

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

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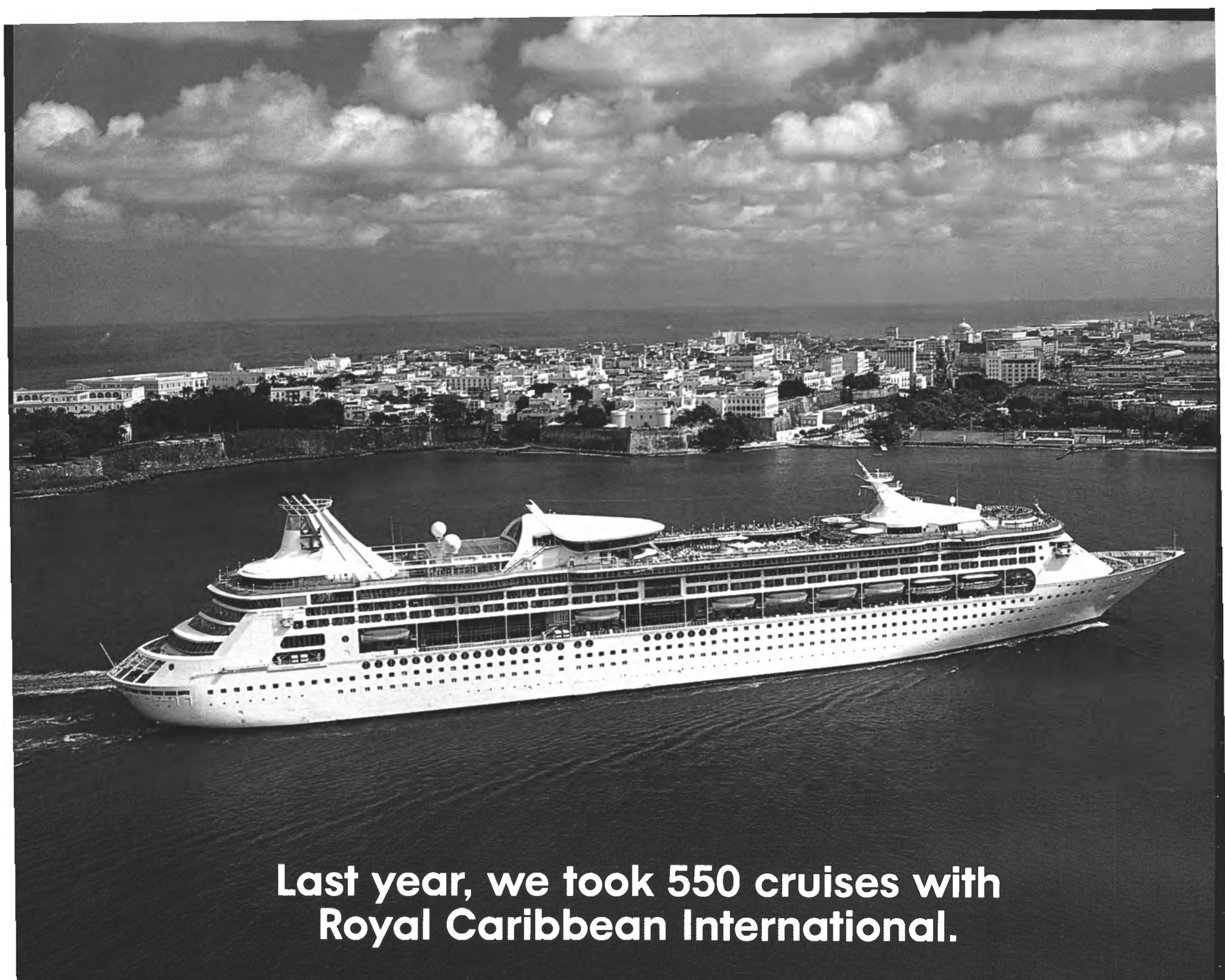
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Pictured on this month's cover is the Incat-built *Condor II*.

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Shipbuilding Demand To 2000: Japan's ASIS releases its latest projections regarding tanker and bulk carrier demands.



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As passengers demand more efficiencies and safety regulations become stricter, owners, builders and designers are challenged to develop and deliver technologically advanced solutions.

— by David Tinsley,
technical editor

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As Nor-Shipping '97 draws near, *Maritime Reporter* evaluates the recent contributions to marine safety and technology from Scandinavian builders and suppliers.

The Proving Grounds: Technical Editor David Tinsley finds that Scandinavia is fertile ground for investment and technological progression in the ferry sector.

Finnish Power: Wärtsilä's continued success as a premier power supplier is enhanced with new, improved products.

It's Tool Time: Unitor enters the \$170 million shipboard tools market.

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Dubai Drydocks has reported record numbers in terms of ships and dwt, topping the world in the repair of large tankers. — by Alan Thorpe, international editor

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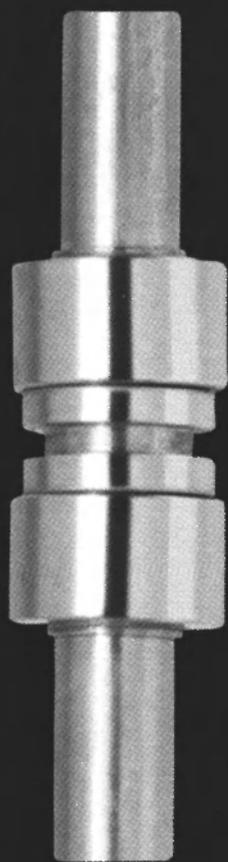
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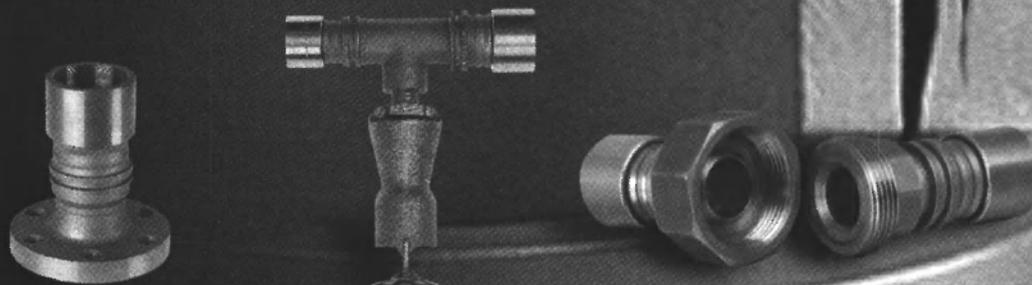
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EDITOR'S NOTE

Much attention has been paid lately to the safe carriage of passengers. While all marine accidents are serious, and garner thorough investigations by an industry deeply concerned with its safety record, large losses of life emblazon particular incidents into the minds of the industry, and the public, for decades to come. The most obvious example is the continued keen interest in the Titanic disaster, a wreck which has been — and will continue to be — analyzed and re-analyzed until the ship is disintegrated and consumed by the sea. The loss of Estonia in 1994 is another riveting example of the short and long-term consequences of one accident. The loss literally stopped much of Scandinavia in its tracks, as large numbers of relatives, friends and colleagues were lost. One long term influence of the disaster is the formation of new rules and regulations for vessels and equipment which are sure to benefit the maritime industry for decades to come.



This is perhaps the busiest month of the "busy season," with both Cruise & Ferry in London and Nor-Shipping in Oslo within a month of each other. Technical Editor David Tinsley was tapped to adequately summarize some of the sweeping equipment changes now taking place in the cruise and ferry markets. His report starts on page 22, with a special section on Scandinavian issues appearing on page 33, at the start of the Scandinavian Maritime Review.

The Japanese Association for Structural Improvement of the Shipbuilding Industry (ASIS) has issued its annual report regarding shipbuilding prospects for the bulker and tanker markets. The group takes a highly analytical approach to assessing business trends, considering world economies, commodity carriage statistics and projections, and fleet age, to name a few. Read its analysis and conclusions in this month's Marine Finance section, starting on page 8.

Gregory R. Trauthwein, editorial director

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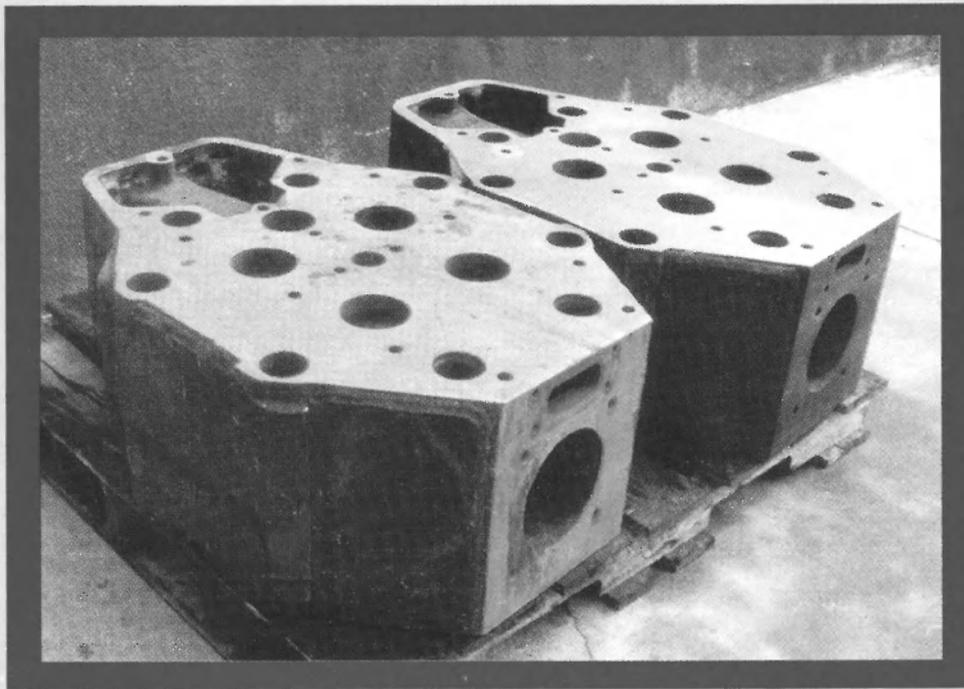
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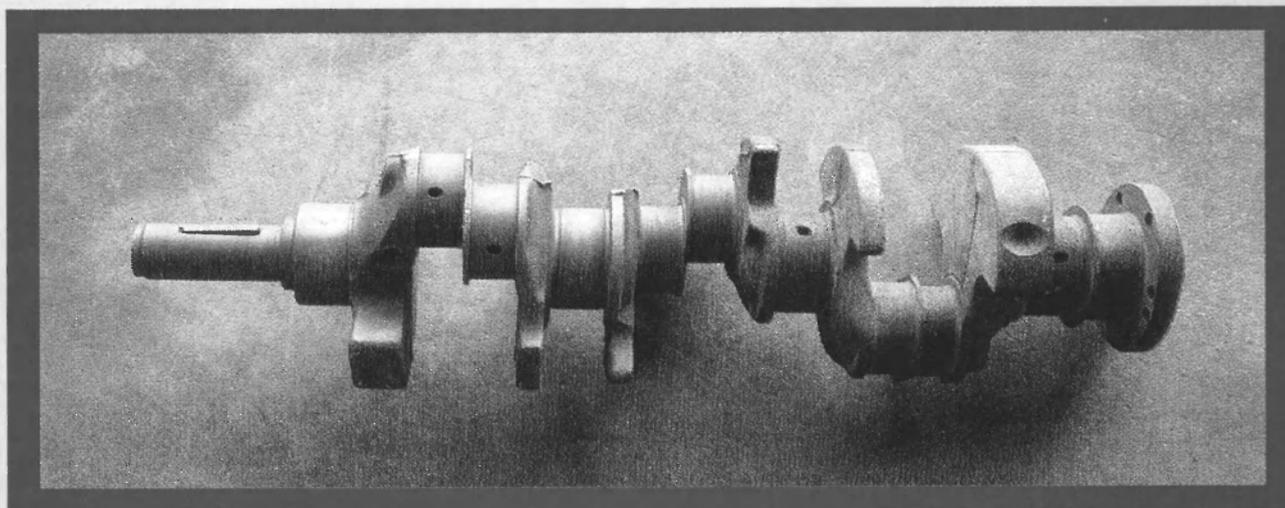
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Shipbuilding Demand To 2000

ASIS analyzes effect of world economies, aging fleet on shipbuilding demand

The Association for Structural Improvement of the Shipbuilding Industry (ASIS) of Japan has conducted research on world shipbuilding demand since 1991 in order to provide information on demand trends for the maritime industry.

The association has compiled a report on the latest world shipbuilding demand forecasts, based on research conducted in FY96. The results were presented at a Tokyo conference in March.

Specifically, ASIS' report contains short and medium-term shipbuilding demand forecasts for tankers and bulk carriers up to the year 2000 based on analyses of seaborne trade, ship demand, scrapping tonnage and shipbuilding demand.

According to the statistics offered, economies in developed countries showed a gradual growth in 1996 due to uptrends in the U.S. and Japan. Growth of the Asian economy has increased at a high rate.

In addition, economic growth in South American countries has shown signs of recovery. These factors were taken into consideration when world shipbuilding demand was measured.

The report further states that seaborne trade of oil has shown a steady increase due to a strong worldwide demand for oil. Thus, fleet requirement for tankers has increased accordingly by 2.9 percent.

Oil production in the North Sea and Central and South America will witness a further increase in 1997 compared with 1996, and as a consequence, the growth rate of seaborne trade of oil will decrease. The increased production of oil in Iraq will also reduce the growth of tanker demand after 1998.

Despite inactive seaborne trade of raw materials for crude steel production, seaborne trade of bulk cargoes in the future will grow comparatively steadily, supported by an increase in the trade of steam coal, grain and minor bulk cargoes.

The report forecasts that the requirement for bulk carriers will increase due to the steady rise in volume of seaborne trade of bulk cargoes in the future.

Contrastingly, however, the report says that there will be an increase in the demand for tankers due to the fact that most current vessels will be scrapped due to old age, and that there will be a decrease in the demand for bulk carrier newbuilding due to the influx of new ships built in this sector during 1996 and 1997. The yearly average for shipbuilding demand of tankers and bulk carriers from 1998 to 2000 is

27.2 million dwt, which corresponds to 93 percent of total ship completion of tankers and bulk carriers in 1996.

All in all, the report concludes that the yearly average of shipbuilding tonnage from 1998 to 2000 will be 34.5 million dwt for both tankers

and bulk carriers.

This shows that if the market continues at such a level, conditions will not improve greatly.

For information on obtaining the report,

(continued on page 10)

New Contracts

Orders are listed alphabetically, by vessel type. Publisher is not responsible for errors or omissions. For additional information on this, or other ship market information, contact: FERLISHIP, Paseo De San Francisco De Sales, 8, 28003 Madrid, Spain, tel: +341 441 4138; fax: +341 441 4138.

Owner/Operator	Shipyard	Country	Type	No	DWT	GT	Deliv	\$(M)
DISTRICT OFFSHORE/								
BROVIG OFFSHORE	KVAERNER KLEVEN AS	NORWAY	AHTS	1	—	—	5/98	—
WORLD-WIDE SHIPPING	SASEBO	JAPAN	BULK CARRIER	1	72,000	—	1998	28
CHINA NAT CEREALS	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	1	30,000	—	1999	—
SEA JUSTICE	HYUNDAI	KOREA	BULK CARRIER	2	73,570	—	3/99	54.3
GOLDEN OCEAN GROUP	HASHIHAMA	JAPAN	BULK CARRIER	2	45,000	—	9/98	—
WAH KWONG SHIPPING	ISHIKAWAJIMA HARIMA H.I.	JAPAN	BULK CARRIER	1	42,400	—	1998	23
NYK LINE	SAIKI	JAPAN	BULK CARRIER	1	31,000	—	1998	—
TOP LINK	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	1	30,000	—	—	—
—	XINGANG SHIPYARD	CHINA	BULK CARRIER	1	14,200	—	1998	—
TOHO KAIUN	SHIN KURUSHIMA	JAPAN	BULK CARRIER	1	23,000	—	1998	15.3
ORIENT SHPG ROTTERDAM	ASTILLERO RIO SANTIAGO	ARGENTINA	BULK CARRIER	1	27,000	—	3/98	—
PACIFIC CARRIERS	MITSUMI	JAPAN	BULK CARRIER	2	77,000	—	—	58
—	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	3	74,000	—	—	78
MARNAVI	SOC. ESERCIZIO	ITALY	CHEMICAL CARRIER	1	22,000	—	1998	48
STORLI	KVAERNER KLEVEN AS	NORWAY	CHEMICAL TANKER	2	37,250	—	1999	142
SEATRANS ANS	UNION NAVAL DE LEVANTE	SPAIN	CHEMICAL TANKER	2	17,000	—	1998	84
ROYAL NAVY	AILSATROON	U.K.	COASTAL TRNG. CRAFT	2	—	—	—	2.4
—	THYSSEN NORDSEWERKE	GERMANY	CONTAINER	2	—	—	1998	—
CANADA MARITIME SERVICES	DAEWOO	KOREA	CONTAINER	1	35,000	—	1998	50
PAN OCEAN SHIPPING	HANJIN	KOREA	CONTAINER	2	21,000	—	9/98	—
MALAYSIAN INT.SHPG.	HANJIN	KOREA	CONTAINER	2	8,200	—	1998	42
UFUK DENIZ G K SIRKETI	GELIBOLU GEMI	TURKEY	CONTAINER	1	6,250	—	1998	—
P&O NEDLOYD	KVAERNER WARNOV WERFT	GERMANY	CONTAINER	2	—	—	98/99	220
THIEN & HEYENGA	MUTZELFELDTWERFT	GERMANY	CONTAINER	2	—	—	1998	—
LAUTERJUNG.MANFRED	VOLKSWERFT STRALSUND	GERMANY	CONTAINER	2	—	—	1999	—
NORASIA	JIANGNAN	CHINA	CONTAINER	5	—	—	98/99	150
NORASIA	HDW	GERMANY	CONTAINER	5	20,000	—	1998	150
NYK LINE	ISHIKAWAJIMA HARIMA H.I.	JAPAN	CRUDE CARRIER	1	260,000	—	10/98	—
RCCL	KVAERNER MASA	FINLAND	CRUISE	2	—	130,000	99/2001	1,000
RENAISSANCE CRUISES	CHANTIERS DE L'ATLANTIQUE	FRANCE	CRUISE	2	—	—	1999	350
PRINCESS CRUISES INC	FINCANTIERI	ITALY	CRUISE	1	—	77.0 X	—	—
OCEAN HIG (HASMUSSEN)	DALIAN SHIPYARD	CHINA	DRILLING RIG	1	60,000	—	8/98	200
PEDER SMEDVIG	HITACHI ZOSEN	JAPAN	DRILLING RIG	1	—	—	2/99	250
CONOCO	SAMSUNG	KOREA	DRILLSHIP	1	103,000	—	3/99	200
REDERI AB GOTLAND	CHANTIERS DE L'ATLANTIQUE	FRANCE	FERRIES	1	—	—	1/99	37
HAVFISK	BATBYGG	NORWAY	FISHING	2	—	—	1998	—
—	BAZAN	SPAIN	FISHING	1	—	—	—	—
IAN & BILL GATT/								
DENHOLM FISHING	AILSATROON	U.K.	FISHING	1	—	—	—	5.9
JAPAN VIETNAM PETROLEUM	MITSUBISHI H.I.	JAPAN	FPSO	1	—	—	—	100
ESSO NORGE	KVAERNER MASA-YARDS	FINLAND	FPSO	1	—	—	—	288.6
—	2 MAI MANGALIA	ROMANIA	GENERAL CARGO	3	5,700	—	98/99	—
EASTERN CAR LINER	MITSUBISHI H.I.	JAPAN	HEAVY-LIFT. CARGO	1	13,000	—	1998	—
HINODE KISEN	MITSUBISHI H.I.	JAPAN	HEAVY-LIFT CARGO	1	9,400	—	1998	—
THAILAND GOVT HARBOUR	WENCHONG SHIPYARD	CHINA	HOPPER DREDGER	1	1,500	—	1997	—
BRIESE SCHIFFAHT GMBH.	XINGANG SHIPYARD	CHINA	MULTI-PURPOSE	4	—	—	1998	—
GEMARFIN	VARNA SHIPYARD	BULGARIA	MULTI-PURPOSE	2	9,370	—	1998	—
H&K HEINRICH	J. J. SIETAS	GERMANY	MULTI-PURPOSE	2	9,400	—	1999	—
ISLAMIC REPUBLIC								
OF IRAN SHIPPING LINES	GUANGZHOU	CHINA	MULTI-PURPOSE CARGO	5	22,600	—	99	—
STATOIL	AESA (PUERTO REAL)	SPAIN	MULTI-PURPOSE DRILL	1	97,300	—	99	285
ROYAL BAHAMAS/								
DEFENCE FORCE	HALTER MARINE INC.	U.S.	OFFSHORE PATROL	2	—	—	99	26
GOTLAND REDERI	LEROUX ET LOTZ	FRANCE	PASSENGER / VEHICLE	1	—	5,000	1998	34.8
WASHINGTON STATE	GLADDING- HEARN	U.S.	PASSENGER/FERRY	1	—	—	98	—
SANKO KISEN	BRATVAAG SKIPSVERFT	NORWAY	PLATFORM SUPPLY	2	4,000	2,000	1998	34.6
HVIDE MARINE	HALTER MARINE INC.	U.S.	PLATFORM SUPPLY	1	—	—	—	11
AP MOLLER	GUANGZHOU	CHINA	PRODUCT TANKER	2	35,000	—	—	56
PERTAMINA	DAEWOO	KOREA	PRODUCT TANKER	3	30,000	—	1999	84
PERTAMINA	PAN-UNITED SHIPYARD	SINGAPORE	PRODUCT TANKER	1	17,500	—	3/99	23.5
PERTAMINA	JIANG JIANG	KOREA	PRODUCT TANKER	2	17,500	—	1999	41.5
PERTAMINA	HYUNDAI	KOREA	PRODUCT TANKER	1	17,500	—	3/99	21.5
PERTAMINA	HALLA	KOREA	PRODUCT TANKER	2	35,000	—	1999	52
LEMOS, N.S.	DALIAN NEW	KOREA	PRODUCT TANKER	1	110,000	—	1999	43
GANSHIP INTERNATIONAL	ONOMICHI	JAPAN	PRODUCT TANKER	2	46,500	—	1998	61.5
AP MOLLER SINGAPORE PTE.	TSUNEISHI	JAPAN	PURE CAR CARRIER	1	—	45,000	1998	—
SEATRANS ANS	FOSEN MEK VERKSTEDER	NORWAY	RoRo	1	8,800	—	1999	40
COBELFRET	KAWASAKI H.I.	JAPAN	RoRo	2	10,000	—	1999	—
NOVOMAR	KAWASAKI H.I.	JAPAN	RoRo FERRY	2	9,500	—	6/99	70
HVIDE MARINE	HALTER MARINE INC.	U.S.	SHIP DOCKING MODULE	1	—	—	1998	—
ROYAL NAVY	VSEL	U.K.	SUBMARINE	3	—	—	—	3,300
GOLDEN OCEAN GROUP	HITACHI ZOSEN	JAPAN	TANKER	1	310,000	—	1999	—
GREAT EASTERN SHIPPING	SAMSUNG	KOREA	TANKER	2	105,000	—	98/99	80
STOLT PARCEL TANKERS	AESA (JULIANA)	SPAIN	TANKER	2	22,460	—	99/00	100
REEDEREI NORD KLAUS/								
E. OLDENDORFF	HALLA	KOREA	TANKER	2	104,600	—	98/99	90
SHOEI KAIUN	IMABARI ZOSEN	JAPAN	TANKER	2	—	—	98/99	80
FRATELLI NERI	CANTIERI NAVALE FERRARI	ITALY	TUG	2	—	200	—	10
RIMORCHIATORI PANFIDO	CANTIERE NAV. TOMMASI.	ITALY	TUG	2	—	—	1998	—
AP MOLLER	HASHIHAMA	JAPAN	VEHICLE CARRIER	1	12,490	—	1998	—
NYK LINE	MITSUBISHI H.I.	JAPAN	VLCC	2	260,000	—	99/00	166

**GAO Renders LPD-17
Protest Decision**

The U.S. General Accounting Office (GAO) has denied the protest of the Ingalls consortium with respect to the \$641 million initial LPD-17 contract which was granted to the Avondale-led alliance in December.

The Navy has reportedly abided by the GAO decision by canceling its previously issued stop work order.

"The GAO's decision further validates the process by which the Navy selected the Avondale alliance to design and build the LPD-17 ship. The award not only has significant financial implications for Avondale but also underscores our ongoing progress in establishing Avondale's competitive and technical leadership in the shipbuilding industry," said Avondale CEO **Al Bossier, Jr.**

APL To Merge With NOL

As announced on April 14, container carriers Neptune Orient Lines Ltd. (NOL) and APL Ltd. have signed a merger agreement, valued at approximately \$825 million, under which APL will become a wholly-owned subsidiary of NOL. NOL will acquire all 24.6 million outstanding shares of APL stock at \$33.50 per share.

"This combination of the complementary APL and NOL route systems, service organizations and intermodal assets creates a global container line with resources to provide customers comprehensive and efficient worldwide shipping services," said APL CEO **Timothy J. Rhein**, adding that the deal will not affect APL's commitment to the U.S. Maritime Security Program.

"We expect both companies to realize significant cost savings of at least \$130 million annually from the consolidation of certain operations and improved efficiencies, including enhanced network optimization, streamlined information technology systems, improved box utilization, lowered inland costs and reduced terminal expenses," said NOL CEO **Lua Cheng Eng**. "APL will be strengthened by the addition of NOL's North American service operations to APL's industry-leading, trans-Pacific container liner

business," he added.

NOL and APL will operate a total fleet of 113 vessels, including 76 containerships.

APL will retain its name and brand in the marketplace, and will continue its transportation operations headed by its existing management in Oakland, Calif.

**Port Of Tacoma And
Hyundai Sign 30-Year Lease**

The Port of Tacoma Commission unanimously approved a 30-year lease with Hyundai Merchant Marine (America) for the West Blair Terminal on the upper Blair

Waterway. Under the agreement, the Port will build a \$60 million terminal for Hyundai, which will be ready for use by mid-1999.

Under the terms of the lease, Hyundai will start with a 50-acre terminal and a dockside intermodal rail yard. A total of 10 acres will be added to the terminal with-

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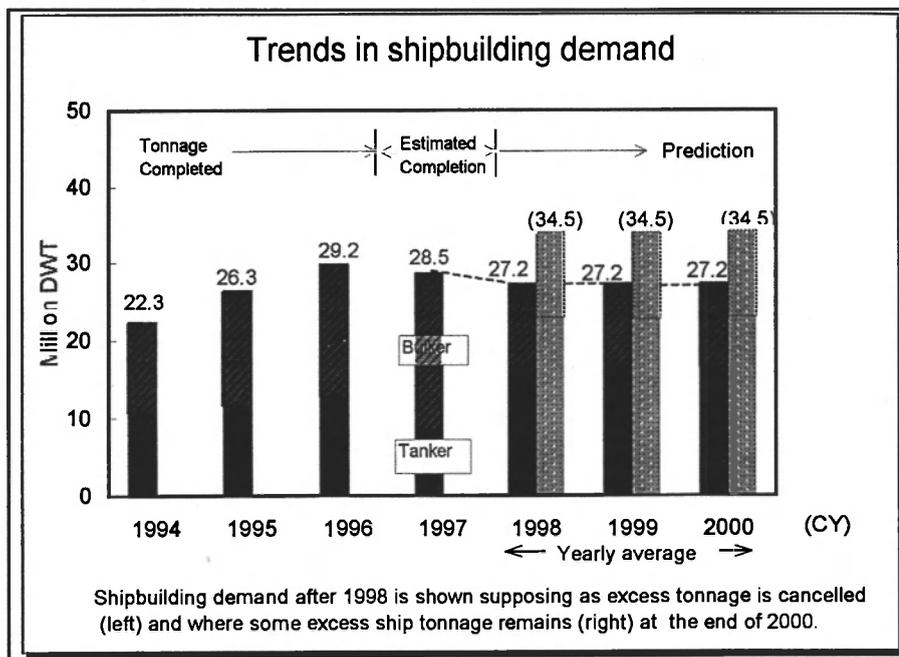
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(continued from page 8)

which is available in Japanese and English, call the Japan Ship Centre (Jetro) at tel: +44 171 488 0311.

(continued from previous page)

in the first five years, and Hyundai has the option to expand the terminal to 100 acres. The Port already has acquired all of the permits necessary to begin construction.

"The agreement works well for the Port of Tacoma and for

Hyundai.

It keeps Hyundai's Pacific Northwest operations in Puget Sound, and gives them a prime terminal location with the potential to expand to meet future growth needs," said Commission President **Jack Fabulich**.

The Port laid the groundwork for new developments on the upper Blair by completing a broad range of projects, including: major dredging, deepening, and clean-up on the upper Blair; the Puyallup Tribal Settlement; the opening of the new SR 509 corridor; and the removal of the Blair Bridge.

Diamond Offshore Announces \$81 M Vessel Purchase

Talks underway regarding vessel conversion

Diamond Offshore Drilling, Inc. will acquire semi-submersible accommodation vessel *Polyconfidence* for \$81 million. The vessel was built in 1987, has Class III dynamic positioning capabilities and is currently working in the U.K. sector of the North Sea. The company is reportedly in discussions with several oil companies regarding conversion of *Polyconfidence* to a semi-submersible drilling unit with fourth or fifth-generation capabilities. Such a conversion would be dependent upon the receipt of a term contract commitment at favorable dayrates.

Halliburton Wins \$120 M Contract From Partnership

Halliburton Energy Services has won a five-year, \$120 million contract from Shell U.K. Exploration and Production and NAM (Nederlandse Aardolie Maatschappij B.V.) for the management

and delivery of completion equipment, including tubing and wire-line retrievable safety valves, sliding side doors, packers and water injection valves.

Halliburton will supply Shell Expro's northern and southern oil and gas developments in the U.K. sector and NAM's onshore and offshore developments in Holland, and will execute a total materials management program.

Canadian Team To Develop Vessel Tracking/Asset Management System

On April 7, a Canadian consortium consisting of Offshore Systems, CANAC/Microtel and Dynapro Ltd. announced a strategic partnership for the design, development and delivery of a vessel tracking and asset management system. The consortium is currently targeting the second and third quarters of FY97 for roll-out of a demonstration system in Vancouver.

The Automatic Vessel Positioning System (AVIPS) product is a computerized automatic identification and tracking system with suitable applications such as automatic vessel traffic monitoring, monitoring portable pilot systems, asset management/fleet tracking and aids to navigation.

U.S. Naval Division Signs Tracor Deal

Tracor Applied Sciences, Inc. has been awarded a contract with a potential value of \$44.7 million to provide engineering, technical and logistics services to the Naval Air Warfare Center Aircraft Division (NAWCAD), St. Inigoes, Md. The company will provide lifetime support engineering and in-service engineering for radio communications systems (RCS) and command, control, communications, computer and intelligence systems aboard Aegis CG 47 and DDG 51 class ships and other surface combatants.

Builder Adopts Document Management Solution

Altris Software Inc. will install a ProEDM system at Yarrow

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Shipbuilders Ltd., in Glasgow, Scotland, a GEC Marine Ltd. subsidiary.

The \$400,000 project will provide a printroom automation solution, and eventually, an enterprise document management system, delivering information directly to dock-

yard users.

"Yarrow realized that manual reprographics departments and production libraries cannot effectively produce, maintain and distribute documentation to meet its current and future production requirements," said Altris CEO

Jay Tanna.

Coast Guard Contracts With EA Engineering

EA Engineering, Science, and Technology, Inc. has been awarded

a contract with a potential value of \$3 million from the U.S. Coast Guard's Civil Engineering Unit, based in Cleveland.

The company will provide environmental engineering and remediation and other environmental services for shore facilities and off-shore aid-to-navigation facilities. Coverage area includes all 50 states with the majority of the efforts to be performed on the East Coast.

Parker Drilling May Acquire South American Assets

Parker Drilling Co. may acquire assets of drilling contractor Bolifor, S.A., a Bolivian-owned contractor with rigs located in Bolivia, Paraguay and Argentina. Parker would purchase 11 rigs and a parts inventory, and Bolifor would assign to Parker all of its drilling contracts under which Bolifor rigs are working.

"One of the most significant developments in Latin American energy is construction of the pipeline from Bolivia to Brazil. Our purchase of Bolifor establishes Parker as a key player in a drilling market that will only grow in importance," said CEO Robert L. Parker, Jr.

Offshore Interest Begins NYSE Trading

Cliffs Drilling Co. announced that its common stock was to begin trading on the New York Stock Exchange (NYSE) on April 3, using the ticker symbol CDG.

"This is a milestone for Cliffs Drilling Company. We look forward to being a part of the most prestigious equity market in the world," said CEO Douglas E. Swanson.

The company is an international offshore contract drilling company which provides daywork and turnkey drilling services, mobile offshore production units and well engineering and management services.

Transocean Signs Preliminary Rig Lease

Transocean Offshore Inc. has received letters of intent for the

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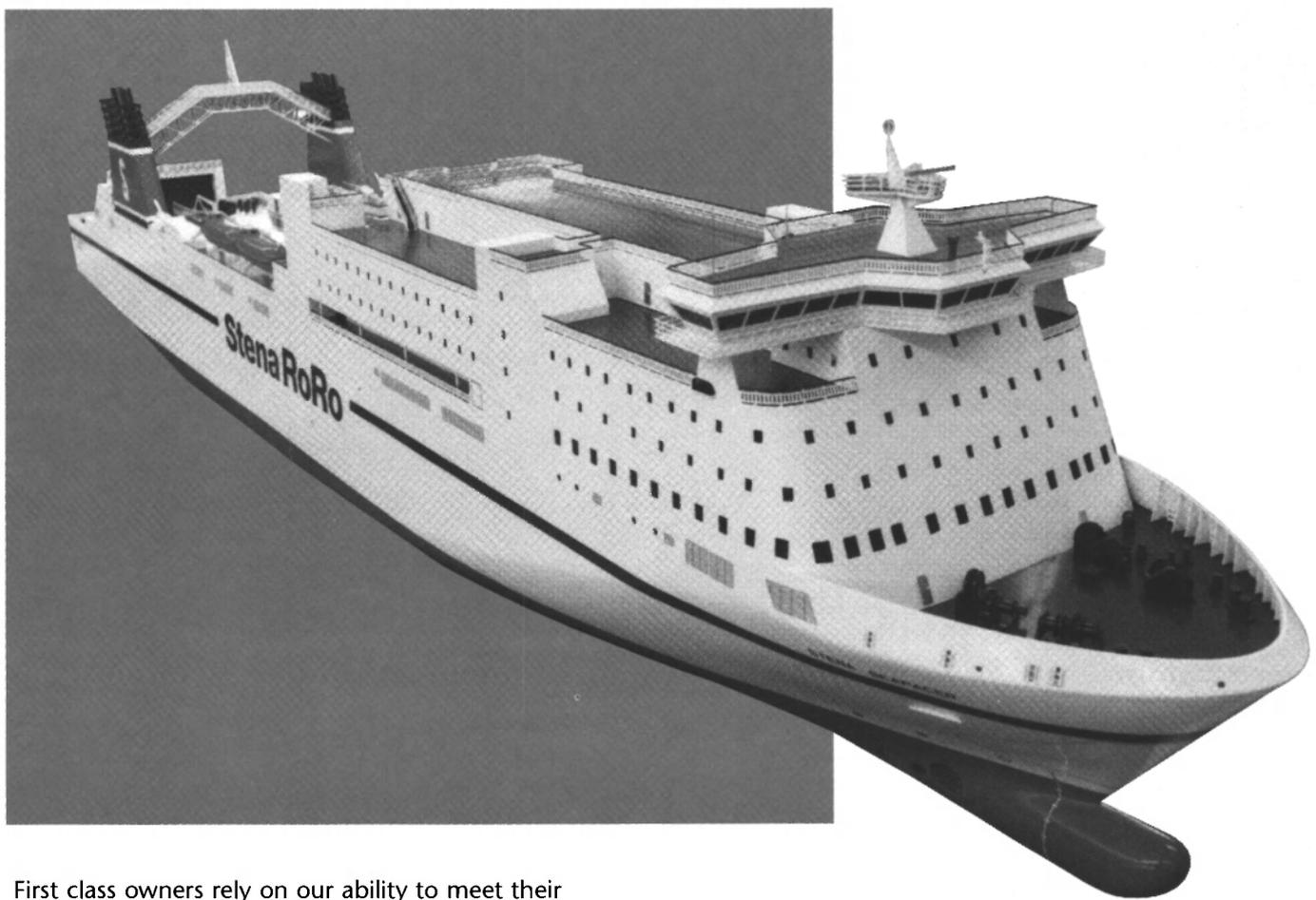
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lease of deepwater drilling rigs *Transocean Rather* and *Transocean Driller*.

Estimated revenues generated over the one-year contract period for *Transocean Rather* would total \$63.9 million, and the rig would undergo a \$5.5 million upgrade to

improve its capabilities for performing a subsea development drilling program in 5,000 fsw in the U.S. Gulf of Mexico.

Transocean Driller is also expected to be contracted for one year, commencing in August, which will provide estimated revenues total-

ing \$52.9 million.

Well Drilling Project Nixed Offshore Louisiana

Rowan Companies, Inc.

announced that its turnkey subsidiary and Pennzoil Production & Exploration Co. have agreed to terminate a contract for a well being drilled offshore Louisiana on South Marsh Island Block 97.

Rowan's first quarter earnings will reportedly be reduced by approximately \$20 million as a result.

Rowan CEO C.R. Palmer said, "The drilling team on the Rowan-Juneau gave it their best for 477 days, but after a series of underground blowouts, stuck pipe, lost holes and finally, an uncontrollable, unstable, heaving shale section, it became apparent that we would be unable to reach the contract depth."

Raytheon Announces First Quarter Earnings

On April 14, Raytheon's first quarter 1997 earnings were released, showing that the Electronics segment led the company's increase in first quarter sales and operating income, as segment sales rose 12.8 percent and segment operating income increased 22.5 percent, compared with the first quarter of 1996.

Raytheon's marine electronics business had strong orders in the quarter, including orders for new recreational marine products such as Apelco fishfinders, Autohelm autopilots and Raytheon GPS and electronic cartography products.

In the high seas marine electronics market, Standard Radio, which was acquired in 1996, has a strong GMDSS backlog, and orders for Raytheon Anschuetz gyrocompasses continued at a robust pace.

The Defense Advanced Research Projects Agency (DARPA) also awarded the Raytheon/Bath Iron Works/SAIC team a \$15 million contract for the second design phase of the Navy's Arsenal Ship.

As announced previously, Raytheon has entered into agreements to purchase the assets of Texas Instruments' defense operations and to merge with Hughes Electronics' defense operations.

Midland, Inc. Anticipates Favorable Year-End Earnings

On April 7, Midland, Inc.'s North



So you were surprised to get the entire design package so fast! That's because you haven't visited our offices recently. Our Autoship systems have speeded up our work – and they let us use all of our knowledge, experience and creativity to develop the design that best meets the needs.

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To save even more, we can export directly to NC cutting machines, radically reducing lofting and nesting costs.

Yes, all these programs come from the same place – Autoship Systems, the world's largest developer of Windows™-based marine software. With Autoship, the entire design process, from concept to cut plates, is a smooth, seamless flow.

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MARINE FINANCE

American Managing Director **Charles Stidham** said that his company anticipated year-end 1997 revenues from its shipping and commodities divisions to exceed \$100 million.

Midland's unaudited 1996 revenues were \$21.5 million.

The rise in gross sales stems from a newly inaugurated, regularly scheduled cargo run on three of the company's containerships from Piraeus, Greece, into Taganrog, Russia.

Russian commercial bank Doninvest is reportedly providing funding for Midland, Inc. to acquire 150,000 sq. ft. of land and 20,000 sq. ft. of cold storage facilities at the Port of Taganrog, which includes rail facilities and a 120-truck fleet able to deliver goods throughout Russia.

Midland is also reportedly negotiating with Daewoo to provide all transportation for the new factory the Korean company is building at the Port.

Midland's four divisions include Midland Navigation, which operates bulk carriers; Midland Steamshipping, a tourist-oriented hydrofoil and ferry line in the Greek Islands; Midland Liners, which manages container vessels; and commodities buyer/reseller Midland Agricultural.

Vickers Shipbuilding Buys Automation Software

Parametric Technology Corp. (PTC), developer of the Pro/ENGINEER(R) family of software tools used to automate the mechanical product development process, announced on March 26 award of a \$1 million order for software and services from U.K.-based Vickers Shipbuilding & Engineering Limited.

Vickers specializes in the design and construction of nuclear submarines, surface ships and large canon artillery weapon systems.

The company will reportedly standardize with Pro/ENGINEER throughout its armament division, using its mechanical engineering and functional simulation capabilities for further development of the Ultra-Lightweight Field Howitzer for the U.S. Army and U.S. Marine Corps.

General Dynamics Reports First Quarter Earnings

General Dynamics has reported 1997 first quarter net earnings of \$71 million, or \$1.13 per share, on sales of \$941 million. This is a per

share increase of 10 percent over the first quarter of 1996.

"This is our tenth consecutive quarter of improved earnings from continuing operations ... General Dynamics is in excellent financial condition, and the outlook for all of its major businesses is bright. The

company has virtually no debt, and even after our recent acquisitions, we still have almost \$700 million in cash," said Chairman and CEO **James R. Mellor**.

"In our marine business segment, earnings were up by nine percent even though sales for the

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quarter were down nine percent, as volumes declined in the submarine unit. Increased margins in the submarine business result principally from our excellent performance in cost management," he added, saying that the marine group is looking forward to new

opportunities, including participation in the LPD-17 contract.

"A competitor's protest of that award has been resolved, with the Navy upholding the award to the winning team. In addition, the Navy has said that it intends to maintain an even split between

Bath and a competing shipyard for the 12 DDG 51 destroyers it intends to contract for in 1998," said Mr. Mellor.

"In February, at the Navy's urging, Electric Boat and Newport News Shipbuilding announced a teaming agreement to cooperative-

ly build the Navy's new attack submarine ... We believe the teaming agreement is a sensible and forward-looking approach to shipbuilding in the post-Cold War era, and that it will provide superior technology at significant cost savings for the Navy," said the GD executive.

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Service speed (at. abt. 6.600 kW)	14.7 kn

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U.S. Transportation Company Earnings Suffer Due To Flooding

The parent company of barge transportation company Midland Enterprises — Eastern Enterprises — announced in early April that continued flooding on the inland waterways was having a significant adverse impact on 1997 operating earnings for the subsidiary.

According to Eastern CEO **J. Atwood Ives**, "...We now expect Midland to report significantly lower earnings for the first half of the year."

On March 25, marine transportation company Kirby Corp. made a similar announcement, saying that flooding would negatively impact its first quarter earnings, anticipating that earnings could be affected by at least \$.05 per share, as during the 1993 flooding which closed the upper Mississippi.

Interpool Subsidiary Wins Contract

Interpool, Inc.'s subsidiary Trac Lease, Inc. has been awarded a contract by the Grand Alliance Chassis Pool to administer a fleet of up to 42,000 marine shipping container chassis. Interpool Chairman **Martin Tuchman** reportedly said that Trac will employ the "Poolstat" copyrighted computer software program which it licenses from its shipping container affiliate, Interpool Ltd., to administer the chassis and the pools.

Trac Lease owns or operates approximately 57,000 chassis which it leases primarily to steamship lines engaged in the international intermodal transportation business. It has also operated chassis pools for the past eleven years for U.S. state-run port authorities, railroads and ter-

MARINE FINANCE

minal operators.

Marine Drilling May Buy Controlling Interest In Norwegian Co.

On April 14, Marine Drilling Companies, Inc. announced execution of an agreement to acquire *Deepsea Stavanger* from Deep Sea ASA for \$54.5 million, a newbuild Bingo 8000 design bare-deck hull which, dependent upon completion of construction and final outfitting, can be configured as either a fourth or fifth-generation semi-submersible.

The rig, currently located in Norway, will be named *Marine 700*.

The closing of this acquisition is expected to occur on or about May 23, and the purchase agreement also includes a breakup fee payable to the company by Deep Sea ASA in the event the sale is not consummated under certain circumstances.

In addition, Marine Drilling has obtained an option to acquire approximately 48 percent of the outstanding shares of Deep Sea ASA.

Marine Drilling intends to make an offer to all of Deep Sea ASA's shareholders at a per share price equivalent to the purchase price of the rig.

If the company is successful in acquiring two-thirds or more of the outstanding shares of Deep Sea ASA, the rig acquisition agreement may be terminated and the company may become Deep Sea's primary share holder.

FastShip Project Receives New Funding

On March 17, Thornycroft, Giles & Co. (TCG), owner of the patented FastShip technology and FastShip Atlantic, Inc. (FSA), the company licensed the use the technology on the North Atlantic and North Pacific trade routes, announced the receipt of \$2 million in funding to support project development.

In addition, **Einar Pedersen**, president and CEO of TTS Technology, will serve as TCG chairman; and **Jonathan Byrnes**,

a senior lecturer at MIT, was also made a member of the boards of both TCG and FSA.

FastShip is the technology which will provide seven-day, door-to-door service for containerized cargo traveling between the U.S. and Europe with Philadelphia as its exclusive U.S. North Atlantic

port of call.

American Shipyard Completes Repair Work

Newport, R.I.-based American

Shipyard Corp. has successfully completed more than \$2.5 million in government ship repair contracts this winter.

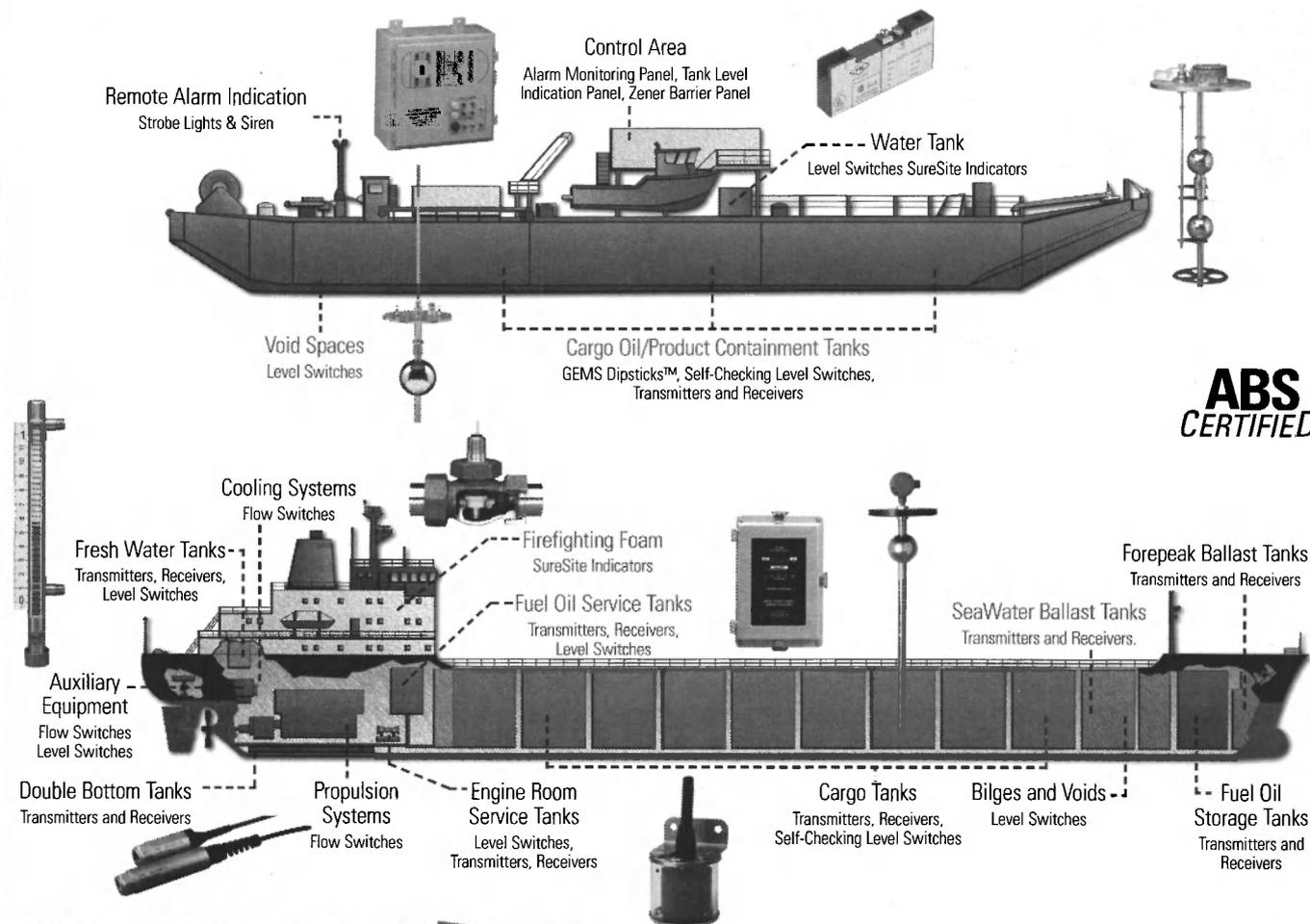
Work included a \$1.5 million contract for overhaul of two army tugs based out of Baltimore; a contract which was reportedly secured with the aid of Rhode Island

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- Sump Tanks
- Waste Oil & Oily Waste Holding Tanks
- Expansion Tanks
- Feed Water Systems
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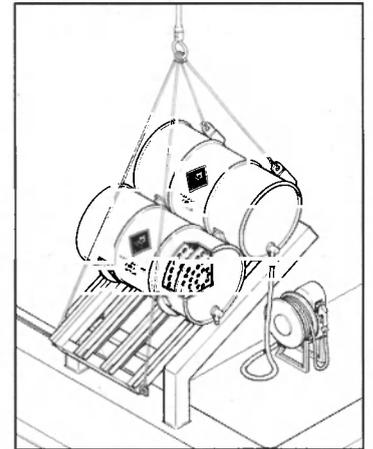
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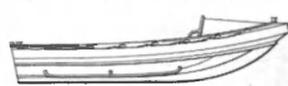
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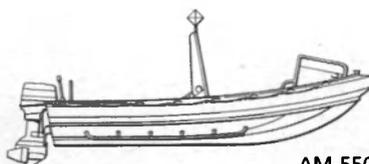
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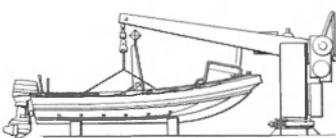


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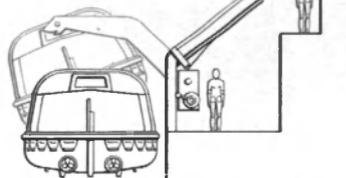


Brierley Hill, West Midlands, England, U.K.

Davits



Rescue Boat Davit

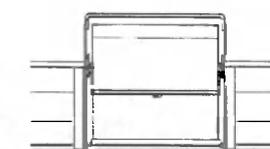


Overhead Gravity Trackway Davit

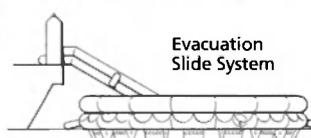
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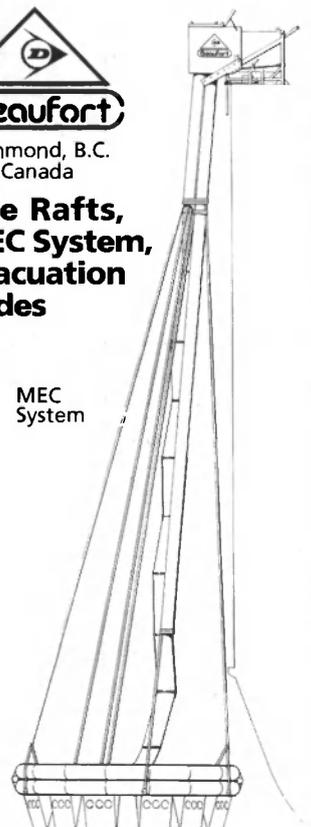


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MARINE FINANCE

Congressional Representative **Patrick Kennedy**, who helped the yard secure a bond guarantee through a federal small business administration program.

The yard's new work for this season includes commercial contracts for barge repairs, overhaul and repair work for regional ferry operators, and repairs and inspection drydockings for local and regional shipping interests.

Negotiations for a four-ship U.S. Coast Guard contract are reportedly in the works.

ABS Reports Record Revenues

Consolidated revenues for classification society ABS reached a new record of \$235.8 million, according to figures released at the organization's annual member meeting in New York City on April 15.

This figure represents an \$8 million increase over 1995 revenues, with both traditional classification and non-marine activities each growing by four percent.

Operating income was the third highest recorded by ABS, confirming the positive impact of a series of measures aimed at improving operational efficiencies over the last three to four years.

The strong performance is attributable to a wide range of factors including an upturn in the offshore sector and an increase in the pace of deliveries of new ship tonnage during the period, which climbed 41 percent over 1995 levels to 5.1 million gt.

The application of SafeHull technology also played a part in ABS winning a 57 percent share of all new VLCC tonnage ordered during 1996.

In addition, ABS received requests to class a total of 47 containerships in 1996, aggregating nearly 1.6 million gt.

For more information on ABS
Circle 63 on Reader Service Card

Netherlands Yard To Build Tanker For France's Petromarine

French shipowner Petromarine has contracted with Netherlands-

based Niestern Sander B.V. to build an oil/chemical tanker measuring 360.8 x 54.1 x 28.5 ft. (110 x 16.5 x 8.7 m).

This tanker will measure 8,230 dwt, will have 12 cargo tanks with a total capacity of 8,450-cu-m, and will be classed by Bureau Veritas.

Delivery is expected in mid-1998.

Bender To Perform RoRo Modifications

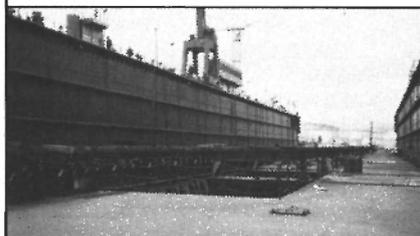
The U.S. Navy's Military Sealift

Command (MSC) awarded a \$150 million contract to Ocean Marine Navigation Co. for the purchase, conversion, operation and maintenance of GTS *Bazaliya*, a Grenadian-flagged RoRo.

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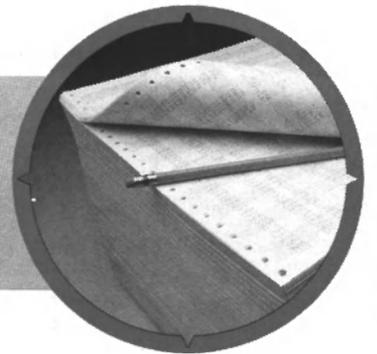
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Repair Co., Inc., and will include the insertion of a midbody and other structural work to provide increased and more efficient cargo capacity, as well as the addition of cranes. When the ship is delivered to MSC, it will be reflagged to U.S. registry and renamed USNS LCPL *Roy M. Wheat*.

For more information on Bender
Circle 64 on Reader Service Card

NCL Enters Exclusive Partnership With Port Of Houston

Norwegian Cruise Line (NCL) has become the first cruise line to homeport a ship in Texas' Port of Houston. NCL and the Port of Houston Authority have joined forces to offer year-round voyages to the Western Carribean on M/S *Norwegian Star* beginning this month from the Port. "The cruise market potential offered by Houston is tremendous," said **Ned Holmes**, chairman of the Port of Houston Authority. "The city is the Gulf gateway to a 10-state primary and secondary market of 75 million potential cruise passengers."

Schuyler Rubber Wins Hvide Marine Contract

Schuyler Rubber, Inc. has been awarded the contract to provide two full shipsets of fendering for Hvide Marine's new ship docking modules. The fenders will be Schuyler's model SR3D soft loop style. "The unique design of the hull for ship docking will utilize all sides of the vessel. The fendering will cover 100 percent of contact areas allowing the vessel to be fully diverse. The model SR3D fender type allows for maximum load deflection and energy absorption while in operation," said Schuyler's **Greg Armfield**, who collaborated with Hvide and Elliott Bay Design Group personnel in the overall design and engineering of the fendering for this project.

For more information on Schuyler
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Crowley To Purchase Tosco Tankers

On April 7 it was announced that

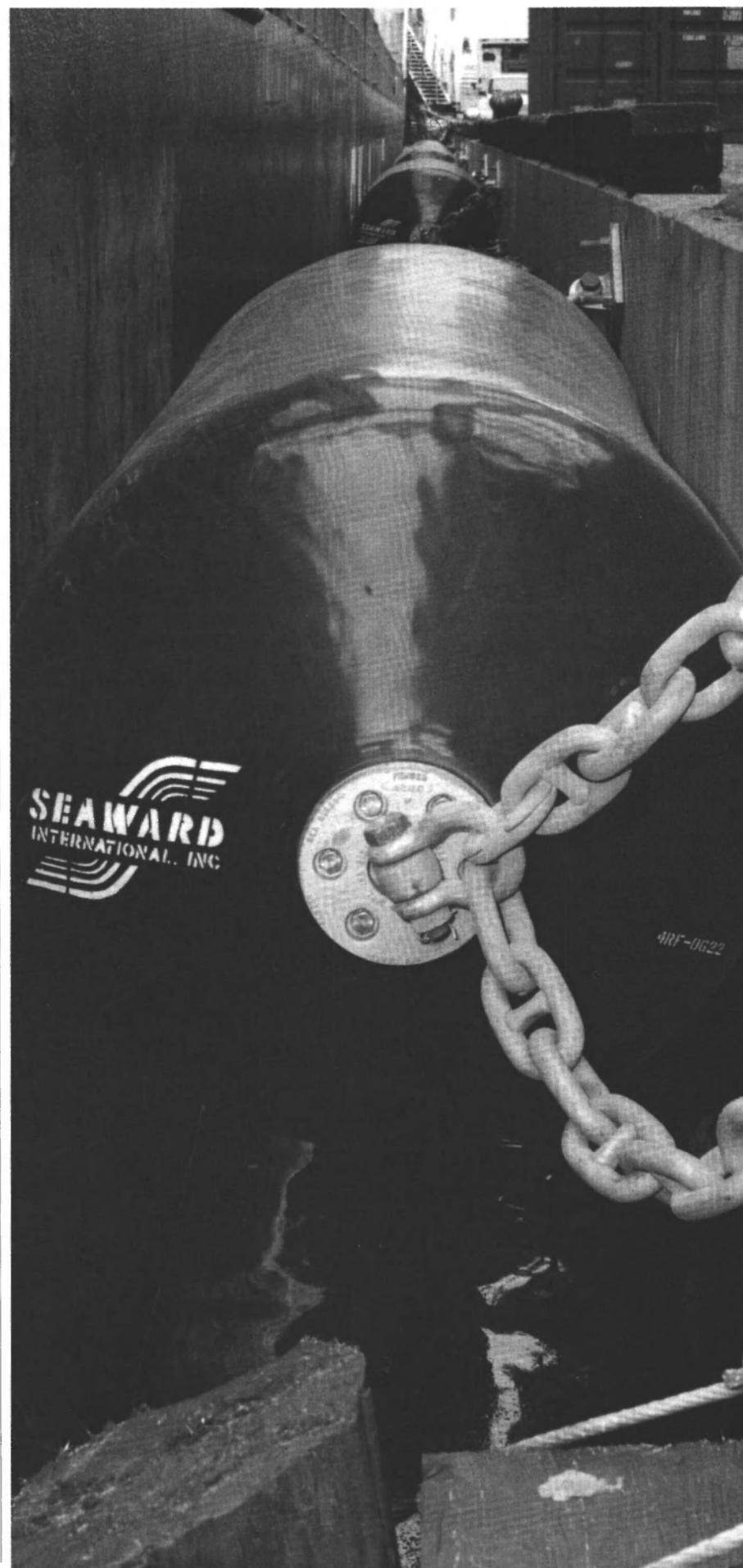
Crowley Petroleum Transport, Inc., a newly formed affiliate of Crowley Maritime Corp. to be headquartered in Long Beach, Calif., will purchase two tankers from Stamford, Conn.-based Tosco Corp.

The double-bottomed ships measure 658 x 100-ft. (200.5 x 30.4-m),

and were built by National Steel and Shipbuilding Co. in 1981. S.S. *Blue Ridge* has a dwt of 42,268 and 27 cargo tanks; and S.S. *Coast Range* is a 39,990-dwt tanker with 19 cargo tanks. The tankers will reportedly work primarily on the U.S. West Coast, but may also be utilized in East Coast or U.S. Gulf

coastwise trades.

"Entering the Jones Act tanker trades marks a milestone in Crowley's marine transportation business. The acquisition of these two tankers enables us to enter new markets," said Crowley Petroleum Vice President **Rockwell E. Smith**.



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European Builders Make Inroads In Cruise And Ferry Sectors

Technologically advanced solutions break speed and design barriers

by David Tinsley, technical editor

German investment in cruise ship design and technology was demonstrated in the past year by 38,530-gt *Aida*, the Finnish-built, innovative addition to the Rostock-based DSR fleet. The completion in Wismar of the home-grown, 14,000-gt *Columbus* in June will add another dimension to the German portfolio.

Yet another milestone event for German maritime industry will be the scheduled delivery in May 1998 of 22,400-gt *Deutschland* to Peter Deilmann from Kiel ship-builder Howaldtswerke-Deutsche Werft (HDW).

Registered with Deutsche Seetouristik, and marketed through in-house tour operator Arkona Reisen, the twin-screw *Aida* is tagged a "clubship," reflecting the popularity in Germany of club travel.

Offering a minimum passenger capacity of 1,186 and characterized by a relatively low crew to passenger ratio, the ship was conceived for a younger generation of cruise passengers, and is clearly slanted towards the European market rather than a North American clientele. *Aida*

not only underscores Kvaerner Masa-Yards' propensity for more technically demanding or technologically advanced vessels in the capital-intensive newbuilding sectors, but also the Finnish company's flexibility in product-oriented design and custom construction.

Given the marketing emphasis on young, but affluent customers, and parents with young children, Hamburg-based interiors specialist Partner Ship Design had the challenging task of engendering a casual shipboard atmosphere. The vessel represents a change in shipboard practice in the cruising field, with restaurants open virtually around the clock, and no pre-assigned dining room seating, both

of which had implications for design and configuration. The public spaces are distinguished by their arrangement on the uppermost enclosed levels of the ship, adjoining the sun deck. The ship thereby breaks with the tradition of having main public areas, dining and entertainment facilities below at least two decks of cabins.

The landscape-type design approach adopted for the public rooms, and their less constrained interlinking, also makes for greater continuity and easier flows than is the case aboard many cruise ships with tightly compartmentalized public decks.

Employing a trusted diesel-mechanical propulsion system for

a speed of 21 knots, *Aida* is equipped with four Augsburg-built, MAN B&W 6L48/60 main engines developing a total 21,720 kW. Power is transmitted to two KaMeWa controllable pitch propellers through MAAG reduction gears. Maneuverability is enhanced by two KaMeWa 1,000-kW bowthrusters, and motion control is exerted through a set of Blohm + Voss fin stabilizers.

Wärtsilä 32 Engines Featured On *Columbus*

The recently unveiled Wärtsilä 32 engine, with a long pedigree in the popular 320-mm bore category of the market, will have an early, prestigious reference this summer in a sleek new German cruise ship. The 14,000-gt *Columbus*, ordered by Munich-based Conti Reederei for charter to Hapag-Lloyd Tours of Bremen, will provide only the second, seagoing newbuilding application for the latest class of Finnish-developed machinery.

The vessel's main power and propulsion plant will be based on four such engines in a six-cylinder, in-line configuration, for a total output of 10,560 kW. Anticipated service speed is 18.5 knots.



The 14,000-gt *Columbus*, being built by MTW Schiffswerft for Hapag Lloyd, will be powered by Wärtsilä 32 engines.

Columbus is the first cruise vessel ordered by containership-oriented Conti, one of the leading firms providing equity finance for shipping through German KG (limited partnership) schemes. Due to be delivered in June from MTW Schiffswerft in Wismar, the high-grade vessel has been designed for 420 passengers and is due to make its debut cruise from Germany to Norway's North Cape at the end of next month.

In its pre-German reunification guise as Mathias-Thesen Werft, the MTW yard had been a prolific builder of passenger ships for the USSR and other Eastern Bloc states up to the mid-1960s. *Columbus* is the yard's first purpose-designed, pure cruise liner.

Columbus encapsulates a megayacht cruising culture, in terms of the interior styling and standard of facilities, and in the operational flexibility conferred by the hull design. Its moderate draft of 16.7 ft. (5.1 m) broadens the scope of itineraries by allowing navigation in estuaries and coastal waters.

In addition, hull strengthening to Germanischer Lloyd Ice Class E2 requirements allows passage in polar regions with drifting ice. Some two-thirds of the passenger complement is provided for in outside cabins in the nine-deck design, and overall space per passenger is reportedly 25 percent greater than that of comparable vessels. Flanked by large rectangular windows overlooking the sea, spacious restaurant will cater to all passengers in one seating. *Columbus* will boost Hapag-Lloyd's cruise market presence beyond current cruise ships *Europa* and *Bremen*. The company's travel business was expanded last year through the acquisition of Hamburg firms Hanseatic Tours and Hanseatic Cruises.

New Fast Ferry Designs

Although the term "fast ferry" is associated with lightweight twin-hulled and high-speed monohull vessel types, two Greek companies have introduced advanced new designs of multi-purpose ferry applications which combine very fast service speeds with exceptionally high onboard facility standards.

Iraklion-based Minoan Lines and rival Athenian firm Superfast Ferries, associated with Attica Enterprises, have brought a new era of speed and luxury to the trans-Adriatic traffic between Greece and Italy using West

European-built tonnage. Both companies commissioned stylish new vessels into the trade in 1995, and both have followed up with contracts for further ships, and to a faster speed in the case of Minoan Lines. The Cretan operator's 31,000-gt *Ikarus* is expected to make 29 knots during trials, and offer a service speed of 26.5 knots for 1,500 passengers and up

to 800 cars, or a mix of freight and cars.

A third ship in the series has been booked from Fosen Mek Verksteder, in western Norway. To be named *Pasiphae*, the ship will be a sister to the 658-ft. (200-m) *Ikarus*, employing a 44,130-kW, four-engine powerplant compared with the 33,100 kW installed in the first of the Fosen series, the 24-



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Das Theater.

Kvaerner Masa Yards-built Aida Helps Capture Hot Cruise Market

The 38,530-gt *Aida*, built by Kvaerner Masa-Yards (KMY) for Rostock-based DSR fleet, evidences the popularity of the European clubship concept. Pictured above (top) is the vessel's auxiliary engine room. In order to appeal to young, affluent customers, as well as parents with young children, Hamburg-based interiors specialist Partner Ship Design had the challenging task of engendering a casual shipboard atmosphere throughout. Pictured in the middle is the Maritime Restaurant; followed by the Das Theater.

For more information on KMY
Circle 62 on Reader Service Card

knot, 558-ft. (170-m) *Aretousa*.

Minoan Lines' enhancement of its network in terms of transit speed and route capacity on connections out of Patras to Brindisi, Ancona and Venice, is pertinent to the commercial freight business no less than to the tourist and passenger traffic. Offering improved access to European markets for

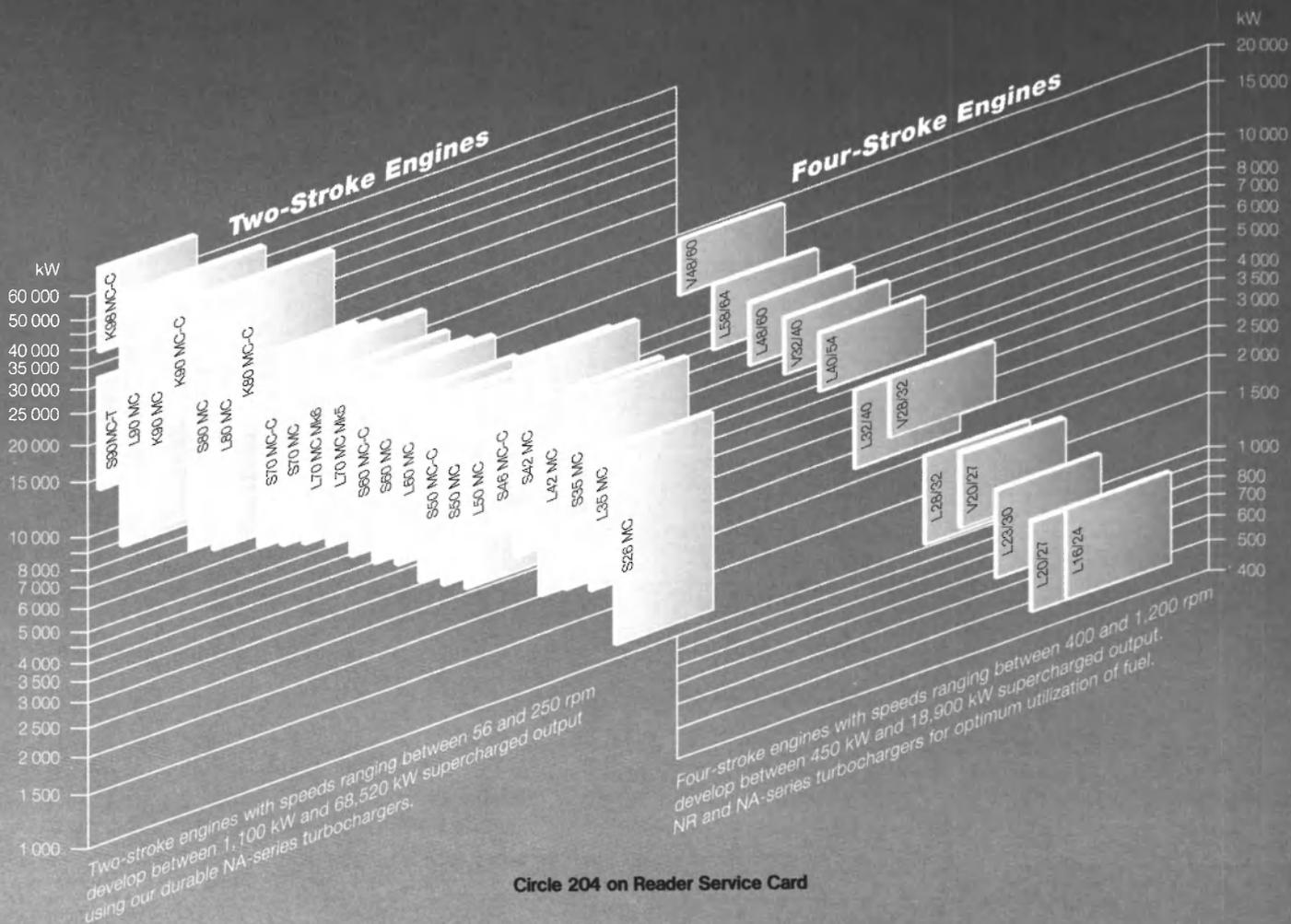
Greek producers and buyers, service with the *Ikarus*-type provides scope for up to 160 trucks of 49 ft. (15 m) per sailing.

While Minoan's two \$110 million newbuildings are due to be commissioned in January and June 1998, Superfast Ferries is to augment its trans-Adriatic fleet early next year with an additional two

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23,700-gt vessels. Whereas the initial 27.9-knot pair came from Schichau-Seebeckwerft in Bremerhaven, the latest two are under construction at Kvaerner Masa-Yards in Finland.

Regulatory Requirements Drive Innovation

Refinements in passenger ship design and outfitting often follow

new regulatory requirements. One clear example of this theory is demonstrated 101,350-gt *Carnival Destiny*, which incorporates a system which meets the amended SOLAS stipulations concerning location of lifeboats, without impinging on passenger space. The new regulations dictate that all survival craft have to be stowed within 49 ft. (15 m) of the water-

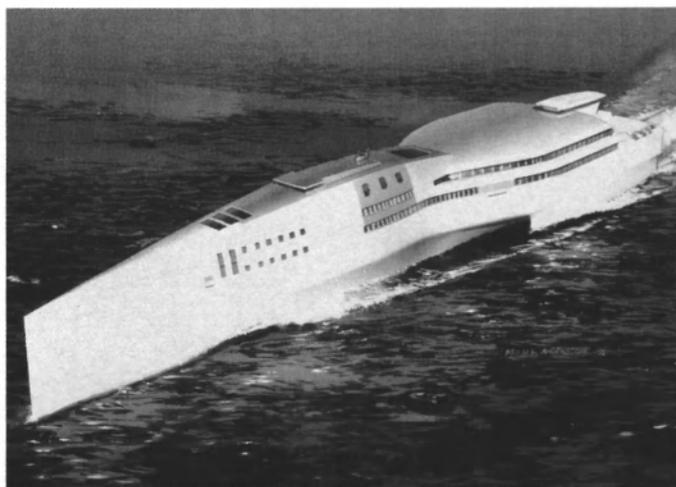
line for safety reasons, thereby ruling as unacceptable the earlier custom of carrying the boats as high as possible on the upper decks. Compliance with the new edict can mean that valuable cabin space on passenger decks is sacrificed to accommodate lifeboats. Engineers from Utrecht-based Schat-Harding, part of Norwegian-owned Umoe Schat-Harding, developed an under-deck stored power (UDSP) davit in a bid to provide a solution to suit both regulatory and commercial needs aboard *Destiny*.

In combination with specially-designed, 150-person lifeboats, the davit enables the total craft installation to be neatly fitted between decks, leaving the underneath promenade deck obstruction-free. Basically, the UDSP davit consists of a fixed support arm welded to the underside of the superstructure, and a traveling beam from which the lifeboat is suspended. As the system is operated hydraulically and has a telescopic arm, far less space is required to stow the lifeboats than is the case with conventional gravity davits, according to the Dutch producer. It is contended that savings in deck height can in some cases be sufficient to enable an extra passenger deck to be installed, depending on the vessel design. An important operational and safety attribute of the UDSP system is that it facilitates embarkation irrespective of vessel list and trim. Besides the requirement for open and uncluttered deck areas, and ease of operation of the boats in combination with the davits, the designers have taken into account a range of other owner demands, for instance, a minimization of the traditional practice of holding lifeboats against shipssides by means of wire ropes or belts to allow embarkation.

Owners also favored a covered or sheltered muster and direct embarkation area, and additionally called for davit steel structures to form an integral part of ship structures as far as possible. A demand for large openings in life craft in the interests of rapid embarkation was also acknowledged by Schat-Harding.

In addition to its important reference in *Carnival Destiny*, delivered by Fincantieri's Monfalcone yard, UDSP has reportedly been specified by Holland America Line, P&O Cruises and Celebrity Cruises for recent and current newbuildings.

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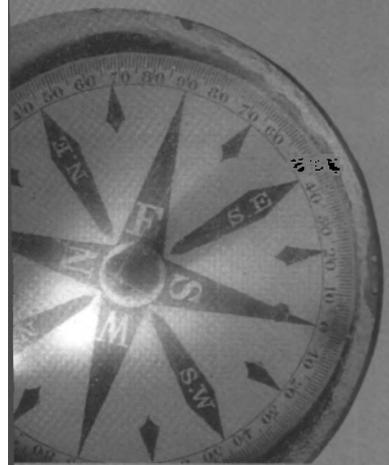
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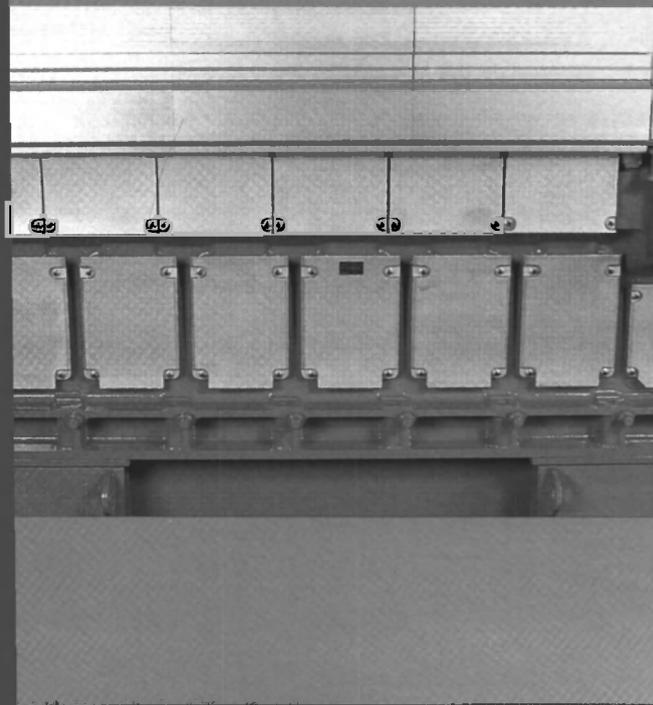
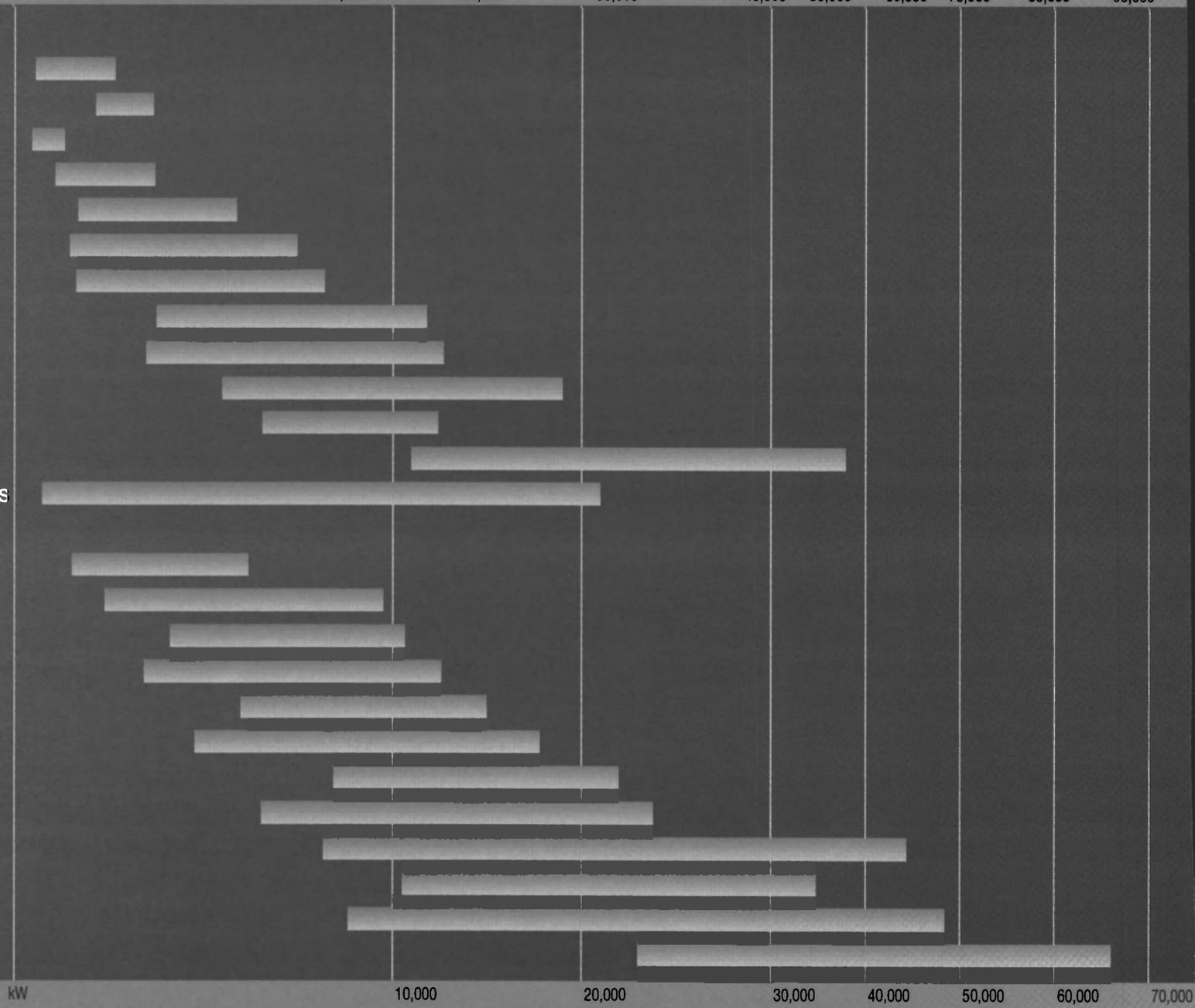
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- Wartsila Vasa 32/32GD
- Wartsila 32
- Wartsila 38
- Sulzer ZA40S
- Wartsila 46/46GD
- Sulzer ZA50S
- Wartsila 64

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- Sulzer RTA84M
- Sulzer RTA84T
- Sulzer RTA84C
- Sulzer RTA96C



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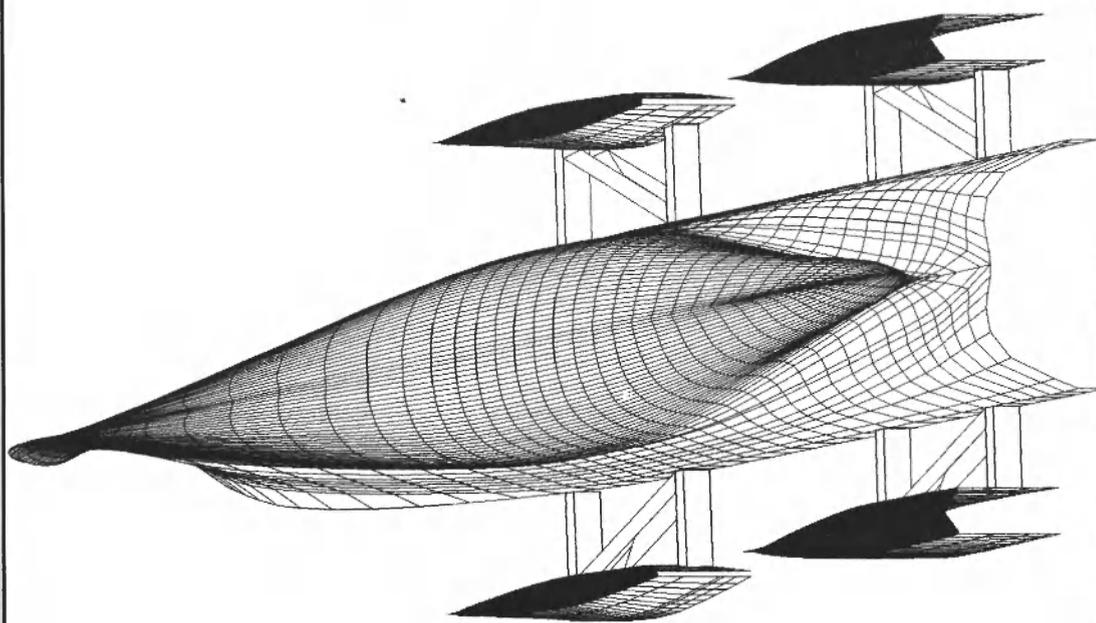


WÄRTSILÄ NSD
CORPORATION

Formed by the merger of Wärtsilä Diesel and New Sulzer Diesel.

(A New) SHIPSHAPE

Fig 9. 3D-WIRE FRAME MODEL



ABOVE: 3-D of wire frame model.

RIGHT: General arrangement drawings.

The Pentamaran is a new hull concept for fast freight and car ferry applications. Details on the new vessel design were released in a paper presented at the 13th Fast Ferry International exhibition, held earlier this year in Singapore. The paper was prepared by: **Nigel Gee**, managing director, Nigel Gee & Associates Ltd.; **Edward Dudson**, senior naval architect, Nigel Gee & Associates Ltd.; **Anthony Marchant**, managing director, CETEC Consultancy Ltd.; and **Hans Steiger**, chairman, Norasia Services SA.

The development of the vessel started with an owner's inquiry to Nigel Gee & Associates Ltd. in 1995. The owner wanted a fast freight vessel capable of carrying 13,000 tons of cargo at 30 knots, while using an installed power of only 30 MW.

The owner also specified that the cost of the new vessel not exceed \$30 million.

Fig 23. PENTAMARAN CAR FERRY - GENERAL ARRANGEMENT

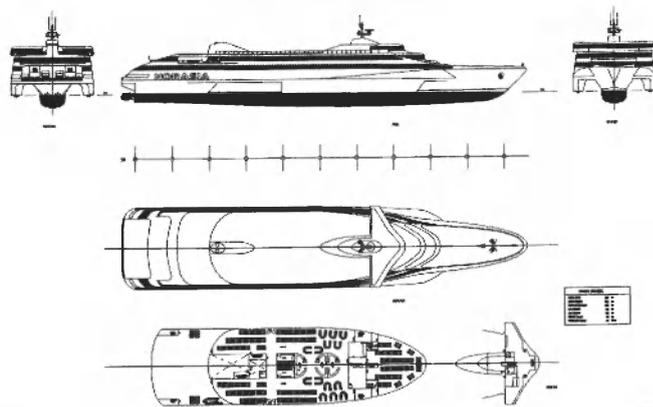
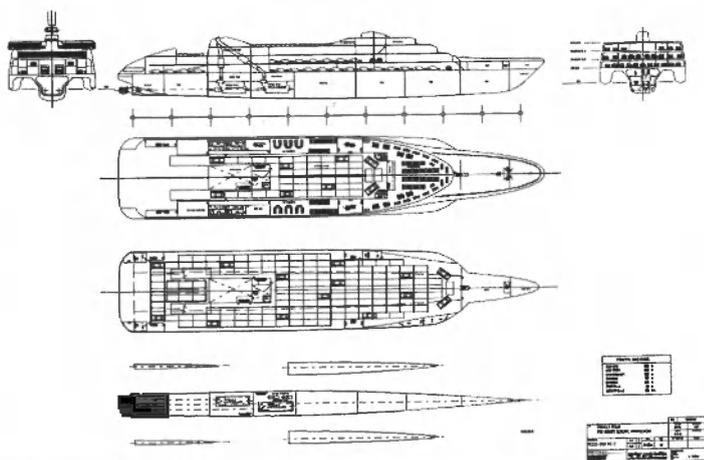


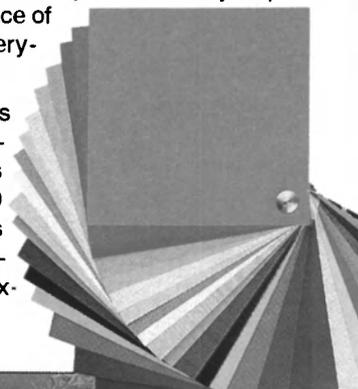
Fig 24. PENTAMARAN CAR FERRY - GENERAL ARRANGEMENT



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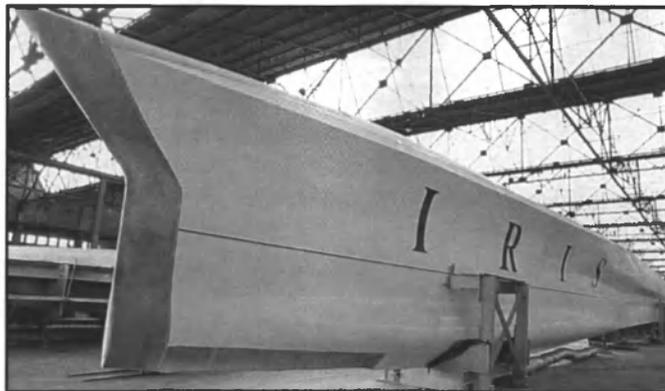
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IRIS Concept Passes Tests; Prototype Vessel Under Construction

The prototype of the IRIS Catamaran is currently under construction on the waterfront in La Rochelle, after nearly three years of intensive research and computer evaluation, as well as tank testing at the MARIN Institute.

The IRIS 6.1 will feature six passenger models containing 240 seats. The launch date is in June.

The IRIS 6.1 will measure 134 x 40.8-ft. (40.8 x 12.5-m). The GRP sandwich construction hull is designed to achieve a fully loaded speed of 29.9 knots.

For more information on the concept
Circle 2 on Reader Service Card

Inspiration Fitted With Railko Bearings

M/S *Inspiration*, the latest in a line of Fantasy class superliners from Finland's Kvaerner Masa-Yards for Carnival Corp., features Railko stern tube bearings. Railko has enjoyed success in the cruise ship market over the last decade, and the company estimates that 80 percent of the all cruise liners built during this period have been fitted with Railko stern tube bearings as original equipment.

Railko composite bearings are designed to provide outstanding service expectancy, reliable operation and no maintenance. Using seawater, oil or grease as a lubricant, the bearings are designed to operate with seawater as a lubricant in the event of a seal failure.

For more information on
Railko stern tube bearings
Circle 8 on Reader Service Card

AMHS Studies Ways To Improve Car/Passenger Ferry

Elliott Bay Design Group (EBDG) is working with the Alaska Marine Highway System (AMHS) on a project to study enhancements of its 418-ft. (127-m) car/passenger ferry M/V *Columbia*. The study focuses on increasing stateroom capacity, improving food service operations and dining facilities, and upgrading the vessel's lifesaving equipment. The detailed review of the 900-passenger vessel is broken into three phases. Phase one involves EBDG providing AMHS with a variety of options for

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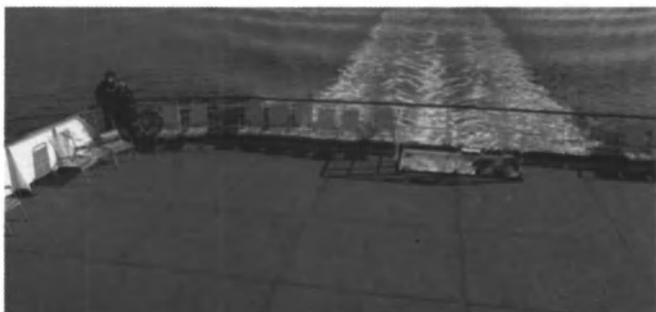
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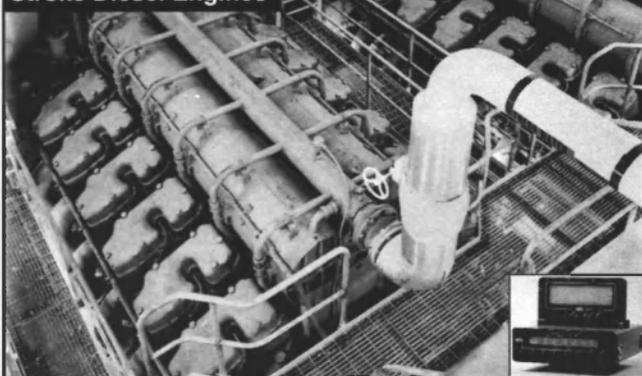
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Circle 214 on Reader Service Card

Maritime Reporter/Engineering News

changes to the ship's interior. In phase two, EBDG will develop plans, specifications and cost estimates for the refurbishment of *Columbia's* forward viewing lounge. In phase three, plans, specifications and cost estimates will be provided for modification of the remainder of the vessel.

For more information on EBDG
Circle 5 on Reader Service Card

Durastic To Capitalize On Refit Market

With shipowners increasingly opting for vessel modernizations, Durastic Ltd. offers a new look, new products and news services, as well as new literature, which will be distributed at Cruise & Ferry. Durastic, which is now a member of the Rigblast Group, is a leading supplier and installer of marine deck covering systems. Joining Durastic at Cruise and Ferry will be two other constituents of the new Rigblast Technical Division: Aaro-Tech Products and Certex Fire Testing.

For free copies of
Durastic's new literature
Circle 11 on Reader Service Card

MJM Focuses On Turnkey Service

MJM Marine is an international ship outfitting company in Northern Ireland which offers full turnkey service for the design, construction and refurbishment of public areas and crew accommodations spaces onboard all types of vessels, including cruise ships, ferries, merchant ships and naval vessels.

The company has worked throughout the U.K. and in other European shipyards on newbuild and retrofit projects.

For more information on MJM Marine
Circle 12 on Reader Service Card

Paxman Diesels Specified For Sports Vessel

GEC Alsthom Paxman Diesels won a contract to supply two 12VP185 high speed engines for a 126-ft. (39-m) sports fishing yacht being built by Trinity Marine. The engines will generate a maximum power of 2,610 kWb at 1,950 rpm. Each will drive a ZF gearbox and FP propeller to achieve a top speed

of 39 knots.

For more information on Paxman Diesels
Circle 6 on Reader Service Card

Polferries Enters Fast Ferry Fray With Austal Vessel

The Polish Baltic Shipping Co. (Polferries) is set to enter the fast ferry market with a vessel from Australia's Austal Ships, a 269-ft. (82-m) Auto Express vehicle-passenger catamaran. The vessel was contracted through its marketing joint venture with Ferries Australia. The vessel service will start in June between the Polish port of Swinoujscie and Malmo, Sweden. The ferry will reportedly cut the crossing time from nine to 3.5 hours.

Polferries Shipping Director **Leszek Szymanski** said that the vessel was named *Boomerang* because "it has a 'boom' inside of it for the high speed and for the 'boom' in business it will create. It's a dynamic Australian weapon, and is safe because it always returns."

Boomerang has a capacity for 700 passengers and 175 cars (or 10 buses and 70 cars). It is powered by four MTU 20V 1163TB73 diesel engines, each developing 6,000 kW, driving the vessel to a speed of 38 knots. The Austal-developed Ocean Leveller ride control system was fitted to provide maximum

passenger comfort.

For more information from Austal Ships
Circle 4 on Reader Service Card

U.K. Company Specializes In Fulfilling Onboard Leather Needs

Glasgow-based Andrew Muirhead & Son is a leading upholstery leather specialist with a wide range of quality leathers suitable for all marine interiors. The company is showing its stock of more than seven collections, which incorporates 100 shades, textures and colors, at the Cruise & Ferry '97 exhibition in London.

For more information on
Andrew Muirhead
Circle 9 on Reader Service Card

Gradus Offers Low Level Emergency Lighting Solutions

Gradus Lighting's Pathfinder range of low location emergency lighting has proven very popular among the U.K.'s major ferry operators. The Pathfinder solution has been chosen for installations on Stena Lines' *Empereur*, *Caledonia*, *Challenger* and *Lynx 1*.

P&O Pandoro Line has reportedly selected the Pathfinder system for all of its fleet, along with P&O Scottish Ferries, The Isle of Man

Steam Packet Co. and Caledonian Mac Brayne.

For more information from Gradus
Circle 10 on Reader Service Card

LMIEC Appoints Anchor Marine As U.S. Agent

Liaoning Machinery Import and Export Corp. (LMIEC), a consortium of large shipbuilding and ship repair facilities headquartered in Dalian, China, has appointed Anchor Marine, Ltd. of New Orleans as one of its U.S. agents. Anchor Marine President **Charlie Hall** has 34 years of experience in the shipbuilding and repair industry, including positions in management and operations for firms such as Avondale Shipyards, Tampa Shipyards and Halter Marine Group. LMIEC has the capacity to build and repair numerous vessel types of up to 300,000 dwt in its floating and graving drydocks. The company's shipyards have built containerships for Clipper Americas, Inc. In addition, LMIEC is engaged in the manufacturing of other marine products.

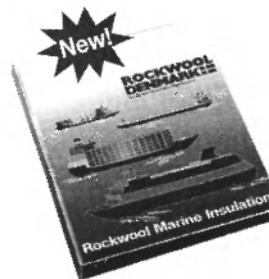
For more information on LMIEC
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Circle 215 on Reader Service Card

SCANDINAVIAN MARITIME REVIEW



New Bergeesen/Statoil Shuttle Tanker Put Through Paces

Hamworthy Marine reports that remarkable maneuverability was achieved with the Schilling Mariner high-lift rudder during North Sea trials of the Bergeesen/Statoil owned 103,000-dwt, multi-purpose shuttle tanker *Berge Hugin*. Built by Samsung in South Korea (and featured as one of *Maritime Reporter & Engineering News*' Great Vessels of 1996), the

Berge Hugin is the first of three multi-purpose shuttle tankers being built by Samsung for Statoil.

It will be deployed as an FPSO in British Petroleum's Pierce field.

Hamworthy's Schilling Mariner rudder was chosen following extensive tank tests. The operation profile of the vessel calls for superb

speed/power performance, a high degree of slow speed maneuverability and high-accuracy dynamic positioning. In zig-zag maneuvers to IMO 10-10 requirements, 1st-overshoot of nine degrees was measured, according to Hamworthy.

For more information on Hamworthy Marine
Circle 37 on Reader Service Card

Nor-Shipping Looks Stronger Than Ever

As one of the year's major shipping events — Nor-Shipping '97 — rapidly approaches, it becomes evident that the conference and exhibition, already regarded highly among the international maritime community, continues to gain favor. In fact, the great interest has prompted the organizer to increase stand space by almost 20 percent. The 16th edition of this event is to be staged at Oslo's Sjølyst Centre from June 10 to 13, and is expected to set new records for size and quality. A total of seven halls will provide more than 14,000 sq. m. of net

stand area. "Size represents a key factor, of course," said **Jon W. Thomas** of Norwegian Trade Fairs. "But the quality of exhibits and participants is even more important in creating an international shop window for the maritime business. We'll also be breaking new ground in this respect." This year's event will provide a comprehensive presentation of ship's equipment from leading manufacturers worldwide, often with a particular emphasis on high-tech products. Newbuilding and repair yards from all over the globe also provide a strong contri-

bution to the show's profile. While Nor-Shipping has increasingly appeared in recent years to be the first exhibition choice for maritime interests, this trend has never been more evident. The previous show in 1995 assembled approximately 1,100 companies from 37 countries, and close to 12,500 professionals from 69 nations reportedly came to visit them. For additional information on Nor-Shipping '97, contact: **Mari Astrup Glittenberg**, Information manager, at tel: +47 22 43 91 00; fax: +47 22 43 89 87; e-mail: mag@messe.no.

SCANDINAVIA...The Ferry Business Proving Ground

by David Tinsley, technical editor

While major developments in Denmark's transportation infrastructure as expressed in the Oresund and Great Belt fixed-link projects pose new challenges to the waterborne mode, ferry companies have taken steps to raise the efficiency of other key elements of the system.

For the Vogelfluglinie (Birdflight) crossing between Rodby and Puttgarden, the Danish and German operating partners are investing heavily in tonnage for a route which forms an essential part of the transport chain linking Copenhagen and Hamburg. It thereby acts as a conduit for passenger and freight movements between Scandinavia and continental Europe as a whole. Four new double-ended ships incorporating a novel propulsion concept, and designed

Scandinavia is fertile ground for investment and technological progression in the ferry sector, as concerns both fast-going designs and conventional hull forms

as multi-role ferries for passengers, rail and road vehicles, are due to be phased into the service this year.

Two vessels are under construction by Orskovs Staalskibsvaerft in Jutland for DSB Rederi, the shipping arm of Danish State Railways, and two are in hand in the Netherlands at Van der Giessen-de Noord for Deutsche Fahrgesellschaft Ostsee (DFO), a subsidiary of Deutsche Bahn. Although the Danish and German designs differ in a number of respects, the main dimensions are similar at approximately 466 x 82 ft. (142 x 25 m), and a common concept has been applied. The diesel-electric propulsion system employs four contra-rotating, azimuthing thrusters, two at each end of the hull, for good maneuverability, directional stability and a speed of 18.5 knots. The complete emphasis in the access

arrangements has been on rapidity of RoRo throughput, since the shipping service forms an integral part of the E4 trans-European highway.

The ferries are each laid out for approximately 900 passengers, with a separate catering facility for freight drivers. Provision has been made for the transport of rail

wagons and vehicles on the main deck, while an upper deck is dedicated to cars.

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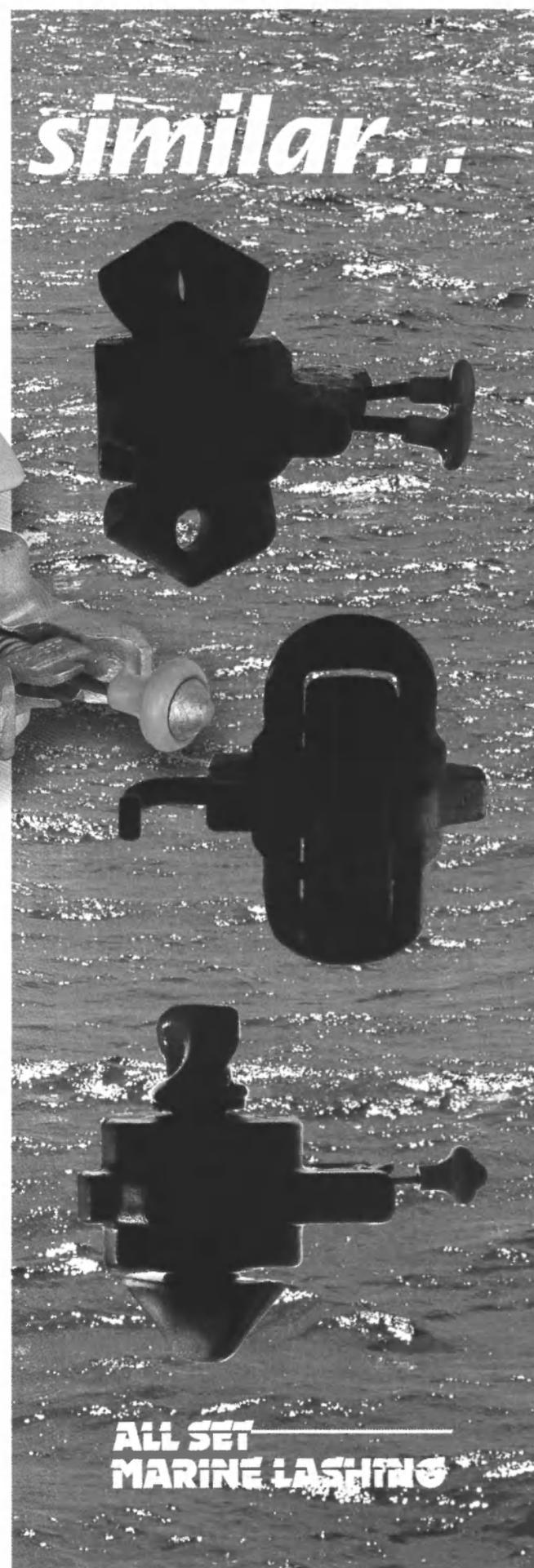
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Finnish Power Play

Wärtsilä continues to spread its influence and success in the international propulsion arena

Wärtsilä Diesel's reputation as a high quality propulsion supplier is not new to anyone experienced in the maritime industry. The engine maker has been one of the more active propulsion players in recent years, aggressively introducing new, market-driven products, and increasing its overall market share. About two months ago, Wärtsilä added a new 320-mm bore engine to its stable. The Wärtsilä 32 brings higher unit power, enhanced fuel consumption, significantly reduced componentry and integral computer control to a fiercely competitive sector of the engine business. This new type has been engineered to deliver 460 kW per cylinder at 750 rpm in marine applications, compared with the maximum 420 kW attained with the Vasa 32 at the same crankshaft speed. The fact that the Vasa 32 has achieved such a prominent market standing and has set new standards in key performance areas has prompted Wärtsilä Diesel to set rather high technical attainment levels for itself, in regards to the new generation of machinery.

Although the Wärtsilä 32 is viewed as the long-term replacement for the Vasa 32, sales of the latter show no sign of diminishing.

Wärtsilä 46: A study in reliability

More than a decade has passed since the design of the Wärtsilä 46

was started. Since then, the market requirements have changed in many respects, and the Wärtsilä 46 has been successfully adapted to these needs, with advantages including high thermal efficiency at NOx emission levels which meet the proposed IMO limits, reduced operating costs and increased reliability by introduction of the anti-polishing ring concept.

The engine has perhaps made its biggest mark in the large cruise vessel segment, where safety, noise, vibration and environmental issues are all prime concerns. Other key markets for the engine include RoRos and tankers.

In the early 90s, Wärtsilä began development of a new combustion process, called Low NOx combustion.

The target with the development program was to reduce the NOx level by up to 50 percent without any reduction in thermal efficiency. In 1995, Low NOx combustion technology was included in the production engines of the Wärtsilä 46 as a standard feature.

Since production started in 1998, more than 250 engines, equaling 2,600 cylinders, have been delivered. In addition, there are 65 engines of this type on order. Some of the engines have logged more than 40,000 operating hours in the most demanding operating conditions.

For example, the first production engine of the Wärtsilä 46 was a six-cylinder, in-line version

KMY Gets Letter Of Intent To Build Production Ship

Esso Norge awarded Kvaerner a letter of intent to build a production ship for the Jotun field off Norway. Valued at \$310 million, the contract, at press time, was dependent upon the Norwegian authorities' approval of the development plans.

Kvaerner Engineering is to carry out the ship's engineering, and the hull will be built at Kvaerner Masa-Yards in Turku, Finland. Kvaerner Rosenberg in Stavanger will fabricate the topsides and assemble and test the vessel.

Bluewater Offshore Production Systems is to design and supply the complete turret and mooring system, and Kvaerner Rosenberg has been tapped to fabricate the turret as a subcontractor.

The Jotun field lies in 126 m of water off Haugesund in southwest Norway. It is to be developed with a wellhead platform and a production ship.

The production ship will produce about 90,000 barrels of oil a day, and will be able to store approximately 585,000 barrels. Pending final approval, the vessel will be towed out in March 1999, for production in May of that year.

installed as a single main propulsion engine in the RoRo vessel *Polaris*. As of September 1996, the engine had logged 43,200 operating hours.

Experience gained during the first years of operation provided the basis for further development. For example, the piston was one of the key components where the design was altered because of hard skirt contact against the liner. The problem was solved by introducing a piston with increased compression height, slightly increased skirt length and optimized skirt form. The piston ring set, comprising two compression rings and one oil scraper ring was first introduced on the 46 to reduce friction losses and to achieve a better dynamic behavior of the rings, resulting in less blow-by, cleaner ring grooves and lower wear rate. Operating experience with the three-ring pack has been so positive that all new engine designs by Wärtsilä Diesel have this concept as standard.

A significant cruise vessel installation is *Silja Serenade*, which cruises the demanding Helsinki-Stockholm route. The 666-ft. (203-m) vessel is equipped with four Wärtsilä 9L46 engines, coupled in pairs to two CP propellers.

The main engines produce 32,580 kW, helping the vessel maintain a speed of 21 knots in all weather conditions.

Safety concerns were accounted

for in engine room design, with the main and auxiliary engine rooms divided into two compartments.

The propulsion machinery is equipped with engine-driven lubricating oil pumps and cooling water pumps.

Sea water pumps and diesel oil pumps get their power supply from the emergency network, and a pneumatically driven diesel oil pump is installed for use in the event of a blackout.

Silja has played an important role in the further development of the 46, allowing Wärtsilä to test new solutions and alternative component suppliers.

For example, the SPEX supercharging system was successfully tested and introduced on *Silja Serenade*. SPEX lowered the thermal load, and improved the critical load response needed for safe maneuvering in the narrow archipelago passages.

Expanding In Indonesia

Wärtsilä Diesel announced plans to build a factory for genset packaging and engine assembly in Indonesia, close to Jakarta. The \$10 million investment is in accordance with the company's strategy to strengthen its local presence in the growing Asian markets. The company has operated in Indonesia since 1978, in cooperation with PT Stowindo Power.

For more information from
Wärtsilä Diesel

Circle 76 on Reader Service Card

Kotka Closing Spurs Realignment Of Repair Interests

There has been some reorganization in Finland following the closure of Kotka Ship Repair Yard on the country's southern coast. Turku Repair Yard, which includes facilities at Turku and Nantaali, is to take over the Kotka yard, which in the future, will be open for summer months only. Two of the yard's floating docks are to be retained (2,500 dwt and 5,000 dwt capacity), as well as office buildings, stores, machine shops and various yard equipment. Meanwhile, the largest floating dock currently at Kotka, which has a lifting capacity of 12,000 tons, has been sold to Denmark's Fredericia Vaerft for a price believed to be in the region of \$3.5 million.



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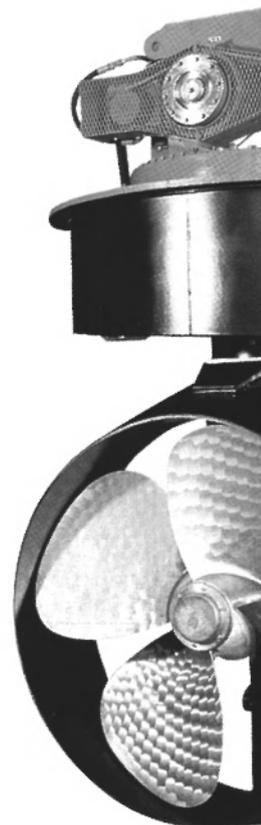
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Ulstein Company Receives Seismic Survey Vessel Orders

Langsten Slip & Båtbyggeri AS will reportedly deliver two 9,000-gt vessels to PGS Exploration AS in February and March 1998. Ulstein companies will supply the propulsion systems for these vessels. This order follows a contract fulfilled by Ulstein to supply

equipment for Langsten's last two seismic survey vessel deliveries, *Ramform Explorer* and *Ramform Challenger*.

Compass thrusters have been adopted for main propulsion. The 360-degree rotatable units with variable speed control feature CP

propellers, which benefit overall vessel operations by optimizing fuel consumption and maneuverability. Two TCNP 156/115-410 compass thrusters will be fitted aft, and a 2,000-kw retractable TCNQ 105/75-220 compass unit will be installed forward. The out-

fit is essentially the same as that supplied for the previous ships, except that the two stern propulsion thrusters have a higher output.

For more information on Ulstein
Circle 74 on Reader Service Card

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Gas Tech Appoints New President

Gas Tech Inc., a leading manufacturer of gas detection instruments, announced that **Jack Stephens** has been named as president of the company. From 1990 to 1994, Mr. Stephens was executive vice president, Operations and Engineering, for the company. Prior to his latest appointment, he held a position with Emulation Technology.

This Thermo Instruments Inc. subsidiary develops, supplies and markets sensors, transmitters, portable and fixed system gas detection instruments.

For more information on Gas Tech
Circle 70 on Reader Service Card

Reson Offshore Relocates

Scotland's Reson Offshore has relocated from Methlick to the Kirkhill Industrial Estate, near Aberdeen Airport.

Reson's product line includes the SeaBat line of multibeam sonar systems, the HydroBat line of turnkey integrated survey systems, the ACS 9060 acoustic calibration system and transducers and hydrophones.

For more information on Reson Offshore
Circle 71 on Reader Service Card

Stowe Joins Marinetics

Les Stowe recently joined Costa Mesa, Calif.-based Marinetics Corp. in the capacity of national sales manager. The company manufactures marine electrical distribution panels and accessories. Recently introduced company products include the Model 111 remote engine starter switch for twin screw vessels and the Model 022 remote controlled selector switch.

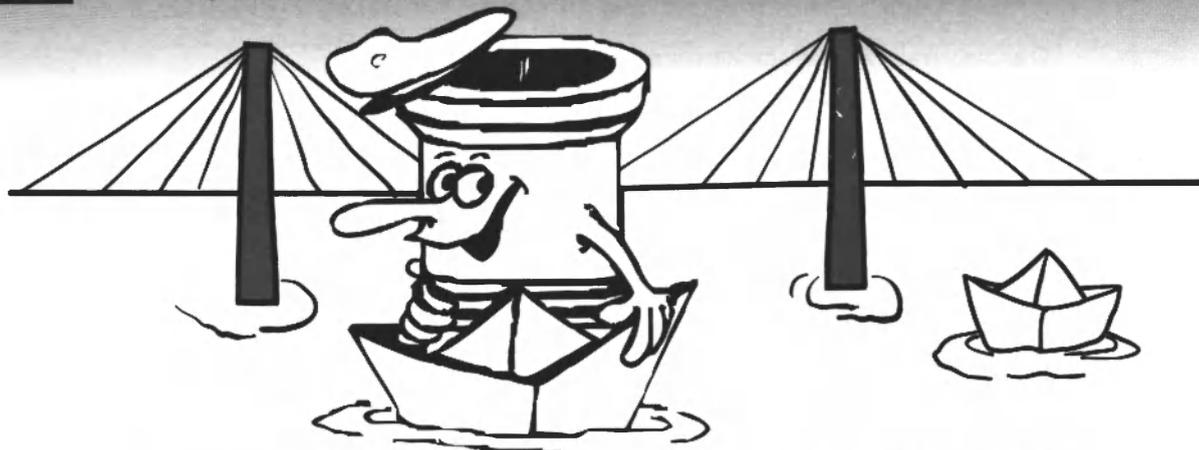
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DUBAI: Tops For Tankers

by Alan Thorpe, international editor

Dubai Drydocks has again topped the world's league table for repairing large tankers. A record year in terms of ship numbers and deadweight tonnage has been recorded by the yard for the fiscal year ending February 28. The shipyard repaired 182 ships totaling 26.1 million dwt, compared with the previous best, during FY93, of 160 ships totaling 22.7 m dwt.

The breakdown of ship types is impressive at the large end of the market with 25 ULCCs (9.3 m dwt) and 47 VLCCs (12.61 m dwt) being dry-docked, by far the largest in both sectors compared with any yard throughout the world. Other ship types included tankers (38 vessels, 2.13 m), bulk carriers (23 vessels, 1.3 m dwt), general cargo vessels (29 vessels, .5 m dwt) and



miscellaneous ships (20 vessels, .14 m dwt).

According to the yard's Chief Executive, **Ernie Ware**, "Because of the increase in the number of big tankers, we were not able to carry out the same number of multiple dockings as in previous years, but we still managed, with the help of our new floating dock, to handle some 110 smaller tankers, bulk carriers, general cargo vessels, etc., totaling 4.14 m dwt."

During the past few years, Dubai Drydocks has dominated the repair market involving the westbound trade out of the Persian Gulf and is now penetrating the eastbound market, which for so long was the traditional market for the Singapore repair yards. This has led to reduced turnover figures in Singapore as well as reorganizations such as the recent announcement of the Sembawang/Jurong Shipyard merger.

Meanwhile, Bahrain's ASRY has received a contact to convert two 133,752-dwt, Petrobras-owned ore/oil carriers into specialized offshore shuttle tankers. The 1980-built *Mafra* is to undergo a 37-day alongside conversion, and 1981-built *Marau* is to undergo conversion and drydocking work, taking 21 days to complete (eight days in drydock).

One of the more interesting news items from the ship repair industry of late has been the decision by Danish shipowning giant AP Moller to purchase a 200,000-dwt capacity floating dock from Kiel, Germany, based HDW. This dock is one of the largest floating docks worldwide, and the company will reportedly reposition the unit in the Spanish Port of Algeciras, where Moller



Maersk Curlew at Tyne Tees.

operates its largest European containership transshipment base. It is believed that Moller has made this move — worth an estimated \$14.3 million — following Kvaerner's decision to close Kvaerner Gibraltar, at which a great deal of work on the Moller containership fleet was carried out.

Petroleum Shipping, the Southampton-based headquarters of U.S. oil major Exxon's international fleet, will resume utilization of Singapore's Keppel shipyard for the first time in more than two years, following the award of the scheduled general repair of 91,741-dwt, Bahamian-registered tanker *Mexico*. This will be the first vessel in the Exxon fleet to utilize Keppel's Tuas shipyard since a controversial bribery case, which resulted in the conviction of Exxon's **Cees van der Horst** for fraud. Exxon had announced, during mid-1996, that Keppel was to be placed back on the quote list of yards in the Singapore area, but the *Mexico* contract is the first definite order. The ship arrived in the yard during the latter part of March for a four-week stay in a contract market sources estimate to be worth \$2 million.

Bremerhaven's Lloyd Werft is still awaiting confirmation of the financial deal to cover the lengthening of cruise vessels *Dreamward* and *Windward*. The owner, Norwegian Cruise Line (NCL), is reportedly working to obtain suitable financing from a German bank.

Meanwhile, the repair of the first in a series of four ships from U.S. owner Lykes Lines, the 44,966-dwt, U.S.-registered containership *Margaret Lykes*, has recently been completed at this yard.

Another German yard involved in the conversion industry is Papenburg's Meyer Werft. Work on the conversion of car carrier *Ocean Highway* into a specialized livestock carrier for Kuwait Livestock Co. is almost complete. The



Margaret Lykes at Lloyd Werft.

SHIP REPAIR & CONVERSION

14,201-dwt, Kuwaiti-registered *Al Messilah* was scheduled to leave the yard on April 15. The majority of the steel work for this conversion project was performed by Klaipeda Shiprepair Yard, Lithuania. According to market sources, there are another four such conversion projects being

negotiated with this owner.

U.K. interest A&P Tyne has completed, on schedule, the \$25 million marine work for the \$300 million *Maersk Curlew* project. The ship has now been transferred to Amec's Tyneside facility for installation of necessary production modules and for other offshore

work. The contract was awarded to A&P Tyne by MAS Alliance, a joint venture between Amec Process, SBM Inc. and Maersk Contractors. Apart from the work carried out by A&P and Amec, SBM is supplying the mooring turret, which is being manufactured in Abu Dhabi. In turn, A&P has

subcontracted the sub-waterline work to fellow Tyneside ship repairer Tyne Tees Dockyard and some of the steel fabrication to Wear Engineering, which is part of the same group as Tyne Tees. The 99,800-dwt *Maersk Curlew*, formerly *Maersk Dorset*, has been in A&P Tyne for the past six months, which has provided employment for 800 workers. Work has included 50 km of electrical cabling, 3.5 km of pipework and approximately 1,725 tons of steel work. A total of 100,000-sq.-m. of internal blasting and painting was carried out. The ship was moved from Tyne Tees Dockyard to Amec, where it will stay until August when it sails for Shell/Esso's Curlew field in the U.K. sector of the North Sea for a production start-up during October. Another U.K. yard involved in expansion is Birkenhead's Cammell Laird, which is to invest \$4.8 million on refurbishing another two derelict drydocks, trebling capacity for the yard's fast growing ship repair activities. With the docks being reopened, Cammell Laird is providing more space for routine repair work, allowing sophisticated conversions and large repair work to be completed in the 977.6 x 139.4-ft. (298 x 42.5-m) drydock currently in use. The docks should be operational by autumn, after being decommissioned for almost 15 years. Belfast's Harland & Wolff (H&W) has been awarded an offshore rebuilding project involving semi-submersible drilling rig *Bideford Dolphin*, its first such contract in many months. The rig arrived from Stavanger, Norway, in March, and docked in H&W's main newbuilding dock. Work involves major steelwork and general upgrades to incorporate new piping and electrical systems. Work also includes fabrication and installation of a helideck support module, accommodation support frame, main deck and deck girders and installation of sponsons and RamRig drilling technology. Completion of the project is expected by the end of the third quarter of 1997. No contract price has been revealed, but it is understood that the project will account for 600,000 workhours. When completed, the rig — which is owned by Bideford Marine, London — will carry out drilling operations with Norwegian oil company Saga Petroleum.

Meanwhile, H&W's ship repair division is currently completing

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SHIP REPAIR & CONVERSION

work on 147,273-dwt Liberian tanker *Sea Empress*, which was severely damaged last year in Milford Haven. Work is progressing on schedule, and the vessel is expected to be redelivered to owner Seatankers Management next month. Spain's Astilleros Espanoles' Cadiz shipyard is currently carrying out three conversion projects. The first involves 132,995-dwt Liberian tanker *Independence*, which is owned by Conoco Shipping Company (USA), and is being converted into a FPSO unit. Work includes forward and aft mooring systems; export and import systems; installation of process facility modules; construction and installation of flare tower; modification of pipe system and

accommodation areas; new deck crane, emergency fire pump and helideck facilities; and hull, deck, superstructure and tank coatings work. The second and third conversions involve an offshore rig and another tanker/FPSO conversion, both for Petrobras. Work on rig *Petrobras XXVI* involves conversion of accommodation bulkheads and lagging pipework on deck, and 282,750-dwt Brazilian VLCC *Cairu* (to be renamed *Petrobras XXXIII*) will be made into a FPSO. All three conversion projects are scheduled to be completed this month. Antwerp Shiprepairers' regular drydocking and repair contract with Switzerland's Mediterranean Shipping Co. (MSC), in place since

March 1995, has provided the yard with a great deal of work during recent weeks. Approximately 40 ships, mainly containerships, for this company were repaired last year, including 30 drydockings.

The volume of MSC work at the yard was expected to lessen this year, although the yard has already been involved with some ships, all of which regularly call at Antwerp. The 38,686-dwt MSC *Edna* recently underwent four-week long alongside repairs on hatch covers and container arrangements; 30,934-dwt MSC *Laurence*, ex-*Dragon Komodo*, was recently in for a four-day quick drydocking; MSC *Veronique* underwent a mini-docking; and 38,984-dwt MSC *Alice* arrived for repairs

similar to those performed on *Edna*. There has been some reorganization in Finland following the closure of Kotka Ship Repair Yard on the country's southern coast. Turku Repair Yard, which includes facilities at Turku and Nantaali, is to take over the Kotka yard, which in the future, will be open for summer months only. Two of the yard's floating docks are to be retained (2,500 dwt and 5,000 dwt capacity), as well as office buildings, stores, machine shops and various yard equipment. Meanwhile, the largest floating dock currently at Kotka, which has a lifting capacity of 12,000 tons, has been sold to Denmark's Frederecia Vaerft for a price believed to be in the region of \$3.5 million.

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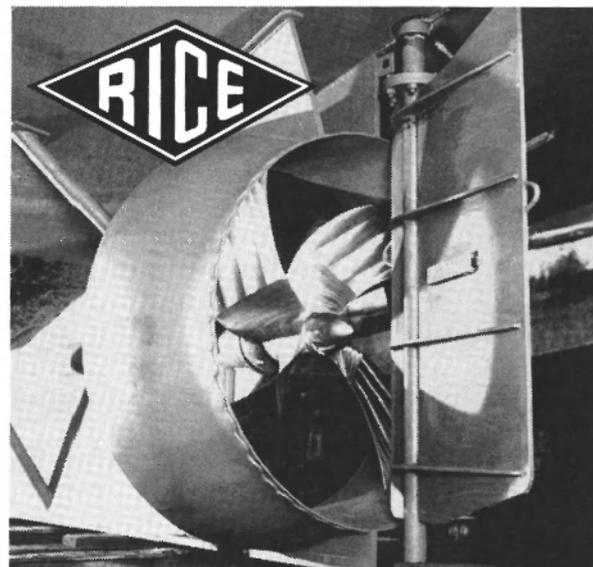
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U.S. And Japan Resolve Port Dispute

On April 11, the U.S. and Japan reached a deal in a dispute over access to Japanese ports, averting the imposition of U.S. sanctions scheduled to take effect on April 14. The sanctions imposed by the U.S. Federal Maritime

Commission would have imposed penalties of \$100,000 per voyage on Japanese liner operators, in response to unfavorable practices in Japanese ports. The U.S. sought relief from restrictive licensing requirements which pre-

vented foreign carriers from performing stevedoring services in Japan.

A "Memorandum of Consultation" was signed by U.S. Maritime Administrator **Albert Herberger** and Japanese Maritime Transport Bureau

Director General **Sadao Iwata** which addressed major issues discussed during talks between the two parties in early April. In the document, the U.S. reportedly stressed the importance for U.S. carriers to enjoy the same freedom to operate in Japan as Japanese carriers enjoy in the U.S. The U.S. also stressed that liberalization of Japan's licensing requirements for harbor service companies is necessary.

The Japanese confirmed that license applications meeting the standards stipulated in the Port Transportation Business Law will be approved by its government within approximately four months of receipt, provided the applications meet certain criteria. Licensees will not be required to join the Japan Harbor Transportation Association and each port transportation business operator may establish rates on its own for licensed services at container terminals.

The U.S. said that the complete deregulation of licensing of port transportation services at Japanese containerports should take place as soon as possible, but no later than December 31, 1998.



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McDermott Sells Sakhalin Energy Holdings

McDermott International, Inc. has announced it will sell its 20 percent interest in Sakhalin Energy Investment Company Ltd. to other members of the consortium, completely divesting its holdings. McDermott will receive \$110 million in the transaction, which was expected to close in the first fiscal quarter.

Sakhalin Energy, a company registered in Bermuda, holds licenses in two oilfields offshore Russia. The members of the consortium are: Marathon Sakhalin Ltd. (37.5 percent); Mitsui Sakhalin Development Co. Ltd. (25 percent); Shell Sakhalin Development Co., Ltd. (25 percent); and Mitsubishi subsidiary Diamond Gas Sakhalin B.V. (12.5 percent).

For more information on McDermott
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JFL Wins Contract

JFL Communications Inc. has received a contract from Sweet

Maritime Reporter/Engineering News

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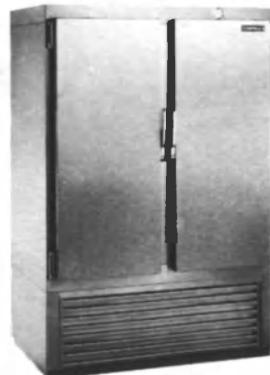
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The system is designed to provide high pointing accuracies for shipboard satellite communications antennas, which ensures the vessel will be able to maintain secure quality communications links in even the most severe sea state conditions. JFL will also supply, integrate and test the Andrew 3.7 meter, Intelsat-certified, F-1 C-band reflector and feed system with the HSP/F-1.

For more information on JFL
Circle 68 on Reader Service Card

Libra Obtains Finances For Yard Upgrade And Six Vessels

The Libra Group will construct six new container vessels at its Niteroi shipyard, a venture made possible by a \$340 million agreement with the Brazilian National Bank for Social Development (BNDES). In addition, \$40 million will be financed by Libra internal resources.

Of the total amount financed, \$360 million will go towards construction of four 2,300-TEU ships and two 1,700-TEU ships. The first vessel will be delivered in two years, with the initial ship followed by another delivery every four months.

Another \$20 million will reportedly be used to upgrade and modernize the Niteroi shipyard. New technologies in production logistics will be employed to ensure the ability of the yard to compete for international contracts.

According to statements released to the press, the Libra Group's decision to build its own vessels is a direct result of Brazil's economic stability. Throughout the life of the project, it has been estimated by the company that 1,600 shipbuilding jobs will be created.

British Shipowner Buys French Ferry

British shipowner Cenargo has purchased jumbo ferry *Esterel* from Societe Nationale Maritime Corse Mediterranee (SNMCM) of France.

To be renamed *Mistral*, the 1981-built, 2,500-passenger, 700-car ferry will reportedly enter service between Almeria, Spain, and Nador, Morocco, next month. "With such a large capacity, a speed of 24 knots and the flexibility to carry combinations of pas-

sengers, cars, coaches and freight, she is the ideal ship for this trade," said a Cenargo spokesperson. The ship will join Cenargo ferry *Scirocco*, which will remain on the route during the summer months.

Cenargo International Ltd. is one of the largest, privately-owned British shipping groups, with a fleet of 17 vessels ranging from 162,000-dwt bulk carriers to containerships and ferries.

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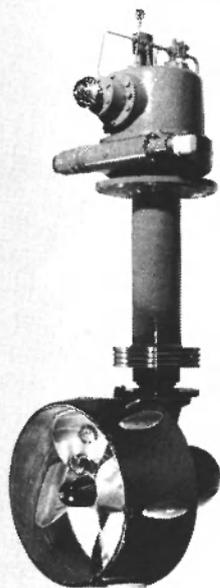
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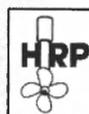
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Siemens Podded Electric Drive Provides Operational Advantages

Siemens AB Marine Engineering has developed a new propulsion system within the power range of 5 to 30 MW per unit, which it claims is proven to offer a better efficiency level than conventional propellers, in addition to improved maneuverability, increased safety and improved handling.

The Siemens Schottel Propulsor (SSP) is especially suited to cruise vessels, large ferries and passenger vessels, and cargo vessels including chemical tankers, icegoing vessels, large offshore structures and navy vessels.

Siemens reports that with this system, energy savings of more than 10 percent are possible due to the efficiency improvements of the combination of Schottel Twin propellers and the newly developed Siemens permanent excited synchronous motor, allowing maxi-

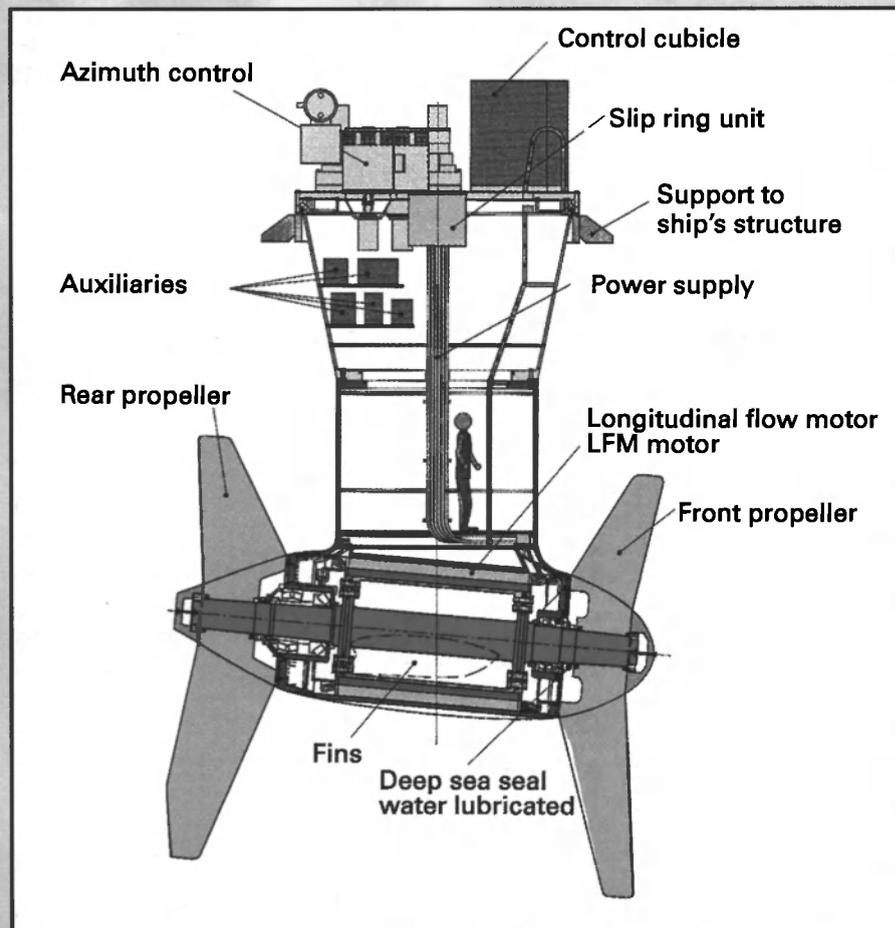
mum efficiency in transmission of electrical energy at minimum installation space. This statistic is based on tank tests and model simulations for a 70,000-gt cruise liner.

SSP Machinery

The 14-MW Siemens Schottel Propulsor consists of a streamlined lower housing made from shipbuilding steel and cast steel. Two fins are welded to the lower housing to gain rotational energy from the forward propeller.

The lower housing of the unit is designed in such a way that it allows a safe underwater mounting of the lower housing so that no dry-docking is necessary for dismantling of the lower unit.

The upper part consists of a cone type support structure flanged to the ship's structure and made from shipbuilding steel.



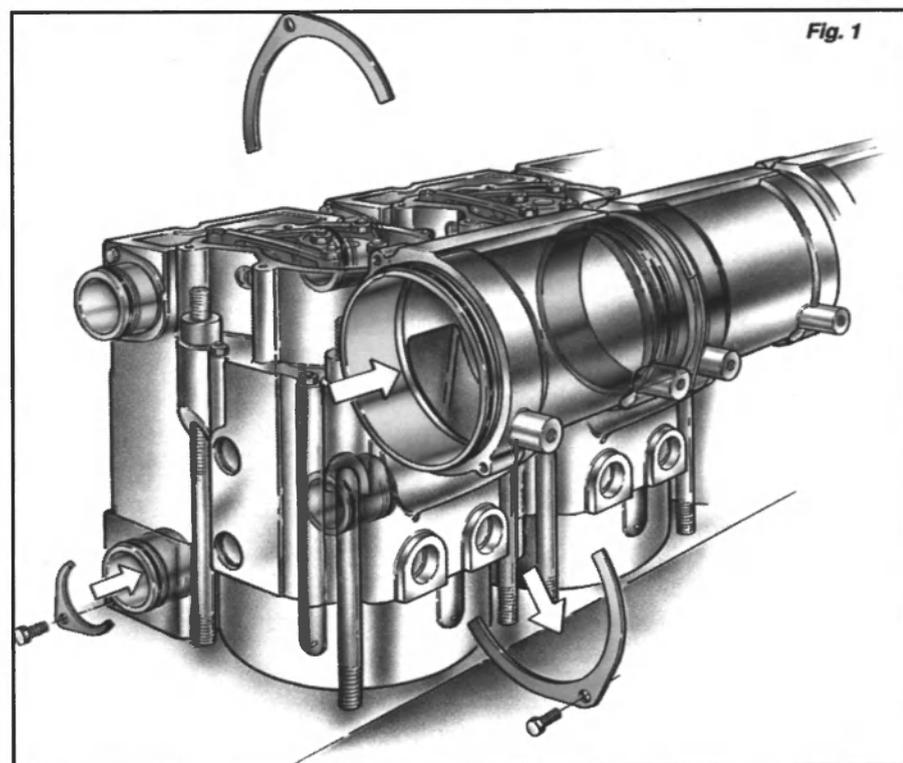
Siemens' SSP podded electric drive is a cost-saving drive which can be fitted to cruise ships.

Two propellers and the propeller covers are fitted to the lower housing.

The lower housing is made up of: propeller shaft with water-lubricated sealings and pneumatic pressure safety device; bearings as roller bearing with 200,000-hr. lifetime; brake to block propeller; propulsion motor; bilge system; and alarm and monitoring sensors

for motor, bearings and sealing systems. Installed in the upper housing are: the cable lead allowing 410 degree or optional unlimited azimuth steering; pneumatic compressors for sealing actuation; electric/hydraulic azimuth steering system; local indicators; and bilge pumps.

For more information on this technology Circle 61 on Reader Service Card



Cylinder Unit Concept Designed For Simplicity And Cost Savings

MAN B&W Diesel A/S designers defined their main task as satisfying shipowner demands for reduced maintenance costs in the creation of the L 16/24 genset engine. The cylinder unit concept adopted for the L 16/24 engine reportedly facilitates swift and safe dismantling of a complete unit for overhaul onboard or in a repair shop.

Dismounting the cylinder is very simple, according to the company. The covers and high-pressure fuel injection pipe are removed, and a snap-on coupling to the exhaust pipe is disconnected. The only cooling water connections are to the cylinder unit, as there is no cooling water in the base frame. Cooling water inlet and outlet passes via the bushes between the cylinder units. In dismantling the units, the bushes are pushed aside (see Figures 1 and 2). The charge air connections are dismantled in the same way.

The next step is to dismantle the hydraulically-fastened nuts of the cylinder head and the two connecting rod nuts; all six nuts are of the

Illustration of MAN B&W L 16/24 engine. (Figure 1)

PROPULSION GUIDE

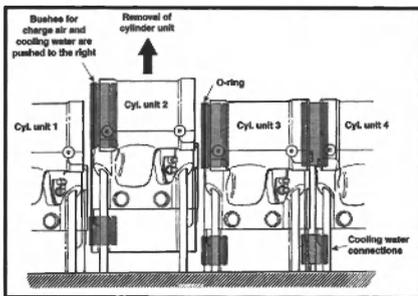


Figure 2

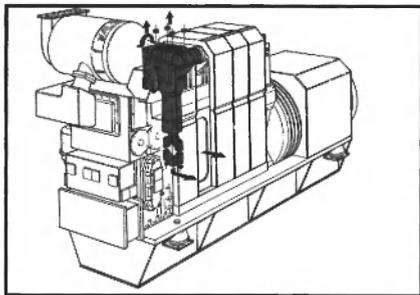


Figure 3

same size (see Figure 3). The 200-kg unit can then be removed from the engine, and readily replaced by an overhauled unit.

According to MAN B&W, this concept has resulted in a significant reduction in working hours on maintenance/overhaul compared with other engine procedures, with the simple cylinder unit approach offering cost savings in the long run.

For more information on
MAN B&W Diesel
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Premet Indicator Analyzes Engines By Electronic Means

The first mechanical indicator for steam engine analysis was perfected more than 200 years ago by James Watt. The mechanical

diesel engine indicator — a spring-loaded device for recording peak cylinder pressure and compression curves — emerged out of his field of work. Lehmann & Michels have built mechanical diesel indicators since 1911, and their recently introduced Premet line of electron-

ic engine indicators brings the technology into the 21st century.

The Premet line of handheld electronic indicators consists of electronic and pressure sensing elements in a compact, stainless steel housing. Data acquisition is reportedly quick and accurate, and



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A.D.S. Announces Fall Certification Exams

The Association of Diesel Specialists (A.D.S.) has scheduled the fall TechCert examinations for its program of voluntary certification for diesel technicians. The exams are reportedly offered at more than 600 locations throughout the U.S. and at 11 test centers in Canada. Exams to be held on November 6 and 13 include: Diesel Engine Theory & Operation; Distributor Fuel Injection; Inline Fuel Injection; Turbochargers/Blowers; and Injectors/Unit Injectors. A minimum of one year's experience or completion of a technical school diesel course is required for test registration. For more information, contact A.D.S. at tel: (816) 444-3500.

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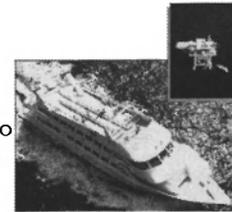


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Fax: (216) 362-7812

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For more than twenty-five years Branton Industries has worked to build a distinguished reputation for quality products and exceptional customer service. Branton is proud to be recognized as an industry leader in our commitment to noise abatement and fire protection systems.



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PROPULSION GUIDE

data can be read, printed out or downloaded to a PC, making the instrument versatile both as an analytical or maintenance tool.

The cylinder data on a 16-cylinder, V-engine can reportedly be stored within 15 minutes. After downloading to a PC, the engine

can be analyzed, trended and so on.

Conversely, as a maintenance tool, peak pressures and deviations from mean allow for fast and accurate engine balancing, regardless of engine speed.

The Premet LS/LX covers the

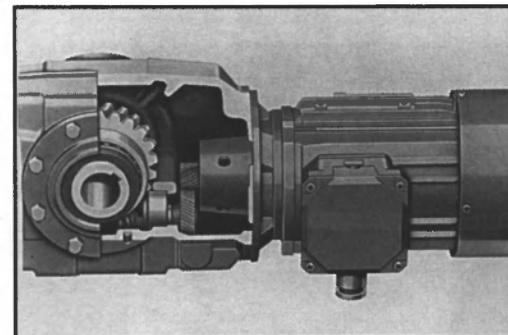
complete diesel engine speed range of up to 2,000 rpm.

The company reports that the records from stored data satisfy ISM and ISO requirements.

For more information on
Premet products

Circle 60 on Reader Service Card

Falk Gear Drives Available In New Configurations



Ultramite gear drives are now available in right angle configurations from Falk.

The Falk Corporation's Ultramite gear motors and drives are now available in helical-worm, right-angle mounting configurations. The company reports that this technology is more efficient than worm-gear drives, permitting smaller motors to be specified resulting in both initial and long-term savings. In power ranges from .25 to 20 hp, the Ultramite gear drives reportedly provide positive torque transfer without corrosion or fretting.

The gear drives accept standard off-the-shelf, plug-in NEMA and IEC C-face and flanged motors. The drives accommodate standard motor frame sizes for easy bolt-up mounting.

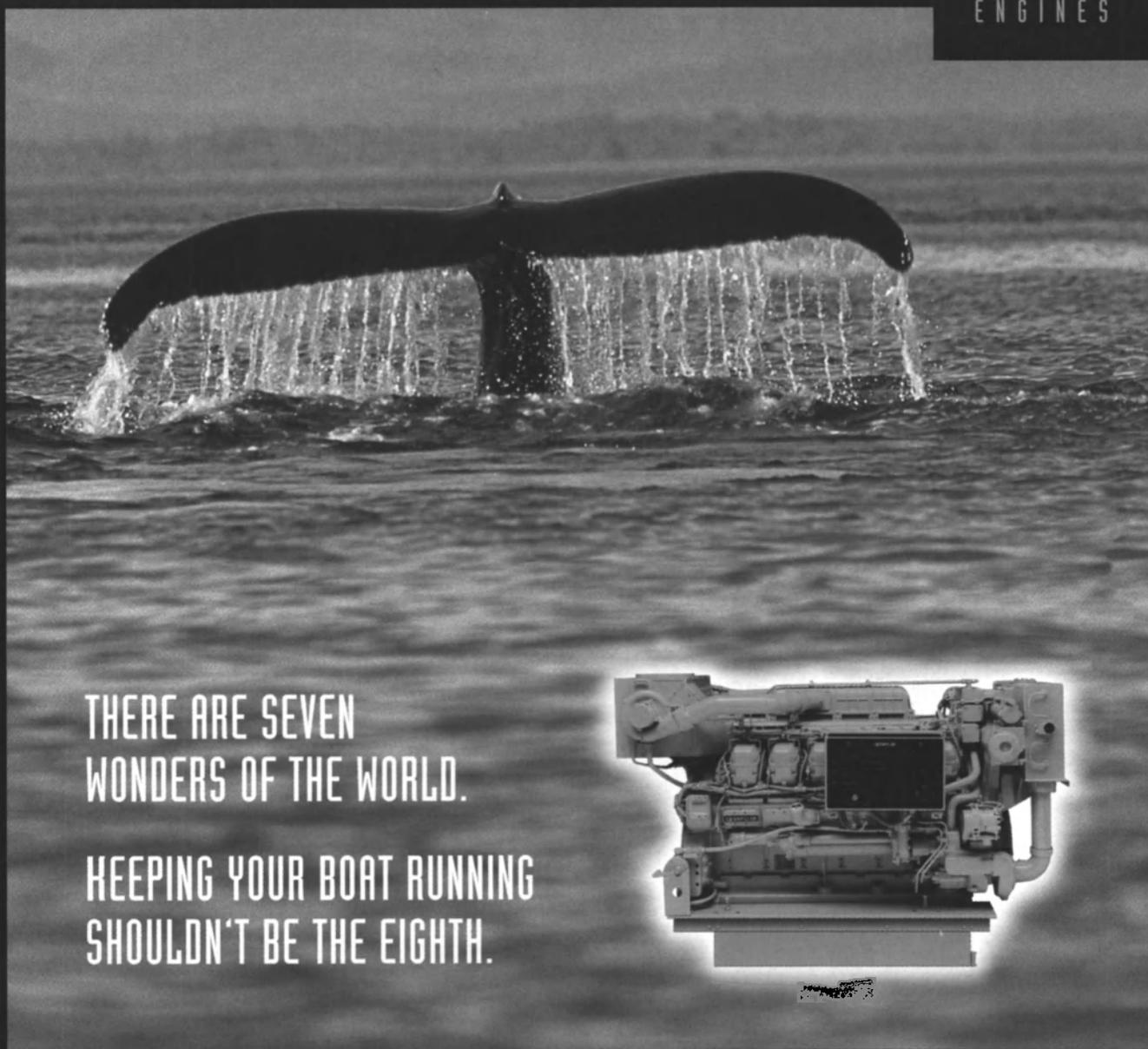
The Falk Corp., the Milwaukee-based subsidiary of Sundstrand Corp., manufactures many types of industrial power transmission machinery, including standard and custom gear drives, flexible shaft couplings, backstops and fluid power drives and couplings.

A Falk marine drive, featuring a patented hydraulic slip-clutch, torque-up system has been specified for the repowering and upgrading of the U.S. Army Military Transportation Command fireboat *Valley Forge*. Engine Systems Inc., a North Carolina-based Falk distributor, will furnish a rebuilt 2,150-hp, 900 rpm EMD engine for the project.

For more information on
The Falk Corp.
Circle 58 on Reader Service Card

Since working on the water is anything but predictable, it pays to have an engine that is. That's why the most important element we engineer into every Caterpillar® Marine Diesel Engine is reliability. A process dedicated to keeping your operating costs low and your business running smooth. Call 1-800-321-7332 for a free brochure.

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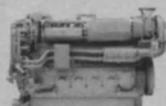


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ENGINES RANGING FROM
85 TO 8050 BHP.
MARINE GENERATOR
SETS RANGING FROM
85 TO 4840 EKW.



Circle 282 on Reader Service Card

PROPULSION GUIDE

American Vulkan Announces New Appointments

American Vulkan Corp. of Winter Haven, Fla., manufacturer of flexible rubber and silicone couplings for marine applications, has announced new staff appointments. **Edgar Rodriguez** has joined the company to serve as Quality Assurance engineer. He will strive to bring the company into compliance with ISO 9000 standards by the end of 1997.

Katherine Evans has joined American Vulkan to supervise the advertising/catalog production, to research new markets and to create an internet site. She has fifteen years of experience in marketing and commercial production.

For more information on
American Vulkan

Circle 66 on Reader Service Card

ZF Marine Appoints Personnel

Randy Tredinich, formerly with Hatteras Yachts, has been named Marine Product support manager at ZF Marine's Gulf Coast facility in New Orleans, and is responsible for general management as well as supervision of sales, service and applications of the company's products in the commercial marine market.

James Bloom is also a newly appointed Marine Product support manager. He is responsible for all marine aftermarket activity including service, parts and warranty operations. He was previously employed by Southern Diesel Systems, Inc.

Brian Cornell, formerly with Twin Disc, has joined ZF Marine as a Sales engineer. In his new position, Mr. Cornell will be responsible for the provision of sales and technical assistance for applications and customer support.

ZF Marine supplies marine gears and is a subsidiary of ZF Industries based in Vernon Hills, Ill.

For more information on ZF Marine
Circle 73 on Reader Service Card

New Trade Show To Debut In Argentina

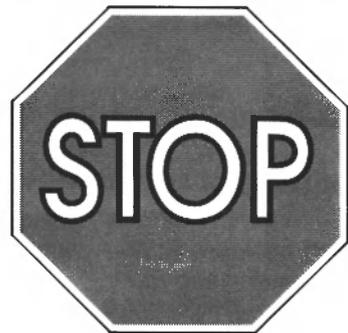
The launch of a new trade show, Expo Martima Mercosur, was

announced in March. The show is scheduled to take place from November 11 to 13 at Centro Costa Salguero in Buenos Aires, Argentina. The decision to launch the event was reportedly based on growth that Mercosur — a free trade zone encompassing

Argentina, Brazil, Uruguay, Paraguay and associate members Chile and Bolivia — is displaying in the marine sector. In Argentina, the privatization of the industry has dramatically revitalized the maritime industry.

Businesses involved in all

aspects of marine service and supply, including ports, shipbuilding, shipping, repair, passenger transport and waterway development interests are expected to be in attendance. For more information on the show, contact Diversified Expositions, at tel: (207) 842-5500.



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MES Delivers Bulk Carrier Asian Hawk

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has completed and delivered 46,645-dwt bulk carrier *Asian Hawk* to owner Southern Route Maritime S.A.

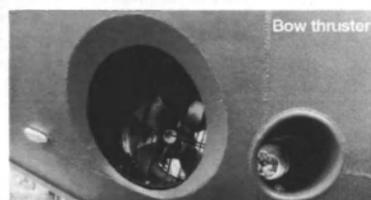
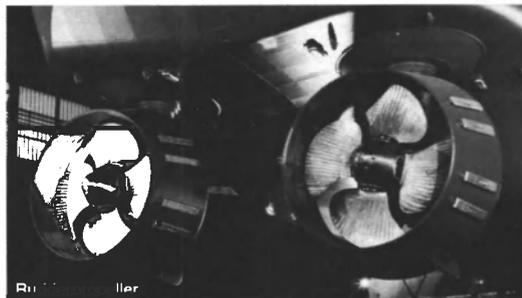
The new handy-size bulker has five cargo holds with a total of four cranes.

This is the tenth sistership of MES 46,500 dwt-type bulk carriers.

Asian Hawk main particulars

Length o.a.	623 ft. (189.8 m)
Length b.p.	594 ft. (181 m)
Breadth, molded	102 ft. (31 m)
Depth, molded	54 ft. (16.5 m)
Draft, molded	38 ft. (11.6 m)
Gross tonnage	27,011
DWT	46,645
Main engine ...	Mitsui-MAN B&W 6S50MC diesel
Speed	17.1 knots
ClassificationNK
FlagPanama

Producing Thrust



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- High durability

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Mainzer Strasse 99, D-56322 Spay, Germany
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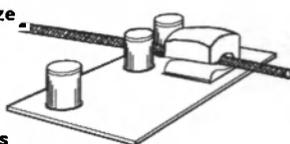


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- 8" and 12" diameter pins now available with 12" or 16" vertical rise
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Keppel Delivers Coastal Tanker

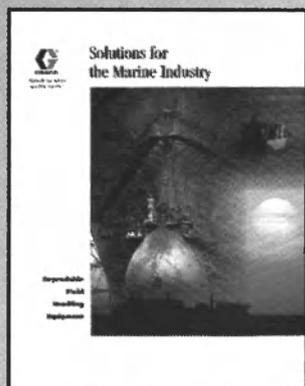
Keppel Marine Industries subsidiary Keppel Singmarine Dockyard Pte Ltd. has completed and delivered 3,700-dwt, double-hulled coastal tanker *Audacity* to U.K. owner FT Everard Shipping Ltd. *Audacity* is the second of two coastal tankers built by Keppel Singmarine for this owner. The first, *Asperity*, was scheduled to be christened last month.

Classed by Lloyd's Register of Shipping with notations +100A1 Double Hull Oil Tanker, ESP, +LMC, UMS and SCM, *Audacity* has a total capacity of 4,250-cu-m in which it will carry clean petroleum products. The new vessel has five deep well centrifugal pumps, each capable of handling 550-cu-m of oil product per hour. *Audacity* has a service speed of 12.5 knots and has achieved trial speeds of 13.7 knots. The vessel has an overall length of 290 ft. (88.4 m), with a breadth of 54.5 ft. (16.6 m). The cargo handling and monitoring system is fully computerized and controlled from the wheelhouse. Keppel Singmarine Dockyard is currently building two pusher tugs, a self-unloading coal/oil barge and a self-unloading copper concentrate barge for Indonesian interest PT Freeport. Also, two tugs for Keppel Smit Towage are scheduled for delivery this year.

For more information on Keppel
Circle 14 on Reader Service Card

Marine Literature

Review



Choose GRACO

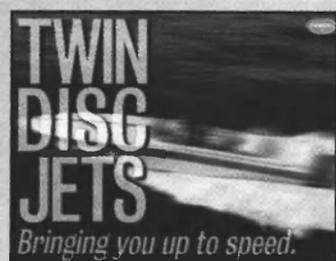
Graco is your single source for durable, reliable fluid handling equipment. Not only have our products been tested and proven throughout the marine industry, but they also integrate with your operation, help reduce material costs, and increase productivity. Comprehensive technical and service assistance is also available.

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Flange Facing Systems

Wachs makes flange facing fast, affordable and easy. Now anyone can produce a lathe quality surface finish on flat and raised face flanges in minutes. Wachs flange facing systems feature fast and easy set up, simple operation, solid performance and built in versatility. You'll eliminate flange replacement, reclaim scrap flanges and flanged valves, and minimize downtime.

Circle No. 102



Twin Disc Jets 319-A-WJ Bulletin Brining You Up to Speed

Twin Disc, Incorporated offers a complete line of water jet drives for boats ranging from 100 to 2000 horsepower. Water jet drives offer versatile application from ski boats to large crew boats. Twin Disc offers a comprehensive line of marine electronic propulsion control systems. For more information, call (414) 638-4000 to request bulletin 319-A-WJ.

Circle No. 103



Flexible Couplings and Shafts for Marine Applications

Established in 1970, CENTA has proven to be the most innovative designer of flexible couplings and shafts for difficult torsional vibration applications covering industrial and marine drives worldwide. Today CENTA is one of the world's leading manufacturers of advanced power transmission products.

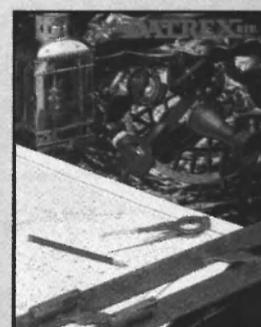
Circle No. 104



Anchors • Chains • Winches

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

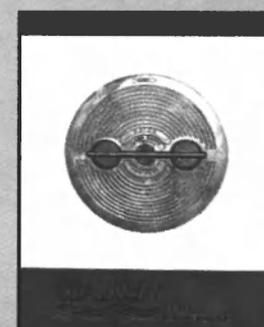
Circle No. 105



Datrex: Reliable When Reliability Counts

Datrex offers Dalite® low location emergency lighting systems to prepare for the possibility of a power failure on board. Offering durability, watertight performance and resistance to a wide range of substances, the key component of the system is the one-piece, self-contained, fully assembled light track.

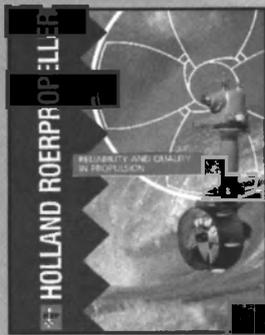
Circle No. 106



Baier Hatch Co., Inc.

Manufacturers of commercial marine hatches, trusted in the industry since 1947. The Baier Hatch is superior to other hatch closure systems because of its unique strongback design. It is simple, strong and serviceable. High quality, easy to use hatches, equals safety at sea. Available in cast steel, stainless steel, aluminum or bronze.

Circle No. 107



Holland Roerpropeller

The line of Holland Roerpropeller products comprise 360o steerable propulsion units, retractable azimuth thrusters and transverse bowthrusters. With the background of the impressive Dutch maritime market, specific knowledge and over twenty-five years experience, the HPR has become a well known name.

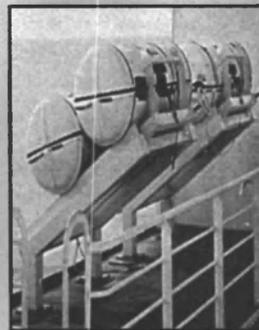
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Remote Operating Gear

Elliott Manufacturing stands ready to meet all your valve control requirements. Choose from over 750 remote valve operating components in stock, or put our custom design capabilities to work for you. All Elliott products are built and tested to the most stringent quality standards.

Circle No. 109



Complete Life Raft Stowage and Deployment Systems

The MGI Life Raft System (LRS) features local or remote operations, for one a time indexed deployment. LRS is fitted to ships in the Alaska Marine Highway and Washington State Ferries fleet as well as other ferries and tugs in the US and Canada.

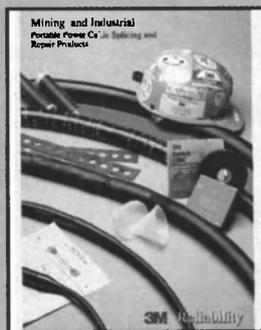
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The Ultimate Mobile Connection

Station 12 has a comprehensive package of maritime communications services to keep you in control. However many ships you operate, calls they make or services they use — you get ALL Inmarsat services in ALL regions, charged to ONE account from ONE supplier with ONE access code.

Circle No. 111



Catalog Available from 3M

A new Mining and Industrial Portable Power Catalog from 3M features portable power cable splicing and repair products for heavy industrial customers. 3M's accessories are designed for many industries, including, shipbuilding and repair, maritime cargo operations, offshore operations and portable power generation.

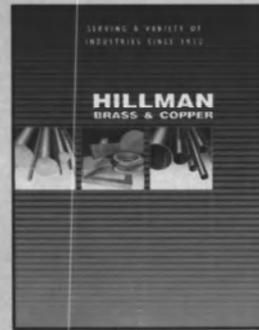
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Marine Refrigeration

RTF Manufacturing offers Refrigerators, Refrigerators/Freezers, Undercounter Freezers and cold food counters. Features include stainless steel construction, CFC-free urethane insulation, thermostatic expansion valves and wrapped refrigeration systems.

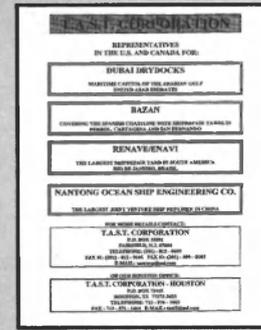
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Hillman Brass & Copper supplies industry and government with the most hard-to find alloys, including copper nickel, silicon bronze, aluminum bronze, leaded muntz and naval brass—all to level I requirements. Hillman sets itself apart with exceptional service, quality and unmatched experience.

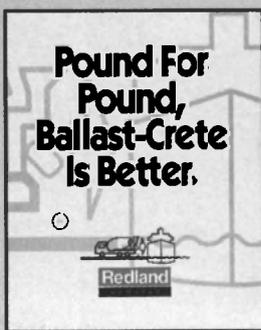
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T.A.S.T. Corporation

T.A.S.T. Corp. is the US and Canadian rep. for Dubai Drydocks, the maritime capitol of the Arabian Gulf; BAZAN, covering the Spanish coastline with shiprepair yards in Ferrol, Cartagena and San Fernando; Renave/Enavi, of South America; and Nantong Ocean Ship Engineering, of China.

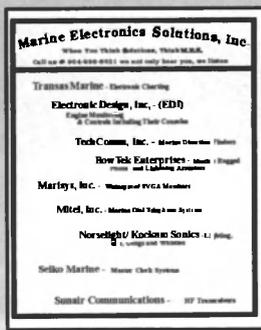
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The Ballast-Crete Advantage

Ballast-Crete has fast become the preferred choice in ballasting for shipyards, naval architects and engineers around the world. Its superior performance under demanding conditions coupled with the expertise of Redland Genstar's technical staff have allowed us to answer just about any stability concern.

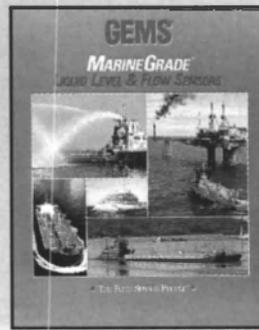
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Marine Electronic Solutions

Supplying all communications and navigation needs, including: Transas Marine—Electronic Charting (ECDIS); Electronic Design Inc.—Engine Monitoring, Controls & Consoles; TechComm, Inc. — Marine Direction Finders; BowTek Enterprises—Marine Rugged Phones and Lightning Arrestors; Marisys, Inc.—Waterproof Marine Computer Displays.

Circle No. 117



GEMS MarineGrade Liquid Level & Flow Sensors

20 page brochure includes Flow Switches, Level Switches, Tank Level Indicating Transmitters, Specialty Tank Level Transmitters and Receivers, Self-Checking Liquid Level Switches, SureSite® and DIPSTICK™ Liquid Level Indicators, and Solid-State Accessories. Full of operation and application photos and illustrations.

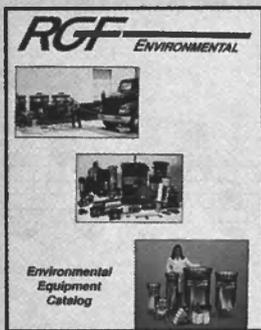
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Reliable Removable Insulation

PACOR is a leading innovator in the design and fabrication of removable blankets for any shape, size or temperature up to 2300oF. Over sixty years of experience in insulation technology and fabrication allows us to guarantee that our blankets will fit. Our blankets are flexible, easy to handle, and reusable!

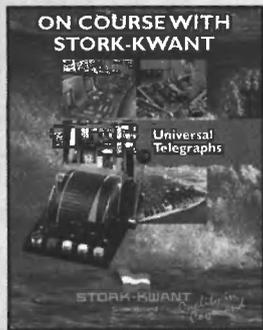
Circle No. 119



Environmental Equipment Catalog

RGF Environmental Group introduces the first Environmental Technical Reference/Equipment Catalog containing design information, engineering data and a full line of equipment for water, wastewater and odor treatment.

Circle No. 120



Stay on Course with Stork-Kwant

Stork-Kwant Universal Telegraph operates various transmitters and signaling devices from one control lever, i.e. signals to remote control systems, telegraph orders, contacts for wrong way alarm and order recording etc. The single control lever operation offers a considerable saving in space.

Circle No. 121



S&S Propellers

Family owned and operated for over 50 years, S&S Propeller, with locations in Flushing, New York and Pompano Beach, Florida, offers a lengthy list of products and services, including computerized propeller sizing. Both locations stock propellers, shafting and all related hardware to accommodate boat sizes from 15' to 150'.

Circle No. 182



New Marine Hose & Fittings Catalog

Hydrasearch, a leading manufacturer of fluid transfer products, announces the release of its new Marine Hose & Fittings Catalog #506. This 160+ page expanded edition covers marine hose and assemblies, fittings, split clamps, quick disconnect couplings, and accessories.

Circle No. 123



High-Tech, Hardened Steel Wheels

Xtek, renowned for service and innovation, designs and manufactures heavy-duty gearing, spindle couplings, mill rolls and a variety of specialty products—in addition to steel wheels—for primary metal producers, shipyards, logging operations, OEM's and many other heavy industries.

Circle No. 124



Castrol TLX - A Change for the Future

Deteriorating fuel quality; Smaller sump sizes; Higher operating temperatures. All combine to place continually increasing burdens on lubricating oils. Castrol TLX is a range of high performance lubricants designed to meet these challenges in medium speed engines.

Circle No. 125



ROFRY Means No Fry

Toastmaster Introduces the oil-less fryer that will revolutionize the frying industry—the ROFRY. With this amazing fryer, consistent fried food quality can now be achieved without deep fat frying! New, state of the art technology lets you fry without oil and still get a crisp, perfectly browned, moist and tasty product.

Circle No. 126



VISCOSITY MEASUREMENT FUEL OIL to TURBINES - ENGINES - BOILERS

Automation Products, Inc. 3030 Maxroy Street, Houston, TX 77008-6294, USA Tel: 713-869-0361; Fax: 713-869-7332.

Circle No. 127

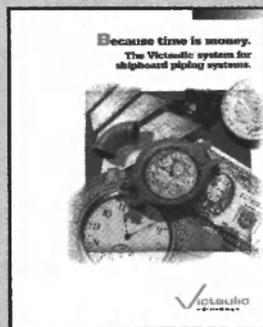


Self-Contained Propulsion Systems for Boats & Barges

Harbormaster Outboard Drives. It's Simplicity itself. A Complete engine/drive/steering system that mounts on the deck of a boat or barge. No separate engine room or through-hull shafting or fuel tank or control station. Fasten it in place, fill it with fuel, and you are under way. Move it to another vessel if necessary.

Circle No. 128

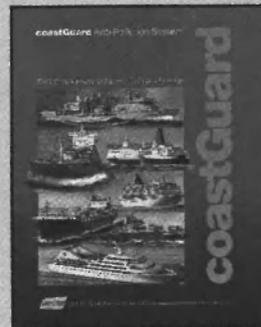
May, 1997



The Victaulic System for Shipboard Piping Systems

Victaulic Company of America has issued a new eight-page brochure on its grooved-end mechanical piping system for the marine industry. The brochure describes how the system works and its advantages over conventional welded, flanged and threaded systems.

Circle No. 129



coastGuard Sternshaft System

John Crane Marine International offers the coastGuard Sternshaft System. First introduced in 1997, the system has since proven to be reliable and cost effective. Both in new construction and retrofit, it eliminates oil pollution and greatly reduces seal and liner wear wastes.

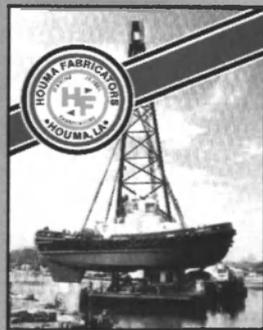
Circle No. 130



Marine Maneuvering and Propulsion Systems

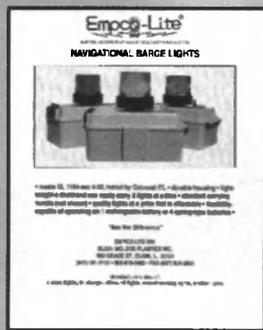
For twenty five years, OmniTHRUSTER™ has been a world leader in the development of waterjet maneuvering systems. Our unique patented designs, which provide diverse maneuverability and auxiliary propulsion, have been the installation choice on vessels worldwide.

Circle No. 131



A Leader in the Marine and Oilfield Industry

Houma Fabricators is a full-service shipyard capable of turnkey construction and conversion from design to finished product. Houma produces a quality product that is second to none. Our diverse capabilities also include vessel conversion, barge construction, oilfield fabrication and machine shop services. **Circle No. 132**



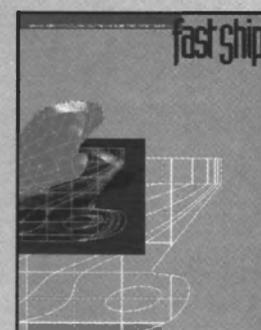
"See the Difference" with Empco-Lite's Navigational Barge Lights!

Now there is an alternative when looking for portable barge lights. Priced affordably, these lightweight, but durable units offer flexibility as they can operate with 6-volt spring-type batteries or with a 12 volt rechargeable battery. **Circle No. 133**



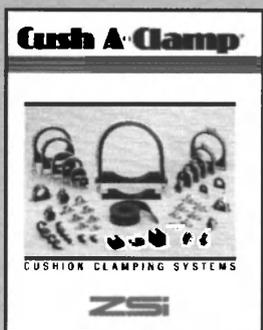
The Information Superhighway

Raytheon has defined the concept of systems integration for the marine electronics industry. Raytheon products deliver the promise of superior technology, power and accuracy and make it usable. **Circle No. 134**



Naval Architecture Software for the Professional

FastShip is an easy-to-use, yet powerful program for designing hulls, superstructures, appendages and other marine structures. It is currently being used by shipyards, navies and design firms around the world. FastShip is easy to learn and does not require full-time use to be a design tool. **Circle No. 135**



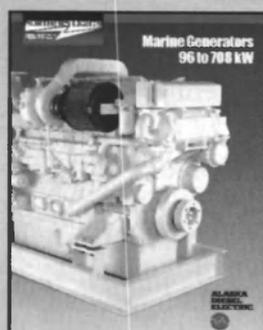
ZSI's Cush-A-Clamp Catalog

Cush-A-Clamp is a cushion-clamping system for securing pipe, tube and hose. This 16-page catalog features channel mounted, surface mounted and U-Bolt mounted systems are features, along with additional accessories. Application photos, specification information and engineering dimensional data is provided. **Circle No. 136**



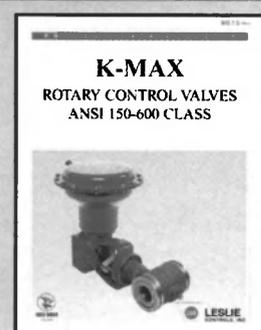
Lips: A Driving Force

Lips, leaders in propulsion, is the only major propeller manufacturer in the world to produce fixed pitch propellers, controllable pitch propellers, side thrusters, steerable thrusters, waterjets and electronic control systems to its own design. The company is involved in all sectors of this sophisticated and highly competitive market. **Circle No. 137**



Northern Lights Diesel Electric & Power Systems Since 1963

With so much depending on your generator, it pays to choose the very best. A set built up to the standard of the highest quality, and not down to a low initial price. Long life, extended TBO (time between overhauls), low fuel and oil consumption lead to low-life cycle costs. **Circle No. 187**



K-MAX Rotary Control Valves

High performance, rotary control valves provide the benefits of plant standardization and minimal stocking economies. The valves are used in a wide variety of applications, such as handling high and low pressure steam; clean, dirty and corrosive gases, and erosive and abrasive slurries, among others. **Circle No. 138**



Engineering, Laboratory, and Inspection Services to the Coatings Industry

S.G. Pinney & Assoc. assists contractors, suppliers, owners and manufacturers in obtaining excellent coating performance and minimizing premature failures. Due to many reasons obtaining specification compliance in the field is increasingly difficult. **Circle No. 139**



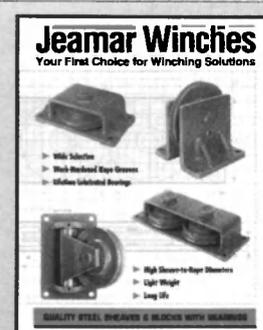
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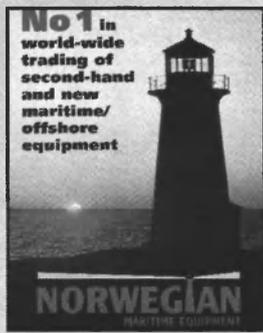
International Marine Software Associates

IMSA is an association of marine computer software developers, providing design and manufacturing solutions to the ship design and shipbuilding industries. Our focused commitment to software development benefits the end user with the finest quality products and technical support. **Circle No. 141**



Quality Steel Sheaves and Blocks With Bearings

Now available from Jeamar Winches, a new condensed catalog illustrating their extensive line of wire rope sheaves and blocks. Well illustrated and written in an easy to read style, this new catalog gives a quick overview with the necessary detail. **Circle No. 142**



World Wide Trading Second-Hand and New Maritime and Offshore Equipment
 Norwegian Maritime Equipment A/S sells, buys and negotiates second-hand and new maritime and offshore equipment, including certificates and documentation to the requirements of ISO 2000.
Circle No. 143



World Famous Filters
 Luber-Finer, a leader in heavy-duty filter products for over 50 years, offers a complete line of filters for marine applications world-wide, including oil, air, fuel, coolant and hydraulic filters. Every filter is factory-tested to ensure the highest performance in rough waters.
Circle No. 144



Complete System from Bridge to Rudder
 Autonav designs and manufactures a series of hydraulic steering systems ranging from small manual hydraulic to large electrohydraulic models. A modular range of components based on 60 years experience enables custom designed systems to be quickly and economically produced.
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Climate Control for Tough Marine Environments
 Dry Air Technology designs, engineers and manufactures environmental control equipment for the marine industry. Products include high performance, lightweight ventilators and commercial dehumidifiers for complete climate control in all types of work environments.
Circle No. 146



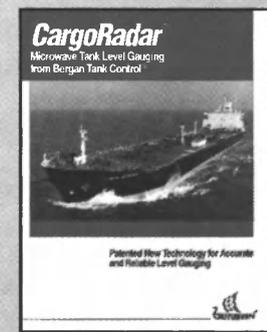
Conveyor Belt Doors for Self Unloaders
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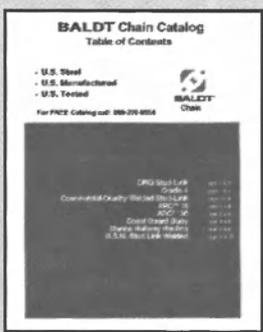
This is Your Boat with Cat Power
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Circle No. 149



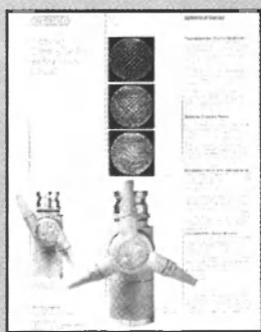
Cargo Monitoring
 Ian-Conrad Bergan, Inc. offers its totally integrated cargo monitoring system including microwave tank level gauging, high level and overflow alarm sensors and monitoring units, pressure sensors, and temperature sensors. Ian-Conrad Bergan, Inc., 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561, tel: 904-932-9388, fax: 904-932-0504.
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Leaders in Viscosity Management
 Cambridge Applied Systems viscosity measurement and control products include a wide range of sensors, a choice of electronic control systems, and portable viscometers for laboratory and at-line use. At Cambridge Applied Systems we continuously enhance our electronics and sensors.
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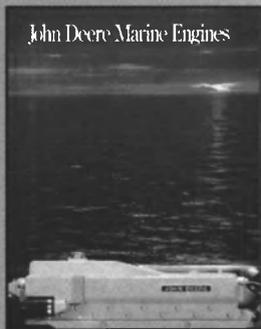
BALDT Anchor & Chain
 The BALDT Catalogs have long served as the standard reference manuals of the mooring systems industry. They contain vital information on a wide variety of anchors, chain, and ... related mooring systems hardware; including application information, line drawings, and proof and break load specifications.
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Equipped For Performance
 At Todd Pacific Shipyards one stop does it all. When time, money and quality count, you can trust Todd for both excellence and economy. When performance-as-promised is important, you can rely on Todd for thoroughness and follow through.
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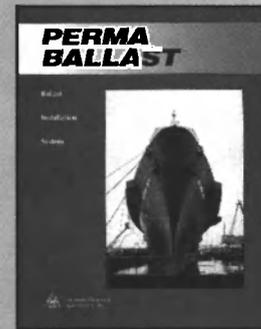
John Deere Marine Engines
This brochure highlights John Deere 4- and 6-cylinder inline diesel engines. John Deere provides power packages from 70-300 hp (53-224 kW) and are available for propulsion, auxiliary and gen-set installations. John Deere marine dealer or engine distributor is ready and able to customize a power package.
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Kvichak Marine Industries
Kvichak Marine Industries of Seattle is known for its wide variety of dependable aluminum vessels for oil spill response, law enforcement, commercial fishing, aquaculture, and general work boat applications. Customers include the NRC, U.S.N., U.S.C.G., and a large number of cooperatives.
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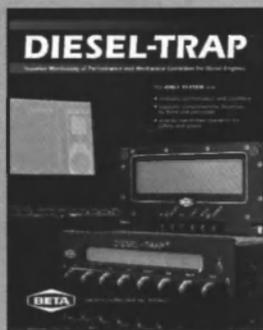
Ultra High-Pressure Water Jets
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Ballast Installation System
Perma Ballast™ technology, developed by Minerals Research & Recovery, Inc., is recognized to be the most cost effective, and fastest method of ship ballasting available today. Perma Ballast is environmentally safe and requires minimal ship modifications which provides a savings to the owner.
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Circle No. 159



Effective Diesel Engine Analysis
Liberty Technologies is a worldwide provider of innovative products and services that improve industrial productivity and safety. DIESEL-TRAP™ and DIESEL-TRAP/Online™ utilize computerized analysis to determine diesel engine performance and mechanical condition.
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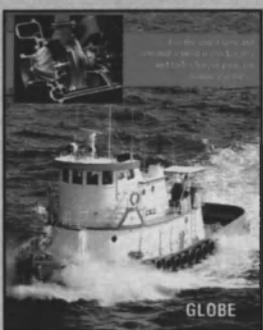
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Marine Tank Level Transmitter
KING-GAGE® LiquiSeal liquid level transmitter for cargo, ballast and service tanks. Rugged unit mounts externally with a simple length of pipe extending into the tank. Versions include 4-20mA output or specify pneumatic output for explosion hazard service.
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No one knows marine turbochargers like Globe. We're the nation's leading manufacturer of new and rebuilt turbochargers and turbocharger parts for work boats. You can depend on Globe for innovative answers and cost-effective solutions—no matter how complex your power plant requirements.
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Avtron ADDVantage-32 is a three-phase power converter offering advanced features made possible by a powerful 32-bit embedded controller. It is designed for creating coordinated drive systems in the continuous processing industries. It provides superior performance, simpler maintenance and easier set-up.
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Marine Fire Protection
Therman Marine offers a range of advanced and approved materials and systems for fire protection on board ships and offshore installations. The Therman Marine Division is a committed supplier and partner to naval architects, shipyards, marine outfitters and contractors in search of the best available technologies for life safety at sea.
Circle No. 166



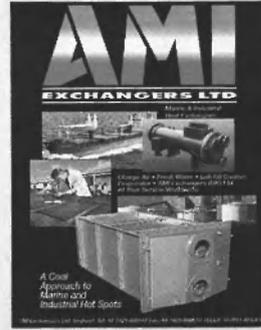
Programmable Gantry System

The Programmable Gantry System is a two-axis gantry that has two synchronized drives running on parallel tracks, and a second axis drive carrying a cutting torch that runs on a crossbeam. It can be used for flame or plasma cutting, or for welding, of a variety of shapes. **Circle No. 167**



Thor-Lube Stern Tube Bearing Systems

Thordon Bearings offers Thor-Lube, an environmentally friendly stern lube bearing systems which eliminates all pollution concerns. The system uses proven, non-metallic, Thordon XL bearings and Thor-Lube, a non-polluting water-based lubricant. **Circle No. 168**



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 • Condensers, oil coolers, evaporators, air conditioning coils
 • Extensive computer data base with detailed drawings and specifications
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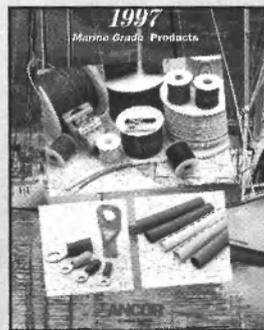
Bicera Valves: Crankcase Explosion Protection

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ThermeX Ship's Heating System taps the engine heat and warms the entire interior. It's inexpensive—no furnaces, no steam—just two hot water lines, baseboard radiators and heater-blowers. Heated/cooled fresh air ventilation, small auxiliary furnaces and a/c chillers are also available. **Circle No. 171**



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Nautical Technology Corp. is the leading provider of integrated software solutions for the international shipping industry. NTC Ship Manager is the most advanced and comprehensive suite of fleet management software available on the market. **Circle No. 174**



Simulation, Training and Research

STAR Center's simulation training programs for GMDSS, Radar/ARPA, Tankerman PIC, Advanced Cargo Handling and Bridge Team Management are being certified throughout the world. STAR Center has training facilities in Toledo, OH and Ft. Lauderdale, FL. **Circle No. 175**

May, 1997



Diversified Electronic Design and Development

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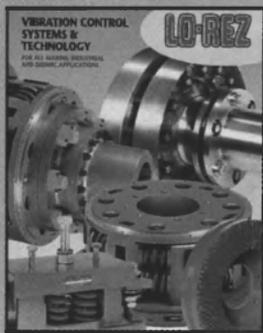
Baywood, Inc.

The Baywood, Inc. catalog features a complete line of high-quality hatched, blocks, and pot haulers, deck hardware, and fittings and accessories for the marine industry. Our quick opening hatches have a one lever hatch locking mechanism with both U.S. and Canadian patents and has foreign patents pending. **Circle No. 177**



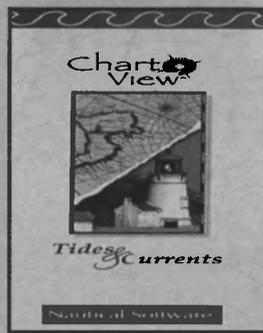
Davies Rail & Mechanical Works, Inc.

DRMW combines contracting as well as heavy mechanical expertise enabling to bring customers a wide range of experience and knowledge to better serve the needs to today's industry. The firm's experienced professionals offer the services necessary for a portable relationship with clients. **Circle No. 178**



Vibration Control Systems and Technology

Lo-Rez Vibration Control Ltd. has been dedicated to the design and manufacture of vibration control equipment since the 1950's. Commitment to R&D and exacting standards in manufacture, means we are meeting the challenge of new technology with systems that are state-of-the-art in the 1990's. **Circle No. 179**



Electronic Charting and Tides & Currents ... Made Easy

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Circle No. 180



Oil Spill Recovery Technology

Hyde Products, Inc. is a leading supplier of high quality oil spill prevention and response equipment. Specializing in high performance oil containment boom and skimmers, Hyde-supplied equipment is used by the US Navy, US and Canadian Coastguards, all major North American spill response organizations. **Circle No. 181**



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Bisso Marine Company, Inc.

Bisso Marine Company, Inc., a leader in marine salvage, operates a large, diverse fleet of modern marine equipment, including five derrick barges with a combined lift capacity of 2,000 tons, and a complete line of support vessels. The company also offers complete sonar survey and diving divisions. The 107 year old maritime tradition of excellence and service continues today into the fifth generation.

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Accurate Electronics Inc., — Quality Electro-Mechanical Design & Manufacturing

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Circle No. 183



"Oil Smart" Bilge Pump Switch

SEEWATER bilge pump switch turns electric bilge pumps into fully automatic systems that pump only water from oily bilges — protecting waterways from toxic pollution, and boaters from costly fines and cleanup fees for illegal discharge of oil or fuel.

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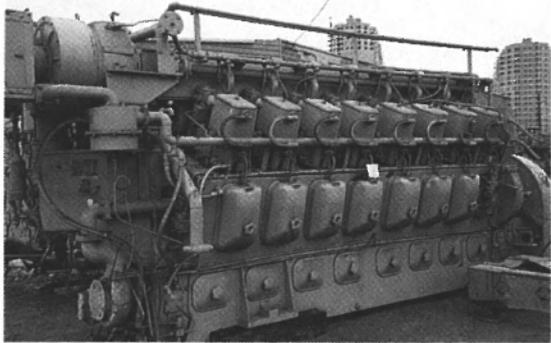
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Turbo-Charged Skid-Mounted

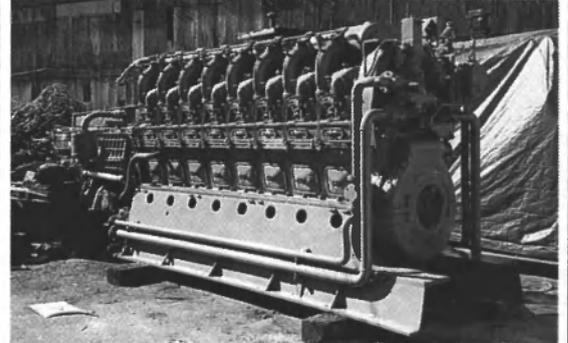
Daihatsu 8PSHTc-26D 925 KVA Diesel Gen-Set

RPM: 720 Volt: 450 AC Hz: 60

G.M. 16-567-BC DIESEL ENGINE

HP: 1600 RPM: 720
Containerized Unit

Three (3) G.M. 16-278 A



HP: 1600 RPM: 720
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HP:560 RPM: 1800 Volt:440
With Switchboard in 20 ft. Containers

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COOPER BESSEMER All Models
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Four (4) Alco 539 Diesel Engines

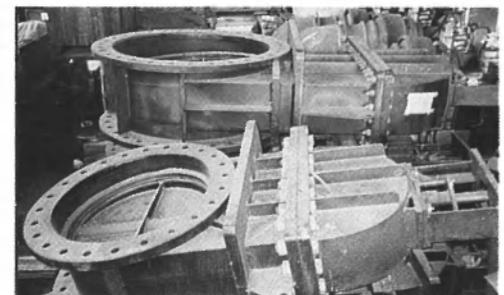
HP: 1600 RPM: 720

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Model X-1060-13NTW
Rated Pressure, Shell: 250 PSI
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NEW Gate Valves



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27"	30	Chapman - All Brz	2
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150 lbs Steam, 5 lb Exhaust
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Steam Stripping Pumps with Bronze Liquid Ends

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700 Square Feet
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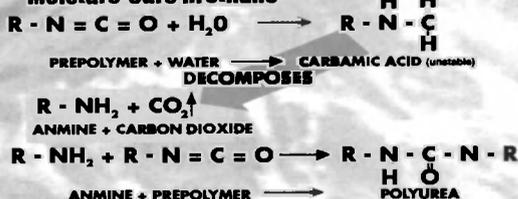
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"With Wasser we can offer our customers faster completion and longer coating life. Wasser's single component MC-Coatings give better performance than two part coatings."

"Our industry has been looking for a miracle product. Wasser is the best new product to come along in years."



Reaction of Single-Component Moisture-Cure Urethane



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Marco To Build Two Z-Drive Tugs For Baydelta

Marco Shipyard Seattle has signed a contract to build two new Z-drive tractor tugs for Baydelta Marine Services, Inc. The new vessels will provide tractor escort, ship assist and offshore towing services. According to Marco officials, construction of the first tug will begin immediately, with completion of both vessels expected by early 1998.

The all-steel constructed tugs will measure 105-ft. (32-m) long, with a molded beam of 34 ft. (10.4 m) and molded depth of 16.6 ft. (5 m). Each will be powered by a pair of Caterpillar 3516B diesels, providing a total of 4,400 bhp. Propulsion will be provided by Aquamaster 360 degree azimuthing Z-drive units.

The new tugs will join the two Baydelta tractor tugs already operating in the Seattle Bay area.

For more information on Marco Shipyard
Circle 78 on Reader Service Card

Halter Marine Wins Contract For Two Triple Stack Barges

Halter Marine Group, Inc. has been awarded a contract from Trailer Bridge, Inc. for the construction of two triple stack box carrier barges, each configured to carry 53-ft. (16.2-m) containers. Each barge will measure 409-ft. (125-m) long, with 100-ft. (30.5-m) beams and depths of 21.5 ft. (7 m). Construction is already in progress at Halter Marine Group shipyard Gulf Coast Fabrication, Inc., and the first vessel will be delivered later this year, with the second to follow in early 1998.

For more information
Circle 79 on Reader Service Card

TDI-Halter And Perforadors Central To Construct Super 116 Drilling Rig

TDI-Halter, Inc. and Perforadora Central

S.A. de C.V. Mexico City, have signed a contract for the construction of a Le Tourneau Super 116 mobile offshore drilling unit (MODU).

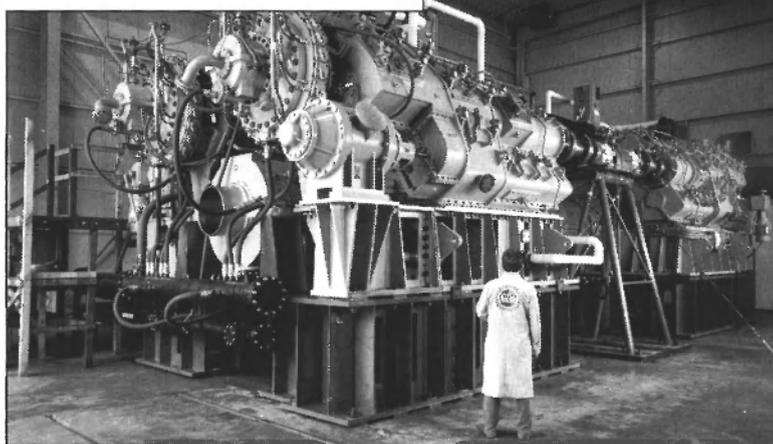
The rig will be built under a license agreement with Le Tourneau, a subsidiary of Rowan Drilling. Including the equipment package and construction kit which are also being purchased from Le Tourneau, the total value of the contract is expected to be close to \$80 million.

For more information on TDI-Halter
Circle 81 on Reader Service Card

Cascade General Undertakes Conversion Project

Civilian ship *Glomar Explorer*, which was recently lifted at Cascade General Portland Shipyard after 20 years in lay-up/ready reserve, will be converted into a deepwater drillship. The 619-ft. (189-m) vessel has been chartered by its original builders, Global Marine Drilling of Houston, Texas, and the conversion project will be under the sole control of Cascade

POWER



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General.

The contract, valued in excess of \$18 million, has included the overhaul of the existing 2,000-hp, shaft-driven thrusters – three in the bow and two in the stern – and added four, 3,000-hp azimuthing units operating in 50 x 12.5-ft. (15.2 x 3.8-m) vertical tubes. To meet the increased power demands, four EMD 645 16-cylin-

der AC generators were installed forward of the former engine room.

After completion of the conversion this summer, *Glomar Explorer* will be delivered under its own power to the Gulf Coast near South America, where it will be fitted out with the rest of its state-of-the-art drilling equipment and commence work under a five-year exploration contract in early 1998.

Cascade General operates Portland Shipyard, which provides full-service repairs and conversions for tankers, cruise ships, bulk carriers, containerships, government vessels, tugs, barges and workboats. The Portland facility includes a 96-acre yard, more than 7,000 ft. (2,133 m) of full-service repair berths, and three floating drydocks.

Sulzer Launches New Engine Type

The first model of the Sulzer RTA96C diesel engine type designed by New Sulzer Diesel Ltd. has been successfully started on the test bed of Diesel United Ltd. in Aioi, Japan.

With a maximum continuous output of 60,390 kW at 100 rev/min, this 11-cylinder engine is touted by Sulzer as the world's most powerful engine. After successful completion of a comprehensive testing program, the new engine will be installed in the first of two 5,750-TEU containerships contracted by NYK Line with IHI for delivery later this year.

Four 12-cylinder RTA96C engines are also on order for four 6,674-TEU containerships contracted by P&O Containers Ltd., also at IHI. At a 65,880-kW output each, the first of these engines is expected to begin testing this fall. All six RTA96C engines currently on order are being built under license by Diesel United Ltd. at its Aioi Works.

For more information on New Sulzer
Circle 80 on Reader Service Card

Halter Celebrates Launching Of Two OSVs

On April 10, two Halter Marine Group, Inc. shipyards celebrated the near-simultaneous launchings of two offshore supply vessels (OSVs).

The Moss Point yard launched *Seacor Vision*, a 225-ft. (69-m), 12,280-bhp anchor handling/tug supply boat for Seacor Marine, Inc.; and the Halter Pascagoula yard launched *C-Champion*, a 220-ft. (67-m), 3,420-bhp platform supply boat for Alpha Marine Services. Both vessels are scheduled for delivery in June.

For more information on
Halter Marine Group, Inc.
Circle 83 on Reader Service Card

Blount Celebrates Keel-Laying Of Newest Cruise Ship

Blount Industries, Inc. and American Canadian Caribbean Line, Inc. (ACCL) celebrated the keel-laying of their latest ship, *Grande Mariner*, on April 5 at the Blount shipyard in Warren, R.I. The event was presided over by Congressman Patrick Kennedy

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who declared the event a "significant step forward in the rebirth of shipbuilding in the Northeast."

The new, 183-ft. (56-m), 100-passenger vessel is the second in the new line of Grande class small cruise ships, and will be added to ACCL's fleet in 1998 at a cost of approximately \$10 million. The new ships feature sound-deadening enclosures for the ship's main generators, flexible propulsion engine mounts and vibration isolators on all other machinery.

For more information on

Blount Industries, Inc.

Circle 82 on Reader Service Card

Alabama Shipyard Wins Contract For Four Liftboats

Alabama Shipyard, Inc. has been awarded a contract to construct four new-generation liftboats by offshore operator Searex, Inc.

The Searex design will utilize an open lattice-type leg design, creating less surface area for wave impact, and long leg length to permit work in deeper waters. The new vessels will reportedly be capable of working in water depths of up to 180 ft. (55 m), and will each accommodate a crew of 58. The vessels will be financed with the long-term financing guarantees provided by the Title XI program in the amount of \$47.4 million.

Construction of the first vessel is anticipated to take 11 months, and once delivered to Searex, the vessels will operate in the world offshore market.

For more information

Circle 85 on Reader Service Card

National Shipyard Association Formed

Forty-six shipyard companies with more than 80 shipyards in 17 states and 34 congressional districts established the National Shipyard Association (NSA) on April 11, in Arlington, Va., encompassing more than 16,000 shipyard workers.

H. Dennis Steger, president of Channel Shipyard Co., Inc., has been elected NSA chairman, and **Donald T. Bollinger**, chairman and CEO of Bollinger Shipyards, Inc., has been elected vice chairman. **Allen Walker** has been named executive director of the association.

NSA's mission is to be the nation-

al, unifying voice of the shipyard industry, and also to become a leader in the promotion of safety and environmental excellence in U.S. shipyards.

The nucleus of the NSA was formed from the former member companies of the American Waterways Shipyard Conference (AWSC) of the American

Waterways Operators (AWO). An independent trade organization, NSA has entered into a strategic alliance with AWO and the Passenger Vessel Association (PVA) to share office space and administrative services.

"AWO and AWSC have had a long and successful relationship since AWSC was established in 1976.

The memberships of these organizations are now entering a new phase in their relationship that will be a win/win for both. We look forward to working with NSA as part of the strategic maritime alliance that includes AWO, PVA and now NSA," said **Ronald Dansby**, AWO chairman and Kirby Corp. executive.

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ARCS Catalog Available On Internet

PC Maritime has produced a complete, online ARCS electronic chart catalog for its web site, found at: <http://www.pcmaritime.co.uk>. The online ARCS catalog is fully

interactive; customers can select and order charts directly from the site. The ARCS catalog is divided into geographic areas, to be viewed on screen or sent to a printer. To date, the catalog contains 1,500 charts.

For more information
Circle 54 on Reader Service Card

MACSEA To Market Marine Engineering Training Software

MACSEA Ltd. has become a representative for Paterson Instruments to market an interactive computer-based training

(ICBT) system known as COBALT. COBALT software focuses on the fundamentals of marine engineering operations, including fuel and lube oil treatments.

The modular Windows-based training package provides interactive simulation exercises and performance assessment on personal computers. COBALT was designed to comply with requirements of the STCW Code 1995, ISM Code and ISO 9000 standards.

For more information from MACSEA
Circle 53 on Reader Service Card

The PICKUPCAT concept

The PICKUPCAT concept is based on dividing a vessel in two separate parts: a self contained catamaran containing power, propulsion and steering functions, and an interchangeable cargo carrying unit.

The assembled units retain the same strength and structural properties as that of a traditional hull construction. The time spent in port to engage/disengage the two separate units take less than 2 hours. The cargo unit may serve as a floating storage facility, independently of the propulsion unit which is free to operate elsewhere. While at sea, the two units operate as one ship.



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Circle 206 on Reader Service Card

Boatrac's, Pinpoint Team On "Fleet View"

Boatrac's and PinPoint Systems International recently unveiled "Fleet View," a new graphic display of the Boatrac's Communications and Vessel Tracking System (VTS).

Fleet View was developed by PinPoint specifically for Boatrac's, and is an electronic charting system that creates a real time display of a fleet's position on an electronic nautical chart.

Fleet View allows the display of the location and track of every vessel in a fleet, as well as access to all pertinent information about a single vessel with a simple click of the mouse button on its corresponding icon. A real time log of the vessel's voyage, including the latitude and longitude of each position update, is displayed in a separate window.

Fleet View also enables the user to place discretionary and event marks on the electronic nautical chart by using a tool box similar to those used with an electronic charting system.

Bill Silhan, PinPoint's executive vice president, said, "Our goal is to provide vessel operators and fleet managers with the most accurate and useful information possible to further promote cost-efficient operations and safety at sea."

"It's particularly satisfying to watch the efficiency and safety of vessel management increase with the progression of high technology," said Michael L. Silverman, chairman and CEO of Boatrac's.

The partners

PinPoint Systems International is a leading developer of electronic charting systems and enhanced radar technology, specializing in

SOFTWARE SOLUTIONS

navigation and integrated bridge systems.

PinPoint's Infonav electronic charting system with Titan R3000 Real Time Enhanced Radar Overlay is currently being installed on some of the leading tug and towboat companies on the Mississippi River system in addition to coastal fleets.

The exclusive R3000 radar overlay option displays an enhanced image over the electronic chart or in its own window. A scan to scan conversion process "blooms" small radar targets while reducing sea clutter.

Boatracs is the distributor in the U.S. marine market of the OmniTRACS Systems, a satellite-based communications and tracking system developed and manufactured by QUALCOMM Inc. The Boatracs system provides two-way communications between waterborne vessels at sea or on inland waterways and base stations on land, or with other vessels, facilitating e-mail addresses and phone and fax numbers.

For more information on Boatracs
Circle 51 on Reader Service Card

For more information on PinPoint
Circle 52 on Reader Service Card

"SmartEngine" Software Developed

HydroComp has joined with Design Systems & Technologies in producing an engine monitoring and management software program.

The new product, dubbed SmartEngine, was developed in response to a demand for energy-efficient, environmentally-conscious propulsion systems. SmartEngine is designed to monitor engine performance, allowing the user to analyze and optimize voyage operation. The product is designed to fit all vessels and fleets, of any size, power and operating profile.

For more information on SmartEngine
Circle 56 on Reader Service Card

FleetWORKS 6.0 For Windows Released

FleetWORKS for Windows from MMS is a new level of inventory and maintenance software.

The new 6.0 version is the evolution of more than 13 years of product enhancement, built on feedback from thousands of users.

In addition to maintaining all of the features of the earlier version, FleetWORKS for Windows includes 20 new features.

The External Links feature can launch any Windows or DOS application to integrate spreadsheets, documents or graphics with the system.

MMS has also developed an entirely new product, FleetREPORT, which reportedly

allows the user to create custom reports or to select from pre-designed report templates that can be modified for financial, ISM Code or any type of management reporting.

For more information from MMS
Circle 57 on Reader Service Card



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Fundia Offers New Design Tool

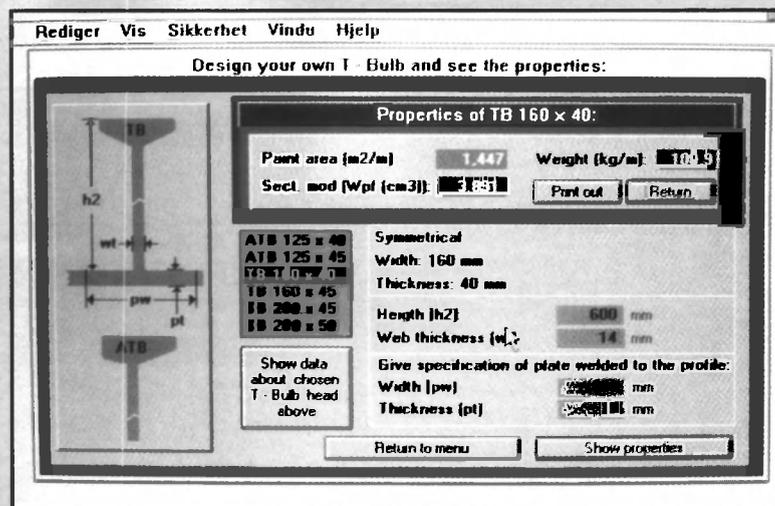
A new PC design program is available from Fundia Profiler AS, the Norwegian shipbuilding profile producer.

The program is designed to help ship designers evaluate the suitability of the Fundia T-Bulb in relation to the standard T-profile. The user simply clicks onto relevant boxes to move through the program.

The program offers many options, including the "design your

own T-bulb" function. Through inputting the desired profile height, web thickness and width, and then adding a T-bulb head, values for paint area, section modulus and weight are given for the T-bulb.

The program allows the operator to test the properties of the T-profile against the Fundia T-bulb. Web and flange sizes for traditional T-profiles are given by the user, and the program computes com-



A new design tool helps shipyards evaluate the Fundia T-bulb.

parative paint arc and weight for the T-profile versus the T-bulb.

For a free copy of the program Circle 50 on Reader Service Card

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Circle 271 on Reader Service Card

Talking The Talk

New Shipboard Language Package Available From ABS Marine Services

ABS Marine Services has released a new CD-interactive (CD-i) training course for the development of shipboard English language skills. The course has been developed jointly with World Learning and Marine Interactive Training Corp. (MITC). The new Standard Marine Navigational Vocabulary course is presented in English, with back-up support offered in Mandarin Chinese, Korean, Russian and Spanish.

The new course is based on the IMO's Standard Marine Navigational Vocabulary (SMNV), according to Capt. Timothy Leitzell, president, ABS Marine Services. "From February of this year, the revised STCW Convention introduces more stringent shipboard language requirements. A standard marine vocabulary and comprehension standard is an essential safety component for the marine industry."

For more information on the program Circle 55 on Reader Service Card

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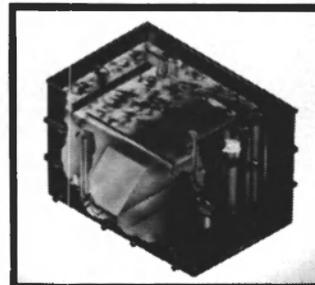
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Circle 272 on Reader Service Card

Chesapeake Shipbuilding Launches New Vessel

Gaming and restaurant vessel designer and builder Chesapeake Shipbuilding Corp. has launched *Camelot*, a 160 ft. (49.5 m) long vessel with a 36-ft. (11-m) beam. The new ship is the third of its class to be launched this year, and an additional three sisterships are still under construction.

These vessels have a certified passenger capacity of 600 and enclosed revenue generating spaces on three decks totaling more than 7,200 sq. ft. Chesapeake also constructs these vessels in 180 and 200-ft. (55 and 61-m) versions.

The yard features two construction basins, two level construction/launch side launch systems, plus a ground transfer system and various trade shops.

Camelot is powered by twin Detroit Diesel 12-71 Ns, coupled with Twin Disc 514 C gears, providing a service speed of 13 knots. Ship's service power is provided by a pair of 190-kW Detroit Diesel 6-71 generators. Navigation and electronics equipment include Furuno radar, Icom radio and Northstar GPS. The steering system and controls are manufactured by Kobelt and the distribution panel was manufactured by Chesapeake.

The new vessel will be delivered in May, and a sistership is scheduled to be launched in June for completion in August. The launch of *Camelot* follows the recent completion of a similar 140-ft. (43-m) ship, which was delivered to its New England-based owners last month. Chesapeake Shipbuilding builds vessels operating along the Eastern Seaboard, the Great Lakes, the Mississippi River, and

in the Pacific Northwest, South America and China.

For more information on
Chesapeake Shipbuilding
Circle 46 on Reader Service Card

Pictured is Chesapeake Shipbuilding's recently launched *Camelot*.



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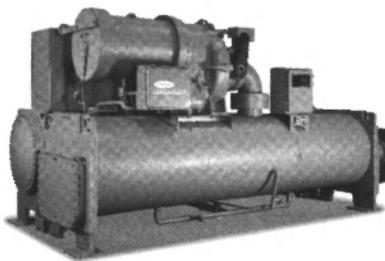
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Oceaneering To Construct Multi-Service Vessel

Oceaneering's board of directors approved construction of a multi-service vessel for deepwater installation work in the U.S. Gulf of Mexico. The 242 x 45-ft. (73.7 x 13.7-m) vessel will be named *Ocean Intervention* and will carry and install significant lengths of coiled tubing or umbilicals for subsea completions. It will be suited for pipeline/flowline tie-ins, pipeline crossings and riser installations. *Ocean Intervention* will be equipped with dynamic positioning and four-point mooring systems, and a 40-ton deck crane.



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Circle 273 on Reader Service Card

Shipowners and managers are continually squeezed to improve profitability and adhere to ever-tightening environmental legislation. Matters of propulsion efficiency and emissions are "A-List" at most any strategy meeting. As a result, marine fuel, lubricant and additive suppliers have been tasked with developing products and systems to meet these changing needs. The ensuing pages highlight recent developments of products and services from several key suppliers.

De-Bug Makes Additions To Fuel Decontamination Series

De-Bug U.S.A. offers LG-X1000 and LG-X1200, the latest models in the company's Algae-X series of fuel decontamination units. LG-X1000 is designed to service engines in the 300 to 1,000-hp range, and LG-X1200 for engines up to 1,200 hp.

Algae-X units feature the direct flow-thru and self cleaning design, which reportedly provides improved decontamination of the fuel supply without periodic maintenance to drain off accumulated water and sludge. Algae-X units are

high-pressure molded with corrosion resistant LM6 aluminum. Reported benefits of unit installation include:

- Prevention of filter clogs and the need for tank cleaning;
- Increased engine, injector and pump life;
- Lower costs of maintenance and downtime;
- Reduced smoke emissions;
- Enhanced engine performance; and
- Improved safety and reliability.

For more information
Circle 30 on Reader Service Card

Research Laboratories Offers Microbial Testing

Fuels and petroleum analysis facility Research Laboratories, Inc. offers microbial testing quantification fuel services. The facility tests, collects and collates data pertinent to the proliferation of microbial growth in fuel storage situations.

Research Laboratories provides sample containers, mailers and information forms for fuel users who want to test for microbial infestation. Remedial steps are offered if contamination is found. Printed matter and research concerning microbial growth in fuel, how it should be tested and what is available for combating its problems is also available from the facility.

For more information
Circle 26 on Reader Service Card

Environmental Chemicals & Lubricants Unveils High Temperature Grease

Industrial lubricant manufacturer Environmental Chemicals & Lubricants has unveiled Steel 1000 high temperature grease. Formulated from high quality paraffinic base oils and inorganic base substances, Steel 1000 reportedly withstands extreme pressures and

Exxon And Shell Form Joint Venture

Exxon Chemical Company and both Shell International Chemicals Limited and Shell Chemical Company have announced a CEO nominee and key sites for the previously proposed worldwide petroleum additives joint venture. **Anthony J. Gaskell**, formerly Exxon Chemical's vice president of Vistalon and Adhesion Industry, has been designated to become president and CEO when the joint venture is launched. The new company is targeted to start up later this year, pending definitive agreements among the companies and receipt of appropriate governmental and regulatory approvals.

The new enterprise's world headquarters will be located in the U.K. to best position the joint venture to serve customers worldwide, with technical service, industry liaison and sales representation departments expected to continue operating in North America and

Asia Pacific to effectively support customers in these areas.

World-class research and development sites are planned for separate and independent portions of existing sites in the U.S. and U.K. The U.S. location will be Exxon Chemical Paramins Division's existing site in Linden, N.J. Some Shell Chemical employees from Shell's Westhollow Technology Center in Houston, Texas, will relocate to this site when the proposed joint venture starts up.

In the U.K., the joint venture initially would use separate and independent portions of both the existing Paramins Research and Development site at Abingdon, and Shell Additives International Limited's Thornton Research and Technology Centre in northwest England. However, the intent for the future is to seek a single U.K. standalone site, while retaining critical technological expertise.

Choosing between the sites requires an overall technology information exchange and assessment which is not possible until governmental and regulatory approvals are received.

Petroleum additives include both lubricant and fuel additives. Lubricant additives are used primarily in lubrication of marine, automotive and heavy-duty diesel engines aiding in reduction of engine wear, dispersion of sludge and minimization of troublesome deposits. Fuel additives also improve the operation of gasoline and diesel engines.

For more information on Exxon
Circle 43 on Reader Service Card

For more information on Shell
Circle 44 on Reader Service Card

Marine Fuels, Lubricants & Additives Review

temperatures while maintaining stability and long life.

Steel 1000 is reportedly capable of withstanding high temperatures without melting or running, and is waterproof, washout resistant and resistant to most acids, weather conditions, salt spray, steam, oxidation and dirt. The product's cohesive/adhesive additives reportedly enable it to cling to metal surfaces, protecting them from water, dirt and weather.

For more information
Circle 31 on Reader Service Card

Jet-Lube Adds Anaerobic Compounds To Industrial Line

Jet-Lube, Inc. has added the Jet-Lok line of anaerobic threadlockers, retaining compounds, sealants, gasket makers and epoxies to its industrial product line. The anaerobics augment a complete line of industrial lubricants, sealants, anti-seizes and specialty maintenance products. "The line was added to help our distributors source as many products as possible from one manufacturer," said **Doug Dearing**, Jet-Lube's national sales manager.

For more information
Circle 32 on Reader Service Card

Brookfield Offers Catalog Of Technical Papers

A catalog containing 70 definitive papers on viscosity measurement published by scientists and engineers from around the world is available from Brookfield Engineering Laboratories. Among the products covered in the catalog are asphalts, lubricants, paints and coatings, glasses, titanium slags, plastics and industrial process controls.

The catalog also features a selection of 24 standard ASTM test methods covering lubricants, adhesives, dielectrics and resins, and waxes and plastics.

To receive the free catalog
Circle 33 on Reader Service Card

BP Marine Offers New Engine Oil; Opens New Barge

BP Marine offers Energol IC-HFX main grade trunk piston

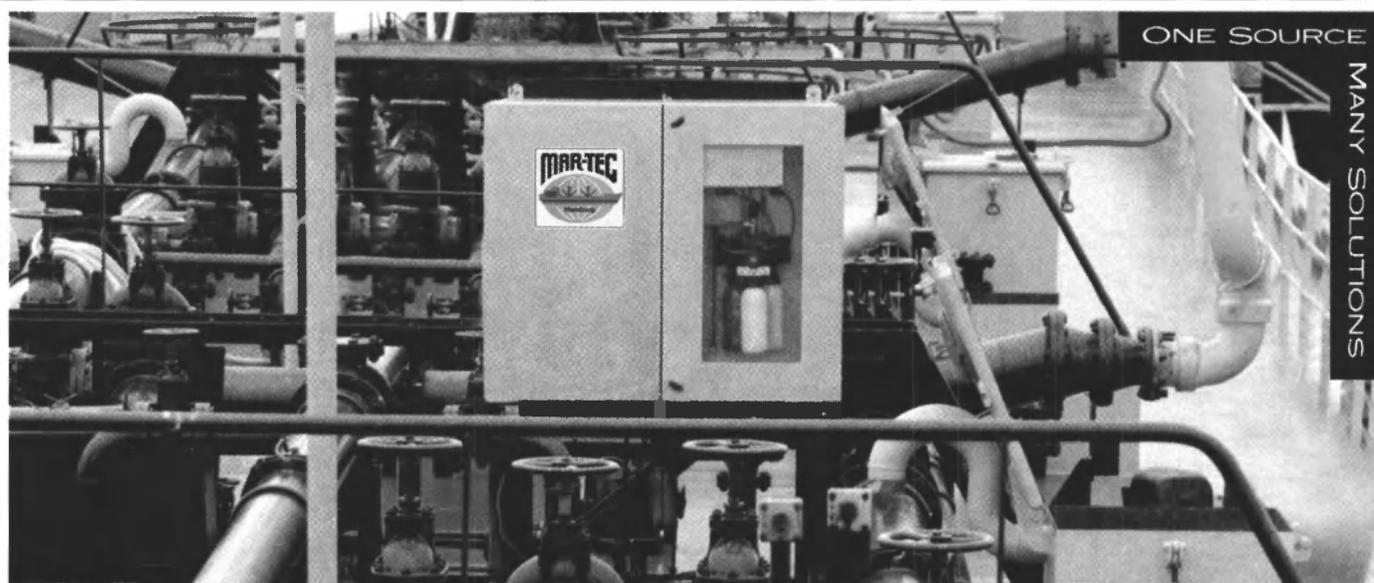
engine oil. IC-HFX is specifically formulated to minimize sludge deposits in marine diesel engines burning residual fuel, and replaces Energol IC-HF, the company's former trunk piston engine oil. The new product has reportedly gained full approval from New Sulzer

Diesel, MAN B&W, Wartsila, Pielstick, Yanmar and Daihatsu. Energol IC-HFX is available in four grades — IC-HFX 303, 304, 403 and 404 — and is fully compatible with its predecessor.

In addition, BP Marine was recently scheduled to open a new

barge in Durban, South Africa. Dubbed *Pentow Energy*, the barge will carry up to 2,700 cu. m. of marine fuel oil (MFO), 48 cu. m. of marine diesel oil (MDO) and 440 cu. m. of marine gas oil (MGO).

(Continued on page 77)



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With so many factors that adversely affect homogeneity in blended residual fuels, extracting a scientifically *representative* sample is essential. Our **SAMPLE-TEC™ flow proportional drip sampling** unit is precisely engineered to extract samples from the fuel in direct proportion to the rate of delivery. This process overcomes the limitations of *non-proportional, continuous drip sampling*, which may perform well under carefully controlled conditions but is subject to significant error during normal shipboard operation.

Automated sampling is also available with the **SAMPLE-TEC MV™** unit. This device is the core component in bunker barge installations of our **BUNKER MONITORING™** system for suppliers who want to add value with reliable confirmation of delivery specifications.

Get the facts—before you burn the fuel. Contact your local Drew Marine representative or direct to: One Drew Plaza, Boonton, NJ 07005 USA; Tel No: (201) 263-7600; Fax No: (201) 263-4491; Telex: 6853392 AMER ORD.

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Drew
Marine Division

Ashland Chemical



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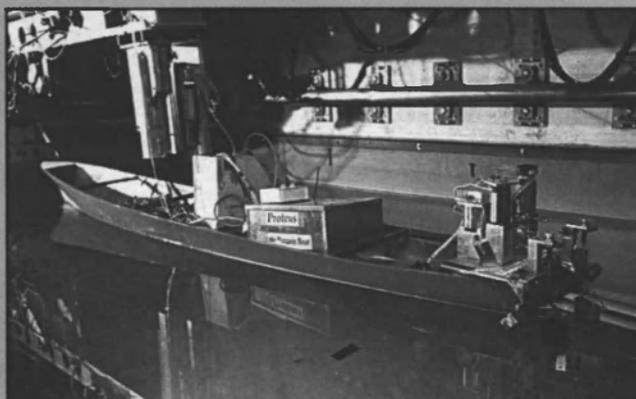
Ashland Chemical Company
Division of Ashland Inc.

Propulsor Efficiency: MIT Penguin Boat Takes Maiden Voyage

Engineers at the Massachusetts Institute of Technology (MIT) have applied the "technology" of the penguin, which uses its rigid body to propel quickly and efficiently through the water, to a vehicle which recently took its maiden voyage down a short stretch of the Charles River. *Proteus* the Penguin Boat is a 12-ft. (3.7-m) craft with two oscillating foils, or flippers, attached to its stern. Named after the son of mythological Greek sea god Poseidon, *Proteus* could lead to the creation of full-scale ships that move more efficiently and consume less fuel than those using traditional propellers.

When tested in the laboratory, the new propulsion system reportedly reached up to 87 percent efficiency. According to **Michael S. Triantafyllou**, a professor in the Department of Ocean Engineering who leads the research team, the system as implemented on the boat is still being evaluated since many of the components are novel and require further development. Professor **Triantafyllou** further noted that the average efficiency of existing ships is at or below about 70 percent.

According to 1992 U.S. fuel and shipping statistics, converting only three percent of the U.S. shipping fleet to a propulsor with 10 percent

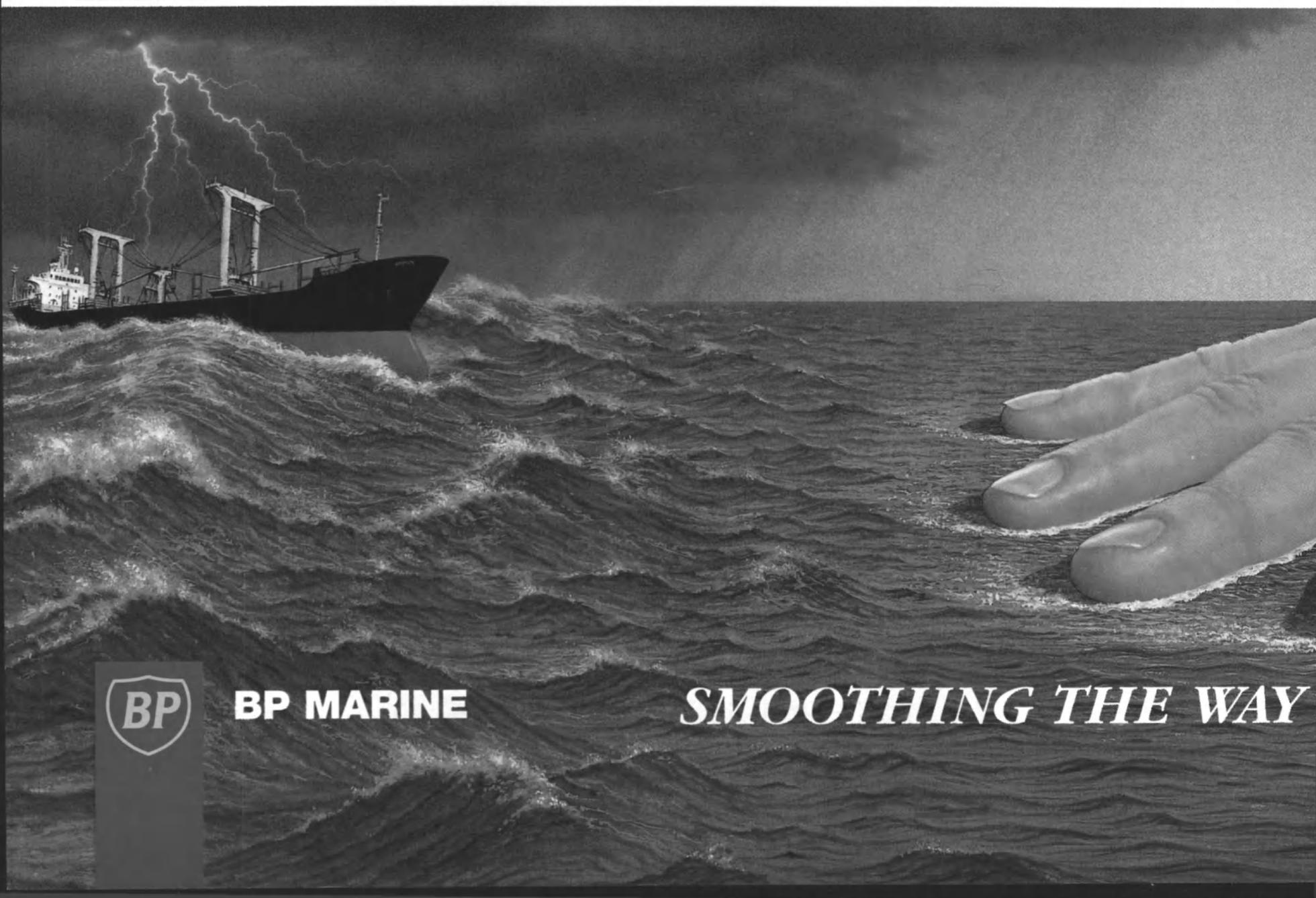


higher efficiency would mean an annual monetary savings of \$15 million and the burning of 120 million fewer liters of petroleum, as stated by **James T. Czarnowski**, a graduate student in the departments of Ocean Engineering and Mechanical Engineering, in a paper he is scheduled to present with two MIT undergraduates this month at the International Society of Offshore and Polar Engineers (ISOPE) Conference.

The boat, which measures 12 x 1.5-ft. (3.7 x .45-m), is a scale model of a fast ship. Packed inside are two car batteries, a 486 desktop computer, a power-sensing circuit and a voltage converter that changes the battery power into

the power used by the computer and by the four motors that control the motion of the flippers. Two large motors allow the flippers to move toward and away from each other; two smaller motors allow them to twist slightly as they do so. Before the researchers send the boat for a run down the Charles River, they program it for a specific "flapping motion" of the flippers.

These commands are relayed to the onboard computer via a monitor and keyboard that are disconnected from the computer and kept offshore. Once *Proteus* begins moving through the water, it is controlled by a remote control. The same remote also allows the researchers to start recording, via an onboard computer, the amount of power the motors are using. That data, in turn, allows them to calculate the efficiency of each run. "Once we determine the most efficient flapping motion on the Charles," said Mr. **Czarnowski**, "We want to bring the boat back to the MIT testing tank to study the wake so we know what an efficient wake looks like." Plans for future work include designing a flipper system that allows for maneuvering as well as propulsion. The project is supported by the Office of Naval Research and the MIT Sea Grant College Program.



BP MARINE

SMOOTHING THE WAY

(Continued from page 75)

Pentow Energy will be equipped with at least five pumps delivering 770 cu. m. of MFO and 20 cu. m. of MDO and MFO per hour. The barge will also be equipped with an MFO/MDO blender capable of blending bunkers at a minimum rate of 80 cu. m. per hour.

For more information
Circle 36 on Reader Service Card

A/S Dan Bunkering Offers New Fixed Price Arrangement

A/S Dan Bunkering has devised a new fixed price agreement for shipowners and operators.

The company has established a hedging concept — designed to run for six to 12 months — which has been tested for more than a year with a range of select clients. The client gets an agreed amount of fuel delivered at a firm price per ton, and an agreement is made for a specific harbor/bunker location. For the plan to work efficiently, the client has to be fairly sure of the amount to be lifted

during the agreement period.

While the agreements are irrevocable, there is some protection. There is an option to include a “down-side opportunity” which allows the bunker buyer to benefit in case the bunker markets fall below a certain level.

According to the company, its fixed price agreement puts the responsibility of purchasing bunkers onto the bunker company in return for advantageous prices.

For more information
Circle 42 on Reader Service Card

GEMS Offers MarineGrade Product Brochure

Available from GEMS Sensors Division, IMO Industries, Inc. is a new, 20-page overview of GEMS MarineGrade liquid level and flow sensors.

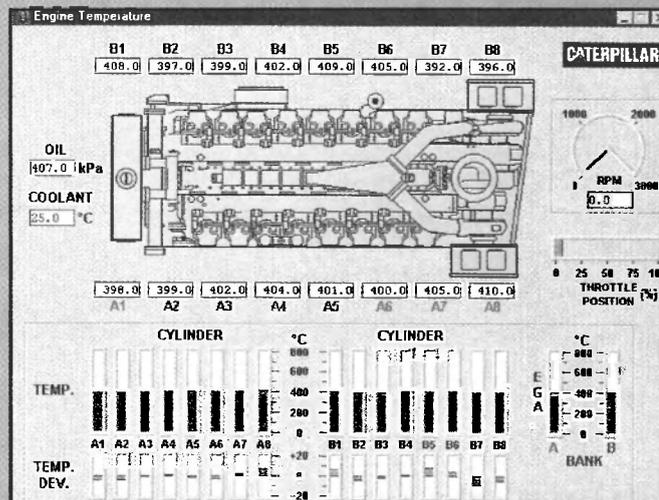
Included in the product line are flow switches, level switches, tank level indicating transmitters, specialty tank

(Continued on next page)

Servowatch Specified For New FBM Craft

Servowatch Systems’ integrated monitoring and control system has been ordered for the new FBM 50M Tricats, to be built by FBM Aboitiz in the Philippines. The system is designed to monitor all functions on the vessel and provide integrated control of the main engines and electrical systems. The Servowatch System has achieved significant success onboard fast ferries, and its most recent application was a monitoring system for *Thames Bubbler*, built by McTay Marine.

For more information on Servowatch
Circle 3 on Reader Service Card



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valve transmitters and receivers, self-checking liquid level switches, SureSite and Dipstick liquid level indicators and Solid-State accessories.

The brochure includes photos and illustrations explaining product operation and application, and is suited for naval architects,

marine engineers and shipbuilders.

For more information
Circle 34 on Reader Service Card

Amalgamated, Inc.

Amalgamated, Inc. markets fuel

oil additives for improving fuel oil applications ranging from fuel storage, supply, filtering and burner systems. The company offers Fuel Oil Additive-55 (FOA-55HD), a total additive package combining the latest petroleum technology

(Continued on next page)

Drew Marine Offers MAR-TEC Specialty Equipment

As part of its comprehensive Fuel Management Program, Ashland Chemical's Drew Marine Division offers MAR-TEC specialty equipment for onboard fuel and lube analysis. MAR-TEC test kits have reportedly been used on more than 25,000 vessels. MAR-TEC tests for critical properties of both fuel and lube oils including viscosity, density, water content and compatibility. The products are offered in the MAN B&W Fuel and Lube Analysis Set, and individual test cabinets for bunkers and lubes are also available. The MAR-TEC Sample-TEC unit utilizes the scientifically correct flow proportional drip sampling process for fuel testing. Fitted to the bunker manifold and powered by the kinetic energy of the fuel flow, the Sample-TEC device extracts micro-samples from the fuel in direct proportion to the rate of delivery.

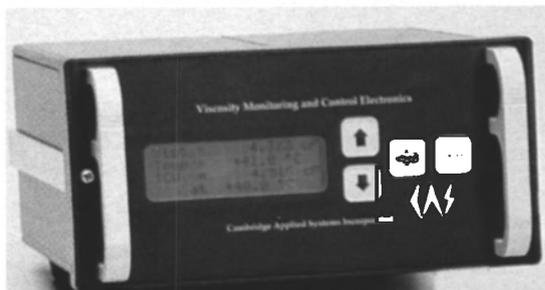
Sample-TEC MV, an automated MAR-TEC sampling device, uses a computer-controlled solenoid needle valve to obtain specimens over the period of the delivery, feeding them to three sample bottles. Each MAR-TEC test kit is supplied with analysis guidelines and recommendations for remedial action, and all MAR-TEC equipment is reportedly constructed in compliance with stringent European electromagnetic radiation (EMV) laws. The following test kits are available:

- MAR-TEC Viscomar Fuel and Lube Oil Viscosity Test — Measures the kinetic viscosity of oil and calculates the ignition quality of fuel as CCAI and CII values;
- MAR-TEC Densi-TEC — Measures the density of marine heavy fuel at specified temperatures and includes a diagram for determining optimal separator disk adjustments;
- MAR-TEC TOE-TEC and TOE-TEC MX — Used for testing lube and fuel oil, respectively; and
- MAR-TEC Compamar — Measures pour point and flash point.

For more information
Circle 25 on Reader Service Card

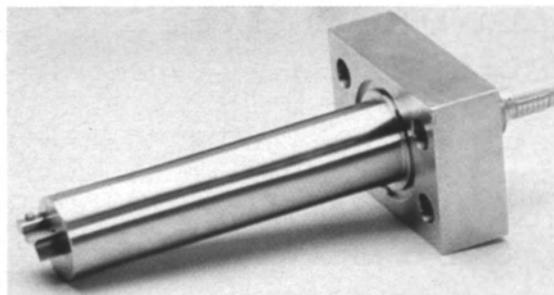
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Circle 33 on Reader Service Card

advances for improving fuel oil quality.

This additive package is specifically formulated to improve fuel oil atomization and combustion efficiency, to retard system sludge, to reduce soot and fireside deposits and to inhibit pre-combustion and post-combustion corrosion. The system has reportedly been used effectively in both light and heavy fuel oil applications with reduction of three to seven percent in fuel oil consumption. It also exhibits a high tolerance to water and system condensation. The antioxidants in FOA-55HD help prevent the tank scale and rust deposits inherent with long term fuel oil storage.

Functions provided by FOA-55HD include the following:

- Combustion acid neutralizer;
- Nozzle and system cleaner;
- Antioxidant;
- De-emulsifying agent;
- Detergent-dispersant;
- Combustion improving agent; and
- Fuel oil stabilizer.

For more information

Circle 29 on Reader Service Card

Octane Boost Corp.

Octane Boost Corp. offers Super 104+, a high-performance fuel additive available in an all-metal gallon container that treats up to 176 gallons of gasoline. Super 104+ is suited for cleaning engine fuel lines, injectors and intake valves while reportedly increasing horsepower and improving performance.

For more information

Circle 27 on Reader Service Card

Oronite

The Oronite Division of Chevron Chemical Company develops, manufactures and markets lubricating oil additive and fuel additive products. Oronite has recently developed TAMS, a cascade additive system. The new system was designed to compound a complete line of marine engine lubricants including marine cylinder lubricants, trunk piston engine oils and systems oil in a variety of base stocks from two core additive packages: a system using satellite transmission for real-time wear measurement on field test vessels; and the recent development of a new component which will reportedly be capable of controlling black

sludge in trunk piston engines.

For more information

Circle 35 on Reader Service Card

NOPEC Corp.

NOPEC Corp. has introduced a complete range of Biodiesel fuel

additives.

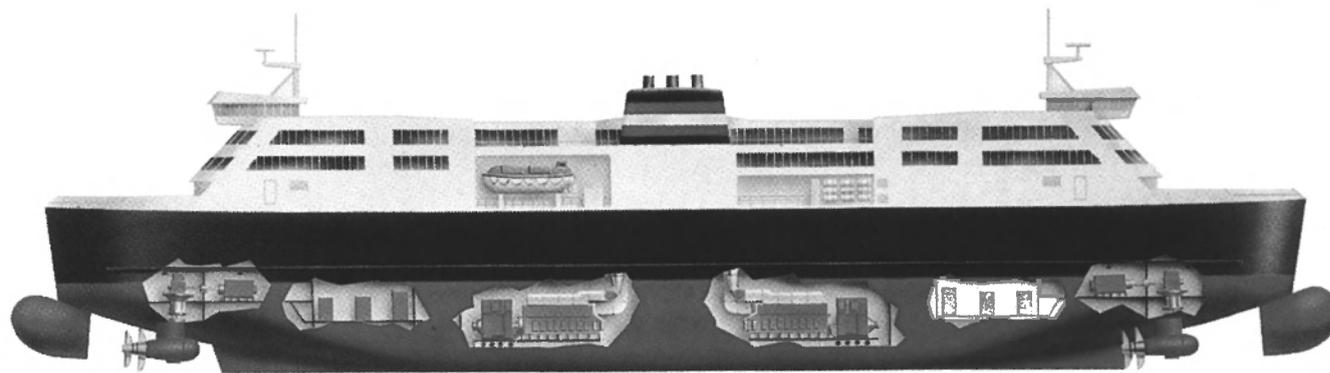
The new product line includes diesel fuel additive Lubricyl, diesel fuel enhancer BioBooster and ultra-high quality diesel fuel BioBlend.

When appropriately blended into common petroleum-based diesel

fuel, these vegetable oil-based methyl ester products reportedly effect a major reduction in engine emissions and reduce black smoke and fumes associated with petrodiesel fuel.

For more information

Circle 28 on Reader Service Card



In addition to the four PWM propulsion drives, ABB is supplying the five 3,620 kW main generators and the 6.6 kV main switchboard for the two double-ended ferries.

PWM Propulsion Power

The Danish ferry operator DSB Rederi selected variable-speed electric drives to power the four 3,000 kW contra-rotating main propulsion units on board their two new and innovative double-ended ferries being built at the Ørskov Shipyard.

They opted for speed-controlled AC cage induction motors because of their inherent simplicity, reliability and minimum maintenance requirements—not to mention their superior fuel economy, especially when combined with contra-rotating propulsors.

ABB's Sami Megastar PWM (Pulse Width Modulated) propulsion drives were selected because of their excellent dynamic performance and their ability to provide maximum torque in either direction when needed. Soft starts, smooth control and an exceptionally high and constant power factor put a minimum of strain on the main thrusters and diesel gensets.

ABB's Sami Megastar drives are the only PWM drives available in power ratings up to 8 MW with a proven 10-year track record of more than 250 demanding marine, offshore and land-based installations.

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Phos-Chem, Inc.

Phos-Chem, Inc. offers a complete line of soil, wastewater and sludge treatment microorganisms, enzymes, nutrients and pH control bioremediation products.

The new product line includes specialized microbes for degradation of hydrocarbon contaminants such as gasoline, diesel fuel, oils, solvents and monomers in chemical plants, refineries, oil drilling and spill sites, disposal and recovery facilities, wastewater treatments, and steel making, metal forming, textile, pulp and paper plants.

For more information
Circle 24 on Reader Service Card

Castrol North America

Castrol North America offers Castrol TLX, a new generation of marine engine oil for medium-speed engines, available in a range of base numbers from 20 to 50. Holding all major OEM approvals, the Castrol TLX series has been developed to offer overall improved performance benefits including: cleanliness and cooling efficiency; load carrying; corrosion protection; compatibility with all types of heavy fuels; and extended periods between overhauls.

For more information
Circle 75 on Reader Service Card

Auramarine Secures ISO 9001 Quality Certificate

Det Norske Veritas has awarded booster manufacturer Auramarine Ltd. an ISO 9001 Quality Certificate. In addition, Auramarine is currently

extending its production facilities to include a new office building, new products, and a new production system including a customer feedback system.

For more information on
Auramarine
Circle 77 on Reader Service Card

**M30CS
LIMITED EDITION**

Northern Lights 30 kW as low as \$9450

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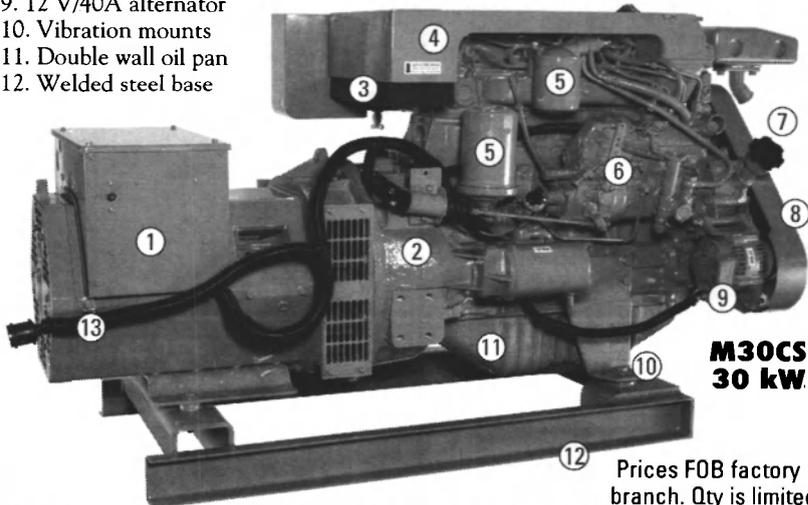


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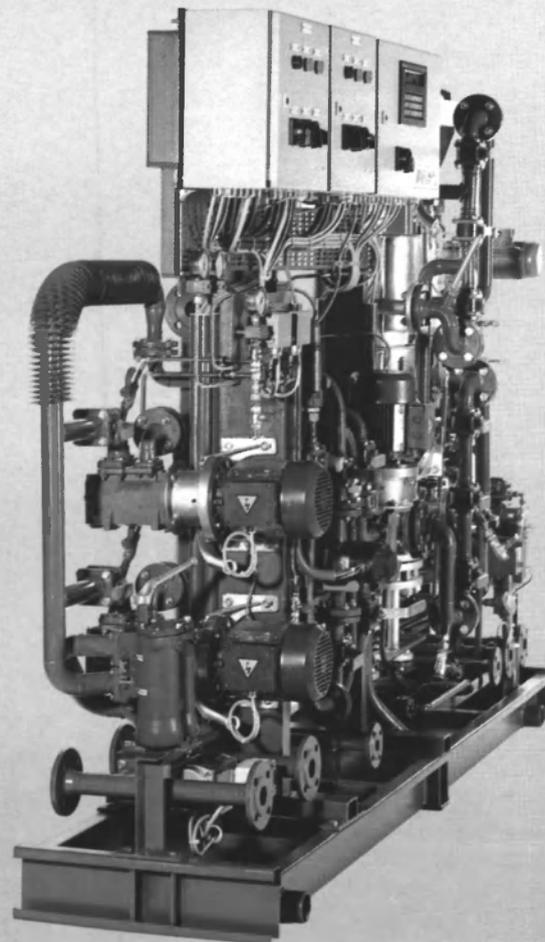


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Nichols Brothers Delivers Second Crowley Tractor Tug

The second Voith Schneider-propelled Protector class tug built by Nichols Brothers Boat Builders, Inc. for Crowley Marine Services — *M/V Guard* — was recently delivered to Crowley at Nichols' Langleigh outfitting dock. The 120-ft. (37 m), 5,500-hp tractor tug was scheduled to be officially christened at Crowley Marine Services' Long Beach station this month. The first Protector class vessel, *M/V Protector*, was christened in Seattle last December and is now in service in Long Beach, Calif.

According to Crowley officials, the Protector

class tugs are being outfitted for tanker escort services, ship handling and docking assist. Guido Perla & Associates, Inc. (GPA) provided final design and production engineering assistance to Nichols Brothers in construction of the vessels.

Guard has a molded beam of 41.6 ft. (12.7 m) and a draft of 17 ft. (5.2 m). Both tugs are powered by two Caterpillar Model 3606 engines delivering 2,750 maximum continuous break horsepower at 1,000 rpm to Voith Schneider



Texas Drydock Acquisition Boosts Halter Business

The acquisition of Texas Drydock, Inc. (TDI) by the Halter Marine Group, Inc. has bolstered TDI's new rig construction and repair and conversion capabilities, giving TDI's six southeast Texas shipyards access to Halter's 11 new construction and repair shipyards.

"This new relationship combines Halter's strengths and experience in new vessel construction with TDI's experience and capabilities in offshore rig and moveable production unit design, construction, conversion and repair. It will speed TDI's deliveries because most of Halter's shipyards can fabricate components for final assembly at any of TDI's yards and at Halter's new Pascagoula, Mississippi, shipyard," said **John Dane III**, chairman, president and CEO of Halter Marine Group.

Halter-Pascagoula is completing the first phase of a \$20 million expansion program which includes the following: construction of a new plate preparation building with automated sand blasting and painting; a new fabrication building with plasma arc numerically controlled cutters; new cranes and other lift equipment; an upgraded pipe shop; and new launch ways. In addition, a second phase, pending new business, will include approximately 2,000 ft. of bulkheading and additional fabrication facilities to allow an employment increase from its current complement of 400 to approximately 750 workers. The yard is also currently building four large offshore supply vessels and a 281-ft. (86-m) U.S. Navy SWATH ocean surveillance ship.

According to **Mr. Dane**, the Halter/TDI association was planned at an ideal time to capitalize on three new TDI jack-up designs and other existing designs TDI can build through licensing agreements.

TDI is marketing new construction of purpose-built production units such as tension leg platforms (TLPs), SPARS and other mobile offshore production units.

For more information on Halter Marine
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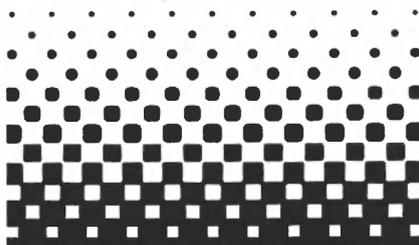
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COMPANY & PEOPLE NEWS

McDonald Resigns From St. Lawrence Seaway Administration Post

U.S. Secretary of Transportation **Rodney Slater** announced in early April that **Gail C. McDonald** will resign from her post as administrator of the St. Lawrence Seaway Development Corp. effective May 1. According to statements released by the DOT to press members, Ms. **McDonald** is retiring after 15 months at her post "to pursue other interests." She is a former commissioner and chairwoman of the Interstate Commerce Commission.

Herberger To Retire

Maritime Administrator Radm. **Albert Herberger** will retire from his post on July 1, after 40 years of service to MarAd and the U.S. Navy.

"Serving under President **Clinton** has been an honor and a privilege. Under his leadership, the American shipbuilding industry is once again building ships both for American owners, and, for the first time in many years, for export. The new Maritime Security Program is in place, ensuring that American flag ships will continue to serve America's commercial and

defense needs," said Radm. **Herberger**.

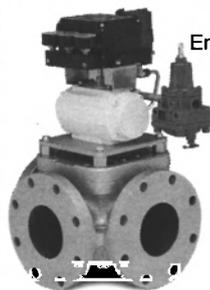
Secretary of Transportation **Rodney Slater** commended the MarAd administrator for his service. "**Al Herberger** made important contributions to the United States in his service with MarAd. He set a course that will help guide the American maritime industry, the department and the nation well into the 21st century."

IMO Launches Safety Campaign In Caribbean

On March 10, the International Maritime Organization (IMO) launched a new public awareness campaign to protect the waters of the Caribbean Sea and Gulf of Mexico from pollution. The campaign aims to bring into effect "Special Area" status under an international treaty to afford the waters of the wider Caribbean protection from pollution caused by ships.

The campaign — being developed by the Center for Marine Conservation under contract from IMO — resulted from a request submitted by countries in the wider Caribbean to IMO in 1993 to designate such a status under Annex V of the MARPOL treaty. The wider Caribbean joins only seven other water bodies in world designated under "Special Area" protection. Once the designation takes effect, any vessel transiting the area will be prohibited from discharging any garbage into the sea other than ground food waste.

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Cruise Industry and USCG Join In Quality Partnership

On March 12, the International Council of Cruise Lines (ICCL) announced that it had entered into a new quality partnership with the U.S. Coast Guard (USCG) to further enhance communications and relations between the agency and the industry. According to the agreement, ICCL and USCG will establish a joint Partnership Action Team (PAT) consisting of both industry and government representatives at the highest levels of leadership, which will coordinate all partnership efforts. "The partnership will create a forum for continued dialogue on our common goals of promoting passenger safety, security and environmental protection," said ICCL President **Cynthia Colenda**.

New Remote Intervention Company Formed

Canyon Offshore Inc., a newly formed remote intervention company based in Houston, officially opened for business in March. The company provides ROVs and remote systems engineering to clients primarily in the Gulf in

Nichols Brothers Delivers Second Crowley Tractor Tug

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The acquisition of Texas Drydock, Inc. (TDI) by the Halter Marine Group, Inc. has bolstered TDI's new rig construction and repair and conversion capabilities, giving TDI's six southeast Texas shipyards access to Halter's 11 new construction and repair shipyards.

"This new relationship combines Halter's strengths and experience in new vessel construction with TDI's experience and capabilities in offshore rig and moveable production unit design, construction, conversion and repair. It will speed TDI's deliveries because most of Halter's shipyards can fabricate components for final assembly at any of TDI's yards and at Halter's new Pascagoula, Mississippi, shipyard," said **John Dane III**, chairman, president and CEO of Halter Marine Group.

Halter-Pascagoula is completing the first phase of a \$20 million expansion program which includes the following: construction of a new plate preparation building with automated sand blasting and painting; a new fabrication building with plasma arc numerically controlled cutters; new cranes and other lift equipment; an upgraded pipe shop; and new launch ways. In addition, a second phase, pending new business, will include approximately 2,000 ft. of bulkheading and additional fabrication facilities to allow an employment increase from its current complement of 400 to approximately 750 workers. The yard is also currently building four large offshore supply vessels and a 281-ft. (86-m) U.S. Navy SWATH ocean surveillance ship.

According to Mr. Dane, the Halter/TDI association was planned at an ideal time to capitalize on three new TDI jack-up designs and other existing designs TDI can build through licensing agreements.

TDI is marketing new construction of purpose-built production units such as tension leg platforms (TLPs), SPARS and other mobile offshore production units.

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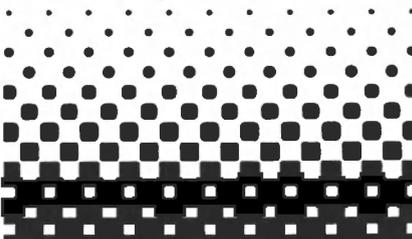
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Caterpillar engine powers pumps. The tugs employ ABS FFV Class 1 firefighting systems which include two water/foam monitors and two pumps providing 6,600 gpm each.

Current Nichols Brothers projects include a 107-ft. (33-m) catamaran for Alaska Dive Boat, Inc., to be used in the Fiji islands; an 82-ft. (25 m) dive boat for Orion Star Corporation; and repowering

and extensive conversion of 185-ft. (56.4 m) fishing vessel *Alaska Command*.

Hitachi Zosen Completes Bulk Carrier Order; Receives Engine Order

Oinoussian Legend, a 71,685-dwt bulk carrier ordered by Nissho

Iwai Corp., has been completed at Hitachi Zosen's Maizuru Works. The Panamanian-flagged vessel was delivered to its owner on March 26. This is the 85th Hitachi Panamax and the seventh Hitachi Panamax Optima vessel. *Oinoussian Legend* is equipped with an energy-efficient Hitachi Zosen MAN B&W 6S60MC-type main diesel engine and the Hitachi Zosen Super Stream Duct (SSD) at its stern.

In addition, Hitachi Zosen has received an order for three marine diesel engines from Odense Steel Shipyard Ltd. The engines are of the same type — MAN B&W 12K90MC — as the three ordered by Odense in February 1996. The diesel engines will be manufactured at the new machinery shop at the Ariake Works for installation on 6,000-TEU A.P. Moller container vessels.

The Ariake Machinery Works was scheduled to partially begin operation last month, and will be in full operation in October. Hitachi Zosen will deliver six sets of these marine diesel engines to Odense Steel by 1999.

Oinoussian Legend specifications

Length o.a.	705 ft. (215 m)
Breadth	106 ft. (32.2 m)
Depth61 ft. (18.6 m)
Gross tonnage	37,808
DWT	71,685
Main engine	Hitachi Zosen MAN-B&W 6S60MC
Speed	16.5 knots

For more information on Hitachi Zosen
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Nautronix Receives DP Award From Oceaneering

Nautronix, Inc. has been awarded a contract from Oceaneering to supply *Ocean Project* with an Automatic Station Keeping ASK4000 and joystick backup system. *Ocean Project* is suited for multi-service support and umbilical lay, as well as deepwater field development projects. Featured in this system is a dual redundant computer configured for immediate activation of retaining joystick control in case of main computer failure.

For more information on
Nautronix, Inc.
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McDonald Resigns From St. Lawrence Seaway Administration Post

U.S. Secretary of Transportation **Rodney Slater** announced in early April that **Gail C. McDonald** will resign from her post as administrator of the St. Lawrence Seaway Development Corp. effective May 1. According to statements released by the DOT to press members, Ms. **McDonald** is retiring after 15 months at her post "to pursue other interests." She is a former commissioner and chairwoman of the Interstate Commerce Commission.

Herberger To Retire

Maritime Administrator Radm. **Albert Herberger** will retire from his post on July 1, after 40 years of service to MarAd and the U.S. Navy.

"Serving under President **Clinton** has been an honor and a privilege. Under his leadership, the American shipbuilding industry is once again building ships both for American owners, and, for the first time in many years, for export. The new Maritime Security Program is in place, ensuring that American flag ships will continue to serve America's commercial and

defense needs," said Radm. **Herberger**.

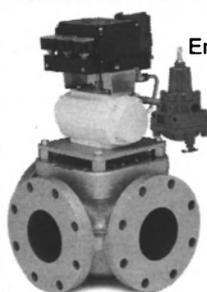
Secretary of Transportation **Rodney Slater** commended the MarAd administrator for his service. "**Al Herberger** made important contributions to the United States in his service with MarAd. He set a course that will help guide the American maritime industry, the department and the nation well into the 21st century."

IMO Launches Safety Campaign In Caribbean

On March 10, the International Maritime Organization (IMO) launched a new public awareness campaign to protect the waters of the Caribbean Sea and Gulf of Mexico from pollution. The campaign aims to bring into effect "Special Area" status under an international treaty to afford the waters of the wider Caribbean protection from pollution caused by ships.

The campaign — being developed by the Center for Marine Conservation under contract from IMO — resulted from a request submitted by countries in the wider Caribbean to IMO in 1993 to designate such a status under Annex V of the MARPOL treaty. The wider Caribbean joins only seven other water bodies in world designated under "Special Area" protection. Once the designation takes effect, any vessel transiting the area will be prohibited from discharging any garbage into the sea other than ground food waste.

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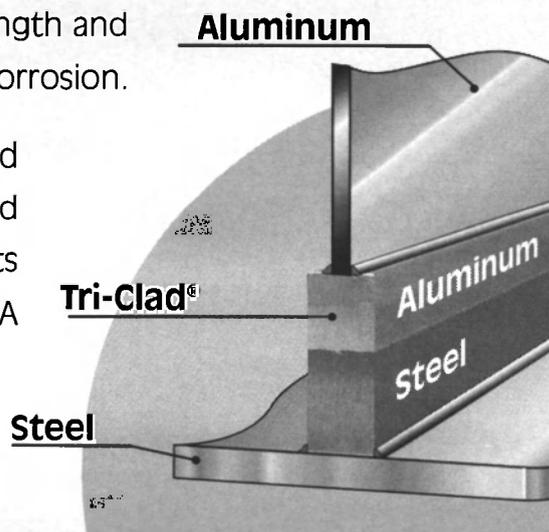
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Cruise Industry and USCG Join In Quality Partnership

On March 12, the International Council of Cruise Lines (ICCL) announced that it had entered into a new quality partnership with the U.S. Coast Guard (USCG) to further enhance communications and relations between the agency and the industry. According to the agreement, ICCL and USCG will establish a joint Partnership Action Team (PAT) consisting of both industry and government representatives at the highest levels of leadership, which will coordinate all partnership efforts. "The partnership will create a forum for continued dialogue on our common goals of promoting passenger safety, security and environmental protection," said ICCL President **Cynthia Colenda**.

New Remote Intervention Company Formed

Canyon Offshore Inc., a newly formed remote intervention company based in Houston, officially opened for business in March. The company provides ROVs and remote systems engineering to clients primarily in the Gulf of Mexico. The company specializes in providing

ROV services on a call-out basis, and remote intervention support to companies involved in all phases of deepwater exploration, drilling, construction and production.

The principals of the company, which include **John Edwards**, **Martin O'Carroll** and **Cliff Chamblee**, reportedly have more than 40 years of collective international remote intervention experience.

The company will take delivery of two advanced remotely operated Triton XL work systems this summer, both depth-rated to more than 6,000 ft. (1,829 m).

Halter Marine Elects New Board Members

Halter Marine Group, Inc. has elected **Angus H. Cooper II**, **Burt H. Keenan** and **Daniel J. Mortimer** to its board of directors. Mr. **Cooper** is chairman and CEO of Alabama stevedoring company Cooper/T. Smith Corp. Mr. **Keenan** holds the same offices for Independent Energy Holdings, which develops and markets electricity in the U.K. Mr. **Mortimer** is president of Gulf Coast Industries, Inc., a holding company with interests in investments, real estate, equipment, industrial development and light manufacturing. These new officers succeed four officers of Trinity Industries, Inc. who resigned after Halter broke from Trinity.

Walz & Krenzer Elects New President

Walz & Krenzer announced that **Victor W. Bethge** has retired as president of the company and that **Steven C. Shepstone** has been named as his successor. Mr. **Bethge** has been with the company, which supplies a range of custom watertight closures, since 1953, and has served in his current capacity since 1987. Mr. **Shepstone**, who has been employed by the company since 1977, was promoted from the position of vice president, Engineering.

Tidewater Naval Architects Names General Manager

David S. Chapman has been appointed general manager of Tidewater Naval Architects, Inc., Portsmouth, Va. He has joined the firm from the Delaware River and Bay Authority. In the past he has also been employed by JJ Henry Co. and Newport News Shipbuilding.



David S. Chapman

Rosenblatt Names New Design Manager

Naval architecture and marine engineering firm M. Rosenblatt & Son, Inc. has promoted **Richard C. Rodi** to Basic Ship Design manager in the company's New York office. Prior to joining the firm in 1995, Mr. **Rodi** held positions at George C. Sharp, Inc. and ABS.

The Basic Ship Design section performs transportation analyses and ship design studies from the conceptual stage through design contract.



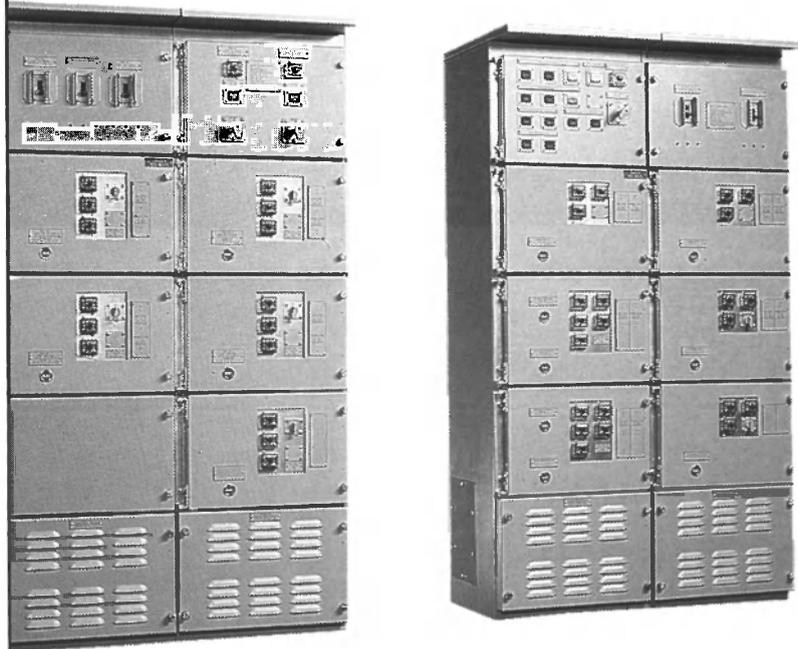
Richard C. Rodi

Avondale Manager To Retire

Kenneth Cantrelle, administrative manager for Advanced Programs & Marketing for Avondale Shipyards Division, has announced his retirement. After more than 30 years of service to Avondale, Mr. **Cantrelle** will officially take leave of the company on June 1.

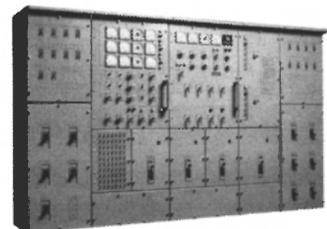
Office Manager **Ralph Scheeler**, a 12-year Avondale veteran, will

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COMPANY & PEOPLE NEWS

take over Mr. **Cantrelle's** responsibilities immediately following his retirement.

Delta T Systems Moves To New Facility

Delta T Systems recently moved to a new facility in Jupiter, Fla., to accommodate its increasing growth. The company designs and manufactures marine engine room ventilation systems, and will now reportedly perform most of its manufacturing in-house, including the building of filters and assembly of fans. The new mailing address is: P.O. Box 9159, Jupiter, FL 33468-9159.

MAN B&W Opens Cyprus Office

MAN B&W Diesel has opened a representative office in Limassol, Cyprus. The general manager of the office is **Uffe Poulsen**, who has served numerous years at the company's Copenhagen head office. The aim of the new office is to increase the company's services both for customers based in Cyprus and for ships calling at Cyprian ports.

Aker Engineering Appoints New President

Knut Eriksen has been named president of Houston-based Aker Engineering, Inc. He has held various management positions with several Aker Maritime companies in the U.S. and in

Norway, and his previous experience includes positions with Earl & Wright Consulting Engineers and Morrison-Knudsen Co., Inc.

The company specializes in floating production systems and subsea systems engineering.

MMS Names Logan Operations VP

Marine Management Systems, Inc. (MMS) has named **Don Logan** vice president of Operations, heading up the company's newly established Client Operations Division. He previously served as vice president of Marketing and Sales.



Don Logan

"With our continuing expansion, we had a need for more centralized and structured support of our customer operations. Over **Don's** 17 years at MMS, he has developed a comprehensive knowledge of the industry in general, and MMS' clients in specific. That makes him ideal for heading up this new division," said MMS President **Gene Story**.

In other company news, MMS recently forged an alliance with ABS, integrating MMS' software application FleetWORKS with ABS' new SafeNet system.

Wyatt To Step Down As Coastal Chairman

Oscar S. Wyatt, Jr., founder of The Coastal

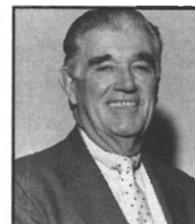
Corp., announced on March 25 that he will step down as chairman of the board on July 17, but will remain on the company board and continue as chairman of the Executive Committee. The board reportedly accepted his recommendation that Coastal President and CEO **David A. Arledge** assume the additional role of chairman.

"At this particular stage of Coastal's growth and expansion, I think it is incumbent on me to make room for the advancement of younger executives," said Mr. **Wyatt** in a press release circulated to the media.

The company also announced that **Jonathan W. Cook**, **George E. McCarthy III** and **William C. Riley** have been named assistant vice presidents.

ISC Executive, Former FMC Commissioner To Retire

International Shipholding Corp. (ISC) has announced that **George H. Hearn**, executive vice president of ISC subsidiary Waterman Steamship Corp. and vice president of ISC, will retire effective June 30.



George Hearn

Mr. **Hearn** was appointed to Federal Maritime Commission (FMC) in 1964 by President **Lyndon Johnson** after serving in the Navy in World War II, as a lawyer for a New York admiralty firm, on New York City Council, and as deputy general counsel to the Civil Aeronautics Board in Washington, D.C.

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Mr. **Hearn** resigned from the FMC in 1975 and was appointed maritime administrator for the government of the Sultanate of Oman. He was hired at Waterman in 1982 and was elected to his current position in 1986. Upon his retirement he will serve as an ISC consultant.

V. Ships Adds Branch Office

V. Ships Marine Ltd., based in Mineola, N.Y., will add a branch to its U.S. operations in Miami, Fla. The company is a full-service international marine transportation management and operations organization. The company provides planning and development, new construction, engineering, budget preparation, maintenance and repair, supervision and development of vessel personnel on behalf of private owners and conglomerates operating a wide range of seagoing vessels.

Safmarine Division Opens U.S. Office

SafBulk of Cape Town, South Africa, a division of Safmarine International, has opened a representative office in Iselin, N.J. **Claus Burwik** has joined SafBulk USA as a vice president and will expand the company's current bulk chartering activities in the country.

Blue Star Promotes Cole

Tim Cole has been named assistant vice president, Sales, for Blue Star Line's (BSL's) western region. He joined the company in 1991 and had more than 20 years of experience in the transportation industry.



Tim Cole

BSL specializes in shipping refrigerated cargo, and also handles dry, breakbulk and heavy lift shipments between North America, Australia, New Zealand and the Pacific Islands.

O'Gara Satellite Hires Thompson

O'Gara Satellite Networks (OSN) has appointed **Adam Thompson** as sales manager for Consumer Products. He will focus on U.S. sales of satellite communications products, particularly the Compact-M phone, and will further develop the company's business following the The O'Gara Company's February acquisition of Next Destination Ltd., a worldwide satellite distribution company based in the U.K.



Adam Thompson

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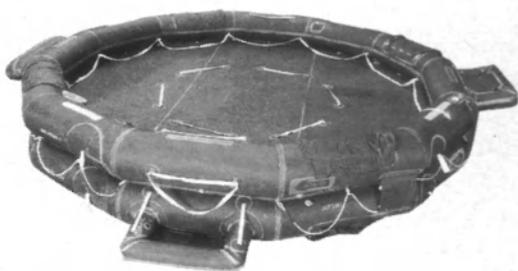
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COMPANY & PEOPLE NEWS

COMPANY PROFILE

Composite Construction Materials Help Make Ships Stronger, Lighter

Metalleido of Italy offers a full range of composite panels under the Mitlight name. The company's panels fulfill all IMO codes for high speed craft (HSC) requirements for "fire restricting material," and are reportedly certified by Det Norske Veritas, Registro Italiano Navale and Bureau Veritas.

The company has supplied the panels for many high-profile fast ferry projects, including Fincantieri's MDV 1200 *Pegasus One* and *Pegasus Two*, as well as for *SuperSeaCat*, being built for Seacontainer. The company has started to supply its technologically advanced paneling solution for MDV 3000 *Jupiter*, and it is currently in negotiations to supply materials for *Pegasus Three* as well as the next *SuperSeaCat*.

The patented Metalleido process is said to deliver a product which should be considered valuable to both shipbuilders and owners alike, because it is lightweight, high strength, and competitively priced. In addition, Mitlight products are designed for high delamination resistance and with high fire

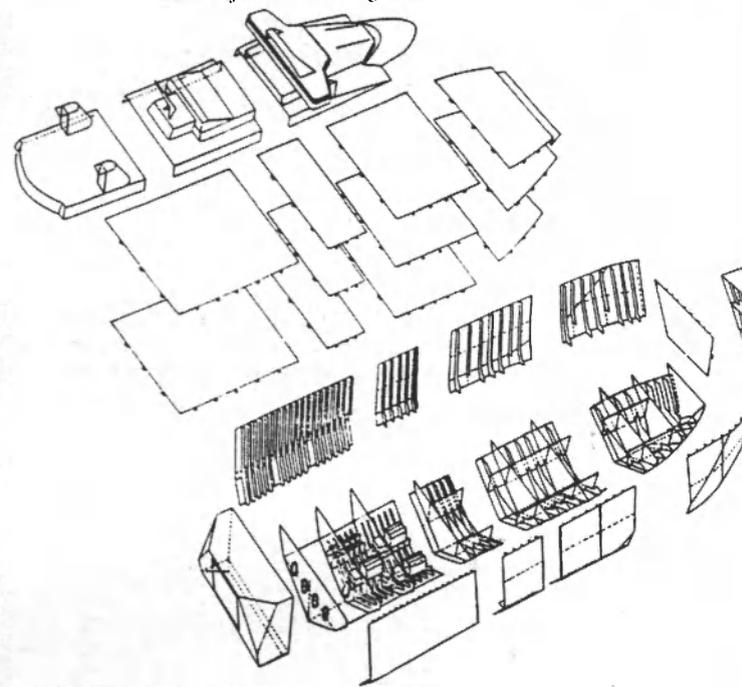
smoke toxicity properties. Mitlight panels in 3-D fabric, phenol foam are available in structural or decorative skins. They are available in sizes ranging from 1,220 x 2,440 mm to 1,450 x 3,100 mm, and different thickness values ranging between two and 30 mm.

The production process allows Metalleido to manufacture flat or partially curved structures. While the company has enjoyed success and market penetration in Italy, it is concentrating its efforts on entering the HSC markets in Australia, Europe, Japan and the U.S.

For more information from Metalleido

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Modular construction of MDV 1200 *Pegasus*



Metalleido's composite panel production and delivery fit nicely into Fincantieri's modular construction plan devised for the MDV 1200 series of high speed craft.

W.R. "Bill" Tighe, Founder Of Willard Marine, Dies At 71

W.R. "Bill" Tighe, founder of Newport Beach, Calif.-based Willard Marine Inc., and a pioneer in the evolution of large-sized fiberglass boats, died of heart failure in March at the age of 71. He was active in his company until 1990 when he retired for health reasons.

Mr. Tighe worked on Ohio River vessels as a youth, served on U.S. Navy minesweepers during World War II, and after earning a college degree on the East Coast, moved to Southern California to begin a boating industry career.

In 1957, after working at the former South Coast Co. building minesweepers for the Korean War, he founded Willard Boat Works by building a series of Hugh Angleman-designed wooden ketches. This led to custom motoryacht construction, and in 1961, he developed the classic VEGA 36 series with

fiberglass materials, which was the beginning of the modern trawler yacht concept. Mr. Tighe's landmark project was 125-ft. (38.1-m) M/V *Silverado*, which was the forerunner of fiberglass megayacht construction. He also led his company into fiberglass boat construction for the U.S. government, and Willard has delivered almost 1,000 such craft.

Bender Shipbuilding Appoints Greek Representative

Bender Shipbuilding & Repair Co., Inc. has announced that T.J. Giavridis Marine Services Co. Ltd. will serve as its exclusive representative in Greece. This office will help drum up business for the company's core facility in Mobile, Ala., and for the recently formed Tampa Bay Shipbuilding & Repair Co., located in the Port of Tampa, Fla.

"We are elated to have a representative of the caliber and fine reputation as T.J.

Giavridis join our team. The Greek market is extremely important to Bender shipyards. Greek owned/controlled vessels represent a significant portion of our repair business, and we are always striving to attract additional Greek customers," said **Peter Maschke**, Bender manager of International Sales.

Pacific Maritime Association Office Relocates

The Northern California area office of the Pacific Maritime Association (PMA) has signed a 10-year lease for 9,729-sq-ft. of office space at 500 12th Street in Oakland's City Center. PMA, an employer association representing steamship operators, terminal operators and stevedores in Washington, Oregon and California, relocated in late March from Kaiser Center's Ordway Building in Oakland's Merritt business district. **Art Chu**, PMA Northern California assistant area manager, said a major factor in the decision to move was the desire to be closer to the Port of Oakland's maritime facilities.

Gibbs & Cox Names New Chair

Anthony P. Roman has retired from the position of chairman of the board at Gibbs & Cox, Inc., after serving in this capacity for six years. He will continue to serve in an advisory role as a consultant and member of the board of directors. **Theodore A. Tribolati** has been named to fill the position. He has been with Gibbs & Cox for 24 years, a tenure which commenced after employment at the New York Naval Shipyard, M. Rosenblatt & Son Designers and Planners.

SARS Named London Rep For Consulmar

Spanish ship agency Consulmar has appointed Shipping Agency Representation Services (SARS) as its London marketing representative. Consulmar was previously represented in the U.K. by Keith Jones, who has retired after 12 years. In addition to agency work for the tanker and bulker markets, Consulmar runs a 24-hour ren-

devous service operated by fast launches in the Straits of Gibraltar and Algeciras Bay.

Great White Fleet Resigns From CADA

Great White Fleet (GWF), an

independent carrier serving the U.S. to Central America trade route, announced that it has resigned from the Central American Discussion Agreement (CADA).

"In today's dynamic and increasingly complex environment of international trade, we felt it nec-

essary to ensure our organization is 100 percent focused on our customer's transportation requirements.

In our opinion, CADA was not serving the interests of GWF or our customers in what we felt was the most beneficial manner," said **Doug Clark**, GWF director of

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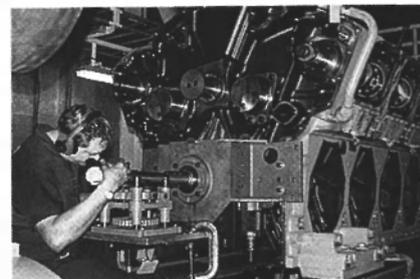
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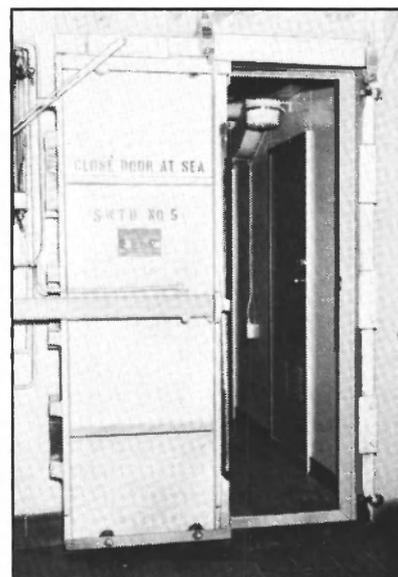
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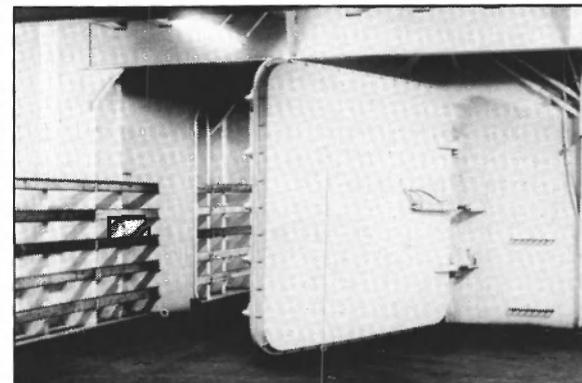
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COMPANY & PEOPLE NEWS

Transportation Services.

Unicon Promotes Calabro

Paul Calabro has been appointed chief operating officer and senior vice president of Unicon

International, a San Francisco-based company which provides global information driven solutions for the transportation and logistics industry.

He will oversee the daily activities of the company including customer relations, operations, mar-

keting and sales.

Krupp Fördertechnik Opens Singapore Office

Lübeck-based Krupp Fördertechnik GmbH opened a Far East

representative office in Singapore. The coordination of all Southeast Asian sales activities for dredgers, deck cranes and open pit mining equipment will be based here in the future.

Hughes Magnaphone Appoints Managers

Hughes Technical Services Co. (HTSC) has announced four new international sales manager appointments for its Magnaphone satellite communications products. **Mario Cid Fernandez** will serve as sales manager for North America; **Victor Vargas** has become sales manager for the Far East, Latin America and other Pacific Rim countries; and **Nate Winer** will serve as sales manager for Western Europe.

Fierstine Is New Business Development Director

Al Fierstine, former director of Marketing for the Port of Los Angeles, has been appointed to the newly created position of director of Business Development. He has been at the Port since 1984, and in his new capacity, will focus on developing and implementing strategic plans to attract more Port business to maximize the use of all

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facilities. The Port divisions of Marketing, Planning and Research and Property Management will report to him.

"I am very excited about this new opportunity," said Mr. Fierstine. "We are forging a team from three talented and experienced Port divisions for one specific purpose: to reassert the Port of Los Angeles' prominence among all U.S. ports."

Thermo King Combines Warehouses

Thermo King has opened a new warehouse in Hong Kong which is a combination of its Thermo King and Sabroe Reefer Cool Service Parts warehouses. The new Hong Kong warehouse is located at 10/F, 4-6 Kwai Tai Rd., Kwai Chung, N.T., Hong Kong.

Alpha Wire Names Schlessman VP

Paul M. Schlessman has been named vice president and general manager of Alpha Wire Co. in conjunction with the recently completed acquisition of the company by Belden, Inc. According to C. Baker Cunningham, Belden CEO, "Alpha Wire will operate as a separate division. We are committed to the further development of Alpha's existing position in the marketplace and Mr. Schlessman's experience will drive these efforts."

Alpha Wire supplies wire, cable and tubing to the marine industry.

Tracor Applied Sciences Names New VP

Larry Wise has been appointed to vice president of Contracts and Procurement for Tracor Applied Sciences, Inc., a subsidiary of defense electronics and information technology firm Tracor, Inc. Mr. Wise will serve as the company's government property administrator and small business liaison officer, and will work closely with line operations in the preparation of proposals, resultant negotiations and execution of contracts.

Italian Manufacturer Retains MDI

Larry N. Hairston, president of

Slidell, La.-based Marketing Development International (MDI) announced the signing of a marketing and sales agreement with Navalimpianti Group of Ceranesi, Italy. The company manufactures marine equipment, providing products and services for offshore, commercial and government shipbuild-

ing projects. MDI will market the company's products and services in the Gulf South region of the U.S.

Oronite Names Business Manager

Andy Tugendhat has been

named business manager, Americas, for the Oronite Additives Division of Chevron Chemical Co. With responsibility for product management, customer support programs and marketing, he serves as OEM technical liaison for all Oronite product lines in North and South America.

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CALENDAR

MAY

Offshore Technology Conference '97: May 5-8, Astrodome U.S.A. Complex, Houston, Texas.

Contact: Offshore Technology Conference, P.O. Box 833868, Richardson, Texas 75083-3868, tel: (214) 952-9494; fax: (214) 952-9435.

Managing A Non-Profit Center: May 6, University of Connecticut Avery Point Campus, Groton, CT.

Contact: Coastal Studies/UCONN Avery Point, tel: (860) 405-9026; e-mail: coastal@uconnvm.uconn.edu.

The Safe Operation of Tankers in Coastal Waters and Approaching Terminals: May 8-9, The Cavendish Conference Centre, Duchess Mews, London, U.K.

Contact: Jane Hill, Conference manager, The Institute of Petroleum, 61 New Cavendish St., London W1M 8AR, U.K., tel: +44 171 467 7100; fax: +44 171 255 1472.

The Seamen's Church Institute 3rd Annual Golf & Tennis Benefit Tournament: May 12, Maplewood Country Club, Maplewood, N.J. Contact: Patricia Carlson, International Seafarers' Center, tel: (201) 589-5828.

ASNE Midwest Section/Indianapolis Chapter Integrated Product Engineering Forum For Naval Ordnance and Electronics: May 13-15, Bloomington Indiana Convention Center, Bloomington, Ind.

Contact: Annette C. Verna, American Society of Naval Engineers (ASNE), 1452 Duke St., Alexandria, Va. 22314-3458; tel: (703) 836-6727; fax: (703) 836-7491.

Cruise + Ferry '97: May 13-15, Olympia 2, London, U.K.

Contact: BML Business Meetings Ltd., 2 Station Rd., Rickmansworth Herts WD3 1QP, U.K., tel: +44 1923 776363; fax: +44 1923 7777206.

Det Norske Veritas Oil Tanker Inspection Course: May 13-15, Stamford, CT.

Contact: Ruby Harrell, DNV Atlanta, tel: (800) 486-4524; fax: (770) 466-4318.

ODRA '97 (The Second Int'l Conference on Marine Technology): May 13-15, Pomeranian Princes' Castle, Szczecin, Poland.

Contact: Sue Owen, conference secretariat, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, U.K. SO40 7AA, tel: +44 1703 293 223; fax: +44 1703 292 853; e-mail: wit@witcmi.ac.uk.

1997 Transportation, Operations, Management And Economics Symposium: May 14-15, New York City.

Contact: Edward Lewandowski, chairman, SNAME Publicity Committee, tel: (201) 216-5312.

Super Yacht '97: May 15-17, Nice, France.

Contact: Nick Burleigh, Sales/Development manager, IIR Mediterranée, 75, rue Grimaldi - MC 98000, Principauté de Monaco, tel: +377 9310 4170; fax: +377 9310 4171.

Alumitech '97: May 20-23, INFORUM, Atlanta, Ga.

Contact: Nathan Read, The Aluminum



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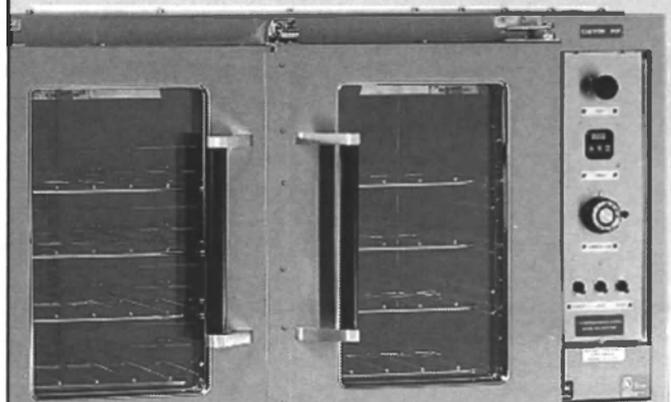
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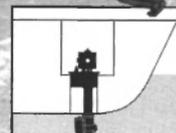
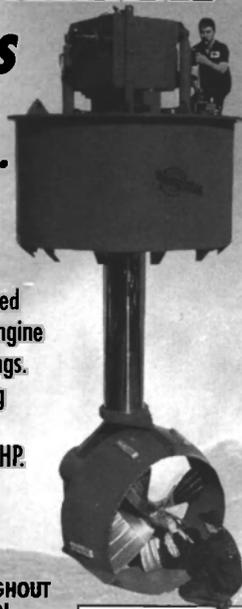
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Association, 900 19th St. NW, Ste. 300, Washington, D.C. 20006, tel: (202) 862-5134; fax: (202) 862-5164.

Det Norske Veritas Safety & Environmental Protection Principles: May 21-22, Tenafly, N.J. Contact: **Ruby Harrell**, DNV Atlanta, tel: (800) 486-4524; fax: (770) 466-4318.

AAPA's Facilities Engineering Seminar: May 21-23, Omni Waterside Hotel, Norfolk, Va. Contact: **Eileen Denne**, P.R. director, American Association of Port Authorities, 1010 Duke St., Alexandria, Va. 22314, tel: (703) 684-5700; fax: (703) 684-6321, e-mail: aapa@ix.net-com.com.

20th Annual Silver Bell Awards Dinner: May 22, The Winter Garden in the World Financial Center, N.Y., N.Y.

Contact: **Andrea Laine**, The Seamen's Church Institute, 241 Water St., N.Y., N.Y. 10038, tel: (212) 349-9090; fax: (212) 349-9090, ext. 243.

Det Norske Veritas Marine Accident/Incident Investigation Course: May 23, Tenafly, N.J. Contact: **Ruby Harrell**, DNV Atlanta, tel: (800) 486-4524; fax: (770) 466-4318.

JUNE

Turbo Expo '97- Land, Sea & Air- 42nd Gas Turbine & Aeroengine Congress: June 2-5, Convention Center, Orlando, Fla. Contact: ASME International, 345 E. 47th St., N.Y., N.Y. 10017-2392, tel: (404) 847-0072.

AUVSI '97 (Association For Unmanned Vehicle Systems International): June 2-6, Baltimore, Md.

Contact: **Daryl Davidson**, AUVSI executive director, 1200 19th St. NW, Ste. 300, Washington, D.C. 20036, tel: (202) 857-1889; fax: (202) 223-4579.

1997 BIMCO General Meeting: June 2-6, Istanbul.

Contact: **Tina Pedersen**, BIMCO, 161 Bagsvaerdvej, 2880 Bagsvaerd, Denmark, tel: +45 44 44 45 00; fax: +45 44 44 44 50; e-mail: mailbox@bimco.dk.

International Fastener and Precision Formed Parts Manufacturing Exposition: June 3-5, 1997, Rosemont Convention Center, Rosemont, Ill.

Contact: **Glenn Bischoff** or **Debbie Trawczynski**, IFE '97, 191 South Gary Ave., Carol Stream, Ill. 60188-2092, tel: (708) 260-9700; fax: (708) 260-0395.

Emergency Diesel Generator (EDG) Owner's Group Industry-Wide Conference: June 3-6, The Ambassador West Hotel, Chicago, Ill.

Contact: **Arthur G. Killinger**, MPR Associates, Inc., 320 King St., Alexandria, Va. 223-14-3238, tel: (703) 519-0200; fax: (703) 519-0224.

Det Norske Veritas STCW-95 Implementation Course: June 4, Tenafly, N.J.

Contact: **Ruby Harrell**, DNV Atlanta, tel: (800) 486-4524; fax: (770) 466-4318.

SNAME Joint Sections Meeting: Ferries and RoRo Cargo Ships: June 7-9, San Diego, Calif.

Contact: **Michael E. Dockter**, SNAME Publicity chairman, tel: (619) 336-4615; fax: (619) 336-4616.

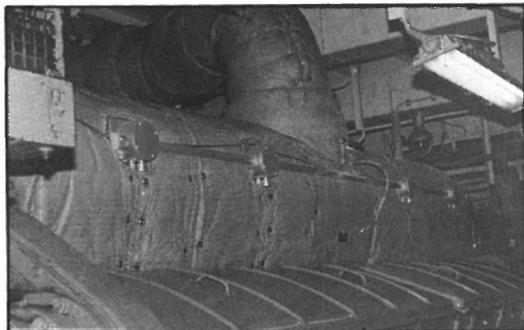
Det Norske Veritas ISM Course/Internal Auditor Course: June 9-10, Tenafly, N.J.

Contact: **Ruby Harrell**, DNV Atlanta, tel: (800) 486-4524; fax: (770) 466-4318.

Ship Finance Conference: June 24-26, N.Y., N.Y. Contact: **Carleen L. Kluss**, International Marketing Strategies, 28 Southfield Ave., Stamford, CT 06902, tel: (203) 406-010.



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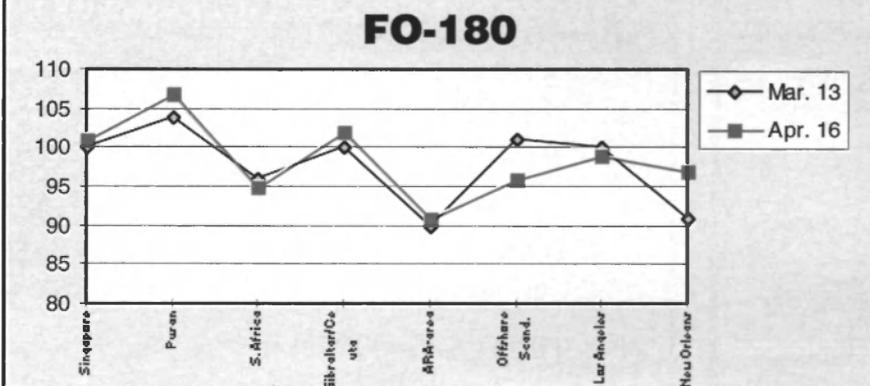
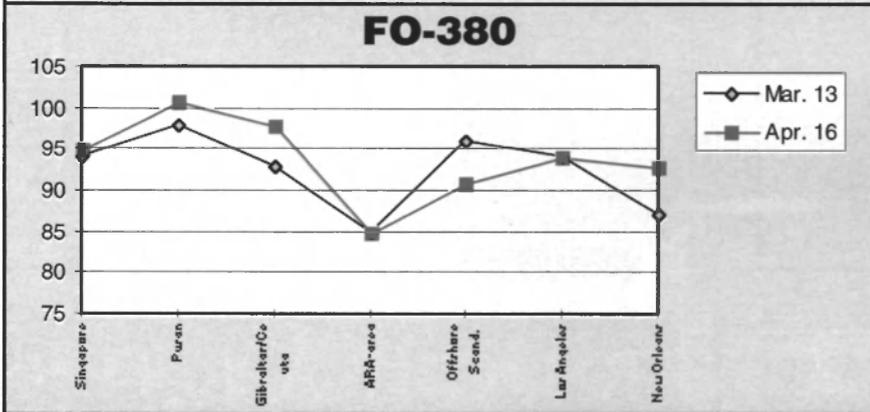
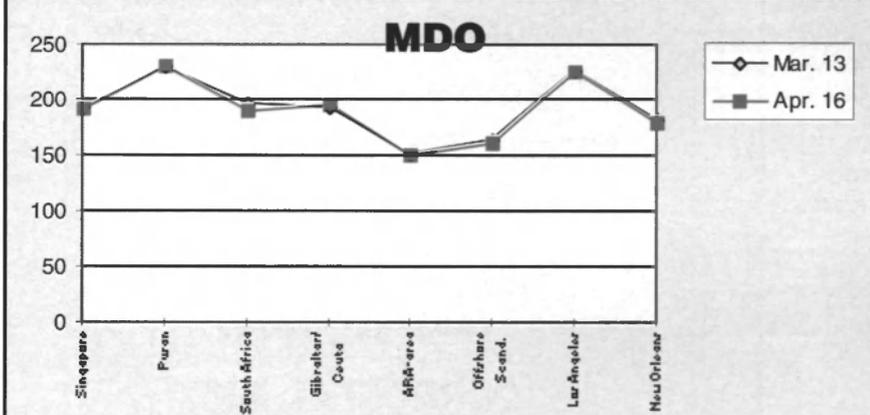
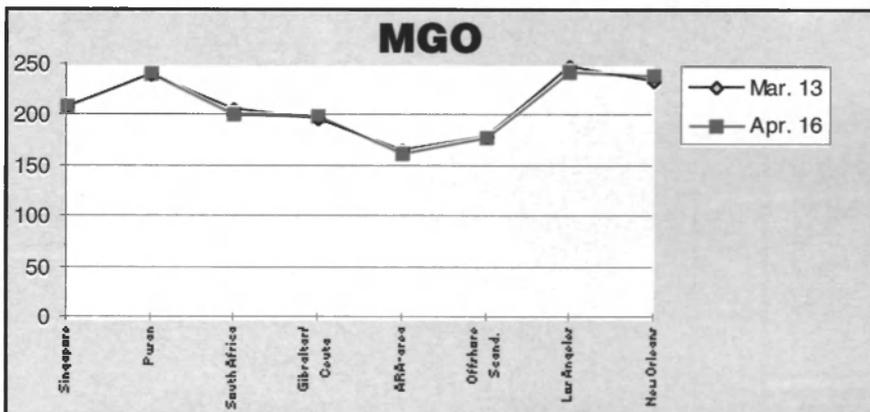
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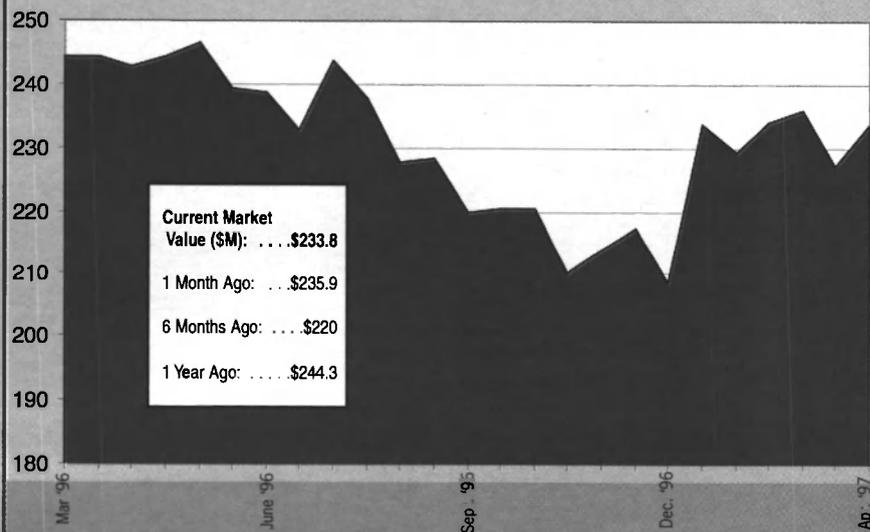
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Recent Ship Sales

This report, compiled by Shipping Intelligence, Inc., a New York maritime consulting firm, tracks sale prices of secondhand bulk carriers and tankers. For more information, call tel: (212) 997-0966.

Date Reported	Vessel Name	Vessel Type	DWT	Year Built	Sale Price (M)
3/7/97	Dongnama Inchon	Bulker	18,896	79	\$3.3
3/28/97	Fei Ying Ling	Bulker	20,300	86	\$5.1
3/28/97	Mar Grande	Bulker	21,339	84	\$7.8
3/7/97	Ken Sun	Bulker	22,245	80	\$3.8
3/28/97	Mile Kim	Bulker	23,508	84	\$8
3/28/97	Salinas	Bulker	23,532	85	\$8
3/7/97	Khudozhnik Kasiyan	Bulker	24,354	78	\$1.7
3/21/97	Japan Rainbow II	Bulker	27,877	90	\$13.3
3/14/97	Port Star	Bulker	27,881	90	\$12.8
3/21/97	Nea Tyhi	Bulker	28,648	78	\$5.5
3/14/97	World Argonaut	Bulker	37,451	77	\$3.4
3/21/97	Golden Wing	Bulker	42,248	89	\$16.1
3/14/97	Rubin Dover	Bulker	45,000	97	\$22.5
3/28/97	Schubert	Bulker	61,767	73	\$2.8
3/21/97	Oakby	Bulker	64,197	83	\$12.5
3/21/97	Borzesti	Bulker	64,860	82	\$5.5
3/21/97	Polar Star	Bulker	65,132	83	\$9
3/28/97	Deerpool	Bulker	65,163	82	\$10.3
3/28/97	Bacesti	Bulker	65,456	85	\$8.2
3/7/97	Rubin Prosper	Bulker	67,478	84	\$13.3
3/14/97	Mare Tirreno	Bulker	81,889	76	\$3.2
3/14/97	Pytchley	Bulker	109,488	80	\$7.9
3/28/97	Csk Brilliance	Bulker	134,176	81	\$11.6
3/14/97	Pierre L.D.	Bulker	163,000	92	\$27.6
3/7/97	East Princess	Tanker	1,700	96	\$4.8
3/7/97	Chembulk Trader	Tanker	9,013	89	\$13.5
3/21/97	Scarlet Star	Tanker	32,389	78	\$7.8
3/14/97	Dirk Jacob	Tanker	33,788	76	\$5.9
3/28/97	Flaminia	Tanker	63,774	85	\$19
3/14/97	Amersham	Tanker	81,281	81	\$11.5
3/7/97	Glory Central	Tanker	94,800	90	\$28
3/28/97	Nord-jahre Princess	Tanker	96,765	91	\$40
3/21/97	Sentosa Pride	Tanker	236,767	76	\$7

Index Fleet Valuation



The Index Fleet Valuation is representative of the resale market for Bulk Carriers and Tankers as a whole. The Index Fleet consists of 15 vessels, nine Bulk Carriers and six Tankers, of various sizes and ages. Fluctuations in the value of the world fleet are mirrored in the Index Fleet. This report, compiled by Shipping Intelligence, Inc., a New York maritime consulting firm, tracks sale prices of secondhand bulk carriers and tankers. For more information, call tel: (212) 997-0966.

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This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

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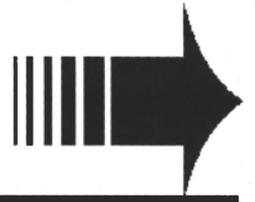
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Wooster Products Inc., 1000 Spruce St., P.O. Box 896, Wooster, OH 44691
GEAR REPAIR
Haley Marine Gears International, Inc., 2600 N. Concord Belle Chasse, LA 70037
GENERATOR
Alaska Diesel, 4420 14th Ave., NW, Seattle, WA 98107
HATCH COVER SEAL RENOVATION
Baywood Inc., 3841 Soundway, Bellingham, WA 982263
HEAT EXCHANGERS
Alfa-Laval Separation Inc., 955 Mearns Rd., Warminster, PA 18974
Beaird Industries Inc., P.O. Box 31115, Shreveport, LA 71130
Crane Heatex, 17 Grandview Ave., West Orange, NJ 07052
HOISTS
JD Neuhaus Corp., 2603 Rolling Rd., Gwynn Oak, MD 21207
HORNS/WHISTLES
Kahlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
HOSES
Apollo International, 78 Degraw St., Brooklyn, NY 11231
HYDRAULICS
Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken, NJ 07030
Engine Monitor, Inc., 179 Hickory Ave. Harahan, LA 70123
Hamilton Jet, P.O. Box 709, Christchurch, NEW ZEALAND
Ultra Hydraulics Limited, Cheltenham Road East, Gloucester, GL2 9QN, ENGLAND
INFORMATION TECHNOLOGIES
Marine Management Systems, 470 West Ave., Stamford, CT 06902
INSTRUMENTATION
Instruments East, Inc., 1037 West 45th St., Norfolk, VA 23508
INSULATION
Blohm & Voss Light Insulation, Bartels & Laders GmbH, Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Norderelbstrasse 1S, 20457 Hamburg GERMANY
Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501
Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123
INTERIORS
Custom Ship Interiors, Inc., P.O. Box 237, Lusby, MD 20657
Hopeman Brothers, 435 Essex Ave., Waynesboro, VA 22980
Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
TODCO, Inc., P.O. Box 1087, Marion, OH 43302
JOINER—Watertight Door—Paneling—Ceiling System—Decking
All Alpha Int'l., Inc. P.O. Box 498985, Cincinnati, OH 45249
Branton Ind., 1101 Edwards Ave., Jefferson, LA 70181
Commercial Products, 3924 Forest Drive, Ste. 11, Columbia, SC 29204-4148
CustomShip Interiors, Inc. P.O. Box 237, Lusby, MD 20657
Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123
Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Walz & Krenzer, Inc., 90 Forest Ave. Locust Valley N.Y. 11560
KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307
LIFEBOATS/RAFTS
American Eagle Mfg., Inc., 780 Pearle Jensen Way, LaConner, WA 98257
Dunlop Beaufort, 12351 Bridgeport Rd., Richmond, B.C. CANADA V6V1J4
Norsafe AS, P.O. Box 115, N-4818 Faerвик, Norway
Viking Life Saving Equipment, 1625 N. Miami Ave., Miami, FL 33136
Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666
LIFESAING EQUIPMENT
MGI International, 119-225 West 1st St., North Vancouver,

B.C. CANADA
Stearns Manufacturing, P.O. Box 1498, St. Cloud, MN 56302
LIGHTING SYSTEMS / EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247
Archway Marine, 4501 Swan Ave., St. Louis, MO 63110
Datrex Inc., P.O. Box 1150, Kinder, LA 70648
Goltin Marine, 160 Van Brunt St., Brooklyn, NY 11231
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
Pauluhn Electric Mfg. Co., Inc. 1616 N. Main, P.O. Box 53, Pearlant, TX 77581
Francis Searchlights/Stam Supply Co., 4415 6th N.W., Seattle, WA 98107
LIQUID LEVEL GAUGES
King Engineering Corp., P.O. Box 1228, Ann Arbor, MI 48106
LIQUID OVERFILL PROTECTION SYSTEMS
E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026
Metritape, Inc., 59 Porter Rd., Littleton, MA 01460
LOGISTICS
VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs, MS 39564
LUBRICANTS
Exxon Co. USA, 800 Bell St., Houston, TX 77002
Royal Lubricants, P.O. Box 518, East Hanover, NJ 07936
MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
Goltin Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
Maritime Power 200 Henderson St., Jersey City, NJ 07302
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Wallace Coast Machining, 1920 Waukegan Rd., Glenview, IL 60025
MARINE ACCOMMODATIONS
Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Ave., Boca Raton, FL 33431
MARINE CALIBRATION DEVICES
Hermont Marine, Inc., 3528 Griffith, St.-Laurent, QUEBEC CANADA H4T 1A7
MARINE CEILINGS
Hydro-Aluminium, Vik Verk, N-5880 VIK I SOGN, Norway
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501
MARINE DECKING
Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Selby, P.O. Box 1600, Sapulpa, OK 74067
MARINE DRILLING & BLASTING
Marine Drilling & Blasting, Inc., P.O. Box 10455, Jacksonville, FL 32247-0455
MARINE ELECTRONICS
Frank L. Beier Radio, 2001 Ridgeway Drive, Metairie, LA 70001
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
Saab Marine Electronics AB, Box 13045, 402 51 Goteborg, SWEDEN
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029
MARINE ELEVATORS
McElroy Machine, 1101 Lorraine Rd., Biloxi, MI 39535-4454
MARINE EQUIPMENT
Bohnet & Associates, 1150 Rule Rochelle, Sidell, VA 70458
McElroy Machine, P.O. Box 4454, Biloxi, MS 39535-4454
MARINE FINANCING
Safeco Credit Co. Inc. 4909 156th Ave. NE, Redmond, WA 98052
MARINE FIRE PROTECTION
Hiller Systems, 3710 Lakeside Court, Mobile, AL 36693
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Unitor Ship Service Inc., 2375 West Esther Street, Long Beach, CA 90813
MARINE FURNITURE
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave., Boca Raton, FL 33431
MARINE GEARS
The Falk Corp., PO Box 492, Milwaukee, WI 53201-0492
Haley Marine Gears, Inc. P.O. Box 689, Greenville, MS 38702
Marine Gears, P.O. Box 689, Greenville, MI 38701
MARINE INSURANCE
John G. Alden, 1300 SE 17th St., Fort Lauderdale, FL 33316
MARINE INTERIORS
Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Johnson Construction Specialties, Inc., 3420 Rusk P.O. Box 1360 Houston, Texas 77251
MARINE PUMPS
Gilkes Inc., P.O. Box 628, Seabrook, TX 77586
MARINE SURPLUS SALES
Defense Reutilization & Marketing Service, 2163 Airways Blvd., Memphis, TN 38114
MARITIME ARTWORK

Sarba Art Studio, 6 Ridge Drive, Old Saybrook, CT 06475
MOORING LINES
Phyllisran, Inc., 151 Commerce Drive, Montgomeryville, PA 18936-9628
MOTOR PROTECTION EQUIPMENT
Marine Safe Electronics, 37 Staffern Dr., Concord, Ontario L4K CANADA
NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202
Bay Engineering, 253 N. First Ave., Sturgeon Bay, WI 54235
Donald L. Blount, 2550 Ellsmere Ave., Ste. K, Norfolk, VA 23513
C. Baxter & Associates, P.O. Box 9006, Mobile, AL 36609
CDI Marine Co., 4040 Woodcock Dr., Suite 200, Jacksonville, FL 32207
Childs Engineering Corp., Box 333, Medfield, MA 02052
Crandall Dry Dock Engrs., Inc., P.O. Box 505804, Chelsea, MA 02150
Crane Consultants, 15301 First Ave S., Seattle WA 98148
C.R. Cushing, 18 Vesey St., New York, NY 10007
CT Marine, 56 Crooked Trail, Rowayton, CT 06853
Cunningham & Walker, 1762 Providence Hollow Lane, Jacksonville, FL 32223
Arthur D. Darden, 3200 Ridgeway Dr., Suite 403, Metairie LA 70002
DeJong & Lebet, Inc., 1734 Emerson Street, Jacksonville, FL 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, 2120 Washington Blvd. Ste.200, Arlington, VA 22204
Elliot Bay Design Group 5301 Shilshole Ave. N.W. Ste. 200, Seattle, WA 98107
Encon Mgmt. & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
GHM Inc. (Ind. Measurement Consultants), P.O. Box 1836, Newport News, VA 23601
Gibbs & Cox, Inc., 50 West 23rd St., New York, NY 10010
John W. Gilbert & Assoc., Inc., 199 State St., Boston, MA 02109
The Glosten Assoc. Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104
Guido Perla & Assoc., 720 3rd Ave., Ste. 1200, Seattle, WA 98104
Morris Guralnick Associates, Inc., 130 Sutter St., Ste. 400, San Francisco, CA 94104
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
JH Inc., 3412 Progress Dr., Bensalem, PA 19020
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
Kvaerner Masa Marine Inc., 201 Defense Highway, Suite 202, Annapolis, MD 21401
James S. Kroger, 799 Brickell Plaza Ste. 701, Miami, FL 33131
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
MCA Engineers, Inc., 2960 Airway Ave., #A-103, Costa Mesa, CA 92626
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
John J. McMullen Associates, Inc., 1 World Trade Ctr, Ste 3000, NY, NY 10048
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 225 E. 1st Ave., Roselle, NJ 07203
Marine Management Systems Inc., 470 West Ave., Stamford, CT 06902
Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109
Maritech, Seacraft, Bay Road, Newmarket, NH 03857
Maritime Design, inc., 3020 Hartley Rd., Jacksonville, FL 32257
R.J. Mellusi & Co., 71 Hudson St, New York, NY 10013
Nautical Designs, Inc. 2101 S. Andrews Ave, Suite 202, Ft Lauderdale FL 33316
Ocean Motions Co., P.O. Box 130, 49 Shore Drive, Barrington, RI 02806-0130
Olsen Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 620 Fulson St., Ste. 301, San Francisco, CA 94107
Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029
Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702
Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2001 N. Beauregard Street, Alexandria, VA 22311; 50 Vashell Way, Orlinda, CA 94563
George G. Sharp, Inc., 100 Church St., New York, NY 10007
R.A. Steam, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
A.K. Suda & Ass., 3004 19th St., Metairie, LA 70002-4989
TIMSCO, P. O. Box 91360, Mobile AL 36691
NAVIGATION & COMMUNICATIONS EQUIPMENT
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
ICS Electronics Ltd., Unit V, Rudford Industrial Estate, Ford, Arundel, West Sussex, UK
KVH Industries, Inc., 110 Enterprise Center, Middletown, RI 02842-5288
Mackay Communications, 300 Columbus Circle, Edison, NJ 08837
Negrin Marine Consultants, 840 Bond Street, Elizabeth, NJ 07201

Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017
Scandinavian Micro Systems P.O. Box 155, N-1411, Kolboten, NORWAY
Sea, Inc., 7030 220th S.W., Mountlake Terrace, WA 98043
Simrad, 19210 33rd Avenue West, Lynwood, WA 98036
Simrad Robertson, 10801 Hammerly, Suite 100, Houston, TX 77043-1923
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086
Waterway Communications System, Inc. 453 E. Park Pl., Jeffersonville, IN 47130
NOZZLE SYSTEM
Custom Nozzle Fabrication, P.O. Box 547, Pascagoula, MS 39568
Rice Propellers, Av Rios Espinoza #88, Mazatlan, MEXICO 82180
OIL—Marine—Additives—TESTING
Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
OIL CONTENT METERS/CALIBRATION
Hermont Marine, Inc., 3528 Griffith, St.-Laurent, QUEBEC CANADA H4T 1A7
OIL MIST DETECTORS
Hermont Marine, Inc., 3528 Griffith, St.-Laurent, QUEBEC CANADA H4T 1A7
OIL TANK CLEANING
Brain Industries Australia, Pty. Ltd., 21 Bearing Rd., Seven Hills, NSW 2147 AUSTRALIA
OIL/WATER SEPARATORS
Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974-0556
Blohm & Voss, U.S.A. Reps: Simplex-Turmar Inc., P.O. Box 168, Little Neck, NY 11363-0168
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Hamworthy Marine Inc., 1129 Hospital Dr. Ste 3C, Stockbridge, GA 30281
Hermont Marine, Inc., 3528 Griffith, St.-Laurent, QUEBEC CANADA H4T 1A7
MMC International, 60 Inip Dr, Inwood NY 11096
National Fluid Separators, 827 Hanley Industrial Ct., St. Louis, MO 63144
Nelson Industries, Highway 51 West, Stoughton, WI 53589
PAINT—COATING—CORROSION CONTROL
Ashland Chemical Co., Drew Marine Co., One Drew Plaza, Boonton, NJ 07005
Corroseal, Inc., 1045 12th Ave. NW-F5A, Issaquah, WA 98027
Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502
Ferro Corp., 1301 North Flora St., Plymouth, IN 46563
Jamestown Distrib., 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02835
Hempel Coatings, 6901 Cavalcade St., Houston, TX 77028
Microphor, Inc., Marine Div., 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490
Product Research Service, Inc. 229 Hwy 23, PO Box 159, Belle Chasse, LA 70037
Royal Chemical, 2705 Concord Road, Belle Chasse, LA 70037
Sigma Coatings, 8979 Market St., Houston, TX 77029, 330 Rover Rd., Harvey, LA 70059,
1100 Adams St., Hoboken, NJ 07030
TNO Institute of Industrial Technology, P.O.B. 3, 2600 AA Delft, Netherlands
Unitor Ship Services Inc., 2375 West Esther Street, Long Beach, CA 90813
PIPE FITTINGS/CUTTINGS/CONNECTING SYSTEMS
Georg Fischer DISA Pipe Tools Division, 407 Hadley St., Holly, MI 48442
Lokring Corp., 396 Hatch Drive, Foster City, CA 94404
POLLUTION CONTROL/ PRODUCTS/MARINE SERVICES
Oil Mop, Inc., 221 Rue De Jean, Lafayette, LA 70508
PREDICTIVE MAINTENANCE
Predict/DLI, 253 Winslow Way West, Bainbridge Island, WA 98110
PROPELLERS
Associated Marine Technologies, 4016 Seaboard St., Portsmouth, VA 23701
Rice Propellers, Av. Rios Espinoza #88, Mazatlan, MEXICO 82180
Rolla SP Propellers SA, P.O. Box 251, Via Silva 5, 6828 Balerna, SWITZERLAND
S&S Propellers, 26-15 123rd St., Flushing, N.Y. 11354
Sound Propeller, 1608 Fairview Avenue E., Seattle, WA 98102
PROPULSION EQUIPMENT
—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Avondale Industries, Harvey Quick Repair, P.O. Box 116, Harvey, LA 70058
American Air Filter, P.O. Box 35690, Louisville, KY 40432
ABB Drives Inc., P.O. Box 372, Milwaukee, WI 53201-0372, USA
ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND
ABB TURBOCHARGER, INC., 1460 Livingston Avenue, N. Brunswick, NJ 08902
Aquamaster-Rauma Ltd., Box 220, SF-26101, Rauma, FINLAND
Aquamaster-Rauma Inc., 2315 North Woodlawn Ave., Ste. 103, Metarie, LA 70001
Brunvoll A/S, P.O. Box 370, N-6401, Molde, Norway
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
The Falk Corp., PO Box 492, Milwaukee, WI 53201-0492
Fincantieri, Diesel Engines Div—GMT, Bagnoli della Rosandra 334, Trieste, ITALY

GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420
GEC ALSTHOM Diesels Inc., 10801 Kempwood Dr. Ste 1, Houston, TX 77043-1412
Goltens Worldwide, 160 VanBrunt St., Brooklyn, NY 11231
Harbormaster Marine Inc., 31777 Industrial Rd., Livonia, MI 48150
Holset Engineering, Inc., 1320 Kemper Meadow, Ste. 500, Cincinnati, OH 45240
In-Place Machining Co., Inc. 1929 North Buffum Street, Milwaukee, WI 53212-3793
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Krupp Mak, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9
LIPS B.V., P.O. Box 6, 5150 BB Drunen, The Netherlands
Lohmann & Stolterfoht, P.O. Box 1860, D-58408 Witten, Germany
Lo-Rez Vibration Control, 186 West 8th Ave., Vancouver, BC CANADA, V5Y 1N2
Mapeco Products Inc., 90 Forest Ave., Locust Valley, N.Y. 11560
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY
MAN B&W Diesel, 17 State St., New York, NY 10004
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Høleby, DENMARK
MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15. DK-9900 Frederikshavn, DENMARK
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-86153 Augsburg 1 GERMANY
Ornithruster, Inc., 743 N. Main St., Orange, CA 92668
Orion Corp., 1111 Cedar Creek Rd., Grafton, WI 53024
Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND
Philadelphia Gear 181 South Gulf Rd., King of Prussia, PA 19406
Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND
S&S Propellers, 26-15 123rd St., Flushing, N.Y. 11354
Karl Senner Inc., 25 W Third, Kenner LA 70062
Schottel-Werft, Manizer Strasse 99, D-56322 Spay/Rhein, GERMANY
Schottel North America, Inc., 1505 Corbin Ave., Hammond, LA 70403
Siemens Electric Ltd., 1180 Courtneypark Rd., Mississauga, ONTARIO
Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008
Thrustmaster of Texas, P.O. Box 840189-12227 IFM 529, Houston, TX 77284-0189
Ulstein Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY
Ultra Hydraulics Limited, Cheltenham Road East, Gloucester, GL2 9QN, ENGLAND
Voith Hydro Marine Technology, P.O.B. 1125, D89509, Heidenheim, GERMANY
U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021

PUMP—Repair—Drives
Gilkes, Inc., PO Box 628, Seabrook, TX 77586
Hamworthy Marine, Inc., 1129 Hospital Dr. Ste 3C, Stockbridge, GA 30281
Vita Motivator, 566 Parker St., Newark, NJ 07104

RADARS —ARPA
Furuno USA, Inc., 271 Harbor Way, S. San Francisco, CA 94080
Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017

REFRIGERATION EQUIPMENT/SERVICES
Adrick Marine, 141D, Central Ave., Farmingdale, NY 11735
Ashland Chemical Co., Drew Marine Co., One Drew Plaza, Boonton, NJ 07005
RTF Mfg., RD #1 Route 66, Hudson, NY 12534
Unitor Ship Service Inc., 2375 West Esther Street, Long Beach, CA 90813

REMOTE VALVE OPERATORS
American United Marine Corp., 5 Broadway, Rt 1, Saugus, MA 01906
Elliott Manufacturing, P.O. Box 773, Binghamton, NY 13902

RIGID INFLATABLE BOATS
American Eagle, 780 E. Pearle Jensen Way, LaConner, WA 98257
Willard Marine, Inc. 1250 N. Grove St., Anaheim, CA 92806
Zodiac of N. America Thompson Creek, P.O. Box 400, Stevesville, MD 21666

ROPE—Manila—Nylon—Hawsers—Fibers
Allied Signal Inc., Fibers Division, 101 Columbia Rd, Morristown, NJ 07962
American Mfg. Co., 200 Southpark Rd., Lafayette, LA 70508-3609
Bayer AG, D-41538, Dormagen, GERMANY
Phillystran, Inc., 151 Commerce Drive, Montgomeryville, PA 18936-9628
Puget Sound Rope, 1012 Second St., Anacortes, WA 98221

RUDDER BUSHES
Vesco Plastics, P.O. Box 40647, Cleveland 2022, South Africa

SAFETY DECKING
SlipNot Safety Flooring, 2545 Beaufort St., Detroit, MI 48207
Datex, Inc., P.O. Box 1150, Kinder, LA 70648-1150

SAFETY LIGHTING
Datex, Inc., P.O. Box 1150, Kinder, LA 70648-1150

SALVAGE/SPILL RESPONSE
Donjon Marine, 1250 Liberty Ave., Hillside, NJ 07205

SANITATION DEVICE—Pollution Control
Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130
Exceltech International Corp., 1110 Industrial Blvd., Sugarland, TX 77478
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Headhunter Inc., 214 SW 21st Terrace, Fort Lauderdale, FL 33312
ITT Jabsco, 1485 Dale Way, Costa Mesa, CA 92626

Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Jered Brown Brothers, Inc., 1608 Newcastle St., Brunswick, GA 31521-0904
Research Products Blankenship, 2639 Andjon Dallas, TX 75220

SATELLITE COMMUNICATIONS
American Mobile Satellite Corp., 10802 Parkridge Blvd., Reston, VA 22091
Boatrac, Inc., 6440 Lusk Blvd. #D-201, San Diego, CA 92121-2758
Furuno USA, Inc., 271 Harbor Way, S. San Francisco, CA 94080
KVH Industries, Inc., 110 Enterprise Center, Middleton, R.I. 02842-5268
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27604-1851
Norwegian Telecom, Postboks 6701 St. Olavs Plass, N-0130, Oslo, Norway
PTT Telecom, Station 12, P.O. Box 30150-2500 JD The Hague, NETHERLANDS
Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017
Singapore Telecom, 15 Hill Street, Telephone House, 2nd Storey, Singapore 0617
Telstra Mobile Satellite & Radio Services, 79 St. Hilliers Rd., Auburn NSW 2144, AUSTRALIA
Westinghouse Wireless Solutions Co., 930 International Dr., Linthicum, MD 21090

SCALE MODELS
Markitect, PO Box 225, Oconomowoc, WI 53066
Scale Reproductions, 16346 County Road 13, Fairhope, AL 36532
Sturgeon Bay Model Shop, 187 N Ninth Ave., Sturgeon Bay WI 54235

SEALS
Blohm & Voss Industrie GmbH, P.O. Box 10 07 20, D-20457 Hamburg, GERMANY
U.S.A. Reps: Simplex-Turmar Inc, P.O. Box 168, Little Neck, NY 11363-0168
John Crane Marine, 1536 Barclay Blvd., Buffalo Grove, IL 60089

SHIP CERTIFICATION
American Bureau of Shipping, 2 World Trade Center, 106th Fl., New York, NY 10048

SHIP EQUIPMENT
Jered Brown Brothers Inc., 1608 Newcastle St., Brunswick, GA 31521-0904
Metric Systems Corp., 645 Anchors St., Ft. Walton Beach, FL 32548

SHIP LIFTS
Synchrolift Inc., Two Datan Center, 9130 S. Dadeland Blvd., Miami, FL 33156-7850

SHIP REPAIR
Goltens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231

SHIP VALUATION
Capt. E.S. Geary, P.O. Box 1246, Fajardo, Puerto Rico 00738

SHIPBOARD FURNITURE / SWITCHING SYSTEMS
Metric System Corp., 645 Anchors St., Ft. Walton Beach, FL 32548

SHIPBUILDING—Repairs, Maintenance, Drydocking
American Eagle Mfg., 780 Pearle Jensen Way, La Conner WA 98257
Amfels, Inc., P.O. Box 3107, Brownsville, TX 78523
Astilleros Espanoles, S.A. Ochandiano, 14-16 28023 El Plantio SPAIN
Atlantic Marine, Inc., P.O. Box 3202, Mobile, AL 36652
Atlantic Marine, Inc., 8500 Heckscher Dr., Jacksonville, FL 32226
Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150
Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601
Bisso Marine Co., P.O.Box 4113, New Orleans, LA 70178
Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250
Caridoc, P.O. Box 1147 Port Of Spain, Trinidad, W.I.
Chris-Marine AB, P.O. Box 9025, S-2000 39, Malmo, SWEDEN
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
Goltens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
Gulf Coast Fabrication, Inc., P.O. Box 539, Lakeshore, MS 39558
HDW, Kiel, Germany, USA Rep.; Roland Marine Inc., 90 Broad St., NY, NY 10004
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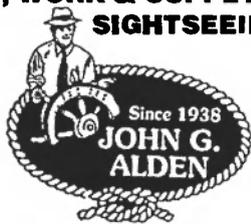
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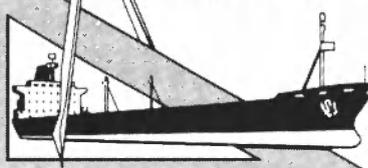
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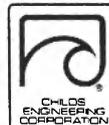
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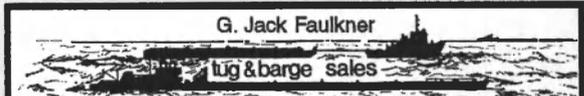
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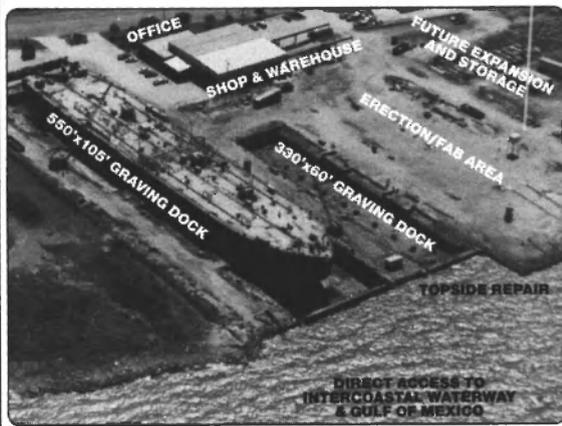
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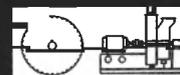
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Requirements: a Ph.D. in naval architecture or ocean engineering with concentration in hydrodynamic design and analysis of marine propulsors. Extensive experience in computation of marine lifting-surface flows using FORTRAN required, as is experience in use of Reynolds Averaged Navier-Stokes codes and associated grid-generation software. Must have experience with UNIX operating system and Laser Doppler Velocimetry (LDV) measurements in water tunnel experimentation. Experience with maintenance and repair of LDV systems and water tunnel components such as shafting, pumps, seals, and bearings required. Education must include study of applied mechanics, corrosion, propeller theory, and marine hydrodynamics. Excellent written and verbal communication skills required.

Position 97-0259 - seek individual to facilitate and participate in computational and experimental research in the Laboratory for Ship and Platform Flows. There will be extensive contact with numerical free surface hydrodynamics for ships, offshore platforms, and advanced marine vehicles with special emphasis on three-dimensional, nonlinear, time-domain simulations of wave resistance, local loads, and nonlinear structural loads for ships and slow drift motions for offshore platforms.

Requirements: a Ph.D. in naval architecture or marine hydrodynamics, post-doctoral research experience, and experience teaching and/or as a lecturer. Ability to assist in direction and education within laboratory required, as are excellent written and verbal communication skills.

Interested candidates should submit a resume and cover letter no later than May 15, referencing the appropriate position number, to: James McCarthy, MIT Personnel, PO Box 391229, Cambridge, MA 02139-0013.



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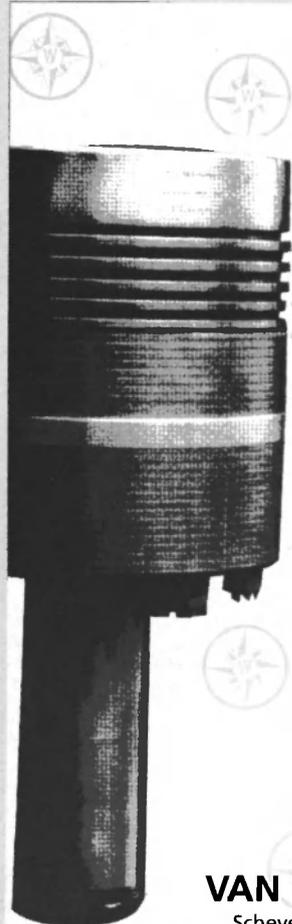
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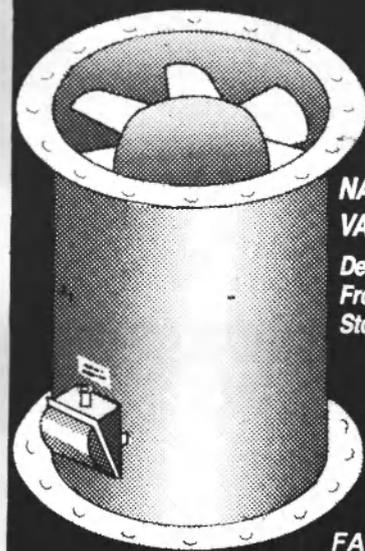
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