

March 2000

MARITIME REPORTER AND ENGINEERING NEWS

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Erika's Effects

Intertanko's Dagfinn Lunde reasons for rational response in wake of disaster

The Way of the Horse & Buggy

Paper charts are not extinct yet, but advances in electronic chart production and delivery are pushing them to the endangered list

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Bollinger's shipyards will cut costs and increase efficiencies via an advanced system from Oracle

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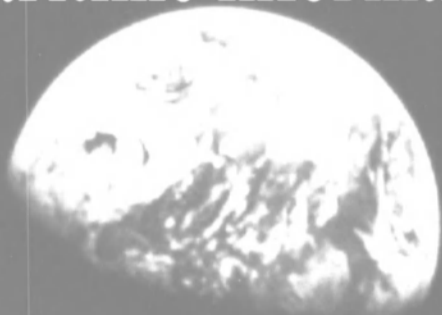
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On the Cover: This month's cover photo of the Port of San Francisco's newest floating drydock, Eureka at San Francisco Drydock, was provided by Tom Paiva of Tom Paiva Photography.

Mr. Paiva, whose work takes him up and down the U.S. West Coast, specializes in maritime, industrial and aerial photography. For information on utilizing Mr. Paiva's expertise contact him at: Tom Paiva Photography, Toll free: (888) 504-8373 Website/e-mail www.tompaiva.com

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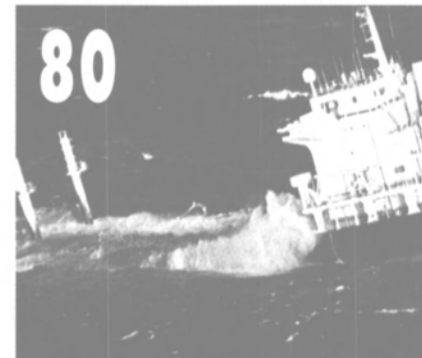
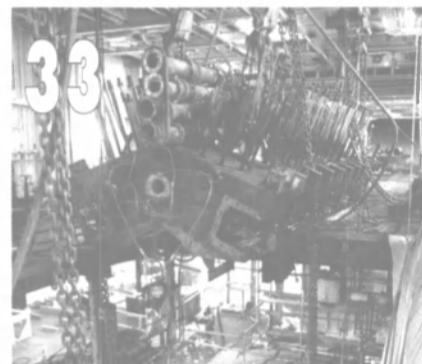
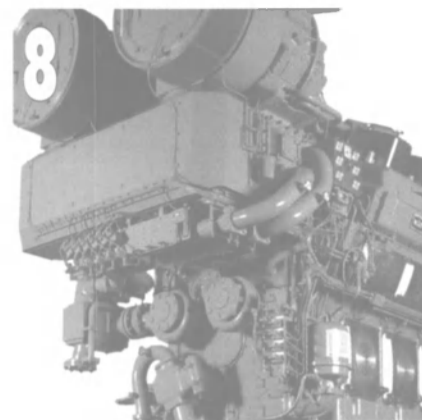
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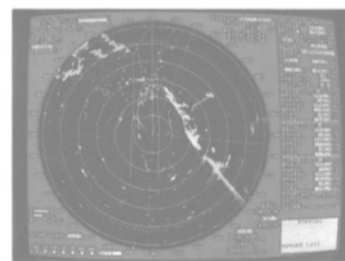
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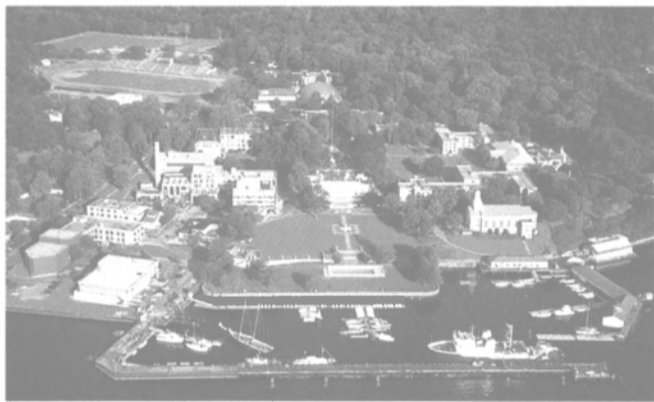
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Editor's Note

If asked to assess the level of international, national and local regulation ruling its daily operations and bottom line, most in the marine industry would undoubtedly respond "intense."

If you concur, then you're in for some bad news.

The scrutiny of maritime matters by lawmakers near and far is at a fever pitch worldwide. While pressure and visibility of the industry is always high in the wake of severe casualties, there is a perceivable difference in the tone of political and special interest group saber rattling. Real changes — "OPA 90-esque" changes — are close at hand.

Central to the current push — as discussed in these pages many times before, and I'm sure many times again — is the break-up and sinking of the tanker Erika off the French coast in December 1999. At press time, leaders from the European Union were scheduled to meet in Brussels to discuss sweeping changes which could significantly impact the way in which ships are designed, built, equipped and operated. Inter-ranko's Dagfinn Lunde, a much respected figure in maritime matters around the world, shares his opinions on the quickly evolving topic in an opinion piece on page 80 of this edition.

The "Erika effect" has already caused a jump in chartering rates, as many oil majors are opting for newer tonnage to carry their products.

While Erika has been the primary headline-grabber, it alone is not the reason for concern. The cruise market, which has sustained an incredible success run dating back to the early 1990s, is facing many serious issues as well. The handling of these issues will help to determine the course of the industry for the next decade.

Several high-profile mechanical failures on Carnival cruise ships is just a small piece of the emerging puzzle, but its dimension should not be understated. When there is a mechanical failure on any other type of ship it goes largely unnoticed by the general public — unless of course it results in an accident. But when the lives and vacations of 2,000+ people are affected, it tends to make its way quickly to the 11 o'clock news. These incidents have not, by any means, destroyed public confidence in the cruise lines. But it is starting to erode at the industry's image, which has carefully and successfully been crafted over the past decade. Fixing public perception, though, is perhaps the least of the cruise lines' worries in the coming months, as they have proven time and again to be particularly adept at marketing their valued services.

More pressing — for cruise shipping companies in particular but the maritime realm in general — is the increased attention to environmental matters. As the new emission standards in regard to diesel propulsion will attest, the focus on ships' effects on the ocean and surrounding coastal lands is growing daily. At press time the U.S. Environmental Protection Agency has cited six cruise lines for high emission levels in Alaskan waters, and questions regarding ship size and their effects on the environment is grabbing attention in the key Caribbean region. These are matters that cannot be ignored and will not simply be swept away in time.



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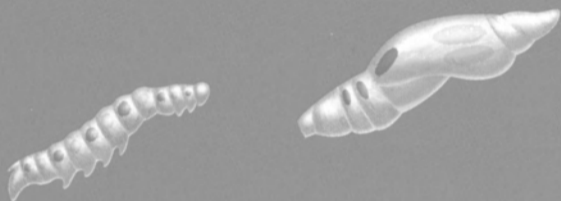
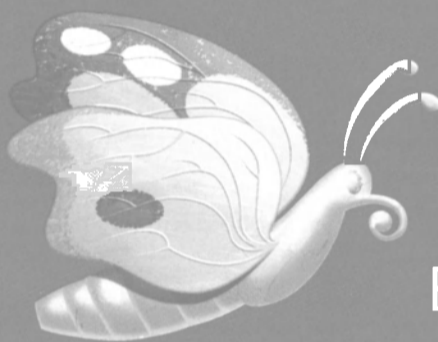
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A broader-based payback from R&D



by David Tinsley,
technical editor

Consolidation in the diesel engine building sector is partly a reflection of the substantial capital expenditure required to maintain product development and technological advance in a business characterized by comparatively low unit margins.

By spinning-off new technical solutions arising from the engine design program into upgrading and conversion packages for existing populations of machinery, the manufacturer and licensor can gain more from R&D endeavors. Complementing new engine sales, product releases aimed at plant already in operation represents another stream of payback on heavy investment in technology.

The companion effect of the strategy, of course, is the broader benefit it brings to the client market, enabling gains in performance to be readily harnessed in existing operations.

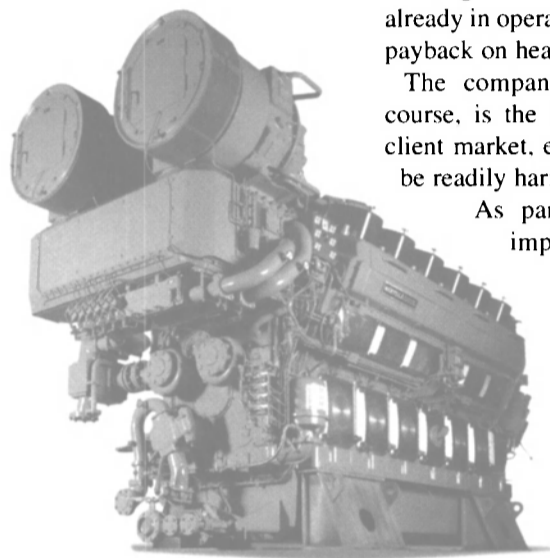
As part of the thorough restructure implemented in 1998, full-line engine producer Wartsila NSD Corporation elevated after-sales service to the status of a business area in its own right, to create a growing earnings base. Not only does the sector generate some 25-26 percent of overall group earnings, its activities and results provide a stabilizing influence in the face of volatility

in the marine and landside markets for new machinery. Under the direction of group vice-president **Tage Blomberg**, the service business area has augmented the traditional back-up activities with a dynamic approach to the development of what are termed as service products. While this is reflected in an increasing range of support agreements, to meet rapidly evolving market needs, and while it is also manifested in a growing suite of maintenance and diagnostic software, it is additionally evident in the release of technology products for modifying existing engines.

Every development of a product generates new technical solutions, improved design and optimized processes. Upgrading is an economical method of injecting new life into older engines and installations, making the advances in reliability and efficiency otherwise vested in new machinery accessible to the existing engine base. It is a concept that is attracting increasing interest from customers.

Among the latest releases are a bevy of nitrogen oxide (NOx)-reduction measures targeted at plant already in operation. Shipowners can accordingly upgrade older Wartsila Vasa 32 engines to the emissions-performance obtained with the successful Vasa 32LN design, reducing the NOx value below IMO-prescribed limits while also securing reduced specific fuel consumption. Other packages offered as retrofits are the Direct Water Injection (DWI) and Selective Catalytic Reduction (SCR) secondary methods of treatment.

In the two-stroke domain, the company also plans to make a new standard in piston-running technology available for application to existing Sulzer RTA engines. The clutch of design modifications encapsulated by TriboPack promises significant extensions to times between overhauls (TBOs), a key element being the new chromi-



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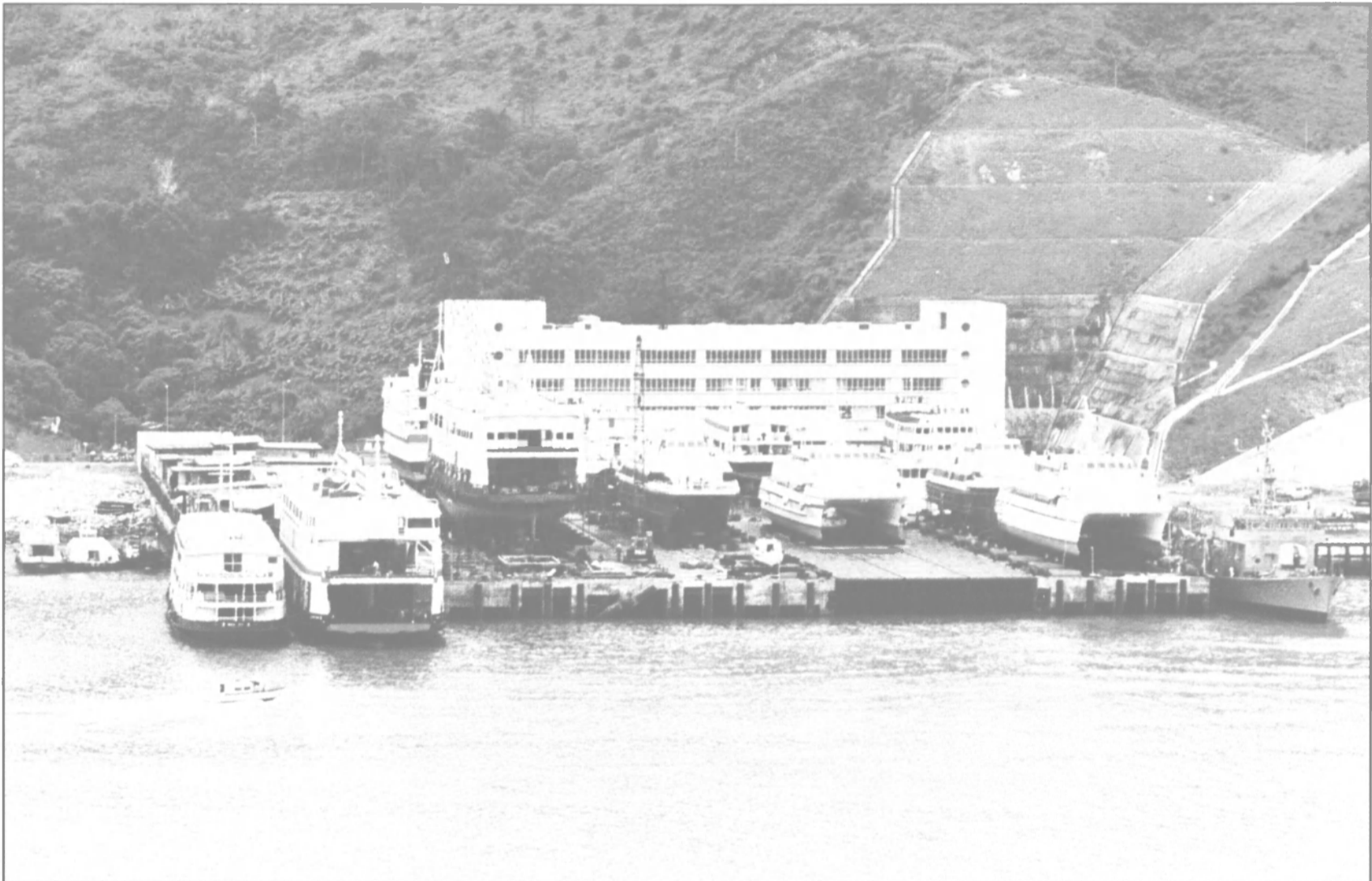


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um-ceramic top piston ring. The TriboPack improvements are being implemented as standard design changes in all newly-developed types, such as the Sulzer RTA68T-B and RTA60C low-speed models, and will also come into play on larger-bore RTA machinery and progressively also as a retrofit package.

Carnival, Wartsila Clearing The Air

As the world's cruise lines grow exponentially larger and are increasingly falling under the gaze of environmental and regulatory bodies, the push to ensure that ships are run safely, efficiently and environmentally sound gains new importance each day. The world's largest cruise ship company — Carnival

Corporation (CCL) — has hooked up with one of the premier builders of marine diesel engines — Wartsila NSD — to develop a smokeless diesel-electric propulsion system for cruise ships.

Code-named "project enviroengine," prototypes of the new engine are expected to be available later this year for laboratory testing and are expected to be

available commercially in 2001. Following successful completion of testing, Carnival plans to utilize those engines on its future newbuilds.

According to Captain **Jim Drager**, Carnival's vice president of corporate shipbuilding, when complete, the enviroengine, installed in a diesel-electric propulsion system, will be one of the most environmentally friendly power plants available for ships. "We have studied the attributes of gas turbines, which we are considering installing on several Carnival Corporation newbuilds now under contract, but still believe that eventually our current diesel-electric systems can be as environmentally friendly as gas turbine alternatives," he said. Drager pointed out that because of efficiency, diesel-electric systems are far less taxing on precious fossil fuel assets and also emit substantially less carbon dioxide to the atmosphere, which is the number one contributor to global warming.

According to **Daniel Paro**, Wartsila's group vice president - technology, the enviroengine is being created by combining "common rail technology" with a direct water injection system. Common rail technology uses an electronically controlled method to inject the precise amount of fuel at exactly the right time, resulting in greater engine operating efficiency and virtually eliminating smoke emissions.

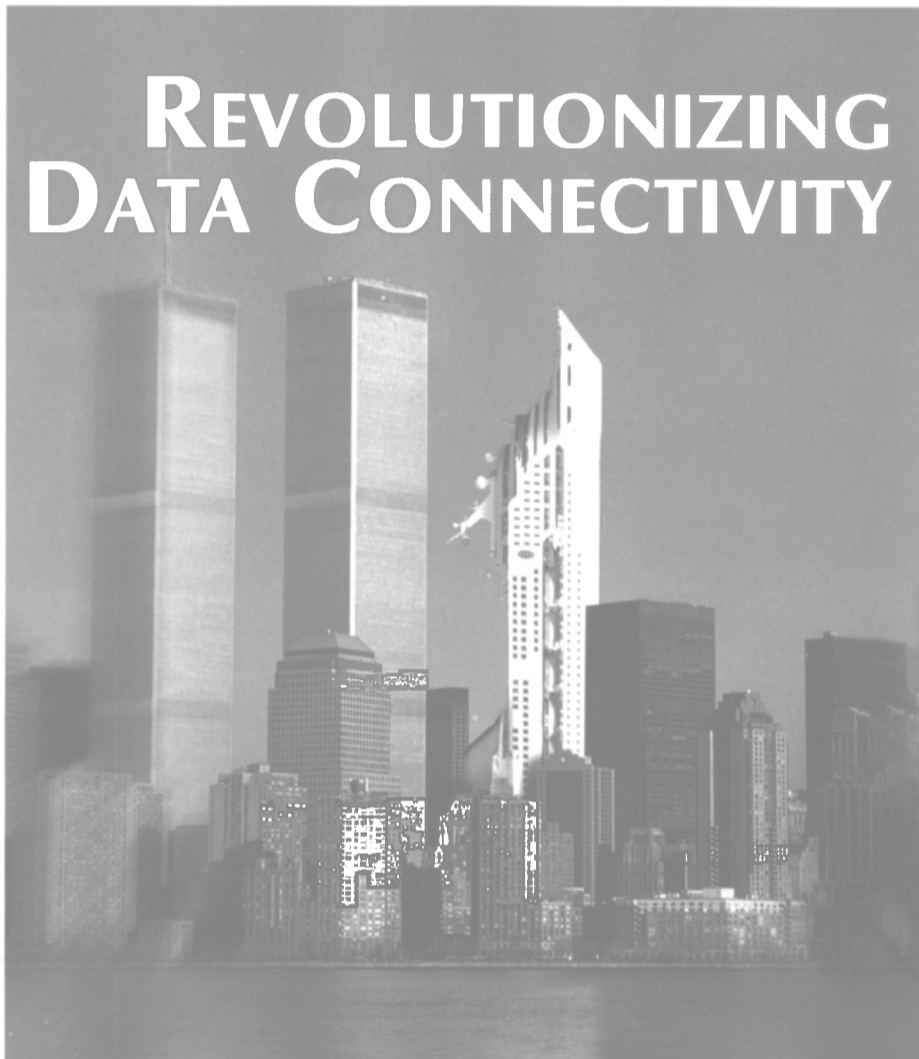
Direct water injection reduces nitrous oxide emissions by spraying water into the combustion chamber to cool it down immediately prior to injecting the fuel. Cooling down the chamber reduces nitrous oxide formation, which occurs at high temperatures. This method reduces nitrous oxide emission value to the same level as gas turbine engines.

Paro said, "The cruise industry has made its desire to have the most environmentally friendly ships sailing the seas well-known to its suppliers, and we are happy to have Carnival working with us on this exciting development. Since the mid-1980s, Wartsila NSD has spent more than \$100 million (U.S.) on emission reduction research." He added that Wartsila will have spent more than \$10 million (U.S.) on the enviroengine development before the prototype testing models are even built.

Drager said that in addition to being utilized on future newbuild orders, power plants on several vessels currently under construction, including Carnival Cruise Lines' "Spirit-class" ships and the Costa Atlantica, could be converted to the enviroengines. Additionally, Carnival plans environmental conversions on several of its existing vessels, including Holland America's Alaska-based ships.

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Investment in Design

"Direct water injection technology, and the smokeless feature of the new enviroengine once perfected, will provide substantial environmental advantages," Drager said.

Delivering the technology

A more commercially-inspired approach to the crucial subject of

research and development can be expected to ensue from the dramatic reorganization set in train at Lloyd's Register. Prompted by the past few years' sharp deterioration in financial results, chairman **David Moorhouse** has instituted a far-reaching overhaul and streamlining of the society. His immediate aims are to rein back losses

averaging out at \$3.2 million per month, and reach breakeven by 2002.

Major cuts in the central establishment, much increased regional control and enhanced operating flexibility and customer responsiveness are cornerstones of the program. Moorhouse, though, is acutely conscious of the need to maintain a vigorous R&D program

and ensure the capability to offer clients 'added-value' through technological prowess, at a time when every element of internal cost is being scrutinized.

In recent years, the R&D endeavor in its manifold forms has consumed some \$12.8 -14.4 million annually, the bulk of which has involved the maritime disciplines. While there is a sustained, high-level commitment to research, the shape and composition of the program in the future will be determined by closer scrutiny of the application scope for the technology concerned, and by consideration of prospective results. The indications are that efforts will be far more results-oriented than in the past.

Most importantly, LR's accent on improving the way in which it delivers service to its customers, as manifested in the new organizational framework, should ensure the increased effectiveness of technological efforts. Significantly, R&D activities will be ultimately overseen by the director in charge of the newly-created marine business stream.

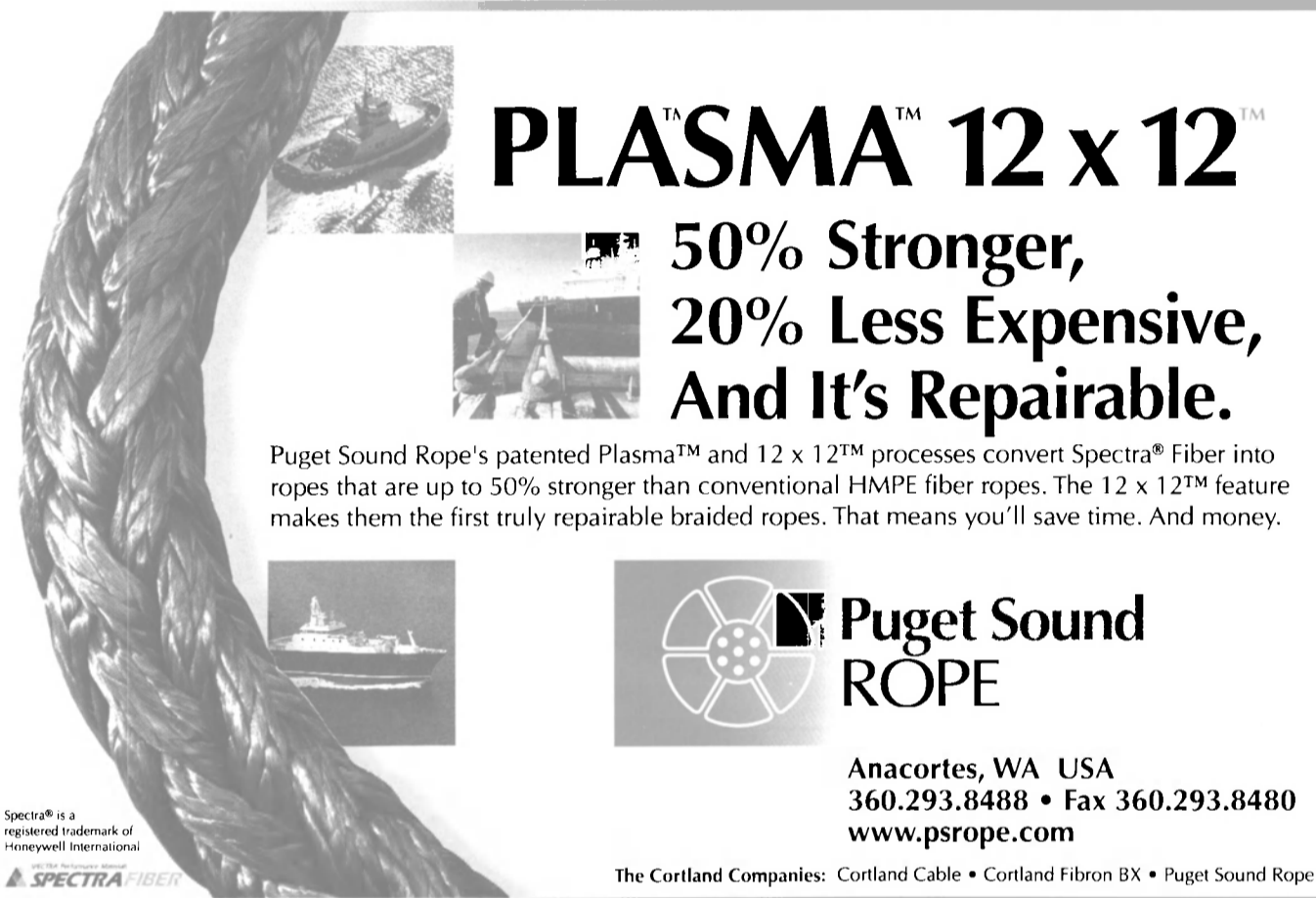
Concerns at the sharp end

The trend towards generally faster mercantile vessels, coupled with design evolution, calls for closer attention to the structural integrity of ships' forebodies. Classification society Germanischer Lloyd brought in tougher standards for containerhips last year, in the light of an increased incidence of forebody damage, while the Europe Union-sponsored Dextremel research project is addressing the effects of extreme waves on foredecks and bow doors.

Polish Register of Shipping (PRS) is also planning to introduce new criteria governing bow integrity, prompted by occurrences of bow damage and ship loss associated with impact load forces.

"Ship safety standards are normally verified using experience gathered in the past, which means that new designs or concepts are not always covered by existing standards," observed **Jan Jankowski**, director and managing director of PRS' marine branch. Accordingly, it is felt that increased responsiveness has to be demonstrated towards developments in ship design, calling where necessary for a changed approach by societies towards safety standards formulation.

Not only the adoption of higher power concentrations to achieve the faster sustainable speeds and scheduling dependability demanded by the industry, but also the tendency towards blunt bows, large forebody flare angles and finer underwater shapes, bear on the nature and effect of the structural loads imposed when moving through waves, in moderate as well as rough sea conditions.



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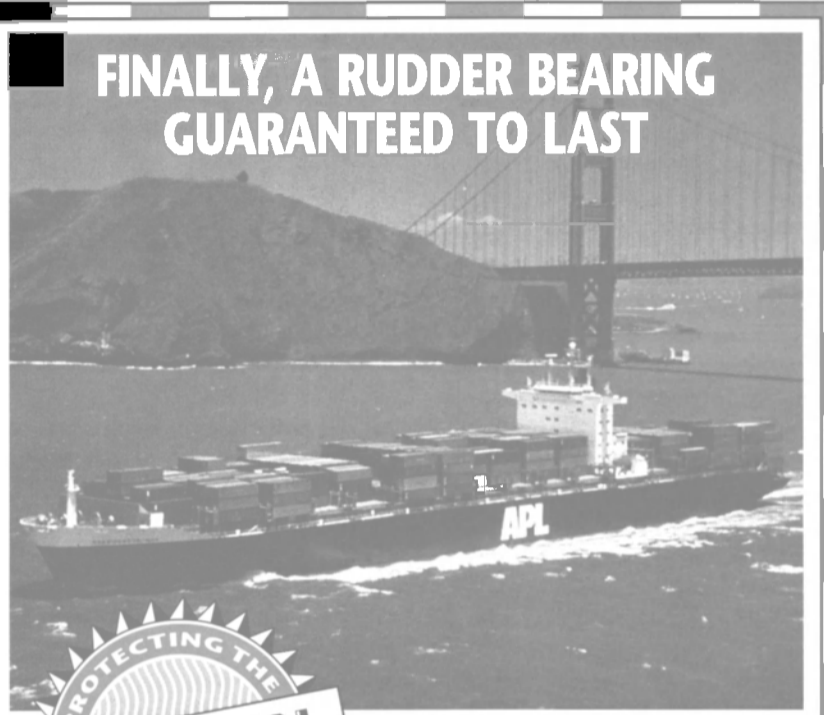
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OWNER OPERATOR	SHIPYARD	TYPE	No	DWT	DELIV	M US\$
JAPANESE GOVT	CHIYODA ZOSEN	BARGE	2		2001	0
MARMARAS	SAMHO NEW SHIPYARD	BULK CARRIER	2	172,000	2001	72
GOLDEN UNION/CAPE INVESTMENT	HYUNDAI HEAVY INDUSTRIES	BULK CARRIER	2	170,000	01/02	73
LEMONS,N.S.	CHINA SHIPBUILDING CORP.	BULK CARRIER	1	165,000	2002	36.5
POSEIDON SHIPPING	HYUNDAI HEAVY INDUSTRIES	BULK CARRIER	1	78,000	2001	22
CHINA STEEL EXPRESS CORP. (CSEC)	IMABARI SHIPBUILDING	BULK CARRIER	2	76,000	2002	43
EMIRATES TRADING	HITACHI ZOSEN	BULK CARRIER	1	75,484	2000	22.75
COUMANTAROS	DAEWOO	BULK CARRIER	2	75,000	2002	46
ATLANTIC BULKCARRIERS	DAEWOO	BULK CARRIER	2	75,000	2002	43.5
CHANDRIS	DAEWOO	BULK CARRIER	2	75,000	2002	46
GOUMAS	SPLIT	BULK CARRIER	1	51,000	2001	19.6
JAPANESE INTERESTS	OSHIMA SHIPBUILDING	BULK CARRIER	1	51,000	2001	0
MARMARAS NAVIGATION	DAEDONG SHIPBUILDING	BULK CARRIER	2	50,500	2001	38
GENEL DENIZCILIK GROUP	DAEDONG SHIPBUILDING	BULK CARRIER	3	50,450	2001	61.5
MARUBENI CORP	ISHIKAWAJIMA HARIMA H.I.	BULK CARRIER	1	48,600	2001	0
JAPANESE INTERESTS	OSHIMA SHIPBUILDING	BULK CARRIER	2	45,000	2001	0
PACIFIC CARRIERS	MITSUMI	BULK CARRIER	1	45,000	2001	19
WESTWOOD SHIPPING	GDYNIA	BULK CARRIER	7	40,000	02/03	240
BERTLING	JIANGDU SHIPYARD	BULK CARRIER	2	32,000	01/02	36
WAH KWONG SHIPPING	IMABARI SHIPBUILDING	BULK CARRIER	1	28,450	2000	16
GERMAN INTERESTS	JIANGSU YANGZUIJIANG	BULK CARRIER	1	25,500	2000	15
SPAR	JIANGYANG	BULK CARRIER	3			0
SUISSE ATLANTIQUE	DAEWOO	BULK CARRIER	2		2002	46
NIIPPON YUSEN KAISA (NYK)	IMABARI SHIPBUILDING	BULK CARRIER				
	(WOOD CHIP)		2		02/03	0
SINCERE SHIPPING	SAMHO NEW SHIPYARD	BULK CARRIER OS	2	170,000	2001	0
WAH KWONG SHIPPING	SASEBO	BULK CARRIER OS	1	170,000	2002	35
AVRA SHIPMANAGEMENT	CHINA SHIPBUILDING CORP.	BULK CARRIER OS	1	164,800	2001	35
HADJIPTERAS & SONS	HITACHI ZOSEN	BULK CARRIER OS	2	75,000	2001	45
TARGET MARINE	SAMHO NEW SHIPYARD	BULK CARRIER OS	1	75,000	2000	0
SURRENDRA OVERSEAS	HYUNDAI HEAVY INDUSTRIES	BULK CARRIER OS	1	74,900	2001	23
KLAUS OLDENDORFF	SAMHO NEW SHIPYARD	BULK CARRIER OS	5	73,000	2001	0
ULJANIK RO PLOVIDBA	ULJANIK	BULK CARRIER OS	1	49,000	2002	0
GYPSUM TRANSPORTATION	HYUNDAI MIPO	BULK CARRIER SL	1	50,000	2001	35
FINAVAL	CANTIERE NAVALE FRATELLI					
	ORLANDO	CABLE SHIP	2	8,000	2002	107
CASINO VEGA DEL MARE (CVDM)	YANTAI RAFFLES SHIPYARD	CASINO SHIP	3		2003	6000
SAITO KAIUN	FUKUOKA SHIPBUILDING	CHEMICAL TANKER	1	19,500	2001	0
TOKO UNYU	FUKUOKA SHIPBUILDING	CHEMICAL TANKER	1	19,500	2000	0
REDERI GUY SOMERS	QING SHAN SHIPYARD	CHEMICAL TANKER	1	18,500	2002	22
REDERIET SIMONSEN	GEM YAT	CHEMICAL TANKER	1	3,100	2000	
HAMBURG SUD	SAMSUNG	CONTAINER	2			80
CONTI REEDEREI	DAEWOO	CONTAINER	5	95,000	01/02	350
OFER BROTHERS	SAMSUNG	CONTAINER	3	52,000	2002	112.5
HAMBURG SUD	SAMSUNG	CONTAINER	2	45,600	2001	80
REEDEREI STEFAN PATJENS	GDYNIA	CONTAINER	2	39,600	2000	69
HERM DAUELSBERG	GDYNIA	CONTAINER	2	30,700	2000	60
ALPHA SHIPPING	GDANSK	CONTAINER	2	29,300	2000	58
TROPICAL SHIPPING	SHANGHAI EDWARD	CONTAINER	4	14,000	2001	56
NAMSUNG SHIPPING	SHIN-A SHIPBUILDING	CONTAINER	2	9,210	2000	24
CHINA SHIPPING CONTAINER LINES	SAMSUNG	CONTAINER	1		2001	0
DELMAS	CHINA SHIPBUILDING CORP.	CONTAINER	3		2002	90
HANSA MARE	HYUNDAI HEAVY INDUSTRIES	CONTAINER	1		2002	0
MITSUMI BUSAN	SHIN KURUSHIMA	CONTAINER	2		2001	0
NEPTUNE ORIENT LINES (NOL)	SAMSUNG	CONTAINER	2		2001	100
SEASPAR INTER.	SAMSUNG	CONTAINER	5		2001	0
UNITAS SCHIFFAHRTS	DETLEF HEGEMAN	CONTAINER	1		2000	13
AIDA CRUISES	MTW	CRUISE SHIP	2	4,500	02/03	0
CARNIVAL CRUISE LINE	KVAERNER MASA-YARDS INC	CRUISE SHIP	1		2002	375
SHANNON FERRY CO.	APPLEDORE SHIPBUILDERS	FERRY			2000	
ESTONIA SHIPPING	AKER FINNYARDS	FERRY	1		2002	108
G A FERRIES	AKER FINNYARDS	FERRY	1		2001	87
DUTCH INTERESTS	DAMEN SHIPYARDS	FISHERIES PROT.	1		2001	0
KNUT EIDVAAG	UMOE STERKODER	FISHING	1	1,500	2001	0
AUSTEVOLL HAVFISKE	FITJAR	FISHING	1		2000	0
SEIWA KISEN	IWAGI	GENERAL CARGO	1	8,000		
JAPANESE INTERESTS	KEGOYA DOCK	GENERAL CARGO	1	6,000	2000	0
JAN DE NUL	ASTILLEROS ESPANOLAS	HS DREDGER	1	25,000	2002	72
EXMAR	DAEWOO	LNG	1		2002	142.5
UNKNOWN	INCAT AUSTRALIA	MH PASS/FERRY	2		2001/2002	0
HOLLAND SHIP SERVICE	ZHONGHUA SHIPYARD	MULTI-PURPOSE	1	17,500	2001	19.6
HANS LEHMANN	FRISIAN	MULTI-PURPOSE	2	4,000	2001	0
HIGHLAND COUNCIL	GEORGE PRIOR ENG.	PASS/FERRY	1		2001	0
CHINA NAT OFFSHORE	YANTAI RAFFLES SHIPYARD	PIPELAY	1		2001	110
DUNYA (GANSHP INTERNATIONAL)	ONOMICHI	PRODUCTS TANKER	1	47,200	2001	26
ROYAL MARITIME CORP.	ONOMICHI	PRODUCTS TANKER	1	47,185	2000	26
PACIFIC CARRIERS	ONOMICHI	PRODUCTS TANKER	2	47,000	2001	0
VIRTUE NAVIGATION / IMC	DALIAN NEW	PRODUCTS TANKER	2	44,800	2002	58
DS NORDEN	DAEDONG SHIPBUILDING	PRODUCTS TANKER	2	35,000	2001	0
UK INTERESTS	VISSER OF DEN HELDER	RESEARCH	1		2001	0
STENA RO-RO	DALIAN NEW	RO-RO	3	12,300	2001	0
HELLESPONT SHIPPING	SAMSUNG	TANKER	1	303,000	2002	71.5
PAPACHRISTIDIS	SAMSUNG	TANKER	1	300,000	2002	71.5
DITAS DENIZ ISLETMECILIGIVE T.	HYUNDAI HEAVY INDUSTRIES	TANKER	1	165,000	2001	44
COMPAGNIE POUR LE TRANSPORT	SAMSUNG	TANKER	1	160,000	2002	42.5
EUROCEANICA	SAMSUNG	TANKER	1	160,000	2002	42.5
OVERSEAS SHIPHOLDING GROUP	HYUNDAI HEAVY INDUSTRIES	TANKER	2	150,000	2002/2003	87
FORTUM OIL & GAS	HYUNDAI HEAVY INDUSTRIES	TANKER	2	105,000	2001	80
LAURIN MARITIME	TROGIR	TANKER	2	45,000	2002	60
SERS-ESERCIZIO RIMORCHI ET	ROSETTI	TUG			2000	
HOWARD SMITH TOW & SALVAGE	DAMEN SHIPYARDS	TUG	1		2001	0
CHINA INTERESTS	YANTAI RAFFLES SHIPYARD	TUG	2		2001	0

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The maritime community has increasingly become the target of Department of Justice (DOJ) and state prosecution efforts to pursue criminal sanctions against corporations and senior management involved in maritime transportation incidents. Though many of the prosecutorial efforts involve egregious cases, some involve incidents that were previously treated as accidents. DOJ recently announced that federal enforcement actions involving environmental issues rose by almost 50 percent from 1996 to 1997. Criminal enforcement efforts often focus on highly visible companies for the maximum deterrent effect and greatest public impact. Because of aggressive federal and state efforts targeting environmental crimes, and the severe risks and consequences of criminal prosecution, it is time for each and every company to take a hard look at their corporate environmental compliance programs. It is simply too late after

an incident occurs.

Vessel owners and operators must meet a myriad of domestic and international requirements, including the International Safety Management (ISM) Code with requirements addressing environmental protection. Compliance with these requirements alone will not adequately "shield" owners and operators from prosecution. Shipowners and operators must ensure that an effective and comprehensive environmental compliance program is in place. This is crucial because the DOJ affords a company with an effective compliance program favorable consideration in criminal actions. Thus, effective environmental compliance programs must be established and smoothly running prior to an incident. But, what constitutes an effective compliance program?

Unfortunately, there is no universally accepted single standard. For example, the U.S. Sentencing Guidelines for

Organizations, often referred to as the standard for determining whether a company has an effective compliance program, specifically exclude environmental crimes from its fine calculation provisions. In fact, guidelines and policies relating to environmental crimes and compliance programs are set forth in various agency documents addressing both environmental crimes and compliance programs. The five most prominent documents are as follows:

- DOJ Policy Statement of July 1, 1991: Contains certain environmental compliance program factors that DOJ prosecutors should consider in making decisions on criminal prosecutions for environmental violations.
- EPA Policy Statement of December 22, 1995: Encourages regulated entities to voluntarily discover, disclose, and correct violations of environmental



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laws, including guidance on six elements demonstrating an effective compliance program.

- **Draft U.S. Sentencing Guidelines for Environmental Crimes:** Sets forth seven fundamental elements that must be satisfied for a company to be granted mitigation for its commitment to environmental compliance — submitted to the Sentencing Commission in 1993 but not adopted to date.

- **U.S. Sentencing Guidelines for Organizations:** Defines a compliance program as one demonstrating that a company exercised "due diligence" in seeking to prevent and detect criminal conduct and requires that an organization meet seven compliance program related elements.

- **Unpublished DOJ Memorandum of June 16, 1999:** Details seven factors for federal prosecutors to consider in deciding whether to pursue criminal charges including whether an environmental compliance program is adequately designed for maximum effectiveness in preventing and detecting wrongdoing and whether management is enforcing the program or tacitly encouraging or pressuring employees to engage in misconduct to achieve business objectives. The guidance notes that prosecuting a corporation is no substitute for prosecuting individuals.

At first glance a shipowner or operator appears to be facing a daunting task in determining the environmental compliance model to ensure that prosecutors will conclude that a company has established an effective environmental compliance program. Frankly, though challenging, the vagaries in determining an effective environmental compliance program can be used to the advantage of a company. It provides a company with great flexibility in developing and maintaining an effective program if it can be demonstrated that a carefully developed and executed program has been tailored and implemented to meet the practical needs of a company based on applicable guidelines. Moreover, it provides defense counsel with the opportunity to be creative in negotiations with prosecutors due to the uncertainty in applying the various guidelines.

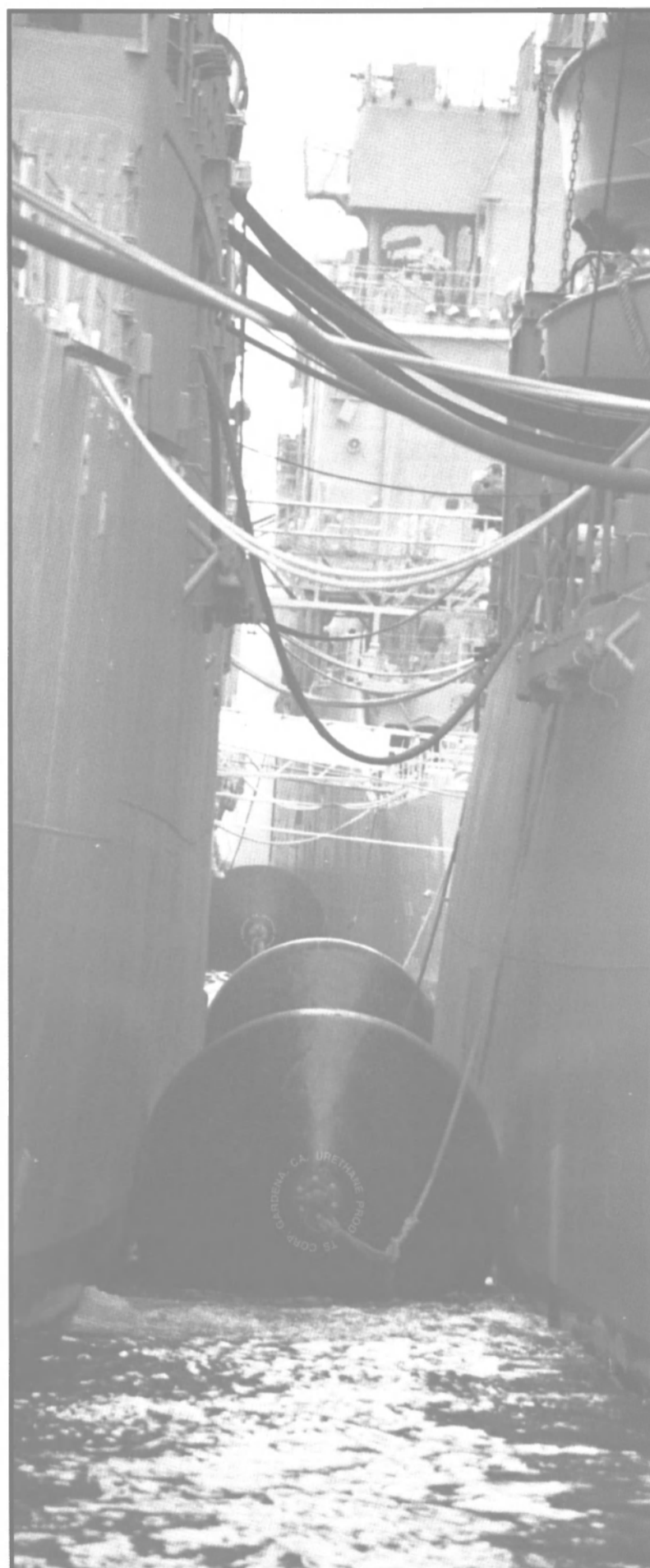
In summary, the establishment of an effective maritime environmental compliance program is crucial to the continued success of companies engaged in marine transportation. A company should analyze the common elements of the various environmental compliance guidelines as discussed above and com-

pare them against its compliance program. First, an assessment of which elements are most commonly found in the compliance guidance documents should be completed. Second, the company should then modify its environmental compliance program as appropriately modeled after the common compliance

elements found in the agency guidance. In short, a compliance program developed in this manner will best shield or help deflect prosecutorial actions by demonstrating that a thoughtful, effective, and practical program has been developed and implemented based on applicable guidelines. The future will

belong to those who plan for it.

Jonathan K. Waldron is a partner with Dyer Ellis & Joseph, Washington, D.C.



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MAN Acquires Alstom Diesel Engine Ops

Engineering companies Alstom of France and MAN of Germany have agreed terms for the acquisition by MAN of ALSTOM's Diesel engines business. Through this acquisition, the MAN Group will strengthen its activities in the field of large diesel engines. MAN B&W Diesel AG, Augsburg, will

take over ALSTOM Engines Ltd. of the U.K. with its brands Ruston, Paxman and Mirrlees

Blackstone. ALSTOM Engines Ltd. supplies on a worldwide scale medium and high speed Diesel and gas-fuelled



Ruston engines power this unique Australian Navy vessel

engines with outputs ranging from 500 kW to 15,000 kW, which are primarily incorporated

into fast ferries, navy and coast guard ships, luxury yachts, locomotives, power stations and packaged generator

sets. Alstom Engines Ltd. employs some 1,500 persons, has an annual business volume of some \$201 million, and its business is profitable.

For MAN this move represents a diversification in profitable and growing markets for high-speed engines as well as valuable extension of its presence in the market for medium speed engines. In terms of output the ALSTOM range is situated above the upper end of the engine lines supplied by MAN Nutzfahrzeuge AG. The takeover is expected to yield synergies in technological development, engine programs and worldwide distribution in all areas of application. The Ruston, Paxman and Mirrlees Blackstone brands have developed excellent reputations in their respective markets and are complementary to the MAN and MAN B&W brands. The plan is to maintain the acquired business within the MAN family and to strengthen their technical and brand identities, bringing a wider range of products to a wider range of markets and place more resources at the disposal of customers.

For ALSTOM the proposed deal is in line with the decision announced a year ago to divest its non-core industrial businesses, representing about \$854 million of sales by April 2000. The announcement of this sale is another step closer to the completion of this divestment process.

The acquisition is subject to the approval of MAN's Supervisory Board and of the relevant regulatory authorities. It is anticipated that the transaction will be completed in May 2000. Consultation with employees of Alstom Engines Ltd. and with key customers will commence immediately.

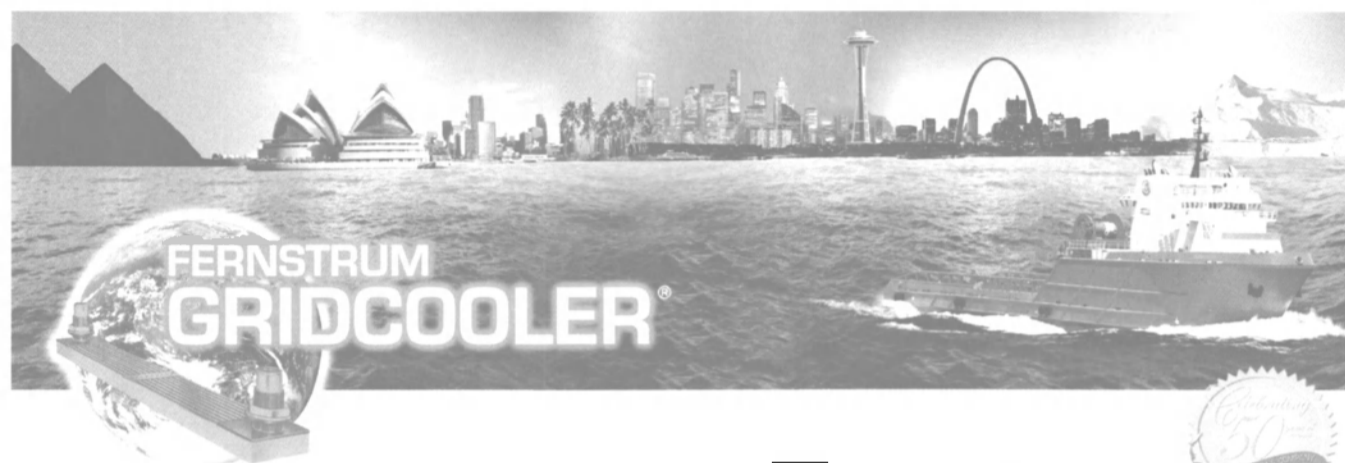
MARCO Signs Contract With S.F. Bar Pilots



Outboard profile drawing of the new pilot station boats being designed and built by MARCO Shipyard Seattle.

MARCO Shipyard Seattle is scheduled to design and build two 104 ft., (31.7 m) pilot station boats for the San Francisco Bar Pilots. With construction to commence soon, the design portion of the project is near completion. The first vessel is set for delivery before year-end, with the second to follow in early 2001.

Comprised of steel, the twin-screw vessels will replace the two existing station boats in the Bar Pilots' five-vessel fleet. Powered by twin Caterpillar 3508B diesels, providing a total of



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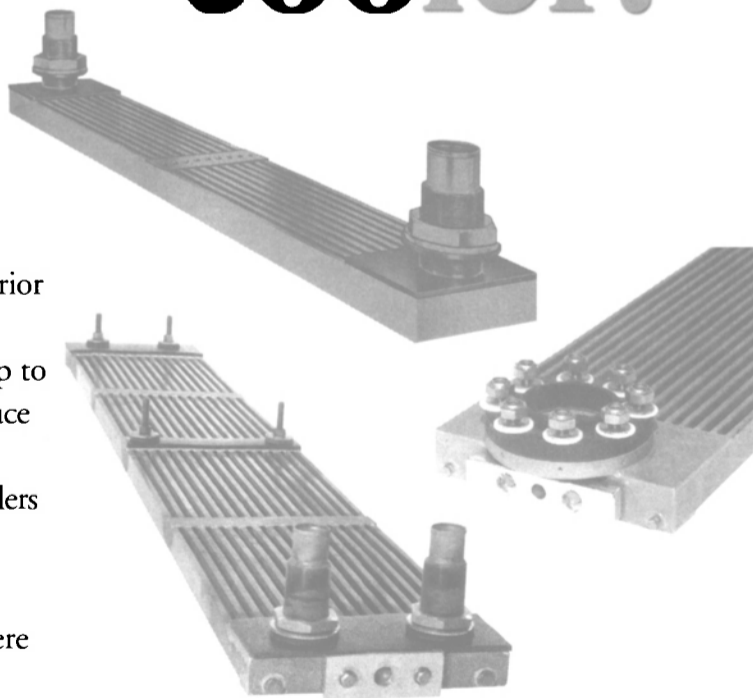
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2,200-hp and a design speed of 14 knots, the vessels will boast an overall beam of 30 ft. (9.1 m) and a depth of 13 ft. (3.9 m). Designed to safely transport pilots to and from ships entering, departing or transiting the San Francisco Bay waterways, the vessels will feature accommodations for eight pilots.

Circle 16 on Reader Service Card

Detyens Readies For Arzew Reactivation

Detyens Shipyard has been granted the reactivation of Arzew by Argent Marine Services. The vessel, which will be renamed Galeomma, will be chartered to Shell Bermuda Overseas.

CSL Granted Offshore Contract

Cochin Shipyard has been awarded the contract for ONGC's "Clamp-On" project, which utilizes the facility for the drilling of nine additional oil wells in the Heera Field from three existing platforms. Upon completion, additional production from the Heera Fields will be possible. The project encompasses pre-engineering survey of selected existing platforms in the Heera Field, as well as design, engineering and fabrication of the complete structures and fabrication of conductor pipes, transportation from Cochin to Bombay Offshore and installation of structures in waters up 197 ft. (60 m) deep. Marine spread and onsite installation will be outsourced by Cochin for a May 2000 completion.

Dockwise Awarded Hanjung Contract



Dockwise's Dock Express 11

Heavy transport shipping specialist, Dockwise, was granted a contract by Hanjung Korea Heavy Industries & Construction Co. Ltd. for the transportation of four super post Panamax container cranes from Changwon, Korea to Jacksonville, Fla.

Following the six-week voyage, the first shipment of two partly erected Hanjung cranes arrived at the Blount Island Terminal located in the port of Jacksonville on December 4, 1999. During the voyage, the vessel had to cross the Bridge of Americas - which crosses the Panama Canal. In order to accomplish this, the cranes' topsides and booms were lowered to a height of 154 ft. (47 m). The fully erected height of the

cranes with the boom up is 295 ft. (90 m). Dock Express 11 is scheduled to perform its second voyage during the end of January - arriving at Jacksonville in early March.

South Korean January Ship Orders Increase

New orders received by South Korean shipbuilders in January totaled 1.06 million-gt, up 164.7 percent from the same

month a year earlier, provisional figures from the Korea Shipbuilders' Association showed. South Korean shipbuilders received orders for 16 ships in January, the association said. Orders received in January last year totaled 400,556-gt for four ships, while ships completed in January were down from the same month a year earlier. Seventeen ships totaling 956,081-gt were finished, compared to 23 vessels at 1.22 million-gt. South Korea's backlogged orders at the

end of January amounted to 24.3 million-gt for 389 ships, against 20.3 million-gt for 314 ships a year earlier.

Ferries To Feature MacGregor RoRo Packages

A pair of 28,275-gt vehicle/passenger ferries on order in Spain boast MacGregor RoRo Packages, totaling a value of more than \$4 million including installation. The group's RoRo division has

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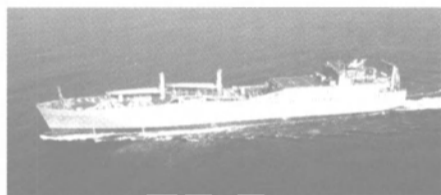
Circle 18 on Reader Service Card

MSC Selects Autoship Systems

Military Sealift Command (MSC) has chosen Autoship Systems' onboard stability program Autoload for their vessels. Autoload allows vessel operators to perform proper trim stability and strength calculations for any load condition before departing port and at anytime while at sea. Based on Autoship's Autohydro hydrostatic engine, Autoload calculates stability and strength as fuel and consumables are used, helps optimize ballast, and evaluates strength and stability in a damaged or grounded condition.

Circle 1 on Reader Service Card

NASSCO Delivers Red Cloud



USNS Red Cloud

National Steel and Shipbuilding Company (NASSCO), a General Dynamics company, has delivered the 950 ft. (289.5 m) Red Cloud to the U.S. Navy. The fourth new construction ship built by NASSCO under the Navy's Strategic Sealift Program, Red Cloud was completed under target cost and was delivered to the Navy three months ahead of schedule. The vessel was delivered under NASSCO's single Integrated Trial concept, a process that aids in cost reduction and accelerated delivery.

Containing 390,000 sq. ft. of cargo space, the vessel is a large, medium-speed RoRo (LMSR) assigned to the U.S. Navy's Military Sealift Command, carrying prepositioned U.S. Army equipment, vehicles and supplies near potential areas of conflict around the world.

Circle 4 on Reader Service Card

M.V. Costa Classica To Receive SSP Pod Drive

The Siemens-Schottel Propulsor Consortium (SSP) has received an order for the provision of an SSP pod drive and the electrical systems for the Italian cruise ship M.V. Costa Classica. The \$78.8 million project, known as the largest modernization of a cruise ship to date, also encompasses the vessel's lengthening of 147 ft. (44.8 m), and will have its superstructure heightened with the addition of one new deck. The ves-

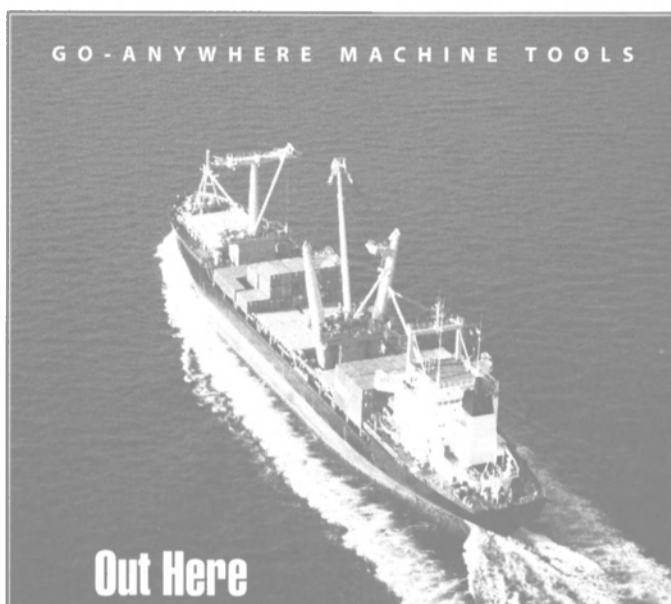
sel, which was built in 1991 by Fincantieri, weighs 52,926-gt.

Since the existing diesel direct CP propeller system with a power rating of 10.5 MW per shaft was kept, the SSP will be implemented as a supplementary drive in the center, behind the rudder blades. Not only will this new system achieve the goal of raising the vessel's speed to about 23 knots, it will also provide higher maneuverability since the

pod can be rotated about its vertical axis.

Circle 83 on Reader Service Card

Costa Classica will undergo a \$78.8M refurbishment, including the addition of a Siemens-Schottel Propulsor and a 147-ft. (44.8 m) lengthening.

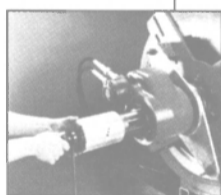


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No Good
Time
For
Downtime

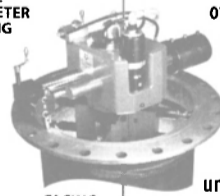
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Circle 284 on Reader Service Card

Ship Repair & Conversion

The U.S. Navy - Reducing Shipboard Planned Maintenance



The cost of maintaining Navy ships is measured in billions of dollars and millions of man-hours. Requiring sailors to perform excessive, unnecessary, and often counter-productive maintenance does more than waste money. It also wastes that most precious of commodities — sailors' time. This problem is being addressed by the U.S. Navy through the Surface Ship Maintenance Effectiveness Review (SURFMER) program. Since October 1996, SURFMER has reduced sailor performed planned maintenance workload on surface ships and aircraft carriers by more than 35 percent, and more than 2.3 million man-hours annually. At the same time, it has improved sailors' quality of life — a top Navy leadership priority.

SURFMER began as a pilot program onboard USS Yorktown (CG-48), a CG-47 Aegis class cruiser designated as the "Smart Ship." The objectives of the Smart Ship program included reducing sailor workload, saving money, and improving the sailors' quality of life through demonstrations of innovative policies, processes, and technology. The Naval Sea Systems Command (NAVSEA) realized this was the perfect opportunity to perform a Reliability Centered Maintenance (RCM) review of CG-47 cruiser class scheduled maintenance requirements.

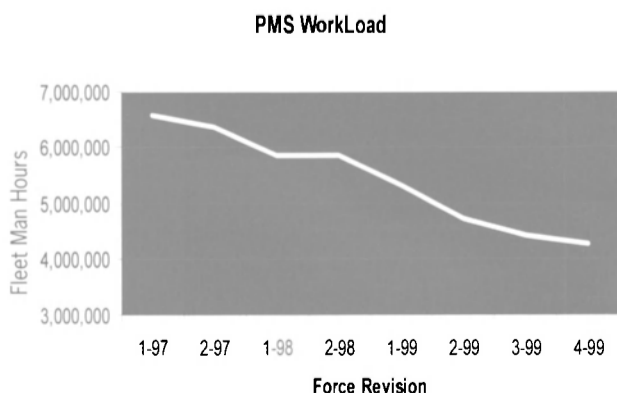
RCM as an engineering discipline was originated by United Airlines during the 1960s. The Federal Aviation Administration (FAA) was contemplating a vastly expanded program of scheduled maintenance to match the expanded passenger capacity of the Boeing 747 aircraft being introduced at the time. With FAA approval, United developed a rational, more cost-effective approach to preventive maintenance requirements development that became known as Reliability Centered Maintenance, or RCM. The Department of Defense subsequently mandated the use of RCM for developing planned maintenance

requirements for equipment throughout the services in 1984. American Management Systems (AMS), a company with a unique 20-year public and private sector partnership with the Navy, was a major player in the Navy's adoption of RCM for preventive maintenance of shipboard systems. NAVSEA tasked AMS to develop an RCM-based process that would examine shipboard planned maintenance requirements of currently in-service equipment and systems for possible reduction. This led to creation of the RCM Backfit process, piloted onboard Yorktown and ultimately implemented fleet-wide through SURFMER. RCM Backfit is an engineered, logical, and repeatable process, applied to systems already in service, addressing age degradation of the system under review, applicability of the prescribed maintenance tasks, and effectiveness of those tasks.

In 1996, AMS engineers under NAVSEA direction, used RCM Backfit and reviewed the entire Yorktown Planned Maintenance System (PMS) work package. This stem-to-stern and truck-to-keel review included more than 5,000 tasks. The engineers eliminated unnecessary tasks and rescheduled or rescheduled others. Some equipment required less intrusive maintenance than existing PMS called for, others required less frequent maintenance. By the time the AMS team completed its analysis, a 46.7 percent reduction in planned maintenance man-hours was identified and implemented aboard Yorktown.

Navy engineers then validated the Yorktown results for implementation aboard all other ships of the CG-47 Class. The result was a 38 percent reduction in maintenance man-hours across the class. The Chief of Naval Operations (CNO) at the time of Smart Ship, admiral Mike Boorda, directed that initiatives successfully demonstrated on Yorktown should be shared. As a result, in 1996, in

(Continued on page 63)



The break-up and sinking of Erika promises to bring changes to the way in which ships are inspected and maintained.
Photo: © French Navy



Safety Charter Targets Old Tankers, Flags Of Convenience

By Barbara Hauley, features editor
Maritime Week

A backlash against older tankers and flags of convenience, triggered by the December sinking of the Erika off the coast of France, achieved a tangible first step last week with the signing of a Ship Safety Charter by oil majors and ship classification firms involved in the French petroleum shipping industry.

The parties signing the three-page document, including TotalFina, Elf Aquitaine, BP Amoco France, Royal Dutch/Shell France, Esso France, ship classification firm Bureau Veritas and petroleum industries federation UFIP, agreed not to use single-hulled ships after 2008 and, effective immediately, to only use ships over 15 years old if they have passed recent intensive inspections. Charterers will accept ships over 14 years old only if they have been classed by the same society for two years or more.

The charter does away with flags of convenience, calling for shippers and charterers to use only ships flagged by countries in the EU, EEC, or a state that effectively applies specific standards related to safety, inspection and training of crew.

Classification societies, according to the charter, must maintain and provide a technical history of each ship it classifies in the event of a transfer to another society.

The charter, developed in a roundtable discussion held by the French government on Feb. 10, follows nearly two months of widespread calls for tighter rules to prevent another Erika-like accident from happening.

The Erika, a 37,283-dwt, 25-year-old Maltese-flagged products tanker, broke in two and sank during a Dec. 12 storm, spilling about 15,000 tons of fuel oil, which began to wash up on France's Brittany coast on Christmas Eve, polluting 250 miles of beaches, killing or maiming 300,000 sea birds — dealing a harmful blow to the French fishing and tourism industries.

RINA, the Italian society that classed the Erika, reported on Feb. 9 that initial findings into the cause of the accident point to a small



structural failure in hull structure. This was followed by a cracking that led to the hull's collapse. "RINA will continue investigations to determine the cause of the initial failure as well as the results of subsequent actions by the master owners and other parties involved," society officials said.

Though not one of the signers of the safety charter, RINA has called for improved exchanges of information between classification societies and has instituted a full audit of all similar ships in its fleet. The society also continues to cooperate with the French government's investigation of the accident and maintains that it acted correctly and followed all relevant standards and guidelines.

Oil giant TotalFina, which chartered Erika, has also refused to accept any responsibility for the sinking of the Erika. However, the company has donated about \$125 million to the cleanup effort and, along with several other oil majors, instituted its own tighter chartering policies prior to the signing of the charter.

Although many industry players, including the CGT trade union, feel that the charter's safety proposals, to be debated at a March 28 Council of Ministers meeting in Belgium, are a good first step in the right direction, others insist that such Draconian regulations are unnecessary and won't help the problem.

The captain of the Erika has said that tight budgets mean that safety standards are often ignored. "There are certain things that nobody dares to say, but the job has changed a lot, everything is going too fast, everything is dominated by money," **Karun Mathir**, still under formal investigation for maritime pollution, said. He added that the Erika's 26-person crew was doing the work that used to require 60 crewmembers. Stopover times at ports were thus shortened, meaning less time for paperwork, and a phasing out of radio officers led to lessened coordination with insurers, shipowners and shipping authorities, he said.

On the other hand, **Lars Carlsson**, president of Concordia Maritime, asserts that a series of simple measures

could eradicate the problems that led to the Erika incident, but that shippers deserve stricter, "unpredictable and inefficient" regulations if they won't follow such steps. Carlsson has proposed measures including the boycotting of companies that are known to break or bend rules. Oil traders and tanker brokers have

said that the outcry for tougher tanker restrictions might fade once the public outcry over the Erika dies down, and have warned that tightening of rules could result in a shortage of appropriate tonnage. Brokers say that nearly 20 percent, 340 ships, of the world fleet of 1,744 tankers between 10,000-50,000

dwt are 25 years of age or over. More than 50 ships still operating were built in the 1960s.

"(The oil companies) depend a lot on older ships, but if they were prepared to pay more for modern ships, it would encourage owners to build more," a broker said.

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Ship Repair & Conversion

High Times Again in Singapore?

Singapore, once revered for its seemingly insurmountable edge in the ship repair and conversion business, has fallen on harder times in recent years. The

forces which have slowed the area's break-neck pace of expansion and dominance are not at all unfamiliar to shipbuilders and repairers in the U.S. and

Europe: rising land and labor costs, corporate consolidations and a seemingly endless stream of cut-rate competitors.

According to recent financial reports



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from the area, though, it appears that Singapore's two ship repair yards, Keppel Hitachi Zosen Ltd. and SembCorp Marine Ltd., have found the balance to reign supreme once again. The companies were expected to report modest profit growth after almost two years of restructuring and consolidation.

Keppel Hitachi Zosen was expected to turn in profit of about \$19.4 million for 1999 after a \$38.3 million loss for the nine months ended December 1998, analysts said. SembCorp Marine was expected to post a 10 percent rise in earnings of between \$46.03 million and \$47.2 million against 1998 profit of \$42.3 million. Squeezed by rising land and wage costs, Singapore's shipyard industry underwent a consolidation in 1997 and 1998 that saw the city state's main players reduced to two from four. SembCorp Marine was formed by a merger between Jurong and Sembawang Shipyards in mid-1997 while Keppel Shipyard and Hitachi Zosen (Singapore) completed their merger in 1999.

Both yards have made some progress in reducing costs through retrenchments undertaken in November, when SembCorp Marine let go of 249 employees and Keppel Hitachi released 132. But analysts see some rough waters ahead, as cheaper shipyards in the Middle East and China continue to expand capacity and steal business via lower prices.

"Going forward things are looking a bit tough. It's an industry problem," a Vickers Ballas analyst was quoted as saying.

Sembcorp Marine Rated Buy

Investors looking to sink their money into the shipyard industry would fare better with SembCorp Marine, according to analysts. SembCorp Marine's valuation was cheaper, trading around 10 or 12 times earnings versus Keppel Hitachi Zosen's 20 times.

SembCorp Marine's plan to move more of its shipyard operations offshore was also favored and the group's restructuring was expected to reap \$8.8 million in savings this year and \$17.7 million annually down the road. It is still critical for the yards to cut costs in order to stay competitive, and will include moves such as moving the more

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Ship Repair & Conversion

labor-intensive portions of the operation offshore.

At press time, there were even rumors afloat that the consolidation process among Singapore repair and conversion yards is not yet done.

Keppel Hitachi had not fully reaped cost savings from its merger though

some progress had been made through retrenchments. Analysts generally expect that earnings to decline for year 2000. Unlike SembCorp Marine, the bulk of Keppel Hitachi's turnover comes from ship-repair, and thus the yard would not benefit from a rebound in conversion activity.

MacGregor Assists With Repair

A specialist MacGregor team has been assisting in the timely return to service of the RoPax ferry Superfast III that was damaged by fire in early November. The \$3 million project, which began in December was scheduled for completion by the end of February at Blohm +

Voss. MacGregor is rectifying severe damage on two of the vessel's vehicle decks, and is also repairing its passenger elevators. The company is also constructing and replacing a 13 x 164 ft. (4 x 50 m) tilting ramp, a hoistable access ramp and a pilot door, all of which are being fabricated in Poland. Delivered in 1998 by Kvaerner Masa-Yards, the 28,800-gt Superfast III and sistership Superfast IV each carry 1,400 passengers at 28.5 knots.

Circle 99 on Reader Service Card

S.S. Independence Drydocked

Per an historic, cooperative agreement between Honolulu Shipyard and Pearl Harbor Naval Shipyard (PHNSY), one of the U.S. Navy's drydocks was utilized to lift the inter-island cruise vessel S.S. Independence, which is owned and operated by American Classic Voyages, (AMCV), out of the water for inspection and repairs. This is a premiere occurrence at Pearl Harbor's Navy complex, as it is the first time a regularly scheduled drydock of a commercial vessel has been done there. In 1985, S.S. Constitution was docked there for emergency repairs. Since the vessel will be docked locally, it will not lose a week of service in transit to and from the U.S. mainland for repairs.

Trimline Reports Good Quarter

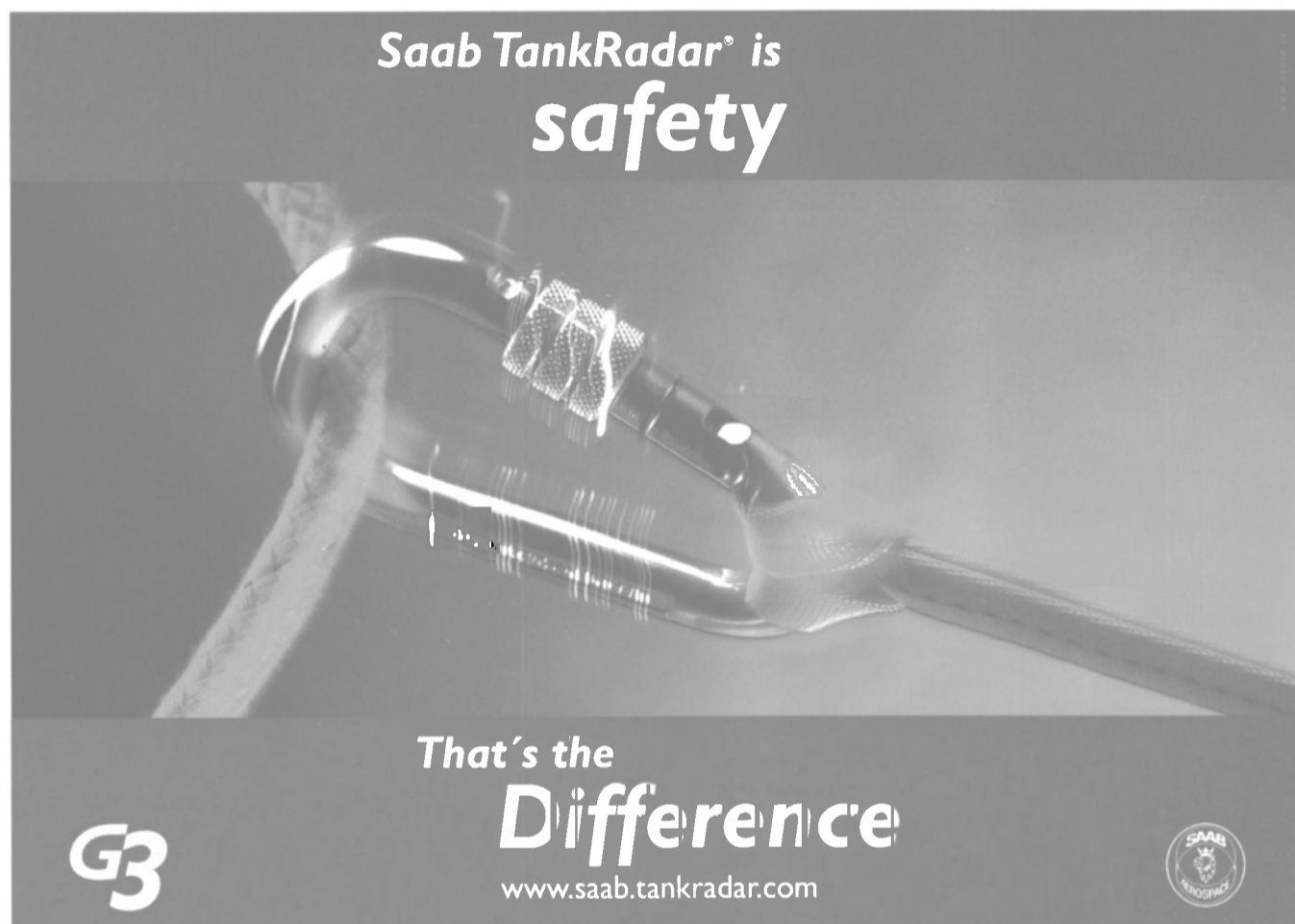
Marine interior specialists Trimline has reported the most active ever quarter occurring at the end of 1999. The company performed work on eight passenger vessels during the end of last year, with the projects headed by work on the Cunard Liner Queen Elizabeth 2. Other work included refitting of a Mediterranean ferry, refurbishment of cabins on Saga Cruises' Saga Rose in Germany and upgrades to passenger facilities on P&O's Portsmouth-based cross-Channel ferries Pride of Hampshire and Pride of Cherbourg - which were docked at A&P Falmouth.

Circle 100 on Reader Service Card

M.T. G S Salaria Completes Repairs

DNT crude oil tanker M.T. G S Salaria sailed out on January 25, proceeding successful completion of repairs at Cochin Shipyard, where it had been dry-docked since December 21, 1999. Comprised of steel renewal, blast cleaning and painting of the hull and replacement of damaged economizer coil, the repair package also included overhauling of DG sets, pumps, valves, boilers and main engine bearings, which were undertaken during the vessel's lay-up.

Circle 101 on Reader Service Card

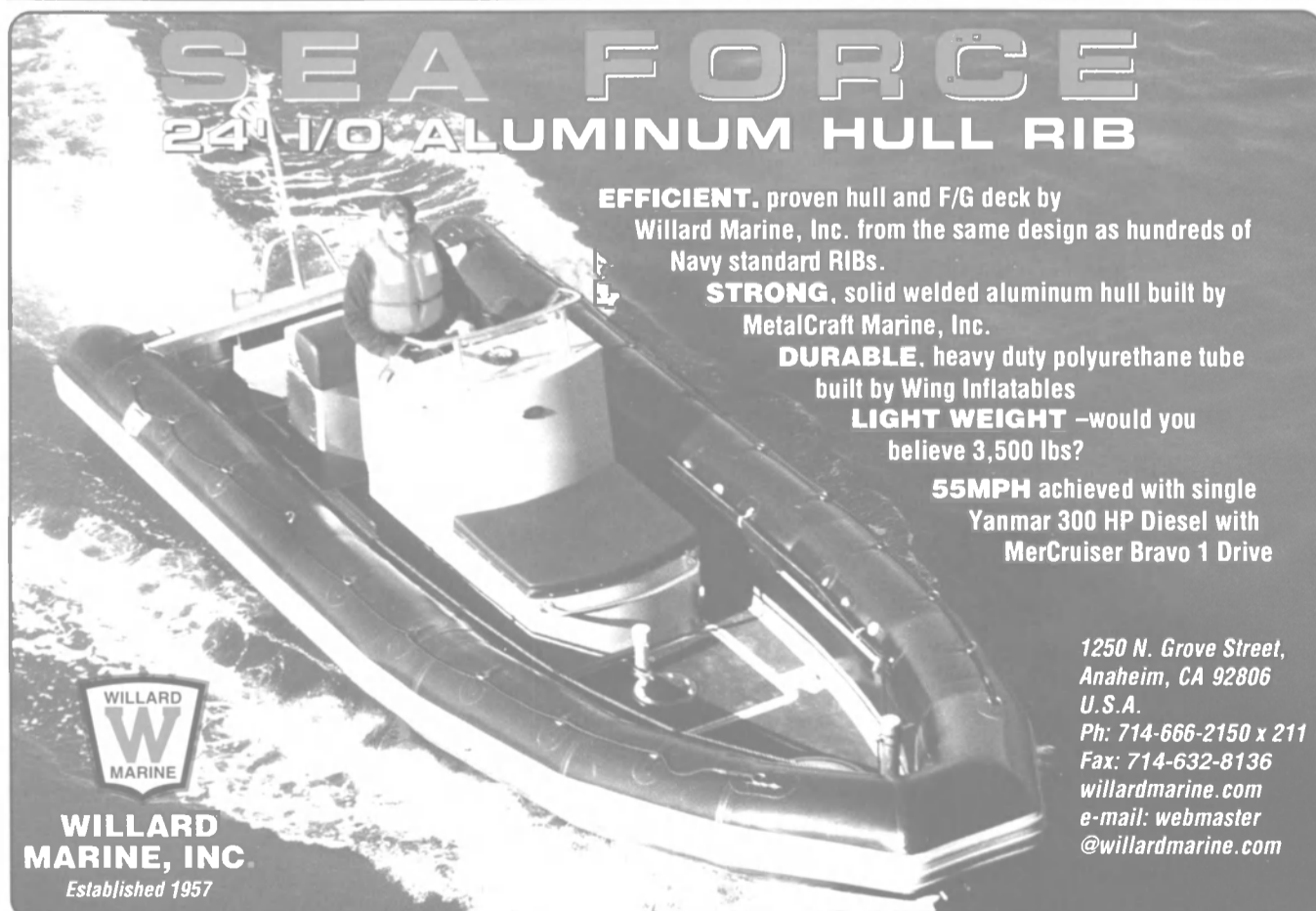


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Circle 205 on Reader Service Card

Ship Repair & Conversion

Ship Repair Yards Ask: Where's the Funding?

While much of the focus is trained on Naval new construction, the fact is that repair and maintenance on the existing U.S. Navy fleet has reached condition

critical. Cutbacks from the Navy have left many vessels of its 300-member fleet to go without required repairs and maintenance because the money is not

budgeted. Yards may however, find some relief at the end of this month, dependent upon whether Congress passes a supplemental bill for additional funding.

Already five months into the government's fiscal year and ship repair yards have not seen a cent of additional funding from the Navy for the maintenance and repair of its fleet. With surface ships suffering the most from this shortfall, ships are rusting away and not receiving the attention that they need, which could one day lead to a serious fleet decline. Commanders will be faced with vessels that spark a serious question directly involving the fate of the U.S. Navy and its fleet: "Will they be able to handle potential conflicts?"

According to **Alex Kreckich**, president and COO of United States Marine Repair, and president of Norfolk Shipbuilding and Drydock, the budget for naval funding, especially for surface ships, has fallen short during the past few years.

Currently the overall fiscal year 2000 budget designated for Navy Ship Repair & Maintenance stands at \$2.4 billion, most of which is targeted for nuclear powered ships. In response, a request for additional funding via a supplemental bill is currently pending in Congress. Known as the Emergency Supplemental for Fiscal Year 2000 Focused on Military Readiness, the bill stipulates (per a suggested analysis by U.S.M.R.) that a total of \$235 million should be rendered to the yards on both U.S. Coasts — \$145 million on the Atlantic and \$90 million on the Pacific.

Lack of funding has been a hallmark of the Navy repair and maintenance scene for more than a decade, falling 50 percent since 1990. The result: maintenance backlogs at navy bases and facilities. Estimated at \$2.5 billion, these backlogs are expected to climb to \$4 billion over the next few years.

In 1998, the Joint Chiefs of Staff to the Senate Armed Services Committee dispensed a warning per the declining state of military readiness, which obviously has not made its mark with the Navy — despite dangerous conditions that continue to remain on these vessels.

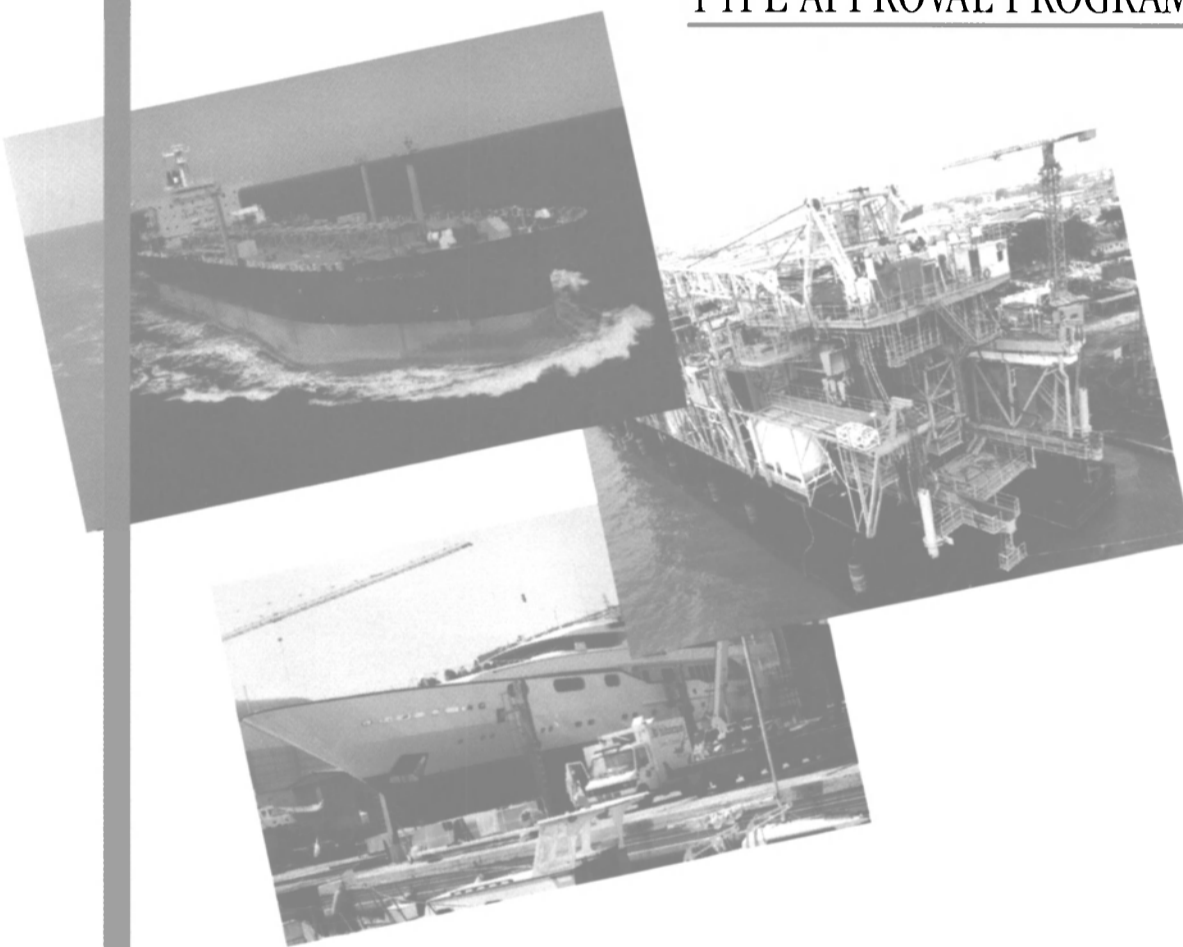
If, and when the emergency supplemental bill is passed later this month, the yards will have more jobs than they can handle resulting from work that had been sent to what is known as the "dopo domani," (which in Italian translates to "day after tomorrow") of the ship repair business. Meaning work that had previously been deferred for days — maybe even months on end — due to these monetary shortfalls, would still be in limbo because it was initially deferred.

Specifically, \$4 million worth of scheduled work was supposed to have been completed on USS Coronado, the flagship for COMTHIRDFLT. The vessel, which currently stands drydocked at Southwest Marine, San Diego, is await-



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ing repairs on its sewage holding tank diverter valves and pumps, weapons elevators and mandatory and safety inconsistencies in necessary firefighting repairs.

Is there relief in sight?

When judgment day arrives — one of

two things are likely to occur. Either it will be full speed ahead for the yards to begin whipping the fleet back into shape — providing that Congress and the Department of Defense work everything out. If it is vetoed, then as Krekich puts it, "we'll be going back to square one — but worse."

He continued: "Sailors will get even more frustrated and there will be significant problems with ships."

Whether or not Congress provides a saving grace for shipyards, the Navy, who is probably seen by some as leaving the yards high-and-dry, is in actuality, trying to plead its case at the Capitol

Building.

"The Navy is trying to make a case to Congress by carrying out its duty to its citizens," Krekich said. "Sometimes the Navy needs help and Congress is the place to get that help."

— Regina P. Ciardiello

Ailsa-Troon Continues To Climb

Ailsa-Troon is in the midst of its winter refit season, having recently completed work on Saturn and Loch Buie - two ferries operated by Caledonian MacBrayne. The yard is also working on Juno - another vessel for Caledonian, before beginning work on Loch Alainn, Loch Tarbert, Loch Dunvegan, Loch Fyne and Jupiter.



Recently, the yard has filled up with various commercial and government owned vessels, including range safety vessel, Petard, and Ixworth, a diving support vessel - both owned by MoD - as well as Salmaster - a mooring and salvage vessel managed by Serco Denholm. Ailsa-Troon also performed work on a 112 ft. (34 m) cutter named Sentinel owned by H.M. Customs & Excise.

Maintenance and repair work performed on Jean Riton, Jean LeClarc and Mariette Le Roch that occurred during the summer and fall, was the result of a negotiated maintenance arrangement with Petrel Sparfel, the French fishing company, which operates trawlers from the West Coast of Scotland.

The yard's most significant job of late, and the reflection of its steady increase in volume of repair work, is the refit of Ability, a 2,550-dwt product tanker owned by F.T. Everard, which is one of the largest vessels to drydock at the yard in recent years.

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Ship Repair & Conversion

Irving Shipbuilding Repairs Wide Selection

Irving Shipbuilding's ship repair facilities in Nova Scotia, Canada at Halifax Shipyard and Dartmouth Marine Slips have been very active during the last few months.

The yard has attained a variety of work involving containerships, RoRos, OSVs, tugs and Government vessels. M/V Sanderling, M/V Caribou and M/V Fines were noted as receiving steelwork and blast and painting, while AHTS and OSVs Hebron Sea, Riverton, Tignish Sea, Highlander Sea and Venture Sea were scheduled for maintenance as well.

Halifax Shipyard recently undocked passenger RoRo ferry — Princess Acadia. Able to hold 650 passengers, the ferry had been at the yard for 15 days undergoing repairs on its funnel deck and had its CP propeller blades removed for inspection and change. Maintenance was also completed on the vessel's bow thruster and blast and paint was done on the car deck and outside hull. During that time, valves were also inspected, as were most of the tanks in the vessel.

Circle 125 on Reader Service Card

Cenal Repairs Bulk Carriers

This past year, Cenal Shipyard had the opportunity to repair bulk carriers M/V Tinnes and M/V Kari Arnhild, both owned by Aboitiz Jebsen Shipmanagement Bergen. The second vessel of the pair left Cenal's Alkor Shiprepair yard on February 13.

Founded in 1989 in Gdansk, Poland, Alkor provides repairs, conversions, maintenance and check-ups of coastal and oceangoing vessels. Equipped with two floating drydocks with 8,00 tons and 2,500 tons, the yard is capable of servicing vessels measuring 509 ft.(155 m) and 276 ft. (84 m). Alkor also provides steel renewal, anticorrosive treatment, and all system and engine repairs.

Circle 126 on Reader Service Card

Main Particulars - M/V Tinnes	
Flag	Panama
Length, o.a.	387 ft. (117.9 m)
Breadth	67 ft. (20.5 m)
Depth	36 ft. (11 m)
GT	6,944
Main engine	Stork Werkspoor Diesel

Main Particulars - M/V Kari Arnhild	
Flag	Panama
Length, (o.a.)	486 ft. (148 m)
Breadth	67 ft. (20.5 m)
Depth	42 ft. (12.8 m)
Main engine	Two Wartsila diesel engines

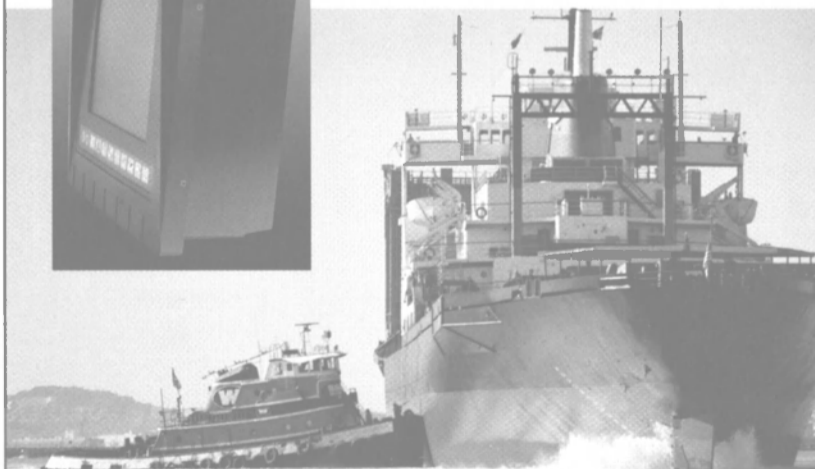
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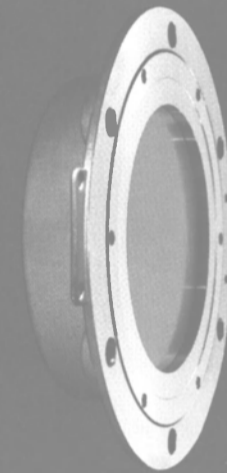
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Circle 223 on Reader Service Card

Ship Repair & Conversion

Vessels Make Pit Stop At Bay Ship

Traditionally Alaskan cruise vessels are known to make regular stopovers at Bay Ship & Yacht Co.'s Alameda, Calif. shipyard and drydock facility for routine maintenance and repairs. The yard has

served as host to clients, such as Special Expedition Marine, which brought in its Sea Bird and Sea Lion vessels before reaching their winter destinations in either Mexico or the Caribbean.

Yorktown Clipper, which is owned by Clipper Cruise Lines underwent a major steam boiler refit, while Alaska Sight-

seeing Cruise West brought its Spirit of '98 for maintenance, as well as Spirit of Endeavour for a habitability retrofit.

Recent customers include Red & White Fleet's tour boat Harbor Princess, which was at the yard for re-engining, joiner upgrades and dydocking; Blue & Gold Fleet's Pier 39-based tour boat Bay



Clipper for annual drydocking and steel repair; Jericho Dredging's Shell Barge for sandblasting and painting and Jericho Spirit — a tug that underwent re-engining. Sterling V owned by Newport Petroleum paid a visit to the yard for voyage repairs, as well as Crowley Marine Services' Mars, which came in for dydocking and repairs.

This month alone proves to be alive with activity for the company, who is scheduled to commence drydocking of the Foss oil barge San Pedro, as well as drydocking availability for the 378-ft. (115.2 m) U.S. Coast Guard Cutter, Chase.

Circle 106 on Reader Service Card

U.S. Navy Awards Drydock

The U.S. Navy has granted Atlantic Dry Dock Corp. of Jacksonville, Fla. with a contract to provide the shipyard with the 14,200 LT floating drydock Sustain.

The contract will create about 250 new jobs at the yard. During the next five years, the dock will be available to perform both government and commercial repairs.

The dock is scheduled to be in service by April 2000.

Circle 131 on Reader Service Card

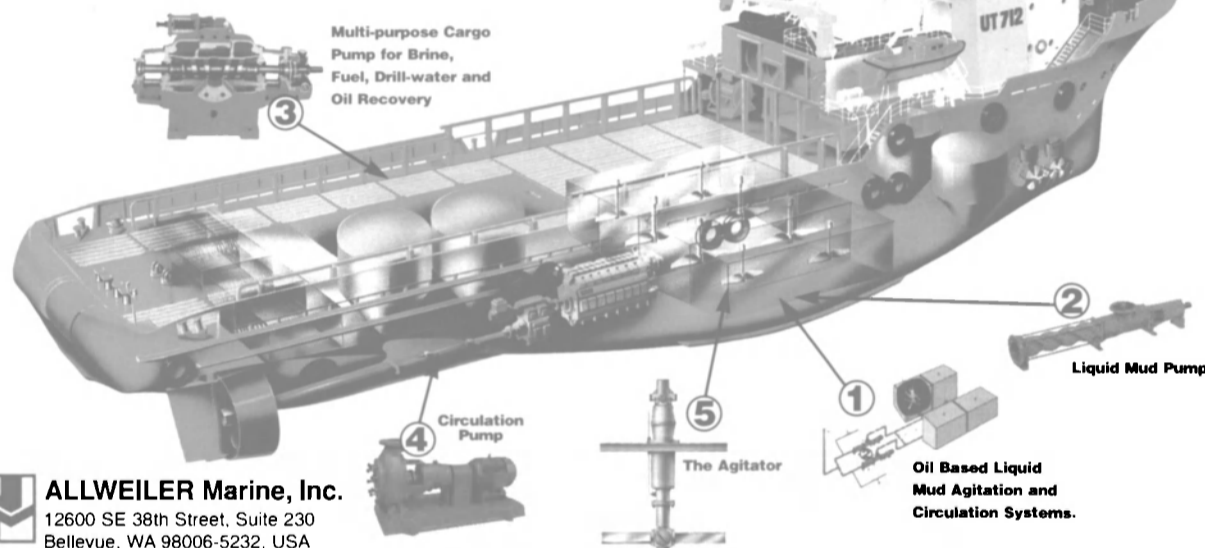
Main Particulars

Length, (over outriggers)	608 ft. (185.3 m)
Length, (of pontoon)	552 ft. (168.2 m)
Length, (of keel line blocking)	540 ft. (164.5 m)
Width, (o.a.)	124 ft. (37.7 m)
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Circle 290 on Reader Service Card

Tampa Bay Shipbuilding - Gearing Up For A Boom

By Regina P. Ciardiello,
assistant editor

It's one stop shopping on Florida's west coast at Tampa Bay Shipbuilding & Repair, which offers its full service facilities, including three graving docks and direct access from the Gulf of Mexico. Touted by its owners as the largest yard between Pascagoula, Miss. and Hampton Roads, Va., Tampa Bay provides conversions, overhauls and general repair jobs with its 900-ton lift capacity. Owned by the Tampa Port Authority since 1955, the former Tampa Shipyards became Tampa Bay Shipbuilding & Repair on February 1, 1997. According to **Henry Perryman**, the yard's general manager of operations, the company, who has lured back about 20 repeat customers, has performed various jobs on about 150 ships — ranging from tugs to tankers — since its establishment.

"From RoRos to bulk carriers to dredges, we repair it," Perryman said. "Major conversions are it for us."

Speaking of conversions done, one of the yard's current projects involves the installation of a 118 ft. (35.9 m) mid-body on the MPF (e) vessel, LCPL Roy M. Wheat, eventually leading to added cargo space for the 864 ft. (26.3 m) vessel. The vessel will undergo its required inspection, as well as receive a new paint job, shaft valves, and 1,500 UWILD underwater markings, which allows divers to perform underwater inspections in lieu of drydocking. This process will prove favorable, since it cuts routine drydocking procedures down from every two years — to five instead. Tampa Bay also performed work on the Beltship Gypsum Baron. Managed by Belt Ship Bermuda, the vessel underwent a 15-day "shave and haircut," consisting of routine inspection and clean up of its shafts, propellers and rudders.

But perhaps the most significant and timely task is the conversion of single hulled tankers to double hulls as required by the Oil Pollution Act of 1990 (OPA '90). The act stipulates that all single hull vessels of 5,000-gt or more will be prohibited from U.S. waters from 2010 or earlier, unless they have been outfitted with a double bottom or double sides, allowing them to trade in the U.S.

Left with the option of converting to a double hull or buying new, many tanker owners have enlisted Tampa Bay in helping to fulfill this requirement.

"There's a large market right

now for double-hulling," Perryman said. "For the next six-to-seven years, this will be a major portion of our business."

The company recently proved its prowess by fabricating the inner hull, as well as the double hull prototype for Maritrans' Ocean 244.

The four inner hull super modules will

each be set in the existing hull by the yard's overhead cranes, 700 tons being the largest lift.

The vessel, which commenced conversion work in November 1999, is scheduled to undergo the cutting of its main deck in April and its completion is scheduled for September.



Carnival's Tropicale was laid up at Tampa Bay this past fall for 22 days following its engine room fire.

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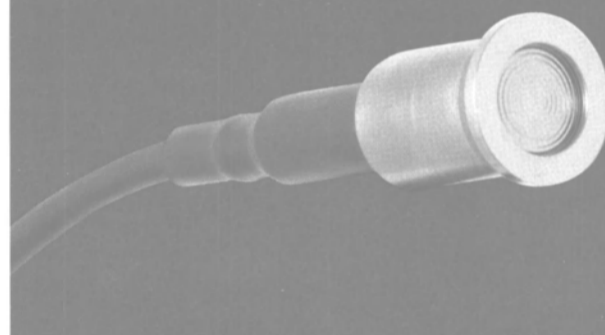
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Circle 214 on Reader Service Card

Maritrans first called on the company two years ago to perform a double hulling for its Maritrans 192. The 10,549-ton barge was originally known as Ocean 192, and was renamed at its christening ceremony on November 9, 1998. The barge is famous for its designation as America's premiere vessel to undergo the single-to-double hull conversion.

Beyond conversions

Though double-hulling activity is sure to fill Tampa Bay's coffers for years to come, the yard has ample facilities to care for other repairs, particularly the high-value and demanding cruise repair market. When the engine room on Carnival's Tropicale caught fire, Carnival tapped Tampa Bay to assess the situation. Perryman, along with the yard's chief estimator, **Johnny McCarron**, were then dispatched to Tropicale at

Port Manatee where they were able to survey the damages. Pleased with Tampa Bay's analysis, the cruise line contacted them that same day to arrange for the ship to be brought to the yard.

The first task involved cleaning up the soot from the engine room. According to Perryman, this was done with high pressure water, solvent and soap. The room was also repainted, rewired and received new insulation. "All controls were

replaced, as well as some steel work," Perryman said. "And, as a result of the water used to extinguish the engine room fire, one hundred motors had to be removed and reworked." Accomplished within 22 days, Tropicale was able to sail out of Tampa the day after the completion of repairs, meeting Carnival's expectations of as little schedule augmentation as possible. Tampa Bay currently performs about five or six cruise jobs a year, and according to Perryman, the yard would like to expand upon that. What could most probably tip off Tampa Bay's goal for expansion into the cruise industry could be its recent overhaul of the Norwegian Sea in January. The vessel was laid up at the yard for 12 days where it received a basic clean up of its stabilizers, bowthrusters and valves, as well as the machinery in its engine room. In an industry whose profits parallel tanker day rates, which are currently down, Perryman, who quotes himself as "the eternal optimist," feels that the rates will eventually rise.

Circle 141 on Reader Service Card

Bollinger Puts Its Expertise To The Test

With 22 dry-docks in service, Bollinger Morgan City, L.L.C. recently stretched its newly expanded dry dock (see accompanying photo) to the limit with the docking



COV Zeus drydocked at Bollinger Morgan City, L.L.C.

of former sulphur vessel (now bulk carrier) Otto Candie COV Zeus measuring 505 ft. (153.9 m). The vessel was laid up at the yard's largest drydock of its 22 located throughout the company's nine facilities. Measuring 340 x 134 ft. (103.6 x 40.8 m) with 110 between the wingfalls, the dock is capable of lifting 8,100-tons.

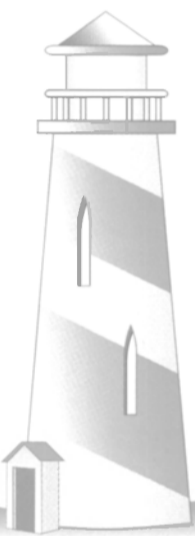
Bollinger's Quick Repair-Harvey, La.-located propeller shop completed a thruster overhaul and repair for the PEMEX-owned accommodations semi-submersible Chemul on behalf of Cotamar. The 34-ton 9.1 ft. diameter, 360 degree azimuthing Kamewa thruster underwent a complete overhaul with blade repairs. On another front, according to **Boysie Bollinger**, Bollinger's chairman of the board, the company was granted a contract from the U.S. Navy for the modification of three of the first 13 PCs to include the new stern ramp and other equipment weapons and upgrades in a pre-planned product improvement program, which could lead to — dependent upon funding — all 13 of the first block of PCs.

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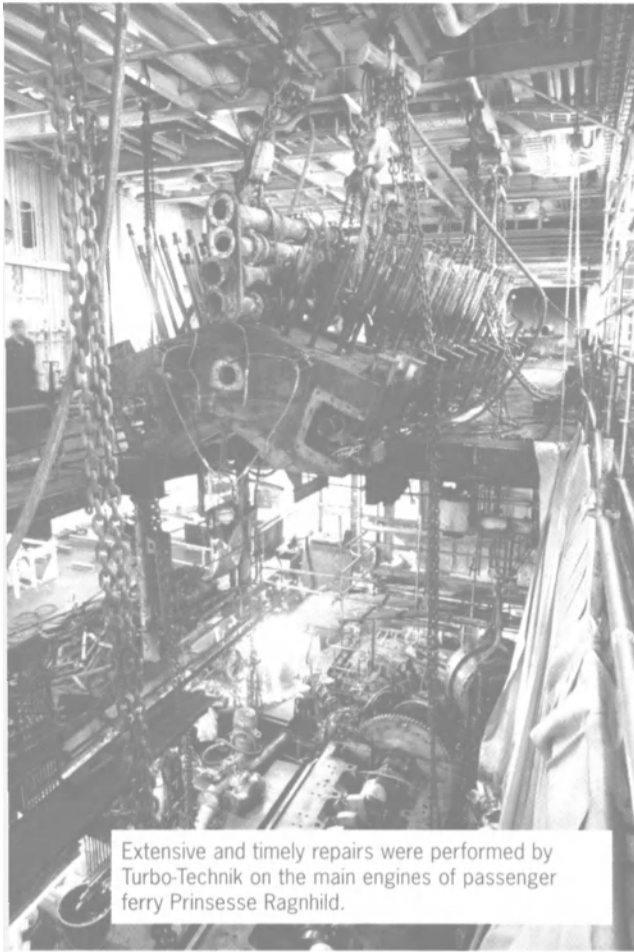
Circle 238 on Reader Service Card

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Extensive and timely repairs were performed by Turbo-Technik on the main engines of passenger ferry Prinsesse Ragnhild.

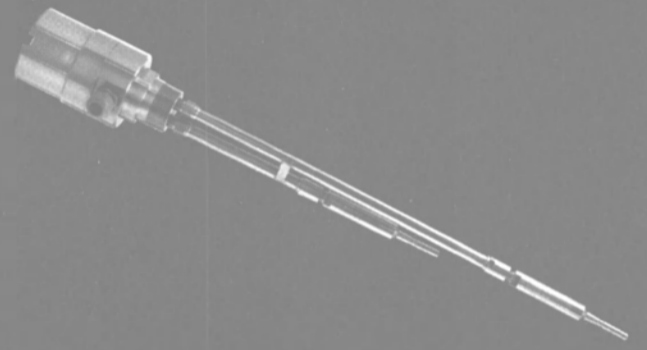
Turbo-Technik: Rescuing A "Prinsesse"

A summer day in July proved to be unfavorable for Color Line, whose passenger ferry, Prinsesse Ragnhild experienced a fire in its engine room en route from Kiel to Oslo. The vessel's fire was apparently caused by a defective fuel pipe. The job of repairing the ship was granted to the German team of Blohm + Voss Repair GmbH, Hamburg, who assured Color Line with a quick turnaround, ensuring that the vessel was kept out of a service for a minimal amount of time, due to its tight cruising schedule. Subcontracted by Blohm + Voss was Turboteknik Repairyard of Wilhelmshaven, who would perform fire damage repairs to the two Stork Werkspoor Diesel-built main engines, SWD 20 TM 410 (14,000-hp each). The vessel's starboard main engine and crankshaft engine had previously been renewed during scheduled repairs in Kiel during 1996. Work for the main engines' repair, included reconstruction, comprehensive repair or renewal of all damaged piping, control and pneumatic lines and equipment, as well as new alignment and re-choking, adjustment and final commissioning. The starboard main engine was examined at a greater length and dismantled, since it was the source of the fire, with the cylinder block being lifted up to car deck for thorough

overhaul. Camshafts were removed for full inspection, and the crankshaft was brought ashore for dimensional deflection measurements. The bed plate and main bearing were controlled and measured. A temporary intermediate platform was constructed on staging above the main engines preceding the installation of the major components, so that repairs could be expedited and other trades could continue work in the area.

Circle 108 on Reader Service Card

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The Sea Switch Two was designed and patented for all tank applications. The Sea Switch Two offers a reliable solution for liquid level detection and control for cargo, ballast, and storage tanks, without any moving parts.

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Smooth Sailing

Electronic update service for digital charts equals a radical new service in the United States

The entire suite of 1,000 official NOAA nautical charts has been available in digital raster form since 1995. These high quality, full color, geo-referenced images of NOAA's paper charts are made for use in computer-based navigation systems and work with GPS or other electronic positioning systems. They are produced jointly by NOAA and Maptech, Inc. under a cooperative research and development agreement (CRADA).

Mariners quickly adopted raster nautical charts. Their rapid adoption was aided by first-rate navigation software available from many companies at an affordable price. Today, the raster charts outsell NOAA's paper charts by eight to five. Each CD-ROM, containing about 55 charts, has grown to include the Coast Pilot, marine facilities, indexing and viewing software, and other facilities - all at no additional cost.

The final capability needed for raster charts is a practical means of applying the Notice to Mariners corrections that

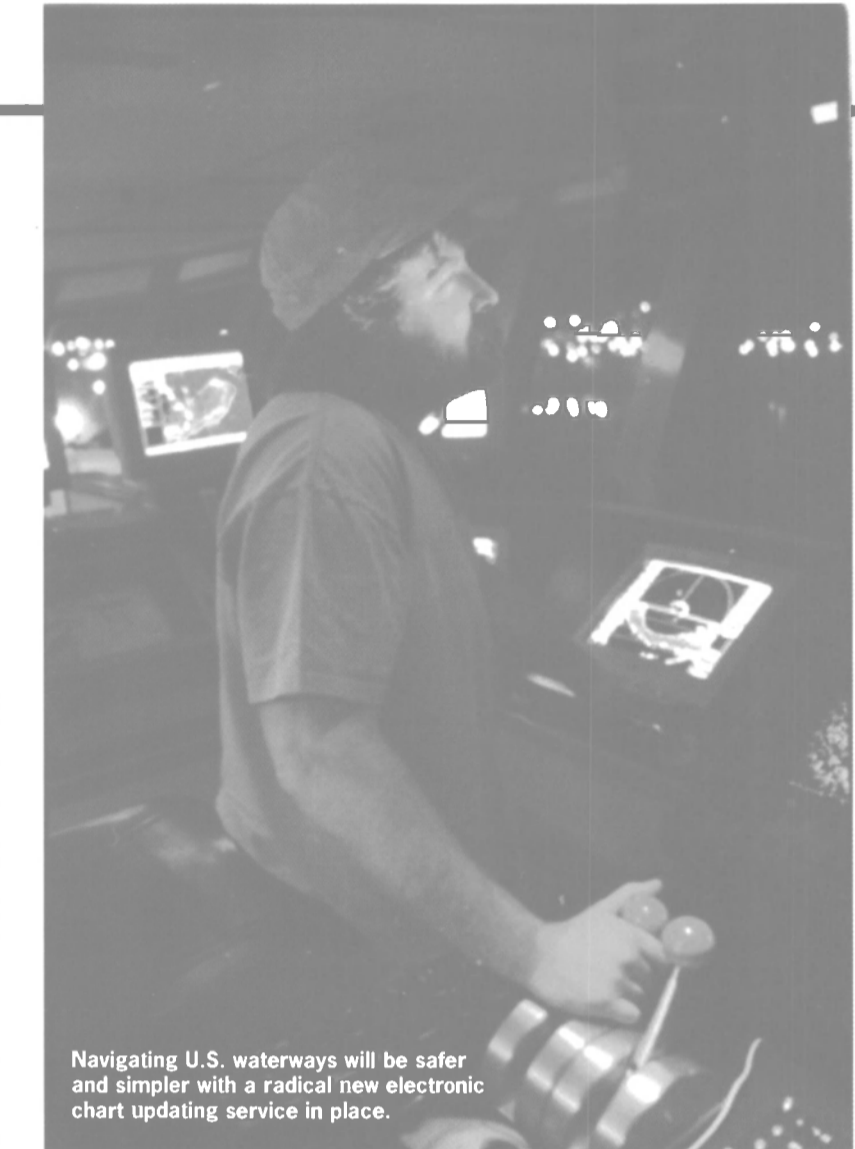
are issued weekly. With a reliable, officially approved update service, raster charts will be suitable for professional use and will meet the international standards for Electronic Chart Display and Information Systems (ECDIS).

Updating the Charts

NOAA compiles nautical charts with computer-assisted cartographic tools. The resulting digital files are used to make both paper and raster charts. Historically, new information was saved until about 50 critical changes had accrued and then the files would be updated and a new edition issued.

To support a weekly update service, NOAA remade its production system, processes, and procedures. More than 40,000 outstanding corrections were applied to eliminate the existing backlog of changes. This was no easy feat and took more than one year to accomplish.

Today, all 1,000 charts are continually updated for changes from the Coast Guard, NIMA, and the Canadian Hydro-



Navigating U.S. waterways will be safer and simpler with a radical new electronic chart updating service in place.

Photo: Walter Garschagen

graphic Service Notices to Mariners in the same week the Notices are issued. These files are then available for printing new charts and for Maptech to make raster chart updates.

The Digital Patch Technology

The corrected raster files are too large to be distributed as updates (about 100 megabytes per chart). Instead, NOAA

and Maptech developed a special "patch" technology. In this method, a pixel-by-pixel comparison is made between the old raster chart file and the updated one. A difference file is made that contains exactly those pixels, which, if overlaid on the old raster chart, turn it into the new one.

Maptech makes this difference file,

(Continued on next page)

Seacoast Delivers Package To Halter

Seacoast Electronics supplied an integrated electronics package to Halter Marine for the Foss Delta Mariner rocket booster transport ship. Seacoast was chosen by both Halter and Foss to provide a complete package encompassing systems design, communication and navigation electronics, machinery and automation systems, and CCTV system. The company utilized 3-D CAD modeling and rendering techniques, as part of the console design. Assisting with visibility, ergonomic and equipment placement issues during the design phase, the entire bridge was placed into a 3-D CAD model. The pilothouse was constructed as a full-scale mockup in Jacksonville, Fla. for a finalized review of the layout so that changes could be implemented before the console construction commenced. Seacoast is responsible for the construction, powder coating, assembly and pre-wiring.

Circle 129 on Reader Service Card



JRC Radar Offers Plotter System

Equipped with a 15-in. color CRT display and an optional chart plotter, JRC has developed a new long range professional radar system. Known as the JRC 3900 series, the product offers 1/8-to-96 or 120 mile range, 10 or 25 kilowatts of power, as well as the ability to display radar or C-Map plotting mode. Designed for use aboard megayachts, commercial fishing vessels and workboats, the high resolution radar detects and displays even the smallest targets at long range, while showing target tracks in seven colors. The company's new signal processing technology also offers upgraded performance in lowering sea and rain/snow clutter.

With optional gyro input, the 3900 series offers north-up, head-up, course-up, True Motion™ or relative motion display modes, as well as man-over-board indication, guard zone, dual EBL and VRM, and 2X zoom.

Circle 76 on Reader Service Card



EMS Offers Handy Sensor

Electronic Marine Systems (EMS) introduced the Bubbler — an electro-pneumatic level transmitter. This sensor allows remote level measurement using a 4-20mA analog output. Less air pressure does not cause any operational problems since the product holds an automatic one-way valve that closes as soon as the pressure dips below one bar, thus preventing back flow in the bubbling line towards the transmitter. The size of a grapefruit, the Bubbler has an explosion-proof housing, connection for pressurized tanks, and 2 pair 24 VDC and 4-20mA cables.

Circle 123 on Reader Service Card

ChartView Electronic Charts

Available from Nobeltec, ChartView allows users to create unlimited routes, marks, waypoints and annotations, view multiple charts at different zoom levels and seamlessly scroll from one chart to another. With PerfectView and PerfectQuilt, truly seamless charts can be viewed in exceptional clarity. Charts can be rotated in course up, leg up or any other angle, and still look crystal clear.

Circle 51 on Reader Service Card

(Marine Electronics Product Reports is continued on page 38)

adds the geo-referencing, metadata, and information that allows an update patch to be exactly registered with the old raster file to which it will be applied. The difference file is then compressed using a special algorithm developed by NOAA and Maptech to create a small (1 to 100 KB with 99 percent smaller than 10 KB) patch for each raster chart.

To update a raster chart, the old raster file is displayed from the CD-ROM and immediately "wiped-over" with the patch file. Where no pixels were different between the old raster chart and the new, the patch acts like it has transpar-

ent pixels and unchanged pixels from the old chart show through.

This novel differencing technique can be used to create sequential, week-to-week patches, or to create cumulative patches that include all changes since a new chart edition. It can also be used to overlay other geo-referenced raster data on top of the chart.

The technology, production and distri-

bution methods were jointly developed over the last two years. Maptech invested more than six staff years in technology development (exclusive of manufacturing, sales and distribution) and NOAA also invested heavily to produce a reliable updating infrastructure. Sea trials in 1999 have proven the method and added to its robustness.

The Raster Chart Updating Service

The updating service became available in January 2000 as a subscription, consisting of a weekly e-mail containing a hot link to the update computer server. When a mariner clicks on the hot link, it begins the transmission of the update patches to his computer. The transmission contains cumulative updates for all the charts on a CD-ROM. It takes 15

Electronic Update of Digital Charts

What does it mean to mariners?

The weekly update service means that electronic chart corrections come to you, every week, automatically - no forgetting, no chasing paper Notices to Mariners, and no delay in their application. The corrections arrive in a ready-to-apply form that a mariner's software can handle with little intervention. No more laborious, time consuming hand corrections are required - a process that has been particularly hard on the electronic charts. In addition, the updates can be printed and applied to a mariner's paper charts. This keeps both the paper and raster charts up-to-date and synchronized. The update service is really two services in one.

With this new service, mariners always have both the charts and patches. This allows them to look at the old chart, the corrected chart, or to look at just the corrections. Professional mariners who travel the same waterway frequently value this capability since they rely on experience in addition to the chart. The ability to see what has changed since their last transit alerts them where experience would be misleading.

The same experienced nautical cartographers at NOAA who compile the new chart editions have compiled the raster chart updates. This almost completely eliminates mistakes in what has been an error prone process. In addition, critical changes received by NOAA from sources other than the Notices to Mariners are included thus giving mariners the best information available. The electronic raster chart updates are official and NOAA stands behind them just like they stand behind the charts.

What is the legal status?

Many commercial vessels are required by federal regulation to carry official National Ocean Service, NOAA charts and publications. The U.S. Coast Guard writes and enforces these regulations. NOAA representatives have been working closely with the Coast Guard to develop suitable standards for electronic charts and systems that also could be used to meet the chart carriage regulations. This process is unusually complicated and long because NOAA and the Coast Guard must first help establish international standards upon which the U.S. standards are based.

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Marine Electronics

seconds to more than five minutes to download the file — depending on one's modem speed. When file reception is complete, a program on the mariner's computer unpacks the updates for immediate use, or copies charts from the CD-ROM, applies the patches, and then stores the updated charts on the hard

drive.

At first, mariners will update the charts and store them on their hard drive. Then, as software developers modify their navigation packages, dynamic updating should be available. With dynamic updating, the charts and patches remain separate and the patch is

"wiped over" the chart in real-time. This allows mariners to see that the patch is applied and to see what has changed, an important capability for mariners who transit a waterway frequently. Dynamic patching is also the preferred method under the international standards for ECDIS where mariners are required not

to alter the original data files. Either patching method will let the mariner toggle between the old chart and the new chart, or to view the patch by itself.

Maptech provides the update service as part of its CRADA partnership responsibilities. It comes packaged in a new, professional-level product. On each CD-ROM, mariners receive about 55 raster charts, the Coast Pilot, Light List, Tide Tables, Tidal Current Tables — where they exist — and update services for one year as a package deal. Notice that the CD-ROM contains all of the items called for in the Coast Guard's charts and publications carriage regulations.

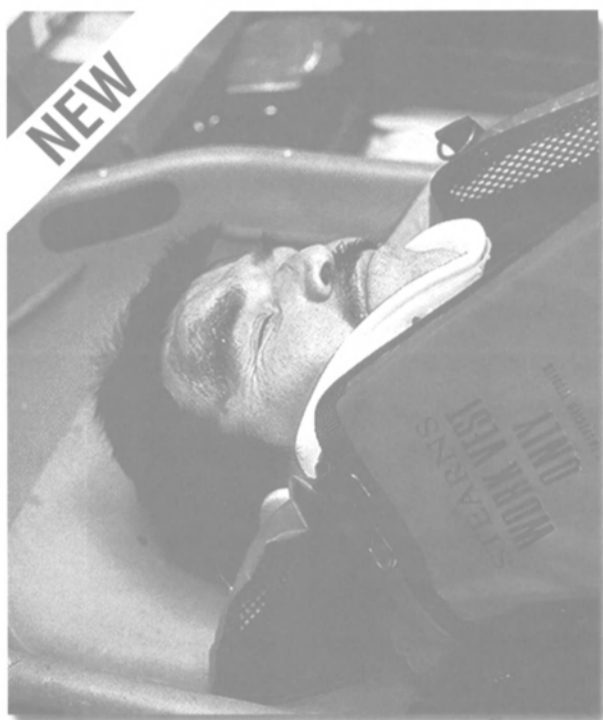
Official Status

With the availability of the weekly update service, NOAA is permitting its logo to be used on the commercial raster chart product. Accompanying text explains that the raster charts (and updates) were produced under the authority of NOAA, the national hydrographic office for the United States. This status makes them suitable for meeting the international standards for ECDIS.

In addition, NOAA and the Coast Guard have been working closely during the development of the ECDIS standards. That three-step, standards-setting process (International Hydrographic Organization standards for data, International Maritime Organization standards for systems, and International Electrotechnical Commission standards for type-approval) is nearing completion. Then, it is expected that the Coast Guard will amend the chart carriage regulations to permit the use of electronic charts and publications.

This U.S. raster chart update service is the first electronically delivered weekly service. Priced substantially below the cost of the few similar services available elsewhere in the world, it is a significant step in providing mariners a professional, modern navigation service in U.S. waters. Future plans may include the availability of single-chart updates rather than an entire CD's worth, and the inclusion of weekly updates to the Coast Pilot, Light List, and tide and current tables, as NOAA is able to provide the data. High accuracy vector data (called electronic navigational charts, ENC's) will also become available, with weekly updating, for the most demanding navigation in restricted and congested waterways. It is expected that these ENC's and updates will be added to the professional navigation product.

The preceding was co-authored by David B. Enabnit, Office of Coast Survey, NOAA; and Mark A. Jadcowski, Maptech, Inc.



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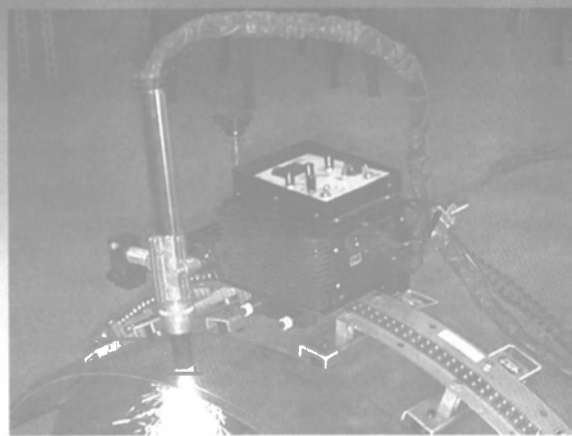
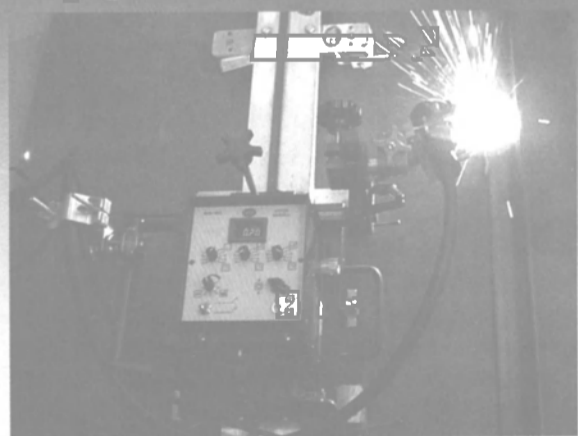
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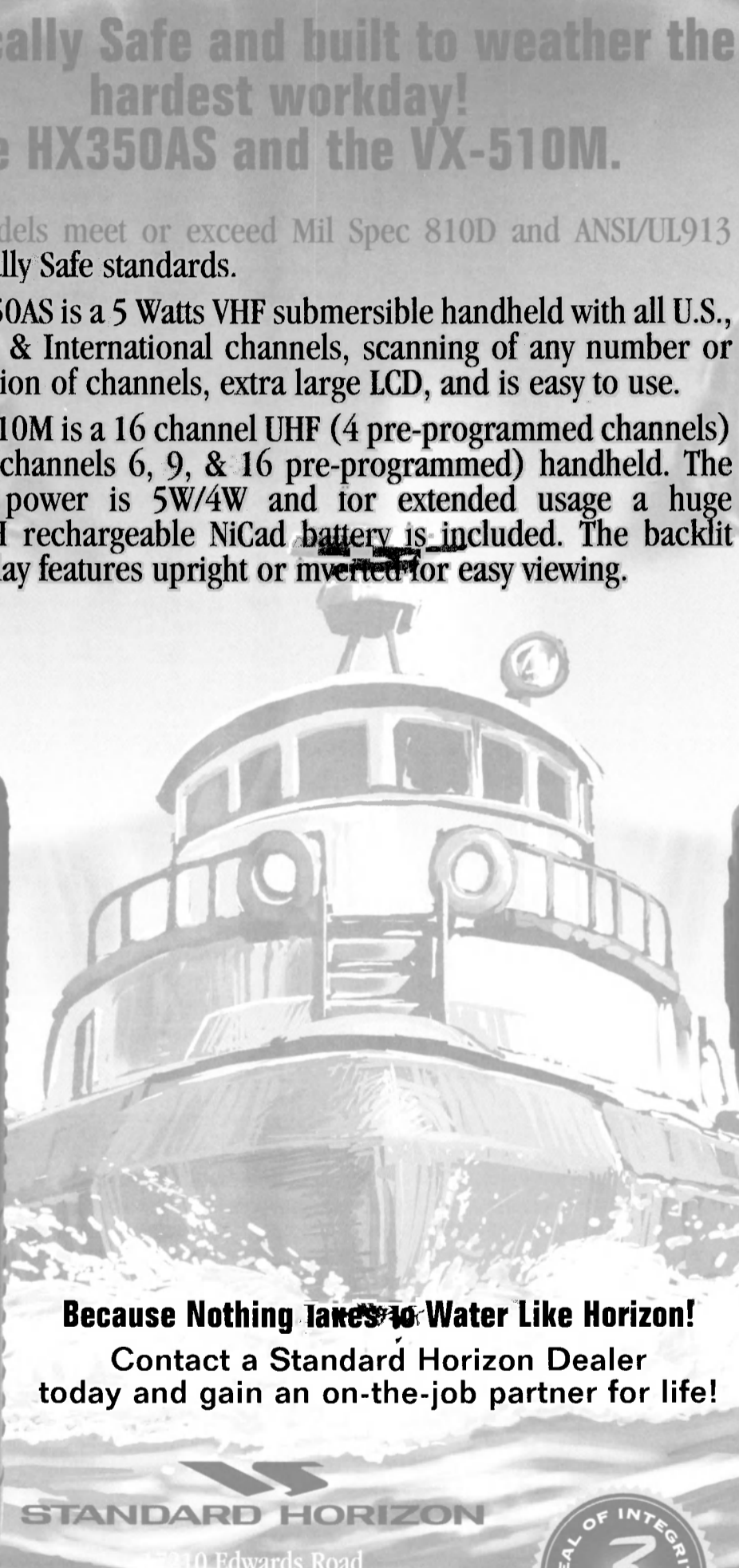
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Marine Electronics

SKYbolt Enables Real Time Processing

SKY Computers, a subsidiary of Analogic Corp., said that U.K.-based BAE Systems has utilized SKY's comprehensive SKYbolt II multicomputer for the development of a new radar signal processing system for naval surveillance

and target indication. BAE has tapped SKY to lessen the size of its system from six chassis of proprietary hardware to a single chassis of commercial components while concurrently upgrading real time processing response.

The program encompassed developing standards-based software that performs all of the necessary required radar signal

processing functions used for naval surveillance and target indication. Running on the SKYbolt II COTS hardware, the program was tested by running the new software-based signal processor on the SKYbolt II in parallel with the digital processing system of BAE's Type 996 proprietary radar system.

Circle 124 on Reader Service Card

Hose-McCann Expands Its Offerings

Hose-McCann has established a new subsidiary — United Marine Communications of Florida — expanding its electronic manufacturing capability. Both technologically driven companies have opened the door to state-of-the-art advances in Integrated Systems for the marine communications industry by offering the premiere ABS-Type Approved Integrated Public Address/Entertainment/General Alarm System. Resulting from customized electronic circuitry the 1338, 1648 and 2200 series of public address/general alarm systems can accomplish a variety of tasks in one combined unit, such as talkback and loudhailer communication, continuous supervision and auto-fault detection. Each innovatively designed package is specially sized according to system, location and speaker requirements in order to fit each customer's specific needs.

Circle 143 on Reader Service Card

ICOM IC-M1V Is World's Smallest

ICOM's newest IC-M1V marine VHF hand held transceiver is not just an upgraded version of the company's IC-M1. It also offers major breakthroughs that are new to the marine communications industry. Known as the first marine VHF hand held to provide Lithium Ion (Li-Ion) battery as standard equipment, the IC-M1V also offers five watts of talk power, enabling users (through Li-Ion) 12-14 hours of normal operation without having to recharge.

The IC-M1V is also equipped with a submersible speaker-microphone option that plugs into the waterproof jack located on top of the product. A 30 percent larger backlit LCD display reveals alphanumeric channel descriptions for easy channel identification, and an easy to reach, adjustable squelch.

Circle 72 on Reader Service Card

Globe Wireless Expands Network

Globe Wireless, owner and operator of the Maritime Data Network, has commissioned a new terrestrial digital node in Darwin, Australia. Formalized in conjunction with ITS Communications, a division of Integrated Technical Services, the new node increases the Maritime Data Network to 17 nodes linked worldwide, while providing additional capacity to users of the network.

The digital Maritime Data Network provides communications from ships at sea — anywhere in the world. Globe Wireless also utilizes the Network to

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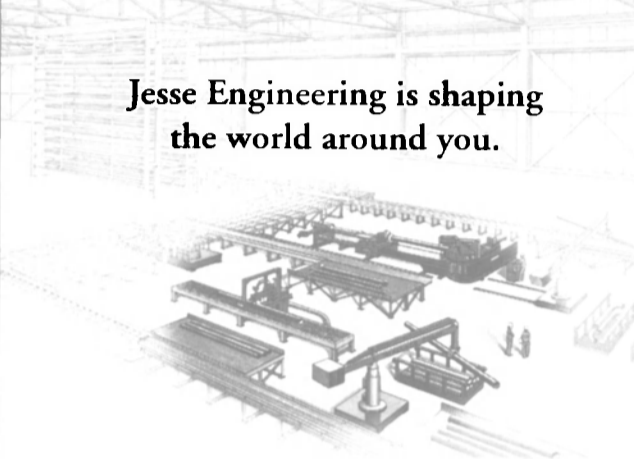
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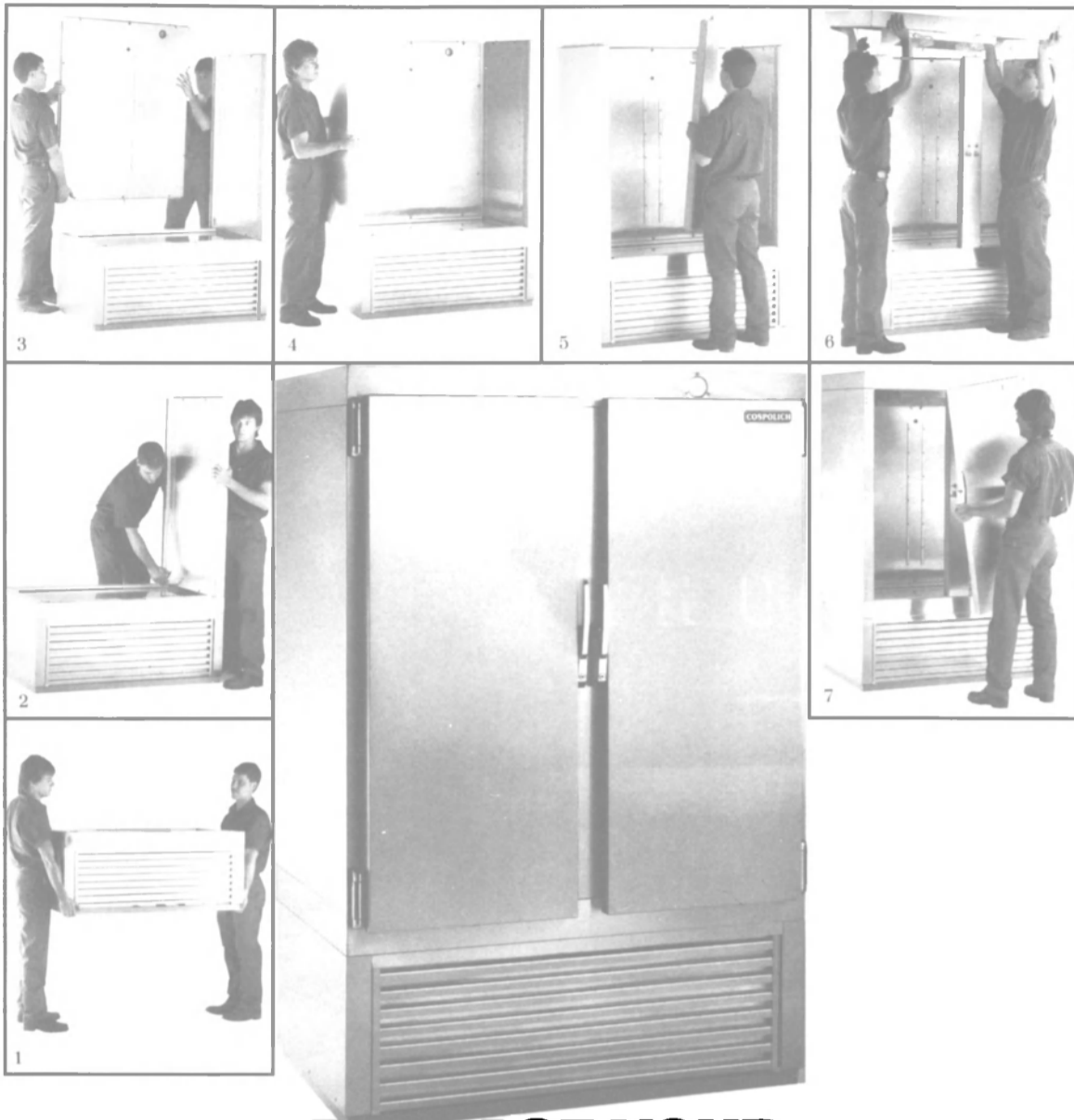
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Saab Celsius Presents Portable AIS Transponder

Saab Celsius TransponderTech AB, formerly known as GP&C Sweden, has formulated a new concept for pilots — a compact and portable AIS Pilot Case. Watertight to 10 m, the hard shell case utilizes Saab Celsius TransponderTech's R3 AIS



Saab Celsius TransponderTech's compact and portable AIS Pilot Case.

Transponder as the main component, which is transported onboard as a single unit with full AIS capability, such as: tracking of own ship and all other AIS-transponder equipped ships on the ECS and logging of transponder data.

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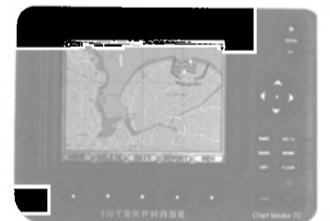
STN Introduces Debeg Satlog

A new integrated satellite navigation and speed log system with combined 24-channel GPS-Glonass positioning — Debeg Satlog 4124 — has been introduced by STN Atlas Marine Electronics. Providing a coinciding or separate position and speed calculations via GPS, Differential GPS and/or Glonass satellites, the system provides worldwide positional and speed accuracy of 15 m and 0.2 knots, respectively. Corresponding differential mode accuracies, derived from an integral multitrack differential beacon receiver, are 1 m and 0.1 knots. The system is designed for any type of marine navigation operation, as well as specialist applications, namely hydrographic surveying, buoy positioning and oceanographic research.

Circle 88 on Reader Service Card

New GPS/Chart Plotter Series

Interphase Technologies, Inc., has introduced a new series of easy-to-use GPS/chart plotters, utilizing the latest in high-detail,



seamless NT cartography from C-Map. The new Chart Master plotters are fast and powerful navigation aids. The model 7M is a monochrome LCD with optional GPS or DGPS sensor; model 7MI is a monochrome LCD with a unique built-in GPS antenna; Model 7C is a color LCD unit with optional GPS or DGPS sensor. A full array of advanced navigation features, such as worldwide detailed chart coverage including bathymetric lines, natural features, spot soundings, ports and services and navigation aids is available.

Circle 46 on Reader Service Card

New Handheld VHF

The new Shakespeare SE-700 handheld marine VHF radio is an ultra heavy-duty, rechargeable, nickel-metal hydride battery pack, with a 1,300 milliamp capacity, giving it more than twice the operating time of many other VHF handhelds. In addition, the SE-700 can run on standard AA or nicad batteries, if necessary. An included cigarette lighter-type charging system provides a memory-free recharge from either 12-volt DC or 100-volt AC power. Features include dual channel display, knobs for volume and squelch, backlit LCD and a battery level indicator.



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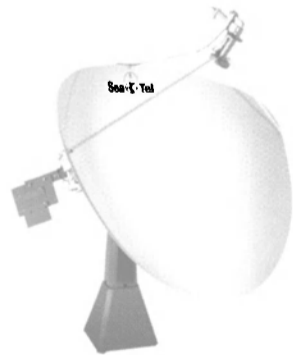
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Marine Electronics

Leica's Smart DGPS Antenna

Leica Geosystems offers a "smart" DGPS antenna, which can provide highly accurate position and velocity inputs to a laptop or other system. The apMK31 is a single integrated unit, containing 12-channel GPS receiver and a two-channel beacons DGPS receiver, all sealed in a low-profile weatherproof fiberglass radome. The antenna unit connects via a standard cable to the COM port in a PC or other device.

Circle 48 on Reader Service Card



Wavetalk Satellite Telephone

Wavetalk is easily installed and comes complete with all mounting brackets and marine hardware. The antenna can be mounted flush to the deck or on a standard one-in. marine mount. Long safety-rated antenna cables allow aboveboard flexibility in mounting the lightweight, satellite tracking antenna. Wavetalk antennas are available in the medium gain model or the high gain model, called Wavetalk Plus. Service features such as call waiting, forwarding and conferencing are also available on Wavetalk through satellite service providers.

Circle 53 on Reader Service Card



itability, cost reduction and improved asset utilization. OmniTRACS enables fleets to maintain continuous two-way communications with vessels and crew, 24 hours a day, with no gaps in coverage.

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Robertson Autopilot from Simrad

The Robertson AP11, from Simrad, is an all-weather autopilot for boats measuring up to 40 ft. (12.1 m). The product includes features normally seen on more expensive pilots, such as high/low speed response, automatic compass calibration and active integration with Robertson IS11 instrument system and Shipmate GPS navigators and chartplotters.

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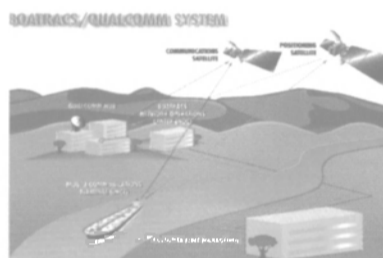
Furuno Daylight Radar

The Furuno Model 1761 Mark-3 is a new compact radar designed for small fishing boats and pleasure craft. Radar targets are presented in eight shades of green on a daylight bright seven-in. CRT. Standard features include EBL, VRM, Echo Trails, Guard Zone Alarm, Off-center, Target Zoom and Watch Mode. Continuous and automatic control of receiver tuning ensures optimum performance and target detection while keeping the overall radar operation simple. The Guard Zone Alarm offers aural and visual alarms when a target enters/exits a user-preset area.

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OmniTRACS System from Boatrac

OmniTRACS is an interactive information management that includes two way mobile communications, satellite tracking and fleet management software.

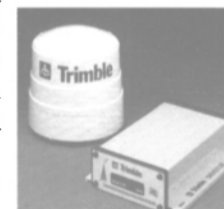


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ALL PROPOSALS MUST BE SUBMITTED TO OPIC BY FRIDAY, APRIL 28, 2000. PLEASE CONSULT THE CALL FOR PROPOSALS ON OPIC'S WEB SITE (WWW.OPIC.GOV) FOR DETAILS.



Marine Electronics

Transas Moves Towards Auto Integrated Navigation

With the Navi-Sailor 2400 ECDIS becoming the world's first type approved ECDIS, the company's latest development — Navi-Sailor 2500 — goes even further in the automation of full bridge navigation.

Navi-Sailor 2500 is equipped with a number of innovative functions that bring this product to the summit of modern shipping electronics. In addition to the vector charts of S-57 ver.3 format and raster ARCS and NDI/BSB, the new system can incorporate Seafarer raster charts produced by the Australian Hydrographic Office. The enhanced

User Chart Editor now offers as many as 15 colors for easier identification and definition. The software of Navi-Sailor 2500 also provides the facility for underwater object tracking and monitoring. Track Utility is a unique new function, which allows tracks of various ships to be merged into one single file. Shipping companies will benefit from

this utility by using the stored information for in-house analysis of their navigators' performance.

Transas Marine has also introduced a unique Navtex Manager feature to the functionality of the Navi-Sailor family of marine navigation systems. This innovative application is based on a link between the Navi-Sailor and Navtex Receiver. The Navtex Manager's main functions include constant automatic reception of Navtex messages, automatic generation of Navtex message database and storage of the data. Navtex manager is also capable of automatic extraction of latitude/longitude position from a Navtex message and its plotting on an electronic chart using special symbols.

Circle 96 on Reader Service Card

Litton To Supply For New Passenger Ferries

Litton Marine Systems has received orders to supply a broad spectrum variety of equipment for two new RoRo passenger ferries in Japan.

The ship duo (Hulls 1065 and 1068) are being constructed for P&O Ship Management (Irish Sea) Ltd. at the Mitsubishi Heavy Industries yard in Shimoneski. Scheduled for delivery in mid 2000 and early 2001, the contract includes options for two additional ships. Litton is set to supply a complete integrated bridge system; comprehensive machinery monitoring, alarm and control system; and Gyrofin stabilizers.

The integrated bridge system will encompass a Voyage Management System with dual ECDIS/conning displays, fiber optic gyrocompass, dual GPS receivers and adaptive autopilot with steering control. All navigation and ship control displays for the bridge system will also be supplied by Litton.

Circle 80 on Reader Service Card

Saab Attains Majority Shareholding

Saab Marine Electronics acquired the majority shareholding in Marine Electro Process AS, located in Moss Norway in December. Proceeding the acquisition, the company changed its name to Saab Marine MEP AS. The newly structured company recently introduced MEP2000™, a technologically-driven integrated alarm concept. Developed for contemporary marine and offshore applications, the product provides 100 percent data integrity for both stand-alone and fully integrated solutions. The product uses Windows NT as the software foundation and Intellution's FIX32 software range as automation platform.

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Marine Electronics

Leica Receives SA Order

Leica Geosystems has been granted a contract to supply a network of DGPS beacon stations in South Africa.

Operated by Portnet Lighthouse Services, the DGPS beacon network will provide upgraded navigational accuracy of 10 m or more in South African har-

bors and coastal waters. Consisting of four DGPS beacon stations and a remote control station, the network's four broadcasting stations will be located at Cape Columbine, Cape Agulhas, Cape Recife and Cooper, and will interface with existing radiobeacon transmitters at those locations.

Circle 73 on Reader Service Card

STN Extends DESO Range

STN Atlas Marine Electronics has expanded its DESO range of survey echosounders with its Atlas DESO 300 — a new portable unit — designed for operation aboard small survey vessels and inflatable watercraft.

The lightweight system holds operat-

ing frequencies of 210, 200, 40 and 33 kHz and sealed keypad controls, and features integral recorder, digitizer and transceiver functions inclusive of LCD display facilities, as well as 8.5-in. thermal printer. Depending on transducer arrangements, depth range is 0.2 to 250 m (0.7 to 820 ft.), while resolution stands at 0.01 m (0.1 ft.)

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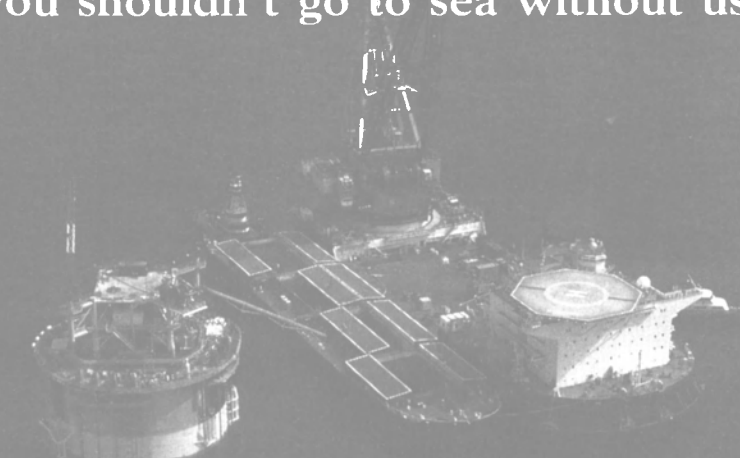


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The system can also be optionally supplied with an integral DGPS receiver with surroundings that can be automatically annotated with GPS position — providing complete surveys.

Circle 81 on Reader Service Card

Litton Marine's ISIS Installed on Protection Vessel

Litton Marine Systems is supplying an ISIS 2500 machinery monitoring, alarm and condition assessment system on a new 259 ft. (79 m) mono-hull twin-screw fisheries protection vessel for the Irish Navy. The ISIS 2500 provides real-time monitoring of the vessel's twin Wartsila main engines through a serial data interface with the Wartsila Engine Control Systems (WECS). The system, which monitors approximately 500 additional channels for shipboard sensors and systems, also provides remote control of the vessel's bilge pumps, ballast tanks, oil transfer pumps and engine room ventilation.

Circle 74 on Reader Service Card

NovAtel Offers GPS Antenna

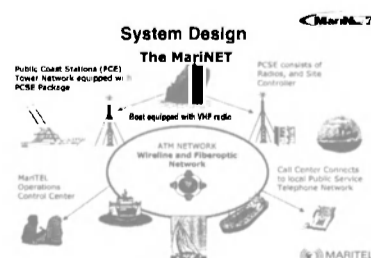
NovAtel presented its new GPS 600 Series Antenna recently. Created as the GPS industry's premiere dual frequency antenna to achieve less than 1 mm offset between L1 and L2 phase centers without the aid of a choke ring, the new 600 series antenna can reach this level by replacing conventional patch antenna designs with NovAtel's patent pending Pinwheel Technology. Measuring 6.5-in. and weighing 600 grams, the antenna is compact — making it ideal for portable applications, such as surveying.

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MariNET For VHF Communications

The MariNET, a project of MariTEL Inc., will provide contiguous, seamless VHF marine radiotelephone communications between ships and shore along the coastal and navigable inland waterways of the U.S. It will provide data services and advanced telephony features found in modern telecommunications networks. The MariNET will support Digital Selective Calling (DSC) and non-DSC VHF marine radios. It will be expandable to support VHF-AM, UHF-AM, APCO 25 and other radio services.

Circle 49 on Reader Service Card



March, 2000

PinPoint's Marinized Computing System

PinPoint Systems International's SVS/DVS systems have an "open architecture" design, which means all types of computer peripherals can be interfaced. The self-contained electronic charting systems incorporate a fully

marinized Intel Pentium computer and a military specification internal hard drive. The sunlight and daylight viewable screens are precise full-color TFT displays. The software automatically loads charts and accesses positioning data, and automatically finds the best scale chart for the vessel's position.

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Rudder Angle Indicator

The Euro 100 rudder angle indicator, available from DeHart Marine Electronics, offers easy read-out of the rudder angle and adjustable illumination. It is supplied with a sturdy and reliable rudder sensor, which is splash-waterproof and oil-resistant.

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Riverboat Casino Ratings Buoyed by Regulations, Demand

The operators of many of the riverboat casinos along the Mississippi and Ohio Rivers are likely to enjoy smooth sailing as growing demand, limited new supply, and relaxed regulations support stronger operating results and possibly rating upgrades, Moody's Investors Service reports.

The rating agency also cautions, however, looser gaming restrictions in one jurisdiction or the strengthening of one casino's position through the addition of new amenities could put pressure on neighboring operations.

"Overall, our rating outlook is positive and we expect more upgrades than downgrades of companies in this industry over the next 6-18 months," says Moody's VP/senior analyst **Todd Gray**. "But at the same time, the rising tide for the sector as a whole will not lift all the riverboat operators."

Specifically, the analyst says among the companies in line for a potential rating upgrade or positive outlook change are Hollywood Casino Corporation

(B3); Hollywood Park (Ba3); Horseshoe Gaming (Ba3); Lady Luck Gaming (B2); Hollywood Casino Shreveport (B3); Players International (Ba3); and Station Casinos (Ba2).

Companies more likely to experience either a rating downgrade or a negative outlook change include Alliance Gaming (B2), Majestic Star (B2), Mirage Resorts (Baa2) and President Casinos (Caal).

The analyst points out that many of these companies also operate land-based casinos, and that rating changes in any direction are also influenced by the performance of these other properties, as well as by management's financial and strategic policies overall.

Since riverboat casinos first opened in Iowa in 1991, the operators of such casinos have seen demand grow faster than supply. This is likely to continue to be the case, especially as new regulations in Illinois, Missouri, and Louisiana either eliminate certain operating restrictions in an attempt to increase tax

revenues from the casinos or eliminate a source of potential competition.

For example, in Illinois, gaming revenues have increased dramatically since last June, when Governor **George Ryan** signed a law eliminating the cruising requirements on the state's nine riverboat operators. Prior to this law, the flow of customers was limited by the requirement that the riverboats set sail for a minimum of two-hour cruises. Following the change, revenues were up an average of 35 percent from July through December 1999 over the same period in 1998.

And in Louisiana, two Baton Rouge casinos owned by Louisiana Casino Cruises (B1) and Argosy Gaming (Ba3) have seen their revenues increase more than 20 percent since last summer's ban on video poker in non-casino locations, such as bars and truck stops. Louisiana Casino Cruises was upgraded in November to B1 from B2, in part because of these gains.

In addition to more favorable regula-

tion, "new amenities such as hotels, restaurants, improved parking, and entertainment facilities, are likely to attract new traffic, as well as increase the amount of money that the average customer spends per visit," according to Moody's **Todd Gray**.

New competition is likely to remain limited either by the number of gaming licenses granted by some states or by the fact that many of the best locations for such facilities have already been taken, the analyst says.

He also says more consolidation among the industry is likely as existing operators are afforded limited opportunities for growth as a result of the same factors. Moody's rates the debt obligations of 24 gaming companies owning riverboat casinos in the U.S. These companies have approximately \$18.5 billion of rated debt outstanding and are rated in the range from Baa2 to Caa3. A total of 83 riverboat casinos, with annual revenues of more than \$7 billion, currently operate in the U.S.

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Washburn & Doughty: Developing New Process To Meet Changing Needs

Washburn & Doughty Shipyard of East Boothbay, Maine is preparing to launch Tracy Moran, the fourth in a series of six Z-Drive Tugs under construction for the Moran Towing Corporation of Greenwich, Conn. Tracy Moran will join its sisterships in Norfolk, Va. where they are contracted by the Military Sealift Command for submarine and ship assist work.

Measuring 92 x 32 x 13.8 ft. (28 x 9.7 x 4.2 m) and built to ABS Maltese Cross A1, AMS, Towing Service standards, Tracy Moran is powered by two 2,000 hp EMD 16-645-EZ main engines driving Ulstein Z Drives. Service speed for Tracy Moran is planned for 13 knots and the vessel has a 32,000 gallon fuel oil capacity. Washburn & Doughty's vice-president and naval architect, **Bruce Washburn**, designed Tracy Moran. The Moran tugs are built to Washburn's second Z-Drive Tug design. Cape Fear Towing's Fort Bragg, Washburn's first Z-Drive Tug design, provided the foundation for the design of the Moran tugs.

Tracy Moran blends traditional tugboat lines with today's more modern characteristics. The vessel features a wheelhouse with 360-degree hi-lo visibility and overhead windows. Inside, the captain's chair is centrally located among the vessels controls, electronics and communication systems.

The Moran contract is the largest multi-vessel contract ever awarded to Washburn & Doughty. In taking on the Moran contract, Washburn & Doughty had to decide how to make its small yard reach production levels on par with the country's larger yards. According to company president **Bruce Doughty**, much of the yard's success in maximizing production stems from the fact that the design was done in-house using AutoCAD.

"By using CAD we can make adjustments during both the planning phase and construction phase," said Doughty. "In addition, it allows us to communicate information effectively with vendors and sub-contractors via e-mail."

In order to meet Moran's schedule, Washburn & Doughty had to develop new planning schedules for both production and manning. "If we had decided to build all six vessels from the keel up, we would have been in big trouble," said Doughty. "We definitely took a more modular approach to construction during this project."

As an example of this more modular approach, Doughty pointed out some of the wheelhouses were constructed and outfitted far from their respective vessels.

In keeping with the modular theme, Washburn & Doughty contracted out fabrication of some of the bulkier vessel

pieces. "Sub-contracting out some strategic vessel parts, like the engine beds, provided enormous benefits for the yard," said Doughty. "By sub-contracting out the engine beds, we were able to lay the keel and the engine beds immediately after the launch of the previous boat. This allowed us to put more

people to work sooner. It also kept floor space free for the projects that needed to be completed at the yard."

Another key component to the Moran project has been the development of a larger and more efficient workforce. Washburn & Doughty increased their production crew significantly during the

project and promoted a number of senior production employees to leadership positions. Tracy Moran is scheduled for launch this month. Construction of the last two tugs and a 186 ft. (56.6 m) Dinner/Casino Boat is simultaneously underway.

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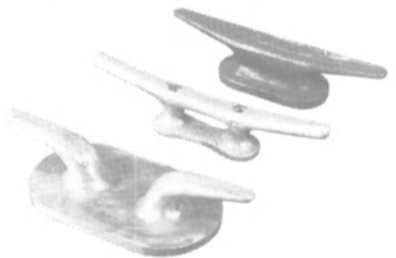


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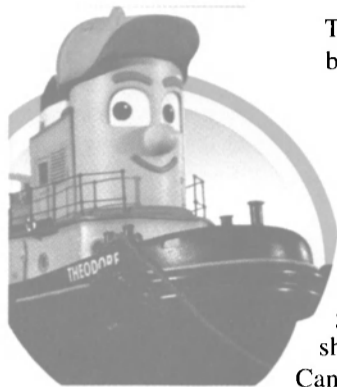
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U.S. Inland • Boatyard Activity Report

BUILDER/ OWNER	NAME	TYPE	DIMENSION	PROPULSION	DEL.	BUILDER/ OWNER	NAME	TYPE	DIMENSION	PROPULSION	DEL.
A&B Industries						N/A	N/A	Yacht	150 x 30	N/A	N/A
N/A	N/A	Tug	74 x 26 x 7	Cummins	Jul-00	N/A	N/A	Supply (7)	200 x 56 x 18	CAT 35168	12/13/98-4/13/00
N/A	Sea Express	OSV	120 x 32 x 12	Cummins	Mar-00	N/A	N/A	Supply	210 x 48 x 18	EMD	N/A
N/A	Ocean Express	OSV	120 x 32 x 12	Cummins	Jun-00	Houma Marine Fabricators, Inc.					
N/A	Cal Dive IV	OSV	120 x 32 x 12	Caterpillar	Jul-00	UDI	N/A	Pushboat	70 x 34 x 10	(3) Cummins Diesels	Feb-00
N/A	N/A	OSV	140 x 32 x 12	Caterpillar	Fall 00	UDI	N/A	Pushboat	70 x 34 x 10	(3) Cummins Diesels	Apr-00
Atlantic Marine, Inc.						UDI	N/A	Pushboat	56 x 26 x 7	(2) Cummins Diesels	May-00
Delta Queen Steamboat Co.	N/A	Coastal Cruise Boat	300 x 50 x 20	(2) CAT 3516	1-Mar	UDI	N/A	Pushboat	56 x 26 x 7	(2) Cummins Diesels	Jun-00
Delta Queen Steamboat Co.	N/A	Coastal Cruise Boat	300 x 50 x 20	(2) CAT 3516	1-Jun	Ingalls Shipbuilding					
Bay Shipbuilding Company	N/A	DH Petroleum Barge	504 x 78 x 37	N/A	2000	SeaRex, Inc.	N/A	Offshore Jackup Vessel	165 x 140 x 15	N/A	Apr-99
Mobil Oil	N/A	DH Petroleum Barge	504 x 78 x 37	N/A	2000	SeaRex, Inc.	N/A	Offshore Jackup Vessel	165 x 140 x 15	N/A	Jul-99
Bender Shipbuilding & Repair Co.						SeaRex, Inc.	N/A	Offshore Jackup Vessel	165 x 140 x 15	N/A	Oct-99
Otto Candies Inc.	Devin Candies	Anchor Handling Tug	150 x 50 x 21	(2) EMD 16-645 E6	Aug-00	Jeffboat	N/A	Inland River Towboat	150 x 42 x 11.5	(2) CAT 3606	May-00
Otto Candies Inc.	Nicki Candies	OSV	220 x 54 x 20	EMD 16-645E6	1/31/00	Leevac Shipyards Inc.					
Otto Candies Inc.	Sidney Candies	Anchor Handling Tug	150 x 50 x 21	(2) EMD 16-645 E6	5/3/00	HV Marine	Hull 324	OSV	190 x 54 x 16	CAT 35168	Feb-00
Otto Candies Inc.	Kelly Candies	Anchor Handling Tug	150 x 50 x 21	(2) EMD 16-645 E6	6/23/00	Marine Builders Inc.					
Blount Marine Corporation						Jack Tanner Towing	Danny H.	Inland River Towboat	56 x 22 x 7.5	Cummins KT19M1	1/30/00
Tallmadge Brothers	N/A	Oyster Suction Dredge	90 x 30 x 8	CAT 3408	Apr-00	USACE	Grand Tower	Inland River Towboat	65 x 24 x 8.5	Caterpillar 3406E	4Q-00
Bollinger Shipyards, Inc.						Winston Yacht Charters	Sir Winston	Dinner/Excursion	116 x 33 x 10.5	Cummins	6/1/00
U.S. Army	Springfield (BD-03)	Derrick Barge	200 x 78 x 14.3	Cummins 300 kW	Nov-00	Marinette Marine Corporation					
U.S. Army	Springfield (BD-02)	Derrick Barge	200 x 78 x 14.3	Cummins 300 kW	Aug-00	N/A	N/A	Barracks Barge	269 x 68 x 64	N/A	11/1/00
U.S. Army	Solihillo	Derrick Barge	200 x 78 x 14.3	N/A	Aug-00	N/A	N/A	Barracks Barge	269 x 68 x 64	N/A	1/2/01
U.S. Navy	Tornado	Patrol Coastal	170 x 30 x 13.5	(4) Poxman Valenta 16RP200	Feb-00	May Ship Repair Contracting Inc.					
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Feb-00	N/A	N/A	Deck Barge	250 x 72 x 16	N/A	N/A
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Feb-00	N/A	N/A	Dry Dock	150 x 80	N/A	N/A
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	May-00	N/A	N/A	Office Barge	150 x 32	N/A	N/A
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Jun-00	Neuville Boat Works, Inc.					
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Jul-00	Seacor Marine	Charles F. McCall	Crewboat	165 x 34 x 13	(5) Cummins KTA38M2	5/1/00
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Aug-00	Seacor Marine	N/A	Crewboat	155 x 30 x 13	(5) Cummins KTA38M2	11/8/00
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Feb-00	Orange Shipbuilding Co., Inc.					
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Feb-00	N/A	N/A	Deck Barge	150 x 50 x 8	N/A	1Q-00
USCG	N/A	Patrol Boat	87 x 17.3 x 10	(2) MTU 8V396	Jan-00	U.S. Army	N/A	Tugboat (9 vessels)	60 x 22 x 8	(2) Cummins KTA19M3	1999-2000
Broward Marine, Inc.						USACE	N/A	Double Skin Tank Barge	195 x 35 x 12	N/A	4Q-00
N/A	N/A	Motor Yacht	115 x 23	N/A	N/A	Palmer Johnson Inc.					
N/A	SPEC	Cockpit Motor Yacht	112 x 20	N/A	N/A	N/A	N/A	Motor Yacht	144 x 28 x 6.2	(2) CAT 3508	Spring 2000
N/A	Lady Francis IV	Motor Yacht	103 x 20	N/A	N/A	Quality Shipyards Inc.					
N/A	SPEC	Tri-Deck	155 x 28	N/A	N/A	Marquette Transportation	N/A	River Towboat	180 x 48 x 11.5	CAT 3612	4/30/00
N/A	SPEC	Motor Yacht	90 x 20	N/A	N/A	SeaArk Marine					
N/A	SPEC	Sport Fish	93 x 22	N/A	N/A	Commercial	N/A	Water Taxi	26 x 8	9.9 hp outboard	3/1/00
N/A	SPEC	Sport Fish	93 x 22	N/A	N/A	Commercial	N/A	Patrol	48 x 16	660 hp diesels	3/10/00
N/A	Cocoa Bean	Motor Yacht	142 x 28	N/A	N/A	Commercial	N/A	Excursion	28 x 10	(2) 300 hp outboards	4/15/00
Conrad Shipyard, Inc.						Gov't	N/A	Transporter	26 x 8	(2) 150 hp outboards	2/1/00
N/A	Hull C-665	Liftboat	110 x 64 x 10	Caterpillar	1Q-00	Gov't	N/A	Patrol	23 x 8	200 hp 1/0	2/1/00
N/A	Hull C-679	Liftboat	111 x 64 x 10	Caterpillar	2Q-00	Gov't	N/A	Workboat	23 x 8	(2) 130 hp outboards	2/20/00
N/A	Hull C-668	Liquid Mud Barge	130 x 34 x 7	N/A	2Q-00	Gov't	N/A	Transporter	35 x 12	N/A	5/18/00
N/A	Hull C-678	Split Hopper Dump Scow	240 x 54 x 22	N/A	1Q-00	Gov't	N/A	Transporter	46 x 14	(2) 350 hp diesels	6/30/00
Crescent Beach Boatbuilders						Municipal	N/A	Transporter	24 x 10	200 hp outboard	5/5/00
N/A	N/A	Tri-Deck	121 x 25 x 6.5	(2) 16V2000 DDC/MTU	Aug-00	Semco, Inc.					
Derecktor Shipyards						Power Offshore Services	Power 250A	Class 250 Liftboat	176 x 103 x 13	Cat 3508	Mar-00
Sandy Hook Pilots	N/A	Pilot Boat	55.9 x 18.8 x 5.3	(2) Detroit Diesel 8V200	Sep-00	SkipperLiner Industries Inc.					
Sandy Hook Pilots	N/A	Pilot Boat	55.9 x 18.8 x 5.3	(2) Detroit Diesel 8V200	Dec-00	Island Girl River Cruises	Island Girl XII	Dinner/Charter Cruise	91	N/A	5/1/00
South America Private	N/A	Aluminum Sloop	112 x 25 x 13	CAT 3406C	2000	LaCrosse Queen Cruises	LaCrosse Queen	Dinner/Charter Cruise	91	N/A	5/1/00
U.S. Private	N/A	Motor Yacht	102 x 23.5 x 4.2	(2) Detroit Diesel 16V-2000	2000	N/A	N/A	Dinner/Charter Cruise	91	N/A	3/15/00
Woods Hole Steamship Authority	Flying Cloud	High-speed Cat Ferry	134.5 x 34.8 x 6.4	(2) Poxman 12VP185	May-00	VIP Cruises	Romantica	Dinner/Charter Cruise	115	N/A	4/1/00
Eastern Shipbuilding Group						Waterways	Olympic Star	Dinner/Charter Cruise	91	N/A	5/1/00
Lake Champlain Transportation	N/A	Possenger/Vehicle Ferry	216 x 43 x 12	Caterpillar	Aug-00	Washburn & Doughty Associates Inc.					
Naviera Tamaulipas	San Rafael	Supply Vessel	204 x 44 x 16	Caterpillar	Jun-00	Cajun Express	N/A	Casino Boat	186 x 38 x 7.5	(2) CAT 3508B	Feb-00
The Boat Company	Mist Cove	Excursion Vessel	157 x 32 x 13.5	Cleveland	Feb-00	Moron Towing Corp.	Karen Moran	Z-drive Tug	92 x 32 x 13.8	(2) EMD 16-645-E2	Jan-00
University of Miami	F.G. Walton Smith	Research Vessel	96 x 40 x 11.5	Cummins	Jan-00	Moron Towing Corp.	Susan Moran	Z-drive Tug	92 x 32 x 13.8	(2) EMD 16-645-E2	Feb-00
Gladding-Hearn Shipbuilding						Moron Towing Corp.	Tracey Moran	Z-drive Tug	92 x 32 x 13.8	(2) EMD 16-645-E2	Mar-00
Boston Harbor Cruises	N/A	Fast Catamaran Ferry	147 x 39	(4) Caterpillar 35128	Jun-00	Moron Towing Corp.	N/A	Z-drive Tug	92 x 32 x 13.8	(2) EMD 16-645-E2	2000
Charleston S.C. Pilots	N/A	Pilot Boarding Boat	75 x 20	(2) DDEC 18V2000	Apr-00	Moron Towing Corp.	N/A	Z-drive Tug	92 x 32 x 13.8	(2) EMD 16-645-E2	2000
Charleston S.C. Pilots	N/A	Pilot Boarding Boat	75 x 20	(2) DDEC 18V2000	Aug-00	Winninghoff Boats					
N/A	N/A	Fast Catamaran Ferry	140 x 34	N/A	Dec-00	N/A	N/A	Sportfishing Yacht	48 x 15	Twin Jet	May-00
N/A	N/A	Fast Catamaran Ferry	140 x 34	N/A	1-Mar	N/A	N/A	Recreation	33 x 11	Single Jet	May-00
Gulf Craft, Inc.						N/A	N/A	Fire/Rescue	30 x 10	Twin Outboard	Jun-00
N/A	N/A	Crew/Supply	145 x 28	(4) Cummins KVA38	Mar-00	Halter Marine Group, Inc.					
N/A	N/A	Crew/Supply	135 x 29	(4) CAT3412	Jun-00	N/A	N/A	Sportfish	126 x 27 x 6.1	Poxman 12V185	N/A
Gundersen Marine Inc.						Maritime Reporter/Engineering News					
Pacific Trader	Alaska Trader	Deck Cargo Barge	343.5 x 94 x 21	N/A	3/17/00						

Inland Report

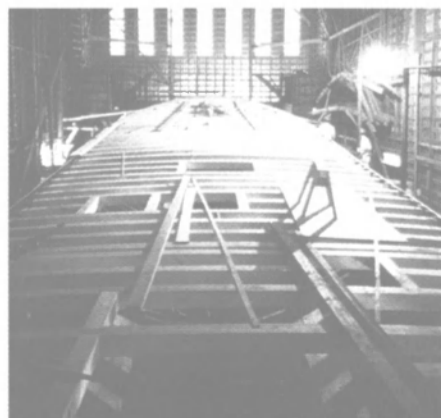
Fictitious Tugboat Character Goes Live In Canada Yard



Theodore Tugboat, the star of a live-action animated children's television series for pre-school children, is going live at a shipyard in Canada. A life-size replica of Theodore Tugboat — dubbed Theodore Too! — is currently under construction at Snyder's Shipyard near Lunenburg, Nova Scotia, an area renowned for turning out wooden boat legends. Designed by **Fred Allen** and naval Architect **Marius Lengkeek**, the new vessel is scheduled to be launched in the fall.

The show — which is hosted by former Mamas & the Papas' rock band frontman **Denny Doherty** — consists of a series of 12-minute segments and aims to deliver interesting and educational stories. Using Halifax Harbor as its model, set designer Fred Allen and creator Andrew Cochran have delivered a unique educational and maritime environment that features more than 40 floating models and more than 200 individual 3-D structures.

Powered by a 400-hp Caterpillar diesel engine, Theodore will be capable of an 8.5-knot speed. Constructed of a variety of woods, including spruce, oak, yellow birch, white pine and maple, the 65 ft. (19.8 m) boat will feature a molded fiberglass hat, face and smokestack, as well as eyes operational via a hydraulic mechanism.



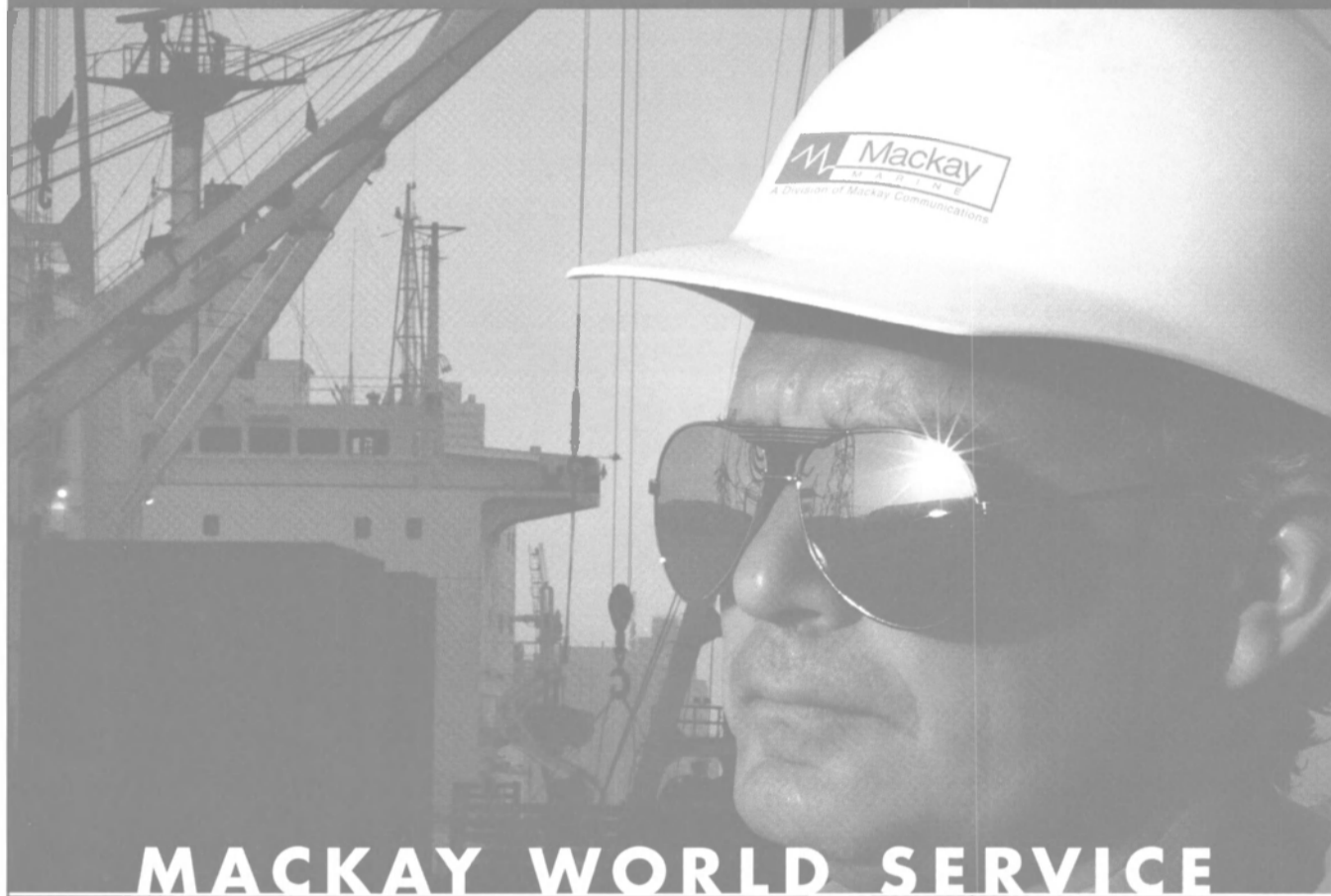
March, 2000

Philip Snyder is president of Snyder Shipyard, and has worked there since 1966, serving as a master shipbuilder since 1972. He notes that the new ves-

sel will be framed out with steamed frames, and plank on frames, which means it will be built in the traditional style. He said that one of the biggest

challenges for the project to date was getting the timber, as the shape of the bow and stern demanded some very large wood.

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Bollinger opts for Oracle

In tying its eight diverse facilities together with a state-of-the-art information system, Bollinger Shipyards plans to recoup monetary and efficiency rewards far exceeding the \$2.5 million investment.

Bollinger Shipyards has aggressively pursued a course of expansion of physical facilities over the past few years, though not to the point of over-extension whereby down markets would cause a serious financial crisis.

But while the shipyard has steadily added to its capabilities, it realized that expansion of facilities without a thorough revamp of its own internal communications and processes would be foolhardy, as well as very costly.

Enter Arthur Andersen and Oracle.

To facilitate its strategy to align its management and resources along lines of business as opposed to geography, the company employed the services of one of the country's premier management consultancies and the products

and services of one of the world's leading software system manufacturers. With the idea of taking a more centralized view of providing services, management and support to all of the company's businesses without jeopardizing the entrepreneurial spirit of local manager, the company set out to connect all of its locations via a T-1 based Wide Area Network (WAN) and then implement an Enterprise Resource Planning System (ERP). An ERP is lingo for a system that uses one database and several software application modules to automate all of a company's key operational and financial processes.

Pruning the Bollinger tree

Bollinger Shipyards has 1,800 employees and is comprised of eight shipyards spread throughout Southern Louisiana, with 120 miles being the furthest distance between two of its facilities. The company collectively processes about 35,000 tons of steel, churning out approximately 120 boats

and barges in a given year.

Until recently, the company's shipyards were using several different software/systems to produce financial/operational information necessary to run the business. In addition, several manual processes and mechanisms were used in the estimating, scheduling, purchasing and accounting. In order to report of use information on a consolidated basis, countless manual hours had to be expended to pulling spreadsheets together from several different softwares and databases. In essence, the company spent more time producing the information than it did analyzing it.

Several attempts had been made in the past to select and implement an enterprise wide software that would facilitate the functionality required by not just the new construction of vessels, but also the repair and conversion of vessels. However, those attempts have not been successful due to software limitation and the inability for the company

Donald "Boysie" Bollinger has steadily shaped his company as a dominant maritime force. The company, comprised of eight shipyards, recently invested in an advanced internal communication and process system from Oracle.



IT Conference Set For London

Shipping has been understandably wary in its embracing of IT. The attraction of reduced costs, increased efficiency and improved communications has been weighed up against ensuring security and reliability in an industry where a technical problem can leave ships stranded and delayed - costing thousands. Addressing the industry's frequently asked technology questions are the aim of the Communications and IT in Shipping (CITIS) conference. Scheduled for March 29-31 at the London headquarters of Inmarsat, CITIS offers three days of informative and most importantly, interactive, discussions on all areas of information technology in shipping. For more information call +44 (0)171 453 5492.

Navtronics Enters Into Agreement

Announced per Navtronics partners **Hans Schwab** and **Margaret Deveau**, the company has entered into an agreement as the first to bring England's Chartwork Marine onboard electronic charting systems to the U.S. for distribution. Chartwork Marine has created a unique chartwork plotting software for use in PCs and Windows CE Palm Top computers that use C-Map — one of the world's largest suppliers of vectored electronic charts. Currently offering products for both the recreational and commercial markets, Chartwork software provides all the conventional functions present in a chart plotter, while instilling a touch screen movement, fast redraw and simple editing. Each software package in this series utilizes the C-Map charts in one of three formats: PCCharts, the commercial CM-93 Chart series or PCMCIA based C-Map NT for the Pocket WinChart.

Circle 12 on Reader Service Card

Greco Introduces Argosoft

Technical consulting firm Greco Technologies has introduced its newest product — Argosoft — specifically developed for the moving and shipping industry. Based in Pasadena, Calif., the company's new product allows moving and shipping companies to rapidly track jobs from an initial job estimate to the actual billing of the client. According to **Greg Chun**, Argo's president, "The program utilizes graphics to interface with the user rather than text as in older systems. This makes it easier to learn and use."

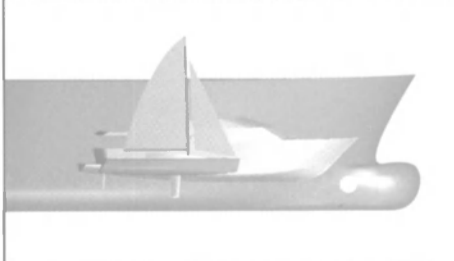
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Bolero.Net Aims To Streamline Trade Processes

Providing a unique global technical and legal infrastructure that complements the functionality of many B-to-B e-commerce initiatives, Internet-based Bolero.net began transactions in the U.S. on February 9. Bolero.net will provide the infrastructure to facilitate and increase international transactions by offering a platform for importers, exporters, shipping organizations and financial institutions. This addresses the key challenge of international business-to-business e-commerce, ensuring that exporters receive their payment and that importers are granted the goods for which they have paid.

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to perform the necessary changes required to implement such a system.

Prior to the purchase of Oracle ERP applications software, the company embarked on an extensive selection process designed to match the company's needs and requirements for a comprehensive system to the functionality of individual ERP systems. Due to the time constraints involved in implementing an ERP package prior to the company's Y2K deadlines, the company hired Arthur Andersen LLP as an outside consultant to assist in the selection and implementation process. In gathering input for the final selection process, Bollinger gave every functional area the opportunity to prioritize their specific requirements of the new system.

The unique business environment of marine construction presents many and diverse informational needs, the collective industry in the U.S. is hardly large enough to garner cost effective, industry specific solutions. In evaluating the ERP packages, however, it became apparent that Oracle's product was best suited for Bollinger's needs. According to the company, no system was a 100 percent fit. But it noted that the Oracle system met its 80 percent matching goal.

Once the system was selected, the question of cost came next. And although the cost of implementing the Oracle system was steep at an estimated \$2.5 million, Bollinger reasoned that the cost of not having the system was even greater. According to the company, the cost of implementing the system became much more justifiable when it was realized that there will be an anticipated annual savings (both direct and indirect) of between \$750,000 and \$1 million, with purchasing and material handling leading the pack at an estimated annual savings of \$600,000 per year. Other anticipated savings include: administration and processing = \$250k/yr.; inventory carrying cost = \$100k/yr.; and "other" = \$50k/yr.

The integrated solution

The full suite of products installed includes Manufacturing, Projects, Project Manufacturing, Purchasing, Inventory, HR/Payroll, Financials and MRP. All are designed to enable the company to have all of its information under one database/suite of products and shared throughout all of the divisions. In addition, Oracle's software is browser based and designed to operate over the Internet, which will reduce maintenance costs of the system. All updates, upgrades, system changes, maintenance and end user changes are made locally on the centralized server.

Once fully operational (at press time the company was still tweaking the system to its own specific needs) the efficiencies and cost savings will be numer-

ous. The cost to produce and process P.O.'s, pick lists, requisitions, invoices, A/P checks, payroll, HR requests and other functions will decrease substantially. Project managers will have more accurate and timely information to make crucial real time decisions on the shop floor. Estimators will have more task level information and history to assist them in projecting the cost of building vessels. Schedulers and shop floor

managers will have automated maps of material and manpower requirements, thus increasing labor efficiency. Inventory will be much more accurate and visible through the system. Purchasing will have the advantage of a master parts list encompassing all of the company's divisions. This will facilitate the company's centralized purchasing initiative and allow Bollinger to capitalize on the buying power of its combined divisions.

All levels of management will have more accurate and detailed financial/operational information to assist in running the business as well as planning for the future.

**For more information on Bollinger:
Circle 109 on Reader Service Card**

**For more information on Oracle:
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FIG. 202. Moments after the vessel was waterborne, she listed sharply to port, and tugs raced to the rescue.

“THE DESIGN OF A SHIP REQUIRES
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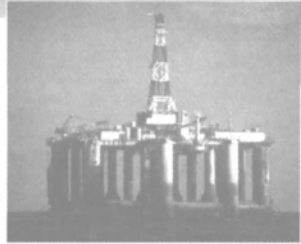
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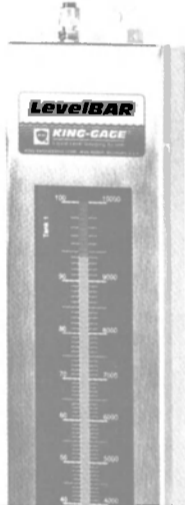
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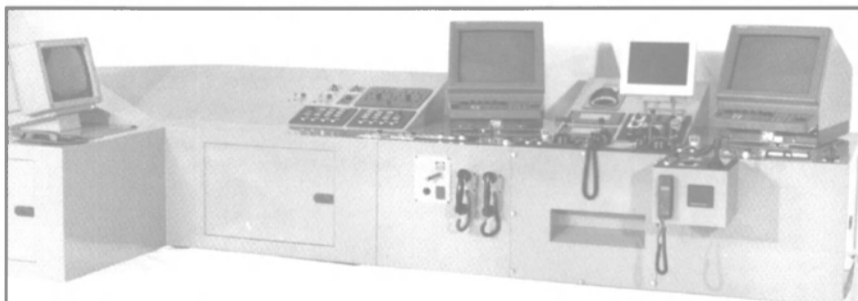
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Software Solutions

Internet Barge Management System Ups Efficiency

ALK Associates, Inc. and Midland Enterprises are creating an innovative Barge Management System (BMS) to help Midland increase efficiency and competitiveness. Using the Internet to tightly integrate communications, business and systems processes on an enterprise-wide basis, BMS also offers a rich palette of e-commerce functions. Detailed design for the project was completed in January 2000, with delivery and installation slated for completion by the end of September 2000.

Two primary business goals of the BMS are to improve equipment utilization and manage yield potential by analyzing new requests for service. In past years, most barge transportation services operated on long-term contracts with well-defined traffic patterns. However, recent market changes are causing complex changes, inducing barge companies to re-examine the way they do business.

Circle 95 on Reader Service Card

BIMCO Introduces Millennium Software

The new BIMCO Voyage Estimator 2000 and BIMCO Laytime Calculator 2000 have been released, boasting various new features designed to lighten the daily workload of shipping offices.

BIMCO Informatique A/S has taken into consideration its experience, as well as customer comments to improve upon this duo of software products. Those who have used previous versions of the programs will be likely to recognize the new features implemented in both.

The company's new Laytime Calculator 2000 cuts the amount of time used in calculations — from hours to minutes. Features include the production of laytime reports, the printing of BIMCO Standard Time Sheets, total integration with the BIMCO Holiday Calendar and World Ports by BIMCO and immediate voyage schedule reports.

The third generation of the BIMCO Voyage Estimator brings forth a new concept in voyage estimation. Completely revamped to meet the requirements of a demanding shipping environment, Voyage Estimator enables the user to perform speedy estimates, as well as more thorough calculations. The software can compute the profit/loss and T/C equivalent of a voyage, calculated in terms of estimated freight, expenses, fuel consumption, distance between ports and other voyage particulars. The program, provides data upgrade for existing Windows users, open database concept and business-based voyage layouts independent of vessel descriptions.

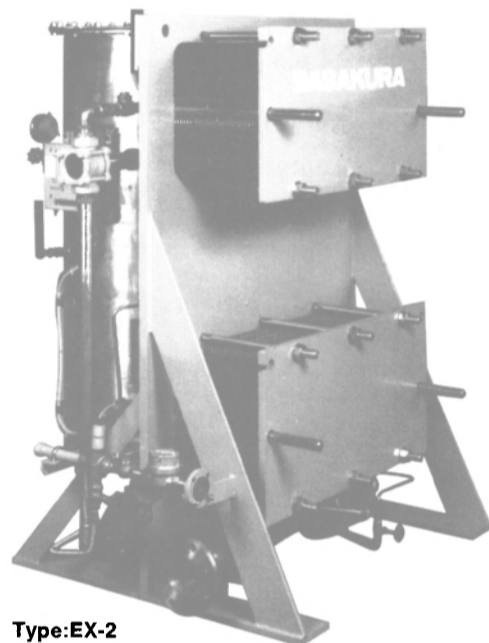
Circle 11 on Reader Service Card

Ship Safety Database Set Up To Avoid Future Disasters

European maritime administrations signed an agreement to set up a central shipping safety database aimed at eradicating dangerous vessels. According to the EC Maritime Safety Unit, the Equasis system will bring together in one

Internet site most of the current diffusely available safety related information on the world merchant fleet. A number of shipping industry players have commented on the lack of transparent and easily available information of ship safety standards in the wake of the Erika disaster. Charterer TotalFina said it was unable to independently verify the con-

dition of the Erika, which broke up in December and polluted French beaches with fuel oil. The agreement, which was signed at the International Maritime Organization (IMO) in London, calls for the database to be launched in May 2000. Equasis is part of a quality shipping campaign set up in 1997 to engage all elements in the shipping chain.



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Circle 297 on Reader Service Card

WindShip Technology Promises Fuel Savings

The task of designer ships, which are increasingly fuel efficient as well as environmentally friendly, is the marine industry's constant challenge, today and forever. While hull designs and propulsion systems continually evolve, a new development from Knud E. Hansen A/S shows promise in taking the cause a step further. An interesting design being touted by the firm is a Modern Windship, a sail-assisted vessel, which marries Mother Nature's power harnessed with an innovative ship shape. In fact, according to the designer, the new efficient rig design, combined with an especially developed underwater hull, promises to cut the fuel consumption by half on selected ocean routes.

In 1995 the Danish Ministry of Environment and Energy granted funding for Knud E. Hansen A/S to investigate the feasibility of adding sail assisted power to propel commercial ships. In phase 1, which was finished in November 1996, a broad background of various projects from the last 30 years, involving sailing and sail assisted ships, were investigated. The study envisaged a new type of sailing vessel named "Modern WindShip" with a length of about 656 ft. (200 m) and a dwt of 50,000 tons. The proposed WindShip was compared to conventional ships, and it was concluded that in spite of significant fuel savings an increased overall transportation cost

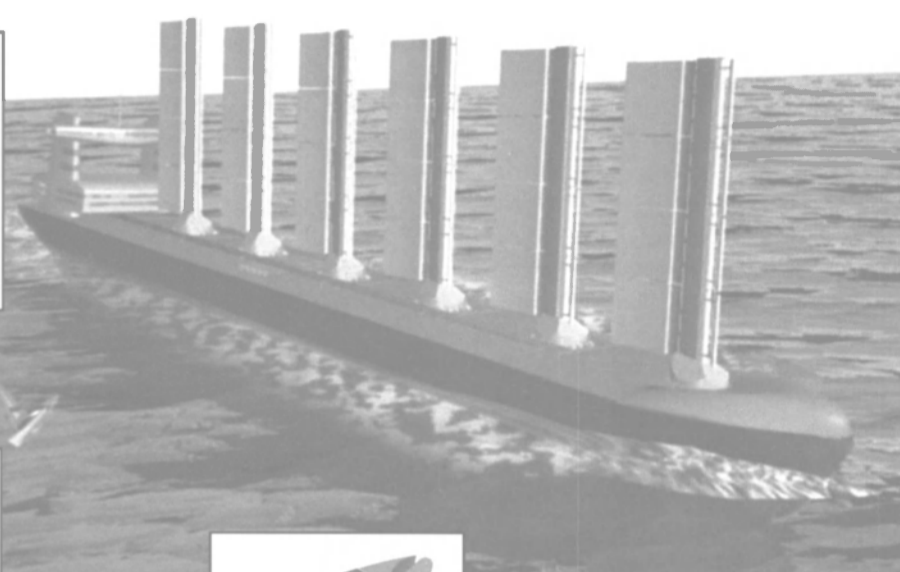
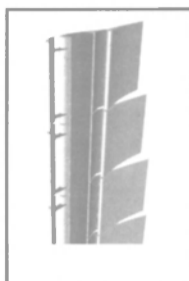
of approx. 10 percent resulted. The work resulted in a report: "Modern WindShips — Phase 1," published at the end of 1996.

Based on the positive findings in phase 1, new funding was provided by the Danish Environmental Protection Agency, acting on behalf of the former Danish Council for Recycling and Lesser Polluting Technology. Together with selected external partners — The Danish Maritime Institute, The Danish Meteorological Institute and Mærsk Broker — Pelmatic Knud E.

Hansen A/S carried through phase two.

In phase two the results were:

- A new innovative rig design, with complete mechanical layout (see various images).
- A new underwater hull, specifically designed for the dual propulsion using both wind and diesel power.
- A Velocity Prediction Program (VPP) specifically developed for the WindShip.
- Extensive weather routing, simulating



Windship is an interesting concept which proposes that — on certain ship types on certain routes — tremendous fuel savings could be realized through the combined use of engine and wind power.

nearly 400,000 voyages with the WindShip, enabling precise predictions of the fuel consumption in "real life."

An economical feasibility study confirmed that the 10 percent higher freight rate was necessary for the WindShip. This stems from the fact that the construction and running costs are slightly higher for the WindShip at the present stage.

On routes with reasonable weather

wind conditions, like in the Atlantic Ocean, fuel savings of about 27 percent can be obtained. On routes where the superior internal volume capacity of the WindShip can be properly utilized, fuel savings of 50 percent are possible. This corresponds to an annual fuel savings of approximately 4,800 tons, having large beneficial effects on the environment by reducing harmful emissions of CO₂, SO_x and NO_x.

Circle 121 on Reader Service Card

Recore Classified As Fireproof For Vessels

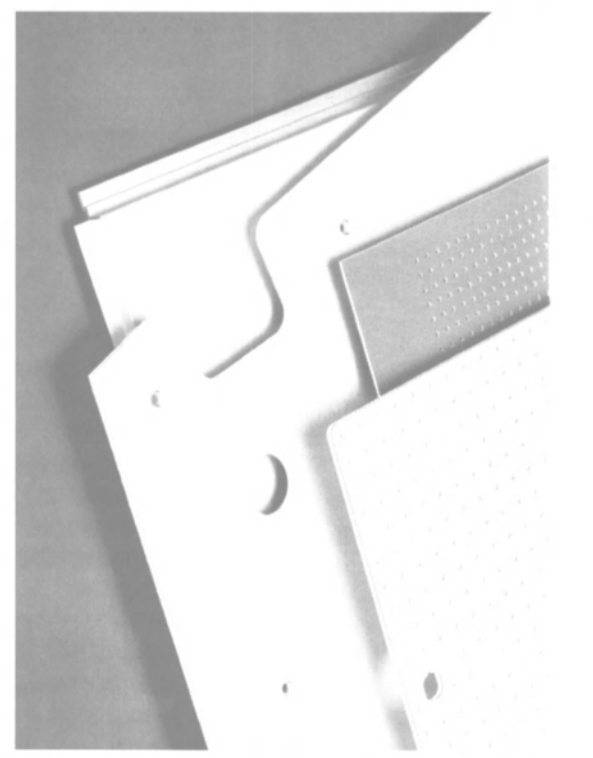
Based in Northern Sweden, Glasis AB has developed, and is marketing a unique product called Recore, a material to be utilized in marine construction, which is designed not only for ease of use but also for strength and durability. The product (Recore S) has been classified by DNV as a non-combustible material in accordance with the company's regulations on ships and mobile offshore units.

Recore M and Recore S are also light weight, solid and moldable. According to the manufacturer, the advantages of Recore lie in its increased fire protection, which in combination with its light weight ensures a better economy for the shipowner.

Glasis AB is a young company, started in 1986 by **Bengt Andersson**. Since then, the company has enjoyed rapid growth as the marine market in particular has a practically insatiable thirst for lightweight materials that meet all current safety standards while incorporating the advantages of lightweight and

strength. The company estimates that its turnover will increase tenfold in the coming five years, and last spring it issued shares on the Swedish stock market to give it the financial flexibility to take on bigger orders, which it has recently in the case of lucrative cruise ship contracts. On larger cruise ships, for example, the material has been used to manufacture bulkheads and ceilings. Recore M is fireproof and lightweight, with a density of 100 to 1,000 kg/cu. m. The material is both sound and heatproof, and is designed to withstand extreme weather conditions. It can be used as an alternative to materials such as plywood, plastic sheet laminate, cork, balsa wood, glass fiber reinforced plastic and aluminum. Recore S has the same properties as Recore M, and has also been certified as non-combustible by DNV. It has a density of 250 kg/cu. m., and the material can be used as an alternative to steel sheets, rock fibers and mineral boards.

Circle 146 on Reader Service Card



Sandwiched Composites Offer Promise For Marine Industry

Last autumn leading researchers gathered at the American Society of Mechanical Engineers (ASME) conference to discuss, among other things, the properties and possibilities of increasing the utilization of lightweight honeycomb sandwiched between curved composite panels in marine applications. Ship and boat designers, builders and owners, ever mindful of the need to minimize weight while maintaining strength and safety in

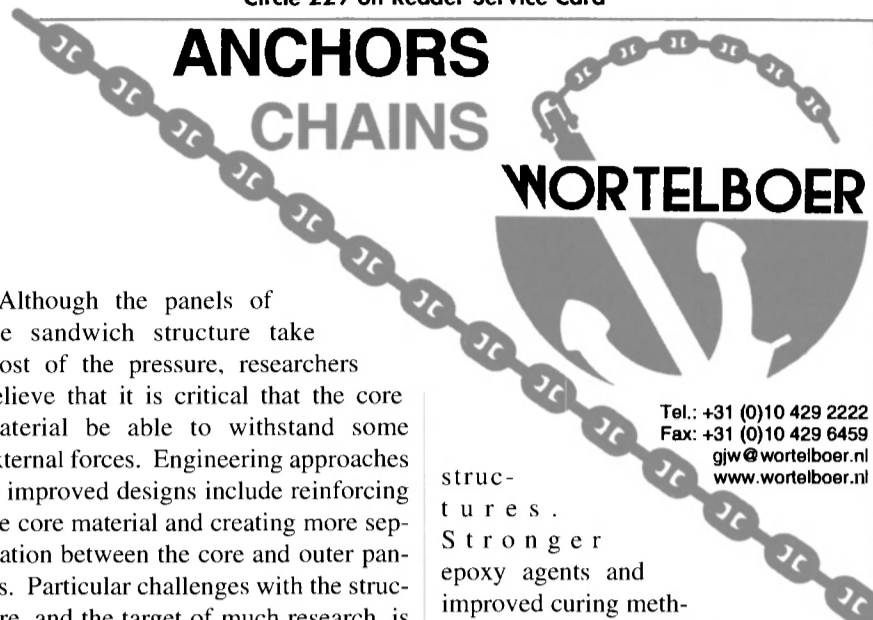
an effort to reduce fuel costs, are constantly testing and exploring a wide range of new materials and composites.

The key attribute of a sandwich structure is its light weight, which owes to the honeycomb-like design of the inner core. wrapped around the inner core of the sandwich structure are the aluminum and composite panels, or facing sheets. These panels accept most of the moisture, pressure loads and weight bearing forces exerted from external conditions.

Although the panels of the sandwich structure take most of the pressure, researchers believe that it is critical that the core material be able to withstand some external forces. Engineering approaches to improved designs include reinforcing the core material and creating more separation between the core and outer panels. Particular challenges with the structure, and the target of much research, is the breakage points of certain sandwich

structures. Stronger epoxy agents and improved curing methods are believed to prevent such damage.

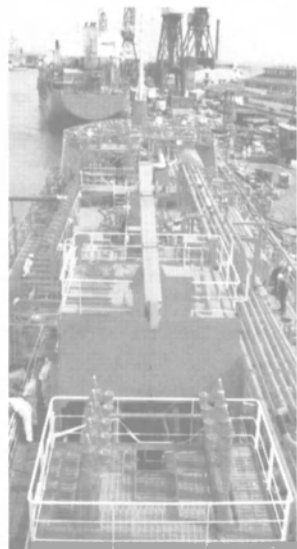
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Fiberline Offers GRP For Use In Hostile Environments

Danish Company Fiberline Composites A/S has a long history in the production of gratings, stairs, railings and load-carrying constructions in GRP (glass reinforced fiber). The materials have been incorporated in a number of references throughout the maritime realm, with notable performance in particularly hostile



environments.

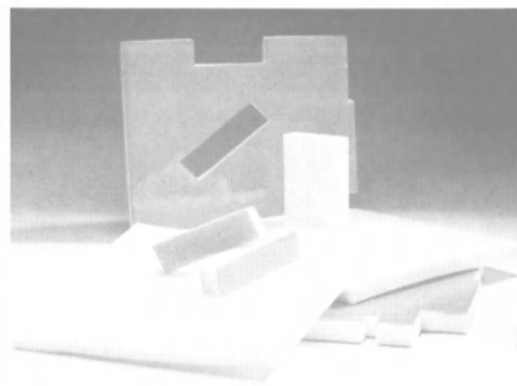
The corrosion resistance of Fiberline's GRP is a particularly valuable asset in uses offshore. The material has a low weight/high strength ratio, and has proven simple to install. Noise damping, dimensional stability and a wide selection of color choices add to the product's value. Notable references for the company include a position onboard a British oil platform, where Fiberline

March, 2000

railing systems, ladders and phenolic gratings are used on all three decks. Also, the Danish Navy has utilized the company's railings and ladders onboard some of its most advanced vessels.

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Polydamp Melamine Foam Offers Good Heat Resistance



Polymer Technologies' Polydamp Melamine Foam (PMF) is a lightweight acoustical/thermal insulation product for marine applications where low flame spread and minimal smoke generation is essential. PMF does not drip when ignited, and stops burning when the ignition source is removed. The material produces minimal flame and smoke. In addition, PMF offers heat resistance up to 375 degrees F without a protective facing, and is designed to be exceptionally stable in harsh environments. Composites of Polydamp Melamine Foam are available with high performance heat resistant (+450 degrees F) acrylic pressure sensitive adhesive, which offers excellent peel adhesion to a variety of surfaces, including metals and engineering plastics.

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Product Literature

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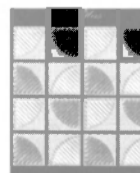
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Circle No. 152



Simulation Center Holds Open House

The University of New Orleans' Simulation Based Design Center (SBDC) held an open house in December presenting its new facilities at the Houston Advanced Research Center.

The Center, which is a division of the University of New Orleans, specializes in the application and transfer of com-

puter-based simulation technology into the research, development and engineering (RD&E) of socio-technical systems.

Offering advanced visualization systems and expertise, SBDC aims to provide innovative, practical and top-quality products and services aiding customers in upgrading their competitiveness through the application of advanced simulation technologies.

Circle 103 on Reader Service Card

3M Offers New Pipe Coating

The Scotchkote brand 6352 Fusion Bonded Epoxy (FBE) Dual Coating System for pipe is the newest pipe coating from 3M. It can be used on transmission or distribution pipes as an external or internal coating. The FBE dual coat is applied in two layers for additional mechanical toughness. It has been proven durable in high-impact tests. By combining a first coat for corrosion pro-

tection and a second for impact/abrasion resistance, the Scotchkote 6352 FBE Dual Coating Systems provides a pipe strength and corrosion resistance.

Circle 145 on Reader Service Card

Innovative High-Speed

Japanese Ferry Enters Service

The much discussed and anticipated Technol Super Liner project came to fruition last month, as the maiden voyage of a high-speed Japanese-built ferry was made. The Techno Super Liner, jointly developed by Japan's Transport Ministry and shipbuilding industry, is expected to cover the 740 km (445 miles) to Shanghai in only 11 hours instead of the usual 22.

The 2,785-gt ship, named Kibo is 245 ft. (74 m) long and can attain a maximum speed of 52 mph by using air partially to float above the water's surface with forward propulsion provided by a powerful gas turbine.

Adsteam Takes 50% Stake In Northland Holdings Inc.

Australian towage group Adsteam Marine Ltd. has invested in the North American market, last month divulging a \$55 million investment in privately-held, Seattle-based Northland Holdings Inc.

Adsteam has proven to be a very profitable corporation since it went public in 1997, and has its eyes on several projects around the world, including the U.S. According to its managing director, the company sees considerable opportunities to consolidate operations in the U.S., and it plans to use its partnership with Northland Holdings to gain local knowledge and from which to base further North American activities.

KMY Wins Two-Ship Order From RCL


Kvaerner Masa-Yards won a \$1.09 billion contract to build two ships for Royal Caribbean Cruises (RCL).

The Eagle-type cruise ships are scheduled for delivery in 2002 and 2003. The deal boosted the yard's current order book to \$2.3 billion from \$1.2 billion.

SWM Wins \$20M Contract

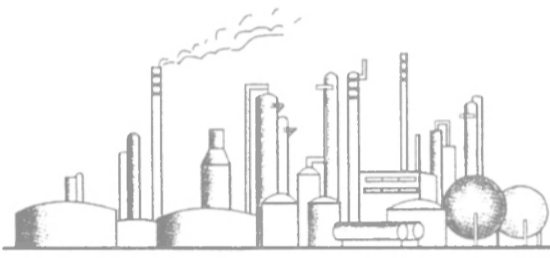
Naval Sea Systems (NAVSEA) has signed a \$20 million, 10-ship, five-year contract to Southwest Marine's Ingleside shipyard (SWMI) for the repair, overhaul, drydocking and upgrade of the mine countermeasure (MCM Class) vessels homeported at Naval Station Ingleside. First availability on USS Avenger is scheduled to commence on March 27, 2000, and will continue through June 2000. The last availability is scheduled for completion in February 2005.

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Maritime Week

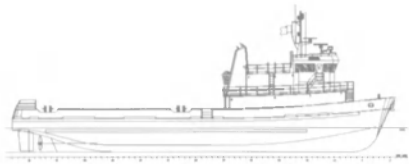


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AMT Marine To Construct Utility Boat



AMT Marine expects to take delivery in May of a 136 x 34 x 12 ft. (41.4 x 10.3 x 3.6 m) mini-supply boat from Hope Services, Dulac, La. The boat, which is being designed by Frank Basil's Entech and Associates, will be powered by a pair of Cummins V-12 KTA38 M0 main engines rated for 850-hp each at 1,800-rpm and driving through Twin Disc MG5301 gears with a ratio of 5.96:1. A 66 x 54-in five-blade prop from Padgett-Swan will be mounted on the end of each six-in. stainless steel shaft.

A computer modeling has shown a gain of up to 1.5 knots with this combination, and the five-blade props as opposed to four-blade. The boat is designed with a large 75 x 32-ft. (22.8 x 9.7 m) clear open aft cargo deck -equivalent in size to many 150-ft. (45.7 m) utility boats. Equipped with a 250-hp Thrustmaster tunnel bowthruster with hydraulic power from a 300-hp Cummins NTA855, electrical service will be provided by two Cummins 6CT 75 kW gensets.

Circle 5 on Reader Service Card

Sneed Delivers Pushboat To Blessey Marine



Measuring 65 x 24 ft. (19.8 x 7.3 m) David F. Stone, was constructed by Sneed Shipbuilding for Blessey Marine Services.

Located in Harahan, La., Blessey Marine Services has taken delivery of a 65 x 24 ft. (19.8 x 7.3 m) pushboat, David F. Stone, built by Sneed Shipbuilding of Orange, Texas. Powered by a pair of Cummins KTA19M main engines delivering a combined 1,000-hp through Reintjes WAF363L main gears, the vessel holds four-blade 64 x 52-in. props by Michigan Workhorse. Electrical power is provided by a 50 kW Stamford Newage generators driven by

March, 2000

6B5.9-D(M) Cummins engines, with cooling for both mains and gensets supplied by Fernstrum.

Achieving 10.5-mph on its maiden voyage, pushing a 10,000 barrel oil barge, the boat is capable of accommodating up to five people in three bunk rooms. Its first assignment, according to Blessey Marine's **Steve Proehl**, is to push a 20,000 barrel barge on the Gulf Intercoastal Waterway.

Circle 6 on Reader Service Card

Bulk Carrier Completed For Millennium Shipping

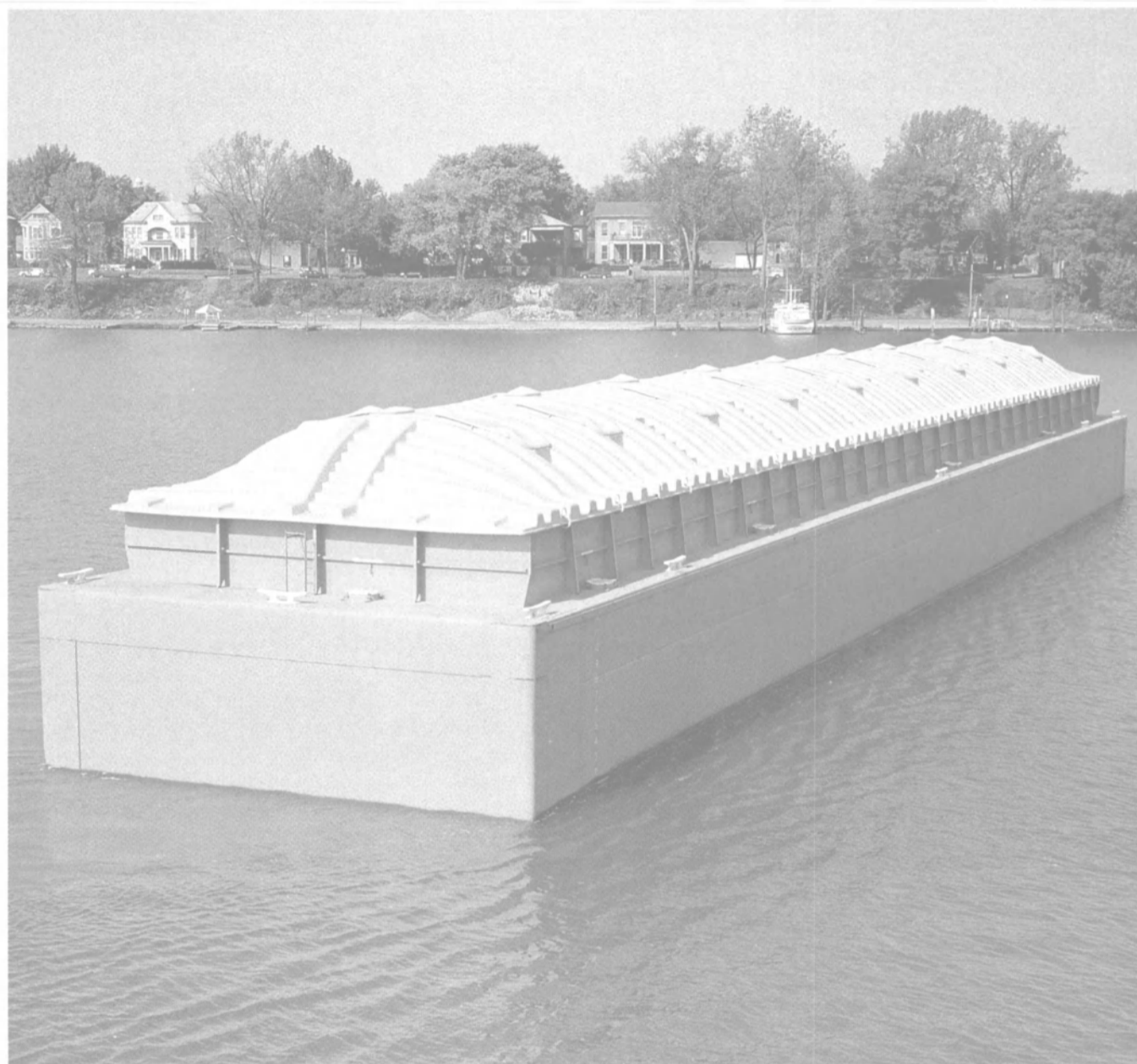
Amalia, a 75,100-dwt bulk carrier, ordered by Millennium Shipping Corp. was completed at the Maizuru Works of Hitachi Zosen. Registered in Greece, the vessel was delivered to its owner on January 26.

Equipped with an energy-efficient Hitachi Zosen MAN B&W 6S60MC type main engine, and the Hitachi Zosen

Super Stream Duct (SSD) at its stern, Amalia holds superior propulsion efficiency. Amalia is the third Hitachi Panamax Jumbo vessel to include greater cargo capacity, as well as increased deadweight tonnage.

Main Particulars

Flag	Greek
Length, (o.a.)	712 ft. (217 m)
GT	39,783
Cargo capacity	89,450 cu. m.
Main engine	Hitachi Zosen MAN B&W



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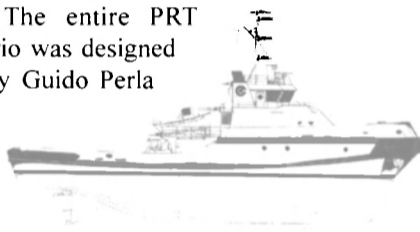
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Alert in Valdez Harbor

Crowley Marine Services recently accepted the delivery of *Alert* — the first of a trio of new 140 ft. (42.6 m), 10,192-hp Prevention and Rescue Tugs (PRT's) under contract with the Alyeska Pipeline Service Company for use in both Valdez Harbor and Prince William Sound, Alaska.

The general purpose PRT's are powered by twin Caterpillar 3612B engines generating the combined 10,192-hp driving two Kamewa Aquamaster azimuthing thrusters. The tugs are also equipped for firefighting, emergency response and oil spill recovery. Recent sea trial proved that *Alert* was able to generate a certified bollard pull of 300,000-lbs., and a free running speed in excess of 16 knots.

The entire PRT trio was designed by Guido Perla



& Associates, and was constructed at Dakota Creek Shipyard in Anacortes, Wash. for Vessel Management Services, a Crowley Maritime Corp. subsidiary that owns and leases vessels. Encompassing an oil spill recovery and storage capability for up to 43,000 gallons of recovered oil, the tugs' design features include Schuyler fendering, and a Markey TDS-40 towing winch.

Designated primarily for tanker and general towing, the tug is equipped to serve as an emergency spill response vessel. Outfitted with two Desmi skimmer units, two 1,800 ft. oil spill containment boom reels and two Kvichak Marine 20 ft. (6 m), 250-hp aluminum oil spill response skiffs, the tug also holds double protective wing tanks of B/12 minimum breadth — provided for the complete length of the engine room.

Two firefighting foam concentrate tanks are able to hold approximately 4,700 gallons each, are installed over and above the ABS FFV1 requirements.

(Continued on page 62)



Alert Main Particulars

Flag	U.S.
Classification	ABS
Builder	Dakota Creek Industries, Anacortes, Wash.
Length	140 ft. (42.6 m)
Breadth	42 ft. (12.8 m)
Depth	20 ft. (6 m)
Light draft	16 ft. (4.8 m)
Loaded draft	21 ft. (6.4 m)
GT	845
Fuel capacity	145,000-gallons
Potable water	9,200-gallons
Lube oil	3,900 gallons

Main engines	2 Caterpillar 3612-b
Aux. engines	2 Caterpillar 3306 DITA
Propulsion	Vickers Ulstein Marine Systems
Horsepower	10,192
Firefighting system	ABS FFV Class 1
Recovered oil capacity	43,500-gallons
Forward windlass	Markey
Towing winch	Western Machine Works
Bollard pull	300,000-lbs.
Speed	16.4 knots
Radar	Furuno
Gyrocompass	Robertson
GPS	Northstar



Feature Vessel of the Month - Product Tanker *Margara*

3.MAJ Delivers Innovative Tanker

Croatian-based shipyard, 3.MAJ Brodogradiliste, delivered the first of a contracted four-part tanker series this past August. Named M/T Margara, the 71,345-ton oil tanker was constructed for Monte Carlo based owners subsidiary Doria Shipping Co., registered in Valetta, Malta. The \$150 million contract for the vessels' construction was signed in March 1997, with a term loan facility arranged by Merrill Lynch Intl. of London, who provided financing during construction. The Croatian Government, who arranged for a counter bank guarantee to be obtained from Croatian Bank for Reconstruction and Development, provided additional assistance. The Maltese-flagged, ABS-classed vessel, which is intended for transportation of crude oil and oil products, measures 750 ft. (228.5 m) with a gt of 40,705. Its cargo space is divided by one corrugated longitudinal bulkhead, providing five pairs of cargo tanks and one pair of slop tanks. In addition to the usual double bottom throughout cargo space, double sides have been applied there, as well as in the vessel's fuel oil tanks, thus pro-

viding compliance with the most stringent international environmental requirements. Cargo and ballast tanks have been coated with epoxy paint, and engine room controls are automated. The vessel is powered by one Wartsila two-stroke marine diesel engine developing 12,000 kW at 105-rpm. Propellers consist of one right handed Ni-A1 bronze four-blade, while its electronic power plant boasts three diesel generator sets, each with Wartsila diesel engine and ABB generator, in addition to one emergency diesel generator set by Scania and one Stamford generator. Each pair of Margara's cargo tanks (P&S) and pair of slop tanks is arranged with independent pipeline to cross-over manifold. Discharge valves are close to the cargo pumps, which are hydraulically operated from the cargo control room. Capable of discharging 5,400 cu. m./hr. at 130 mlc, the vessel is equipped with four electric driven and three diesel engine driven hydraulic power units

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M/T Margara built by 3.MAJ Brodogradiliste for Doria Shipping Co.



Main Particulars

Flag	Malta
Classification	ABS
Length, (o.a.)	750 ft. (228.5 m)
Length, (b.p.)	722 ft. (220 m)
Breadth, (molded)	106 ft. (32.2 m)
Depth, (molded)	66 ft. (20 m)
Design draft	41 ft. (12.5 m)
Scantling draft	46 ft. (14.1 m)
DWT	60,913 tons
GT	40,705
Trial speed	15.3 knots
Main engine	Wartsila NSD 12,000 kW @ 105-rpm
Propeller	One right-handed Ni-A1 bronze propeller four-blades
Electric power plant	Three diesel generator sets, each with diesel engine, ABB generator
Cargo pumps	Frank Mohn
Total discharging capacity	5,400 cu. m./h
Inert gas system	Permea
Cargo tank capacity	81,645.1 cu. m.
Water ballast tanks	29,060 cu. m.
Heavy fuel oil tanks	3,058 cu. m.
Diesel oil tanks	297.7 cu. m.
Lubricating oil tanks	111.6 cu. m.
Fresh water tanks	241.3 cu. m.
Centrifugal separators	Alfa-Laval
Central cooling system	Garbarino
Distilled water system	Two by Alfa-Laval
Firefighting system	Consilium Marine, Unitor
Lifesaving equipment	Greben, Viking
HVAC	Novenco Hi-Press, F. Gurian
Steering gear	Hatlapa
Incinerator plant	Atlas
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Gyrocompasses	Raytheon

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(Continued from page 60)

Accommodating 16 people including spill response personnel in two single, five double and one quadruple berth staterooms, remaining accommodation spacing are situated with a galley and pantry with cold storage, ship's office and decontamination station.

Responsible for the design of this ves-

sel series is Seattle-based naval architectural firm Guido Perla & Associates (GPA), who took the responsibility for regulatory compliance by entering plans to ABS for U.S. and International Tonnage Certificates. The firm's engineers worked to perform the structural and mechanical calculations, electronic load

analysis, and short circuit analysis and drew up a fire and safety plan. GPA engineers also created composite drawings with machinery and wiring layouts and piping routing for the equipment, ensuring that construction and operational maintainability was free of interference.

Prior to construction, an automated layout of the vessel confirmed mechanical capability, while ensuring a working view of towing operations from the pilothouse. This 3-D computer model of the complete design was formulated using the latest releases of AutoCAD, Rhino, AccuRender, as well as GPA-developed software. Exporting this computerized information to GPA's 40-station network allowed for development of hull scientific, structural, mechanical and electrical designs. The company provided lines fairing, lofting and numerical control NC tapes for automated burning and marking of individual parts.

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Robert Allan Design To Be Built For Brusco

Brusco Tug & Barge, Inc. of Longview, Wash. has awarded of the construction contract for a new 78 ft. (23.8 m) Z-drive tug to Diversified Marine, Inc. of Portland, Oregon. This new tug is the seventh in the series of the ASD 23/35 high-performance, low-manning tug design developed by Robert Allan Ltd., and incorporates several new features reflected in the ongoing development of this class of modern high-performance ship assist tug.

The most significant change to the design is the increase in power installed in this tug design since its initial development over 20 years ago. The tug has been increased to provide greater stability, and the fendering system has changed significantly to reflect both the higher power, and changes in fender and hawser technologies.

Powered by two Detroit Diesel Model 12V4000 electronically-controlled diesel engines, each rated at 1,800-bhp driving Ulstein Model 1350H Z-drives, the tug is equipped with a hydraulic towing winch supplied by Markey Machinery, which has a "render recover" feature.

The tug is scheduled for delivery during the fourth quarter of 2000, at which time it will be put to work in Port Hueneme, Calif.

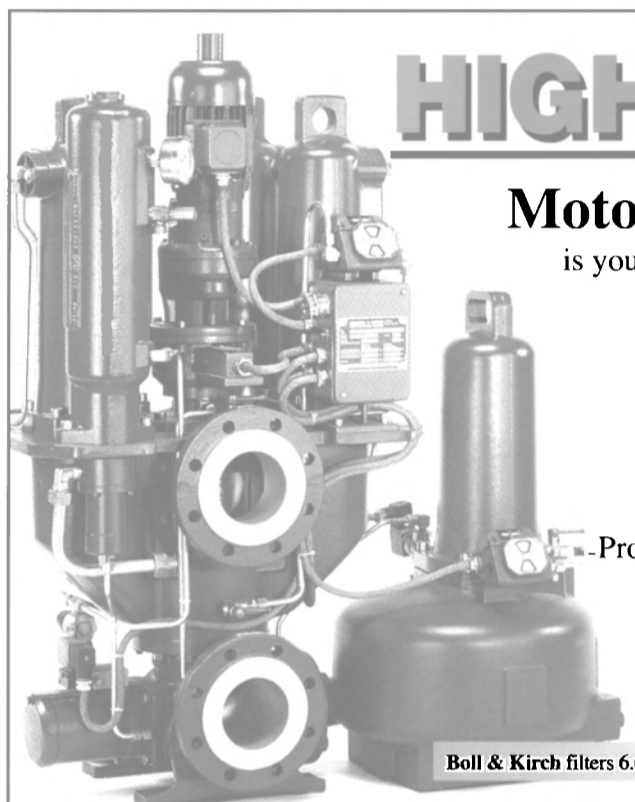
Main Particulars

Length, (o.a.)	78 ft. (23.8 m)
Beam, (molded)	30 ft. (9.2 m)
Depth, (molded)	11 ft. (3.4 m)
Maximum draft	13 ft. (3.8 m)
Bollard pull	45 tons (100,000-lbs.)
Power	3,600-bhp
Main engines	Detroit Diesel 12V4000
Propulsion	Ulstein 1350H Z-drives
Fuel oil	25,000 liters. (6,700 U.S. gallons)
Fresh water	1,900 liters. (500 U.S. gallons)

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Ship Repair & Conversion (continued)

USN Reduces Shipboard Planned Maintenance

(continued from page 20)

NAVSEA implemented SURFMER across the entire Navy surface fleet.

Beginning in October 1996, SURFMER engineers began a systematic review of all scheduled maintenance requirements. Instead of performing reviews on a ship-by-ship basis as was done with the Yorktown pilot project, NAVSEA implemented SURFMER system-by-system, applying the resulting revamped maintenance procedures fleet-wide. Typically, SURFMER reviews are conducted on site, at Navy in-service engineering activities such as the Naval Surface Warfare Center detachment in Philadelphia.

In addition to application of a repeatable engineered process, SURFMER's success depends upon close teamwork between NAVSEA and AMS RCM Backfit trainers and mentors, Navy in-service engineers, and fleet sailors with current deckplate operating experience. These three groups work together during an intensive week-long SURFMER cycle to gain proficiency in the RCM Backfit methodology. Two days of RCM Backfit training is followed by three days of analysis of specific maintenance requirements for systems under review. At the end of the week, Navy engineers submit their changes to the Navy's PMS system for implementation in the fleet. Revisions are entered into the PMS management information system and distributed periodically to fleet units via CD-ROM by Fleet Technical Support Centers in Norfolk, Va. and San Diego Calif.

To date, 27 SURFMER Cycles have been completed. The most recent being Cycle 27, which occurred the week of February 7, at the Naval Surface Warfare Center detachment in Philadelphia. Systems reviewed during Cycle 27 included distilling plants (flash type), mooring and towing gear, electrical gear, shop equipment, SONAR domes, waste heat boilers, and boat handling gear.

SURFMER has allowed sailors more time to perform truly necessary maintenance, and while having more free time to spend on liberty while deployed and with loved ones while in homeport.

MR1 **Margaret Buffa**, an MR (machinery repair petty officer) from USS Gunston Hall (LSD-44), a Cycle 27 participant said, "I'm the only MR on my ship right now and have to do a lot of maintenance. I love the maintenance workload reduction I've seen from SURFMER. It has made my life easier, and the equipment still works just as

well." Time savings achieved by SURFMER to date exceed 2.3 million man-hours per year. (see chart on page 20) In addition to the time savings, associated maintenance-related consumable (e.g., oils, greases, solvents, rags, etc.) and HAZMAT disposal costs have been significantly reduced as well.

The bottom line: SURFMER achieves

real, measurable results, with tangible benefits to fleet sailors. SURFMER, by its nature, is a continuous improvement process — systems originally reviewed in 1996-1997 are being revisited in current cycles. The revisits sometimes yield more reductions, by percentage, than the first time around as Navy engineers become more proficient in the

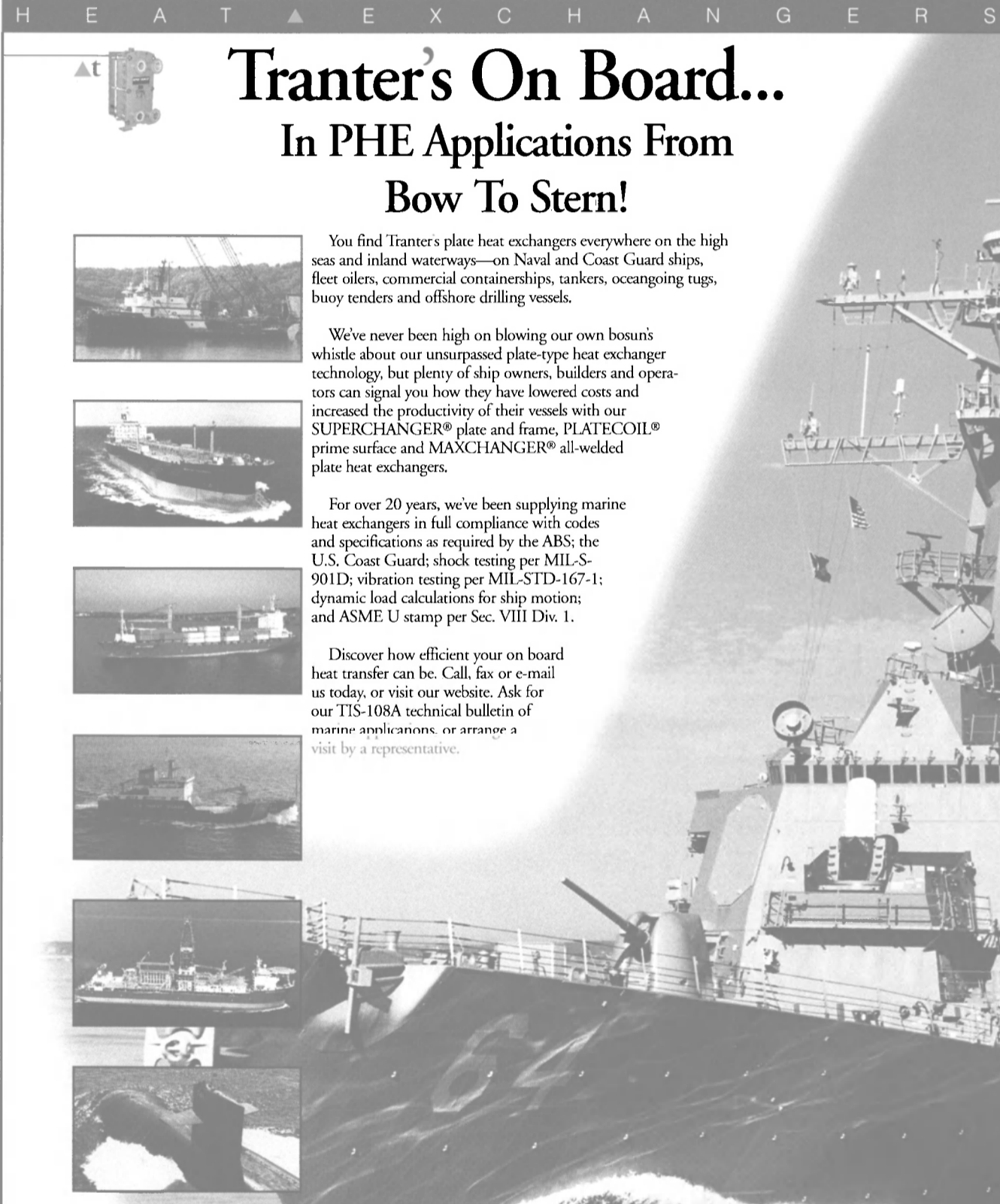
process and more confident in the results. The next step is to institutionalize the SURFMER methodology across the Navy's engineering community, so that it becomes the everyday way of conducting business.

Ariana Baseman is a freelance writer based in Silver Spring, MD

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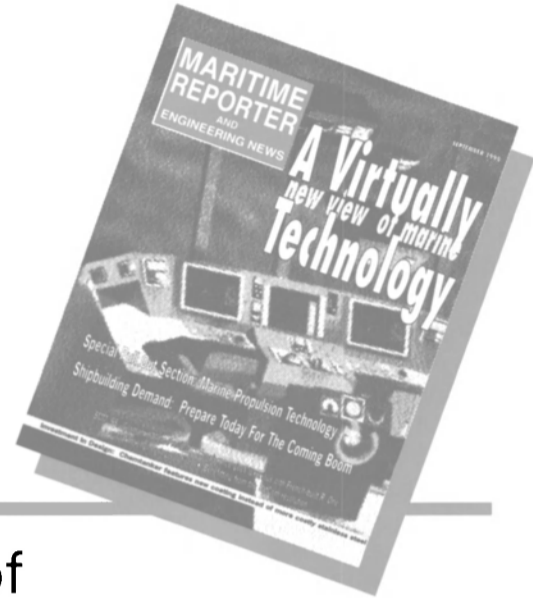
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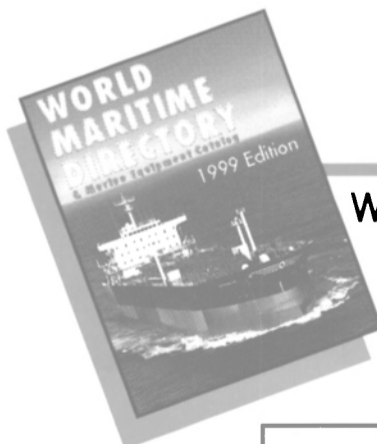


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New Surface Cleaning Process Saves Navy On Maintenance

The paint department at Pascagoula, Miss.-based Ingalls Shipbuilding has developed an innovative method of accomplishing business in surface preparation and painting process — saving the U.S. Navy on ship upkeep and maintenance. The main premise here is reaching a goal of improving the life cycle of all Ingalls-constructed destroyers.

"We have started a new process of cleaning and painting the assemblies before we stack them on top of one another," said paint foreman **Tommy Vick**. "Now we can reach almost all surfaces, even those we cannot see or reach with hand tools. By bringing the assemblies down to the bare metal and with

our new technique, the paint will adhere better and last longer, keeping corrosion down on the interior and exterior surfaces."

The extension of a ship's life cycle involves a new procedure consisting of a new abrasive medium. "We replace Black Beauty with Bar Shot in the process of cleaning assemblies," said paint foreman **Jon Evans**. "The contract specification allows us to power tool clean any damaged painted areas. With this new abrasive material, we can exceed the contract specifications with a better surface preparation. The characteristics of this surface preparation enhances the coating that is applied and gives a longer life cycle to the ship,"

Evans continued.

This new surface preparation process provides an upgrade for a quality product, with upper assemblies cleaned before being stacked on the lower half. Following the stacking of the units - the lower assembly is then cleaned - and the abrasive material is recovered and recycled onsite. Ultimately, this method allows for a more productive working environment, which significantly reduces waste.

"We have come up with a great way of achieving almost 100 percent in coverage. I can see so much better what I am doing, and this provides for a more effective way of doing my job," said painter **John Collins**.

"We went from cleaning 50-60 percent of the surface to 95 percent of the assemblies," said general paint superintendent **Terry Hayes**.

The first ship to receive this premiere procedure was Lassen, where about 25 percent of the assemblies were cleaned with this method. All of the assemblies of Bulkeley, as well as future destroyers will receive this new process resulting in improved protection of the interior surface of the ship.

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The preceding was excerpted from Ingalls Shipbuilding's August 1999 edition of The Shipbuilder.

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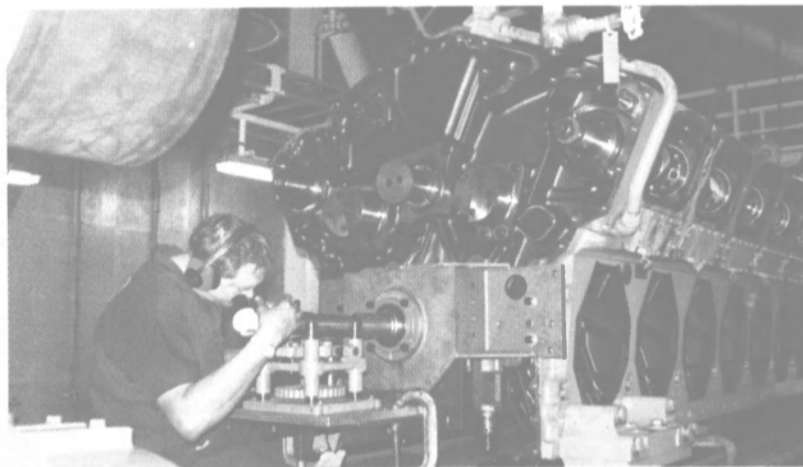
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Jotun Goes Tin-Free

According to Stein Kjølberg, marketing manager for marine products at Jotun Paints, "The launch of SeaQuantum heralds a breakthrough in tin-free antifouling systems: Jotun's new coating has undergone extensive testing and offers up to five years of effective protection against fouling on ship bottoms."

Developed in conjunction with Japanese chemicals group Nippon Oil and Fats (NOF), Jotun has reportedly uncovered a practical tin-free solution suitable for virtually any application.

Although tin-free alternatives have been on the market for quite some time, none have proven to go the distance in meeting the shipping sector's need for five-year systems. Lasting only three years instead of the required five, most of these substitute systems still cannot offer the same self-polishing effect posted by tin-based coatings. Contrastingly, the self-polishing aspect is present in SeaQuantum — holding properties that bear chemical and physical properties — that are almost uncanny to tin-based antifouling coatings. In translation, the product blends protection against fouling with a hydrolysis reaction, making the vessel's bottom increasingly smooth as the coating wears — creating a more efficient vessel. The company recommends the product be applied to both newbuilds and full bottom upgrades.

Undergoing a little less than seven years of trials, the new coating from Jotun, according to Kjølberg is "the most tin-free marine antifouling system on the market today."

Jotun has basked in a product and research venture with NOF for many years. With Jotun developing the formulation for the actual coating, NOF spearheaded a silyl polymer that can replace the environmentally-dangerous tin compounds used in today's self-polishing antifouling coatings.

Circle 139 on Reader Service Card

ered a practical tin-free solution suitable for virtually any application.

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Chugoku Offers Solution To Tin Ban

With the impending ban of TBT antifouling paints commencing in January 2003, ship operators are beginning to ponder when they should start to use tin-free antifouling. In order to ease these worries, Chugoku Marine Paints (CMP) has vast experience in providing tin-free technology equivalents to that of tin-based anti-fouling. With its 50 percent market share in its home country of Japan, where the use of tin-based antifouling has been outlawed since 1993, CMP has coated more than 1,000 large deep-sea vessels with its Sea



M/V Discovery Bay recoated at drydock in October 1999 with Sea Grandprix 100.

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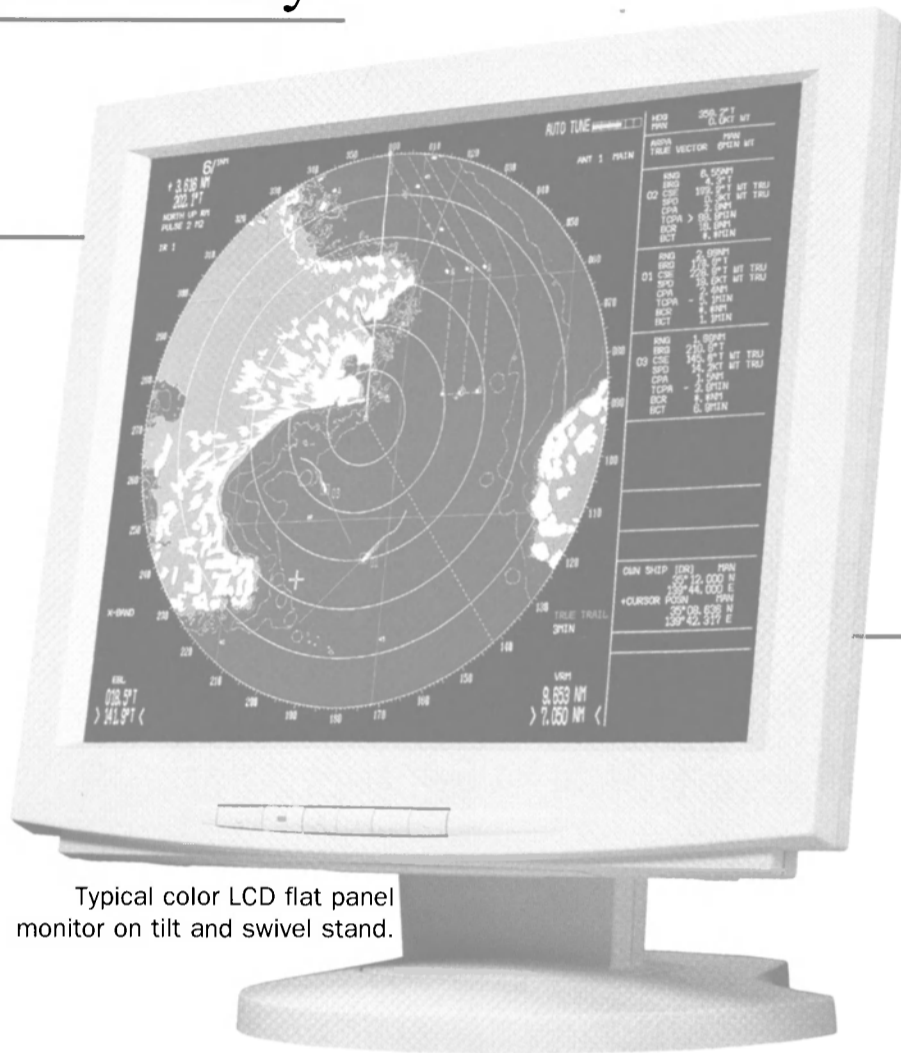
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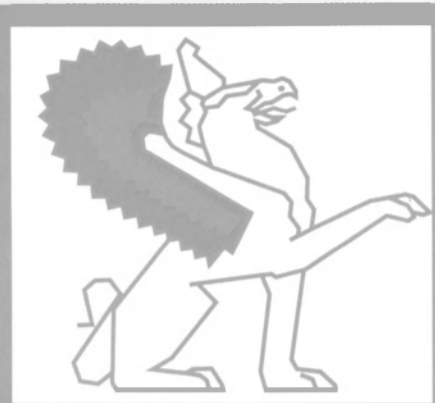
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Grandprix technology application.

The only company to offer three types of tin-free technology, CMP's Sea Grandprix products are true, self-polishing tin-free antifouling, capable of releasing biocide in a controlled manner. Sea Grandprix 1000 is of silyl resin type, and is formatted for all ships, as well as vessels trading in areas of high fouling risk, mainly in the Persian Gulf, Mediterranean and Caribbean. Sea Grandprix 100 is made of acrylate resin technology, offering efficient performance on deep-sea vessels up to 36 months. The company's Seatender 15 product is a hydration resin technology that has been around since the mid-1980s, while Seatender 10 is an erodible resin technology for vessels trading in lower fouling areas or for the flat bottoms of ships.

Circle 20 on Reader Service Card

Advanced Polymer Sciences Offers Uniline Products

Anticorrosion specialist Advanced Polymer Sciences featured its Marine-Line cargo tank linings and its UniLine I and II tank container lining systems at Marichem '99. Each product range is formatted on patented Siloxirane-polymer anticorrosion and surface protection lining systems designed and developed by APS to meet the most demanding of industrial applications. Siloxirane is resistant of 98 percent of all corrosive acids, alkalis, solvents and fluids at various temperatures. The unique cross-linked polymer structure of Siloxirane-based products rids permeation of the lining. Similar features and benefits are offered by UniLine I and II systems.

Se-Cliff Enhances With CoreKote 2000

Se-Cliff Coatings, LLC, a coatings and technology development company, touts CoreKote 2000, which helps maintain heat transfer so that equipment runs at ideal temperatures and maximum performance. The product, which is electrochemically applied to heat exchangers, such as radiators, covers 100 percent of all surface areas, while adhering to 100 percent of all metallic surfaces, including copper, brass, aluminum and galvanized or stainless steels. The company guarantees that CoreKote 2000 will increase the life of heat exchangers by a minimum of three times from failure due to external corrosion. Both flexible and durable, the coating eliminates cracking and chipping and lowers corrosion resulting from humidity, salts, acids, harsh chemicals and other rust-causing agents.

Circle 140 on Reader Service Card

which have been developed to meet the specialized demands of ISO and IBC tank container owners and operators. UniLine I features a reinforced, composite Siloxirane lining to provide an upgraded tank body protection against damage by substantial direct and reverse impact.

Circle 22 on Reader Service Card

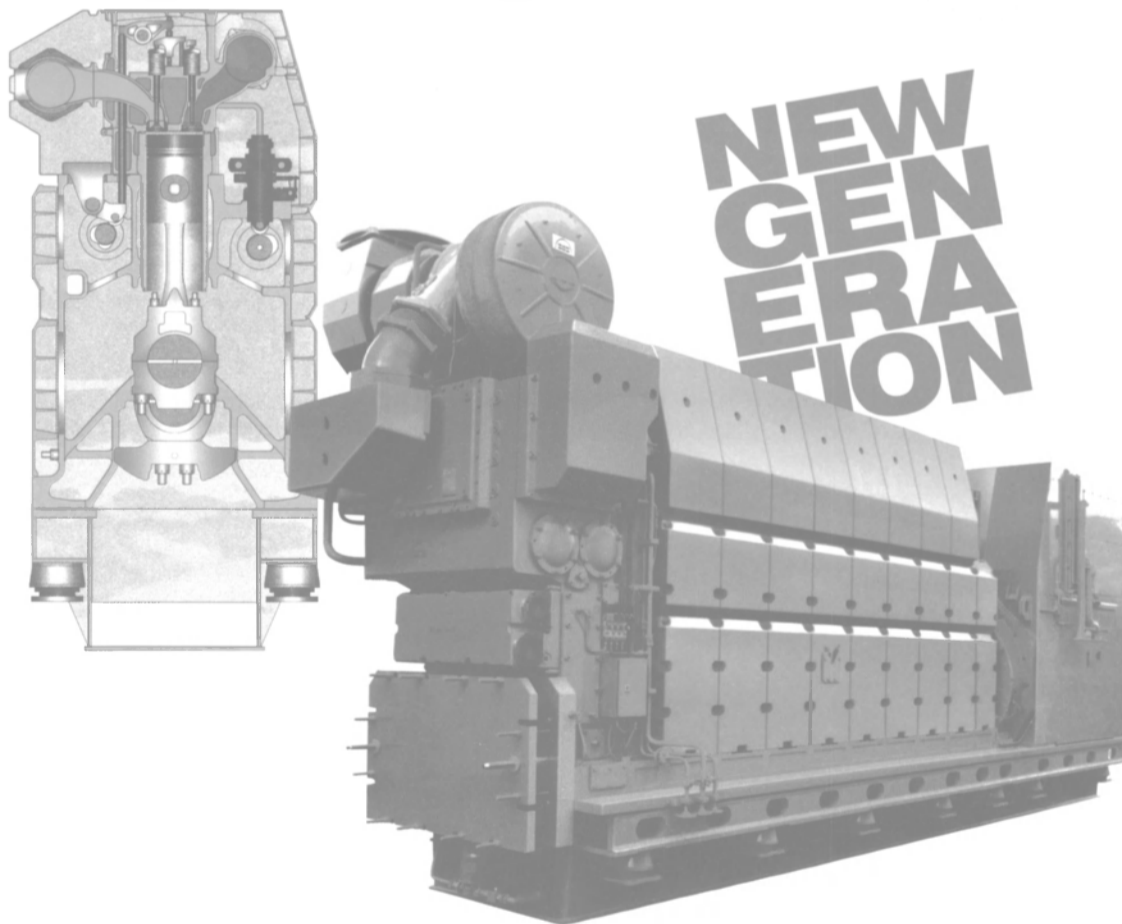
Ferro's Undercoating Is Flame Retardant

A new coating applied over in-mold polyester gelcoats creates a char layer that inhibits further combustion of the composite was developed by Ferro Corp.'s Liquid Coatings & Dispersions Division. Named "Ultra K-Antican-

dela," the coating is made up of equal parts of vinyl ester base resin containing proprietary additives and clear vinyl ester gelcoat, catalyzed with two to three percent MEKP. Applied in (wet) film thickness to 25 mills, the coating reportedly provides low shrinkage, good-quality mechanical properties.

Circle 21 on Reader Service Card

Reliable operation, by design



The compact L27/38 is an advanced medium-speed HFO engine in the 1500-2880 kW range. Its reliability is based on a robust design, fewer components and Holeby's commitment to superior quality down to the smallest nut and bolt. Other benefits include optimal efficiency, low emissions and simplified routine maintenance. Like other members of Holeby's "New Generation" engine family, the L27/38 is setting the standard for the marine GenSets of the 21st century.

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Hanjin Amsterdam Takes Maiden Voyage

Eurogate Container Terminal in Hamburg was the site of a maiden voyage call of the 5,600-TEU containership Hanjin Amsterdam on its first round-the-world voyage. Measuring 915 x 131 ft. (279 x 40 m), the 26.8-knot Hanjin Amsterdam was built in seven months by Hanjin Heavy Industries Shipyard, part of the Hanjin Group, in Pusan.

The ship is sailing the Rotterdam-Hamburg-Felixstowe-Le Havre- Singapore-Hong Kong-Kaoshiung-Long Beach-Oakland-Tokyo-Osaka-Pusan-Hong Kong-Port Kelang-Columbo route as part of the Europe-Asia-North America West Coast Pendulum A service.

Fast Ferry To Improve Passenger Service

Reederie Warrings' new 324-passen-

ger high speed monohull fast ferry will upgrade passenger service this summer between Bremen, Germany and the Friesian Islands. Measuring 164 ft. (50 m), the aluminum vessel is currently under construction at Wavemaster International's Australian shipyard. The ferry is expected to perform the 146 km crossing at a continuous speed of 30 knots.

With power provided by a pair of Cat 3516B marine engines, each rated 2,009

bkW at 1,855 rpm, the engines will drive highly skewed, 48-in. diameter Teignbridge propellers through ZF BW 755 marine gears. Known as the premiere Wavemaster 164 ft. (50 m) fast monohull delivered to Europe, the vessel's hull design boasts fine entry lines and steep deadrise.

Circle 90 on Reader Service Card

Main Particulars

Length. (o.a.)	164 ft. (49.9 m)
Length. (waterline)	140 ft. (42.5 m)
Breadth	30 ft. (9 m)
Operating draft	7 ft. (2 m)
Hull depth	11 ft. (3.2 m)
DWT	32
Propulsion engines	
2x CAT 3516B, each rated at 2,009 bkW @ 1,855 rpm	
Auxiliary engines	2X CAT 3304B
Marine gear	2x ZF BW 755
Propellers	2x Teignbridge
Passengers	324

Cummins Promotes Klotz To V.P.

Cummins Mid-South L.L.C. has promoted **Calvin B. Klotz, Jr.** to the position of vice president. Klotz will be responsible for the company's commercial and recreational marine business — headquartered in New Orleans, La.

Klotz, who joined Cummins Mid-South in 1987 as marine sales manager, will focus on providing state-of-the-art marine diesel power and support.

NOL Appoints New Chief Information Officer

The NOL Group has elected veteran technology executive, **Donald G. Liedtke**, as its chief information officer (CIO) — heading its organization of about 300 computer systems specialists.

Liedtke, who was previously with Packard Bell NEC, will be based at the APL office in Oakland, Calif., which houses NOL's information technology group, as well as the global headquarters of APL Logistics — the container transportation and logistics arm of the NOL Group.

Yale Introduces Strongest Rope

Yale Cordage has developed PoBOn, a new high strength, high performance braided rope made of Zylon PBO fiber. Designed for both high-end sailing and industrial applications, the new rope has been dubbed the strongest braid ever made. Available in diameters ranging 1/8-in. to 2-in., PoBOn is created for use in high performance racing boats of all sizes and various industrial applications.

Circle 10 on Reader Service Card

Coast Guard Clarifies Tank Vessel Phase-Out

The U.S. Coast Guard published a notice of proposed rulemaking on January 20 to clarify the tank vessel phase-out dates under the Oil Pollution Act of

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Radio Holland
USA

1990 (OPA). Tank vessel conversions to double sides or a double bottom must have been completed preceding the law's effective date of August 18, 1990, to use the modified hull configuration to determine a vessel's phase out date.

OPA 90 provides a phase-out schedule for the operation of single hull tank vessels carrying oil in U.S. waters. The phase-out schedule differentiates between a tank vessel with a single hull

and one with a single hull that includes only double sides or only a double bottom. Under the statute, tank vessels with double sides or a double bottom may continue to operate for up to five years more than other single hull tank vessels.

ViaSat Steps Up Phase 2 Delivery

ViaSat has accelerated the delivery of

Phase 2 of its contract with Star Cruises, and has garnered an order worth about \$500,000 for an additional installation on Star Cruises latest vessel — Japan-based Superstar Taurus — beginning in March. The scheduled completion date for the network had been February 2000, but StarWire satellite terminals were deployed on eight Star Cruises ships by the end of 1999, resulting in the full nine-ship network expected to be online

by the end of January. ViaSat has also formed two strategic alliances with Sea Tel and Satpool.

SNAME Releases Ferry Report

The Society of Naval Architects and Marine Engineers (SNAME) has released a report titled, Ferry Transit Systems for the Twenty First Century, which is a survey of the social, economic and environmental effects of ferry systems. With the all-time high level of vehicle traffic congestion, many municipalities and regional transit authorities are debating new ferry systems. According to SNAME, waterborne transit by ferry has proven a success in motivating commuters and other inner-city travelers to leave their vehicles behind.

BV Withdraws Lifejacket Type Approval


Bureau Veritas has canceled type approval of the lifejackets associated with the Norwegian Sleipner casualty. Acting as an MCA-nominated body, BV informed MCA that type approval had been withdrawn on January 25. BV also advised the Italian manufacturer of the lifejackets involved to stop manufacture and supply of the jacket, as well as tracing all lot numbers sold. The manufacturer was also requested to advise flag administrations and other classification societies that VY type approval has been withdrawn. The Canepa & Campi Artica lifejackets reportedly failed during the Sleipner casualty, leading the Norwegian Maritime Directorate to ban their use on Norwegian vessels. The jackets had been accepted for Norwegian use based on a U.K. MCA Type Approval Certificate.

Todd Shipyards Announces Financial Results

Todd Shipyards Corporation — for the third quarter ended January 2, 2000 — reported net income of \$2.5 million on revenue of \$24.9 million. For the nine month period then ended, the company reported net income of \$7 million on revenue of \$87.7 million. During the previous year third quarter ended December 27, 1998, the company reported net losses of \$1.8 million.

Schat-Harding Appoints Willem Pot

Safety specialist Schat-Harding has elected Willem Pot as its new service agent in the Netherlands, Belgium and Luxembourg. Willem Pot will be the premiere authorized Schat-Harding Service Center run by an independent company, with more than 100 years of experience in the maritime sector.



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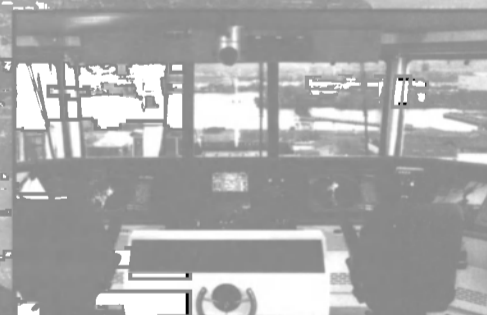
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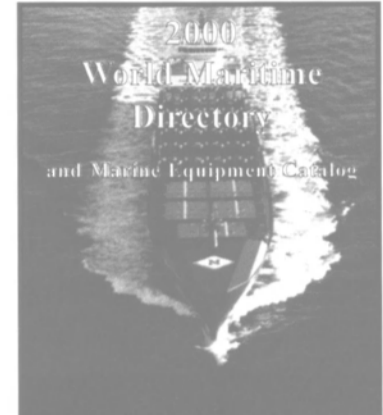
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Japan: Advanced procedures sustain industry in turbulent markets

Japan retains its perch atop the world commercial shipbuilding heap, although its position grows increasingly precarious with the continued emphasis on shipbuilding market share by its Korean competitors, and the emergence of low-

cost, hungry start-ups in China and the former Eastern bloc nations.

The challenges facing the Japanese shipbuilders and ship equipment suppliers are not unlike those faced by its European counterparts during much of

the past decade. While Japan's strong suit continues to be its ability to mass produce tankers and bulk carriers in a very efficient and profitable manner, its technical prowess and continually refined manufacturing procedures can

only take it so far in what continues to be a labor intensive process. The proliferation of and widespread incorporation of advanced shipbuilding CAD/CAM/CAE systems continues to level the playing field, as upstarts and industry veterans alike are a major investment away from drastically increased efficiencies.

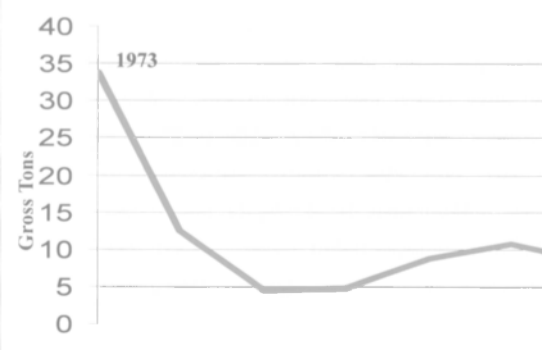
While the balance of power in commercial shipbuilding continues to tip away from Japan, the home countries' voracious appetite for new ships continues to drive new business.

In fiscal 1998 (the last official statistics available at press time), new orders received by Japanese shipbuilders totaled 283 vessels equaling 10.5 million gross tons, a decrease of 35.4 percent in the number of vessels and 21.4 percent in GT from FY 1997. Dry Cargo (5.7 million GT) and Tankers (4.8 million GT) dominated the newbuild orderbook, with just 36,000 GT dedicated to the category "other." Worldwide, it is worthy to note, orders for newbuildings worldwide were 26.7 million GT, down 10 million GT from 1997.

Japan's Newbuilding (Million GT)

Year	New orders	Completion	Order book
1973	33.8	12.4	35.3
1974	9.3	14.7	50.1
1983	12.4	7.0	13.6
1984	7.2	9.1	11.4
1985	6.5	8.3	9.1
1986	4.8	8.0	5.1
1987	4.4	4.4	4.8
1988	4.8	4.3	5.3
1989	8.6	5.6	8.0
1990	10.7	6.4	12.2
1991	8.1	7.1	13.2
1992	5.1	7.7	10.5
1993	8.4	8.5	9.9
1994	11.2	8.3	12.8
1995	10.2	9.1	13.9
1996	10.1	10.4	13.6
1997	13.5	9.9	17.1
1998	10.6	10.7	16.8

Newbuilding Orders in Japan (1973 - 1998)



The Fourth International Forum on Aluminium Ships

NEW ORLEANS • MAY 2000

The 4th in this highly successful series of conferences will take place at the Omni Royal Orleans Hotel, New Orleans, 10th & 11th May 2000.

Papers covering a wide range of topics have been submitted and a final programme will be announced early in 2000. The following topics form the core of the conference:

- * Operational experience and needs
- * Developments in materials and fabrication methods
- * Corrosion resistance and coatings
 - * Methods to ensure adequate fatigue life
 - * Developments in rules and regulations
 - * Future trends; needs for further research and development.

As well as the conference programme there will be a visit to local shipyard, Textron Marine, on Friday 12th, and for those who wish to linger in "The Big Easy", there will be a golf tournament on Saturday 13th.

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Aluminium shipbuilding;
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Photograph by Ron Calamia,
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Even more telling is the value of ship machinery produced and exported. Of the nearly 870.1 billion yen (\$6.8 billion) of ship machinery produced in 1998, a dominating \$6.4 billion worth was manufactured for use in Japan. In comparison, Japanese shipbuilders imported a scan (in comparison) \$184 million worth of ship machinery in 1998, a decline of seven percent from the year before, according to figures from the Japanese Marine Equipment Association.

While the Japanese ship equipment supply business is clearly dominant on its home grounds, the recent deterioration of newbuilding activity has left the collective industry — which boast approximately 775 factories and about 35,000 workers — with some notable problems of its own. For example, the proliferation of low-cost competitors and stagnation of R&D activities has weakened the very foundation of the Japan ship machinery industry. In an effort to reverse this trend, there has been a recent upsurge in the vitalization of R&D activities within these vital manufacturers, with the realization that the new market realities include shortages of both skilled workers and engineers, coupled with fewer funds earmarked for R&D. The call has also been sounded for manufacturers to immediately strengthen its cost competitiveness by modernizing production facilities and improving productivity through additional automation and procurement of low-cost materials, as well as the reduction of the number of parts used in machinery and equipment.

JAMSTEC Deepsea Exploring Ship Contract Announced

Japan Marine Science and Technology Center (JAMSTEC) will build a deep sea exploring ship for the Integrated Ocean Drilling Program (IODP) and has signed a contract with Mitsubishi Heavy Industries, Ltd. (MHI) for the basic design of the deep sea exploring ship and with Mitsui Engineering & Shipbuilding Co., Ltd. (MES) for the dynamic positioning system (DPS) and ship systems. IODP is an international program carried out by the U.S., Japan, and other participating nations. The program targets studies on the earth and life science through exploring changes in weather, mechanisms of change deep in the earth, unknown living organisms in deep seas, and gas hydrates. The ship

must be operated in sea areas with water depths of 8,202 ft. (2,500 m) and 13,123 (4,000 m) (in the future) and be capable of drilling deeply to the mantle. The contract for construction of the ship is being drawn up this month, and the ship will be completed in 2004. TSC completes DH tanker Pacific Libra Tsuneishi Shipbuilding Co., Ltd. (TSC) has com-

Main particulars

Length, o.a.:789 ft. (240.5m)
 Breadth, mld.:1,377 ft. (42m)
 Depth, mld.:70 ft. (21.2m)
 Draught, mld.:49 ft. (14.8m)
 Gross tonnage:57,331t
 Main engine: MAN-B&W 6S60MC
 Speed, service:15 kt
 Classification:NK
 Complement:30

pleted construction of the Pacific Libra, a double-hull Aframax tanker of 106,644 dwt, for Pacific Lily Shipping S. A. of Panama. The new tanker is designed for increased propulsion efficiency. A newly-designed propeller can achieve 15 knots in service speed with an engine output less than that required for the conventional Aframax tanker. The Cu-Fe type anti-adhesion system against marine organisms is installed to prevent adhesion of marine organisms to the hull, as well as hull corrosion. Cargo oil tanks consist of six pairs of tanks and one pair of slop tank (14 tanks), which are separated by the center bulkhead. The total cargo oil tank capacity is 119,055 cu. m. (98 percent), or approx-

imately 748,828 barrels. The OCIMF (Oil Companies International Marine Forum) Ship to Ship Transfer Guide is used to allow cargo handling with other ships. Three types of oil cargoes can be carried at the same time, and double valves installed on cargo lines prevent contamination between cargoes. Three cargo oil pumps with a capacity of 2,500 cu. m. /hr x 135 T.H. are installed.

Automation of the engine room complies with M0 requirements. The seawater cooling pipes for the main engine is lined with polyethylene to protect the pipes from corrosion. Auxiliary boilers can burn A-type heavy fuel oil for preservation of the environment.

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Japan

Power management with distributed intelligence

At Sea Japan a new power management system for marine applications will be introduced. The system is the result of a highly international cooperation between JRCS Corporation, Japan and the Danish generator control company DEIF A/S.

"For different reasons the market

demands distributed systems. First and foremost for obvious safety reasons — but also because of a demand for increased user-friendliness of the systems", said **Koichiro Kondo**, managing director of JRCS. "Our new system can be operated from local as well as central operation panels, it offers significantly

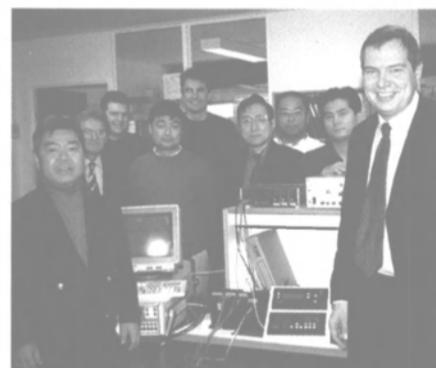


improved overall communication facilities due to CAN-bus communication, just as the system offers efficient interfacing to the alarm system on the ship."

Distributed systems also mean potential cost savings; "In Jacom-22, as we have named the system, all protection and control functions are integrated into one unit. This means that only one unit per generator is mounted in the switchboard; thus involving less engineering and wiring work and offering space saving contributions to the switchboard design", says the JRCS managing director.

"At JRCS we decided to be the first switchboard builder on the market with such a system of our own.

Early in 1998 we were in contact with the Danish company DEIF who had pre-



sented to us their range of standard generator control products. This contact developed into the negotiation of an OEM-solution," Kondo san continues.

"It was of course not without hesitation that we entered this cooperation," Mr. Kondo says. "It was our first time to cooperate that closely with a European company and geographic as well as cultural distances seemed big.

Now, however, our hesitations have proven groundless. DEIF has been a very innovative and flexible partner in the project. At the same time the Internet has made the world smaller — with a dedicated homepage as the forum of the project and with efficient e-mail communication the geographical distance between the companies have meant no problems.

Finally staff and management in both companies have gained from the technological and cultural opportunities that this project has made available to them. I believe this will result in lasting personal friendships and business associations," Kondo concludes.

Circle 142 on Reader Service Card



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Last updated: **Wednesday, January 31, 1999**

Chamber Of Shipping Requests Entries

The Chamber of Shipping of America is currently accepting entries for the Ship Safety Achievement Awards and the Jones F. Devlin Awards — publicly recognizing high achievements in safety at sea.

The Ship Safety Achievement Awards are sponsored jointly by the Chamber of Shipping of America and the Marine Section of the National Safety Council (NSC). These awards are presented to vessels representing all segments of the marine industry — domestic and international, which have performed outstanding feats of rescue or seamanship illustrative of the high safety standards implemented upon the U.S. fleet.

Sponsored by the Chamber of Shipping of America, the Jones F. Devlin

Awards are given to any self-propelled (domestic or international), which operates for two consecutive years without a crewmember losing a full turn at watch because of an occupational injury.

Entry forms can be obtained by contacting: **Renee H. Reynolds**, Safety Awards Coordinator, Chamber of Shipping America, 1730 M St., NW, Suite 407, Washington, D.C. 20036, tel: (202) 775-4399.

All entries must be received by April 7, 2000 in time for the Chamber's Annual Safety Luncheon scheduled for June 8 at the New Orleans Hilton Riverside, New Orleans, La.

Sayers Joins RTM Star Center

RTM Star Center has elected **Terry Sayers** to the position of instructional technologist. Sayers, who previously served as a safety officer for Royal

Caribbean Cruises, will be responsible for a variety of functions that includes instructing, project management, course design and development with an emphasis on technology and the use of computer based training techniques.

Spartan Opens New Office

Spartan Underwater Technologies, Inc. has opened a Panama City, Fla. office, providing diving and underwater-related services to the central and southeast U.S. The company specializes in fast response, damage surveys, repairs, ship husbandry and salvage.

Circle 2 on Reader Service Card

Litton And Alewijnse Group Form Strategic Partnership

Litton Marine Systems has signed an agreement with the Alewijnse Group to

establish a strategic partnership for supply of integrated navigation and control systems for shipyards and shipping companies. The group will develop a series of standardized consoles containing navigation and electrical subsystems, including engine automation, power management, alarms and monitoring functions.

Solar Solve Reaches Milestone

Solar Solve Marine, manufacturer of anti-glare roller screens for ships' wheelhouse windows, has achieved another milestone in its 10-year history. According to chairman, **John Lightfoot**, the company has placed 25,000 Solasafe™ screens on 2,500 vessels around the world. Trademarked Sunglasses for Ships™, the screens serve as an effective navigation safety aid.

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Circle 235 on Reader Service Card

NoFire Receives Listing On Navy Products List

After an extensive independent and Naval testing as witnessed by U.S. Government inspectors, NoFire Technologies' A18NV has been granted a listing on the U.S. Navy Qualified Products List (QPL). Potential applications for the NoFire A18NV fire retardant paint include all ships, military and civilian housing, supply facilities, fuel depots and all other areas where there is a potential for fire. Many high ranking military officials felt that a simple sub-

stitution of NoFire A18NV for currently used paints and coatings will deem a lifesaver.

Circle 71 on Reader Service Card

Crane Defense Systems Purchased By Gulf Coast Holdings

Gulf Coast Holdings, Inc. has completed the purchase of the Crane Defense Systems division of Unidynamics/St. Louis, Inc. from Crane Co. Business will be conducted as Unidynamics, Inc. Founded in 1925, Unidynamics has specialized in the design and manufac-

ture of cargo, personnel, and weapons handling systems primarily on behalf of the U.S. Navy. These engineered systems include cranes, elevators, winches, and doors.

The company's new executive team is led by **Sal Mira**, president and CEO, who has held a variety of top executive positions with both commercial and defense companies, including Learjet and KDI Precision Products, where he was president. **Vince DiGiovanni** will assume the role of executive vice president — operations.

Circle 93 on Reader Service Card

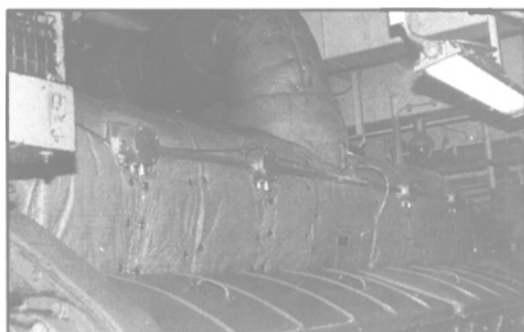
Phoenix Intl. Completes Recovery Mission

Phoenix International, (formerly known as Phoenix Marine) has successfully completed a mission to recover critical pieces of a Japanese H-II missile lost in the Pacific Ocean. Recovery efforts were administered by using Phoenix's remotely operated vehicle (ROV) Remora 6000.

Designed as Launch Vehicle No. 8 by the National Space Development Agency of Japan (NASDA), the H-II missile was destructed following the



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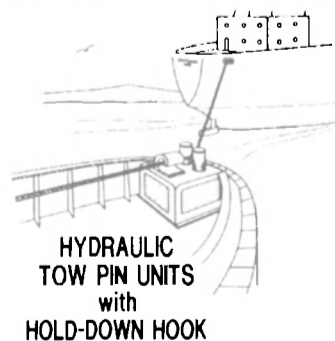
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launch from the Tanegashima Space Center on November 15, when the first stage main engine suddenly ceased functioning. Recovery of selected components was intricate to an investigation into the cause of the main engine's failure. Using a towed side scan sonar system, the missile debris was located by Japan Marine Science and Technology Center (JAMSTEC), Phoenix was hired by Shin Nippon Kaiji Co, a Japanese marine services company, to provide the Remora 6000 to perform the recovery.

Circle 94 on Reader Service Card

Litton Marine Creates Machine Automation Unit

Litton Marine Systems has established a new strategic business unit for machine automation, as announced per Dr. **Clark Graham**, the company's president. In addition, **Patrick T. Enright, Jr.** was named director, and **Stewart Allington** was elected director of the new strategic business unit.

Prior to joining Litton, Enright was head of the automation department at Newport News Shipbuilding, while Allington, who joined Decca in 1994, will assume responsibility for worldwide sales and marketing of Litton's marine machinery automation systems.

Saab Receives Tank Gauging Order

Saab Marine Electronics has been granted a \$4.6 million order from the Polish shipyard Stocznia Szczecinska, to supply tank gauging systems to eight chemical carriers at 40,000-dwt built for Ceres Hellenic of Greece.

The supply encompasses Saab TankRadar® for measuring of level, temperature and pressure in cargo tanks plus level gauging in ballast and engine room tanks. Independent high level alarm systems and load calculators are also included in the order.

Circle 82 on Reader Service Card

CDI Makes Executive Changes

CDI Marine Group has elected **Tim Burgess** as manager of business development for Band, Lavis & Associates. Burgess joins the company with more than 20 years of experience in propulsion and power generation control systems. The company has also promoted **George Shefler** to senior vice president - operations and general manager of the M&T Company - a CDI Marine Group Company. Shefler has held various positions since joining the company in 1983.



Foley Joins Kvichak

Kvichak Marine Industries has appointed **Mike Foley** as project manager. Foley will be responsible for the management and monitoring of aluminum vessel new construction projects, focusing on the 49-149 passenger vessel market — including fast catamarans. Foley, who has more than 25 years of marine experience, previously served as a project manager for Todd Pacific Shipyard.



Caterpillar Celebrates 75 Years

Caterpillar, Inc. will this year mark its 75th anniversary, when it was first established as Caterpillar Tractor Co. resulting from a merger of the Holt Caterpillar Company and C.L. Best Tractor Company.

Northrop Grumman Sectors Selected By NNS

Northrop Grumman Corporation's three operating sectors are part of a team led by Lockheed Martin Corporation that have been selected as the warfare systems integrator (WSI) by Newport News Shipbuilding (NNS) for the CVN 77 aircraft carrier.

The nuclear powered CVN 77 is scheduled to enter the fleet in 2008. Northrop Grumman's role for the WSI contract extends across all three sectors, and will be led by its Electronic Sensors and Systems Sector (ES3).

Levant Chooses Dex As Insurer

Levant Maritime International SA, through Lloyd's insurance broker, The Miller Insurance Group, has chosen Dex as the hull insurer for its seven new bulk carriers currently being built at Sanoyas Hishino Meisho Corporation in Japan. The policy, which commences in July 2000, marks Dex's first fleet since it opened for underwriting business at the beginning of this year.

Svedala Bulk And Tsuneishi Reach Agreement

Svedala Bulk Materials Handling (SBMH) of Pittsburgh, Pa., has been awarded a contract from Tsuneishi Shipbuilding Co. of Hiroshima-Pref, Japan for the design and supply of a self-unloading system for a new 13,700-dwt coal carrier. The contract was received through NIMAC Corp. of Osaka, Japan and NIMAC America of Norcross, Ga., agents of SBMH who are under sub-contract from Svedala.

Industry Remembers Frank W. Murphy

Frank W. "Pat" Murphy, Sr., founder of Frank W. Murphy Mfr., Tulsa, Okla., died on December 3, 1999. He was 89 years old. Murphy, who founded his company in 1939 to produce its premiere product, Switchgate®, which combines a gauge with a cut-off switch,



designed this product to provide a simple shut-down protection for unattended engines in the oil fields throughout the Midwest. Through the years, Murphy expanded his company's product line, which now offers a variety of Switchgate instruments, industrial controls and controls systems, while establishing additional plants in the Tulsa area, Houston, the U.K. and Mexico.

Maritime Community Recognizes Henry Reynolds

Henry E. Reynolds, who had been a member of the maritime community, died suddenly of a heart attack on January 28, while working on assignment in San Juan, Puerto Rico. Reynolds, 53, began his maritime career when he arrived in South Florida in the early 1970s as a crew member on a sailing schooner. In 1981 he played an intricate role in the startup of Titan, a small, struggling salvage company, from where he moved on to Ellen & Co. as a steamship agent and, later, as agency manager. Reynolds then rejoined Titan in 1996, where he had remained as job coordinator for the last four years.

Denemark Joins Lang Team

Lang Manufacturing, provider of cooking equipment to marine galleys, has added **Damen Denemark** as its training and field services specialist. Denemark will provide field support and training for the company's customers and reps, focusing on the new Lang Combis and Blast Chillers/Freezers.

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Circle 244 on Reader Service Card

The Erika oil spill - using the incident to positive effect

Oslo-based INTERTANKO is well regarded for its work with government and international regulatory bodies in ensuring that rules and regulations pertaining to the design, construction and operations of tankers is consistent with factual data in regards to the industry's record. In the wake of the Erika disaster, Intertanko's **Dagfinn Lunde** has been understandably busy in meetings to ensure that ownership issues are presented. At press time, a meeting was scheduled in Brussels to discuss the tightening of rules in regards to port state control, classification directives specific to EU, and potential changes to MARPOL. The following was authored by **Dagfinn Lunde**, and appeared in INTERTANKO's February General Circular.



Dagfinn Lunde

The breakup of the Erika off the French coast in severe weather on December 12, 1999 and the subsequent spillage of 14,000 tons of her heavy fuel oil cargo have prompted a reaction of a magnitude not experienced since the grounding of Exxon Valdez in 1989. The popular media had two bites of the cherry - the first when the ship sank and the second, two weeks later, when her cargo began washing up on French beaches.

For the maritime press, there has been no hiatus. The coverage has been continuous and abundant since the 24-year old ship sank. Furthermore, it shows no sign of abating. Accusations have been leveled at just about every conceivable party - from owner, classification society, flag state and charterer to port state, insurer and ship-builder.

Once again, politicians are coming under media-generated pressure to be seen to be implementing immediate and effective measures to rid the oceans of substandard ships, while old ships are, ipso facto, being equated with bad ships.

There were definitely substandard practices associated with the Erika, and her sinking provides a number of very valuable lessons that it behooves the entire

industry to learn from in order to ensure that such an incident does not happen again. However, it is also important that governments and industry do not over-react and promulgate punitive measures before the full facts of the incident are known, published and widely disseminated.

The full facts will reveal that, basically, there is nothing wrong with the current tanker safety regime other than it is not being properly enforced. There are still too many loopholes in the fabric of the enforcement regime that allow various participants in the Chain of Responsibility to cut corners and avoid meeting their obligations. Such irresponsible action penalizes the reputable players and puts the entire industry under the threat of another layer of legislation, which will still be ignored by those that choose to do so. The Erika incident provides an opportunity to identify and close the loopholes. In this way, only those that engage in substandard practices will be targeted. Sanctions need to be strong enough to deter any company, organization or agency from failing to meet its obligations.

What is evident from the Erika incident is that current ship inspection practices

need to be tightened up across the board, including for older ships. Classification societies, flag and port states, charterers and owners need to review their commitments in this respect. The sinking has also highlighted the lack of transparency with respect to the availability of good ship data. The European Quality Shipping Information System (EQUASIS), established as a comprehensive ship database under the auspices of the EU Quality Shipping Campaign, is an important step forward in this respect. The system provides a means of encouraging charterers to charter vessels on the basis of comprehensive, accurate and easily accessible information, and also helps agencies and bodies charged with ship inspection work to target their efforts more effectively.

There have been many industry and government meetings over the past month at which Erika was top of the agenda, and there will be many more in the weeks ahead. It is important for industry and governments to move ahead in unison and on the basis of the true facts about the incident. Erika was an unfortunate occurrence but, on the plus side, it should provide an important springboard to significant further improvements in tanker safety.

For more information on Intertanko activities,

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Media coverage of the Erika break up and sinking has been intense.

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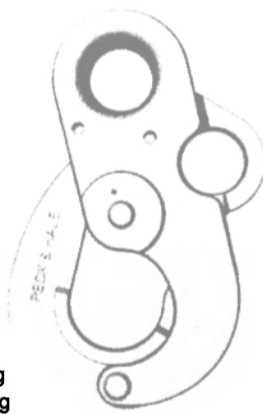
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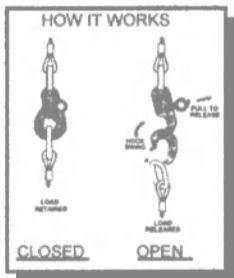
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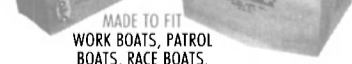
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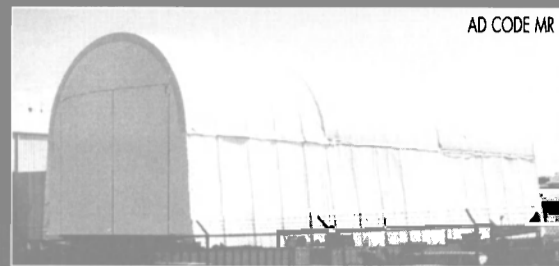
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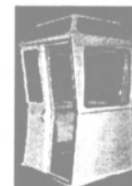
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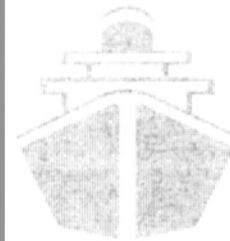
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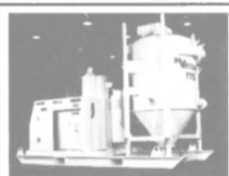
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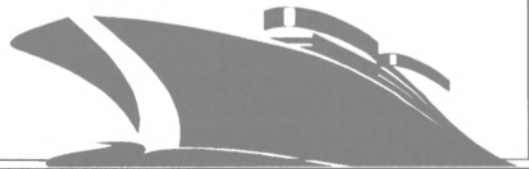
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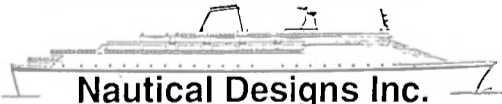
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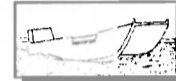
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NCL Board Dumped, Lund Appointed

Star Cruises and Carnival Corp. tightened their grip on Norwegian cruise group NCL Holding during February by ousting the board and appointing Norwegian lawyer **Ole Lund** as the new chairman.

Lund, who is also chairman of state oil firm Statoil, will head a new six-member NCL board. Star and Carnival control about two thirds of NCL stock under a joint 35 crowns per share offer valuing NCL stock at about \$1.1 billion. In addition the two will assume NCL debts of about \$800 million.

The new board, voted in by an extraordinary shareholders' meeting in Oslo, comprises Lund, Star chairman **Lim Kok Thay**; Star chief executive, **Colin Au**; **Fook Yew**; **Colin Veitch**; British lawyer **Peter Brooks**; and Norwegian lawyer, **Rolf Johan Ringdal**.

Star, the world's fifth largest cruise operator, wants Veitch, a former senior vice president of Princess Cruises, to be chief executive of NCL, which is fourth largest.

MSC Promotes Four

Mediterranean Shipping Company (MSC) has promoted four staff members, effective immediately,

Allen Clifford has been appointed senior vice president, sales and marketing; **Claudio Bozzo** was elected senior vice president, traffic and quality control; Captain **Vito Piraino** and **Sergio Fedelini** were promoted to vice presidents, Hampton Roads District and Charleston District, respectively.

Creighton Named Atlas Energy President



Atlas Energy Systems has elected **Melvin A. Creighton** as president and CEO. An experienced corporate strategist, Creighton will

assume the responsibility of integrating a new industrial products division to be formed by a merger with International Computer Power. Creighton, who is also a CPA, has more than 20 years experience related to corporate industrial development and strategic financial planning.

Circle 112 on Reader Service Card

Stolt-Nielsen And CheMatch Join Forces

Stolt-Nielsen S.A. and CheMatch.com have formed an alliance to integrate Stolt-Nielsen's (SNSA) Internet-based

logistic system, ChemLink.com, with CheMatch.com's Internet-based exchange. SNSA has also made a minority equity investment in CheMatch.com.

CheMatch.com creates an online market where buyers and sellers benefit from price transparency, market data and global access to products — free of time and geographic boundaries. Holding a formidable place in logistics and supply chain management for the chemical industry through ChemLink, SNSA offers customers the ability to track and manage even the most complex bulk shipments through the supply chain.



Von Appen Passes Torch

Jorg Von Appen, area manager at the branch office Berlin of Germanischer Lloyd (GL),

took an early retirement, after 28 years of service. He was honored at a farewell ceremony given by GL on January 28.

Von Appen had distinguished himself as the managing director of the Deutsche Schiffs-Revision und Klassifikation (DSRK) in Zeuthen, following the company being taken over by GL in 1990.

Lisnave Takes Control Of Modification Work

The Portuguese yard Lisnave carried out major modification work on three self-discharging bulkcarriers for CSL, managed by Acomarit, as well as two for British Steel, managed by Ropner, the latter undergoing renewal of their main vertical lifts.

This past year, the yard, which is moving all of its operations from the Margueira yard in Lisbon to the Mitrena yard near Setubal, carried out jobs for 88 owners in 21 countries.

Three new drydock platforms with a capacity of 80,000-dwt each will be added to the Mitrena yard, giving it a larger flexibility and six docks, from Panamax to VLCC.

Verolme Botlek Carries Out Projects Simultaneously

Located in Rotterdam, Verolme Botlek specializes in drydocking, repairs and conversions, specifically merchant vessels and floating offshore platforms such as drillings rigs and FPSOs. Capable of accommodating the largest of ships, and wide enough for offshore vessels such as semisubmersible and jack-up drilling rigs, the yard operates three drydocks — the largest measuring 1,328 x 295 ft. (405 x 90 m).

Verolme Botlek has undertaken a significant number of jobs — mainly during the second half of 1999 — funneling into the beginning of this year. FPSO unit Uisge Gorm, which sustained tank damage requiring renewal of more than 240 tons of steel, required precision engineering because its 800-ton process equipment had to be held in place and supported prior to installation of the new main deck section. The yard also repaired collision damage that occurred on ECE.K, whose prefabricated bow sections, totaling more than 100 tons of steel were installed.

Litton Integrates Marine Ops In New Company

The consolidation of marine industry assets in the U.S. has taken a rather unique twist, as Litton Industries — with a strategy of becoming the marine industry's full-service leader — announced the formation of a new company, the Litton Ship Systems Full Service Center (LSS FSC).

Litton, which for years has been amassing an impressive arsenal of marine equipment builders and suppliers from around the globe, formed LSS FSC to operate as a stand-alone business within the existing Litton Ship Systems (LSS) organization, with headquarters in Pascagoula, Miss.

LSS FSC will provide its customers a full range of research and development, design analysis and life cycle support services. These services will be offered in conjunction with the two LSS shipyards — Litton Avondale Industries in metro New Orleans, Louisiana, and Litton Ingalls Shipbuilding in Pascagoula — as well as a worldwide network of fleet support offices already in place.

"Through our two shipyards, Litton is already one of the nation's leading companies for the design, engineering, construction, and life cycle support of major surface ships for the U.S. Navy, U.S. Coast Guard and international navies, as well as commercial vessels of all types," said **Michael R. Brown**, Litton chairman, president and CEO.

"In forming this company, Litton is taking the next step in broadening our ability as a significant industry partner in R&D, as a prime contractor for design and production, and as a single point of contact for support services throughout the operational lifetime of a single ship or a fleet of vessels," Brown said.

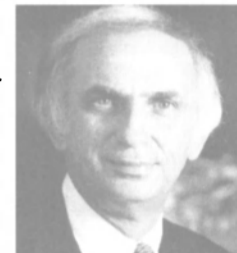
"This new company supplements Litton's well-positioned core businesses, enabling Litton Ship Systems to meet the full-service contractor needs of commercial and international customers, as well as every non-nuclear full-service contractor requirement of the U.S. Navy, Marine Corps and Coast Guard," said **Jerry St. Pe**, Litton executive vice president and chief operating officer of Litton Ship Systems.

"As a lead shipbuilder for several current classes of U.S. Navy surface combatant and amphibious assault ships, Litton Ingalls and Litton Avondale have a demonstrated expertise as full-service contractors.

Additionally, this new company provides an exceptional platform from which to support such critical Navy programs as DD 21, LPD 17 and T-ADC(X).

Cavaiola Named President of Litton Full Service Center

St. Pe announced that Dr. **Lawrence J. Cavaiola**, has been named president of the new Litton Ship Systems Full Service Center. Cavaiola joined Litton Ingalls in 1998 as vice president for government relations and strategic development, and prior to the new assignment was named LSS vice president for strategic and business development. Cavaiola graduated with distinction from the U.S. Naval Academy, Annapolis, Md., in 1969. He holds a Ph.D. in operations research from The Johns Hopkins University, Baltimore. Prior to joining Litton Ingalls, he served in senior staff positions with the U.S. Congress, in the Department of Defense, and in industry. He served for 26 years on active and reserve service with the U.S. Navy, retiring as a Captain.

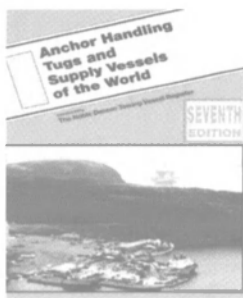


Jerry St. Pe, Litton executive vice president and COO Litton Ship Systems.



Verolme Botlek placed a new 80-ton hull section into FPSO Uisge Gorm at its Rotterdam yard.

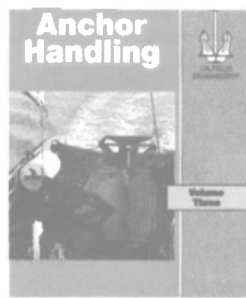
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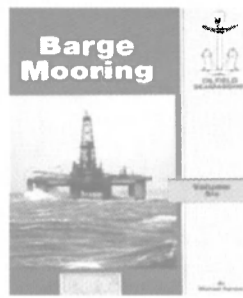
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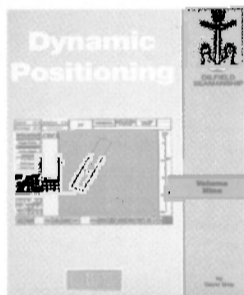
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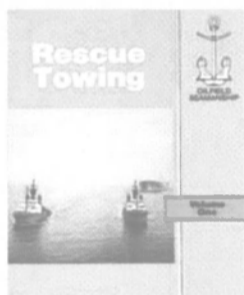
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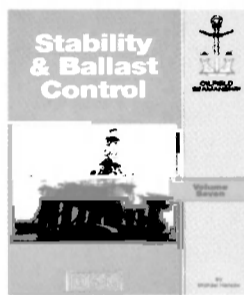
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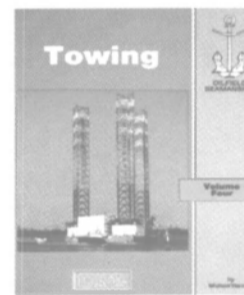
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Please bill my company for total order value

I enclose my check for total order value.

Checks must be in dollars and drawn on Bank in the USA.

Please debit my credit card account (tick card)

Valid from _____ Expiration Date _____

Name: _____

Job title/position: _____

Company: _____

Address (Note: if paying by credit card, this must be the address of the card holder)

Signature: _____ Date: _____

Tel/Fax: _____

E-mail: _____



M/V PAPU NORTE

Karl Senner, Inc. supplied two (2) **REINTJES WAF 772** horizontal offset, reverse reduction marine gears, reduction ratio 6.440:1

Owner: Crowley Maritime
Seattle, Washington

Shipyard: A Joint Venture of
Sanym Shipyard Buenos Aires, Argentina
and
Halter Marine Group, Gulfport, Mississippi

REINTJES
MARINE GEARBOXES

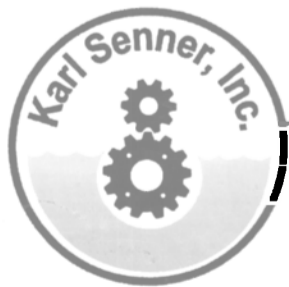
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