflatable Boats (RIBs) is a serious one. which utilizes and combines some of the world's most advanced materials technologies. Comptetion in the market is stiff, as manufacturer claims and counter claims would indicate.

The RIBs of today are finding themselves used for a much wider spectrum of duty than perhaps just five or 10 years ago, due in large to advances in design, performance and load carrying capabilities. Manufacturers have invested many hours and dollars to ensure that today's RIBs are constructed of increasingly better, stronger materials that enable them to dutifully perform the rigorous duty that owners demand.

A perfect example of how the use of RIBs has spread is seen in the U.S. Navy's procurment of the boats for use in mine sweeping operations. The USN has developed a method that involves a Sokorski helicopter towing a catamaran sea skid equipped to detect and detonate mines. Each helicopter and sled unit is accompanied by a pair diesel-powered RIB. The RIBs tow the sled when disengaged by the helicopter and act as general support vessels. The 24-ft. (7.3 m) RIBs had been powered with 165 hp diesels powering Duo-prop outdrives. The new vessels are propelled by Cummins Engines powering Konrad drives.

AB Inflatables is a good example of how the RIB market has expanded, as it has recently sold vessels capable of military duty and for service far offshore. The company offers a wide range of products — six product lines in all encompassing both rigid-hull (RIB) and foldable inflatables. The RIB lines include the lightweight Ventus models, luxurious Nautilus tenders, sporty Oceanus runabouts, versatile Navigo tenders and tough, aluminum-hulled Lammina boats. A recent boat built for Sea Tow craft is a modified Oceanus 7.40VST RIB inflatable. This 24-ft. quick-response boat now cruises the Ft. Lauderdale-area waterways seven days a week for 16 hours a day, towing stranded craft ranging from dinghies to 100-ft. yachts. It also performs rescues up to 35 miles off shore. To help the boat in these tough situations, a powerful, 200-hp outboard was installed on the transom. AB Inflatables altered the 7.40VST's standard 79-gallon fuel tank to take 105 gallons, allowing the boat to make longer trips more quickly and easily. AB also installed an enlarged light arch that supports halogen floodlights, emergency flashing lights and radio antennas.

The boat that AB developed for the Venezuelan army was also a modified 7.40VST. To meet the army's needs, AB designed and built a boat that includes three gun turrets and is suitable for transporting armed soldiers quickly and safely along rivers and coastlines to protect their territory against drug trafficking and other offenses.

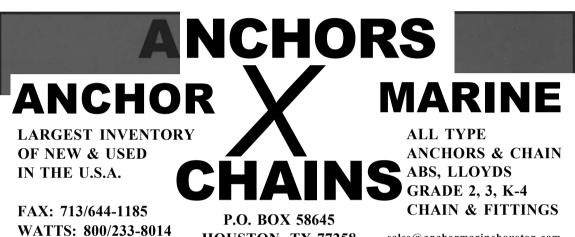
AB will be introducing a 28-ft. Oceanus 8.50VST shortly.

Another manufacturer, albeit a relatively new one, which has made its mark by offering advanced technological solutions is **Dominator**. Dominator offers hulls in aluminum — or for those requiring no radar signature — hulls in carbon fiber. Dominator is working with aleading U.S. armorer to create fast, virtually unsinkable RIBs. Dominator's concept is a 20-ft. hull, a 25-ft. hull, and a 36-ft. hull as standards. Dominator

will also build per a client's specific request, as long as it passes the company's marine architect's review. Dominator RIBs are engineered to provide rides that are dry, and not only easily handled in very rough water, but a ride which is very easily at high speeds in that same rough water.

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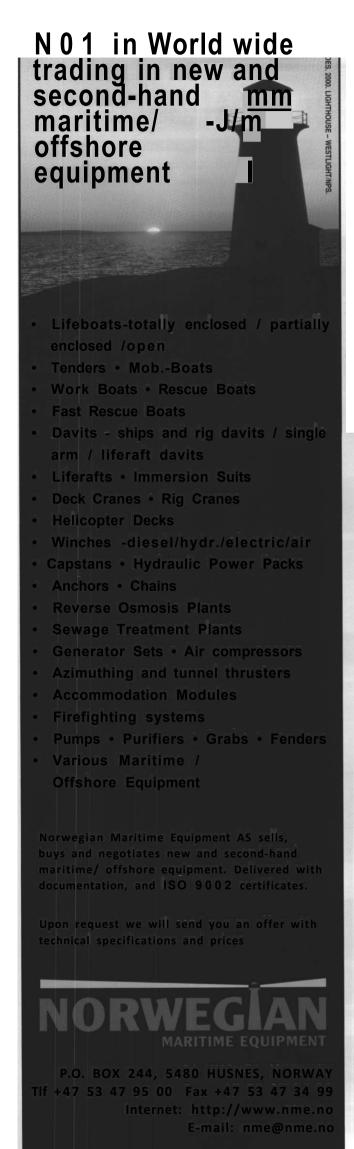
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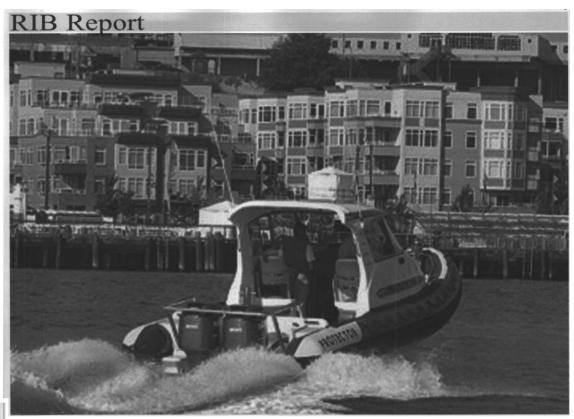
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A Protect Dr 28.

in almost any kind of water," said Captain Troy Waters, principal of Effensachs Marine of Hollywood, "and do, so we needed a tough, seaworthy boat with a group of useful mounts to take move footage on the water." Northwind Marine answered this unique casting call with its latest Extreme Rigid Hull Inflatable (RHIB) is designed to be a rugged, aluminum boat that movie and TV producers can send out to carry a boom-mounted camera and other production gear in the roughest conditions. The 34-ft. (10.3-m) vessel packs a lot of equipment and can provide seating for 26 passengers as a crew or support boat. It sports a pair of 250-hp Yamaha outboard engines to drive the vessel to 45 knots. Capt. Waters operates 19 different boats, but contends that his newest vessel is "larger, faster, and more heavily built than our other boats." He is a licensed mariner who worked on commercial vessels before becoming involved with his current business.

Constructed of marine-grade aluminum in accordance with USCG subchapter T requirements, the boat received an extra strong deck on which to attach heavy equipment. The boat also carries special "speed rail" fittings for mounting a variety of production equipment. The boat is completed with a 3.5 kW Kubota generator, Standard Eclipse VHF radio and a Raytheon Pathfinder GPS/Radar/Chartplotter. Northwind Marine builds a range of Extreme RHIBs from 17 to 50 ft. The RHIBs use poly urethane sponsons from Wing Inflatables of Areata, Calif.

Smoothing Out the Waves

As RIBs are being used in increasingly rough waters further from shore, quality and stability of ride have become even more critical factors in selecting the appropriate solution. **Ocean Technical Services Inc. (Otech)** is a full-service shipyard and RHIB manufacturer located in the New Orleans metro area. The company's Ocean Sprint RHIB's unique hull is designed for exceptional performance, as the deep-vee hull flattens to a delta conic planning curve at the transom and con-

tains a series of concave spray chines that run the full length of the boat. Taken together, it is designed to provide a dry ride with exceptional handling in rough waters. The design was actually originated by Crompton Marine Ltd., who offered the design after 18 years of experience with RHIBs in the hostile North Sea conditions. Licensed by Crompton, Otech has modified the series to incorporate a molded deck and quick tube replacement system. The inflatable collars are manufactured for Otech by Henshaw Inflatables. The company's 23 ft. (7 m) RHIB can accommodate power up to 300 hp, carrying up to 20 crew and passengers, or a maximum load of 3,890 lbs. It features a fire retardant fiberglass hull and deck, and a quick change attachment system for easy tube replacement. The 7 m units, after considerable modification, were recently put on sea trials by the U.S. Navy, which will be purchasing an undisclosed number of boats for shipboard use.

The Revenger line of RIBS is also geared to handle the roughest of conditions in the smoothest of manners, based on a proven raceboat design. The deep-vee hull together with three wide spray rails is designed to offer superb tight handling, smooth rides and impressive speeds. All Revenger RIBS offer a solid manufacture, complete with longitudinal stiffeners, encapsulated in GRP running the full length of the vessel and supporting the bottom spray rails. In addition, a substantial transverse frame (also encapsulated in GRP) supports the hull's longitudinals, and an isophtalmic gel coat surface provides excellent resistance to osmosis. Revenger currently offers four models, the 23, 25, 29 and 34.

Willard Marine, Inc. offers a full line of commercial Rigid Inflatable Boats (RIBs); SOLAS (Safety of Life at Sea) approved and offered through GSA (General Services Administration). SEA FORCE RIBs are designed to act as a Fast Reaction Rescue and Boarding Boat that may be

(Continued on page 52)

Zodiac: From Flying Machines to RIBs

Zodiac has a unique history rooted in inflatable airships, dating to 1879 when a Frenchman made a maiden balloon flight that changed the course of his life forever. **Maurice Mallet** in 1896 founded the company that later became Zodiac.

Today, Zodiac is one of the world's premier manufacturers of inflatable and

rigid inflatable boats. The company's RIB line includes the Yachtline 1 RIB, Yachtline 2 Deluxe and ProJet series. The Yachtline 1 buoyancy tubes look great in white and serve to protect a yacht from damage when it is moored alongside. Using a moderate V-hull, planing is quick and easy, even when fully loaded. The YL2 range is a com-

fortable, well equipped tender. Designed to be craned aboard, they have a compact profile ensuring a minimum of inconvenience when stored. The ProJet 350 offers both the security of a semirigid and the verve of a jet. The inflatable tube guarantees floatation and stability. The Yamaha 83 HP jet engine takes full advantage of the rigid hull. Its

light weight, 250 Kg., means it can be handled by a crane.

All Zodiac boats have a number of signature features, including: Thermobonding, a robotized hot assembly technique originating from the aeronautical industry; Strongan Duotex, a high performance fabric, exclusive to Zodiac, Strongan is a third generation plastomer which bonds impervious inner and outer layers to a dense polyester support cloth; Internal bulkhead, totally sealing one compartment from the other, its conical floating shape equalizes the pressure between them; Towing rings, oversized, stainless steel, towing rings capable of handling pulling forces of up to 1/2 ton; Semi-recessed valve, patented by Zodiac, this system provides for quick inflation/deflation, allows easy adjustment of the pressure, is doubly airtight and well protected against sand and other debris; and Inflatable keel. Patented by Zodiac, this additional air chamber situated between the floor and the bottom creates a hull shape giving secure, comfortable handling characteristics.

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The Lap of Luxury

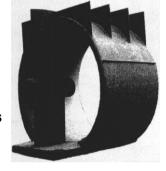
Florida-based Novurania manufactures an extensive array of boat, which more than adequately serve the diversity of yacht owners the world over. The company prides itself on top quality, and credits its laminating process — a five-ply hypalon fabric — for providing unsurpassed structural integrity. Its deep-vee hull helps to cut through the water with impressive speed; its distinctive bow flare deflects spray and widens deck space; and the wide inflatable collar



helps provides a stable ride. The company's Equator Series of boats includes seven models, including the new Equator 730, a 26-ft. (7.9 m) luxury tender able to carry 13 people. The new boat offers a long list of standard equipment, and is available in I/O diesel, I/O gas or OB engines. A matching pair has already been delivered to the 183-ft. (55.7 m) Barbara Jean.

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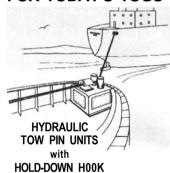
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RIB Report

Willard Marine, MetalCraft Inc. Launch Hybrid Aluminum/FRP RIB

Willard Marine Inc., and MetalCraft Marine Inc., have launched and tested the first Aluminum/FRP hybrid RIB. The new development is also the first identical standard U.S. Navy 730 hull

ever built in aluminum. Coupled to the heavy duty MetalCraft built aluminum hull is a standard one-piece, molded FRP deck assembly by Willard Marine.

The MIL spec'd FRP deck provides a

durable and low maintenance interior finish and the molded shapes only available with FRP production. Other advantages found with the FRP deck are lower costs of production and noticeable sound deadening qualities. The tubeset surrounding the boat is 40 oz. of Polyurethane fabric by Wing Inflatables, which offers greater abrasion resistance than Hypalon or PVC. Wing also produces a foam version of the collar.

The boat is powered by a 300 hp Yanmar diesel engine and Mercruiser Bravo One drive. The boat achieved in excess of 55 MPH in a 1-2 ft. chop condition during initial trials with two crew and full fuel. The weight saving of the hybrid was considerable and Willard engineers are sure it can be lowered even further as certain structural elements of the deck assembly are now a function of the aluminum hull. A unique byproduct of the lighter weight is that the boat is not subject to a rollout in high-speed turns as the collar is higher from the water than its heavier FRP cousin. This is a common problem for RIBs as the air collar bounces off the water surface.

According to Willard's Product Manager, Bill Clark, the new concept of combining aluminum hulls with fiberglass decks, "Is the best of both worlds." It provides the most versatile platform for a wide range of customers, from towing applications to law enforcement and military operations. Willard Marine offers the hybrid boat to its government customers via its GSA contract.

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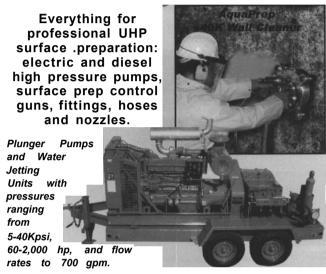
launched from a mothership while underway in critical seas. The SEA FORCE RIBs have a high level of stability in adverse operating conditions. The SEA FORCE line has been designed for the needs of Commercial, Military, Coast Guard, Rescue, Law Enforcement, Fishery Protection and Large Yacht Tenders, and are available in sizes from 18 ft. models and larger. Willard Marine, Inc. has manufactured and delivered large numbers of RIBs to the U. S. Navy for shipboard, shorebased and special operations support.

For additional information on the companies mentioned in this report, circle the number on the Reader Service Card in this edition or visit www. maritimereporterinfo. com.

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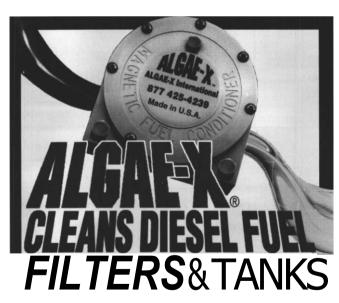
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Type 45 Destroyer Build Plans Modified

The Secretary of State for Defense announcement on the royal Navy's Type 45 destroyer was hailed as a boon for South Coast Shipbuilding, as the revised strategy means that Vosper Thornycroft (VT) will play a significant role in the Type 45 program, building sections for all ship in the

"The strategy involves a commitment now to six ships of the planned class of up to 12 ships, doubling the number on order," said Defense Secretary Geoffrey Hoon. "The new strategy gives a welcome level of stability to our warship building industry.

Alstom Snares \$65M Contract

Alstom won an order close to \$65 million to supply a Full Electric Propulsion (FEP) system for new Royal Navy Anti-Air Warfare Type 45 destroyers. The contract is for the first three vessels of the proposed 12vessel class. The order is for a range of components per vessel, including 21 MWe alternators, 2 MW diesel generator sets, HV switchboard and service transformers, VDM25000 PWM drives, 20MW 15 phased advanced induction motors, harmonic filters and an electrical power management system. "Alstom is working with Navies across the world to provide them with the best solution for their specific application," said Martin Murphy, vice president of Alstom Power Conversion's Marine and Offshore Business. Alstom provides a single-source solution in power electronics and automation.

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Solar Solve Receives Type **Approval**

Solar Solve Marine has recently been awarded type approval certification from Lloyd's Register for its innovative retractable sunscreens for ships navigation bridge windows. The screens are designed to ensure safer navigation by preventing glare, heat and UV light. The certificate was awarded after months of rigorous product evaluation and testing in accordance with the relevant requirements of the LR Type Approval System.

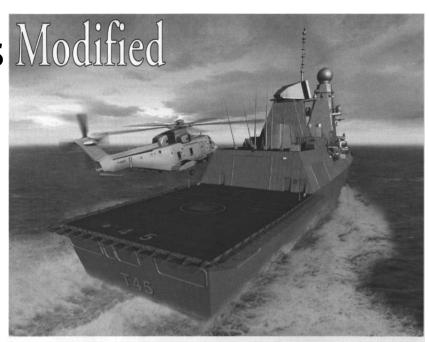
The certificate approves the Silver, Grey, Gold and Bronze film used for SOLARO-LA and SOLASAFE sunscreen and the components, which are used to manufacture the world-renowned SOLASOLV sunscreens. "Although it is not a requirement for sunscreens to be type approved, customer demand prompted Solar Solve to seek type approval," said Julie Lightfoot, managing director.

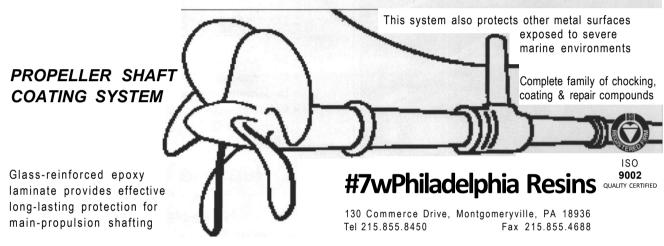
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Above all, it offers the best prospect of achieving the In-Service date for the Type 45 destroyer, with deliveries starting in

The initial batch is six vessels, and working with prime contractor BAE Systems the job will secure 650 employees in the VT shipbuilding division well into the next decade, and allow the shipbuilder to proceed with plans to invest in a new shipbuilding facility within Portsmouth Naval

It is planned that the contractual commit-(Continued on page 55)



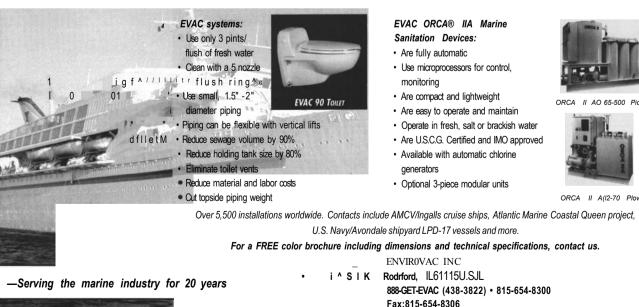


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UK Manufacturers Seek To Forge New Partnerships

Export Partnership (MEP) is a new initiative designed to assist British marine

Launched in March 2001, The Marine companies in their exporting efforts and to raise the profile of the British marine industry to potential overseas cus-

tomers. The partnership was formed under the auspices of Trade Partners U.K. (part of the British government department for trade and industry) to encourage all sectors of the U.K. marine industry to work together to promote itself overseas. The initiative is being driven by the three main trade associations in the U.K.: The British Marine Equipment Council (BMEC); The British Marine Industries Federation (BMIF); and The Shipbuilders and

Shiprepairers Association (SSA).

The initiative covers all sectors of the industry including shipbuilding and repair, marine equipment and engineering, leisure boating and ports, and terminal equipment. Though the marine business climate has been challenging in years, which the U.K. has some of the world's leading marine companies, many of which already export millions of dollars worth of goods and services each year. The partnership is designed to provide these companies with support and assistance to maintain their position in the continually changing global market place. The Marine Export Partnership aims to pull together the expertise and information needed to assist all U.K. marine companies in their exploits overseas. Since its launch earlier this year the MEP has been busy setting up a website to act as a marine sector focal point providing information on export opportunities, overseas events and market research as well as a database of British marine companies for overseas customers to access.

In order to promote British marine companies abroad, the MEP brand has already been used at a number of overseas events including Cruise Shipping in Miami; Norshipping in Oslo; TOC in Lisbon; Container Asia in Singapore; Sanctuary Cove Boat Show in Australia; and Pacific Sail Expo in California. A comprehensive British marine directory and CD-Rom will be available free of charge, to interested customers from British stands at future overseas events.

In addition to promoting the British marine industry overseas, MEP will also be arranging a number of training and networking events for British marine companies in order to assist and encourage them to start exporting or to exploit new overseas markets. Details of all these events can be found on the Marine Export Partnership website www.ukmarinepartnership.com

A number of leaflets as well as the directory and CD Rom are available by contacting the MEP either by email on info@ukmarinepartnership.com or by telephoning on*+44 (0) 2392 453351 or through the website www.ukmarinepartnership.com

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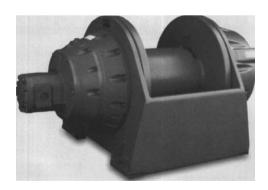
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UK Report

(Continued from page 53)

ment will be signed in September, with work starting on building the new facilities by the end of the year, in time for steel to be cut on the first Type 45 destroyer in 2003

"Although we will not be assembling the second destroyer as originally announced, this revised procurement policy provides us with longer-term security," said chief executive **Martin Jay.** "It also means that VT, with the new facilities, will be in a strong position to compete for future Royal Navy warship programs such as the Future Surface Combatant.

The Type 45 Destroyer is a new air defense warship that will succeed the existing Type 42 destroyers in service.

Cygnus Gauge For GRP Hulls



The Cygnus Ultrasonic SE gauge has been specifically designed to measure the thickness of GRP hulls and components using a dedicated 1 MHz probe which allows accurate measurements to be taken on most types of GRP from one side. The gauge can be calibrated within the velocity range of 1,000 m/s to 9,995 m/s, which covers GRP aswell as most types of engineering plastic. This means that the thickness of pipes, sheet plastic, extrusions and storage tanks can also be easily and accurately measured. The gauge is housed in a rugged, shockproof case that is environmentally sealed to IP65 and the LCD display with backlight can be viewed in all light conditions.

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The ships will be equipped with the Principal Anti Air Missile System, which is designed to deal with salvo attacks by anti-ship missiles. The ships will be powered by the WR21 gas turbine, propelling the ships to speeds up to 29 knots. The cost of the first six ships is estimated to be more than \$8 billion.



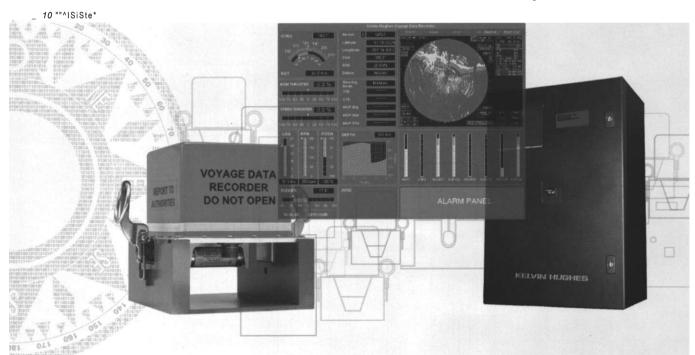
exceeding expectations

The specification of the Kelvin Hughes NDR2002 voyage data recorder doesn't just meet IMO performance standards - it exceeds them!

At the hub of the NDR2002 a data acquisition unit gathers information on a ship's systems via one or more advanced design data interface units, compatible even with older system outputs. This data is stored digitally in a tamper-proof, crash survivable module, retrievable in the event of an incident.

And, of course, the NDR2002 comes with a complete package of features and options.

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Hyundai Heavy Wins

LNG Orders

South Korea's Hyundai Heavy Industries won \$340-million orders to build two LNG carriers for Golar LNG of Norway. One of the ships will be delivered by December 2003 and the other by July 2004, said a spokesman for Hyundai. With the new contracts, LNG

orders for Hyundai Heavy have risen to six ships this year, worth about \$1.02 billion, he said.

P&O Cruises Looks

To Boost Yield

P&O Princess Cruises, the world's third largest cruise operator, said lower holiday prices would cut revenue yields

this year, but added it still hoped to boost earnings by cost cuts and lower tax rates. P&O Princess reported a slight fall in second quarter pre-tax profits to \$93.8 million from \$95.2 million a year ago, but earnings per share rose seven percent to 12.9 cents.

Lower prices led to the fall in pre-tax profits, and P&O Princess Cruises added in a statement that pricing

remained "competitive" in its key North American market, which counts for 75 percent of group turnover.

Analysts at Lazard investment bank felt P&O's international operations in Europe and Australia, where the company said its trading environment was "positive," could help offset the effects of lower yields. Lazard, which rates P&O Princess shares "outperform," added that the cost-cutting program could also boost its performance.

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S.Y. Kuo Succeeds Steve Lin As Evergreen Chairman

Captain S.Y. Kuo has been named Chairman of Evergreen Marine Corporation (Taiwan) Ltd., the shipping arm of the Evergreen Group, effective June 20, 2001. Captain Kuo, who will be headquartered in Taipei, succeeds Sunsan (Steve) Lin, who has been appointed to the new position of Evergreen Group Vice Chairman.

Captain Kuo was dispatched to the U.S. in 1974 to establish Evergreen's full container liner services between Asia and the North America market and had been involved with Evergreen in America for 25 years.

Steve Lin joined Evergreen Marine in 1974 as a junior vice president and in 1977 was named executive vice president. In 1982, he was appointed president of EMC, a position he held until being appointed vice chairman in 1988.

Seabulk's CFO Elected FICPA President

The Florida Institute of Certified Public Accountants (FICPA) has appointed Seabulk's senior vice president and CFO, Steve Nouss, as incoming FICPA president for the 2001-02 fiscal year, effective July 1. Nouss, who was elected as FICPA's 94th president, will provide leadership to the new, streamlined, 30-member Board of Governors, ensuring a smooth implementation of governance changes passed last year. Nouss has been an active member of FICPA for 15 years, serving on a variety of committees including nine times on the Association's Board of Governors and six terms on its Executive Committee.

ACO Promotes Management Positions

Abdon Callais Offshore, a marine transportation service company, has announced the following promotions: Av Verdin was elected operations vice-president; Richard Savoie, logistics coordinator, also assists with trafficking vessels; Johnny Ordoyne has joined the management team as personnel coordinator; and Kenneth Lacoste has been named marine manager.

Jeffboat Promotes Price



Jeffboat has elected Barker Price as vice president and manager of Engineering. Price, who previously served as vice president of Manufacturing Services with the company, holds a B.S. degree in Political Science from UCLA.

MTC Appoints New VP, Special Projects

Steve Collar, a veteran of Crowley Maritime, has joined Marine Transport Corporation as vice president, Special Projects at the company's Weehawken, N.J. headquarters. Collar, who most recently served as director of Special Projects for Crowley's Vessel Management Services subsidiary, will be responsible for helping Marine Transport and its subsidiary companies develop and market Marine Transport's fleet renewal and expansion projects, and will commercially manage selected vessels. He will also have a leadership role in the potential rebuilding of Marine Transport's product tanker fleet and in the expansion of the company's chemical transportation alliances with its partner, Stolt Nielsen Transportation Group.

CP Ships Strengthens Management

Frank Halliwell, who previously served as executive vice president of CP Ships, was elected as the organization's new COO. As before, he reports to CEO Ray Miles and serves as Miles' deputy, and will continue as a member of the CP Ships executive committee along with Miles and CFO Ian Webber. CP also appointed John Irving as vice president general counsel and secretary. Irving joins CP Ships from Dairyworld Foods in Canada where he was senior vice president and general counsel. Jeremy Lee was elected vice president Investor Relations and Corporate Communications. Lee, who joined CP Ships in 1989, has served in several commercial, marketing and planning roles.

Thordon For Princess Newbuilds

Mitsubishi Heavy Industries (MHI) has ordered water lubricated Thordon COMPAC propeller shaft bearing systems for two new cruise ships being built for Princess Cruises at the Nagasaki Shipyard in Japan. The two 110,000-plus ton ships will be larger than the Grand class ships delivered from Italy. In addition, the MHI ships will incorporate a gas turbine along with four diesel engines in a new propulsion arrangement.

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Alfa-Laval Wins Its Way Onboard World's Largest Liner

Alfa-Laval will ensure that Cunard's Queen Mary 2 will be self-sufficient of fresh water — minimizing oily waste for disposal, thus reducing the oil level in the bilge water so that it can be discharged into the ocean. Queen Mary 2, which is scheduled for delivery in 2003, will be built at Chantiers de 1' Atlantique for Cunard Line. The vessel will cost approximately \$700 million. The 2,620 passenger vessel will be fitted with Alfa-Laval's fresh water self sufficiency, as well as a total solution for the treatment of fuel and lube, and a system for processing oil wastes on board so that negative environmental impacts are virtually eliminated.

QM2's water consumption has been estimated to approximately 1,000 tons/day. The majority of water Circle 234 on Reader Service Card

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duced onboard is generated three Alfa Laval Multiple Effect Plate (MEP) distillers. Each distiller can produce 630 tons of water per day by evaporation of sea water using waste heat from the ship's diesel engines as heating medium.

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Honor Gear Pumps Opens U.S. Office

Honor Gear Pumps Corp., which is based in Taiwan, has established a presence in the U.S. known as Honor Pumps U.S.A. Located in Houston, Texas, the new facility will house a sales office and stocking warehouse to support local needs with a full inventory of SAE A and SAE AA flange hydraulic pumps. The company's product line features high pressure, aluminum body, bearing block design and gear pumps for a variety of applications, applications that include agricultural, mobile equipment and industrial power packs.

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LR, Cabot LNG, USCG Host LNG Training

Lloyd's Register Americas, Inc., Cabot LNG LLC and the U.S. Coast Guard (USCG) jointly sponsored a two-day training seminar at the USCG's marine safety office in Boston, Mass. The in-depth training sessions covered the important aspects of LNG vessels and their operation, including: properties of LNG; propulsion systems; ship types; gas detection; containment systems; hull design features; and ships in service.

USCG personnel from the ports of Boston, Savannah, Baltimore and Hampton Roads attended the training course conducted by John Finch, Lloyd's Register principal surveyor and LNG specialist from Nagasaki, Japan. Joseph McKechnie, shipping manager at Cabot LNG LLC provided important experience-based infor-

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Introduces Crew Vision 2001

Brad J. Wilkus & Associates, has launched Crew Vision 2001, an Internet or Intranet webbased personnel logistics database tool for use by Fleet Personnel Departments in the marine industry. The tool, which can be used for commercial shipping lines and passenger cruises around the globe, brings about an opportunity for the world's leading ocean carriers and passenger cruise lines to manage crewmembers without added paper solutions.

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ADSB Signs Agreement With Halmatic

Abu Dhabi Ship Building (ADSB) has formed a strategic agreement with Halmatic Ltd., U.K. According to ADSB's managing director, Lawrence Holliday, the agreement calls for ADSB and Halmatic to work together in the marketing and building of Halmaticdesigned vessels for customers throughout the entire Gulf region.

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Ferliship's New Ship Contracts • July 2001 • by Type

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NLB Corp.'s latest brochure demonstrates high-pressure and ultrahigh pressure water jetting for marine surface preparation, applica-NLB's new tions. HydroPrep quickly removes coatings, rust



and other tough adherents from hulls.

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www. maritimereporterinfo. **Climax Portable Machine Tools**

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. Contact Climax for complete information on these tools and an unlimited range of custom tool designs for unique repair applications.



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Barnant Company

Barnant Company offers a free 20-page catalog on its line of Ponndorf hose These pumps pumps. are available in a wide range of styles and sizes, with pumping capacities up to 108 GPM at pressures to 220 psig. These pumps feature no seals,



no check or flap valves to clog, they run dry without damage and are furnished with compatible hose to suit all customer applications. Circle 104

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Spence Engineering Company

Spence Engineering Company, Inc. is an ISO 9001 certi-^.iigBni^ fied manufacturer of pressure and temperature control JΗ valves, steam traps, conden r_J sate removal systems, pneumatic control valves and safety and relief valves. Spence

Engineering is a division of Circor International.

Circle 105

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Hamworthy KSE

Hamworthy KSE's Liquid Cargo Handling division has supplied the cargo pumping system for the Chembulk Savannah and Chembulk Barcelona, 22,000 dwt product tankers constructed at the



Spanish Naval Gijon yard for Singapore's MTM. The cargo piping system is designed for a maximum pressure of 16 bar, with automatic switch off if a valve in the discharge system is closed in error. Circle 106

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can we advise on routine medical services, such as; medical supply, inventory, and administration of medications, but also, our services include design of hospitals and/or infirmaries, selection of medical equipment, and training programs.

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which is a leading worldwide-diversified manufacturing company with three primary business segments: Automotive, Defense & Electronics, and Fluid Technol-ITT Standard ogy. was the first U.S. man-



ufacturer of heat exchangers to achieve ISO 9001 certification. A pioneer in the development of heat transfer technology, ITT Standard has been an industry leader for more than 75 years

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Presrite has always been a leader when it comes to forging. In fact, we've played a major role in turning this traditional method of metal-forming into a industry. high-tech Presrite specializes in close tolerance, mini-

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sander, grinder, pol-

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CIP Composite material is a laminated plastic material made by impregnating fabric with thermosetting resins. The physical and mechanical prop-



erties of all grades of CIP make them excellent bearing materials. CIP composites offer design engineers an attractive, low cost alternative to the traditional materials used throughout industry for bearings, wear pads and other components.

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IndianaTool-Indiana Gear

Conceived as a tool and die manufacturer, Indiana Tool-Indiana Gear has grown steadily, diversifying into many new machining services and gear manufacturing. Today, we're a second generation company with deep roots in northern Indiana. We are committed to our

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customers, our skilled co-workers, our knowledgeable field support staff and our community. As partners we work together to solve problems, reach goals, improve relationships and earn success.

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QPC Fiber Optic, Inc.

OPC designed and developed a new generation of hermaphroditic fiber optic connectors for harsh environments. The Lite-Beam Expanded Beam connector is designed for tactical field applications and features up to four fiber



optic channels for singlemode or multimode systems. Due to the protective ball lens system, the Lite-Beam Expanded Beam connector offers a very user friendly interphase and is easy to maintain in the field, www.qpcfiber.com

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WichiTech Industries, Inc.

WichiTech Industries. Inc. designs and manufactures simple, safe, reliable and valve composite packed repair systems. Our HB-1 Hot Bonder is the industry's smallest, most powerful and economical hot bon-



der for curing composite repairs. This handheld unit performs well from the workbench to the tightest spots. WichiTech accessories include heating blankets, HB-1 printer, vacuum pump, student training kit, mobile repair station and more.

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Transas Marine is a recognized leader in the development and production of modern navigation systems for the marine industry. Transas is proud of the fact that its navigational solutions are being successfully used onboard



thousands of vessels, operating worldwide. The company's customers include commercial vessels and special operations ships of different types of sizes, fishing trawlers and megayachts.

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Sherwin Williams

Sherwin-Williams Industrial and Marine Coatings group serves North America with a broad line of high-performance coatings, comprehensive technical service, and the industry's

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MAN B&W

The relatively low efficiency of steam turbine systems compared with diesel engine propulsion has for many years been accepted as state-of-theart in LNG carriers. This business philosophy has deprived the cargo owners of consid-



erable revenue from the sale of the LNG that was used for propulsion purposes.

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American Vulkan

VULKAN Couplings are world renowned for high quality, guaranteed torsional stiffness and damping capacity. Brand names include the highly flexible RATO Couplings, VULKASTIK-L, VULKARDAN-E, FLEXOMAX, and



TORFLEX. VULKAN Couplings are found on diesel engines and electric motor-driven equipment including marine propulsion, on rigid-mounted or free standing transmissions, compressors, two-bearing generators and pumps. Silicone elements are available on several couplings for high temperature applica-

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Mustang Survival

When lives are at stake, an immersion suit with the quality and performance of Ocean Commander is quintessential. Forty-five percent lighter than conventional suits, it is easy to get into and so flexible that it is ideal for abandonment procedures. In addition to the Ocean Commander, Mustang provides an array of high tech survival and protective equipment to NASA, the U.S. Air



Force, the U.S. Navy, Coast Guards, and professional users in more than 20 countries worldwide.

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Prime Mover Controls

Featuring the IMACS (Integrated Machinery Alarm and Control System), PMC's color brochure describes the various features of this system. Typical func-



tions and operator interface screens are illustrated, using screen captures from the latest vessel installations.

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Superbolt

This 22-in. thread, 34-in. O.D. patented Superbolt Mechanical Tensioner creates over 6,000,000 lbs. of bolt tension. This tensioner eliminated the long tedious process of heating the tie-rods to preload them, saving days



in installation time. Superbolt is able to handle jobs like this one, and even bigger, producing custom orders in a timely fashion.

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Thordon Bearings, Inc.

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 XL bearings with Thor Lube, a water soluble, non-polluting lubricant. Thordon's open water lubricated system choices are COMPAC, XL and composite; each offering specific advantages in different water environments.

Circle 123

Hatlapa

Hatlapa has always been — and will always be — dedicated to the shipbuilding industry. All of Hatlapa's products such as deck machinery, compressors and steering gears, derive from the



company's activities in the marine field. As an independent company with highly motivated staff who can make decisions quickly, Hatlapa provides world-wide service to any place within 48 hours.

Circle 124 www.maritimereporterinfo.com

Intercon

Intercon manufacturers a complete line of winches, hoists, ATB couplers, and customer material handling equipment for commercial and military applications. Recent deck machinery orders



include a 400 ton SLP double drum winch for Dolphin Towing's new OSV; four point mooring systems for Santa Fe's two new Jack-up Rigs; new mooring winches and anchor hoist for Maritran's barge Ocean Cities; and 27" electric capstans for Reinauer Transportation. Intercon coupler systems have also been

ordered for new ATBs under construction for Allied Transporation, Bouchard, Reinauer Transporation, and Vessel Management Services.

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To be the market leader in hatch covers requires constant and active participation in the marine industry. MacGREGOR'S number one status is proof of our commitment and the right attitude towards

customers' needs. In MacGREGOR, Hatch Covers in particular, these principles have proven to be the right guidelines for continuous success.

Circle 126

NETEC

NETEC, a product line of Jered Industries, Inc. of Brunswick, Ga., has been a manufacturer of



deck machinery for 75 years. Special service winches, anchor windlasses, mooring winches, towing winches and oceanographic winches are typical of the equipment which NETEC has provided the marine industry.

Providing equipment, which has been designed and constructed to the specific requirements of the operator, has been the hallmark of NETEC.

Circle 118

National Crane

National Crane Corporation, America's truckmounted hydraulic crane leader and a Grove Worldwide Company, has released literature that introduces its new Series 500D telescoping crane.



The 500D is a completely redesigned version of the company's popular 500C series. The new design affords greater lifting capacity, longer reach and improved overall performance. Visit www.nationalcrane.com for more information.

Circle 125

Marlow Ropes

Marlow Ropes, an approved ISO 9001 company, are worldwide leaders in pioneering the use of specialist fibers and rope constructions for the marine and offshore



industries. Our success is based on technical knowledge, understanding the application requirement and satisfying the user needs. This ensures that Marlow products are used with confidence in diverse and demanding markets. For the latest news and information visit www.marlowropes.com

Circle 130

Wesmar

Quiet and high performance power are two highlights outlined in WESMAR's new Vortex brochure. This line of thrusters introduces a new and powerful generation for WESMAR. Complete with schematics, specifica-



tions, and hydraulic information, this colorful eight-page brochure outlines the Vortex's impressive capabilities. Additionally, it's chalkfull of testimonials that were gathered from owners, shipyards and dealers from all over the world. The counter-rotating design provides 40 percent more power ensuring the ability to produce greater thrust from a smaller tube.

Circle 131

Austal USA



The newest and most technologically advanced aluminum yard in the U.S. is up and running. Austal USA, backed by the power-house of Austal Ship and the design team of the world's largest aluminum builder, has vessels under construction and the capacity and skills to meet the most demanding of aluminum vessel requirements. Austal USA is majority owned by the Austal Group of Western Australia and benefits from the experience of more than 70 high speed vessels in service, an in-house design team, a quality approach underpinning design and construction, and product support that has set the standard around the world.

Circle 132

Don't miss the boat...

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In addition, Ship's Store information is archived at

www.maritimeequipment.com for quick and easy reference.

Contact your Regional Sales Manager for information on having your company featured in this section.



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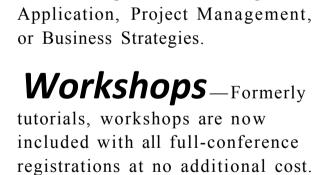
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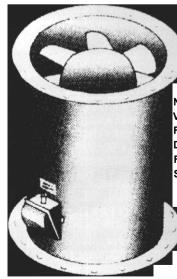
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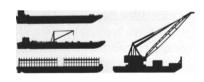
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