

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

WORKBOAT ANNUAL

CLEAN IT UP!
Maine spill calls
out resp

UNLOCK & LOAD
Two-piece tanker design **unveiled**

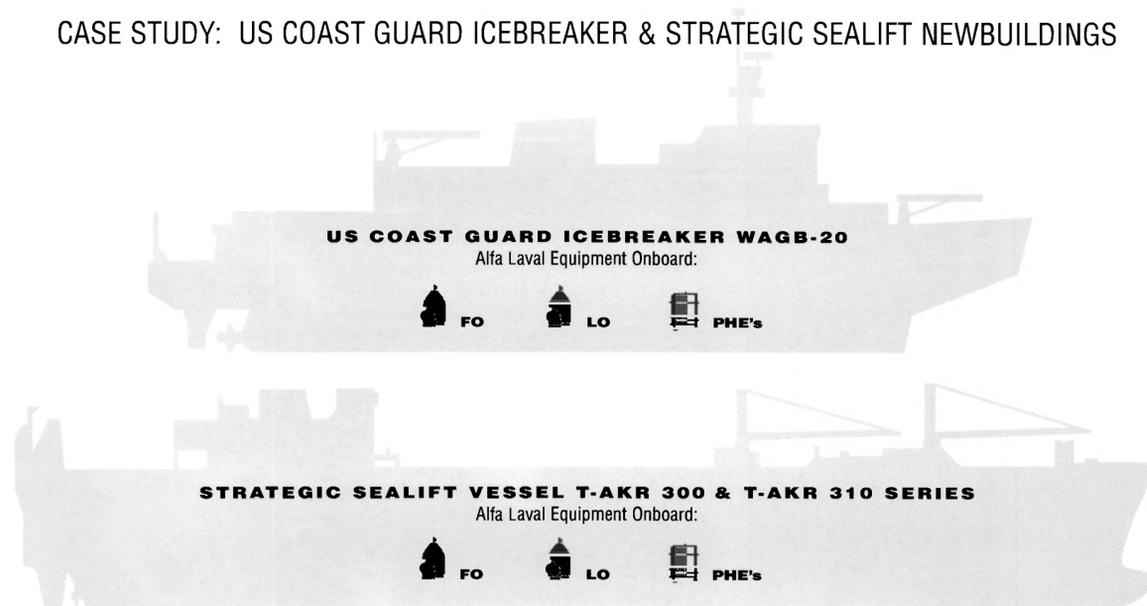
POWER PLAY(S)
New, improved engine designs introduced by
major manufacturers

OIL SPILL TECHNOLOGY • NAV/COM UPDATES • NEW SHIP ORDER STATISTICS • RECENT SHIP SALES

NOVEMBER 1996

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On The Cover

Pictured on this month's cover is *Z-Two*, the second of two 95-ft. (29-m), 4,400-hp multi-role tractor tugs under construction at Halter Marine. Built for Tugz International of Cleveland, *Z-Two* is slated for service in coastal and ocean operations, as well as on the Great Lakes. Designed by Jensen Maritime Consultants, the boat is powered by Caterpillar diesel engines driving Ulstein Z-Drives. Please refer to this month's Workboat coverage, beginning on page 52, for more on this new vessel type, as well as information on related developments from around the world.

30 EUROPEAN UPDATE

Ulstein delivers another of its UT 700 series offshore support vessels ... Two new platform supply vessels built in Scotland for Stirling Shipping enter service with Shell U.K. Exploration & Production. — by Carol Fulford & Andy Smith

52 WORKBOAT ANNUAL

The mood before the International Workboat Show is buoyant as Gulf of Mexico business and prospects remain hot. Catch up on some of the latest vessels to hit the waters here and abroad.

110 OIL SPILL TECHNOLOGY

The latest recovery effort in Portland, Maine, restores faith in the maritime industry. Striving to perfect technologies and create effective spill networks, the industry proves it can and will take responsibility for cleanup. — by Bridget Murphy, associate editor

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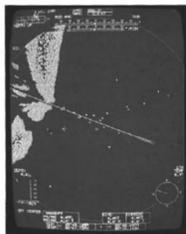
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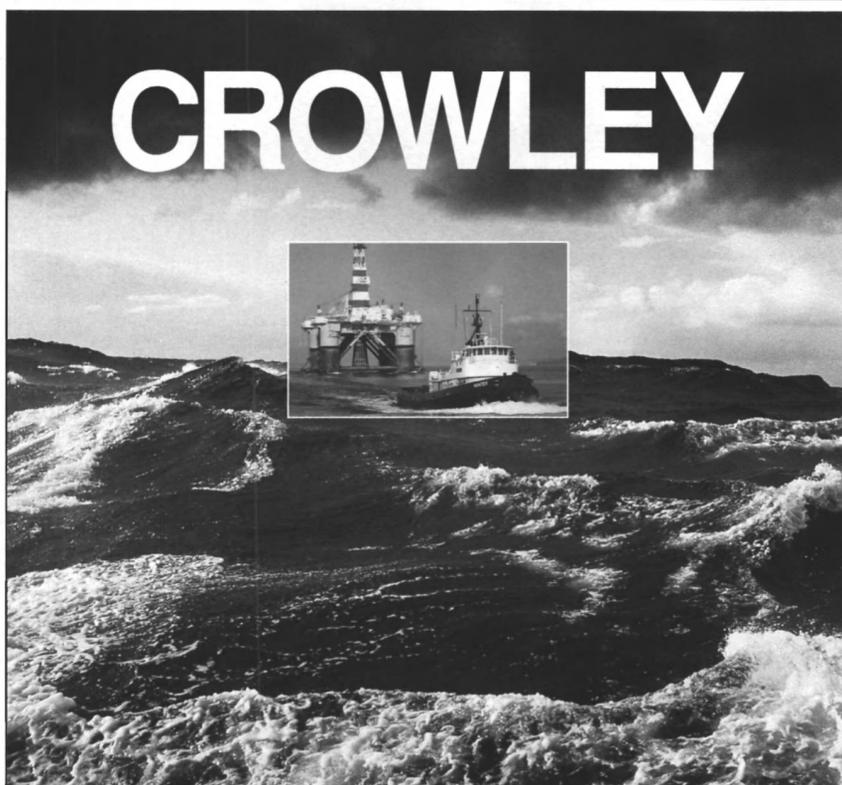
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Editorial & Executive Offices
 118 E. 25th St., NY, NY 10010
 Tel: (212) 477-6700; Fax: (212) 254-6271;
 e-mail: shippedit@ix.netcom.com

PUBLISHERS

Charles P. O'Malley
 John E. O'Malley
 John C. O'Malley

Vice President
 Gregory R. Trauthwein

EDITORIAL

Editorial Director
 Gregory R. Trauthwein
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INTERNATIONAL SALES OFFICE

Charles E. Keil, Vice President, International Operations
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NEW DESIGN CONCEPT

"TANKER OF THE FUTURE"

Unique, two-part tanker design from Norway aims to help save time and money

Many companies exhibiting at the SMM exhibition — staged every other year in Hamburg, Germany — are known for delivering large, eye-catching and, in general, spectacular exhibition booths. The 1996 edition was no exception. However, one of the more interesting displays was found in a standard-sized space, housed in the large Norwegian Pavillion. In the Pick Up Cat AS stand was a television playing a simulation of the Pick Up Cat (PUC) concept, a self-contained catamaran containing power and steering functions, as well as an interchangeable cargo unit.

"Our transport solution has huge potential," said **Dag Aavitsland**, managing director of Pick Up Cat AS. "Originally the concept was intended for liquid cargo, but it can easily be adapted to suit other areas of seaborne transportation."

Mr. Aavitsland is the inventor of the PUC concept, and owns 46 percent of the company. The concept reportedly enables a small num-

ber of power units to manage a large number of cargo units. The assembled units appear visually as a homogenous hull, and are designed to retain the same strength and seaworthiness as traditional hull construction.

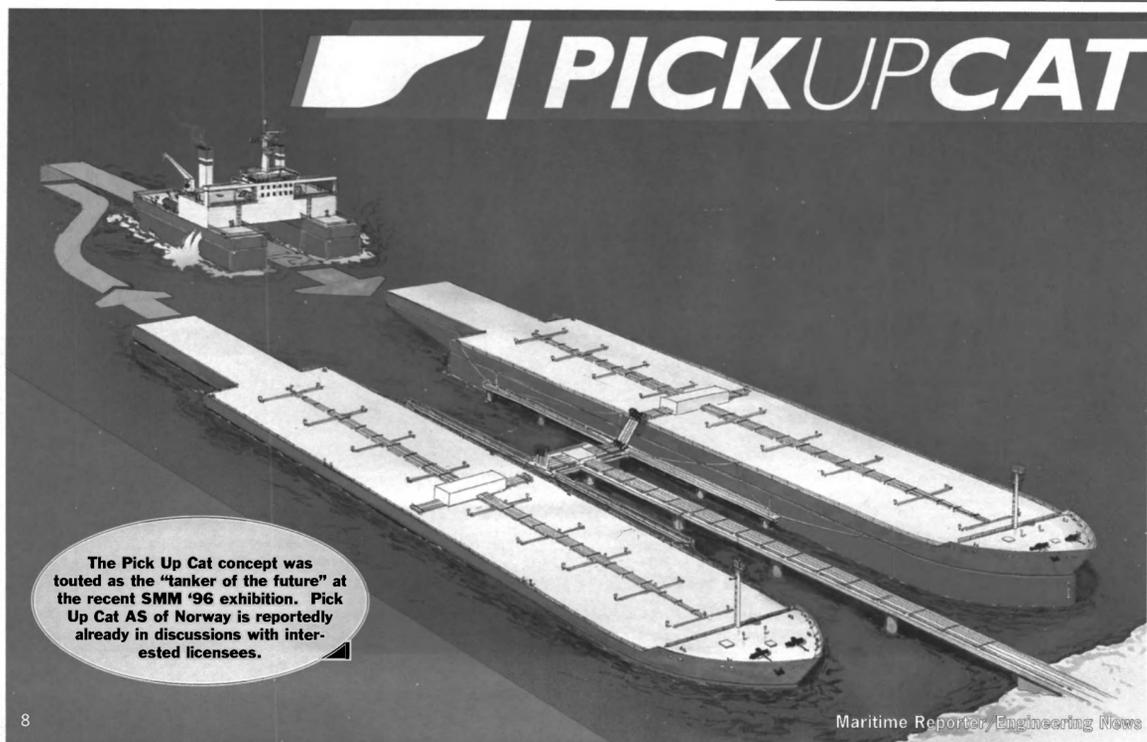
The new concept is designed so that time spent disconnecting the catamaran from one cargo unit and connecting it to another is less than two hours. This can effectively reduce time in port, as well as permit savings in onshore storing facilities, as the cargo units can be utilized as floating storage. The catamaran unit is designed with two separate engines with propellers to offer increased reliability and maneuvering abilities. In August, a large model of the ship was tested at the Danish Maritime Institute. The 24.6 ft. (7.5-m) model went through several tests in the wave pool, and the construction reportedly functioned according to design.

For more information on the Pick Up Cat
Circle 199 on Reader Service Card

PICK UP CAT CONCEPT

15,000 MT DWT FFCC
(Fresh Fish Cargo Carrier)
Main Particulars

Hull type	.....catamaran double shell/double bottom
Length b.p.	.....459 ft. (140 m)
Breadth	.....68.9 ft. (21 m)
Depth	.....39.4 ft. (12 m)
Design draft	.....27.8 ft. (8.5 m)
Block coefficient	.....approx. (.80)
Main engines	.....approx. 8,000 - 12,000 bhp
Service speed	.....approx. 14-20 knots
Capacity	.....approx. 3,500 mt fresh fish



The Pick Up Cat concept was touted as the "tanker of the future" at the recent SMM '96 exhibition. Pick Up Cat AS of Norway is reportedly already in discussions with interested licensees.

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U.K. Dept. Of Trade Greenlights Mallard Field Development

Exxon said that the U.K. government's Department of Trade and Industry has approved the subsea development of the Mallard field in the U.K. sector of the central North Sea. Esso Exploration and Production U.K. Ltd., Exxon's affiliate, holds a 38 percent interest in the field, which will cost about \$155 million to develop. Production from Mallard is due to come on stream in October 1997, and is

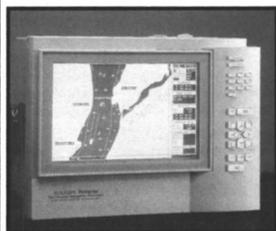
expected to reach a daily production rate of 16,000 barrels of oil and 11 million cu. ft. of gas. The field is estimated to hold about 30 million oil equivalent barrels. The Mallard field is the first of a new generation of High Pressure/High Temperature (HP/HT) fields to be developed that present a new range of challenges. The pipeline system chosen for Mallard includes cooling equipment at the subsea wellhead to

reduce the pipeline operating temperature to within conventional limits. The Mallard field will be developed using two subsea wells tied back to the existing Esso/Shell Expro owned Kittiwake platform. Oil and gas will be processed in a new module to be installed on Kittiwake. Oil production is exported from Kittiwake via tanker and gas is fed by pipeline to St. Fergus.

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Maritime Reporter/Engineering News

EDITOR'S NOTE

While running the risk of sounding redundant, the maritime industry continues its trend toward consolidation. This month — appropriately so — the news involves the workboat market. Seacor Chairman Charles Fabrikant — a familiar player on the acquisition front these days — announced his company's intention to acquire all offshore supply vessel assets of Smit Internationale for \$140.2 million.

This move is just the latest in a trend of the large getting larger, but long-term ramifications concerning how vessels are procured, outfitted and maintained, is significant. Our workboat coverage, which includes reviews of recently delivered vessels and related news from the worldwide industry, begins on page 52.

Another interesting merger announcement points out the dire need for continued research and development of safer, faster and more efficient maritime transportation. Specifically I refer to the English Channel situation, and the fierce competition which has ensued between ferry operators and the Channel Tunnel. Despite the "Chunnel's" well-documented financial difficulties, it has had a swift effect on the prestigious cross-channel ferry service. After two years of rate-slashing, overscheduling and subsequent losses, The Wall Street Journal reported that Peninsular & Oriental Steam Navigation and Stena Line AB will merge their short sea routes on the channel.

In addition, at press time, the U.K. government had approved P+O's proposal to purchase a 50 percent shareholding in North Sea Ferries from Dutch Royal Nedlloyd.

Technological developments and updates are abound in this edition, from the new "Pick Up Cat" tanker concept (pg. 8) to the repair/rebuild

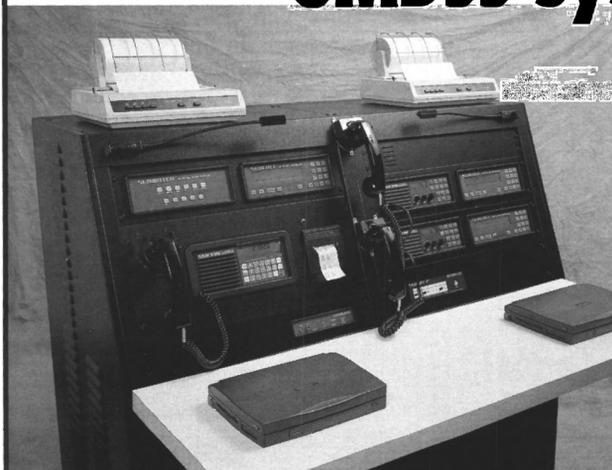
challenge facing Harland & Wolff in its attempt to make the Sea Empress seaworthy again (pg. 74). In addition, several major engine manufacturers announced new engine intro-

ductions and updates at the recent SMM exhibition in Hamburg, including MTU/DDC (pg. 41); Wärtsilä & New Sulzer (pg. 126); and Scania (pg. 127).

Gregory R. Trauthwein

Gregory R. Trauthwein
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Bulk Carrier *Minerva Island* Completed At Hitachi Zosen

The 72,073-dwt bulk carrier *Minerva Island*, ordered by Moebius Shipping SA, Panama, has been completed at the Maizuru Works of Hitachi Zosen. The vessel, under Panamanian register, was delivered to its owner on September 18.

This is the 82nd Hitachi Panamax and the fourth Hitachi Panamax Optima vessel which embodies several improvements over the original version. These include a larger propeller and increased DWT and cargo capacity. *Minerva Island* is equipped with an energy-efficient Hitachi Zosen MAN-B&W 6S60MC-type main engine and the Hitachi Zosen Super Stream Duct (SSD) at its stern.

For more information on Hitachi Zosen
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Minerva Island particulars

Length o.a.:	705 ft. (215 m)	Gross tonnage:	37,623 tons
Breadth:	106.6 ft. (32.2 m)	Main engine:	Hitachi Zosen MAN B&W
Depth:	61 ft. (18.6 m)		6S60MC diesel engine
Full draft:	44.3 ft. (13.5 m)	Speed:	16.6 knots
DWT:	72,073 metric tons	Classification:	ABS



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20 MTU Engines Ordered For Indonesian Ferries

The Indonesian Ministry of Transport has awarded a contract for five high speed ferries to the Lürssen shipyard in Bremen-Vegesack. Each ship will be powered by four 16V 595 MTU engines (15,200-kW total output) to drive waterjets via gearboxes. This configuration will provide a top speed of about 38 knots. The new 230-ft. (70-m) ferries feature a lightweight aluminum design. Hull construction features extruded, dimensionally stable aluminum shapes rather than conventional shipbuilding plates. The single-hulled vessels will carry 900 passengers.

For more information on MTU
Circle 10 on Reader Service Card

LNG Project Gains Momentum

The Port of Prince Rupert and the City of Kitimat were to meet in October with Calgary-based PacRim LNG to discuss citing options for a \$1.4-billion LNG plant. PacRim and Korea Gas Corp. recently signed letters of intent that could lead to sales of up to 3.5 million tons of British Columbian LNG per year.

Group Chosen To Study Ferry Project

A consortium has been selected to study the feasibility of car/passenger ferry service between Westport and Ocean Shores on the southwest Washington coast. The team will conduct a turnkey operations study, which will identify vessel and shore-side facilities needs, providing a complete package review to the planning board in Grays Harbor. Initial plans project that a vessel could enter service in the spring of 1998.

Leading the team is Cresmont Capital Projects, which organizes and manages capital-intensive projects. The consortium also includes Elliott Bay Design Group; Cresmont, Inc., who will handle vessel construction and operations issues; Preston, Gates & Ellis, a public finance law firm; Peratrovich, Nottingham and Drage, a civil and hydrographic engineering firm; U.S. Bank's Public Finance Group; and The Transpo Group. The group is working under a contract awarded by Grays Harbor County on behalf of itself, the cities of Westport and Ocean Shores, the Port of Grays Harbor and the Quinault Indian Nation.



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A fourth-quarter cruise sector update

Topping off cruise news in recent weeks, in late September Cunard's **Peter Ward** offered his resignation as company chairman after

only 15 months with the cruise line. According to Cunard owner Kvaerner, the former chairman of Rolls-Royce Motor Cars Ltd. will reportedly return to London to pursue other business opportunities.

"When I came here in September

(1995), the only guy who went to bed worrying about the bottom line was me. Cunard was almost like a welfare state at sea," Mr. **Ward** told *The New York Times* in an interview this summer. Following his official departure on October 31, **Antti Pankakoski**, executive

vice president of Kvaerner Masa-Yards and chairman of the company that owns cruise ship *Royal Majesty*, was to take over as chief executive, and attempt to put a little more wind back in the ailing fleet's sails.

To further jazz up the line, SeaVision, Inc. — with new headquarters in Miami — was recently retained to install a state-of-the-art television broadcast center and distribution system aboard flagship *QE2*. The project is reportedly the largest television upgrade ever undertaken aboard a cruise ship, and is scheduled to be completed in time for the vessel's 1997 World Cruise from New York on January 4.

Things have been heating up down in Miami, with former Royal Caribbean Cruises Ltd. (RCCL) executive **Rod McLeod's** one-year, non-competitive contract clause temporarily sending him into another arena — the arena of National Basketball Association team Miami Heat, where he will serve as a marketing consultant to the sports franchise while enjoying a hiatus from cruise shipping and mixing with his new boss, Heat owner and Carnival CEO **Micky Arison**.

Speaking of Carnival Cruise Lines (CCL), as the company's twin office building is erected on the Miami waterfront, and in the afterglow of a groundbreaking contract with British interest Airtours, the line has struck a deal with Hyundai Merchant Marine to develop an Asian cruise venture. It has been projected that **Ray Lutz**, former vice president and general sales manager of Carnival's Holland America Line unit who worked with Carnival Vice Chairman **Howard Frank** on the negotiation of the agreement, will become the president of the new company.

Carnival's *Tropicale* will sail from Inchon, Korea, to China, beginning in the spring of 1998. During the winter, the vessel will be repositioned to other homeports in southeast Asia. The ship was originally built in 1982 by Aalborg Shipyard in Denmark, and weighs in at 36,674 gt, with a length of 660 ft. (201.1 m) and beam of 85 ft (25.9 m).

Additionally, *Carnival Destiny*, the world's largest cruise liner at 100,00 gt, was delivered this month by Fincantieri. Reportedly, the megaship will host British

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CRUISE SHIP REPORT

travel agents in a weekend Italian voyage, and will then journey to the U.S. East Coast for further industry previews.

On the West Coast, Los Angeles-based Princess Cruises has enjoyed its share of the spotlight lately, pulling in this year's envi-

ronmental award from the American Society of Travel Agents and *Smithsonian Magazine* in recognition of its proactive stance on pollution prevention, as well as the James E. McGuire Safety Award for its outstanding contributions to the improvement of marine

safety for ships, crews and the environment.

The latter award stresses the importance of the human element rather than regulations in the quest for safety, and was presented to the cruise line in early October after classification society repre-

sentatives from ABS, LR, DNV, GL and NKK selected the line as the 1996 recipient. Princess has also contracted with the Professional Association of Diving Instructors (PADI) to provide scuba certification programs for passengers onboard several of its ships.

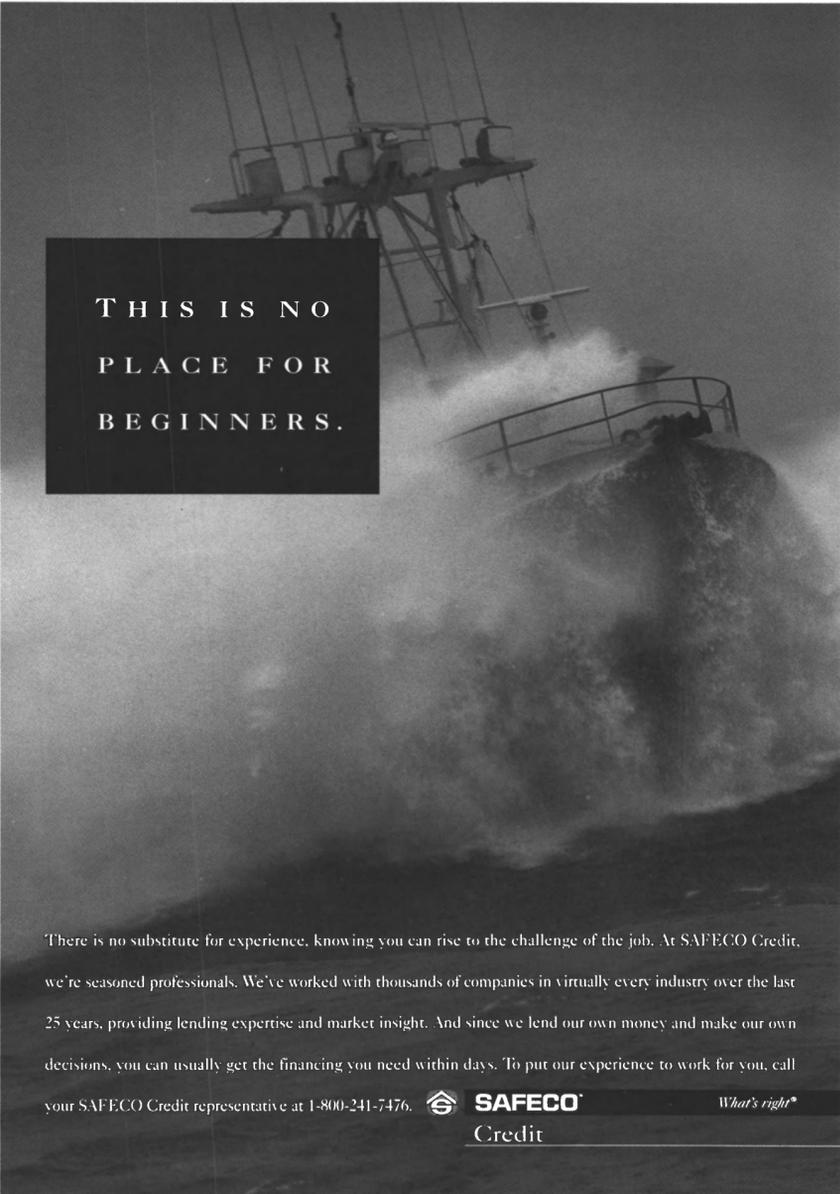
Other "Left" Coast reports from the U.S. indicate that Worldport LA has set a new record for cruise passenger business. In the FY ended June 30, the Port handled 945,180 passengers at its World Cruise Center, surpassing its previous record of 920,537 passengers set in FY 93. The popularity of Mexico as a vacation destination, the improved U.S. economic climate for consumer spending on leisure travel, and the convenience of a major cruise facility in Southern California are believed to have contributed to the record-setting statistics. CCL's *Jubilee* and *Holiday* and RCCL's *Viking Serenade* are homeported in Los Angeles.

Speaking of ports, following recent congressional action which will reinstate gaming on cruise ships sailing between California ports, RCCL has said that *Viking Serenade* will resume calling at the Port of San Diego during its four-night cruises out of Los Angeles, starting in January. When San Diego was dropped from the ship's itinerary in 1993, after the California legislature passed gaming legislation A.B. 3769, the Port reported a corresponding annual loss of more than \$6.5 million among area merchants.

RCCL also plans to move *Sovereign of the Seas* to the Bahamas short cruise market following a \$6-million renovation and refurbishment in mid-December. Contracts including the addition of passenger berths and work on public spaces and cabins will be fulfilled at BethShip in Sparrows Point near Baltimore, Md., where the vessel is scheduled to enter drydock on November 30.

On the other side of the globe, unrest in the Middle East has led to some speculation that cruise ships with worldwide itineraries, such as the Mediterranean voyages deployed by RCCL and Cunard, may be easy targets for terrorist attacks. Others have pointed out that these ships rarely venture outside of international waters, and should not be considered to be at inordinate risk.

On the subject of risk, financial



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CRUISE SHIP REPORT

risk in this case, following the Maritime Administration's rejection of World City Corp.'s Title XI request for aid in constructing a \$1.2 billion, cruise "city-state" capable of docking four, 400-passenger day cruisers inside the hull, Westin Hotels & Resorts announced its intention to back the project. The design for the vessel — which has now been dubbed *America World City: The Westin Flagship* — calls for a passenger capacity of 6,200 guests in 2,800 passenger staterooms; more than double the size of the largest ships produced today. The ship's design also calls for the construction of three hotel towers rising eight stories above the main deck.

In other financial wheelings and dealings, Carnival Corp. reported on October 11 that 21.6 million shares of common stock would be offered for sale by **Ted Arison**, who reportedly seeks to sell his shares for certain estate planning and other related purposes. The company would not receive proceeds from the sale of the shares, and if the offering is completed, members of the Arison family would beneficially own 48.2 percent of the outstanding capital stock, giving the family approximately 70.4 percent

Intermarine Launches Seventh Osprey Class Minehunter

Intermarine USA has launched the U.S. Navy Coastal Minehunter *Raven* (MHC 61), the seventh U.S. Navy ship of the Osprey class to be launched by Intermarine. The ships are designed for minehunting under all environmental conditions, with flexible and resilient hulls capable of withstanding the shock of a close mine explosion. The 900-metric ton ships measure 188 ft. (57.3 m) and are reportedly the world's largest ships to be built entirely of glass reinforced plastic.

For more information on Intermarine
Circle 11 on Reader Service Card

CAI Creatively Finances New Containers

In a transaction designed to access a variety of financing methods to fund the acquisition of essential equipment without tying up millions of dollars in resources or taking on new debt, Container Applications International Inc. (CAI) has financed approximately \$30 million worth of land/sea shipping containers via an off-balance sheet U.S. Tax Lease from Sumitomo Bank Leasing and Finance (SBLF). "Unlike conventional financing," said **J. Nishibori**, CAI's CFO, "the U.S. Tax Lease through SBLF enables us to finance these containers at a competitive cost. This, in turn, enables us to lower our costs of doing business and better positions us to challenge much larger competitors of equal, if not better, footing." Under the terms of the lease, CAI may, at the lease's termination, opt to purchase the containers.

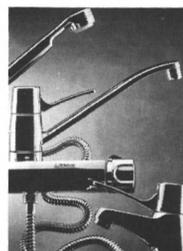
November, 1996

voting control over the company. At press time, a registration statement relating to these securities had been filed with the Securities and Exchange Commission, but had yet to become effective.

While the industry is clearly on the move, market strategies remain surprisingly simple. The essence of the current market was perhaps

best captured by RCCL Chief Executive **Richard Fain** in a Bangkok address last month when he paraphrased a U.S. presidential candidate. "It's the customer, stupid," said the CEO, explaining how consumers dictate change in the industry by demanding greater convenience, faster turnaround and more options.

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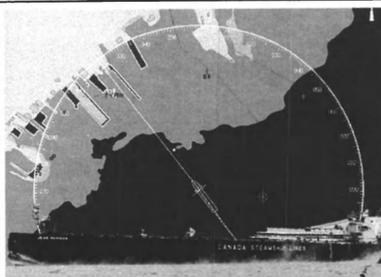
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Crippled *Fairmast* Returns To YVC

On September 21, Jumbo Navigation's heavy load carrier *Fairmast* returned to YVC — where the vessel was built in 1983 — to undergo extensive damage repairs at YVC Bolnes Dockyard, in Rotterdam. The vessel sustained severe damage in a Philippine dockyard when it was refloated before steel repairs had been completed, resulting in deformation of the vessel.

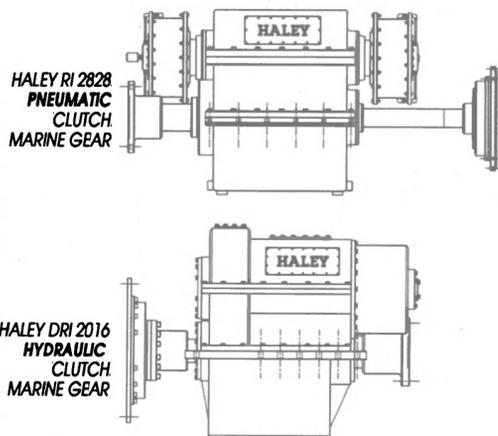
The YVC Group consists of the newbuilding yard at YVC Ysselwerft at Capelle a/d IJssel and YVC Bolnes Dockyard in Rotterdam. The repairs comprise the renewal of the entire midship's body over a length of 197 ft. (60 m), as well as extensive steel replacements in other locations. In total, approximately 1,300 tons of steel will be renewed. Repairs are anticipated to be completed by early 1997.

For more information on YVC
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Maritime Reporter/Engineering News

Mobil Delivers Results Electronically

Mobil Corp. has introduced two new used-oil analysis programs that use global electronic communications to deliver results to marine customers on land and at sea. PFA Inter-Link and Mobil Amos Maintenance System (MAMS) reportedly offer ship managers an efficient manner of receiving, reviewing and responding to time-critical oil analysis results. PFA Inter-Link uses the Internet to transfer used-oil analysis results from Mobil's central mainframe computer to fleet superintendents around the world.

The global electronic communications link enables Mobil to rapidly disseminate the information faster and more conveniently than fax transmission.

The Mobil Amos Maintenance System is a comprehensive computerized maintenance system for the marine industry. MAMS is the product of a strategic alliance between Mobil and SpecTec.

PFA Inter-Link allows Mobil's customers to create graphs, print reports and store past reports electronically. It also enables the program user to export the analysis reports for transmission to vessels at sea, using existing e-mail capabilities.

For more information from Mobil
Circle 96 on Reader Service Card

MMC Wins NNS Contract To Supply Tankers

MMC International was awarded a contract by Newport News Shipbuilding (NNS) for sounding tubes and pipes to be installed on the tankers being built for Eletson. The sounding tubes will be positioned at regular intervals on the deck perimeter above the double hull. This provides entrances to the void space through which an MMS gauging device can be inserted to test for the presence of the product being carried, which would indicate tank leakage.

MMC has also won a contract from NNS for the same project for vapor valves and instruments for

portable gauging, sounding and sampling.

For more information on MMC Intl.
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Doctor Diesel Range Extended

Icon Research has introduced

several additions to the Doctor diesel performance monitoring system.

The new additions include a simultaneous twin channel portable unit for simultaneous measurement of fuel pressure or vibration and cylinder pressure. The instrument is the same size as the single channel DK-2, which now holds up to 60 readings. The

range of portable units has been extended to include 10 and 12 channel models. Software improvements include automated downloading for any number of engines, fast entry of additional readings such as exhaust temperatures, rack settings and full archiving facilities.

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New RoRo System Installed At Bollinger Larose

Ground was broken this past spring at Bollinger Larose, Inc. for the foundation a Land RoRo system. This system can reportedly accommodate up to 3,000 tons of marine equipment, which consists of various types of supply vessels. The system is reportedly capable of handling deck barges with a maximum width of 84 ft. (25.6 m).

This RoRo system has three separate concrete slabs extending 330 ft. (100.5 m) from the drydock. Bollinger Morgan City fabricated 150 special steel wheels for 10, 200-ton dollies and 10, 100-ton dollies. United Shipyards assembled all 20 dollies, as assigned by the Bollinger Engineering Department.

The first test of the RoRo systems was done with OC263, an Otto Candies, Inc. barge on August 17. Plans are to extend the rails to the east and west to accommodate various types of marine equipment.

For more information on Bollinger
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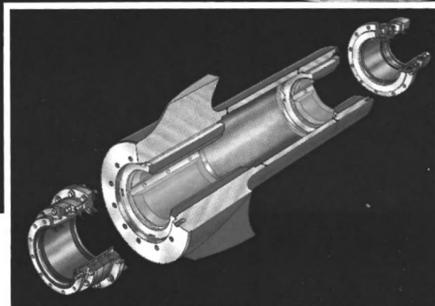
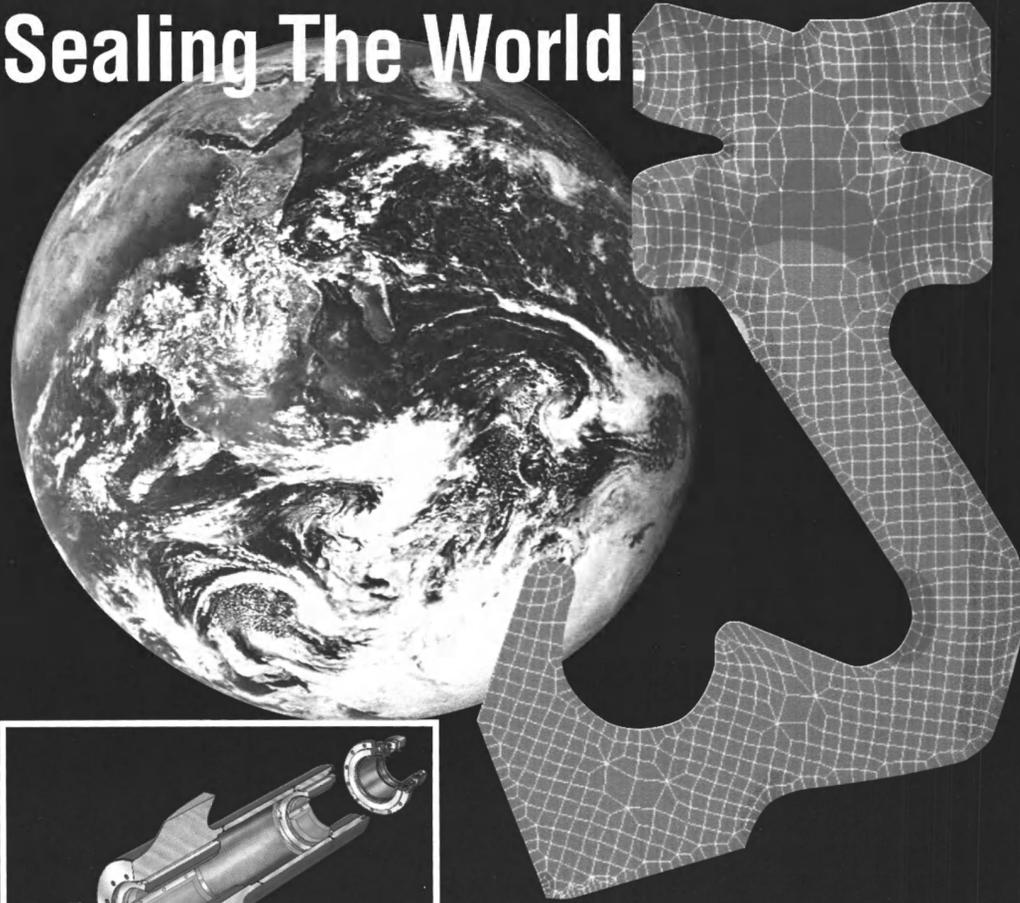


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President Clinton Signs Maritime Security Act

U.S. President **Bill Clinton** signed the Maritime Security Act of 1996 into law. It funds a plan to pay subsidies to U.S.-flagged ships

for being available to haul defense supplies at wartime. Under the bill, operators of U.S.-flagged ships that could be used for military sup-

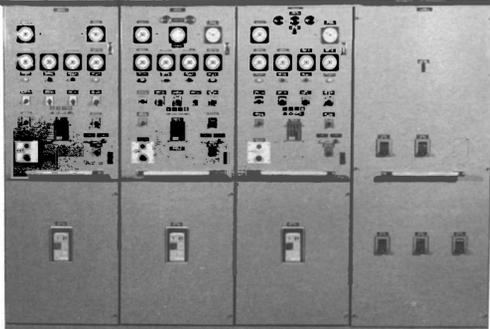
ply purposes will get \$2.3 million/year for each ship this year, and \$2.1 million per ship, per year through 2005. The bill authorized

\$100 million a year for these payments.

The president said, "Today I am pleased to sign into law H.R. 1350, the 'Maritime Security Act of 1996.' This act sets the course for America's merchant marine into the 21st century."

He went on to point out, "In recent years, our country has again been reminded of the critical role played by the U.S. merchant marine in protecting our interests and the security of our allies. It will ensure that the United States will continue to have American flag ships crewed by loyal American citizen merchant mariners to meet our nation's economic and seafight defense requirements."

The president said the merchant marine is an important component of the seafight needed by the Department of Defense, and by contracting with the owners and operators, the government will have access to a fleet of modern commercial ships.



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U.S. Trade Representative Dismayed Over Failed Accord

Acting U.S. Trade Representative **Charlene Barshefsky** said she was disappointed in Congress' failure to pass legislation that would allow the U.S. to ratify the OECD Shipbuilding Agreement. "Enactment of this legislation would have made it possible for American shipbuilders to compete on an equal footing with their foreign competitors," she said.

The agreement was signed by the U.S. in December 1994. Legislation that would have enabled the Administration to ratify the agreement was approved by the House Ways and Means Committee on March 21, 1996, and by the Senate Finance Committee on May 13, 1996. However, amendments to that legislation subsequently approved by the House were inconsistent with the original agreement, and did not provide a basis for such ratification.

"I would like to acknowledge the efforts of Senator **Breaux**,

LEGISLATIVE UPDATE

Chairman **Roth**, Chairman **Crane** and Representative **Gibbons** who truly recognized the importance of this agreement," Ms. **Barshefsky** said. "The OECD Shipbuilding Agreement is a good agreement that would enhance the competitiveness of our shipbuilding industry."

At press time, talks were again underway between the signatory countries, in an attempt to salvage the subsidy pact. While the deadline for scrapping the entire agreement seems to have been informally extended to the beginning of 1997, the general mood of the initial meetings were not good.

Transportation Industry Taxes To Be Studied

House Ways and Means Committee Chairman **Bill Archer** (R-TX) reportedly said that he will convene a blue ribbon panel to study transportation industry taxes.

Jonathan Blank, a managing partner at Preston Gates Ellis & Rouvelas Meeds, a leading transportation law firm in Washington, D.C., said, "This may be the beginning of an overhaul of transportation industry tax policy that would have a significant impact on the total amount of tax paid by each mode, as well as the competitive position of individual carriers within different modes. Transportation companies should pay very close attention to the actions of this task force."

Passenger Vessel Operators To Save Millions

Operators of small passenger vessels will save more than \$23 million over 10 years thanks to a bill Congress passed. The bill, according to the Passenger Vessel Association (PVA), will limit the fees the USCG may charge to conduct its annual inspection of these vessels.

Just before adjourning, the 104th Congress adopted the Conference Report to the Bill, S. 1004, the USCG Authorization Act for FY96.

Section 1112 of the sweeping measure directs the Secretary of Transportation to limit the fees the USCG charges for the inspection of small passenger vessels to \$300 for vessels measuring less than 65 ft. (19.8 m), and to \$600 for vessels 65

ft. and greater. Publicly owned ferries will be exempt from the fees altogether, under terms of the provision.

Senator **Ted Stevens**, chairman of the Senate Subcommittee on Oceans and Fisheries, which has

jurisdiction over USCG programs, sponsored the amendment.

"Members of the Passenger Vessel Association are thrilled that Congress acted to rectify this significant and unwarranted burden on small passenger vessel opera-

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tors," said Becki Berg, PVA Legislative director.

Ms. Berg added, "The new fee structure is far more realistic, given the nature of this industry, and will allow many operators whose business might be in jeopardy because of the costs of inspection to continuing serving the traveling public."

Delta "T" Systems Wraps Up Projects

Delta "T" Systems recently completed the supply of complete engine room ventilation systems for two traditional design yachts. Delta "T" Systems worked closely with the design team at C.

Raymond Hunt on a motoryacht built at Palmer Johnson-Sturgeon Bay. A "Quiet Run" mode integrated into the system reportedly lowers fan rpms and noise levels at the touch of a button for slow speed cruising and dockside operation. The system — like all complete Delta "T" ventilation systems — comes with an assurance

guarantee that ensures compliance with engine manufacturer and/or classification society specs.

The company also finished another project with the same designer and with Lyman Morse Boatbuilding.

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Perry Tritech Delivers Equipment To Korean Company

Perry Tritech has delivered a 2,000 MSW Triton XL 250 Heavy Work Class ROV system and a Gator Diverless Trencher to Korea Submarine Telecom Co. (KST) of Pusan, Korea. Both were for installation on KST's host vessel. KST plans to use the system for various submarine cable work around Korea.

For more information on Perry Tritech
Circle 12 on Reader Service Card

Watchkeeping Systems Gains STCW Approval

The Officer of the Watch collision-avoidance and watchkeeping system has been fully tested and evaluated by the U.K.'s Marine Safety Agency (MSA), and PC Maritime has been awarded official approval. The MSA is satisfied that Officer of the Watch "is acceptable for the purpose of complying with the provision of simulator-based training contained in STCW 95..."

For more information on PC Maritime
Circle 17 on Reader Service Card

Svanehoj Int'l Launches New Deepwell Cargo Pump

Svanehoj International AS, part of the Hamworthy Marine Group, has launched a pump designed for use onboard river barges/coastal tankers for both oil products and chemicals. The pump has been developed with a very simple design, as it is intended to be service and user-friendly. The new unit consists of a pump head, pipestack and deck arrangement.

To facilitate installation, the pump housing is a separate unit which can be quickly detached from the rest of the pump. With a few bolts from the flange to the intermediate pipe removed, the pump head is released. The pump housing is provided with a cofferdam between the two shaft

Maritime Reporter/Engineering News

seals of the pump. One shaft seal provides sealing against the oil in the intermediate pipe, and the other one against the cargo. The cofferdam is equipped with a connection for air/nitrogen enabling purgings of the system by a simple and fixed routine.

The company reports that the advantage of the pump design with two pipes in parallel is that support to bulkhead is not required. The shaft runs constantly in an oil bath and is thus lubricated by the surrounding oil, and will never be exposed to cargo.

For more information on Svanehoj
Circle 19 on Reader Service Card

AAPA Gives 104th Congress High Marks

Public ports were pleased with actions of the 104th Congress that improved deep draft navigation needs, landside transportation and facilitated international trade. From passage of the National Highway System Bill in 1995 to the Water Resources Development Act (WRDA) of 1996, U.S. members of the American Association of Port Authorities (AAPA) gave Congress high marks on advancing the ports' agenda.

"Passing the Water Resources Development Act of 1996 was the major priority for us this Congress," said Kurt J. Nagle, AAPA president. "We had four years between bills authorizing vital navigation and other water resource projects."

WRDA '96 provides for policy changes which enable the U.S. Army Corps of Engineers to undertake its navigation mission more efficiently. These include provisions long supported by the port community that authorize equitable federal cost-sharing of dredged material disposal facilities; provide for prompt removal of obstruction to navigation; and cap the local cost-share during the feasibility stage of project development.

The bill includes authorization for commercial navigation projects in Humboldt Bay, Calif.; Long Beach, Calif.; Port Fourchon, La.; Cape Fear, N.C.; Wilmington, N.C.; Charleston, S.C.; and Houston-Galveston, Texas; as well as a project for beneficial use of dredged material at Poplar Island, Md. It also includes authorization of projects in Cook Inlet, Alaska; and the Chesapeake and Delaware Canal, contingent upon approval by the Corps of Engineers prior to December 31.

VTIS Users Eligible For Los Angeles/Long Beach Rebate

The Board of Directors for the Marine Exchange of Los Angeles-Long Beach Harbor, Inc. announced their approval of a plan to offer all Vessel Traffic

Information Service (VTIS) users a 10 percent rebate. The total amount to be returned to VTIS users will be nearly \$140,000, and the rebates will be issued in the form of credit memos to either the vessel owner/operators, or their agents, as originally billed by the Marine Exchange for VTIS users fees over the past fiscal year. All VTIS credit memos can be applied

to any future vessel arrivals at the ports of Los Angeles and Long Beach, and will be honored through June 30, 1997.

Since its inception in 1994, the VTIS at the port has been recognized for its unique applications, as well as a model of partnership effort between state, federal and local government agencies and the private sector.

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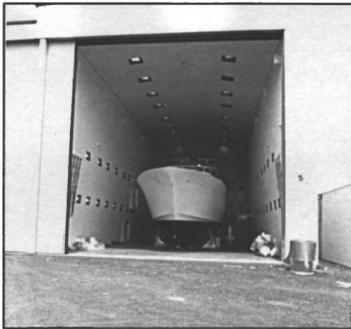
Westport Builds Paint & Test Facility

Westport Shipyard, Inc. has completed a state-of-the-art paint and test facility for its Westport, Wash., yard. The new building brings 120,000-sq.-ft. under cover at the plant. Westport is currently building five 106-ft. (32.3 m) yachts for Westship, Westport's Florida-based dealer, and also recently delivered two 95-ft. (29-m) boats for operation on Prince William Sound and in Kenai Fjords National Park in Alaska.

With a ceiling height of 50 ft., the 50 x 125-ft. (15.2 x 38-m) building will reportedly allow Westport to outfit megayachts under cover. The company will also be able to do startups and to test all systems, including main engines and gensets prior to launch.

With more than one million btus of heat and 40,000-cu.-ft. per minute of air flow, the new facility will reportedly maintain accurate climate control regardless of the weather outside. Another feature of the facility is a high pressure water spray system. This system washes both building and yacht prior to painting. It will simulate between two and three in. of rain per hour to test the entire vessel for the water tightness of windows, doors and fittings prior to launching.

For more information on Westport Shipyard, Inc.
Circle 43 on Reader Service Card



Port Of Hamburg Reports Tremendous Container Throughput Growth

With a total turnover of some 35 million tons of seaborne cargo in the first six months, the Port of Hamburg almost equaled last year's total.

In the first six months, 18.2 million tons of general cargo was handled, a one percent increase over the same time period last year. The total container turnover in the first six months was approximately 1.5 million TEU, an increase of 5.3 percent (73,977 TEU) compared with the same period last year. Container traffic for the Port of Hamburg accounts for 43.3 percent of its total turnover.

ITT Standard Offers Ammonia Condensers For Marine Environments

ITT Standard offers two different types of ammonia condensers for efficient cooling in corrosive marine environments.

Shell-and-tube models offer a secure design featuring no gasket contact with the ammonia, offering resistance to salt water corrosion. New welded plate condensers feature quality construction with laser-welded titanium plates for longer life, operating efficiency and lower maintenance.

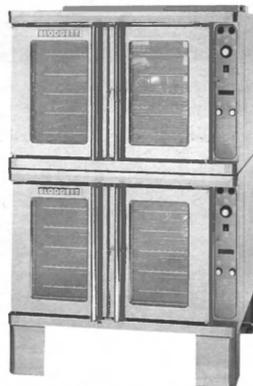
ITT Standard supplies heat transfer technology to commercial marine markets and to the U.S. Navy.

For more information on ITT Standard
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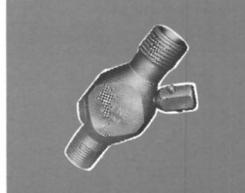
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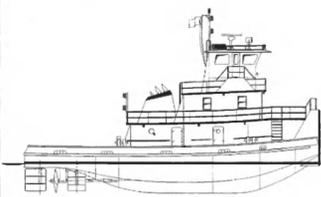
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CLASSIFICATION SOCIETY NEWS

A digest of news from the world's leading classification societies.

New Database Tracks ISM Code Certification

An electronic database of ships

and companies gaining International Safety Management (ISM) Code certification was launched by the International Association of Classification Societies (IACS). The database will record statistics on certifications awarded during and beyond

the voluntary period leading to the IMO's first-phase ISM Code deadline of July 1998.

LR To Assist In Preparing Cargo Securing Manuals

Lloyd's Register (LR) has devel-

oped a package of practical measures designed to help owners comply with the new SOLAS requirement for approved Cargo Securing Manuals, which will become mandatory for all ships other than those solely carrying bulk cargoes, liquid or solid, from December 31, 1997.

The package includes a booklet and a computer program.

For more details on the package from LR Circle 20 on Reader Service Card

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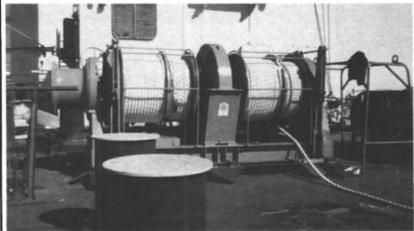
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GL Announces Record Orders For Newbuildings

Germanischer Lloyd's (GL) orders in hand for the classification of newbuildings totaled 59 vessels (5.5 million grt) on October 1, 1996. Of this total, orders for 304 vessels (3.5 million grt) were received in the period from January to September 1996.

GL Construction Rules Available on CD ROM

Version 2.0 of GL's computer-based Rules and Programs (GL RP) is now available on CD ROM. The new version contains important supplements and updates which did not appear in the 1995 pilot version. For example, making their first appearance are the current texts of the IMO documents "SOLAS, Consolidated Edition 92," "MARPOL 73/78" and the "1969 Tonnage Convention."

The CD ROM contains the current versions of the society's most important classification and construction rules.

For more information on the new program Circle 21 on Reader Service Card

ABS Joins Intertanko's "White List"

The American Bureau of Shipping (ABS) has agreed to provide bunker testing information to Intertanko for inclusion in the statistics used to generate information on the quantity risk to owners from bunker suppliers. The White List has been published monthly since April 1990. The purpose of the White List is to highlight bunker suppliers with records of fair and unbiased delivery records. Bunker suppliers are graded into four criteria:

- | | |
|----|---------------------------------|
| AA | buyer's risk not higher than 5% |
| A | buyer's risk between 5 and 15% |
| B | buyer's risk between 15 and 30% |
| C | buyer's risk higher than 30% |

The White List quantity risk rating table is based on the fuel sample analysis information from Lloyd's Register's Fuel Oil Bunker Analysis and Advisory Service and now ABS, two of the largest classification societies in the world.

Drew Marine Joins ABS Marine In Oil Test Program

Ashland Chemical's Drew Marine Division has been appointed the agent for global sales of the ABS Oil Testing Service for marine fuel analysis and management. A new alliance among Drew Marine, ABS Marine Services and Oiltest Inc. has been designed to substantially expand the service capability of the ABS Oil Testing Service.

ABS Oil Testing Service has been providing fuel analysis, including engineering recommendations to the marine industry for a decade.

Drew Marine also offers the well-accepted MAR-TEC equipment for onboard fuel analysis, including the MAR-TEC Sample-Tec device for scientifically correct flow proportional sampling.

For more information on the alliance
Circle 22 on Reader Service Card

Companies Join To Assist With ISM Code Compliance

Gallagher Marine Systems and P & H Marine Associates have formed a joint venture dedicated to helping owners and managers with ISM Code implementation and compliance. Captain **Walter P. Purio**, managing director, promotes P & H's services as "implementation guidance based solidly on the principles of loss control management."

For more information on these services
Circle 55 on Reader Service Card

Coflexip Stena wins \$71M Contract From Statoil

Coflexip Stena Offshore has been awarded a major high technology contract from Statoil in Norway involving its new Teta technology.

Coflexip Stena Offshore Norge received a \$71 million order from Statoil for the provision of high technology dynamic risers and seabed jumpers for the development of its Asgard field located on the Norwegian continental shelf by 1,148 ft. (350 m) water depth.

This EPC (Engineering Procurement and Construction) contract includes the provision of 12 km

of nine-in. risers, including: 3.5 km high pressure (500 bar) gas injection risers with Teta structure and 7.7 km of very high temperature (130 degrees) crude production risers with three layers of Coflon.

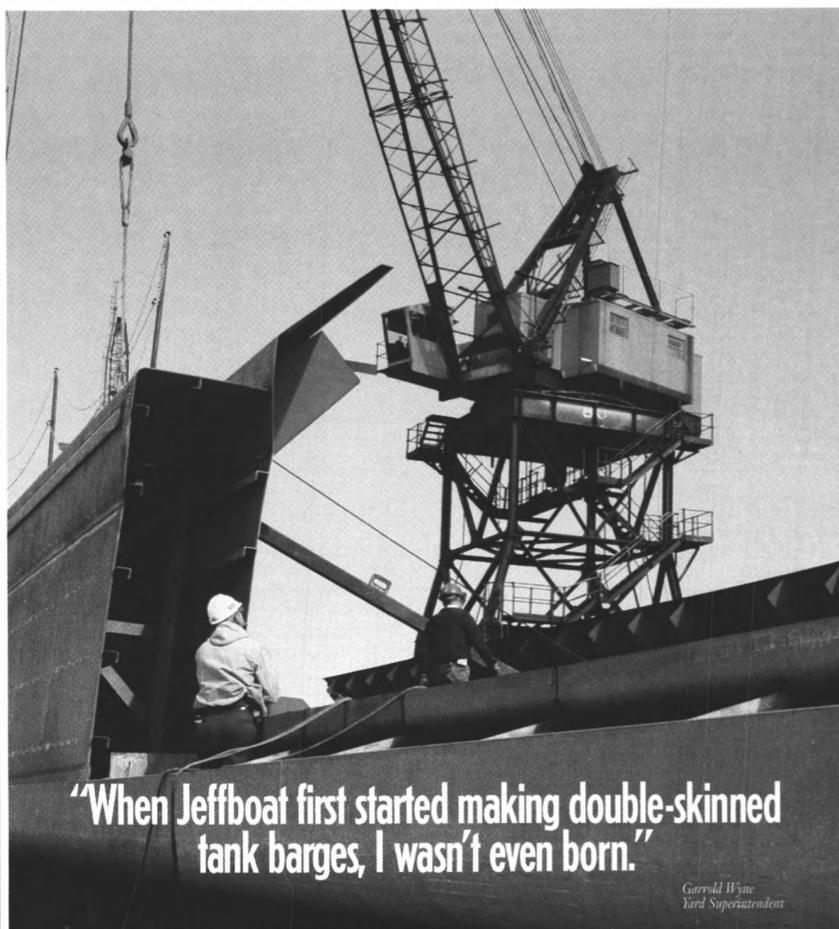
This contract also includes the provision of a 2,296 ft. (700 m) multibore riser and 2.3 km of seabed jumpers. The risers will

be laid from the seabed to Statoil's FPSO Asgard A.

The Teta technology was selected in order to meet the demanding specifications of the Asgard field. The manufacture of these very high pressure risers will be achieved by the new spiralling machine using Teta wires that will operate in Le Trait plant (Normandy) from next summer.

All the risers will be delivered in April 1998.

Pierre Marie Valentin, chairman and CEO of the Coflexip Stena Offshore Group said: "This new contract shows once again the Group's capacity to roll back current technological limits in difficult-to-develop subsea areas: high water depths, high temperature and high pressure."



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Garrett Wynn
Yard Superintendent

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Ulstein Verft delivers offshore support vessel

Offshore Support Vessels Top Euro Delivery List

As Ulstein Verft delivered the latest UT 700 offshore support vessel, *Northern Gambler*, the yard announced that it had received a third order from Swire Pacific for a UT 720, and that a design package based on the UT 722 had been selected by Simon Mokster Shipping of Stavanger, Norway. The latter vessel will be built outside the group by Aukra Industrier.

Now in service, *Northern Gambler* is the thirteenth UT 745 class vessel to be built and the seventh completed at the Ulstein yard. The vessel is a development of the basic design to suit Saevik Supply Management's specific requirements with a larger working deck and cylindrical liquid mud tanks replacing the rectangular units of earlier designs. The vessel's bridge is also equipped for one person watchkeeping and the accommodation layout revised to provide an additional 10 berths.

The vessel has an overall length of 275 ft. (84 m), a molded breadth of 61.6 ft. (18.8 m) and a maximum draft of 20.4 ft. (6.2 m). At 4,400 DWT, it is capable of carrying up to 2,800 tons of deck cargo. Tanks are available for fuel oil, fresh water, drill water, liquid mud, brine,



Pictured is the yard's most recent delivery — *Northern Gambler* — a UT 745 support vessel for local Norwegian operator Saevik Supply. Ulstein Verft's orderbook also includes six more UT700 vessels with deliveries continuing through until October 1997.

methanol, base oil and dry bulk materials such as cement.

A pair of Ulstein Bergen diesel main engines with a total output of 5,300 kW (7,200 bhp) turn Ulstein propellers through gearboxes from the same company to give a maximum speed of 15 knots. Twin Tenford controlled high lift rudders, twin bowthrusters each producing 800 hp and two 1,200-hp stern thrusters reportedly provide easily controlled maneuverability through an integrated electronic system with a

single joystick. The deck equipment includes tugger winches, capstans and a telescopic crane with a capacity of two tons at 11 to 16-m outreach.

Built to Det Norske Veritas classification, DNV +1AI EO LFL WI-OC, *Northern Gambler* joins several other offshore vessels of Ulstein design in the Saevik Supply Management fleet, including *Northern Clipper*, another UT 745, and type UT 716 *Gullbus*.

The new order, featuring an Ulstein UT 722 package for Simon Mokster, follows the proven and well documented performance of *Far Grip* and *Far Fosna*, two Farstad-owned UT 722 vessels, active on Norske Shell's Draugen field in the northern sector of the North Sea since 1993. Mokster's vessel will be primarily engaged in deepwater anchor handling and the general support of floating production systems. A short delivery time with a promised delivery of April 1997 led to the \$25-million building contract being placed with Aukra Industrier, a shipyard located on the west coast of Norway.

Twin 5,419-kW engines driving CP propellers in fixed nozzles will give the vessel a bollard pull of about 160 tons and a speed of approximately 16 knots. The steel hull is 246 ft. (75 m) long with a molded breadth of 59.4 ft. (18.1 m) and a maximum draft of 21.6 ft. (6.6 m). Maneuverability from high lift rudders and a total of three 1,200-hp tunnel thrusters will be

SpecTec Releases New Version For Windows

AMOS for Windows is the successor to SpecTec's AMOS-D planned maintenance and purchasing system.

The new system introduces advances in speed and functionality, as well as some innovative capabilities, according to the manufacturer.

The new Windows version "captures the soul but leaves behind the body" of the former DOS-based AMOS-D system, said **Atle Valland**, spokesperson for SpecTec. "The structure is similar to before, but the user interface is completely changed. We have gone back to square one by completely rewriting the software for a Windows operating system."

The system is designed to aid shipowners and managers with a speedy and efficient management tool. It is designed to optimize maintenance systems, ensuring preventative maintenance and condition-based monitoring that can eliminate the costs of unnecessary operational problems. It has been shown that better maintenance planning means that spare parts replacement can be scheduled to tie-in with port visits and classification work. Close monitoring of a vessel's maintenance status can maximize the period between overhauls, reducing costs.

For more information on SpecTec
Circle 198 on Reader Service Card

AMOS - Ship 1/Department 1			
File Edit Form Maintenance Purchase Tools Window Help			
Purchase Order Form			
Form No: 96-0001	Type: Purchase Order	Status: Active	Note:
Title: Main Engine Spares	Creation Date: 16		
Vendor: VISA	Vienna spa	Order Date: 16	
Delivery Location:		Received Date: 20	
Budget Code:	Budget Date: 16.07.96		
Estimated Total / USD	6,768,000.00	Shipping / USD	50.00
Vendor Advised Total / USD	450.00	Part Paid / USD	200.00
Actual Total / USD	600.00	Currency:	USD
Formno	Title	Ordered	Rec
96-0001	Main Engine Spares	16.07.96	03/97

The new AMOS for Windows is the successor to SpecTec's popular AMOS-D system.

EUROPEAN UPDATE

augmented by an Ulstein swing up azimuth thruster located forward. This is to be independently driven by diesel, providing a fuel efficient station keeping system meeting the requirements for safety stand-by.

The vessel will be capable of towing from both forward and aft, enhancing its range of capabilities. The foredeck mounted winch/windlass is to have a brake load of 120 tons, and the aft winch will have three drums and a brake holding load of 430 tons. Both winches are by Ulstein Brattvaag. A moonpool will greatly improve the utilization of subsea handling equipment.

Tankage is being provided for all rig and platform requirements, including 10,000-cu-ft. for dry bulk and a deck cargo carrying capacity of 1,300 tons. The vessel, meeting both Norwegian and U.K. rules for standby ships, will join the Stavanger-based owner's existing 25 strong fleet.

Further confirming Ulstein's influence in the offshore field, Swire Pacific Offshore — with two UT 720 anchor handling/tug/supply vessels already on order at Ulstein Verft — has placed an order for a third.

Swire's move is reportedly designed to extend the profile of its fleet operating in hostile waters and reduce the average vessel age. The three vessels are scheduled for delivery at intervals ending next October.

The new UT 720 has reworked hull lines and will employ twin Wartsila diesels with a combined output of 12,000 hp driving large diameter propellers to give a bollard pull in excess of 145 tons.

..and two more from Scotland

Two new platform supply vessels built in Scotland for Stirling Shipping, measuring 272 ft. x 62.3-ft. (82.8 m x 19-m), have now entered service with Shell U.K. Exploration & Production in the northern sector of the North Sea. *Stirling Forth* was first to proceed to its Aberdeen base from the famous Govan yard, now part of the international Kvaerner Group. The ship was followed a few weeks later by sistership *Stirling Clyde* from the neighboring Port Glasgow yard of Ferguson Shipbuilders.

Since these vessels were profiled

in July issue, *MR/EN* has had the opportunity to speak with Stirling

Stirling Forth, one of two new platform supply vessels built in Scotland for Stirling Shipping, has reportedly entered service with Shell U.K. Exploration & Production in the northern sector of the North Sea.



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EUROPEAN UPDATE

Operations Director **Ken MacDonald**. "At the time of placing the original order for *Stirling Clyde* at Fergusons to meet the requirements of a newly won contract with Shell, there was an option for a second vessel.

"However, we were so certain that Shell's design was destined to become the industry standard for North Sea operations that we immediately decided to proceed with a second, speculative ship; but to satisfy our required delivery date, the order had to be transferred to Govan," he advised. "Our confidence in this size of ship has been confirmed, not only by its immediate five-year charter to Shell, but the large number of very similar vessels now being built in Norway with an identical concept."

The company is quick to point out that *Stirling Forth* and *Stirling Clyde* are the first with a number of special safety features to work in the region.

Developed by their own personnel in association with naval architects Vik & Sandvik, these include a continuous safehaven arrangement providing the crew with easy, quick and safe protection from cargo, a 1,200-hp, independently-driven azimuthing thruster providing, among other things, a 6.5-knot capability and four Jason ladders. In addition, the vessel retains full control of all thrusters and propellers in the event of a blackout, and the

bridge has an unobstructed view of 100 percent of the cargo deck.

In the light of these safety features, it is no surprise that the company has been awarded a Document of Compliance with the ISM Code from the Marine Safety Agency (MSA) under authority of the U.K. government. Stirling is the first manager of offshore supply vessels to achieve certification and, moreover, a full six years in advance of the statutory implementation date.

In accepting the award, **Ken MacDonald** commented: "Safety enhancement is, however, a process of continual improvement. We will continue to pursue safety initiatives throughout the fleet on a broad front."

International focus for FBM designs

U.K. fast ferry expert FBM Marine of Cowes, Isle of Wight, has awarded that a new U.S. facility, Pequot River Shipworks in Connecticut, an exclusive license to build seven types of FBM craft for the North American market. The contract revolves largely around the right to build the proven TriCat trimaran, the star vessel in the yard's portfolio.

In the Far East, further orders have been placed by FBM's parent company in Hong Kong

for TriCats. Portuguese ferry operator Transtejo has confirmed a contract for two further 147.6-ft. (45-m) catamarans, and an interesting refit for three riverbuses, once used on the Thames, is under way for the U.K. Ministry of Defence (MoD). The latter has also accepted an innovative FBM designed 75.4-ft. (23-m) passenger-transfer SWATH craft.

When Tribal Chairman **Richard Hayward** and leading dignitaries from the Mashantucket Pequot tribal nation visited FBM's Isle of Wight facility to examine the first completed TriCat years back, the entourage caused quite a stir. Convinced that the vessel could prove ideal for ferrying passengers to and from the tribe's resort casino at Foxwoods, Conn., Mr. **Hayward** initiated discussions with a view toward building vessels in the U.S. for use in connection with the resort, and also for sale. The sleek, futuristic shape of the TriCat, coupled with economic operating costs and speeds which would optimize the time passengers could spend gambling at the casinos were major attractions.

Plans were realized when the tribe purchased a facility on Eastern Avenue; a former steel fabrication plant that once manufactured parts for the Navy's Trident submarine program. Many of the employees including some ex-management were re-employed to work in the ferry pro-

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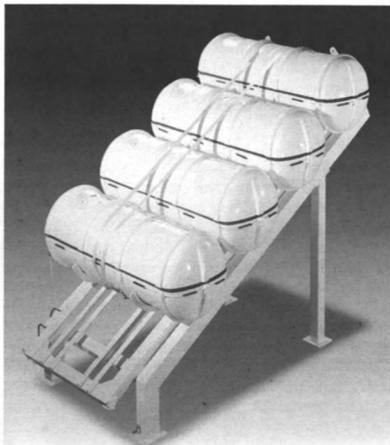
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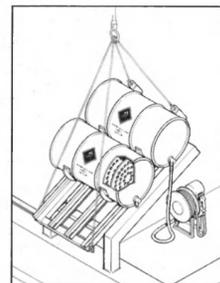
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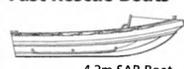
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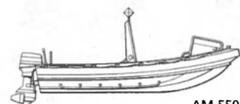
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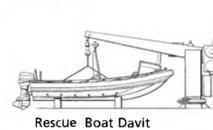
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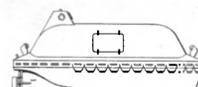


Overhead Gravity Trackway Davit

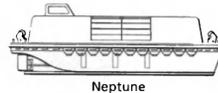


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EUROPEAN UPDATE

ject, and the first vessel — *Sassacus* — underwent a keel laying ceremony at the end of July. At this time, Mr. **Hayward** was enthusiastic about the future of the project announcing: "We have high hopes for *Sassacus* and each TriCat that follows. We see this craft and seven other FBM models we are licensed to build as playing important roles in the marine superhighway of the future. The tribe is committed to finding alternative modes of transportation such as high-speed ferries and plans to sell them not only in the United States but also in Canada and throughout South America."

With a cruising capability of 47 knots, the TriCat is powered by a lightweight, compactly proportioned Taurus 60M marine turbine, an industrial two-shaft, variable-speed engine offering high speed and low pollution levels. This arrangement is coupled to a waterjet propulsion system which is reportedly powerful enough to empty the equivalent of an Olympic-sized swimming pool of its 600,000 gallons of water in just 55 seconds.

While the Pequot Nation embarks on its first project, the new high-tech FBM shipyard in the Philippines is also making headway with two, 196.8-ft. x 72.1-ft. (60 x 22-m) building sheds scheduled for completion in November. Subsequent stages on the 10-acre site will include construction of sheds with capacity for

large car-carrying catamarans and offshore patrol vessels. FBM and partner Aboitiz Group expect to slip the first vessel in mid-1997. It will be a TriCat, one of five further vessels ordered by CTS Parkview, Hong Kong. When these are complete, FBM's parent company will operate 10 vessels on its Hong Kong to Macau route.

Back in the U.K., an order has been received for two further TransCat catamarans which will join four existing vessels providing a regular commuter service on the 14-nm route across the River Tagus between Lisbon and the suburb of Montijo.

Of identical design, the newbuildings will travel at a service speed of 20 knots carrying 500 passengers with a maximum cruising speed capability of 25 knots.

The first of the ferries will be built in Cowes while the second is to be subcontracted to Estaleiros Navais do Mondego in Portugal with a proportion of the sub-assembly work, pre-cut components and all the high-tech elements produced in the U.K. A similar arrangement was successfully employed in the construction of the former vessels, with the first two — *Alges* and *Castello* — being built in the U.K., while *Chiado* and *Bica* were completed in Portugal.

The TransCat design was selected for the route due to its low wash and wake character-

istics, as well as its shallow draft, permitting operation in less than 2 m of water. To facilitate a speedy turnaround at low height pontoon berths, two wide entrances are provided on each side with hydraulically operated ramp doors. Introduction of the ferries on the popular commuter route has reportedly reduced the journey time by half. Delivery of the final batch is scheduled for September and November of next year.

One of the most innovative developments within the company in recent years is its SWATH technology.

Expertise gained in the design and construction of passenger ferry *Patria* (in service since 1989 on the open Atlantic route from Madeira to Porto Santo) has been put to use in the construction of a passenger-transfer vessel for the U.K. naval fleet. A stable platform and good directional control were required by the MoD for passenger transfer in open sea conditions to and from warships and auxiliaries in the fleet.

Each aluminium alloy vessel is to be fitted with twin marine diesel engines of approximately 450 kW each, driving conventional propellers to give a service speed in excess of 11 knots in Sea State 3. Accommodation includes comfortable high-backed seating for up to 75 passengers, a kiosk with limited cafeteria facilities, and crew accommodation. A moveable

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partition system in the passenger cabin makes way for a conference facility if required, with capabilities for overhead projection, television and video presentations, telephone communications and personal computer use.

The transfer operation requires teams of up to 30 persons to transfer to or from the craft within a few minutes. This is achieved by means of hydraulically adjusted telescopic gangways fitted at the upper deck at the aft end of the

craft. The outboard end of the gangway in use is held against the receiving ship's side with any movement corrected by sensors linked to the hydraulic system.

Design of the gangway was also attributed to previous experience,

this time as seen in the gangway and crane arrangement on *Adamant*, the 98.4-ft. (30-m) vessel built for crew transfer and submarine support for the MoD in 1991. Two SWATH vessels are to be built for delivery in July and September of next year to complete a contract worth around \$10 million.

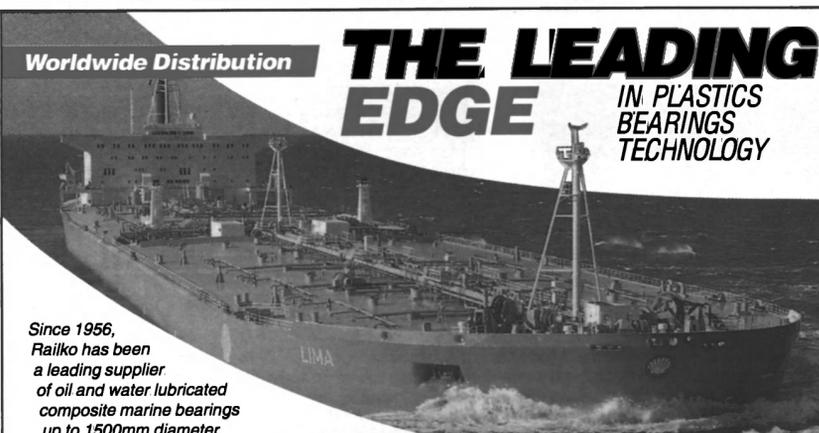
Other personnel carriers are also on line for the MoD in the guise of refitted riverbuses. Originally built for P&O and Olympia & York by FBM in 1991-92 for service on the Thames, the three vessels — *Conrad*, *Chelsea Harbour*, *Veritatem* and *DHL Worldwide Express* — have been idle since the demise of the RiverBus Partnership. Now owned by Serco-Denholm, the facilities management company that has recently taken over the running of certain marine services for the MoD, each will be deployed at Portsmouth and Devonport to transport personnel within the dockyards and to and from Royal Navy ships.

The catamarans have fiber reinforced composite hulls, are designed to accommodate 62 passengers, are fitted with twin Scania diesel engines, and travel at a service speed of up to 25 knots. The refit contract includes complete systems overhaul, repainting of the exterior and other essential repairs and alterations.

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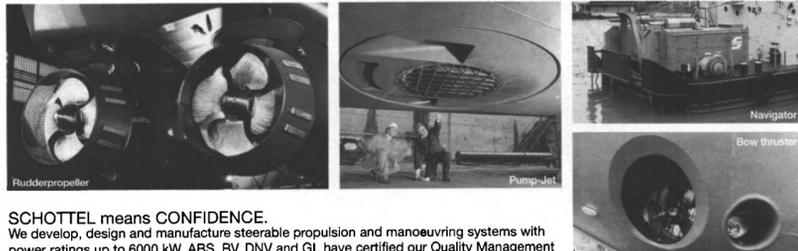
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Circle 321 on Reader Service Card

Revival of fortunes at Scottish yard

Ailsa-Troon Ltd., formerly known as Ailsa-Perth Shipbuilders, has made a remarkable return to profitability in just three months since its purchase by the Cathelco Group. "The figures for the first quarter are extremely encouraging and reflect the confidence of our customers in our capabilities against the background of new financial stability," stated Group Sales Director **Alan MacDonald**.

The yard's ship construction hall, suitable for vessels up to 375 ft. (114 m), saw the successful completion of a ferry for the Orkney Islands, and a full program of repair and refurbishment work is reportedly scheduled through the spring of 1997. The company's two drydocks have already been engaged on the overhaul of *Solea* and *St. Keeran*, two coasters operated by Gardners of Glasgow, and a number of Royal Marine Auxiliary Service vessels. Work is also progressing on two, 85-ton steel lock gates for the Manchester Ship Canal.

CONTRACTS AWARDED

ABB To Supply Propulsion For Cruise Newbuilds At Meyer Werft

ABB Marine, a supplier of diesel-electric propulsion systems for the shipping and offshore industry, will supply propulsion systems for two cruise newbuilds contracted to Meyer Werft by Star Cruise of Malaysia. These two ships will be the first diesel-electric vessels in Star's fleet.

ABB will supply propulsion drives of 2 x 20 MW including cycloconverters and propulsion motors to drive two fixed pitch propellers, for *Superstar Leo* and *Superstar Virgo*. The delivery will include a 56-MW electric powerplant consisting of four medium voltage diesel alternators, three thruster motors, four compressor motors, medium voltage switchboards and deck substations, for a voltage level of 6.6 kV. The systems also feature ABB Advant OCS controllers for the propulsion system, ensuring safety and redundancy during operation.

For more information on ABB Marine
Circle 1 on Reader Service Card

AmClyde Announces Deepwater Cooperation

AmClyde Engineered Products, Inc., SEA Engineering Associates, Inc. and MODEC, Inc. have formed a business agreement to collectively promote the patented MOSES (Minimum Offshore Surface Equipment Structure) deepwater mini-TLP (tension leg platform). MOSES is a state-of-the-art offshore oil production system which reportedly enables marginal or unproven deepwater fields to be produced cost-effectively by using one or more TLPs.

AmClyde designs and builds large specialty equipment for lifting, pulling and mooring loads offshore and in shipyards.

For more information on AmClyde
Circle 2 on Reader Service Card

Senermar Signs FORAN Agreement With Chilean Yard Interest

Senermar, a Spanish naval architecture firm, has signed a new license agreement for FORAN 30 — its CAD/CAM/CAE system for ship design and production. The

new FORAN license agreement with Chilean yard interest Astilleros y Maestranzas de la Armada (ASMAR) includes subsystems such as Basic Design, Hull Structures, Outfitting and Electrical Systems and Build Strategy. ASMAR operates three

yards — at Talcahuano, Valparaiso and Punta Arenas — building and repairing naval and merchant vessels, fishing vessels and offshore structures. In the past, Talcahuano built a 10,000-ton lifting capacity floating dock, originally designed by Senermar.

For more information from Senermar
Circle 97 on Reader Service Card

Stidd Systems Introduces SubBoat

At the recent Naval Warfare



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Circle 282 on Reader Service Card

CONTRACTS AWARDED

Expo in Virginia Beach, Stidd Systems, Inc. of Greenport, N.Y., introduced SubBoat — a surface planing wet submersible capable of switching between surface and submerged propulsion. The vessel, shortened to SSB, was designed for autonomous deploy-

ment of divers and equipment. According to SSB Program Manager and company CEO **Walter Gezari**, SSB has completed sea trials and is being manufactured by the company under license from the U.S. Navy in an agreement signed in April. The

vessel ; has a deep-V, aluminum hull and composite topskin; a payload of 2,800 lbs; and is configured for air drop, helicopter external transport or deployment from a boat launching ramp.

For more information on Stidd Systems
Circle 3 on Reader Service Card

Cummins and MerCruiser Announce Supply Agreement

Cummins Marine has announced a supply agreement with MerCruiser to sell and distribute marine diesel sterndrives worldwide. Cummins will package existing drives from MerCruiser, including Bravo I, II and III models, with new sterndrive derivatives of the Cummins Diamond Performance Series engines. The engines are reportedly the only ones in their hp-to-weight class that have passed the Navy's 1,000-hr. endurance test for certification.

"The diesel sterndrive has been sought after for years. This supply agreement will enable us to provide better systems-oriented propulsion solutions to a broad range of commercial and recreational customers," said Cummins Marketing Manager **Dave Crompton**.

For more information on Cummins
Circle 4 on Reader Service Card

GEC Alstom Wins Turbine Replant Order

GEC Alstom has won an order valued at a reported \$60 million from Southern California Edison to supply new steam turbine modules at the San Onofre nuclear generating station. The six Optiflow low pressure turbines, manufactured in Europe for the two, 1,200-MW generating units, will reportedly increase the station's output by more than 50 MW.

For more information on GEC Alstom
Circle 5 on Reader Service Card

U.S. Yards Place Kockum Sonics Orders

Scandinavian marine equipment manufacturer Kockum Sonics has reportedly signed contracts for signalling and lighting equipment with shipyards Marinette Marine, Newport News Shipbuilding and Alabama Shipyard in the last few months.

In the manufacturer's line of products is Levelmaster, a sophisticated level gauging system; the LoadRite loading calculator; and a wide variety of pneumatic and electric foghorns.

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has developed," said **Lars Mattsson**, president of Kockum Sonics AB.

For more information on Kockum Sonics
Circle 6 on Reader Service Card

Seaward Services Scores NUWC Contract

The Naval Undersea Warfare Center (NUWC), Division Keyport, Wash., awarded Seaward Services, Inc. a five-year, \$9.3-million federal prime contract to operate and maintain in excess of six range craft based on the western shore of Puget Sound.

Included in the vessel mix are three 185-ft. (56.3-m) torpedo range test craft and two 108-ft. (32.9-m) patrol craft. San Diego-based American Systems Engineering Corporation will serve as the maintenance subcontractor under this contract.

For more information on
Seaward Services, Inc.
Circle 7 on Reader Service Card

Stolt Comex Wins \$20 M Contract In South China Sea

Stolt Comex Seaway S.A. was awarded a \$20-million contract for the installation of flexible risers, umbilicals and a submerged turret production buoy and associated mooring system on the Lufeng 22-1 field in the South China Sea. This award represents part of a larger contract for the engineering, procurement, installation and commissioning (EPIC) awarded by Statoil Orient Inc. to the Lufeng Development Corp., a Norwegian company jointly owned by Statoil, Advanced Production Systems and Stolt Comex Seaway.

The installation workscope, to start in the second half of 1997, will be undertaken using diverless technology, developed and provided on other projects such as the Shell Draugen, Statoil Yme and Norsk Hydro Troll Olje.

For more information on
Stolt Comex Seaway S.A.
Circle 8 on Reader Service Card

G.R. Bowler Completes Marad Contract

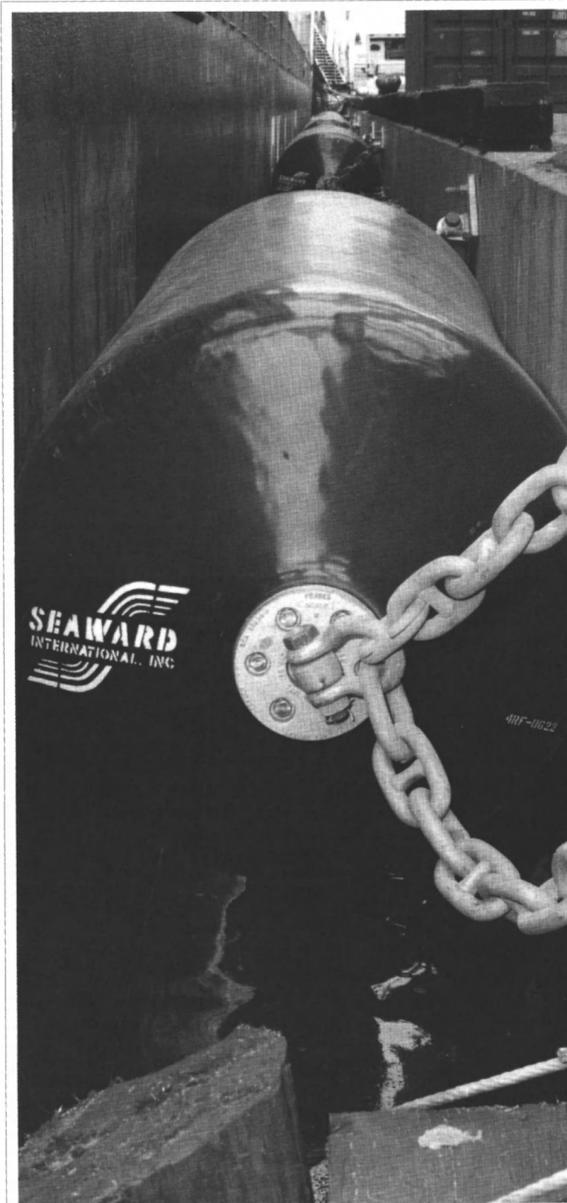
G.R. Bowler, Inc., located in Rochester, N.Y., a company providing marine and industrial controls services, has reportedly successful-

ly completed a million dollar contract for Marad through American Overseas Marine. The contract involved the engineering and installation of APACS (Advanced Process Automated Control System) by Moore Products Co. aboard SS *Wright*.

Chantiers de l'Atlantique Wins Dual Cruise Ship Order

R Shipping, Inc., an affiliate of Renaissance Cruises Inc., known for its fleet of 114-passenger luxu-

ry vessels, has announced the signing of an agreement to build two new 690-passenger ships. Chantiers de l'Atlantique in Saint-Nazaire, France, will construct the two 350-cabin cruise ships. London-based architect/designer
(Continued on page 45)



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Cummins Opens U.K Marine Center

Cummins Diesel U.K. has opened a Marine Center as the main source of all Cummins marine engines for Cummins distributors within Europe, the Middle East and Africa. The new 1,821-sq.-m. facility is equipped to provide customers with complete power package from engines to propellers. The Marine Center is involved in all

aspects of design and stocks equipment of Cummins B, C, 855, V28 and K series engines for workboat and pleasure boat propulsion and auxiliary applications in the 37 to 1,342-kW range.

This center, which represents an investment of \$1.5 million, is reportedly the largest distributor-owned operation of its kind in Europe.

Through the use of its CAD/CAM facilities,

the Marine Center provides a complete marine installation support service for engines and engine drive equipment for meeting customers requirements — including the design, specification and fitting of engine related items.

For more information on Cummins Diesel
Circle 57 on Reader Service Card

MWH Rotators Increase Value Service Life



Markisches Werk Halver (MWH) has developed Turnomat, a rotator for engines which reportedly reduces unfavorable influences on service life and can prolong periods between overhauls. Turnomat ensures safe rotation of movement of the valve spindle during the entire opening and closing operation. The rotation energy brought about by this process reportedly has a favorable effect. At the moment of closing the valve, seats are being polished, thus creating improved heat exchange, which lowers the temperature of the components and results in a more even distribution and a reduction in thermal stress.

For more information on MWH
Circle 94 on Reader Service Card

Jotun Launches Low-Impact Coatings System At SMM '96

Norway-based Jotun Group launched a new low-impact coating system at SMM '96. Comprising two recently-developed Jotun coatings, this new system reportedly offers a high level of protection in areas throughout a ship, while meeting the strict VOC limitations called for by environmental legislation.

The basic protection offered by the new Jotun system is provided by the group's Polymastic 100, high-solids, solvent-free epoxy mastic formulation which reportedly offers good resistance to abrasion, fresh and salt water, as well as to splashes of solvent and other chemicals.

The resistance of Polymastic 100 to seawater immersion, salt spray and humidity has reportedly been proven by extended tests in water ballast tanks and fore peak tanks, as well as on hulls above and below the waterline.

For more information the Jotun Group
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PROPULSION UPDATE

MTU/DDC Launch Two New Engines At SMM

Power of joint venture brought to life in cooperative creation of Series 2000 and Series 4000 engines

Two new engines jointly developed by MTU Friedrichshafen and Detroit Diesel Corp. (DDC) were unveiled at the SMM '96 exhibition in Hamburg, Germany. The two new series are designated the 2000 and 4000 Series, respectively. The Series 2000 is available in eight, 12 and 16-cylinder versions, with a power range from 270 to 1,343 kW. The Series 4000 is also available in eight, 12 and 16-cylinder configurations, with a power range between 735 and 2,720 kW.

The development of the two new series is a continuation of the cooperation announced between MTU and DDC two years ago. "The Series 2000 and Series 4000 have been devel-

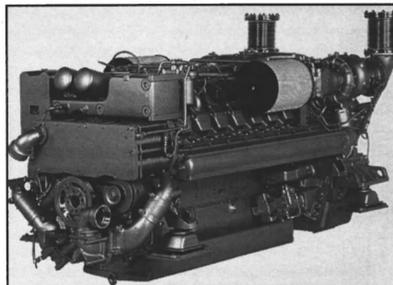
oped jointly with our partners Detroit Diesel Corp.," said Dr.-Ing. **Gerd-Michael Wolters**, a member of the MTU Friedrichshafen board. "Apart from the labor component, the development costs were split equally between MTU and DDC."

The Series 2000

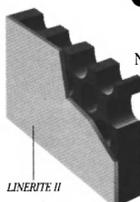
Development responsibilities for the Series 2000 engine (with a cylinder displacement of two liters) was in the hands of DDC.

The 8, 12 and 16-cylinder V-engines of the

The new 16V 2000 for marine main propulsion produces 1,343 @ 2,300 rpm.



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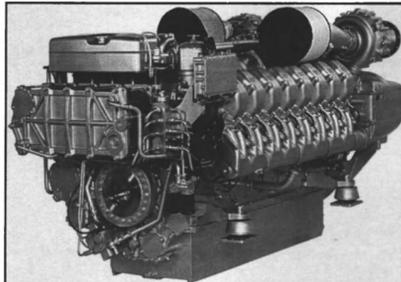
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PROPULSION UPDATE



"The Series 2000 and Series 4000 have been developed jointly with our partners Detroit Diesel Corp."

Dr.-Ing. Gerd-Michael Wolters, a member of the MTU Friedrichshafen board, at press conference introducing the new engines.

The new 16V 4000 for marine main propulsion produces 2,720 kW @ 2,100 rpm.

Series 2000 engines imitate the basic structure of the major components and subassemblies to Mercedes. The engines were derived from the Mercedes-Benz Series 500 engines, which are produced in large quantity for trucks.

The rugged, torsionally rigid, gray cast-iron crankcase was designed for minimal weight and accommodates the cylinder lines, crankshaft and central camshaft bearings as well as the injection pumps. It also contains the major passages for lube oil and coolant circulation, and provides attachment points for the engine mounts, as well as for various ancillary and accessory equipment.

Together with the respective application-related pistons, the four-valve cylinder heads with centrally located injection nozzle offer optimum prerequisites to tune the combustion for minimum noxious emissions and fuel consumption.

The injection system is the same for all applications; it consists of one high-pressure pump for each cylinder. The pumps are controlled by an electromagnetic solenoid valve, supplying the fuel to the central injectors where it is atomized by up to 1,800-bar injection pressures.

The engines feature a triple-walled exhaust system. An outer, water-cooled aluminum casing constructed from tough (but lightweight) extruded sections with integral coolant passages cools and carries the exhaust system along the side of the engines. This is designed to ensure that surface temperatures do not exceed the permissible levels, while providing absolute gas tightness. Inside the cooled outer casing, there is another, high-temperature-resistant exhaust pipe. This is designed to ensure that the flow of exhaust gases comes into direct contact with the cooled outer casing as little

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Series 2000

Technical Specifications

Engine model 8, 12 and 16 cylinder diesel engines, 4-stroke
Vee angle	..... 90 degrees
Bore	..... 130 mm
Stroke	..... 150 mm
Cylinder displacement	..... 1.99 l
Total engine displacement	..... 11.94 to 31.84 l
Idle speed	..... 575 rpm
Rated speed	..... 1,500 to 2,300 rpm
Power per cylinder	..... 34 to 84 kW
Total power	..... 270 to 1,343 kW
Mean effective pressure	..... 13.6 to 22 bar
Average piston speed	..... 7.5 to 11.5 m/sec.
Supercharging	..... Single-stage with two exhaust turbochargers and charge-air cooling; optional sequential turbocharging
Injection	..... Electronically controlled high pressure injection with unit injectors
Starting system	..... Electric starter

Maritime Reporter/Engineering News

PROPULSION UPDATE

s possible. This retains valuable energy within the exhaust gas so that it can be utilized where it is needed, in the turbocharger.

As a special feature, the split-circuit cooling system for engine and intake-air cooling complements the turbocharger system and acts as an "intelligent" cooling system, keeping the engine coolant, oil and intake air at the optimum temperature under all operating conditions. When idling or at partial throttle, for example, the temperature of the intake air is raised to ensure smooth and complete combustion without white smoke. At full throttle, maximum cooling of intake air maximizes engine performance. All of this is achieved with a cooling system that is fully integrated within the engine and optimized for minimum space requirements.

The Series 4000

The motivating force behind the development of the Series 4000 engine was the need for a compact, high-performance diesel engine in the

output range above 700 kW, according to MTU.

Generously proportioned access ports in the crankcase reportedly make it possible for all servicing operations to be carried out without having to remove the engine, even in cramped conditions. On the "front" end of the engine, for example, there is an integral service block positioned for best accessibility to suit the particular application, significantly simplifying all standard service operations.

The electronic engine management system provides advanced information of the service work required.

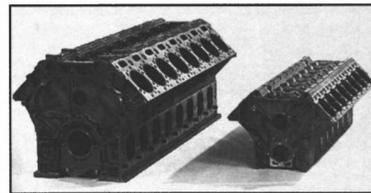
The pistons (steel crown, aluminum skirt) are fitted with wear-resistant, chrome-ceramic coated piston rings which, in combination with the plateau-honed cylinder liners, are designed for low oil consumption and long service life.

The cylinder heads, with integral coolant passages, are designed for maximum combustion pressures of up to 200 bar and have a specially stiffened base.

The manufacturer said that exceptionally

good fuel consumption is achieved using a completely new common-rail injection system. Whereas the injection pressure in conventional systems is virtually incapable of change over the engine operating range, both injection pressure and injection timing can be freely programmed with the common-rail system.

The high pressure pump and electronically controlled injectors are fully integrated in the electronic control concept, providing low con-



The crankcases of MTU's new Series 2000 and 4000 were optimized for casting and production in conjunction with the suppliers.

MMC CLOSED SAMPLING

MMC's new Closed Sampling Tape has its own built-in sampling port.

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Its closed construction keeps emissions from escaping into the atmosphere so you're in compliance with all applicable vapor-control regulations. A return hose assembly even directs vapors displaced from the sample bottle back into the system. The sample bottle is then quickly and neatly removed, and capped for testing and/or laboratory analysis.

One final point: It's all made in the USA by MMC, a name you've learned to trust for over 50 years.

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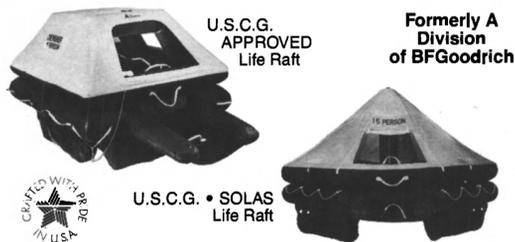
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Circle 264 on Reader Service Card

sumption. Through common-rail injection, high injection pressure is designed to be assured, even at low engine speeds. With the atomization performance, the peak pressures of the common-rail system are approximately 20 percent lower than with conventional injection. MTU and its subsidiary L'Orange Einspritzsysteme in Stuttgart were responsible for the development of the common-rail injection system. An additional benefit of the system touted by the manufacturer is its flexible capability of variation across the engine power band, and its capability to deliver the same injection pressure at all engine speeds from rated speed to idling speed.

By eliminating individual injection pumps, loading of the camshaft and gear train is reduced.

For more information on the new engines
Circle 9 on Reader Service Card

Series 4000 Technical Specifications

Engine model 8, 12 and 16 cylinder, 4-stroke cycle
Vee angle 90 degrees
Bore 165 mm
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Cylinder displacement 4.06 l
Total engine displacement 32.48 to 64.96 l
Idle speed 500 rpm
Rated speed	..... 1,500 to 2,100 rpm
Power per cylinder	..... 92 to 170 kW
Total power	..... 735 to 2,720 kW
Mean effective pressure	..... 18.1 to 23.9 bar
Average piston speed	..... 9.5 to 13.3 m/sec.
Supercharging	..... Single-stage with two exhaust turbochargers and charge-air cooling; optional sequential turbocharging
Injection	..... Electronically controlled common rail system
Cooling system	..... One or two-circuit cooling system
Starting system	..... Electric starter, air starter, compressed air through cylinders

Global Logs 10th Project Offshore Africa

Global Industries Ltd. was awarded its 10th project offshore West Africa. The Ukpokiti project offshore Nigeria, operated by Express Petroleum & Gas Co. Ltd. (Conoco Energy Nigeria is the technical advisor) consists of the installation of three caissons, three flowlines, a flowline-end manifold (PLEM), six risers and nine pump spools. Global's combination derrick/pipelay barge, *Cheyenne*, was to have commenced the project last month.

Maritime Reporter/Engineering News

CONTRACTS AWARDED

(continued from page 39)

ohn McNeece has been contracted to create the feeling of an "old world" luxury cruiseliner. Projected cost for the two new ships is more than \$300 million.

"We have carefully planned these ships to match the specific needs of the market," commented **Frank Del Rio**, executive vice president, Renaissance Cruises. "These will be the first luxury ships designed to provide multiple casual dining options at dinnertime, and perhaps most significant of all, they will be the first ships in the world to be designated 'no-smoking' throughout."

Renaissance Cruises will operate and market the new ships, which are scheduled for delivery in June 1998 and February 1999. Although specific itineraries have not been finalized, it is expected that they will sail primarily in the Mediterranean. Construction of the vessels will begin in December 1996, with the first keel-laying scheduled for June 1997.

Seacor To Acquire Smit Offshore Assets

Seacor Holdings, Inc. signed a letter of intent to acquire all of the offshore supply vessel assets of Smit International NV (Smit), and certain joint venture interest for approximately \$140.2 million. The Smit supply vessel fleet, including vessels held in joint ventures, consists of 49 vessels. The parties anticipate that the transaction will close by the end of December, and Seacor reportedly intends to change its name to Smit-Seacor Inc. upon completion of the transaction.

The purchase consideration will consist of \$84 million in cash to be provided by existing lines of credit, 712,000 shares of Seacor common stock, which based on Seacor's closing price on October 11, had a value of \$35.2 million, and \$21 million in subordinated convertible notes for a total price of approximately \$140.2 million. Smit may also receive additional consideration in 1999 predicated on improving the performance of the fleet and meeting certain targets for profitability in 1997 and 1998.

Charles Fabrikant, chairman of Seacor, observed, "This combination is an excellent fit with Seacor's emphasis on deepwater service and establishes Seacor as a global offshore operation by giving

us market presence in the Far East, Latin America and the Mediterranean. In effect, Seacor is now one of two companies able to serve every important offshore market."

Smit President **M.A. Busker** noted that the transaction would

strengthen Smit's position in the salvage and maritime contracting industries by providing access to substantially greater marine resources than are currently available to Smit and also to vessels operating in North America.

Smit is a marine salvage and off-

shore installation contractor operating in the North Sea, the Mediterranean, the Far East, the Middle East, and Caribbean and Latin America. Seacor operates a diversified fleet of more than 250 vessels dedicated to supporting offshore oil and gas exploration and

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development in the Gulf of Mexico, Mexico, the North Sea and offshore West Africa. The company also provides environmental services, including marine oil spill response, training and consulting.

Avondale Selects Intergraph Hardware And Software

Intergraph Corporation announced that Avondale Industries Inc. has acquired Intergraph hardware and software, valued at more than \$2 million, for shipbuilding and data management applications. Using these systems throughout its business, Avondale will design and analyze its commercial and military products in a digital environment. Products will be reviewed in a virtual environment before supplying information to production for manufacturing. In addition, the data will be used to support products throughout their life cycles, reducing costs and ensuring higher levels of product quality. **Edward A. Wilkinson**, executive vice president for Intergraph Federal Systems, commented, "This acquisition of Intergraph technology demonstrates Avondale's commercial and military commitment to 3-D product modeling and company-wide implementation of an Integrated Product Data Environment (IPDE)." The Avondale Alliance has also selected Intergraph's suite of Integrated Ship Design and Data Management Products to support the alliance's bid for the U.S. Navy's new Amphibious Transport Dock ship, the LPD-17. Intergraph joined the LPD-17 team in February.

For more information on Intergraph
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Stolt Comex Seaway Expands Fleet With Vessel Purchase

Stolt Comex Seaway S.A. has purchased a new deepwater subsea construction and flowline lay ship to expand its present fleet. The new ship, *Navigator*, originally designed as a cable lay ship, was purchased from the receivers of Boelwerf Vlaanderen shipyard in Belgium. The vessel is being enhanced for further capabilities for subsea construction and flexible flowline lay work in time for operation in the 1997 offshore season. Preparations will also be made for the later installation of rigid flowline lay equipment. Company plans indicate that *Navigator* will begin operation in the North Sea, and will then move to the South China Sea to work on the Statoil Lufeng 22-1 project. The ship measures 452.7 x 63.9 ft. (138 x 19.5 m), has a DWT of 6,000 tons and a working deck space of 1,300 sq. m. *Navigator's* fitting out will be completed with the installation of dynamic positioning equipment, a saturation diving system, ROV launch facilities, as well as below deck cargo storage, handling systems for flexible flowlines, umbilicals and anchor chains and substantial cranes.

(Continued on page 49)

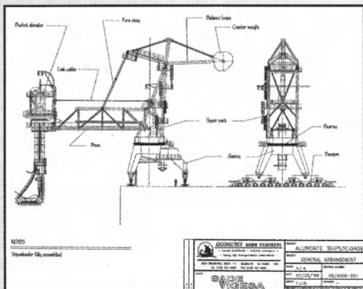
Maritime Reporter/Engineering News

Argonautics Aids In Buaxite Ship Unloader Transport/Assembly

From August through September of this year, a 2,000 tons/hr. buaxite ship unloader was transported to the Alunorte pier in Vila Do Conde, Brazil. This ship unloader, designed by

Italmplianit of Italy and built by Sade Vigese, had been erected at the Berolme yard in Angra dos Reis, Brazil. For the ocean transportation, Dutch shipping company Jumbo Navigation N.V. was contracted. Jumbo Navigation used its heavy-lift ship *Fairlift* for this transport.

Argonautics Marine Engineering of Sausalito, Calif., was contracted to confirm the feasibility of the proposed transportation and re-assembly. Full structural analyses of all major parts were performed to study the effect of lifting and of



Pictured are the general arrangements for the Alunorte ship unloader.



ship motions on the ship unloader parts.

The ship unloader, weighing approximately 1,000 tons, was disassembled and lifted in three parts on to the heavy-lift ship using the Verlome gantry crane. These parts were then secured for the voyage using the standard

Jumbo slings and turnbuckles.

On August 27, the ship safely arrived at the Alunorte pier in Vila Do Conde. The gantry was first offloaded and positioned on the quay rails, using *Fairlift's* aft crane only. Using both ship cranes, the upper part was then lifted from the ship and positioned

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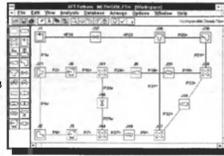
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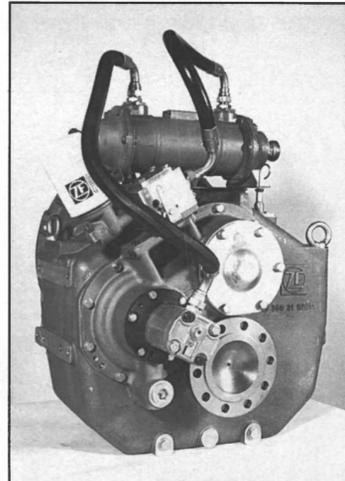
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on the gantry. The upper part was rotated 180 degrees, pointing towards the pier end. On September 5, the boom hinges were pulled inside the elevator eyes and the pins were installed.

After connecting the boom to the bucket elevator, the ship unloader's concrete counter weight blocks were installed using a mobile crane. Upon installation of the counter weights and a set of tie rods, the ship unloader itself was able to lift the bucket elevator from the ship's deck on September 8.

For more information on Argonautics
Circle 58 on Reader Service Card

**ZF Marine Offers Optimized-
Performance Products**



The new parallel shaft version (BW 155) of the BW 155 A (down angle). Both are now released with a power capacity of up to 1,000 hp at 2,300 rpm.

ZF Marine supplies marine transmission technology for craft generating up to 7,300 kW. Its product range includes transmissions and gear for applications such as sport boats, fast coast guard boats, large yachts, police boats, marine boats, state-of-the-art ferries and workboats.

The company now offers its HSW 125 H, a new, hydraulically-operated version of the HBW 125 transmission which has mechanical clutch actuation. The hydraulic version, with a newly designed clutch, ensures smooth and comfortable engagement/disengagement and is suitable for application in canal boats, small harbor craft and fishing boats requiring frequent clutch operation.

ZF Marine also offers a parallel shaft version of the BW 155. This is the parallel shaft version of the BW 155 A (down angle) with a vertical offset of 200 mm. Both the BW 155 and 155 A are now offered with a power capacity of up to 1,000 hp at 2,300 rpm.

For more information on ZF Marine
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Maritime Reporter/Engineering News

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NNS Chooses Design Software For Use In Nimitz Retrofit

Autodesk, Inc. has announced that Newport News Shipbuilding (NNS) has chosen AutoCAD Release 13 design software as the primary platform for a major U.S. Navy aircraft carrier retrofit program scheduled to begin next year. The yard reportedly purchased 100 seats of AutoCAD Release 13 and four seats of Autodesk Mechanical Desktop to begin the program, which will start with the retrofitting of aircraft carrier USS Nimitz.

"We needed a design software platform that can easily translate files from a variety of third-party add-on programs," said **Russ Pfister**, project engineer at NNS. "AutoCAD is the industry standard. As a result, translation just isn't an issue."

Autodesk supplies PC design software and multimedia tools. The company's 2-D and 3-D products, geographic information sys-

tems and data management tools are used in many industries, for uses including mapping, architectural design, mechanical design and Web content development.

Mercury Wins Additional Navy Sub Supply Contract

Mercury Computer Systems, Inc., a supplier of embedded computers for the military, has been awarded a contract from Lockheed Martin Federal Systems, Manassas, Va., to supply signal processing systems for use in the development, integration and testing of the sonar subsystem for the New Attack Submarine (NASN). This multi-year contract has a reported initial value of five to \$7.5 million.

This award is the third large Navy contract that Mercury has won in the last three months, in addition to contracts to provide upgrades to the combat sonar systems aboard Los Angeles Class subs, and for the development of the multi-purpose processors in submarine combat systems.

Lockheed Martin Federal

Systems is employing an incremental approach to develop the COTS-based open combat control, sonar and architecture subsystems of the C3I system for the NASN. Lockheed Martin Federal Systems will also act as the integration agent for the C3I system, integrating all 15 subsystems C3I. The integration effort will be performed at Electric Boat in Groton, Conn.

FiberChem and Autronica Sign Contract

FiberChem, Inc., through its wholly-owned subsidiary FCI Environmental, Inc. (FCI), announced that it has signed a definitive contract with Autronica AS, which provides fire, safety and environmental protection systems at offshore and onshore facilities. Autronica AS, headquartered in Trondheim, Norway, is a wholly-owned subsidiary of Whessoe plc.

Effective October 1, 1996, the contract covers resale of FCI's PetroSense continuous and portable instrumentation for the monitoring of petroleum hydrocar-

bons in produced water, storm water and wastewater, initially in certain countries with oil and gas operations in the North Sea, the Persian Gulf and Southeast Asia.

Malcolm Beall, vice president of Sales and Marketing for Autronica said, "FCI's products fit very well into our current product line and strengthen our position as the market leader for both environmental, and fire and safety protection in the offshore and onshore markets where we are anticipating rapid growth within the next few years."

FiberChem, Inc. develops, manufactures, markets and licenses fiber optic chemical sensors that produce continuous, real-time information on environmental pollutants in the air, water and soil.

CSC Wins Eight-Year NOAA Contract

Computer Sciences Corp. (CSC) has been awarded a contract to operate the Central Satellite Data Processing Center of the National Oceanic and Atmospheric

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Administration (NOAA) in Suitland, Md. The eight-year contract has a base year valued at \$4.3 million and seven one-year options, with a total value of \$35 million if all options are exercised. The contract also includes the capacity to acquire an additional \$35 million in incidental hardware, software, software licenses and software development.

CSC will provide project management, systems design and analysis, programming, applications and systems software development and maintenance, hardware maintenance, systems/software engineering support, product assurance and procurement services.

The Satellite Data Processing Center is a part of the Information Processing Division of NOAA's National Environmental Satellite, Data and Information Service (NESDIS). The center receives and processes real-time environmental satellite data from NOAA's polar and geostationary satellites, DoD's Defense Meteorologic Satellites, the European METEOSAT and ERS-2 spacecraft, and the Japanese GMS and ADEOS satellites. Teaming with CSC on this contract are Science & Technology Corp., Hampton, Va.; Alta Systems, Vienna, Va.; and Westover Consulting, Silver Spring, Md.; which will share at least 40 percent of the subcontracted labor costs. Other CSC teammates include Amdahl and Computer Associates.

Navy Awards Contract To McDonnell Douglas

The U.S. Navy has awarded McDonnell Douglas a contract for production of five Thermal Imaging Sensor Systems (TISS). Manufacturing will be done at McDonnell Douglas' Monrovia, Calif., electro-optical facility, with initial delivery in mid-1997. "The importance of this contract award is that a war-fighting capability critically needed by the surface Navy will soon be in the hands of the fleet," said Tom Jacobs, TISS program manager. Procured by the Navy in late 1995 from McDonnell Douglas, TISS is an electro-optical surveillance and targeting system for use on Navy surface ships. TISS provides long-range, high-resolution detection and recognition of small targets such as floating mines, periscopes, surface boats, cruise missiles and swimmers. The technology is useful in navigation and search and seizure operations, as well as in identifying threats.

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 (212) 997-0966.

Date Reported	Vessel Name	Vessel Type	DWT	Year Built	Sale Price
10/14/96	United Confidence	Bulker	17,693	77	\$2.5
9/30/96	Golden Panagia	Bulker	21,692	76	\$2.2
9/16/96	Riesa	Bulker	23,930	86	\$8
9/23/96	Akadon Bulk	Bulker	26,795	78	\$4
10/14/96	Edo	Bulker	30,650	84	\$8.8
9/23/96	Reliance 1	Bulker	34,913	83	\$6.4
9/16/96	World Ajax	Bulker	36,999	75	\$2.5
9/30/96	Western Mariner	Bulker	42,239	84	\$11.5
9/16/96	New Gold	Bulker	42,842	85	\$12.6
9/23/96	Maritime Eternity	Bulker	69,668	89	\$18
9/23/96	Saikai Maru	Bulker	80,107	80	\$5.8
9/23/96	Prosperous	Bulker	149,498	90	\$25.3
10/14/96	David Guramishvili	Tanker	16,439	78	\$1.6
9/16/96	Isola Turchese	Tanker	22,349	73	\$2
9/16/96	Pacific	Tanker	29,979	85	\$14.8
9/30/96	Capricorn	Tanker	31,165	75	\$5
9/23/96	Pactal River	Tanker	37,270	81	\$10
9/23/96	Sapphire River	Tanker	41,462	91	\$26.5
10/14/96	Morning Glory 1	Tanker	61,728	84	\$17.2
9/27/96	Iron Gippsland	Tanker	87,241	89	\$28.2
10/14/96	Jahre Prince	Tanker	88,900	86	\$26.5
9/23/96	Eagle Orion	Tanker	91,717	89	\$30

Maritime Reporter/Engineering News

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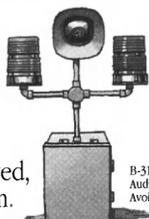
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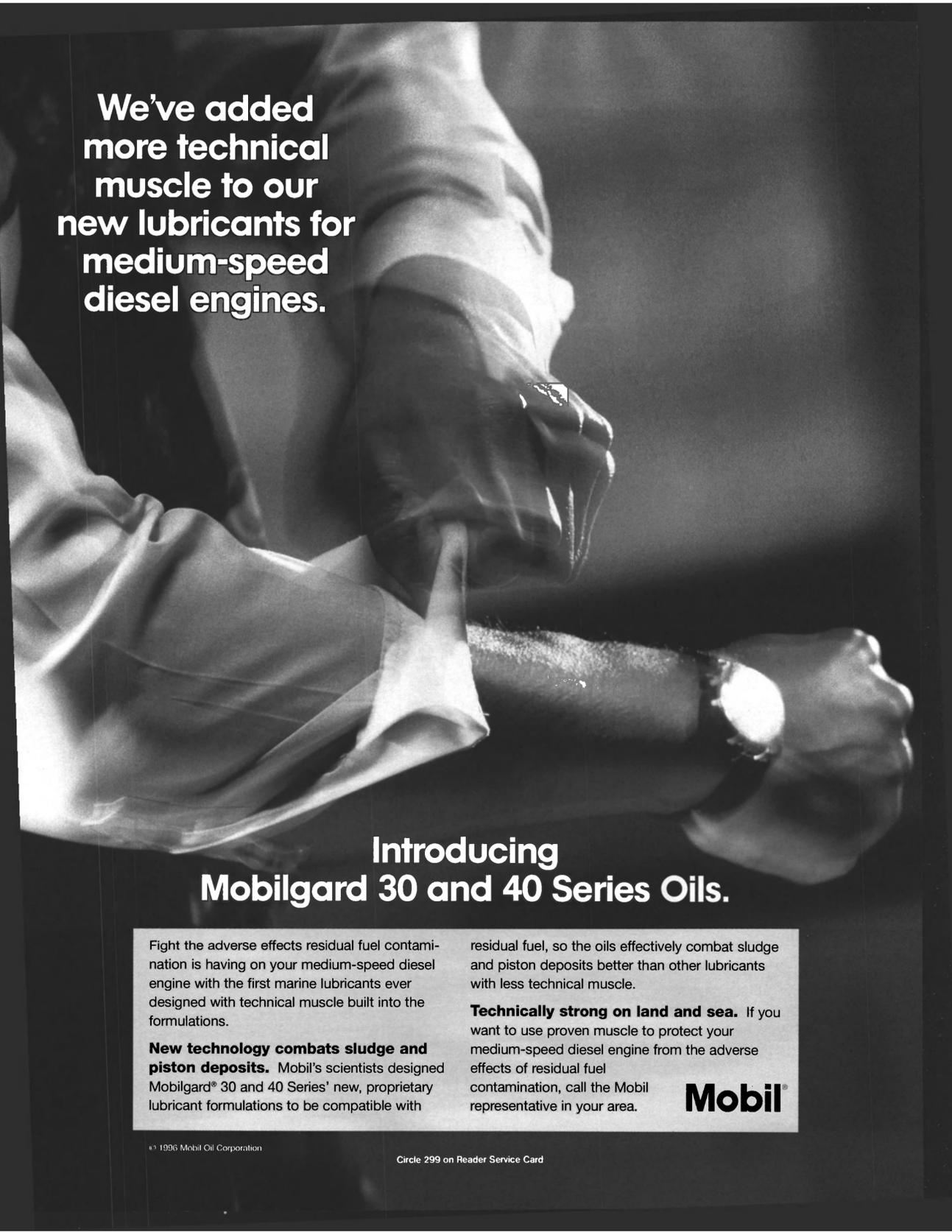
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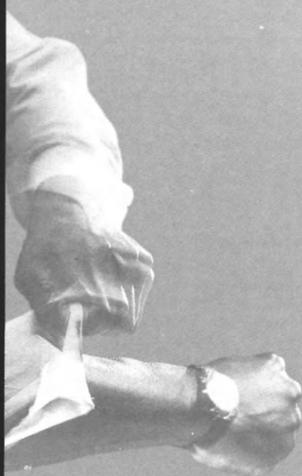
Western Gulf
1-800-MIAMI-79
Extension 1936

Eastern Gulf
1-800-MIAMI-79
Extension 1926

Southeast
1-800-MIAMI-79
Extension 1947

West Coast
1-800-MIAMI-79
Extension 1826

Northwest
1-800-MIAMI-79
Extension 1828

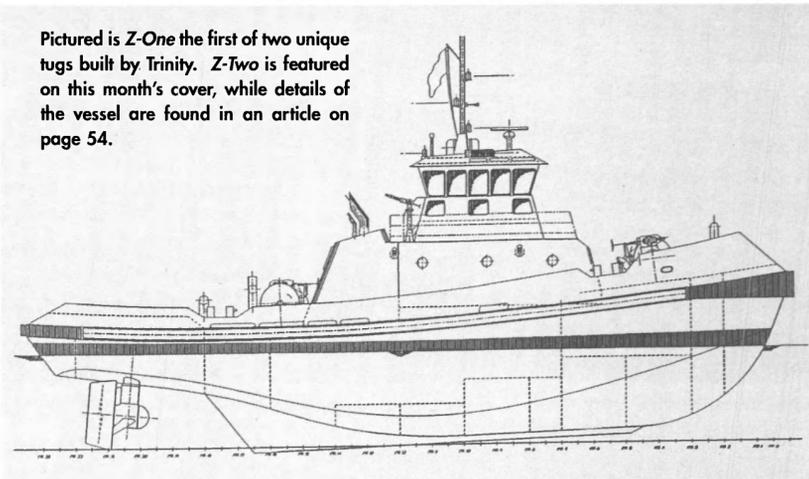


Circle 299 on Reader Service Card

Workboat

Annual

Pictured is *Z-One* the first of two unique tugs built by Trinity. *Z-Two* is featured on this month's cover, while details of the vessel are found in an article on page 54.



Damen Delivers Three Innovative Tugs

In May, June and July, Damen Shipyards delivered *Melton*, *Bentley* and *Lady Madeleine* to Howard Smith Towage Ltd. The three tugs — which were ordered in April 1995 — are of the ASD Tug 3211 type, which is an enlarged version of the Damen ASD Tug 3110.

During negotiations, the owner specifically required that all the accommodation was to be above deck and the forward fender located at bulwark top level. The three-tier superstructure — with minimized wheelhouse size and maximized view from the single control position — was developed in close coop-

eration between the owner and Damen. The hull shape of the tugs was derived from Damen's ASD Tug 3110s, but the skeg was altered and extended forward to improve the astern sailing characteristics to guarantee high astern speed with full directional control. The strong round bilge hull construction was also inherited from the ASD Tug 3110, which means side and bottom plating of 12 mm, a sheerstrake of 20 mm and fore and aft deck plating of 10 mm.

The 107.3 x 39 x 16.4-ft. (32.7 x 11.9 x 5-m) tugs are powered by a pair of Ruston 6 RK 270 diesel engines, which develop 1,800 kW at 1,000 rpm. The engines

drive Aquamaster US 2001/3325 thrusters fitted in the aft. Between engines and thrusters, Twin Disc MCD slipping clutches are fitted, designed to ensure precise maneuvering and thrust control. The two auxiliary engines are Cummins, type 6BT 5.9, each driving a 87.5-kVA Stamford generator. The gensets are fitted in the auxiliary engine room between the azimuth propulsion compartment and the engine room.

Complete machinery, control and alarm installation is according to the Lloyd's requirements for unmanned engine rooms. The



(Continued on page 55)



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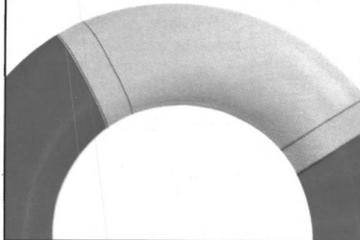
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First Tractor Tug Of New Ice Class Launched

Tugz Intl.'s new 95-ft. (29-m) tractor tug was launched at Halter Marine in August (Note: Z-Two, which was launched just before press time, is featured on this month's cover). The Z-One tug is the first of a series of ice-classed, multi-purpose, reverse tractor tugs to be built for a new affiliate of the Great Lakes Towing Company. Delivery of Z-One was scheduled for last month.

The 95-ft. tug has a 32-ft. (9.8-m) beam and an 11.5-ft. (3.5-m) draft. Designed by Jensen Maritime Consultants (Seattle), the tugs are powered by a pair of Caterpillar 3516BTA diesel engines (4,400 hp) driving Ulstein 1650H Z-drives, equipped with nozzles. The boat has a design speed of 14 knots, a bollard pull of 110,000 lbs., and can be operated by a crew of three.

The multi-purpose design was chosen in order to accommodate a wide range of services performed by the group's affiliates and charterers, on the Great Lakes, in harbors and for coastal ocean towing. The new Tugz design will not only be capable of carrying out conventional ship handling duties for commercial and naval vessels in ports and harbors, but also icebreaking, salvage, rescue and assistance to grounded or damaged vessels, firefighting, oil recovery, escort and coastal and ocean towing of vessels and barges.

The reverse tractor tug configurations are advanced towing vessels in which the conventional propellers and rudders are replaced by integrated units, known as Z-drives, which perform both propulsion and steering, enabling the tugs to push or pull in any direction. The tug is classed to ABS standards: Maltese Cross A-1 Towing Service (Firefighting Capability), Maltese Cross AMS, Ice Class.

Z-One Main Particulars

Builder	..... Halter Marine
Designer	..... Jensen Maritime Consultants
Length	..... 95 ft. (29 m)
Beam	..... 32 ft. (9.8 m)
Draft	..... 11.5 ft. (3.5 m)
Main engines	..... (2) Caterpillar 3516BTA
Z-drives	..... Ulstein
Speed	..... 14 knots ahead, 12 astern
Bollard pull	..... 100,000 lbs. ahead; minimum 70,000 all other directions
Hull construction	..... steel
Winch	..... Almon A. Johnson
Classification	..... ABS

Maritime Business

Workboat

Annual

(Continued from page 53)

m system is from Praxis Automation Technology, type 008. The wheelhouse, with full height inclined windows all sides, offers an excellent view in all directions. Fore and aft work with winches, and the side marks can be seen from the central control position.

The layout of the wheelhouse was so designed with close cooperation from the owner, and to ensure the final product would be exacting, the yard made a full-scale mock-up.

The forward transverse console was chosen because of the new Aquamaster Aquaduo control system, which consists of dual steering levers, dual speed levers and a steering wheel.

The Aquamaster speed/steering control consists of a combined speed/steering lever for each propulsion unit, which are normally positioned at each side of the control position instead of forward. The Aquaduo system was developed specially for this project.

Deck equipment consists of an Ulstein low-pressure hydraulic anchor/towing winch on the fore deck and an Ulstein winch on the aft deck. Both have a 10-ton pull

at a speed of up to 22 m/min. The forward winch has a dividing flange and can be fitted with two Marlow Superline polyester ropes.

Melton and Bentley operate in Felixstowe, while Lady Madeleine operates out of Sheerness on the Medway.

For more information on companies mentioned in this article, circle the appropriate number on the Reader Service Card in this edition.

Aquamaster	71
Cummins	72
Damen	73
Ruston	74
Ulstein	75

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Tugboat Particulars

Yard	Damen
Owner	Howard Smith Towage
Main engines	Ruston
Thrusters	Aquamaster
Auxiliary engines	Cummins
Alarm system	Praxis
Windows/portholes	Van Wingerden
Fenders	Hercules
Paint	International
Couplings	Vulcan
Slipping clutches	Twin Disc
Fittings	Econosto
Pumps	Desmi
Firefighting	Thorn Security
Boiler	Doalderop
Sewage plant	Hamworthy
Ventilation & AC	Heinen & Hopman
Exhaust silencers	Mercurex
Generator sets	Stamford
Winches	Ulstein
Deck crane	Effer
Towing wires	Marlow
Air compressors	Quincy
Navigation lights	Den Haan
Searchlight	Pesch
GPS	AP Navigator
Echo sounder	Raytheon
VHF radio	Sailor
Navtex receiver	Lokata

Workboat

Annual

Halter Marine To Build Anchor Handling/Towing Supply Vessels For Seacoast

Halter Marine signed a contract worth approximately \$45 million for the construction of two, 255-ft. (77.7 m), 14,000-bhp anchor handling/towing supply vessels (AH/TS). The 14,000 bhp will be

produced by four GM EMD 16-645-F7B diesel engines driving Berg CP propellers in Kort-type nozzles through Reintjes compound reverse/reduction gears. This configuration is designed to ensure a

bollard pull of approximately 160 metric tons.

The compound gears give the captain the flexibility to disengage two of the four engines for greater fuel economy. The boats' 2,000-kW

generators can be operated independently through clutches from the gearbox or in conjunction with the propulsion system, to maximize efficient use of the available horsepower. Engines and gears are cooled by Fernstrum grid coolers.

Each vessel will be equipped with a Furuno GPS and a Robertson DPS. Maneuverability and static keeping will be aided by a pair of SMI, 800-hp bowthrusters, an SMI, 800-hp stern thruster.

Anchor handling equipment will include a Smatco double drum winch with 500 tons, or one million pounds of pull per drum. The vessels will also be equipped with Triplex shark jaws, chain lockers with 18,000-cu.-ft. of storage space and two wire storage reels.

Electrical power will be generated by two 2,000-kW, gear-driven generators or a 400-kW generator driven by a Caterpillar 3508 diesel with 190 kW of emergency power generated by a Caterpillar 3306B diesel. Each vessel will be outfitted with a Skum fire monitor with 2,600-gpm capacity, expandable to 10,600 gpm.

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AH/TS Main Particulars

Length, o.a.	255 ft. (77.7 m)
Beam, molded	60 ft. (18.3 m)
Depth, molded	26 ft. (7.9 m)
Draft, loaded	22 ft. (6.7 m)
DWT (max. draft)	2,800 tons
Deck cargo capacity	1,100 tons
Flag	U.S.
Accommodations	24
Bollard pull	160 metric tons
Fuel oil capacity	300,000 U.S. gallons
Fresh water capacity	260,000 U.S. gallons
Ballas/drill fluids capacity	306,000 U.S. gallons
Brine/completion fluids capacity	800 bbls.
Dry bulk tanks	10,350 cu. ft.
Liquid mud	3,100 bbls.
Rig chain lockers	18,000 cu. ft.
Cargo deck length (clear)	144 ft. (44 m)
Cargo deck max. width (clear)	50 ft. (15.2 m)
Main engines	GM EMD 16-645-F7B
Reduction gears	Reintjes
Propellers	Berg
Thrusters	SMI
Generators	Caterpillar
Towing winch	Smatco
Stern roller	Smatco
Capstans	Smatco
Deck crane	EBI
Tuggers	Smatco
Anchor winlass	Smatco
Firefighting	Skum
VHF radios	SP Radio Sailor
SSB radio	Sailor
GPS	Furuno
Depth recorder	Furuno
DPS	Robertson

Maritime Reporter/Engineering News

Workboat

Annual

Alter Marine To Build Second 220-Ft. Supply Boat Aries

Alter Marine has signed a contract for its first commercial vessel to become a new public company. The contract is with Aries Marine Corp., which exercised an option for a new 220-ft. (67-m) supply vessel from a contract with Alter Marine Group's predecessor, the Trinity Marine Group, to build a vessel nearly identical to one currently under construction at Halter-Lockport.

Construction on the second vessel will begin soon at Halter's Lockport facility, and delivery is scheduled for next fall. This first Aries supply boat is due to be delivered in July 1997.

The new boats will be powered by GM EMD 16-645C diesel engines rated at 1,660 hp at 80 rpm. These engines will power Aquamaster Z-drives which can rotate 360 degrees. A KaMeWa bowthruster will provide additional maneuverability.

The vessel is to be equipped with four liquid mud tanks with a total capacity of 2,224 barrels and six dry mud tanks totalling 8,000-cu.-ft. The vessel's 5,040-sq.-ft. aft deck will be able to accommodate up to 1,000 long tons of cargo.

Supply Boats Main Particulars

Builder	Halter Marine
Owner	Aries Marine
Length	220 ft. (67 m)
Beam	44 ft. (13.5)
Draft	16 ft. (4.8 m)
Main engines	GM EMD 16-645C
Z-drive	Aquamaster
Bowthruster	KaMeWa
Classification	ABS

Company Offers New Way To Join Aluminum, Steel

Industrial Metals, a distributor of non-ferrous metals, has been appointed the exclusive U.S. distributor of Triclad transition joints, which connect aluminum and its alloys to steel by welding. The joints or strips are used primarily in boat and shipbuilding to join aluminum superstructures to steel hulls.

"Until now, U.S. boat and shipbuilders could bond dissimilar metals using ... bolting or riveting,"

said **John Gelpi**, president of Industrial Metals. The product reportedly produces a 100 percent watertight bond with no electrolysis, and helps decrease production time and labor costs.

Triclad strips are manufactured by Nobel Explosifs in France and

have been distributed worldwide by Merrem Andre de la Porte B.V. in Holland.

Triclad strips consist of three layers: steel; pure aluminum; and aluminum alloy 5086. "The three Triclad layers are explosively bonded and make a solid bond,

stronger than pure aluminum itself," said Mr. Gelpi. It has reportedly been accepted for naval engineering by classification societies such as BV, LR and DNV.

For more information from Industrial Metals
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Workboat

Annual

Northwind Marine Offers Versatile SAFE Boats

Northwind Marine of Seattle will build the patented, rigid hull SAFE aluminum boats. Boats under construction include models from 19 to 28 ft. (5.8 x 8.5 m) fitted for shrimp fishing, oil boom deploy-

ment and dive charter service. The full line of SAFE Boats range from 13-ft. (3.9-m) yacht tenders to a 40-ft. (12.2-m) models suitable for service as a dive platforms, and other applications. Northwind will build the boats — under a license from Norseman Marine Products, which developed and patented the line of boats.

Seacor Debuts Next-Generation Platform Supply Vessel

A 248-ft. (75.6-m) boat which represents Seacor's "new" generation of platform supply vessels designed for deepwater cargo ser-

vice was recently recommissioned in New Orleans.

The vessel, which was originally 218 ft. (66.4 m), was lengthened 30 ft. (9.1 m) and fitted with dynamic positioning equipment and additional thruster capacity. The *Seacor Frontier* will accommodate

(Continued on page 6)

Crowley: In It For The Long Haul

Crowley Marine Services recently tackled a pair of big transport jobs. A tandem of two Crowley barges departed October 1 from Seattle, enroute to Pearl Harbor, Hawaii (pictured).

The company transported the first of three 310 x 52 x 18-ft. (94.5 x 15.8 x 5.5-m) precast concrete pontoons and related structures for a floating bridge being built by Dillingham-Manson for use by the Navy between Ford Island and the main island of Oahu. The 5,000-ton pontoons were built by Concrete Technology of Tacoma, Wash.

The barges are being transported in tandem behind Crowley's 7,200-bhp Invader-class tug *Bulwark*.

Crowley used float-on/float-off methods to load the massive precast unit at Todd Shipyards' drydock in Seattle.

The barge — No. 400 — was submerged in the drydock, then the pontoon — which draws approximately 12 ft. — was floated into position above the barge deck. Raising the barge placed the unit aboard the barge, where it was secured for the 2,500-mile sea voyage.

"In Hawaii, we'll sink the barge right in Pearl Harbor," said **Craig Tonga**, Crowley's general manager of Oil Industry Services. "We've selected the off-load site and had both a bottom survey and a side scan completed to make sure it's a good area to set the barge on the bottom in order to float the pontoon off."

Tandem Tow Heads To Kwajalein

Two 400-ft. (122-m) Crowley barges departed on October 15 from Seattle, bound for the Kwajalein Atoll in the Marshall Islands, transporting construction equipment and materials



on behalf of the J.A. Jones Construction Co.

Approximately 21,000 tons of construction cargoes were aboard the two barges, including cranes, forklifts, dump trucks, graders, and containers full of bags of cement and aggregate.

The barges were towed in tandem by Crowley's 7,200-bhp tug *Sea Victory*. Because of its large fuel capacity and economy of operation, the vessel was scheduled to complete the 5,000-mile journey without a fuel stop.

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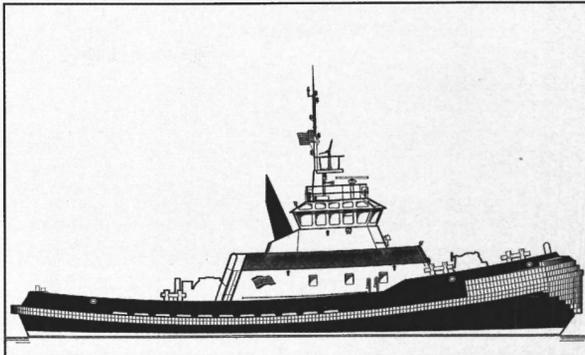
Circle 357 on Reader Service Card

Maritime Reporter/Engineering News

Marco Wins Contract To Build Z-Drive Tug

Marco Shipyard Seattle won a contract to build a 105-ft. (32-m) Z-drive reverse tractor tug for Hawaiian Interisland Towing, a unit of Smith Maritime in Honolulu. The yard previously built two smaller tugs for other Smith Maritime companies. The new tug will be named *Namahoe*, which is

Hawaiian for Gemini. Construction was scheduled to commence in October, and delivery is planned for next June. The all-steel tug will be propelled by a pair of Caterpillar 3516B diesels, which will provide a combined 4,400 bhp, coupled to Ulstein 360-degree rotatable drives.



Outboard profile of the new 105-ft. (32-m) reverse tractor tug *Namahoe*, designed and being built by Marco Shipyard Seattle for Hawaiian Interisland Towing Inc.

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Model	M55 C	M65C-4	M65C-6
60 Hz 1800	55 kW	65 kW	65 kW
50 Hz 1500	45 kW	50 kW	50 kW
Model	M80C	M99C	
60 Hz 1800	80 kW	99 kW	
50 Hz 1500	N/A	80 kW	

Lugger tough.

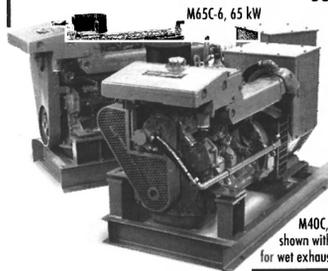
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The Pro's Choice

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Workboat

Annual

(Continued from page 58)

11,200 cu. ft. of bulk products in 10 tanks and 2,500 barrels of liquid mud in six tanks. The pilothouse has also been equipped with state-of-the-art communications, including a data processor and an electronic log to track cargos.

Cummins Prepares To Make A Splash At Workboat Show

Cummins Marine, one of the world's largest producers of diesel engines over 200 hp, will feature a

full complement of its technologically advanced engines for commercial marine market applications at the upcoming workboat exhibition.

With engines from 64 to 5,305 hp (48 to 3,960 kW), Cummins Marine powers fishing vessels and ferries

(displacement and high-speed tugs, towboats, passenger vessels and offshore vessels all over world.

For more information on Cummins Circle 76 on Reader Service Card



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OMI Sells Three Supply Boats

OMI Corp.'s subsidiary OMI Petrolink Corp. sold three supply boats to Trico Marine Services Inc for \$11.6 million. OMI Petrolink is a Houston-based company which provides lightering and related services for large tankers in the U.S. Gulf.

Rivtow Marine Commissions New Ship Docking Tug

Rivtow Marine Ltd. commissioned a new Aquamaster ship docking tug, *Rivtow Spirit*, for duty in the Port of Prince Rupert, B.C.

The vessel was designed by A.G. McIlwain Ltd. of Vancouver. The bare hull of the tug was built by Sylte Shipyard Ltd., and the rest of the steel work, as well as the outfitting, was done by Pacific Shipyards Ltd. Completion of the underwater work was done by Allied Shipbuilders.

The tug is a new type of shiphandling tug, with high engine power and bollard pull in a relatively small hull.

Rivtow Spirit is a reverse tractor type tug, featuring twin Aquamaster US 1401 units installed in the stern, driven by a pair of 1,515-hp main engines. The bollard pull was measured to be 40 tons ahead and 38 tons astern.

Rivtow Spirit Dimensions

Length, o.o.	52.5 ft. (16 m)
Beam, molded	26.2 ft. (8.1 m)
Speed	12.3 knots
Propulsion units	Aquamaster

* BATES/UKU



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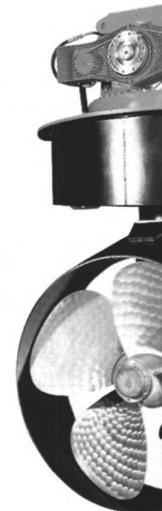
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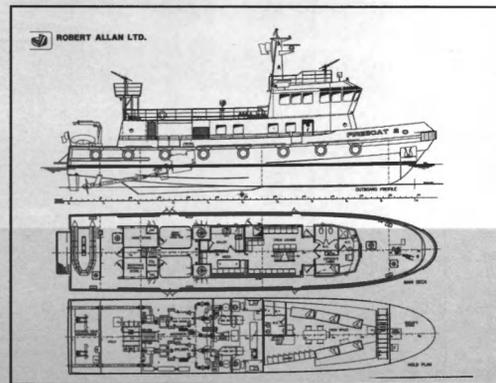


FIREFIGHTER

Singapore-built, Cat-powered boat helps keep Hong Kong coast safe



The R. Allan-designed Fireboat 2 was built for the Royal Hong Kong Marine Department for service within the coastal territories of Hong Kong. The vessel was built in Singapore by Greenbay Marine. The hull construction of the 105-ft. (32-m) vessel is all-welded ABS-grade steel. The deckhouse, wheelhouse and upper works are welded marine-grade aluminum alloy. The vessel is powered by Caterpillar 3508TA main engines, each rated 716 kW at 1,800 rpm, driving Ulstein 22-AGSC CP propellers through an Ulstein reverse/reduction gearbox. The vessel's firefighting system comprises three main fire pumps, two of which are driven by PTO off the front end of each main engine, one driven by an independent diesel. The system's pump capacity is 5,400 lpm (x3) at 15 bar.



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Circle 381 on Reader Service Card

Tempest Completes Patrol Boat

Tempest Engineering completed a new Tempest 44-ft. (13.4-m) patrol boat for a Middle Eastern client. The boat is an enclosed wheelhouse version of the Fast Coastal Interceptor (FCI) model used by the U.S. Coast Guard.

The craft is laid up with fire retardant resin. It has a 25-

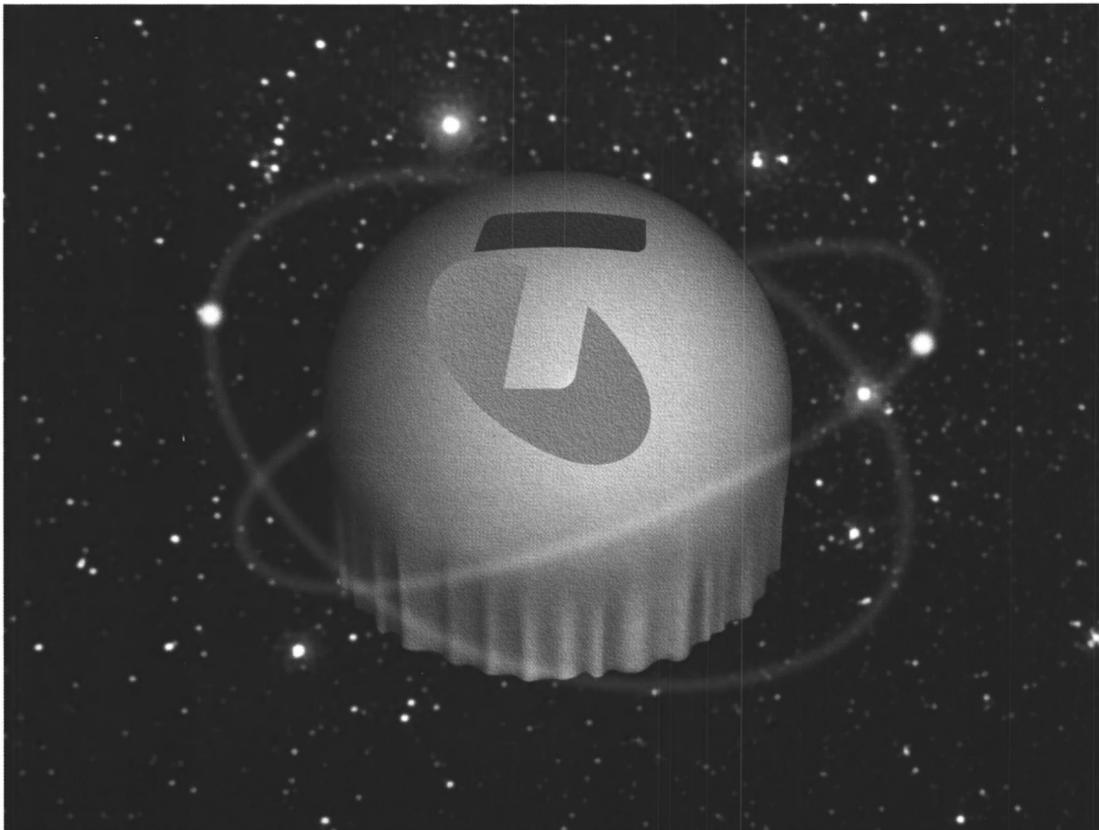
degree deadrise FRP monohull with aluminum superstructure.

The vessel is powered by twin 375-hp Caterpillar 3208 TA diesel engines coupled to a surface piercing T-Torque drive system. With this set up, the top speed is 50 mph.

The boat is also equipped with a 4.2-kW generator and a strong air conditioning system.

For more information from Tempest Circle 51 on Reader Service Card





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Satcom-C	322	222	122	022
Satcom-M	222	222	222	222

*Please note: To ensure access to the Telstra Satcom-A service in the AOR-E & AOR-W you must use LES ID '13' plus the TNID (Terrestrial Network ID) '3'.
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MR/0996

Circle 370 on Reader Service Card

FINANCIAL UPDATE

REPLACING OLD WORKBOATS

CIT Geared To Fulfill Massive Domestic Financing Need

The dramatic growth of the domestic maritime industry, combined with the need to replace aging vessels is resulting in unprecedented demands for capital financing. While traditional lending solutions have helped, the role of some lenders may be limited by asset limitations and structure restrictions.

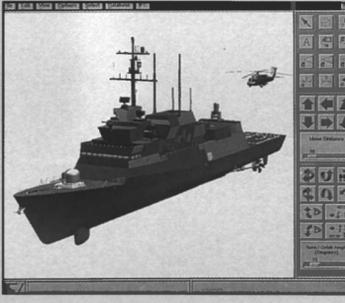
This has allowed progressive lenders such as The CIT Group — which has been servicing the maritime industry for more than 35 years — to play a larger role in financing the industry's growth.

"The fact that we've been able to assemble a \$600 million portfolio of assets is testimony to our ability to offer our customers innovative solutions," said **Nikita Zdanow**, president and CEO of The CIT Group/Capital Equipment Financing.

"We can offer these unique solutions thanks to our cadre of seasoned professionals with extensive experience in each sector of the maritime industry."

The CIT Group/Capital Equipment Financing has a long track record of providing financing that meets the unique needs of the inland and coastal sectors of the maritime industry. And, over the past five years, The CIT Group has dis-

Computervision Launches CADD5 Revision 6



3-D object-based sketching brings a new ease-of-use paradigm to parametric modeling. This new sketcher automatically trims the geometry in overlapping geometric objects, reducing the number of operations needed to produce complex shapes and simplifying later edits in design.

Computervision Corporation announced a major revision of its CADD5 product development software at its annual Users' Group Conference. The new CADD5 Revision 6 brings a number of new technologies and features specifically intended to help shipbuilders — particularly those who work with product assemblies — implement their Electronic Product Definition (EPD) strategies for product and process innovation.

Hull fabrication automates the generation of sophisticated hull-plate manufacturing drawings — including the critical "roll lines" where the large steel plates are clamped and curved. The piping design application automates the generation of detailed drawings for on-ship piping, including intelligent pipeline dimensioning and dynamic distance verification, making it possible to design the systems earlier in the product development life cycle.

Working with global manufacturers such as Vickers Shipbuilding and Engineering Ltd., Ingalls Shipbuilding and DCN (Direction of Construction Naval), Computervision has reportedly incorporated more than 600 new customer enhancements.

tinguished itself as a leader in providing capital to energy-related companies including those involved in offshore drilling, land drilling, natural gas compression and oil refining.

"Benefits of working with CIT include longer terms and a choice of fixed or floating rates for debt refinancing, fleet replacement, purchase of

vessels and acquisitions of other companies," added **Zdanow**. "CIT has been at the forefront of lending to the maritime and energy industries and we will continue to develop new products to meet their unique needs in the future."

For more information on CIT
Circle 99 on Reader Service Card

Volvo Penta Develops "Smart" Engine Technology For Marine Apps

Volvo Penta's dedicated marine electronic diesel control (EDC) systems, developed for the sea, offer improved performance and fuel efficiency, lower emissions, as well as simplified installation and operation and reliability. The person responsible for developing this technology, **Pelle Nestvall**, was recently awarded the company's yearly technical prize. According to Mr. Nestvall, EDC systems can detect and compensate for other errors, such as non functional waste-gate in the turbo.

In effect, EDC "smart" system protects the engine from abuse and major problems which can be prevented. The system and the control unit constantly monitor the status of important engine systems, and if anything goes wrong, a flashing code on the operating panel alerts the operator. All information is also stored by the system, and can be recalled with a special diagnostic key.

The latest addition to the Volvo Penta diesel range is the 12-liter TAMD122P EDC, boasting an impressive 610 hp. The engine's massive torque output reportedly provides quicker and safer acceleration, even when vessels are fully laden. The gearbox is electronically controlled,

and in a twin installation of the engines, synchronization of the engines is automatic.

Volvo Penta has also added a series of emergency gensets for marine applications. The units, including the new TAMD 163A RC, are extremely compact due to the inclusion of new cooling systems. This particular model genset has been shortened by 60 cm, offering installation ease for space-cramped areas.

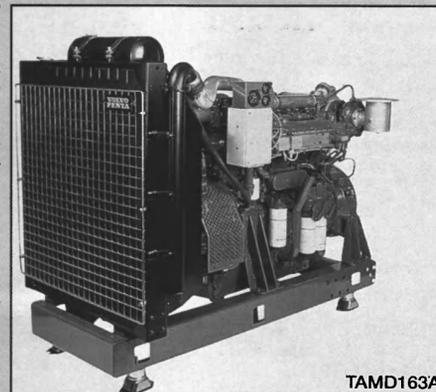
The Volvo Penta genset series ranges from 80 to 400 kW, based respectively on the company's seven, 12 and 16-liter diesels. Interest in this equipment has been expressed by companies in Korea, China, Japan and Spain, and the sets are reportedly functional for bow propeller and fire pump operation.

New contracts for Volvo Penta include supply of engines to the Kee Lung Harbor Bureau in Taiwan, a government-owned factory in Vietnam and an inland navigation company in the Czech Republic.

The company has also concluded a joint venture agreement with Swedish

boat designer Ocke Mannerfelt Design.

For more information on Volvo Penta
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TAMD163A

This emergency genset by Volvo Penta is compactly designed as a result of a new cooling system.

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Offshore Boom Continues: Long-Term Newbuild Prospects A Reality

\$400 Million Joint Venture Leads To \$200 Million Order For Samsung

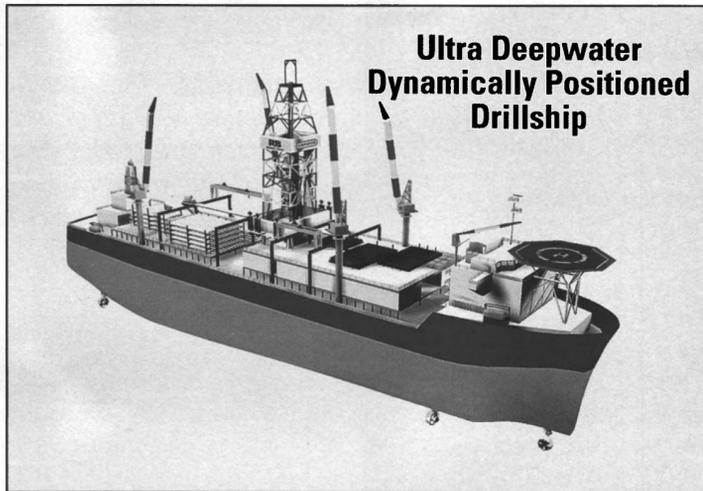
Despite some skepticism regarding the depth and length of the offshore rebound, it becomes clearer each day that the offshore market, as a whole, will present builders from around the world with solid, long-term business prospects.

In a recent speech to the International Association of Drilling Contractors, **Matthew R. Simmons**, of Simmons & Co. Intl. (Houston), cited a shortage of idle rigs, particularly a tightness in the pool of rigs capable of drilling in deepwater and harsh environments. This need translates to business for shipyards both domestic and abroad, as oil majors continue to explore deeper waters.

"The drilling industry's first response to the shortage of deepwater rigs was to begin a major upgrade cycle," said Mr. **Simmons**. "Today, about a dozen offshore rigs are being converted into deepwater rigs alone. The conversion is both expensive and time consuming, but is still less expensive and faster than considering building a new deepwater rig.

"A year ago, many of the rigs were not even working and could be purchased for between \$5 and \$10 million," he continued. "Today, nearly all the units capable of being upgraded are fully utilized with day rates as high as \$80,000. Furthermore, now that the fair market value rig is approaching \$50 to \$70 million (seven to 10 times more than when the first upgrades began a year ago), adding another \$40 to \$100 million to the costs makes even the rebuilt rig an expensive option." He said he believes the end is near for the rig upgrade cycle, and a vast expansion of deepwater projects in the Gulf of Mexico alone will push the industry into new rig additions.

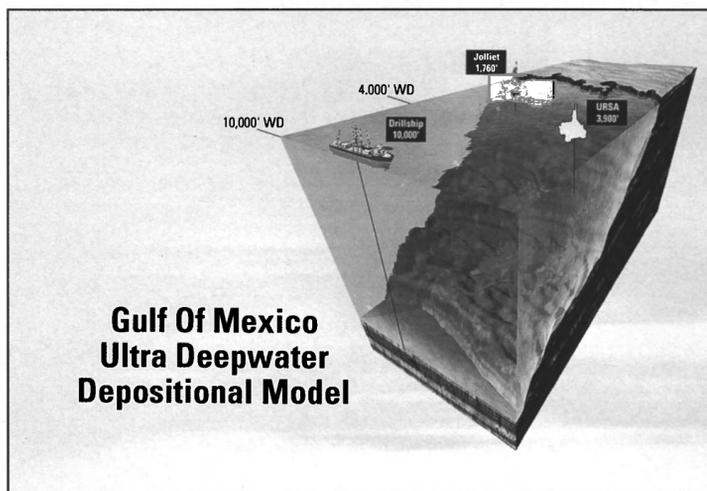
"To give a sense of the backlog of deepwater wells that need to be drilled, there were just



Korea's Samsung Heavy Industries recently won a \$200 million contract to build this Ultra Deepwater Drillship for a new joint venture between Conoco and Reading Bates.

over 1,000 deepwater leases in water depths beyond 3,300 ft. (1,005 m) in the Gulf of Mexico as of last April. Then came the Deepwater Royalty Relief, followed by the Central Gulf of Mexico Lease Sale. Suddenly, the number of deepwater leases jumped another 40 percent. Then came the September lease sale in the Western part of the Gulf, and the 3,300-ft. and deeper water depth leases increased another 30 percent. So, in just six months, the need to drill in an already tight rig market has increased 70 percent," Mr. **Simmons** analyzed.

Despite the highlight on the Gulf of Mexico, Mr. **Simmons** emphasized that there will be a continuing need for rig projects worldwide. He points out that of the total population of semis in the world, 43 of the 141 rigs are now more than 20 years old. While many argue that, properly maintained, rigs should last forever, he said that there is only one rig (of the 143 semis now in operation) that was built before 1970. The jackup fleet has a similar age profile, with 53 jackups in the world now exceeding 20 years of age.



**Gulf Of Mexico
Ultra Deepwater
Depositional Model**

The \$400-Million Deal

Conoco and Reading Bates announced the formation of a 50/50 venture to execute a \$400 million, five-year drilling program in the ultra deepwater Gulf of Mexico. The new company will carry out the program for Conoco. To meet the challenges of drilling in ultra deepwater, the new company has commissioned construction of a \$200 million, world-class, dynamically positioned drillship capable of drilling at water depths up to 10,000 ft. (3,048 m). The vessel will carry the most stringent ABS requirement for dynamically positioning systems, DPS-3.

"Having a drillship solely dedicated to Conoco's Gulf of Mexico operations fits our strategy to resume a leadership role in exploring the deepwaters of the region," said **Archie W. Dunham**, president and CEO of Conoco. "This drillship, the venture with Reading & Bates, and our previous experience in deepwater exploration and production give us the tools and expertise necessary to fully explore these blocks."

(Continued on page 89)

Maritime Reporter/Engineering News



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Normandie Terminal Offers Computerized Straddle Loaders For Minimum Stopover Times

The Port of Le Havre's Terminaux de Normandie (Normandie Terminal), has two shareholders: Societe Perrigault, a family business based in Le Havre; and Groupe Sage, a company specializing in para-maritime business, i.e. freight handling and transit.

Pictured is an aerial view of La Havre's Normandie Terminal.

Normandie Terminal reportedly employs the largest docker workforce in France, 450 in all, contracted through the Dockers de Normandie subsidiary.

All container transfers in the terminal are controlled by a central computer system which sends electronic mission assignments to the straddle loader drivers, who read the mission details on the screen of their onboard computer terminals. The computer system logs each incoming container as an electronic record in a "missions" register. It then assigns free straddle loaders with the most suitable container shift missions, specifying the address of the truck and of the container storage location each time.

Storage planning staff can also send the straddle loaders instructions for performing storage reorganization and internal transfer operations. The planning staff also handles vessel management operations over permanent radio links, working from vessel loading plans stored on the fault-tolerant computer system.

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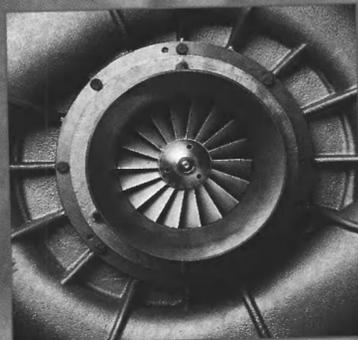
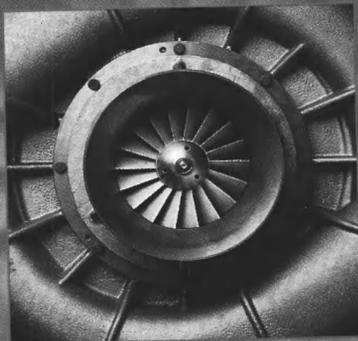
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Seacor To Acquire Galaxie Marine

Seacor Holdings Inc. has signed a letter of intent to acquire substantially all of the assets (excluding real estate) of Galaxie Marine Service Inc. and affiliated companies for approximately \$21 million, subject to adjustment for inventory and other assets. Galaxie, based in Patterson, La., owns a fleet of 24 offshore vessels dedicated to serving the oil and gas industry in the U.S. Gulf Coast. The fleet includes an offshore supply vessel built in 1982, a mini supply vessel built in 1991, 17 utility boats and five crew boats. Seacor will also reimburse Galaxie for progress payments and assume its contract for a 220-ft. (67-m) offshore supply vessel which is currently being built by Hauma Fabricators. The purchase consideration will consist of \$18.2 million in cash, to be provided through a combination of borrowings and existing cash balances, and 50,000 shares of Seacor common stock, which based upon Seacor closing price on Oct. 28, 1996, has a value of \$2.8 million. It is anticipated that the transaction will be consummated in January 1997.

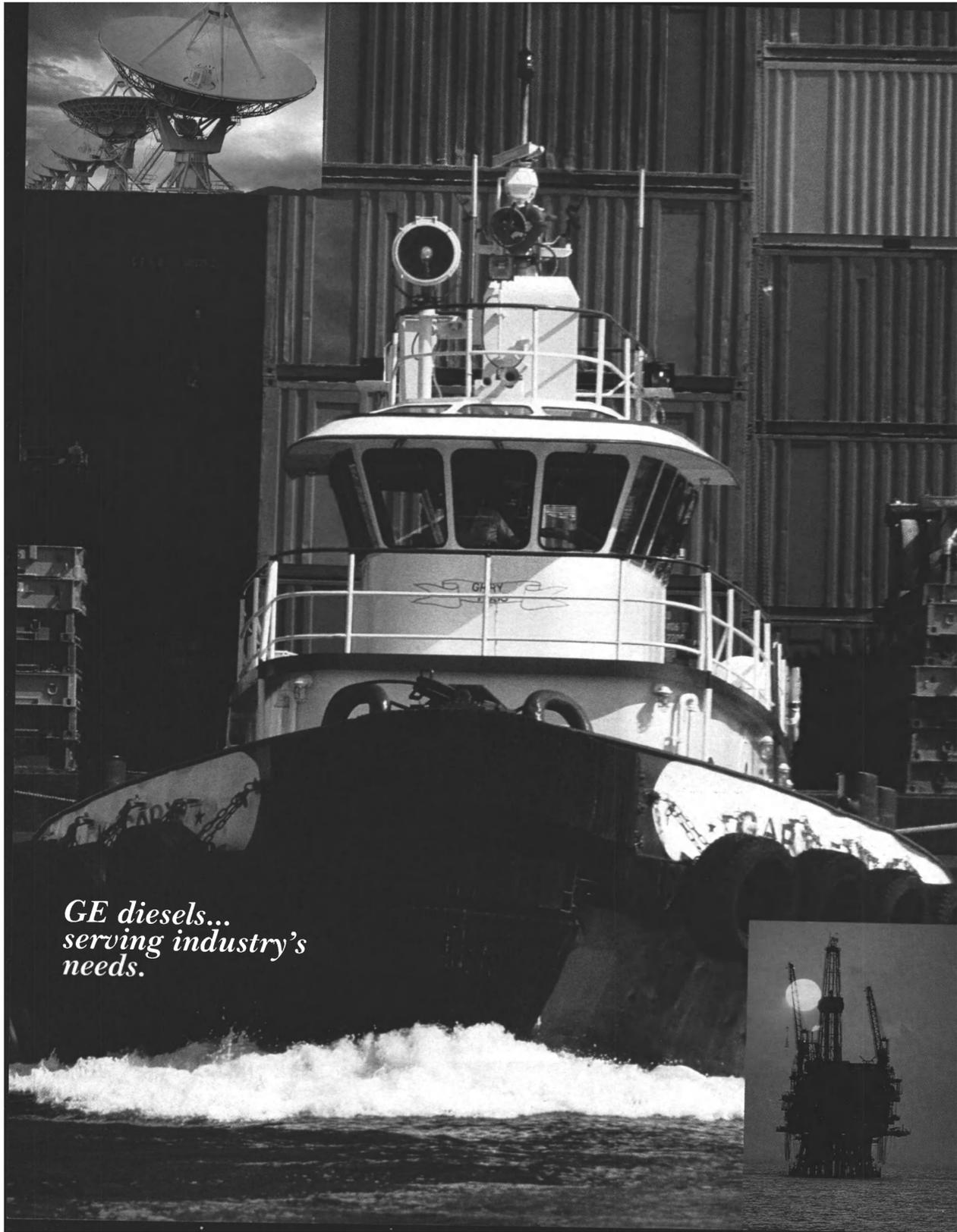
Maritime Reporter/Engineering News

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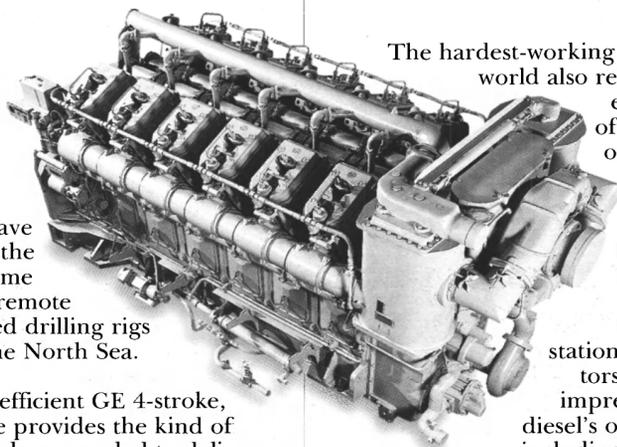
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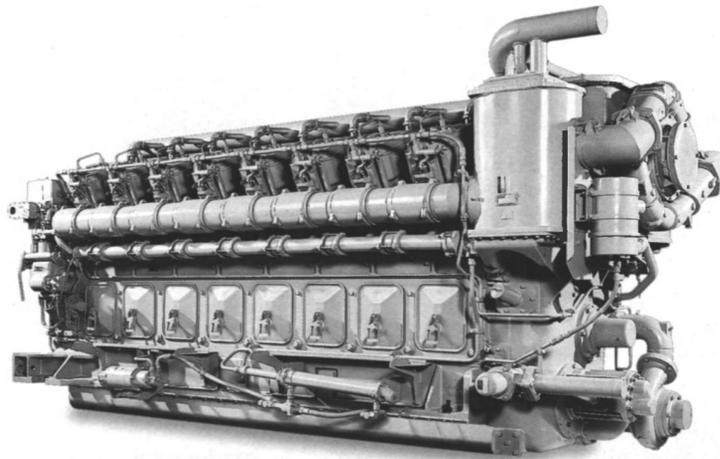
easy parts accessibility built-in to every GE diesel makes for unmatched maintenance simplicity—another big benefit in severe service locations.

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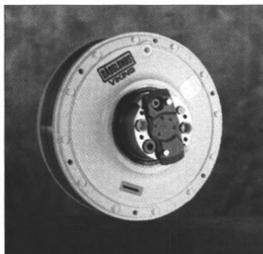
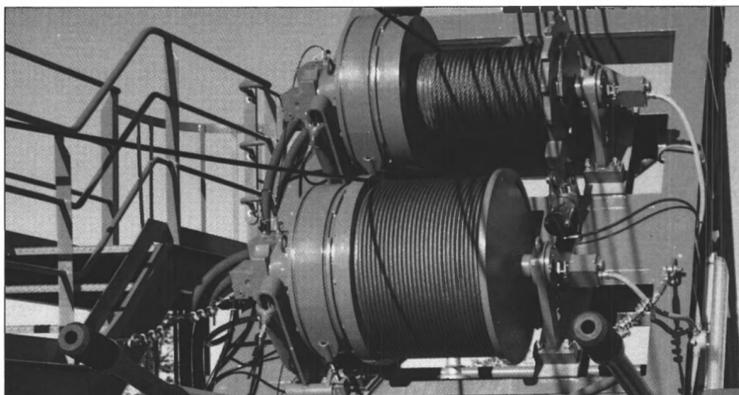
Racal Health And Safety Launches New Racal 4000 International CABA Set

Racal Health and Safety has added the Racal 4000 International CABA (compressed air breathing apparatus) to its range of respiratory protection equipment. Based on the Racal 4000 BA set, the new international version has been developed for use in toxic environments where a high level of respiratory protection is needed through the use of compressed breathing apparatus or where prolonged decontamination procedures are necessary. Racal Health and Safety Ltd., part of the Racal Electronics Group, designs and manufactures a wide range of CE-marked protective equipment including disposable masks, powered air respirators and self-contained breathing apparatus sets.

For more information on Racal Health and Safety Circle 81 on Reader Service Card



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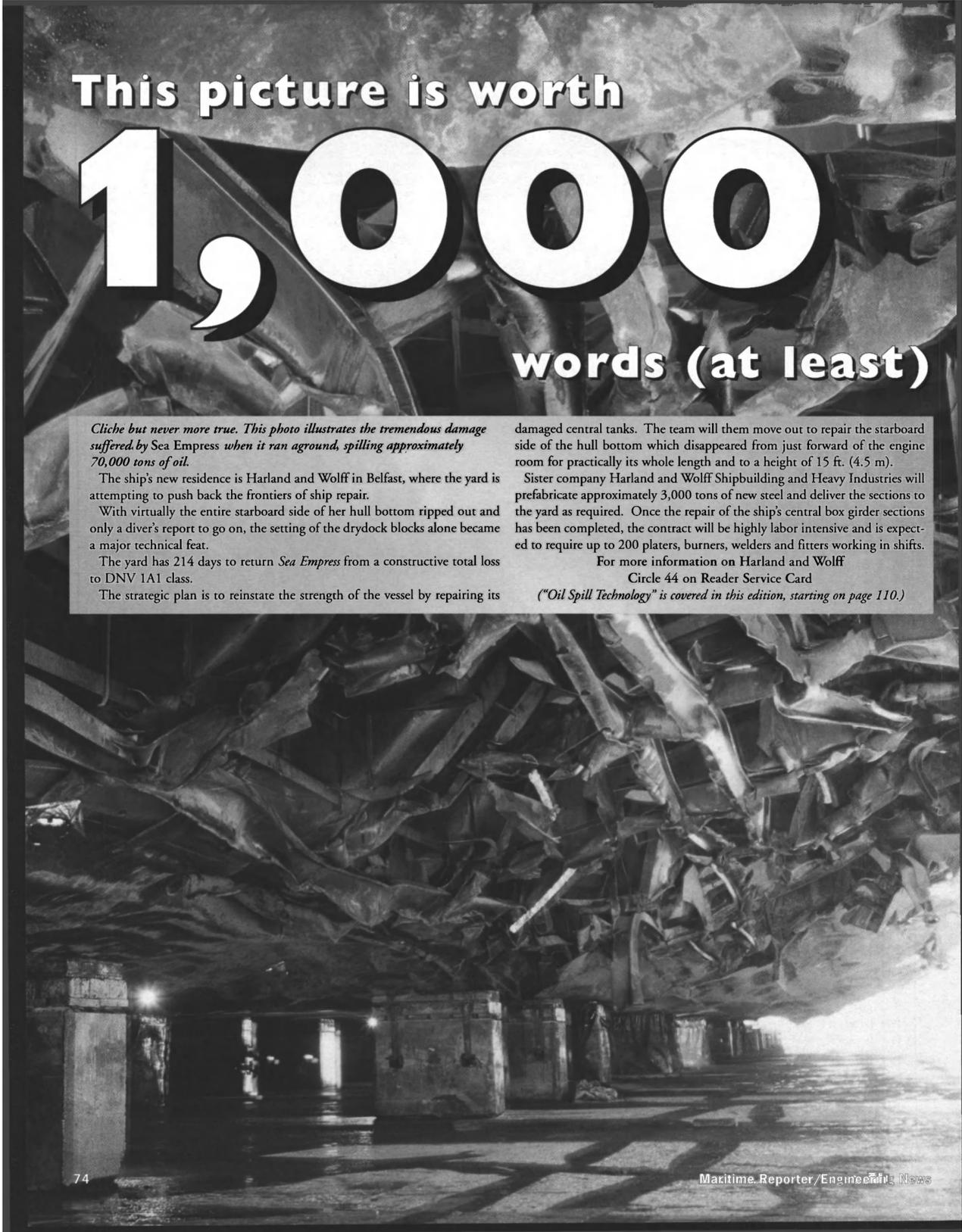
NASSCO/ARCO Marine/MarAd To Design Crude Carrier

San Diego-based National Steel and Shipbuilding Co. (NASSCO) has signed an agreement with ARCO Marine of Long Beach, Calif., and the Maritime Administration (MarAd) to develop the design for a new crude oil carrier under the auspices for the Maritech program.

The purpose is to design a new double hull tanker for ARCO, to replace its older, single hull carriers. The new ship will be specifically designed to maximize safety in the movement of crude oil from Alaska to refineries on the West Coast. The ship will have twin propellers and rudders, and two completely redundant propulsion and electrical systems. MAN B&W Diesel is reportedly providing assistance for the engine room design.

MarAd, an agency of the Department of Transportation, is administering the project on behalf of the Department of Defense's Advanced Research Project Agency. Maritech is a government cost-sharing program established by President Clinton in 1993 to assist U.S. shipyards in the development of new designs for commercial ships.

For more information on NASSCO Circle 106 on Reader Service Card



This picture is worth

1,000

words (at least)

Cliche but never more true. This photo illustrates the tremendous damage suffered by Sea Empress when it ran aground, spilling approximately 70,000 tons of oil.

The ship's new residence is Harland and Wolff in Belfast, where the yard is attempting to push back the frontiers of ship repair.

With virtually the entire starboard side of her hull bottom ripped out and only a diver's report to go on, the setting of the drydock blocks alone became a major technical feat.

The yard has 214 days to return *Sea Empress* from a constructive total loss to DNV 1A1 class.

The strategic plan is to reinstate the strength of the vessel by repairing its

damaged central tanks. The team will then move out to repair the starboard side of the hull bottom which disappeared from just forward of the engine room for practically its whole length and to a height of 15 ft. (4.5 m).

Sister company Harland and Wolff Shipbuilding and Heavy Industries will prefabricate approximately 3,000 tons of new steel and deliver the sections to the yard as required. Once the repair of the ship's central box girder sections has been completed, the contract will be highly labor intensive and is expected to require up to 200 platers, burners, welders and fitters working in shifts.

For more information on Harland and Wolff

Circle 44 on Reader Service Card

("Oil Spill Technology" is covered in this edition, starting on page 110.)

SCRAPPING FORECAST

Scrapping Report Forecasts Lower Payouts For Shipowners

A crisis is looming in one of the few areas of the shipping market where there has been a degree of certainty. The shipping community has never really perceived the disposal of obsolete tonnage to be a physical problem and consequently has always felt able to assume that there will be a shipbreaking industry which not only can cope with whatever vessel tonnage it is offered, but also provide the owners with a residual value. Shipowners can no longer take these prospects for granted.

The first serious warning signs have been seen recently with Indian breakers pulling out of agreed vessel purchases and forcing new deals at prices as much as 20 percent lower. The trigger was

domestic economic moves within India, affecting the price of steel and increasing fuel costs. This brings into focus the idea that the shipbreaking industry operates on very slim financial margins, which is compounded by the politically and environmentally sensitive nature of scrapping operations.

Finding A Market

Ferrous scrap has two primary end-users — electric arc furnace (EAF) route steelmakers and re-rolling mills. EAF mills are now highly selective in the constitution of their scrap charge, making the use of ship plate largely obsolete. Demand for re-roll material focuses mainly on the production of reinforcing bars (rebars), set in

concrete for use in the construction industry. The rebar industry is highly competitive, with scrap ship-derived product not offering a substantial advantage over rebars made from new steel. In addition, several countries, including China, have introduced regulations banning the use of scrap-derived rebars in the construction industry. Drewry notes that scrap is virtually irrelevant to the determination of prices in the ferrous scrap marketplace and consequently, shipbreakers have virtually no "upside" on the prices they can offer shipowners. An aging fleet, particularly in large vessel categories, is increasing the demands on breakers, who are in turn seeing their own markets diminish.

Shipowners can therefore expect the prices paid to them by breakers to drop. Drewry notes that as shipbreaking becomes an increasingly unviable economic activity in China and the Indian subcontinent, where labor rates are low, the medium-term future of shipbreaking is uncertain. The reports suggest that there may be a return to the higher technology, berth-based operations that were used in the 1980s, rather than the unsophisticated beach operations which are the modern norm.

The preceding was excerpted from Drewry Shipping Consultants' abstract to its latest report, Ship Scrapping: Locations, Activity, Price Trends and Problems. For information regarding obtaining the report, call +44 171 538 0191.

Jurong Shipyard Opens New 500,000-dwt Dock

Jurong Shipyard's largest and latest ULCC drydock and its ancillary supporting facilities are now fully operational. Measuring 1,246 x 263 x 46 ft. (380 x 80.2 x 14 m), this largest drydock in Singapore is designed to dock the new generation of double-hulled tankers of up to 500,000 dwt, as well as large offshore drilling and production platforms.

Seay Corp. Renews MSC Contract

Seay Corp. announced the renewal by Military Sealift Command of its fuel delivery contract in Japan and Korea with North Pacific Expediting, an Alaska Native Corporation. The tug *Chilkat Hunter* and barge *Chilkat Warrior* will continue providing their service to U.S. military basis in these two countries.

Western Geophysical Offers New Seismic Streamer Technology

Western Geophysical announced a new proprietary technology for seismic streamers that it claims will significantly increase the efficiency and productivity of marine surveys. Seismic sensors have been incorporated into new streamers made of a solid, flexible material, which the company touts as an improvement over current oil-filled plastic cables. This technology was developed jointly with Thomson Marconi Sonar Pty. Ltd., Sydney, Australia. According to its developers, it will reduce the lifecycle cost for streamers and improve acquisition efficiencies during seismic surveys.

"Marine streamers are the costliest and most critical components aboard modern seismic vessels, and they have a direct impact on survey efficiencies," said **Richard C. White**,

senior vice president of Western Atlas and president of Houston-based Western Geophysical.

Chevron Participates In Expansion Of Natural Gas Project Offshore Australia

Chevron, as a member of the North West Shelf Project in Australia, announced a significant step towards a major, \$5-billion expansion of the world-class liquefied natural gas (LNG) project. A formal proposal was submitted in Osaka to the eight Japanese power and gas utility customers who purchase LNG, outlining a plan for a two-train LNG expansion, almost doubling the project's existing sales capacity of 7.5 million tons per year. Subject to the requirements of the Japanese customers, the seven-million-ton expansion could be on stream as early as 2003. The expansion would include new offshore production facilities and LNG shipping. Total cost of the expansion is expected to approximate \$5 billion. The expansion project also allows for growth in domestic gas sales and for the extension of existing contracts. The pro-

posal responds to indications of interest by the Japanese customers to purchase additional LNG from the North West Shelf Project. The project has an excellent reputation for providing its customers with a stable and reliable supply of Australian LNG. "Over the past decade, we have established and enhanced a close relationship with the Japanese utilities, and we look forward to many more decades of successful business together," said **John Gass**, managing director of Chevron Asiatic, the unit of Chevron responsible for its activities in Australia.

Intertanko Publishes Port Costs Guide

Intertanko has published the 1996 edition of *Disbursements for Tankers*, an industry guide to port costs worldwide. The 110-page book reportedly lists approximately 2,700 disbursements, comprising actual figures and recent cost estimates, provided by port agents in 430 tanker ports and terminals.

For more information from Intertanko
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Cruise Vessel *Galaxy* Floated Out At Meyer Werft



Galaxy is shown floating out of the covered building dock at Meyer Werft shipyard.

On September 14, 77,700-gt cruise vessel *Galaxy* left the covered building dock at Meyer Werft Shipyard in Papenburg, Germany, and was towed to the fitting-out quay. The vessel was to be completed and transferred to Emden at the end of October for trials in the North Sea. Delivery to Miami-based owner Celebrity Cruises was scheduled to occur this month.

With an overall length of 866 ft. (264 m) and a breadth of 106 ft. (32.2 m), *Galaxy* will have a passenger capacity of 1,896 passengers in 948 cabins. The engine output of 29,250 kW will reportedly provide the ship with a service speed of 21.5 knots. *Galaxy* is 45 ft. (13.7 m) longer than sistership *Century*. Both vessels will operate seven-night cruises in the Caribbean.

For more information on Meyer Werft
Circle 41 on Reader Service Card

Kirby Equips Fleet With Satellite-Based Messaging System

The Kirby Corporation has equipped its fleet with BOATRACS Inc.'s satellite-based messaging and vessel tracking system to integrate data collection and communications between the company's corporate offices and boats. The conversion to an onboard system reportedly facilitated better communications and provided a way to extend the operations and infrastructure to the boats. Kirby currently has 115 boats using the BOATRACS system.

The system, which allows for near real-time communications, has become an integral part of the company's infrastructure. Prior to use of the system, important information was faxed into the office and then keyed in by office personnel.

Now all pertinent information is immediately transmitted from the boat to the office and vice versa.

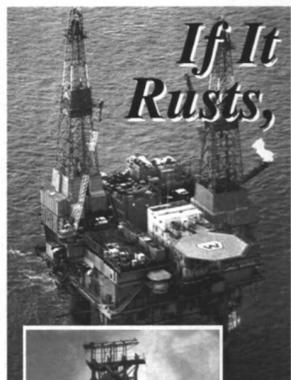
Kirby created the Oasis system to link with the BOATRACS system to better manage resources and provide a higher level of customer service. Using personal computers on the boats, Oasis

is customized to electronically aid with tow configuration, crew changes, boat log information and boat orders.

With 70 to 80 different kinds of traffic events and 115 boats, Kirby felt the need to monitor its various activities. In doing so, each traffic event has been assigned a specific event code aiding the vessel and the office in determining a course of action or simply knowing where the cargo may be at any given time. In addition, the BOATRACS system records positioning every hour and each time a message is sent.

According to Kevin Godsey, vice president, Information Systems for Kirby, the efficiency factor has streamlined operations and created a consistent protocol for sending orders, messages, confidential information and vessel positioning. In doing so, Kirby has been able to further its customer service element, by providing immediate and current information to its clients.

For more information on Kirby
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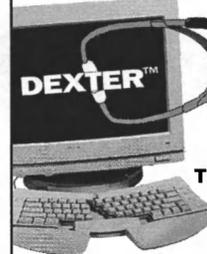
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Circle 384 on Reader Service Card

GEOS Offers Database Manual For Offshore Use

Essential data to support offshore exploration, development and production in the South East Asia region is available from Global Environmental & Ocean Sciences (GEOS). This database has been assembled as a new

subscription service called SeaData. Operational aspects covered by the SeaData manual include seismic exploration; exploration drilling; field developments; design of flotation production systems and fixed structures; offshore installation procedures; pipeline routes and installation; and shipping movements and design of coastal facilities.

For a copy of the manual
Circle 82 on Reader Service Card

Locations at which long-term current measurements have been obtained by GEOS are shown.



ACH Commissions New Line

Ateliers & Chantiers du Havre (ACH) has commissioned its new automated panel production line. This line consists of several main machines and pieces of equipment designed for dimensions up to 39.3 x 65.6 ft. (12 x 20 m). It is installed under a new 6,400-sq.-m hall.

For more information on ACH
Circle 111 on Reader Service Card

System Converts Waste Oil Into Diesel Fuel

Global Energy Recovery Corp. has introduced a new electronically-controlled system that reportedly filters, blends and converts used engine and other waste oils into an emulsified, water-free fuel for use in diesel engines. Dubbed WOTEC (Waste Oil To Energy Converter), the system blends and pumps processed waste oil and diesel fuel at a rate of 15 gpm directly into a vehicle fuel tank or day tank for immediate use. It retrieves a free gallon of fuel from every gallon of waste oil processed. The unit also reportedly increases engine fuel filter life up to 50 percent; extends the life of fuel injectors and fuel injection pumps; filters waste oil particulate matter sized four microns or larger; and removes emulsified or free-standing water. WOTEC additionally increases fuel economy by raising fuel viscosity per gallon output. The WOTEC system's filtration process consists of two extended-life, depth media waste oil filters that hold up to four times their weight in particulate matter. The primary waste oil filter removes all particles six microns or larger, while the secondary waste oil filter removes all particles four microns or larger. The processed and cleansed waste oil is then blended into the fuel oil by passing through a viscosity-sensitive static mixer. The blended fuel is next sent to a final coalescer assembly that removes more than 99 percent of emulsified or free-standing water, as well as any particles five microns or larger.

For more information
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Setting A New Course

The proliferation of navigation and communications system and component technological advances during recent years is staggering. Companies around the globe are pumping R&D money into creating products that will help vessel owners operate their fleets more safely, economically and efficiently. The pay-off on this investment is potentially huge, as new and pending international, national and regional regulations demand that owners take appropriate measures to operate safely. This will mean hundreds of millions of dollars worth of new equipment will have to be purchased for newbuildings and re-fits alike. The ensuing pages detail the latest news and happenings from the navigation and communications equipment market.

Station 12 To Invest In Mini-M Satellite Expansion

Station 12 has introduced a new

global service designed to offer mobile satellite communications to organizations which either seek to communicate independently of conventional telecommunications service or establish communica-

tions where such facilities do not exist. The company can reportedly provide hardware and software services and will offer users various levels of subscription to suit volumes of usage.

"We are making a major investment in this area, as we see this as the ultimate mobile connection. This service brings communications to any corner of the world, even where public telephone services do not exist ... This also creates a major new market opportunity for many telecommunications service providers," said a company spokesperson.

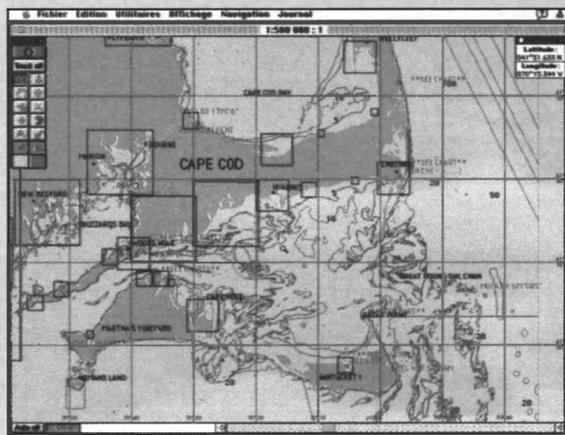
For more information on Station 12
Circle 66 on Reader Service Card

I&M Offers MaxSea ECD For The Fishing Industry

Informatique & Mer (I&M) MaxSea provides Electronic Chart Display (ECD) for use in professional fishing. MaxSea is a fully multi-task system which allows the user to utilize several programs simultaneously. For example, it is possible to use Inmarsat C software while running MaxSea and recording the track.

MaxSea provides simple access to important worldwide libraries of charts produced by various international manufacturers. Connected to various positioning devices, GPS or DGPS, Loran, Decca, Loran or Syledis, MaxSea displays and records the tracks in various colors on the chart. Vectorial charts available on floppy disks provide the possibility of access to a worldwide database. MaxSea is compatible with official electronic charts — ARCS of the British Admiralty and vectorial DX90 of the International Hydrographic Office.

For more information on Informatique & Mer
Circle 65 on Reader Service Card



Inmarsat To Launch New Phone Voice Services

Inmarsat is launching the Inmarsat-phone system, supporting a family of portable global phones. The newest Inmarsat-phone voice services are now available to 80 percent of the world's land-mass, following the successful September launch of the second of Inmarsat's new satellites. The Inmarsat-phone range supports a wide range of models, with lightweight versions available for individual travelers, terminals and dynamic satellite tracking antennas.

Kelvin Hughes Premier New Products At SMM

At the recent SMM show, Kelvin Hughes debuted two new products: a radar specifically designed to

meet the needs of high speed craft; and a version of the NINAS integrated bridge system adapted to meet DNV requirements. The new radar, designated Nucleus 2 5000, has its display available in three versions — standalone or pedestal-mounted, both with controls located on display front; or as a remote unit with its controls incorporated in the operator's seat. The radar has been designed and manufactured to meet all current and impending IMO legislation relating to high speed craft.

Kelvin Hughes has developed the NINAS 9000 DNV to satisfy the requirements of DNV. The system retains all the design advances of the NINAS 9000 equipment family, but features a shorter, central console allowing for better access between both sides of the integrated bridge system.

For more information on Kelvin Hughes
Circle 59 on Reader Service Card

Cygnus Revamps Cygnus 1 Gauge

Cygnus Instruments has introduced the revised Cygnus 1 Intrinsically Safe Model gauge. These gauges are used in the marine industry for measuring wall thicknesses of decks, bulkheads, tanks and hull plates. The new Cygnus 1 features an enlarged display; enhanced multiple echo measuring technique with signal strength indicator; increased battery life; and an automated low battery warning.

For more information on
Cygnus Instruments
Circle 61 on Reader Service Card

Simrad To Deliver Instrument Package For Multi-Purpose Research Vessel

Simrad has been contracted to deliver a fully-integrated scientific instrument package for a new multi-purpose research vessel to be operated by Aberdeen-based Marine Laboratory for its Scottish office's Agriculture, Fisheries and Environmental Department (SOAFD). The 223-ft. (68-m) trawler-type vessel is principally dedicated to fisheries research, but will also be fitted out with hydrographic and oceanographic equipment and laboratories.

SOAFD has awarded Ferguson Shipbuilders of Port Glasgow a contract for a complete vessel. Simrad has the main responsibility for supplying, installing and commissioning fully integrated scientific and navigational equipment.

The deliveries include Simrad's scientific and hydrographic single and multibeam echosounders, short and long-range sonars, a trawl-mounted echosounder, net monitoring and high-precision acoustic positioning and dynamic positioning systems.

At a total value of \$2 million, this is reportedly Simrad's largest single order for equipment for a fisheries research vessel.

For more information on Simrad
Circle 62 on Reader Service Card

IDB Introduces New Pricing Structure

IDB Mobile Communications, Inc. (IDB Mobile) has introduced a new pricing structure for Inmarsat-based satellite communications services designed to offer low rates to maritime users. The new rates, which were to go into effect on October 1, apply to Inmarsat A, B and M service. The new structure combines reduced rates from the company's One World, One Price plan which offers maritime users a single price, including landing charges, for calls anywhere in the world. Also debuting is IDB's new Preferred Nations Plan which provides nine special regional discounts for satellite calls to a set of countries selected by the customer, targeting medium and large Inmarsat users.

For more information on IDB Mobile
Circle 63 on Reader Service Card

November, 1996

Telstra, In Agreement With Globe Wireless, Provides Link In Global Network

Telstra has announced an agreement with Globe Wireless to provide a link in its Global Radio Network.

Telstra's Maritime Communi-

cations Station at Perth will join a network of eight other high frequency radio stations which will provide international trading and fishing vessels with virtually continuous access to radio telex services irrespective of position.

These stations are located at A9M Bahrain, ZLA Awanui, KEJ Hawaii, WNU Louisiana, WCC Massachusetts, VCT Newfound-

land, SAB Gothenburg and KFS San Francisco.

This agreement will eventually allow for the introduction of access to GlobeEmail which will facilitate the exchange of messages and data between ships at sea and shore-based electronic mail networks, including the Internet.

For more information on Telstra
Circle 64 on Reader Service Card

Land Earth Stations and Mobile Terminals



Since Inmarsat began to offer satellite communications between ships at sea and the international telephone and telex networks more than a decade ago, Nera has been the leading manufacturer of Inmarsat technology.

Nera has designed and built nearly forty per cent of all Land Earth Stations in the Inmarsat system. About 8,000 Mobile Earth Stations of the Saturn family have been commissioned on ships and on land.

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Telia Mobitel Opens New Maritex Sub-Station In China

Telia Mobitel has opened a new remote-controlled sub-station for Maritex, located in Guangzhou in southern China. The Guangzhou node is expected to provide for a significant improvement in Maritex service in terms of capacity and geographical coverage. With this network expansion in place, Maritex operates a total of 50 HF-radio channels at remote controlled nodes in Sweden, Argentina, Panama, the Philippines, China and the U.S.

For more information on Telia Mobitel
Circle 68 on Reader Service Card

KVH Offers TracVision Leasing Program

KVH Industries is offering a leasing program

for its TracVision marine satellite television antenna.

Typically, participants in the KVH TracVision lease program engage in a lease agreement for at least two to three years. Lessees have the option of charging both satellite antenna equipment and the installation costs to the TracVision lease program.

Vessels currently installed with KVH's TracVision include U.S. Coast Guard (USCG) buoy tender *Juniper*, USCG cutter *Tahoma*, U.S. Navy vessel *Petersen*, long-haul tugboat *Harry Mack* and luxury yachts *Kakapo* and *Abracci*.

For more information on KVH Industries
Circle 69 on Reader Service Card

OGM To Become Inmarsat Service Provider

OGM Communications Ltd. reached an agreement to become an Inmarsat Service Provider (ISP) as of this past September. OGM now enables end-to-end, one-stop shopping for satellite equipment and air-time services such

as the purchase of Inmarsat A, B, C and M service.

For more information on OGM Communications Ltd.
Circle 70 on Reader Service Card

Raytheon Acquires Assets Of Standard Radio

Raytheon has completed the transaction to

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- HOLLAND**
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Sailtron B.V. (yachts only) - Utrecht
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Radio Holland Group - Kwai Chung N.T.
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MED Installs Its 100th VIPER System

MED Associates, Inc. has performed the 100th installation of a VIPER system, this system for Tidewater vessel *M/V Boss* in the Gulf of Mexico. VIPER, a computer-based, satellite-linked vessel information and management system, was developed exclusively for and with Tidewater Marine Inc. of New Orleans. This combination of technology has been in continuous, evolutionary development since its launch on the first vessel in 1994.

At the heart of the system is OmniTRACS, a satellite-based communications and vessel tracking system developed and manufactured by QUALCOMM Inc. and distributed by San Diego-based BOATRACS. Utilizing the benefits of OmniTRACS, MED engineered and designed a unique, PC-based system which specifically addressed Tidewater's criteria of improved communications, better fleet management, reduced costs and reliability. The software reportedly meets all onboard information needs, including forms such as the master's log which are now generated with the computer. In addition, all of the data onboard is sent ashore several times per day.

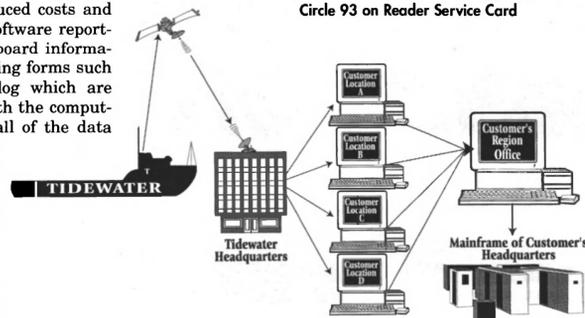
"It's like a living thing," said **Chuck Drobný**, of MED. "VIPER has the flexibility to change as

Tidewater learns more about its possibilities. Probably 90 percent of what VIPER can do was inspired by onboard personnel, and we are always listening for ways to improve it."

By pushing a button, the captain can transmit data such as activity information, crew lists, parts requisitions, master's logs, accident reports or fuel inventories via satellite. That data is used onshore by Tidewater, and is also sent to several of its customers' locations where it is used to simplify management and control procedures (see diagram).

MED develops and engineers customized information systems and provides comprehensive installation, training, certification, trouble shooting and support services. MED's customers operate supply boats offshore and river towboats on inland waterways.

For more information on the system
Circle 93 on Reader Service Card



purchase assets of the marine communications business of Standard Radio AB of Sweden.

Standard Radio is a manufacturer of shipboard communications equipment complying with international GMDSS and point-to-point communications systems for land-based applications.

This acquisition will reportedly allow Raytheon to compete more

effectively in the international marketplace because the combined companies will be able to offer shipowners and builders complete solutions to integrated ship control, communications systems and sensor inputs from radar, global positioning systems and gyro compasses.

For more information on Raytheon
Circle 80 on Reader Service Card

STN Atlas Announces Several Contracts

STN Atlas Elektronik announced orders for 17 proprietary integrated Ship Control Centers (SCC) for newbuildings undergoing construction by Samsung in South Korea, Kvaerner Warnow in Germany and Van der Giessen of the

Netherlands. Worldwide sales of SCC units, which typically combine all key automation, communications, navigation, engine control and ship management functions, now exceed 40 systems. The new orders include seven SCCs for new 37,400-gt containers being built by Samsung for delivery to China Ocean Shipping Corporation (COSCO) in 1997-98. An additional six units have been commissioned by Kvaerner Warnow for installation onboard four 20,000-gt containerships being completed this year and next for Interorient Navigation, as well as two new vessels for DSR/Laeisz. An additional two systems are also to be fitted to new 7,700-gt passenger ferries being built by Vander Giessen for completion next year on behalf of Deutsche Fahr Ostee.

All the SCCs are to incorporate STN Atlas' NACOS integrated navigation command systems combining radar, track control, route planning and ECDIS operations. NACOS sales reportedly exceed 380 systems following additional commissioning for nine 18,500-gt containers due for completion next year by Hyundai on behalf of Hyundai Merchant Marine.

In addition, NACOS 45-2 systems have also been commissioned for Carnival Corporation's two new 70,367-gt cruise liners due for completion by Kvaerner Masa in Finland in 1998. A similar configuration is also to be fitted on Princess Cruises' 76,500-gt liner being completed by Fincantieri for delivery next May.

NACOS 2 series has recently been granted type-approval for automated navigation and track-keeping of seagoing vessels by the Federal German & Hydrographic Agency (BSH).

For more information on STN Atlas
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Racal-Decca Makes Advancements In ECDIS Range

Racal-Decca Marine launched a new range of its ChartMaster electronic chart systems at SMM '96. Benefits of this new range include fast, accurate route planning through the unit's ability to display all types of electronic charts and to provide a clear upgrade path to ECDIS. The new CM500 series contains the operational advantages of the original ChartMaster, including the ability to be used within a Racal-Decca MIRANS



integrated bridge system, and now includes models suitable for every size, class and type of vessel, new-building or retrofit. All ChartMasters in the range meet IEC 945 specifications and include units suitable for full bridge integration, standalone use in a console or as a table top model. This is

reportedly the world's first PC-based electronic chart system designed to meet IEC specifications and to offer ECDIS upgrade capability for electronic charts.

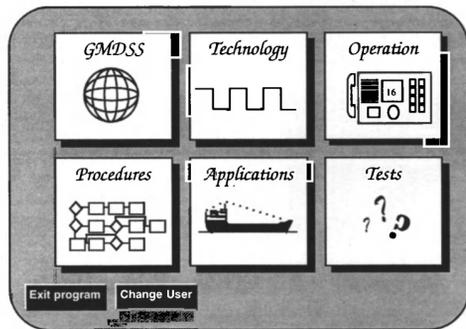
In other news, a Racal-Decca ISIS (Integrated Ship Instrumentation System) alarm and monitoring system has been specified for installa-

tion onboard a new container/feeder ship being built by the Peterswerft yard in Wewelsfleth, Germany. The vessel, *Arklow Castle*, was scheduled for delivery last month when it was to join Arklow Shipping's fleet of 24 ships. The engine monitoring system was specified following Arklow's successful experience with ISIS installations onboard two ships built for the company at a British yard last year. The ISIS is in the company's 250 Master Series and will include three of Racal-Decca's new 96-channel Local Scanning Units to monitor the ship's MAK 9 M32 main engine and auxiliary machinery.

The ISIS 250 has reportedly been fitted to more than 300 vessels of all classes and types worldwide. The system meets the full requirements of the major international classification societies for unattended machinery and is equally suited to cargo automation, naval and offshore applications.

For more information on Racal-Decca
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Sea Inc. Reduces Price Of SSB Radiotelephone

Sea Inc. has reportedly reduced the price of its SEA 225R by nearly \$1,000. The SEA 225R is a full-featured 150 watt HF/SSB which allows the user to store the transceiver separately from the controller. The unit comes with 300 pre-programmed channels and has the capability to store up to 45 more programmed channels. It also includes a built-in distress alarm generator and supports up to three full remote stations.

For more information on Sea Inc.
Circle 83 on Reader Service Card

C-Map Offers Professional Database For Marine Market

C-Map now offers the C-Map NT, a professional database for the marine market. Derived from CM-93, C-Map's SOLAS class database is designed according to IHO standards for electronic charts. C-Map NT is an Object Based Cartographic (OBC) format which organizes electronic charts in a horizontally seamless format. Information is provided for all NavAid objects including buoys, beacons and light.

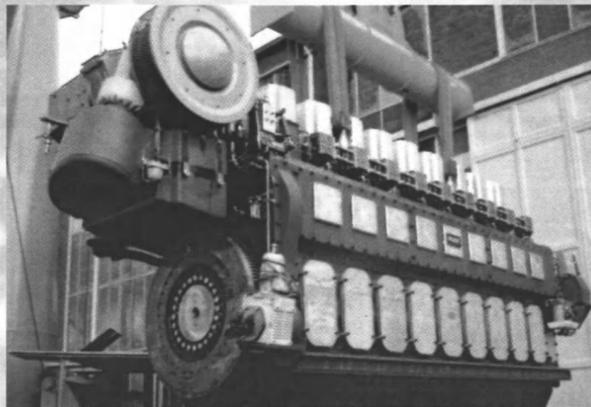
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Maritime Reporter/Engineering News

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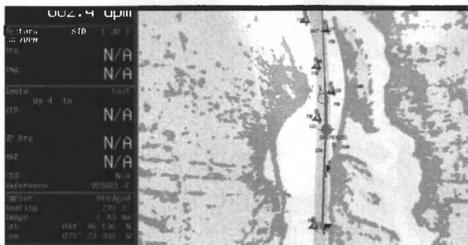
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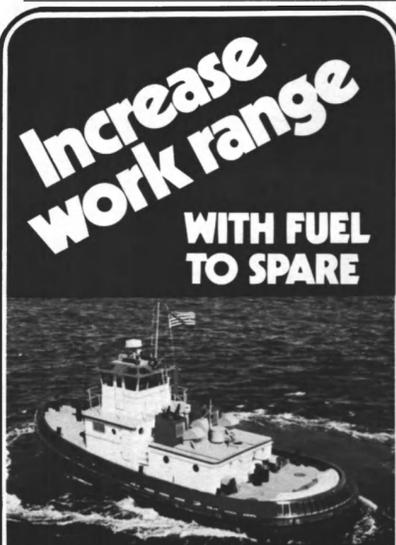
updated and improved its Stella with the new 1711 D/M series of Westinghouse is scheduled to be The Series 1000 operated on



OSL Reports ECPINS Orders

Offshore Systems Ltd. (OSL), has announced its new software release: ECPINS Version 1.5. Highlights of the new features and improvements include an alarm history chart window layout, route planning, radar overlay and ARPA display. In OSL contract news, Ontario Northlands has purchased an ECPINS M21R for M/V *Chi Cheemaun*. The Canadian Coast Guard has purchased 12 ECPINS GCs with an option for 24 more systems, and USS Great Lakes Fleet Inc., has added two additional ECPINS to its fleet.

For more information on Offshore Systems Ltd. Circle 90 on Reader Service Card



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Furuno DS30 Systems Installed Onboard Holland America Cruise Ships

Radio Holland is installing Furuno DS30 dual axis Doppler Sonar units onboard three Holland America Line cruise ships. Furuno DS30 units are already in place and functioning aboard Holland America's *Westerdam* and *Noordam*, while a third Doppler Sonar has recently been installed onboard another sistership, *Nieuw Amsterdam*.

The DS30 is equipped with a compact, high-frequency transducer generating three narrow beams. This unique design feature reduces the effects of both cavitation and pitching and rolling. Even in shallow waters, the highest level of system accuracy is reportedly maintained by Furuno's state-of-the-art computer circuitry.

The sonar's 10.4-in. diagonal, color, high-resolution, active matrix LCD screen displays information such as speed through water, longitudinal speed and transverse speed. In addition, the DS30 provides depth below keel, as well as has the capability to interface with gyro compasses, GPS units and wind speed direction indicators. The DS30 also utilizes a laser ring gyro unit to indicate vessel rate-of-turn and transverse speed at the stern. All DS30 operations are easily accessed via single-function keys and trackball. By interfacing with other marine electronics



Partnership's MSAT-1 satellite in Canada; and Telecomunicaciones de Mexico's MOVISAT satellite service in Mexico.

Westinghouse also supplies Series 1000 systems for Optus Communication's MobileSat satellite

Mackay Introduces NERA Worldphone Office

Mackay Communications has presented the NERA Worldphone Office (Mini-M Inmarsat terminal) to pro-

integrated in phone; and SIM card for personal mobility and authentication. Options include prepaid minutes, call forwarding, short message service (SMS) and voice/fax mail.

For more information on Mackay

Lyngsø Marine Updates Product Line

Lyngsø Marine of Denmark has updated and improved its Stella product line, namely the UMS/UCS 2100 alarm and control system and the DMS 2100 bridge control system. "The new series

sets a standard for alarm and control systems which not only meets today's requirements from the leading classification societies, but also satisfies the demands of the owners well into the next century," commented **Kjeld Dittmann** of Lyngsø.

For more information on Lyngsø Marine
Circle 85 on Reader Service Card

Westinghouse Introduces New Marine Satellite Telephone

Westinghouse is scheduled to introduce the marine version of its Series 1000 satellite telephone system.

The marine satellite phone sys-

tem — to be marketed under the name Wavetalk — provides private digital communications in voice, data and fax for mariners throughout virtually all North American waters.

The Series 1000 operated on American Mobile Satellite Corporation's AMSC-1 satellite in the U.S.; TMI Communications and Company, Limited

Sperry Enhances VOSS Technology; Supplies Smart Tech To Navy Ship

Sperry Marine has updated its Vessel Optimization and Safety System (VOSS) in a project jointly undertaken with a Maritech grant. Major technical developments include high speed data transmission via ship-shore satellite communications and modems; cost-effective sensors; and powerful desktop computers. The result is a VOSS which provides long range sea/swell forecasts and monitors vessel motion, structural responses and engine/propeller performance. The system is currently installed on three ships and will be tested on a SeaRiver tanker and an APL containership this winter. Integration of the Voyage Data Recorder (VDR) with the central alarm system is also in progress.

In other developments at Sperry, the company's Integrated Bridge System (IBS) is being supplied to USS *Yorktown*, the Navy's first Smart Ship, a government/industry effort aimed at significantly reducing ships' manning requirements while maintaining the highest standards of safety and operational flexibility.

"By automating data gathering and less sophisticated ship-operating functions, sailors can concentrate their time on navigating and warfighting functions," said **Walter Starkey**, Sperry's Smart Ship program manager. Testing of Phase 1 on *Yorktown* reportedly already points to a possible reduction in bridge manning requirements by as much as 70 percent. Also involved in the Smart Ship program are NSWC Carderock, CAE Electronics, IDAX, ITS, QED Systems and Intergraph.

For more information on Sperry
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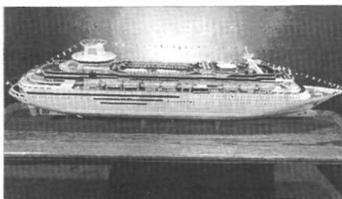
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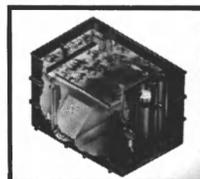
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Partnership's MSAT-1 satellite in Canada; and Telecomunicaciones de Mexico's MOVISAT satellite service in Mexico.

Westinghouse also supplies Series 1000 systems for Optus Communication's MobileSat satellite service in Australia

For more information on Westinghouse
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Mackay Introduces NERA Worldphone Office

Mackay Communications has presented the NERA Worldphone Office (Mini-M Inmarsat terminal), to provide access to international dial-up telephone, fax and data networks. The key features include: 4.8 Kbps voice; rechargeable NiMH battery and charger

integrated in phone; and SIM card for personal mobility and authentication. Options include prepaid minutes, call forwarding, short message service (SMS) and voice/fax mail.

For more information on Mackay
Circle 112 on Reader Service Card

GPS News

Numerous navigation and communications companies are advancing technology through their Global Positioning Systems (GPS). Thrane & Thrane has released Capsat, its new TT-3022D Inmarsat C/GPS fishery satellite communications system, specifically designed for fishing fleet owners and skippers.

Leica has been awarded a contract from the Australian Maritime Safety Authority for a beacon Differential Global Positioning System (DGPS) network. The network consists of beacon broadcasting stations, monitoring stations and a control station. Leica has established similar systems in North America, Denmark, Iceland, China, Belgium and Poland. The Australian system will comply with RTCM SC-104 and International Association of Lighthouse Authorities (IALA) standards.

Ashtech has introduced the GG24 receiver, reportedly the world's first single-board receiver for integrating U.S. positioning systems (GPS) and Russian Global Navigation Satellite System (GLONASS) satellite-based navigation technologies. "The GG24 exemplifies a positive application of Cold War military technology paving the way toward exceptionally fast, dependable and precise navigational aids we can use all over the world," said **Chuck Boesenberg**, Ashtech president and CEO.

"The implications for future developments in GPS technology by the addition of GLONASS ultimately rest on our ability to deliver a new generation of exciting and innovative products." The GPS and GLONASS combination is expected to ultimately usher in a host of new GPS applications.

Trimble has announced several new additions to its surveying and mapping product lines: the GPS Pathfinder Pro XR, a professional, real-time GPS mapping and GIS data capture tool; Pathfinder Office software, a Windows-based software system for managing and processing GPS data; the 4000Rsi and 4000Dsi receivers for high performance and real-time decimeter level positioning; and the 7400Rsi and 7400Dsi receivers for real-time positioning. "GPS is finding its way into many interesting and unique applications at the systems and software levels, and as standalone products," said **Jim Sorden**, executive vice president of Trimble's Commercial Systems Group. "By integrating GPS into their work, users can benefit from precise position and location data to enhance productivity and potentially reduce costs."

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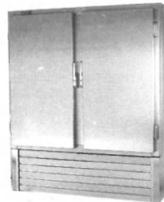
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OFFSHORE INDUSTRY

(Continued from pag 66)

Samsung Heavy Industries of Korea was awarded the contract to build the vessel, and delivery is expected in 1998.

The 721-ft. (219.7-m), double-hulled drillship has the additional flexibility to perform extended well test (EWT) and includes crude oil storage and offloading capacity, provision for simultaneous drilling and testing and eventual conversion to a floating production storage and offloading (FPSO) vessel. The key to its deep-water performance is the dynamic positioning system in which a specialized combination of seabed and satellite positioning systems provide signals to computers that control six high-powered thrusters, capable of positioning the ship exactly on target. The vessel configuration and dynamic positioning thrusters also provide efficient propulsion for high transit speed, giving the drillship excellent utility for deployment between drilling theaters worldwide.

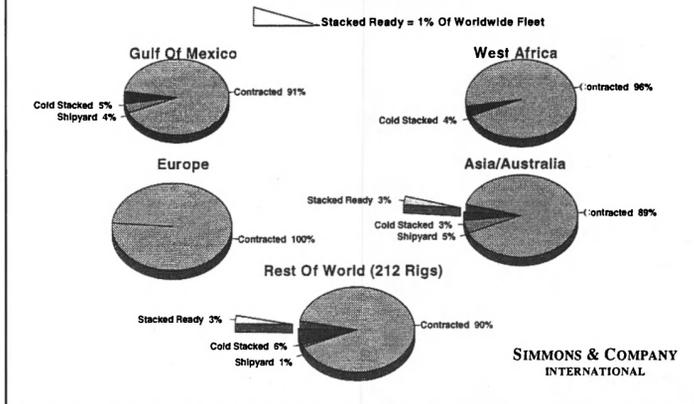
The drilling program centers on 60 high-potential blocks recently acquired by Conoco for exploration in the Gulf of Mexico. Water depths range from 2,000 to 9,000 ft. (609.6 to 2,743 m).

Drill Deeper, Drill Better

The future of deepwater drilling was also a hot topic at the recent Sea-Space Symposium. Many industry experts gathered to discuss the future exploration of both sea and space. Following are a few comments from the conference.

- **Jack Golden**, president of BP Exploration,

A Tight Offshore Rig Market October 1996



said new technologies are allowing penetration to depths formerly undreamed of, and that wells in 10,000 ft. of water are on the horizon. Wildcat exploration is up with 30 major discoveries in depths of 7,500 ft. (2,286 m). "Subsea technology will probably win out as the most cost effective approach for deepwater well completions. Subsea robotic technology will be mandatory as we expand into these depths,"

predicted Mr. Golden.

- "Limitations are based on need, not science or technology. Need generates progress," said **Russ Luigs**, chairman of Global Drilling. He discussed advanced developments in deep ocean drilling, mining, salvage and recovery. His company is revamping *Glomar Explorer*, a vessel capable of working in 20,000 ft. (6,096 m).

Hercules' Pipelay Capabilities May Be Enhanced

Global Industries recently completed the engineering phase of a two-stage conversion of derrick barge *Hercules*, which increased the company's single lift capability from 500 to 2,000 tons upon acquisition last year. Phase I will include installation of a dynamic positioning system and the addition of conventional pipelay capability for up to 48-in. diameter pipelines. Phase II would further expand the barge's capabilities to include pipelay by the reel method in water depths to 8,000 ft. (2,438 m). Global is reportedly still investigating the alternatives for financing the conversion, although its approved FY97 budget includes approximately \$70 million associated with the conversion.

Atlantic Marine Wins Contract To Build 3,000-Passenger Vessel

Atlantic Marine of Jacksonville, Fla. signed a contract with Majestic Star Casino LLC to build a 3,000-passenger gaming vessel dubbed *Majestic Star*. The 360-ft. (109.7-m) vessel was designed by Guido Perla of Seattle and is scheduled for delivery in September 1997.

The vessel will be propelled by two bow and two stern Shottel Z drives powered by 1,000-hp GE motors. Electrical power will be provided by four Caterpillar 3516 diesel generator sets. Interior decorating will be provided by Directions in Design.

For more information on the following companies, circle the appropriate number on the Reader Service Card in this edition.

Atlantic Marine	.....117
Guido Perla	.....118
Shottel	.....119
GE	.....120
Caterpillar	.....121
Directions in Design	.....122

ACCL Sells Caribbean Prince

American Canadian Caribbean Line, Inc. (ACCL) announced the sale of *Caribbean Prince* to a native American company in Alaska. The vessel is reportedly being fire-upgraded at ACCL's Warren shipyard. An ACCL crew will sail the vessel to the Panama canal -- following its winter cruises in Belize -- where new owner Glacier Bay Tours and Cruises will take possession. *Caribbean Prince* will be replaced by *Grande Prince*,

a new, 100-passenger small cruise ship under construction at Blount Industries.

LEMAG Names North American Agent

At the SMM exhibition, Messrs. Lehmann & Michels (LEMAG) appointed Hermont Marine, Inc. as its North American agent for their diesel equipment. LEMAG manufactures a complete line of diesel engine indicators, including peak pressure, mechanical and electronic indicators.

For more information on LEMAG
Circle 123 on Reader Service Card

MAN B&W/PBS Velka Bites Establish Joint Czech Co.

MAN B&W Diesel AG, a manufacturer of diesel engines and exhaust gas turbochargers, and mechanical engineering company PBS Velka Bites, will establish a joint company with its head office in Velka Bites in the Czech Republic. The new company, PBS Turbo s.r.o., will commence business activities in the field of turbocharger technology in January 1997. MAN B&W will share 34 percent of the company's capital. **Vladimir Hibs**, director of the former PBS Turbocharger Division,

will take over management of the company.

For more information on MAN B&W
Circle 107 on Reader Service Card

Philadelphia Gear Acquires WesTech

Philadelphia Gear Corp. has acquired WesTech Gear Corp., designers and manufacturers of high performance gears and gearboxes. "We will now have over one million square feet dedicated to the custom design, manufacture and repair of heavy-duty power transmission equipment," said **Ray Torok**, president of Philadelphia Gear.

For more information
Circle 124 on Reader Service Card

OSI Appoints Allcock

Offshore Systems Ltd. announced the appointment of **Barry Allcock** to the position of president and CEO. Mr. Allcock joined the company in 1993, and assumed the position of president and CFO in March 1995. OSI is a leader in the development, manufacture and sale of ECDIS technology.

For more information on OSI
Circle 125 on Reader Service Card

GMDSS News

Marine Technology International Ltd. (MTIL) has designed a system of simple installation and operation for GMDSS (Global Maritime Distress and Safety System). Dubbed Solas Lifeline, the system was recently installed onboard six ships operated by London Ship Managers.

The company chose to install the pedestal version of the system using Inmarsat C duplication for area A3 operation on six of its ships. MTIL has earned contracts with companies such as Bibby Line, Blue Star, BP, British Steel, Esso, Fred Olsen, Furness Withy, Geest Line, Safmarine and Shell Tankers.

RTM Star Center has installed an advanced Poseidon GMDSS simulation training laborato-

ry. The GMDSS course prepares students for Element 7 of the Federal Communications Commission (FCC) exam. "Sailing officers who train with us will use the type of instruments that are aboard today's ships," said **Brian Long**, director of the Star Center, Fort Lauderdale, the Florida maritime training, simulation and research center. The GMDSS simulation training includes the following instruments: VHF (radio telephone); VHF (DSC controller/receiver); HF/MF (radio telephone and radio telex); NAVTEX; 2182 kHz (watch receiver); Inmarsat A; and Inmarsat C.

ICS Electronics Ltd. of Arundel, West Sussex, has achieved full type approval for its DCS-2 modular GMDSS DSC and Radio Telex System according to the latest international standards.

Among major initial success for the new ICS DSC-2 system are decisions by the U.K. Royal

Navy to use the system to upgrade all of its fighting ships and all M.D. support vessels for GMDSS and decisions by the Chilean Directorate of Maritime Territories and Merchant Marine to re-equip coast radio stations along all of its 4,500-km coastline for GMDSS distress working.

Deliveries to both the Royal Navy and Chilean authorities are scheduled to take place by the end of this year. Many marine training centers are also using the DSC-2 system for GOC operator training.

In addition, ICS has developed coast radio station systems and vessel-based DSC transponders to the new ITU-R 825 VTS vessel location system standard.

ICS has recently tripled the size of its manufacturing facility, with automated, surface-mounted electronic production underway.

Colombian Maritime Company Appointed By IMSSCO

On November 1, **Ana Maria Soto B.**, president of Serotecmar Ltda., Buenaventura, Colombia, signed the Colombian exclusive Maverick Foam Vest System (MFVS) distribution with **Mary Richman**, owner of International Marine Supply & Service Company, (IMSSCO) in San Diego, Calif. "What makes this so unique is our common goal to assist ship's in complying with the technical regulations of SOLAS Part II-2 Fire Fighting

Equipment," said Ms. Richman.

Capt. **Ira S. Richman** commented, "Classification Societies play a major role in ship's fire fighting safety because under SOLAS, they have the power of enforcement, i.e., they can withdraw a ship's Safety Certificate for lack of compliance. One major problem that we have noticed in our ship surveys is that just because a piece of fire fighting equipment is painted red and is accepted by some administration does not necessarily mean that this equipment will work, no less comply with the minimum technical operating ranges."

The MFVS is accepted per SOLAS by the USCG, Canadian

Coast Guard, Panama, Liberia, Malaysia, Vanatu, and Germany; and type approved by ABS and Germanischer Lloyd. In addition, UL has listed the MF Nozzel BR-95, thereby complying with NFPA and British Standards for low expansion foam application.

For more information from IMSSCO

Circle 115 on Reader Service Card

ABS' SafeHull Passes 100-Ship Milestone

ABS has passed the 100-ship milestone for newbuildings designed and constructed to its advanced SafeHull system. The

first SafeHull ship, the 129,000-dwt shuttle tanker *Heidrun*, was delivered by Samsung in 1994. Comprising tankers, bulk carriers and containerships, the contracted SafeHull newbuildings total more than 10 million dwt.

ABS is currently conducting final pre-release testing on the latest version of the ABS SafeHull system. This will offer Windows compatibility, greater operational flexibility, easier integration with workstations and CAD and FEA programs used by many shipyards, as well as detailed applications for containerships.

For more information from ABS
Circle 116 on Reader Service Card

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Circle 372 on Reader Service Card

COMPANY & PEOPLE NEWS

ABB Turbocharger Names Operations Manager

ABB Turbocharger Co., North Brunswick, N.J., has named **Ravinder M. Singh** as Operations manager for its aftermarket sales and service group. He has 18 years of experience in vessel operations and repairs, and was formerly employed as fleet manager with Intersea Operations, Ltd., a Sea-Land subsidiary. Mr. Singh will be responsible for coordinating the operations of service centers in Tacoma, Miami, Houston and Los Angeles.



Ravinder Singh

Powell Joins Jamestown Metal Marine

Marine interior accommodation specialists Jamestown Metal Marine Sales, Inc., based in Boca Raton, Fla., recently welcomed **Allen A. Powell** as its new director of Sales and Marketing. Prior to joining the company, he was employed as director of Business Development at Peterson Builders, Inc., and has also served as general manager of Bay Shipbuilding Co., Sealand Service's ship construction group and Newport News Shipbuilding's engineering department.



Allen A. Powell

Olympic Tug & Barge Relocates

Olympic Tug & Barge, a marine services provider specializing in bunker delivery to ships in the Pacific Northwest, has moved to new headquarters in Seattle, Wash. The new, three-acre facility located on Harbor Island in the Port of Seattle, houses the company's administrative offices, training center and maintenance shops. The new address is: 910 Spokane St., Seattle, WA 98134.

Harbor Carriers Honor Bentley

On October 2, former Maryland Congresswoman **Helen Delich Bentley** was scheduled to receive the Leamon McCoy Memorial

Award from the Bi-State Harbor Carriers Conference in recognition of her efforts to impact the intermodal segment of transportation, as seen in her introduction of the Intermodal Safer Container Transportation Act of 1992. Also known as the "Overweight

Container Act," the legislation was signed into law four years ago, and regulations being imposed by the bill are expected to be enacted next year. The regulations are expected to reduce the number of overweight vehicles illegally operating on the highways by requiring ship-

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COMPANY & PEOPLE NEWS

pers and others to provide motor carriers with accurate information about the nature and weight of the cargo. Ms. Bentley currently serves as a consultant to the Port of Baltimore and heads her own consulting business, which specializes in government relations, inter-

national trade, business development and lobbying.

OSI Hires New Engineer

Fife, Wash.-based Offshore

Systems International, a company involved in ECDIS technology, announced the appointment of **Chris Spisak** to the position of Sales and Support engineer. He will be involved with the company's ECPINS and Yokogawa product lines.

Dreyfus and LHR Form Alliance

Dreyfus Supply of New Orleans and LHR Services and Equipment Inc. of Houston have formed an alliance in order to improve services to customers in the Gulf of Mexico. To meet the rigid hardware and demanding strength requirements for deepwater drilling, jointly owned stocks of Grade 4 forged connecting links, in both Kenter and Sea Connector design, as well as Pear Shape links, swivels and hinge links in all loads required by the offshore industry, will be maintained at both company locations.

ACE Names Savidge Chief Of Portland Division

After serving as acting chief since the summer, **Tom Savidge** has been named chief of the Operations, Construction and Readiness Division of the Portland District, U.S. Army Corps of Engineers (ACE). He will continue to supervise more than 700 professional and technical employees, including engineers, natural resource specialists, dredge operators and dam and powerhouse operators. The Portland District is responsible for the Corps' water resource activities in western Oregon and southwestern Washington.

YVC Holding Director Announces Retirement

After a tenure of more than 40 years, **G.J. van Hees**, Statutory director of YVC Holding B.V. and YVC Ysselwerf B.V., has opted for retirement. **K.R. Bosma** has been appointed to fill his positions. **H.R. Godlieb** has been appointed Statutory director of YVC Bolnes B.V. and Mercurex B.V. **J. Baker** will become head of Project Management at YVC Bolnes, and **J. Vlaanderen** will join the company as head of Production.

Halter Marine Announces Management Changes

Halter Marine Group, Inc. has announced the promotion of key

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COMPANY & PEOPLE NEWS

executives following the recent three million share public offering of 17 percent of the its common stock in late September. **John Dane**, chairman and CEO of Halter Marine said: "The promotions are intended to organize the company as an independent, pub-

licly traded business. As a separate company, it is necessary to assign new duties to Halter executives that were previously performed by Trinity."

Harvey Walpert, former senior vice president, Administration, has been named senior vice president

of Corporate Affairs. **Vincent Almerico, Jr.**, previously senior vice president of Development, will succeed Mr. **Walpert** in Administration.

Wayne Bourgeois, former vice president, Operations, has been named senior vice president of the same depart-

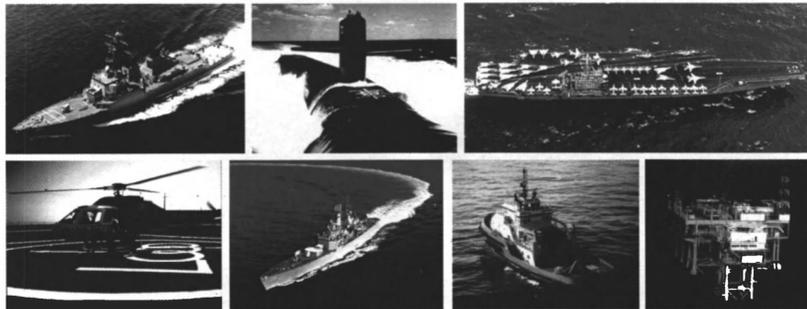
ment. **Sidney Mizell**, former vice president, Sales and Marketing, has been named senior vice president of the department. In addition, **Anil Raj**, previously vice president, Operations, has been named vice president, Government Programs.

The Trinity Marine Group currently retains 83 percent common stock interest in Halter, but has indicated its intent to divest itself of its investment in the company.

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Thorne Installed As AAPA Chairman

Mike Thorne, the Port of Portland's executive director, was recently installed as chairman of the American Association of Port Authorities (AAPA), making him the fourth AAPA chairperson to be elected from Portland in just over three decades. Before joining the Port of Portland, Mr. **Thorne** served 17 years in the Oregon senate, and chaired the Ways and Means Committee.

AAPA also honored **W. Don Welch**, executive director of South Carolina State Ports Authority, with a service award for outstanding leadership and noteworthy accomplishments. Mr. **Welch** has been an AAPA director for 13 years, and served as chairman from 1980 to 1981.

BMT Group Names New Chief Executive

John Gallagher has been named chief executive of BMT Group Ltd. by parent body British Maritime Technology Ltd. (BMT). He assumed this position on October 1, and is responsible for BMT's eight U.K.-based engineering consultancy businesses, as well as Designers & Planners, Inc. in the U.S. Mr. **Gallagher** was previously president of Designers & Planners, a Virginia-based naval architecture and environmental consultancy.



John Gallagher



Vadm. Frank Donovan

COMPANY & PEOPLE NEWS

Vice Admiral **Francis R. Donovan**, USN (Ret.), a former commander of the U.S. Military Sealift Command, has been appointed as president of Designers & Planners. In addition, **Andrew Docherty**, Corporate Services director at BMT Group, has been appointed to the board of BMT Group Ltd.

BMT Group Ltd. is responsible for the strategic direction of BMT's subsidiary companies, which transfer technology to industry through research and specialized engineering and maritime consulting.

Dotson Joins National Maintenance & Repair

Bill Dotson has joined National Maintenance & Repair, Inc. as vice president of the company's Hartford, Ill., shipyard. His responsibilities include engine repair, engine and component rebuild, customer service, purchasing and marketing the yard's services to the marine industry. Mr. Dotson rejoins the company after managing two other diesel engine repair facilities on the East coast.



Bill Dotson

Aqua Signal Hires New Controller

Aqua Signal, manufacturer of a line of navigational and interior lighting products for recreational and commercial craft, has named **Jayne Gullede** as its controller. She will oversee accounting functions and financial aspects of the company's dealings.

Avondale Wins DoD Industrial Safety Award

The U.S. Department of Defense (DoD) has awarded Avondale Industries, Inc. a James S. Cogswell Industrial Security Award, in recognition of the company's commitment to industrial security excellence as a defense contractor. The announcement of the award was made in Baltimore by the Defense Investigative

Service's Director **Margaret Munson**, and the award presentation was held recently at Avondale's Shipyards Division in New Orleans, La. Reportedly, only 57 out of 11,700 U.S. defense contractors received Cogswell awards this year.

Dutra Dredging Founder Passes Away

Edward Dutra, founder of Dutra Dredging Co. and the Dutra Museum of Dredging in Rio Vista, Calif., died in late September. Mr.

Dutra was involved in the industry for more than 60 years, starting as a teenager on his father's dredges in the San Francisco



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Size _____ Make _____



Circle 221 on Reader Service Card

COMPANY & PEOPLE NEWS

Bay, and eventually founding his own company in 1953, after working as a boat captain and dredging for the Army Corps of Engineers during World War II. Over the years, he designed and built a number of dredges and barges, including *Alameda*, reportedly the

first, all-steel, welded sidedraft clamshell dredge.

Unicon Appoints Godwin VP

Morris Godwin has been named vice president, Intermodal

Services, for Unicon International, a San Francisco-based company providing information-driven solutions and services for the transportation industry.

Prior to accepting this latest appointment, Mr. **Godwin** served as director of Operations for APL's

Intermodal Marketing division.

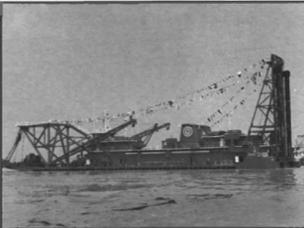
Jeff Carter has been named manager of the Americas region for the company's new interactive equipment exchange service.

The service is called The Intermodal Exchange, and is an advanced internet system that provides equipment owners, brokers and end users with an efficient method for purchasing and selling equipment.

For the past five years, Mr. **Carter** has served as director of Sales and Projects for a container brokerage firm.



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AVONDALE IN THE BEGINNING

SNAME Elects O'Neil As President

The Society of Naval Architects and Marine Engineers (SNAME) has elected **David A. O'Neil** as president of the society for a term beginning January 1, 1997. He is a former naval and merchant marine engineering officer, and current president of Seaworthy Systems, Inc., a naval architecture and marine engineering firm, which he founded in 1973. Mr. **O'Neil** will succeed **Pat Philips** in his SNAME office.

Stealth Propulsion Names CEO

Wendell Minnick was recently named chairman and CEO of Stealth Propulsion International, Ltd. of La Jolla, Calif., manufacturers of a ringed propeller line called RingProp. Mr. **Minnick's** company-building experience includes several years of marine hardware and sailboat manufacturing in Asia.

Stealth is currently introducing some of its technological breakthroughs in ringed propellers in a Florida test market. The company is focusing on producing models for higher horsepower outboards.

Slickbar President Announces Retirement

Russell M. Blair, president and 27-year veteran of Slickbar Products Corp., has announced his retirement. He will continue
(Continued on page 100)

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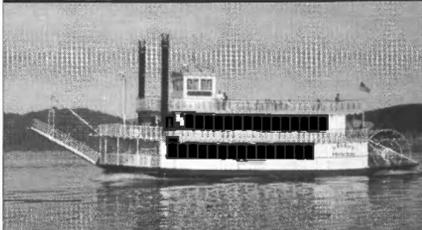
(Top) SkipperLiner luxury vessels rank among the finest and strongest, and earn profits in a variety of configurations. 30' to 160' lengths. 14' to 60' beams. We have excellent custom design/build abilities.

(Center) SkipperLiner's newest sternwheeler, the M.S. Dixie II operates as a sight-seeing and dinner cruiser. At 141' x 33', certified for 600 passengers, she is one of three SkipperLiners earning for their owners on Lake Tahoe.

(Bottom) Nostalgic SkipperLiner paddlewheelers from 49 to 800 passengers generate significant revenues for dinner cruise operators throughout the U.S.

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Avondale Christens First Double-Hulled Tanker For AHL Shipping



Captain H. A. Downing is shown on sea trials in the Gulf of Mexico.

On September 28, Avondale Industries, Inc. and American Heavy Lift (AHL) Shipping Company christened what is reportedly the first commercial, self-propelled, double hull tanker built in the U.S. to conform with OPA 90 and the Jones Act. The 680-ft. (207.2-m) product carrier was christened *Captain H. A. Downing*.

The new ship is named for Captain Henry A. Downing, who established AHL in 1985, and now presides as vice president and general manager of the company.

The ship is the first of four AHL tankers being built as double-hulled ships with the addition of a new 510-ft. (155.4-m) long double-hulled forebody constructed by Avondale. The new forebody is joined to the renovated and modified existing stern section — where the engines, crew quarters and bridge are located — to complete the conversion into a modern, environmentally sound, double-

hulled product carrier.

Before joining the forebody and stern sections of the new ship, Avondale fabricated and installed three additional deck levels which were added to the stern's superstructure.

The same procedure will be repeated on the three subsequent AHL vessels.

Construction is progressing on the remaining three ships in the AHL program. The second double-hulled forebody was launched on September 25, and the new ship will be christened *Anasazi*.

The forebody of the third ship, to be named *New River*, is also presently under construction at Avondale.

A keel-laying ceremony was held on October 2 for the fourth ship, which will be named *The Monseigneur*.

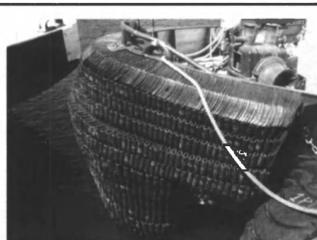
The AHL double-hulled product carriers will transport refined products and chemicals. The ships have a beam of 90 ft. (27.4 m)

and a draft of 36 ft. (11 m). They will displace 50,035 long tons and have a DWT of 39,400.

Powered by 15,000 hp, the new ships are reportedly capable of speeds of 15.5 knots at fully loaded cargo oil capacity of 275,800 barrels.

AHL Shipping Company, headquartered in New Orleans, owns and operates a fleet of U.S. flag product/chemical carriers. Avondale Industries, Inc., also headquartered in New Orleans, designs, builds and overhauls both military and commercial vessels.

For more information on Avondale
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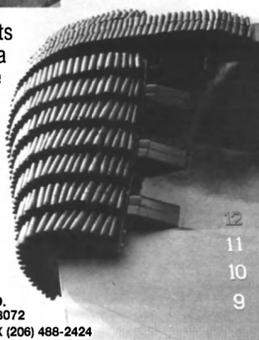
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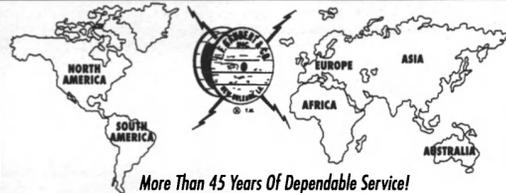
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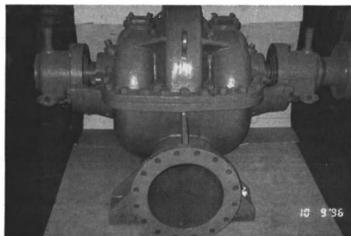
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Maritime Reporter/Engineering News

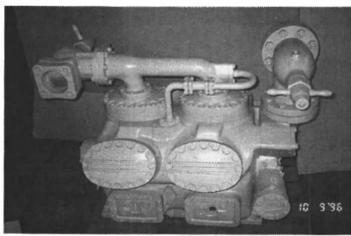
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Five (5) Sharples Purifiers



Model: AE-15-MV NO: H-8810-2
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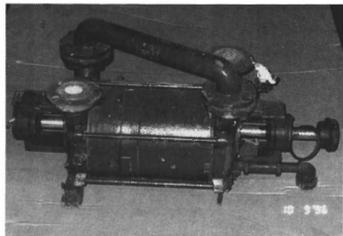
Three (3) NEW Warren 16DBVB20 Vertical Ballast Pumps

10,000 GPM @ 90' Head
850 RPM

Three (3) Worthington 5LR Fire Pumps

Size: 5 X 6 RPM: 3550
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290 cfm @ 275 Hg
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Circle 229 on Reader Service Card

COMPANY & PEOPLE NEWS

(Continued from page 96)

to act as chairman of the board of directors, and as general manager for a newly formed affiliate, Corrosion Control International LLC. During his time with Slickbar, Mr. Blair designed and secured many patents for oil spill response products and processes, assisted in the development of the first MOMSI spill response course at Mobil Oil, and published several spill training and technology manuals. Peter Ziehl, former Slickbar vice president, will preside as the new president.

Aquamaster-Rauma Names Project Engineer

Stephen W. Taylor has been named project engineer for Metairie, La.-based Aquamaster-Rauma, Inc., part of the KaMeWa Group. In his new position, he will be responsible for coordinating the sale, design, installation, commissioning and after sales support of KaMeWa propulsion equipment and deck machinery. Mr. Taylor will reportedly serve as a liaison between shipowners, shipyards and the factory to ensure proper installation of equipment and customer satisfaction.

Lips Propellers Names Board Members

Lips Propellers Inc., which specializes in the repair of propulsion systems for the U.S. Navy, as well as for international cruise, cargo and other commercial vessels, has announced the appointment of a four-member board of directors.

James F. Baur, president of the corporation since 1989, will serve as chairman. Admiral Frank B. Kelso, II, USN (Ret.), former chief of Naval Operations, has accepted a position on the Lips' board. Cees Pronk, managing director of Lips BV in the Netherlands, and Guy K. Tower, current general counsel and board secretary, will also serve on the Lips board.

ZF Industries To Open New Facility

The Marine Products division of ZF Industries, headquartered in Vernon Hills, Ill., will open a new, full service office in St. Rose, La.; a move that will bring the company closer to its commercial marine customers. The new ZF facility, scheduled to open in December, will provide complete sales, service and parts support to its servicing dealers in the Gulf Coast, Central and South America, Mexico and the Caribbean. The new operation will stock complete marine transmissions for commercial fishing vessels and workboats.

New Marine Engineering Co. Forms Near Seattle

Engineering and systems integration of marine electrical equipment are the specialties of a new company formed outside of Seattle in Bremerton, Wash. IPS



Joseph Payne

Maritime Reporter/Engineering News

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Actually, we never went away. Our ten shipyards, including Halter Marine facilities were part of the Trinity Marine Group. Now we are an independent, publicly owned company. We still build our entire line of work, government and pleasure vessels including St. Louis Hydrodyne towboats. We also build double-hull ocean-going barges, but not inland waterways barges. Everything else is the same. From the high quality designs and vessels that have made us the largest and most diversified ship builder of our type in the U.S., to the same management and production teams, solid equity base and high bonding capacities.

We have the same dedicated repair and conversion yards and we still build in steel, aluminum and composites. So, if you need anything but an inland waterways barge, you need to talk to the Halter Marine Group.



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COMPANY & PEOPLE NEWS

Marine Inc. will provide electrical engineering services to small and medium-sized shipyards and naval architecture firms.

According to **Joseph Payne**, general manager of the new organization, "Electrical equipment increases in complexity every year

as more and more shipboard systems are electrically controlled, or in many cases, converted to electrical from traditionally mechanical and hydraulic systems ... IPS Marine assists naval architects and shipyards in taking advantage of these systems and providing an

integrated system design." Mr. **Payne** was formerly employed with Guido Perla and Associates, and currently serves as an engineering duty officer in the Naval Reserve.

The company will also reportedly represent manufacturers of marine

electrical equipment such as main and emergency switchboards, lighting systems, distribution panels, transformers, electrical propulsion, interior communications and alarm systems.

German Engineer Remembered For Contributions To Industry

Upon his recent demise, friends of **Karl Stölzle** have called attention to the accomplishments of the German engineer, whose lifetime achievements helped advance his country's standing in the industrial world. During his career, he was employed by Renk AG, where he supervised the design and manufacture of the largest, synchronizing, self-shifting clutches for pumped storage power stations. At BHS, he developed and produced the CODOG reduction gear propulsion system for the German Navy F122 frigates, which were designed and manufactured in association with SSS Gears Ltd. in London.



Karl Stölzle

As managing director of Hofler Maschinenbau GmbH, Mr. **Stölzle** was involved in the U.S. Navy's transition from through-hardened to case hardened and ground gears. In 1984, along with **Hans Winter**, he founded an engineering consulting office in Munich — ZF Consulting — for gears and power transmission systems. Mr. **Stölzle's** accomplishments in the field of gear design and construction advanced the field incrementally.

NNS Hires Marketing Communications Director

Newport News Shipbuilding (NNS) has hired **Paul J. Minehart** as its director of Marketing Communications. He will be responsible for all corporate and product advertising, trade shows and exhibits, promotional materials and special events. Mr. **Minehart** was previously with Electronic Systems Group of Westinghouse in Baltimore, which was recently

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COMPANY & PEOPLE NEWS

Repair Agents Visit Panamanian Yard

A diverse group of international ship repair agents recently convened in Balboa, Panama, to visit the facilities of Astilleros Braswell. In the photograph are (left to right): **Pericles Koukis**, Hellenic Marine Agencies; **John Weldon**, Geometric Marine Services; **Jannick Eberhardt**, Eberhardt Agencies & Shipping; **Hans-Joachim Lempke**, Peter Gast Shipping; and **Nigel Smith**, Marine Marketing International.



acquired by Northop Grumman.

BV Names Veristar Product Manager

Stefan Recher has been appointed product manager for Veristar, the computer-based ship design and lifetime ship structure management system offered by classification society Bureau Veritas (BV). He was previously employed as a senior development engineer within the society's marine division.

Ulstein Hires Marketing Manager

Iren Bendvold has joined the Ulstein Group as Marketing manager. She will also serve as editorial director for the company's in-house magazine. Notable among her company's projects, Ulstein's UT700 designs are currently making an impression in the offshore support vessel sector.

Alfa Laval Launches New Generation Of Separators At SMM '96

Swedish marine supplier Alfa Laval launched its ALCAP Mk 2 marine separator for fuel and lube oil cleaning at SMM '96. By utilizing advanced fluid dynamics to design a new type of disc stack and incorporating other new technical features, the company said it has improved separation performance and increased throughput capacities by up to 20 percent. Separators in the ALCAP Mk 2 series have a modern bowl design, a new disc stack including optimized caulk/slot geometry and optimized caulk/disc thickness, and a redesigned distributor.

For more information on Alfa Laval
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November, 1996

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Reson Introduces Diver-Held Sonar System

Reson Inc. has introduced what is reportedly the world's first diver-held multibeam sonar system — the SeaBat DH6012. The system features 60 sonar beams, each 1.5 degrees wide by 15 degrees long,

which simultaneously update up to 30 times per second. The resulting 90 degree x 15 degree viewing sector is presented on a SVGA display located inside the diver's helmet. Depth-rated to 262.4 ft. (80 m), with an operable range between one and 656 ft. (.3 and 200 m), the SeaBat DH6012 provides information to a five-cm resolution.

Because it uses sound instead of light to construct its picture, levels of darkness and turbidity that disable video cameras reportedly do not affect the SeaBat DH6012. Even in zero visibility, it can reportedly produce imagery for countless underwater applications including surveillance, underwater structure condition assessments,

mine countermeasures, search and recovery operations and environmental and biological studies.

For more information on Reson Inc.
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Sperry Receives DNV Certification For ANTS

Sperry Marine was presented with a certificate from Det Norske Veritas (DNV) at SMM '96 for its Automatic Navigation and Track-keeping System (ANTS). The systems is a combination of type-approved sub-systems in the Vision 2100 integrated bridge which allow the systems to meet all DNV safety and technical requirements for a Watch-1 bridge certification. The ANTS sub-systems are comprised of the following: MK 37VT gyrocompass; ADG 3000 VT Autopilot; SRD 331 speed log or SRD 421 dual-axis speed log; Trimble NT200D differential GPS receiver; Rascar VT radar, voyage management systems (containing navigation, conning and planning station); and SeaNet software.

For more information on Sperry Marine
Circle 56 on Reader Service Card

Vulkan Introduces Hi-Temp Silicone Drive Couplings



American Vulkan has introduced the Vulastik-L (VL) and Vulkardan-E (VKE) silicone drive couplings for use in high temperature applications. Silicone coupling elements for the VL are available in sizes VL 1611S to VL4011S (590 lb-ft. to 9,220 lb-ft.) Vulkan's element design reportedly allows for the same continuous torque ratings for both rubber and silicone. For the VKE coupling in silicone, sizes VKE 2811S (922 lb-ft.) and 4011S (2323 lb-ft.) have been produced to date, with plans to expand this to all VKE sizes in the future.

American Vulkan offers on-site service, custom designs, engineering consultation and an extensive on-hand inventory.

For more information on
American Vulkan
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Tanker Jupiter, Bay City, Michigan



Crane Barge BOS 400, Capetown, South Africa



Freighter Nicol, Vera Cruz, Mexico

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POWER UPDATE

New Genset Well Received By Maritime Market

Orders have been placed for 25 of the new MAN B&W Holeby marine gensets. The L16/24 unit was designed to benefit the shipyard — by allowing for easy installation — and the shipowner, as it incorporates superior vibration control, according to **Peter Dan Petersen**, manager, Marketing and Documentation.

The 25 orders are for containerships being built at German and Chinese shipyards for German shipowners. The units ordered include twelve 5L16/24s and twelve 6L 16/24s. One unit — the 8L 16/24 — was sold to a Scandinavian shipowner as a replacement.

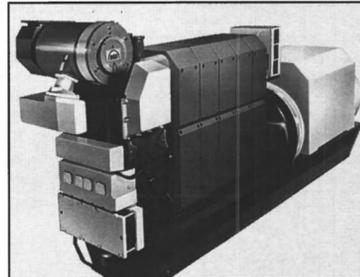
The monitoring instrumentation for the L16/24 is a tailor-made system, designed to fulfill these requirements:

- continuous analog monitoring;

- two independent computers — one for monitoring, one for the safety system;
- easy installation;
- alarm indication on engine;
- simple operation;
- no maintenance; and
- preparation for CoCos.

The L16/24, which was introduced solely as a genset, offers several new innovations according to the manufacturer. For example, each complete cylinder assembly — head, piston and con rod — can be removed as a complete unit in one step for easy maintenance or replacement. This can help minimize the genset's downtime.

Even though the L16/24 operates at 1,200 rpm, it uses the same heavy fuel oil as the vessel's propulsion engines. The engine also fea-



tures a new cooling water system that is designed to ensure optimal temperature across the engine. This system reportedly avoids water condensation, a big step in helping to control corrosion and, in effect, extend the unit's life.

For more information on MAN B&W
Circle 25 on Reader Service Card

Hyundai Mipo Aligns To Newbuild Market

Hyundai Mipo Dockyard, South Korea, has purchased the Tribon hull system. The investment is part of the yard's plan to enter the newbuilding market. Tribon is an

integrated design and information system. Tribon applications cover all aspects of design, from initial design to production, including advanced features from the assembly phase of ship production and materials control.

For more information on Tribon
Circle 29 on Reader Service Card

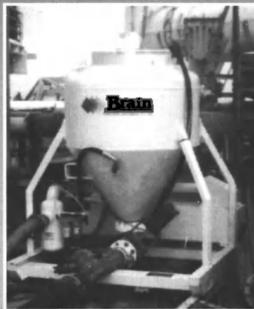
HydroComp Releases NavCad 3.5 For Windows

HydroComp, Inc. has released the latest version of its ship propulsion software NavCad. This product is a software tool for the prediction and analysis of vessel

speed and power performance. It also provides for the selection of suitable propulsion systems components, i.e., engines, gear and propellers. NavCad Version 3.5 for Windows is offered in standalone and network versions.

For more information on HydroComp
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AUSTRALIA'S AIRLOADER PUMP WITH 100 FEET OF VERTICAL SUCTION REVOLUTIONISES OIL TANK CLEANING



Thanks to the dynamic "Airloader PD4x(500) Pump", Australia's BHP Petroleum has achieved amazing results "sucking up" the heavy and abrasive crude oil contaminated sand and rust scale deposits from the oil tanks onboard three of its oil production facility tankers in the Timor Sea.

A few years ago the pumping of such heavy residues was considered impossible. Their removal by other methods was time consuming and costly.

Cleaning at sea is so effective, Lloyds surveyors have been able to carry out detailed inspections of the hull plates and structures of Skua Venture for the ships 20 year survey. Work estimates for future port repairs are being made whilst the ship is at full production.

The compact, portable pump stays at deck level with only the 4" suction hose lowered into the tank. A small team of operators can spotlessly clean a tank quickly and efficiently with the material discharged by 4" pipeline to a slop tank or a barge alongside for disposal.

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- Simple, fully automatic operation, low maintenance.



LEGISLATIVE UPDATE

USCG Reaches Out

The U.S. Coast Guard (USCG) is in the midst of an aggressive campaign to work with the international maritime community to create, alter and eliminate rules and regulations in order to streamline processes for shipowners. Zbigniew J. Karaszewski, chief, Shipbuilding Design and Operations Facilitations Division, recently presented some of these views to the international maritime community via the SEA 2000 Conference, held in conjunction with the SMM '96 exhibition last month. Here are some excerpts from his presentation.

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The world is constantly in a state of flux and the methods to achieve or attain our goals must change also. The USCG began a regulatory reform program to reduce the economic burden of regulation 25 years ago. Some will say, if so, then progress is slow. Yes, progress may be slow, but nonetheless it has been steady. Over the past two years the pace has increased and the programs that are evolving now show real economic promise and financial return to both industry and the USCG.

The USCG, working domestically and internationally, has developed the groundwork for some very important program and regulatory changes.

The U.S. federal government is in the midst of a process we call "downsizing." The USCG will certainly survive and even thrive in these challenging times. By rethinking how we do business and focusing our efforts and resources to provide the maximum return on investment, we are meeting these difficult challenges. Here are the major steps we are taking to do this:

Coast Guard Marine Safety and Environmental Protection, the office involved with the safety and environmental protection for merchant vessels, has already reorganized to align itself to better meet the needs of the maritime industry. As part of this reorganization we have established a new National Maritime Center as the means to serve the private sector and provide support to the USCG's marine safety field offices. The National Maritime Center consists of the once self-standing Marine Safety Center, which does plan reviews of new U.S. ships and foreign passenger ships having U.S. ports of call; a centralized National Vessel Documentation Center, which is a consolidation of our regional vessel documentation system; an Office of Marine Personnel Administration to handle licensing, personnel, training and certification issues; an Office of Shipbuilding, Design and

Operation Facilitation to help promote competitiveness of the U.S. maritime industry; and finally, a publications staff to produce our Marine Safety Manual, Navigation and Vessel Inspection circulars, our *Proceedings* magazine and the Marine Safety Newsletter.

The President's regulatory initiatives and the U.S. shipbuilding industry

On March 4, 1995, President Clinton issued a memorandum announcing plans for further reform of all federal regulatory programs. In this initiative however, he stressed that all Americans must still be able to expect the benefits of effective regulation: clean water; safe workplaces; wholesome food; and sound financial institutions. The expectation for a safe and environmentally sound maritime industry also remained unchanged. Accordingly, he described four steps which are to be an integral part of a total and ongoing regulatory reform process.

Step One is to cut obsolete regulations. Agencies are to consider the following for each of their regulations:

Step Two is to reward results, not "red tape." This has forced agencies to shift resource allocations from "enforcement" activities to compliance-driven programs.

Step Three is to get out of Washington and create "grassroots" partnerships. The goal is to have front-line regulators talking directly to the regulated public.

Step Four is to negotiate rules, not dictate them. The President has directed agencies to substantially expand their efforts to promote consensual rulemaking. This explains the USCG Marine Safety Environmental program's emphasis on partnerships with industry.

In response to the President's initiative, the USCG has developed a plan to implement regulatory reform in a three phase process.

In the first phase, we are eliminating regulations that are completely obsolete, and where no public comment is expected. These include regulations for nuclear vessels, incinerator vessels, and ocean thermal energy conversion facilities and plantships.

In the second phase, we will be eliminating regulations that are just about as obsolete as those regulations deleted in the first phase, except these requirements

are a little more technical and will require a public comment period. Examples in the second phase include requirements for hand leads, a box of sand in the engine room, marking of vessel's name on equipment that doesn't float, as well as many other regulations that don't make sense on a modern

vessel.

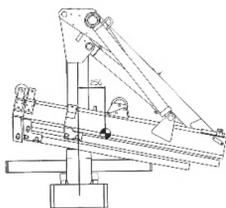
In the third and final phase, the USCG will be eliminating differences between our domestic regulations and the combination of international and classification society rules that generate additional cost without improving safety or environmental protection. We

believe achieving this consistency will enable vessels flying the U.S. flag to be more globally competitive.

In order to reach these historic new objectives, there was an obvious need to develop new tools to meet the needs of the future. One of those tools is risk-based technol-

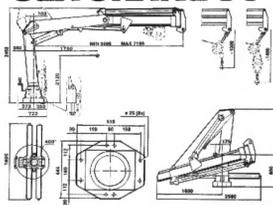
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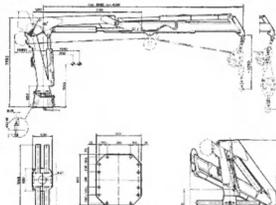
REACH:	41'	37'	37'	37'
CAPACITY:	4100 LBS.	2200 LBS.	2000 LBS.	1900 LBS.

HIAB SEA CRANE 80



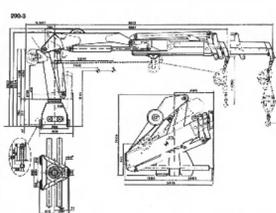
m	1.8	3.5	5.2	7.0	9.1	10.9
kg	4100	2200	1650	1080	700	500

HIAB SEA CRANE 120



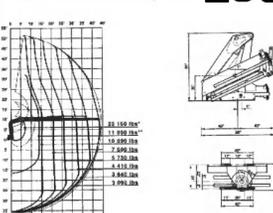
m	2.0	4.3	6.3	8.2	10.5	12.5
kg	5300	2650	1800	1380	850	600

HIAB SEA CRANE 200



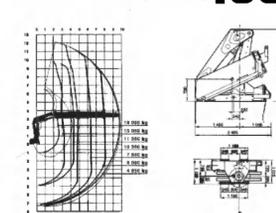
m	2.5	4.6	6.1	7.8	9.8	11.7	15.7
kg	5500	4200	3200	2550	1850	1200	800

HIAB SEA CRANE 250



m	2.5	4.6	6.1	7.8	9.8	11.7	15.7
kg	5500	4200	3200	2550	1850	1200	800

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LEGISLATIVE UPDATE

ogy (RBT) as a means to evaluate and manage safety and environmental hazards. For years, the USCG experience in making determinations in design equivalency has pointed to a need for using RBT. Unfortunately, for too many years the USCG dismissed this

need as simply "too hard to do".

As part of the USCG's new technical-regulatory paradigm, we are joining forces with other U.S. and international interests to better define, and refine RBT in order to make risk-based approaches useful marine safety and environmental

protection management tools.

The USCG's Marine Safety Evaluation Program, called "M-STEP," is a cooperative effort involving the U.S. Navy, academia, global RBT experts and other leaders in the international maritime community to advance the science

and utility of RBT in maritime applications.

In addition to updating and aligning technical aspects of our regulations, the USCG is streamlining and re-engineering the regulatory process itself. For instance, the USCG is implementing a program called the Alternate Compliance Program (ACP), which has already begun as a pilot test.

The ACP provides owners and operators of cargo ships and tank ships in international service with an alternative to the traditional way of demonstrating compliance with applicable laws and regulations.

Under this program, the USCG recognizes the combination of applicable international conventions and rules of approved classification societies as equivalent to U.S. rules. Therefore, vessels which comply with these international conventions and approved classification society rules will be considered to be in compliance with applicable U.S. laws and regulations. The Alternate Compliance Program also eliminates areas of duplication where the USCG and the classification society check the same plans and inspect the same systems, thereby promoting greater efficiency in the vessel design, construction and inspection processes. ACP is just one of a "family" of new approaches to achieving marine safety and environmental protection at less cost and greater efficiency.

Other alternative approaches are being pursued on a pilot basis by USCG field units in partnership with selected industry groups. One example is a Streamlined Inspection Process (SIP). In SIP, vessel operators who develop a safety management system designed to keep their fleets in continuous regulatory compliance may enter into a safety partnership with the USCG. As safety partners, qualified company personnel use USCG-approved test procedures to perform their vessels' scheduled inspections on their own, rather than in the presence of a USCG marine inspector. In SIP, the USCG adopts an "audit" culture; USCG SIP inspections involve checking company records, doing limited spot checks on critical safety systems, and assessing the crew's ability to deal with shipboard emergency situations. This approach returns the

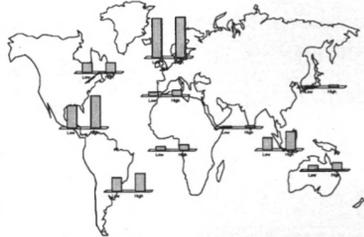
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- ◆ list of floating production systems currently on order — with estimated contract costs
- ◆ analysis of technology changes likely to shape future system requirements

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balance to more closely reflect what was envisioned when the regulations were written, i.e., the ship company does a number of safety functions on a routine daily basis and the USCG inspector serves to assure that these critical safety tasks are being performed.

Another important element of the USCG regulatory reform initiative is a "package" of legislative changes that we look to Congress to pass soon. The new legislation would give the USCG the authority to allow other classification societies, besides the American Bureau of Shipping, to do plan review and inspection on the USCG's behalf. Such an arrangement would provide even more flexibility for the U.S. maritime industry to achieve and demonstrate compliance.

The USCG is already in the process of developing the standards for acceptance of other classification societies, anticipating that Congress may pass this important legislation.

Other legislative proposals include provisions to authorize implementation of the recently adopted SOLAS International Safety Management (ISM) Code. This will permit the U.S. maritime industry to begin its work in meeting the Code, and will smooth the way for meeting the mandatory SOLAS dates for vessel operators to have a Safety Management Plan established and approved.

We expect this program will result in improved management for vessel operators where "first class" operators clearly will be at an advantage over those that don't operate responsibly, or in a planned and effective manner.

Another important aspect of the USCG's legislative initiatives is a provision that will authorize the USCG to accept "reports, documents, records and examinations of other persons." This will allow the USCG, together with operating companies or industry groups, to develop less costly and more effective ways to address safety and environmental protection. For example, when an "approved" company does maintenance or alterations to equipment required to be inspected or meet a compliance standard, then its reports can serve as the basis of an alternative compliance approval. The two programs — ACP and SIP — discussed earlier, have their basis in this philosophy.

Another legislative provision that will promote the competitiveness of the U.S. maritime industry is one that further encourages the use of international standards and would encourage owners and shipyards to "shop" the world markets to buy state-of-the-art equipment that meets international safety

regimes.

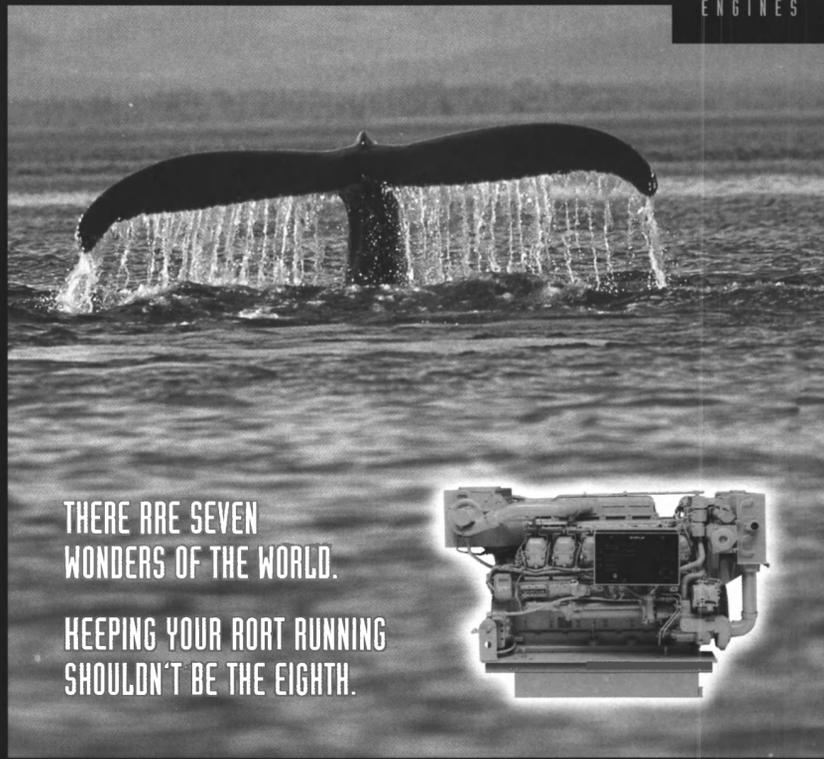
Through initiatives such as the Marine Safety and Environmental Protection reorganization and regulatory reform, the USCG is responding to a changing world by focusing its limited resources on those areas that promise the largest potential payoffs. Our suc-

cess in the future requires us to get the maximum benefit out of every dollar spent and from every effort by our people.

Initiatives such as those presented today are just examples of how we are assuring maximum value to the U.S. taxpayer, as well as the world maritime community.

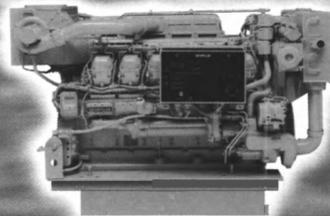
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Not Like In Rhode Island

by Bridget Murphy, associate editor

A tanker spill in Portland, Maine, on September 27 once again tested the maritime community's ability to interface with government agencies to effectively respond to an environmental emergency, and this time, there is some good news.

While *Julie N's* collision with the Million Dollar Bridge and the subsequent spillage of a reported 170,000 gallons of oil is a disaster which may have been prevented, reports from all sources have indicated that cooperation and teamwork from all parties in the response effort had a mitigating impact on damage to natural resources. "There's oil on the shoreline, sure. I didn't see any water fowl that was contaminated to any extent. I saw plenty of harbor seals that looked fine. We're licensed wildlife rehabilitators, so I was looking for that," said **Artie Baldwin**, Environmental and Spills Operation manager for Trade-Winds Environmental Restoration, Inc., a Long Island, N.Y., company

"There weren't separate cells ... It was fully integrated. I credit that structure to allowing us to achieve an effective response. I give credit to the personalities of the people involved. All egos were checked at the door. Everybody rolled up their sleeves and was ready to work."

— **USCG Commander Burt Russell**

whose five workboats provided overall assistance at the spill site. "It was not like in Rhode Island," added Mr. **Baldwin**, in his synopsis of the injuries incurred by wildlife, as compared with those sustained from North Cape's spill. U.S. Coast Guard (USCG) Commander **Burt**

Russell, captain of the Port of Portland, told *MR/EN* that the spill from the Amity Product Carriers, Inc.-owned and Maritime Overseas Corp.-operated vessel resulted in an exceptional response. "Folks from the R.P. (responsible party) were on-scene that night. The spill management team and key players were in place early Saturday morning."

Cdr. **Russell** explained that positive relationships previously formed in Portland between USCG, state and federal authorities enhanced the cleanup coordination, particularly when all were faced with establishing a working chain of command. In terms of "the variable that you don't have control over ... we got the joint command post established and fully operational by 4 a.m.," said the Coast Guard captain. At this time, USCG, state officials, Fish and Wildlife reps and the R.P. were all represented, in addition to the EPA and NOAA, whose personnel showed up Friday night to coordinate scientific



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Post spill included marsh cleanup.

OIL SPILL TECHNOLOGY

support. "There weren't separate cells ... It was fully integrated. I credit that structure to allowing us to achieve an effective response. I give credit to the personalities of the people involved. All egos were checked at the door. Everybody rolled up their

sleeves and was ready to work," said Cdr. Russell.

Anatomy Of A Spill

"The call came in to our local response supervisor by Steve McCall (Incident Commander). He asked us to respond on behalf of the R.P.," said Don Toenshoff, executive vice president of Marine Spill Response Corp. (MSRC), the oil spill removal organization (OSRO) listed on the R.P.'s spill response plan.

According to George Blake, executive vice president of Maritime Overseas Corp. (MOC), the immediate concerns communicated to MSRC were of an obvious nature: "to clean up the spill as quickly as possible," the MOC spokesperson told *MR/EN*.

After receiving notice, MSRC immediately kicked into gear, deploying Portland-proper homeported *Maine Responder*, as well as dedicated response and navigation crews. After Capt. Tom Newman was appointed as the Q.I. (qualified individual), the spill management team called out other contractors.

According to Tracey Jennings, a spokesperson for Donjon Environmental Marine Services, LLC (DEMS), Southern Waste Services was tasked with dictating which other contractors would be called to the scene. Among those contracted was Garner Environmental Services, Inc., a major partner in the alliance that makes up DEMS. "Garner is up there. A lot of our contractors are up there. These contractors are there to work and that's the name of the game," Ms. Jennings stated in a recent interview.

Marine Pollution Control — a major partner in the Marine Response Alliance also made up of Crowley Marine Services, Moran Services Corp. and Williams Fire and Hazard Control — was also present, and called Mr. Baldwin's company to the scene. According to the Trade-Winds executive, despite the sheer numbers of those responding, "It was done in a professional manner without hell or havoc. It allowed everything to be coordinated so no contamination would be left in the waters."

Two-Lane Information Highway

On September 29, the first public meeting was held in the Portland

(Continued on page 121)

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Principal Contracts Recorded, September 1996

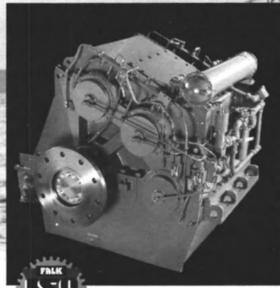
Orders are listed alphabetically, by vessel type. Publisher is not responsible for errors or omissions. For additional information on this, or other ship market information, contact: FERLISHIP, Paseo De San Francisco De Sales, 8, 28003 Madrid, Spain, tel: +341 441 4138; fax: +341 441 4138.

Owner/ Operator	Country (Owner)	Shipyard	Country (Shipyard)	Ship Type	No.	DWT	Delivery Date	Price \$M
ARGO REEDEREI	GERMANY	SPLIT SHIPBUILDING INDUSTRY	CROATIA	BULK CARRIER	1	—	10/98	—
COSCO	CHINA	GUANGZHOU	CHINA	BULK CARRIER	2	—	1998	38
REEDEREI NORD K. E. OLDENDORFF	CYPRUS	2 MAI MANGALIA	ROMANIA	BULK CARRIER	2	—	11/98	—
SHOWA LINE	JAPAN	IMABARI SHIPBUILDING	JAPAN	BULK CARRIER	1	—	1998	—
TOP LINK	JAPAN	SANOYAS CORP.	JAPAN	BULK CARRIER	2	—	6/98	48
WAH KWONG	HONG KONG	HUDONG SHIPYARD	CHINA	BULK CARRIER	1	—	1996	—
SSANG YONG SHIPPING	KOREA	SHIN-A SHIPBUILDING	KOREA	BULK CARRIER	1	—	5/97	—
N.Y.K. (NIPPON YUSEN KAISHA)	JAPAN	HITACHI ZOSEN	JAPAN	BULK CARRIER	1	—	1998	30
SHOWA LINE	JAPAN	SASEBO	JAPAN	BULK CARRIER	1	—	—	30
WESTERN BULK CARRIERS	NORWAY	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER	4	—	98/99	—
COSCO	CHINA	HUDONG SHIPYARD	CHINA	BULK CARRIER	2	—	1998	—
DAIICHI CHUO KISEN	JAPAN	SHIN KURUSHIMA	JAPAN	BULK CARRIER	1	—	12/97	—
DOCEHAVE	BRAZIL	EISA SHIPYARD	BRAZIL	BULK CARRIER	2	—	—	—
FOUR SEASONS OVERSEAS/KOREA LINE	PANAMA/KOREA	DAEDONG SHIPBUILDING	KOREA	BULK CARRIER	1	—	6/98	27
GOWILL CO.	JAPAN	SASEBO	JAPAN	BULK CARRIER	1	—	1998	—
MITSUBI & CO.	JAPAN	SUMITOMO HEAVY INDUSTRIES	JAPAN	BULK CARRIER	1	—	1998	—
NICHIMEN CORP.	JAPAN	HITACHI ZOSEN	JAPAN	BULK CARRIER	1	—	6/98	—
WORLD-WIDE SHIPPING	HONG KONG	SASEBO	JAPAN	BULK CARRIER	2	—	1998	56
TRANSTEJO	PORTUGAL	FBM MARINE	U.K.	CATAMARAN	2	—	9/97	—
LUKOIL ARCTIC TANKERS	—	ADMIRALTY	RUSSIA	CHEMICAL	1	—	1998	42.5
KNUT KNUTSEN	NORWAY	NAVAL GIJON	SPAIN	CHEMICAL	1	—	1997	45
STENERSEN	NORWAY	QUIXING	CHINA	CHEMICAL	1	—	1998	22
UNKNOWN	—	SHIN YEONG	KOREA	CHEMICAL	2	6,500	1998	—
AP MOLLER	DENMARK	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	3	—	97/98	—
BELGIAN LINE CIE MARITIME BELGE	BELGIUM	VIANA DO CASTELO	PORTUGAL	CONTAINER	3	—	—	—
CMA	FRANCE	HALLA	KOREA	CONTAINER	2	—	97/98	112
COSCO	CHINA	ALABAMA SHIPYARD	U.S.	CONTAINER	4	—	—	150
ERNST JACOB	GERMANY	FLENDER WERFT	GERMANY	CONTAINER	2	—	1998	—
FRENCH CARIBBEAN COMPANIES	—	AESA	SPAIN	CONTAINER	6	—	—	213
HANSA MARE	GERMANY	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	1	—	1997	—
MISC	MALAYSIA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	2	—	6/98	110
NEPTUNE ORIENT LINES (NOL)	SINGAPORE	JURONG	SINGAPORE	CONTAINER	4	—	—	—
NORDEUTSCHE REEDEREI	GERMANY	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	2	—	1997	—
REEDEREI B RICKMERS	GERMANY	CHINA SHIPB. CORP.	TAIWAN	CONTAINER	6	—	—	210
RICKMER	GERMANY	CHINA SHIPB. CORP.	TAIWAN	CONTAINER	2	—	1998	70
STEAMERS MARITIME HOLDINGS	SINGAPORE	JINLING	CHINA	CONTAINER	2	—	1998	34
TOM WORDEN	GERMANY	ELBEWERFT ROIZENBURG	GERMANY	CONTAINER	3	5,800	97/98	—
TRANSPORTES MARITIMOS INSULARES	PORTUGAL	ESTALEIROS NAVAIS DE VIANA DO CASTELO	PORTUGAL	CONTAINER	1	—	1998	—
TRANSINSULAR-TRANS. MARITIMOS	PORTUGAL	VIANA DO CASTELO	PORTUGAL	CONTAINER	1	6,000	1998	—
AP MOLLER	DENMARK	CHINA SHIPB. CORP.	TAIWAN	CONTAINER	6	—	1998	140
SHREYAS SHIPPING LINE	INDIA	ABG SHIPYARD	INDIA	CONTAINER	1	—	8/98	—
RENAISSANCE CRUISES	FRANCE	CHANTIERS DE L'ATLANTIQUE	FRANCE	CRUISE	2	—	6/98	490
SOUTH COAST SHIPPING	U.K.	MERWEDE SHIPYARD	GERMANY	DREDGER	1	9,000	4/98	—
CONOCO	U.S.	SAMSUNG	KOREA	DRILLSHIP	1	—	—	200
YANTAI MARINE SHIPPING	CHINA	BRAND WERFT	GERMANY	DRY CARGO	2	—	97/98	—
WOODSIDE PETROLEUM	AUSTRALIA	SAMSUNG	KOREA	FPSO	1	—	1998	—
HANS AND CLAUS HEINRICH	GERMANY	SJETAS	GERMANY	GENERAL CARGO	2	—	1998	—
MYANMAR FIVE STAR LINE	—	XINGANG SHIPYARD	CHINA	GENERAL CARGO	2	—	1998	120
AMMOET SHIPPING	NETHERLANDS	UNKNOWN	NETHERLANDS	HEAVY-LIFT CARGO	4	—	97/98	—
RIES MARINE CORP.	U.S.	HALTER MARINE INC.	U.S.	OFFSHORE SUPPLY	1	—	7/97	—
LVAN REDERI	—	VAAGLAND BAATBYGGERI	NORWAY	PALLET CARRIER	1	1,200	4/98	—
RAINSTEJO TRANSPORTES	PORTUGAL	MONDEGO	PORTUGAL	PASSENGER/FERRY	1	—	1997	5
RAINSTEJO TRANSPORTES	PORTUGAL	FBM MARINE	U.K.	PASSENGER/FERRY	1	—	1997	5
ELGELAND TRAFIKSELSKAP	NORWAY	KAARBOS MEK VERK	NORWAY	PASSENGER/VEHICLE	1	—	1997	12.3
UNKNOWN	NORWAY	BENETTI	ITALY	PLEASURE CRAFT	1	—	1998	30
AN OCEAN SHIPPING	KOREA	HANJIN H.I.	KOREA	PULP CARRIER	1	—	1/98	—
ARREN & PARTNER	GERMANY	PEENE-WERFT	GERMANY	RoRo	1	—	1997	—
OR LINE (DFDS SUBSIDIARY)	DENMARK	FINCANTIERI	ITALY	RoRo	1	8,700	1998	64.3
UNKNOWN	U.S.	HALTER MARINE INC.	U.S.	SUPPLY	1	—	1997	—
EMOY MANAGEMENT	NORWAY	KVAERNER KLEVEN AS	NORWAY	SUPPLY	1	4,000	7/97	21

(Continued on page 122)

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OIL SPILL TECHNOLOGY

**MSRC Receives Broad Interim OSRO
Classification**

Marine Spill Response Corporation (MSRC) announced that it has received interim OSRO (oil spill response organization) classification from the U.S. Coast Guard's (USCG) National Strike Force Coordination Center for Level B, C, D & E, as applicable, for facilities and vessels in the river/canals, inland and ocean environments.

To MSRC's customers, this interim classification is indication that the company has the capability required to meet the planning requirements for "Maximum Most Probable Discharge" (MMDP) and tiers I, II & III of "Worst Case Discharge" (WCD) in all Captain of the Port (COTP) zones on the East, West and Gulf Coasts, including the U.S. Caribbean and the Hawaiian islands.

Through this classification, customers may incorporate the resources owned and/or ensured by contract to MSRC into their facility or vessel response plans. In 1997, MSRC will also offer "Average Most Probable Discharge" (AMPD) services through the use of its STARs contractors, or its own dedicated assets. This will reportedly provide a tanker operator operating in the spot market with the opportunity to offer its charterers an extensive range of trading options with relative ease.

For more information on MSRC
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**Swedish Authorities Strive To Reduce
Marine Traffic Pollution**

The Swedish National Maritime Administration, the Swedish Shipowners Association and the Swedish Ports and Stevedores Association have reached a joint decision that strong measures must be taken to reduce pollution from shipping in the forms of nitric acid and sulphur. These three organizations have reportedly announced that their goal is to reduce emissions of these pollutants by ships calling at Swedish ports by 75 percent by the beginning of the next century.

To achieve this goal, ferry and other marine traffic calling at Swedish ports, irrespective of flags of registry, will have to install catalytic equipment or take other measures to limit NOx emissions. Practical tests carried out on the Swedish National Maritime Administration's vessel *Scandica* have reportedly shown that selective catalytic emissions control can reduce nitric oxide emissions by more than 95 percent. Stena will also soon introduce a RoPax ferry with catalytic emission controls fitted to all engines.

Swedish maritime authorities plan to propose rebate incentive plans to their government for shipping companies who adhere to the environmental guidelines. Under the proposal, penalties — in the form of higher shipping dues — would be imposed on companies who ignore the regulations. More specifically, the Swedish National Maritime Administration will reportedly also propose to the government that consumption of fuel with a sulphur content of less than .5 percent be rewarded by a reduction in shipping dues. Many ferries are already voluntarily burning this type of fuel. The principle of using charges as a means of control in order to improve the environment recently gained support in the proposal for a new shipping policy presented by the EC Commission, titled *Towards A New Maritime Policy*.

Hakan Gezelius, managing director of the Swedish Shipowners Association, has noted that the willingness of both the Swedish National Maritime Administration and the ports to use shipping and port dues as a means to control is a move which will enable shipping companies to carry out necessary environmental improvements without seriously weakening their competitiveness. He pointed out that it is particularly important for all marine traffic to be treated equally irrespective of registry, so that the Swedish shipping industry is not placed at a disadvantage.

Maritime Reporter/Engineering News

Washington Sea Grant Researchers Develop Bioremediation Tools

Bioremediation is a biological process that uses microorganisms to decontaminate polluted areas. For example, some species of bacteria can digest oil. Researchers are trying to learn how to control and accelerate this oil-eating process to allow better cleanup of contaminated marine habitats. A team of Washington Sea Grant Program (WSGP) researchers is in the process of developing this technology. The team's ultimate goal is to identify a sensor that can reside unattended in a cleanup site for days or months, continuously measuring the presence of specific chemical compounds.

The prototype sensors reportedly incorporate advanced light technologies. One prototype uses fiber optics to sense the faint glow given off by some chemical reactions. The WSGP team is developing a probe that measures surface plasma resonance, or shifts in light reflection caused at specific light wave frequencies or angles. Both sensors use biorecognition chemistry — involving special protein coatings that recognize or bond with specific molecules. Scientists are currently engineering sensor configurations to recognize specific pollutants such as the compounds found in fuel oil. Coatings that can be flushed clear for re-use, allowing sensors to recharge for multiple measurements, have also been developed. These technologies have obvious applications in the field of oil spill response.

SSPA Investigates Baltic Sea Spill Risks

Contracted last year by the Helsinki Commission (HELCOM), SSPA Maritime Consulting AB investigated the risks of transporting oil and oil products in the Baltic Sea. The results are reportedly being used by the regional forum to provide up-to-date information for decision makers in charge of policy for the water basin. A reported 80 million people live and rely on the Baltic Sea's catchment area. In the last decade, SSPA has also reportedly performed projects focused on pro-

tection of marine and coastal environments, including an investigation for the Swedish National Environment Protection Agency promoting environmentally acceptable vessels with reduced harbor fees. Other projects have focused on technical development of oil

skimmers and booms. The Swedish Coast Guard (SCG) also trains rescue leaders with a spill simulator developed by SSPA. SSPA & Associates also performed an Environmental Impact Assessment (EIA) of the giant Baltic Sea gas pipeline.

The company is prepared to become involved in initiating preventive measures such as traffic separation zones, pilot training and legislation to protect the Baltic Sea.

For more information on SSPA Maritime
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The HX340 is available in both UHF or VHF at five watts. With eight channel capability, channels 6 and 16 are included on the VHF. The UHF provides four of the most commonly used UHF frequencies in the 450 MHz range. For that extra measure of security, the HX340 features a low battery warning light.

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Int'l Tanker Owners Pollution Federation Director Speaks Out

As well as attending on-site at spills to provide advice and assistance and to monitor response operations, the International Tanker Owners Pollution

Federation Ltd. is also asked by various entities involved in providing spill compensation to assess the damage caused by spills and the technical merits of claims

for compensation, both for cleanup costs and damage. Staff are reportedly involved in the assessment of claims rising out of a number of incidents such as

Aegean Sea in Spain, *Braer* in the Shetland Isles, *Sea Prince* and *Honam Sapphire* in South Korea and *Sea Empress* in Wales.

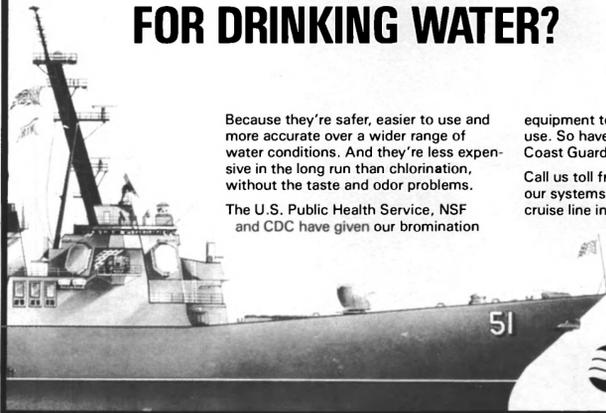
Ian C. White, managing director of the organization, recently delivered a speech to the American Steamship Owners Mutual Protection and Indemnity Association Safety/Claims Seminar. Provided below are excerpts of his speech, titled *Oil Spills and Cleanup Costs: An International Perspective*. The editors and publishers of *Maritime Reporter* do not necessarily support all of the statements made in this speech.

The Management of Spill Response

While the technical aspects of dealing with an oil spill are clearly important, the effectiveness of the response to a major spill will ultimately depend upon the quality of the contingency plan, and of the organization and control of the various aspects of the cleanup operation. Numerous difficult decisions as well as compromises will be required throughout the response operation, and the widely differing requirements of a multitude of governmental and private organizations, as well as public and political pressures will need to be reconciled.

Outside of the U.S. and a very a few other countries, governments generally assume responsibility for organizing and controlling the cleanup of a major tanker spill, either using their own resources or those available from private organizations. There are many good reasons why a government agency is best placed to take the lead in responding to tanker spills, not the least being that such spills often involve vessels in innocent passage whose owners do not have an operational capability in the affected country. The responsibility for protecting a country's interests also must ultimately rest with government, which alone is in a position to determine priorities for protection and cleanup in the particular circumstances. The international compensation regimes were in part created to encourage governments to assume the responsibility for responding to spills of persistent oil from tankers by safeguarding the financial exposure of responders through the "polluter pays" principle.

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Circle 252 on Reader Service Card

In some countries there is an increasing tendency to manage spills by committee, with all interested parties being allowed access to the decision-making process, whether or not they are technically qualified to participate. While this may be democratic, it is not conducive to the rapid decision-making required in any emergency response situation since it leads to very large, unwieldy spill management teams and high associated costs. It is therefore preferable that the legitimate concerns of all interested parties in relation to response strategies are addressed during the preparation of a contingency plan.

Environmental Damage

Concern about the environment has increased greatly since the inception of the international Conventions. This leads to great public, political and media interest in oil spills and the inevitable labeling of a major oil spill as an "environmental disaster," long before there has been a realistic technical and scientific appraisal of the facts. Some groups also presume that it is possible to put a price on everything and that money can compensate for damage.

The Diplomatic Conference convened in 1984 to develop the Protocols to the Civil Liability and Fund Conventions (which eventually entered into force as the 1992 Protocols) discussed the issue of environmental damage at some length. The result was the decision to revise the definition of pollution damage in both Protocols to include "compensation for impairment of the environment," but "limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken." While this definition is generally regarded as helpful, there remain questions of interpretation, for example, as regards the precise meaning of "reinstatement" and "reasonable."

In most incidents the first stage of environmental reinstatement will be the cleanup, involving the removal of oil from affected areas without causing further environmental damage. After cleanup, other positive steps to encourage natural recovery may logically be followed. A good example of this would be replanting coastal vegetation once bulk oil has been removed. It should be recognized, however, that while it is frequently possible to help restore vegetation and physical structures, animals are

a far more difficult problem. Attempts to reinstate an area affected by an oil spill to its pre-spill condition will therefore usually be impossible. Given that natural recovery will, in many circumstances, be a relatively fast

and effective process, one of the primary tests of "reasonableness" will be whether there is good evidence that the intended actions will enhance the natural process.

It is not disputed that the marine environment has a value

to society beyond that which it confers on those who depend on it for their livelihood. However, some regard the marine environment as having equally important non-use values. The school of thought often subdivides these

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OIL SPILL TECHNOLOGY

non-use values into option (desire of society to preserve the option to use as a natural resource in the future), existence (to know that it simply exists) and bequest (know it will be available for future generations).

There have been various attempts to develop methodologies to determine the non-use value of the environment. The most controversial example is probably contingent valuation methodology (CVM). Concern about the theoretical and speculative nature of such methodologies and their arbitrary and inconsistent result led the IOPC Fund to pass a Resolution in 1980 affirming that "the assessment of compensation to be paid by the IOPC Fund is not

to be made on the basis of an abstract quantification of damage calculated in accordance with theoretical methods." This opposition to theoretical methods has recently been reaffirmed by the IOPC Fund's Assembly.

Editor's Notes

The IOPC, or International Oil Pollution Compensation Fund, is part of the Civil Liability (1969) and Fund Conventions (1971), and is guided by criteria established by a Working Group in 1994. These two Conventions reportedly provide compensation totaling approximately \$90 million in the

event of a spill of persistent oil from a laden tanker which causes pollution damage in a contracting State. It should also be noted that contingency valuation, or CVM, as referred to by Mr. White in his speech, is no longer used by U.S. government agencies in the process of assessing damages related to an oil spill.

Matarah Offers Wall Cabinet Spill Kit

Matarah Industries Inc., located in Milwaukee, Wis., has expanded its comprehensive line of spill kits with the addition of a mount-

able, wall cabinet spill kit. Unlike drum-style spill kits, this 15-gallon kit can be stored off of the floor and out of the way until needed. The wall cabinet kit has a "lock-down" feature to ensure the contents cannot be depleted until their use is required. The non-corrosive, weatherproof cabinet is also highly visible to facilitate application during emergencies.

The kit is refillable and can be customized to suit operators' needs, including the contents of the kit, which can vary from materials designed for aggressive or non-aggressive response to liquid or oil spills. Materials included in the kit include sorbent socks, pads, pillows and disposal bags.

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CESS Praises Port State Control Programs

At a recent meeting in Tokyo, the Committee for the Elimination of Substandard Ships (CESS) commended those in charge of the operation of port state control programs around the world. CESS said that as more ships are being inspected each year, the number of identified deficiencies is also decreasing.

"While the group is pleased with port state control progress to date, we still need to see an improvement in the progress of removal of these unsafe ships from the world's trade routes," said CESS Chairman **Rafael Gutierrez**. The Committee also discussed the need for improved ship scrapping facilities around the world, and specifically applauded the efforts of Japan to finance the operation of a modern shipbreaking facility in India, which is scheduled to begin operation in 2000. Attending the Tokyo meeting were representatives from the American Shipbuilding Association, Association of European Shipbuilders and Shiprepairers, the Korea Shipbuilders Association and the Shipbuilders Council of America.

New Night Vision Product Debuted

ITT Night Vision introduced two hands-free night vision viewers, the ITT Night Mariner 200 and 210, which are compact, lightweight and head-mountable.

"Three years after venturing beyond the defense industry and into marine markets, we found ourselves overwhelmed by requests for hands-free units," said **Elaine F. Tuttle**, vice president and director of commercial products for ITT Night Vision.

The Night Mariner 200 and 210 work in the dark by collecting minute amounts of undetectable light and intensifying it, creating near-daylight, green-tinted conditions through the eyepiece.

The Night Mariner 200 uses Generation II technology, while the 210 model features the latest Generation III technology.

ITT Night Vision products include:

ITT Night Mariner for recreational and commercial boaters, ITT Night Quest for public recreational use and ITT Night Enforcer for law enforcement.

For more information on the new products from ITT Circle 109 on Reader Service Card

Company Achieves Greater Oil Tanker Cleaning Efficiency

During the last four years, BHP Petroleum has used Airloader Pumps for tank cleaning on its three offshore oil production facilities, *Challis Venture*, *Jabiru Venture* and *Skua Venture* in the Timor Sea.

The Airloader Pumps are manufactured by Brain Industries Pty. Ltd., based in Sydney, Australia.

Keith Hobbs, Brain's managing director, said, "Airloader Pumps are really packaged pneumatic conveying devices" and as such can far exceed what is normally expected from regular pumps and pumping techniques.

What this has meant to BHP Petroleum is that the company utilized a compact, intrinsically safe unit, capable of sucking up the heavy and abrasive viscous crude oil contaminated sand and rust scale deposits from between the ribs in the bottom of its tanks, and in one operation discharging it via pipeline, either to another tank or over the side to another vessel.

The Airloader Pump is compressed air operated and has no electrics. It stays on deck with only the material suction hose descending down into the tank via the manway. Its powerful uplifting air velocity combined with high vacuum potential is reportedly capable of removing the worst material through an excess of 100 ft. of vertical suction lift into the pumping vessel at deck level.

There is no need to high pressure waterjet the material prior to sucking it up. It will suction load for a set time before switching to pressure discharge. It is capable of discharging the material several thousands of feet via a four-in. pipeline; returning to suction mode after discharging for a set time.

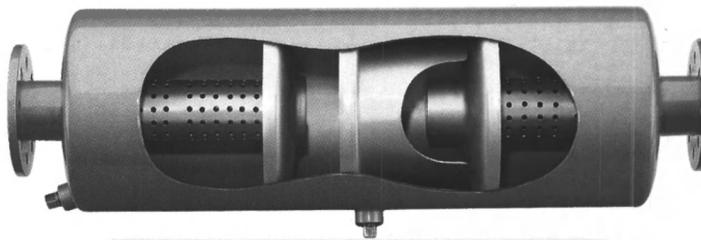
These suction and discharge times are adjusted according to tank depth, nature of material and discharge distance. Once set to give an optimum load and discharge cycle at the start of each job, the machine will continue to operate automatically thereafter. The particular mode of Airloader Pump used by BHP Petroleum until recently was of a design most suited to underground mining and tunnelling. "Although very successful for BHP" said Mr. **Hobbs**, "I definitely felt we could improve on its performance."

Brain Industries undertook a new design with an increase in jet-pump suction airflow from 600 cu. ft. per minute to 900 cu. ft. per

minute at up to 26 in. of mercury vacuum potential. The pumping vessel was redesigned and the



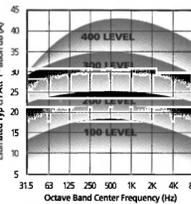
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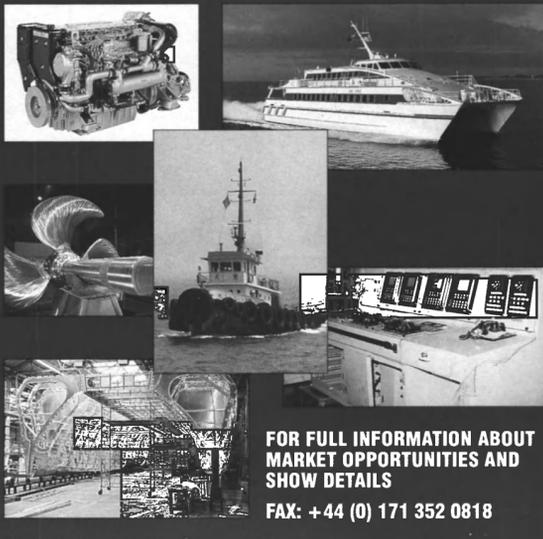
A few facts - China's 109,000km of navigable waterways and extensive coastline are main arteries of communication utilising every sort of ferry, workboat and commercial craft.



China is the single largest market in the world for Fast Ferries and their fishing fleet numbers over 300,000. The rapid growth in China's economy has created demands for new equipment and technology that cannot be satisfied from the domestic market.



The exhibition will run in conjunction with the already successful China International Boat Show organised by Proshow UK and is designed as a showcase for Builders, Manufacturers and Distributors of all types of commercial craft and equipment.



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97

中国国际船艇及船用技术设备展览会

capacity increased from 80 to 130 gallons while still maintaining its compact size as much as was possible. These changes were undertaken specifically with oil tanker and general ship cleaning in mind.

Mr. Hobbs said, "I was hoping to achieve up to a 40 percent improvement with the new design." He was pleased to hear machine operator reports that doubled the design's efficiency level.

The arrival of this new machine — designated the Airloader PD4x4 (500) — aboard *Skua Venture* has been very timely as it coincides with *Skua's* 20-year survey, which includes systematic cleaning of all tanks so that Lloyd's surveyors can inspect the hull plates and structure.

The Airloader Pump's ability to suck these areas spotlessly clean is making this undertaking far easier. The fact that this material (previously considered unpumpable as is/where is) stays onboard and can now be transferred from tank to tank means that all tanks in the ship can be surveyed, and the full scope of work estimated before the future of the vessel is decided and it goes into port for repairs.

BHP Petroleum is considering making the Airloader PD4x4 (500) Pump a semi-permanent fixture onboard *Jabiru Venture*, at least in terms of installing an air compressor large enough to power it and getting away from dependency on mobile air compressors.

"We would hope that the new Airloader PD4x4 (500) Pump would be of particular interest to many people associated with the oil industry, whether land-based or offshore," said Mr. Hobbs. He added: "It could certainly be put to good use by the shipyard that eventually has to remove the material remaining onboard *Skua Venture*."

For more information on Brain Industries
Circle 24 on Reader Service Card

BV Launches Simplified Condition Assessment Program

Bureau Veritas (BV) has introduced a condition assessment program designed to rate existing ships to the same standards as the harmonized system agreed to by ABS, DNV and Lloyd's Register.

"Our new Harmonized Condition Assessment Program (HCAP) gives identical ratings and covers a similar scope of work to the harmonized schemes introduced by other societies recently," said **Gilberto Chaves**, director of Ships in Service for BV. "We will continue to offer owners our Program for Condition Assessment Survey (PCAS), which takes a deeper look at the vessel and its machinery," added the executive.

BV's HCAP will take into account hull thickness measurements, testing and inspection of hull fittings and an overall survey of machinery and electrical installations. Vessels will then be rated on a scale of one to four, with one being the highest rating.

For more information on Bureau Veritas
Circle 101 on Reader Service Card

(Continued from page 112)

community. According to Cdr. **Russell**, more than 200 lobsterers and fishers were in attendance. The National Pollution Funds Center, the R.P., and the Department of Marine Fisheries were also present. "The purpose of the meeting was to explain the claims process, to get to people firsthand to answer questions," said the USCG official. He said that the R.P. employed lobsterer **John Stewart**, in order to be responsive to locals' concerns, and that locals were encouraged to fill out claims forms immediately following the spill.

The reaction generated in the Portland community was extremely supportive, according to Cdr. **Russell**. "We held press briefings daily for the first one and a half, two weeks. We got a lot of calls with offers of assistance. There was significant damage to the environment, but people pulled together to mitigate the damage done," he stated.

Establishing a smooth informational highway between the community and cleanup command, and between government and private authorities was the key element of success in the Portland response. In a word, R.P. Spokesperson **George Blake** classified communications and cooperation as "excellent."

Policing The Aftermath

Four weeks after the gash in *Julie N* poured product into Portland Harbor and the Fore River, the cleanup continued, despite the nor'easter that blasted up the U.S. Eastern Seaboard. At that time, Mr. **Blake** said that shoreline cleanup was underway, although he refrained from commenting on how the stormy conditions were affecting recovery efforts. As for the tanker, he said that a decision concerning where the vessel would be sent for repairs was "under review at the moment."

At press time, Cdr. **Russell** offered comment on the status of operations: "There are basically about eight miles of shoreline impact. About four miles is marsh grass. Scientists have looked at it and decided to let nature do the rest of the work ... There will be no further action in the marsh area." The USCG commander explained that a chemical soluble had been used to try to lift oil off leaves so it

could be picked up in the water, adding: "It wasn't as successful as we'd hoped."

While oil in water never bodes well, the highly organized and coordinated on-scene command structure that characterized this latest recovery effort offers a credit to the maritime industry, and those that initiated the regula-

tions which created the overlapping response framework. As industry continues to perfect cleanup technologies and work with government agencies to create efficient spill networks, using tools such as Incident Response Plans, it is important not to overlook the bottom line. Even though the maritime community has been

criticized in the past for its lack of responsibility, the situation in Portland has demonstrated to the public that it has collectively turned over a new leaf, so to speak. "You need to recognize that this is 1996. This country needs the petroleum product," said Ms. **Jennings**. Without ships, it just won't get there.

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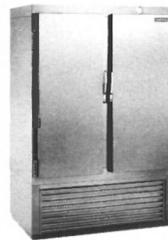
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Principal Contracts Recorded, September 1996

(Continued from page 113)

Owner/ Operator	Country (Owner)	Shipyard	Country (Shipyard)	Ship Type	No.	DWT	Delivery Date	Price \$M
EURONAV AGENCIES	U.K.	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	1	—	1997	52
FRONTLINE/FREDRIKSEN	SWEDEN	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	2	—	1998	102
FURETANK	SWEDEN	SOVKNES VERFT	NORWAY	TANKER	1	—	5/98	—
GOLDEN OCEAN	U.K.	mitsubishi H.I.	JAPAN	TANKER	1	—	1999	84.8
GOLDEN OCEAN/ROPNER RUNCIMAN	U.K.	MITSUBISHI H.I.	JAPAN	TANKER	1	—	98/99	84
HYUNDAI MERCHANT MARINE (HMM)	KOREA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	3	—	1998	255
HYUNDAI MERCHANT MARINE (HMM)	KOREA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	2	—	1998	170
—	—	SHIN YOUNG SHIPBUILDING & ENGINEERING	KOREA	TANKER	2	6,500	97/98	—
—	GERMANY	BRODOGR BEOGRAD	YUGOSLAVIA	TANKER	2	2,900	1997	—
N.Y.K. (NIPPON YUSEN KAISHA)	JAPAN	SAMSUNG	KOREA	TANKER	3	—	98/99	126
UNITED TANKERS	SWEDEN	FACT. VULCANO	SPAIN	TANKER	1	—	1998	28.5
PERTAMINA	INDONESIA	HANJIN H.I.	KOREA	TANKER	2	—	—	—
mitsui O.S.K. LINES (MOL)	JAPAN	HITACHI ZOSEN	JAPAN	TANKER	1	—	1997	—
PACIFIC CARRIERS	SINGAPORE	ONOMICHI	JAPAN	TANKER	2	—	97/98	64
COASTAL TANKERS	—	STOCZNA	POLAND	TANKER	1	—	1998	37.3
UNITED TANKERS	SWEDEN	FACT. VULCANO	SPAIN	TANKER	1	—	1998	28.5
JOHN FREDRIKSEN	NORWAY	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	1	—	1998	50
GOLDEN OCEAN GROUP	JAPAN	HITACHI ZOSEN	JAPAN	TANKER	1	—	1998	85
BUKSER OG BJERGNING	NORWAY	MOEN SLIP AS	NORWAY	TUG	1	—	7/97	—
FARSTAD SHIPPING	NORWAY	LANGSTEN SLIP & BAABYGGERI AS	NORWAY	TUG SUPPLY	1	—	1997	28
SURF	FRANCE	HALTER MARINE INC.	U.S.	TUG SUPPLY	1	—	1997	—
SWIRE PACIFIC OFFSHORE	SINGAPORE	ULSTEIN GROUP	NETHERLANDS	TUG SUPPLY	1	—	1997	23.4
N.Y.K. (NIPPON YUSEN KAISHA)	JAPAN	SHIN KURUSHIMA	JAPAN	VEHICLE CARRIER	2	—	1998	—
N.Y.K. (NIPPON YUSEN KAISHA)	JAPAN	SHIN KURUSHIMA	JAPAN	VEHICLE CARRIER	2	—	1998	—
N.Y.K. (NIPPON YUSEN KAISHA)	JAPAN	IMABARI SHIPBUILDING	JAPAN	VEHICLE CARRIER	2	—	1998	—
NYK LINE	JAPAN	MITSUBISHI H.I.	JAPAN	VEHICLE CARRIER	1	—	12/97	—

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PROPULSION UPDATE

Ruston Supplies Engines For Australian Navy

GEC Alsthom Ruston Diesels has contracted to supply engines for two new hydrographic ships for the Royal Australian Navy (RAN) to be built at NQEA's shipyard in Cairns, North Queensland. The 233.5-ft. (71.2-m) survey vessels will be manufactured from mild steel with an aluminum superstructure, have a design displacement of 2,500 tons, and are due to enter service in 1998 and 1999, respectively.

Ruston will supply eight 6RK215 diesel engines, installed as two ship sets of four, for use as generating sets for the diesel-electric propulsion system being supplied by GEC Alsthom Australia. The Ruston gensets will produce 810 kW at 750 r/min, and will provide the power for the main propulsion motors driving twin-bladed, skewed FP propellers through reduction gearboxes. The units will also power an omni-directional pump jet capable of driving the ship to speeds of up to six knots in auxiliary propulsion.

The new vessels will replace *HMAS Moresby* and *HMAS Flinders*, operating out of Darwin mainly in the northern approaches to Australia. Missions will last up to 21 days, with regular accommodations for a crew of 51. Delivery of the Ruston engines is expected in late 1996 and spring 1997.

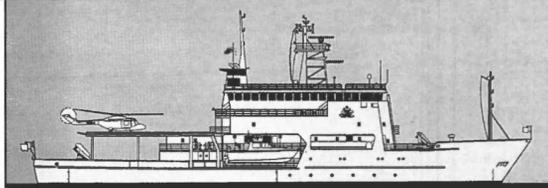
For more information on Ruston Diesels
Circle 100 on Reader Service Card

Detyens To Drydock Cruise Ship

Detyens Shipyards Inc., Charleston, S.C., and Radisson Seven Seas Cruise Line have entered into an agreement for the scheduled drydocking of catamaran style luxury cruise ship *Radisson Diamond* at the yard's new facility. The work will reportedly commence in mid-December.

According to **Walter Latham**, manager of Business Development and Marketing at the yard, Detyens has one of the few graving docks capable of handling this catamaran-style vessel built solely for world-wide cruise service.

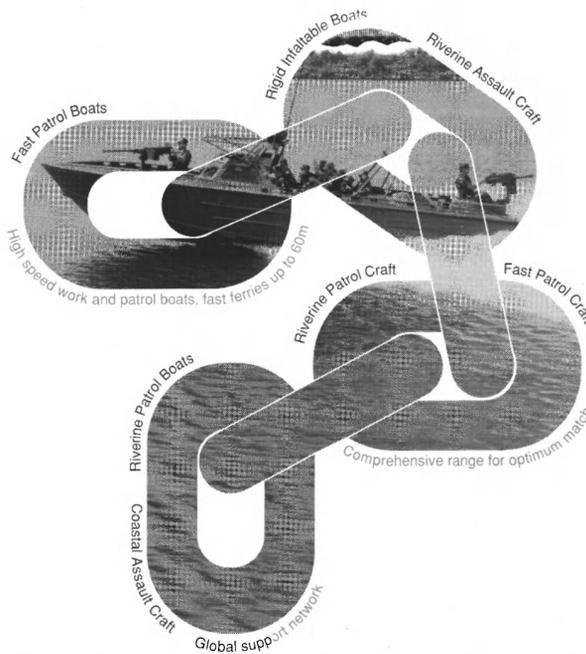
For more information on Detyens
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Circle 151 on Reader Service Card

CURRENT TANKER AND COMBINED CARRIER TONNAGE (Million DWT)

	End 1995	7/96	8/96
10-60,000	53.6	54.3	54.6
60-100,000	49	48.7	48.9
100-200,000	47	46.9	47
Above 200,000	124.1	125.3	124.8
Combos	22.2	20.1	20
Total	295.9	295.3	295.3
Spec.(10,000)	13.1	13.5	13.7

(Source: Clarkson Research Studies Ltd./INTERTANKO)

TANKER AND COMBINED TONNAGE ON ORDER

Size:	End 1995		End July 1996		On order % Fleet
	No.	M. DWT	No.	M. DWT	
10-50,000	136	5,107	170	5,816	10.7
50-100,000	20	1,723	18	1,673	3.4
100-200,000	54	6,666	55	6,614	14.1
Above 200,000	36	10,148	22	6,478	5.2
Totals	246	23,645	265	20,581	7

(Source: J. Grieg & Co., Bergen/INTERTANKO)

DELIVERIES (TANKER AND COMBINED TONNAGE) (10,000 DWT)

Del.	Name	DWT	Flag	Owner	Yard	Hull
Jul.	Saint Julien	96,500	Li	Bocimar S.A.	Samsung S.B.	1138
Jul.	Oriental Ruby	302,000	Pa	Hoyu Tanker Co. Ltd	Hyundai H.I.	951
Aug.	Tribute	145,000	It	Ravennavi S.P.A.	Fincanteri	5927
Aug.	Asia Pioneer	46,500	Sg	Neptune Orient Lines	Onomichi Dockyard	403
Aug.	Warban	300,361	Bs	Nat. Shpg. of Saudi Arabi	Mitsubishi	2095
Aug.	Iran Nabi	299,334	Ir	NITC	Daewoo H.I.	5085

Totals 6 vessels 1,189,695

The total delivered in 1996 numbers 78 tankers or 8,587,000 DWT (including 15 VLCCs of 4,251,656 DWT.)
(Source: Clarkson Research Studies Ltd./INTERTANKO)

MarineSafety Int'l Wins Navy Contract

MarineSafety International has been awarded a contract to provide simulator services to the U.S. Navy Atlantic Fleet. The indefinite quantity contract, which became effective October 1, is for one year, with nine optional years for a total maximum value of approximately \$33 million. The company will install, operate and maintain a four-bridge shiphandling simulator complex at the naval station in Norfolk, Va. The complex, using six-degree-of-

freedom hydrodynamic ship models and textured visual systems, will be used to maintain the shiphandling proficiency of officers assigned to Atlantic Fleet ships. Each ship will be assigned three, 20-hour simulator sessions between its employment cycles. With the guidance of the ship's commanding officer, a custom program will be designed to strengthen and practice the skills needed by the bridge team to safely operate under various environmental and tactical conditions.

For more information on MarineSafety International
Circle 104 on Reader Service Card

Maritime Reporter/Engineering News

Austal Delivers Third Auto Express To Europe

Austal Ships' most recent Auto Express 82 completion, in association with Ferries Australia, is set to debut for Swedish and Danish partners Sweferry and DSO. The vessel, dubbed *Felix*, is the third such catamaran delivery to Europe this year.

The ship's quadruple diesel/waterjet/gearbox propulsion system comprises four MTU 20V 1163 TP73 diesel engines, each developing 6,000 kW, driving four KaMeWa 112 S11 waterjets through four Reintjes VLJ 4431 gearboxes. The electronics package includes fully integrated Kelvin Hughes navigational equipment with twin ARPA radars and MRD electronic chart navigation. Satellite telephone and ship communications is provided by Satcom M and GMDSS equipment. Provisions have been made to install Austal's Ocean Leveller system in the future, if ride control is deemed necessary. Manually operated stern flaps were fitted for trim optimization.

The 270 x 75.4-ft. (82.3 x 23-m) ship achieved a maximum speed of 41.5 knots during performance trials. *Felix*, with capacity for 676 passengers and 156 cars, is scheduled to begin operating on the Limhamn-Dräger route between Sweden and Denmark on December 1. The vessel was built to Germanischer Lloyd +100A5, HSC-B, OC3, Passenger RoRo. *Felix* is registered to the Port of Malmo, and is the second fast ferry worldwide to fly the Swedish flag.

Schuyler Wins Crowley Contract

Schuyler Rubber Co., Inc. of Woodinville, Wash., has been awarded a contract to provide fendering for two Crowley Marine Services' new 120-ft. (36.5-m), Voith-driven tractor tugs. The company's new Model SR3D type rubber will be used in the critical contact areas. The SR3D reportedly has the highest deflection and energy absorption rate as compared with conventional fendering designs.

"This is our fifteenth award to provide SR3D fendering for a new construction tug this year. We have also expanded applications to docks, piers and offshore facilities," said Schuyler Acting President **Dennis Kerber**.

For more information on Schuyler Rubber
Circle 103 on Reader Service Card

Merewido Participates In Vessel Overhaul

Merewido Holland BV, a specialist in the development and installation of pneumatic transport systems, was recently involved in the overhaul of cement carrier *Fortune R*.

Sea Trading SRL was commis-

sioned by the vessel's new owner to carry out a comprehensive overhaul after the ship was recovered from a partially submerged state in an Italian port, where it had floundered for a considerable time.

According to **Warner Boer**, deputy technical manager at Merewido, "On inspection, the ship proved to lack vital electronic components. Merewido had to

rewrite the entire pneumatic operation program in the Netherlands. The original program was missing.

Other vital components of the ship's unloading installation were also missing or out of order."

The ship is now fully operational, transporting cement between Seville, Spain, and Nouakchott, Mauritania.

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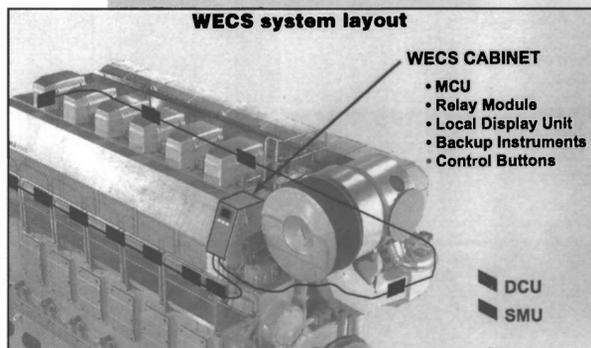
Engine Makers Detail New Product Progress

At the recent SMM '96 exhibition in Hamburg, Germany, Wartsila Diesel and New Sulzer Diesel held a joint press conference to discuss updates on their respective engine series. The joint meeting is the first following

the news that Wartsila, New Sulzer and Grandi Motori plan to become one group. While every effort was to focus comments on significant engine developments, the conversation inevitably turned to the proposed merger, and

its effects on the maritime industry.

"(We are) convinced that the merger will help stabilize the market," said Peter Sulzer. "We are creating a bigger, stronger and more reliable partner."



Wärtsilä 64 Started Up

Wartsila Diesel's first Wärtsilä 64 prototype engine, a six-cylinder version, was started up in the company's diesel laboratory in Vaasa, Finland, in mid-September. The engine's cylinder output of 2,010 kW has the manufacturer claiming the unit is the most powerful medium speed engine on the market today.

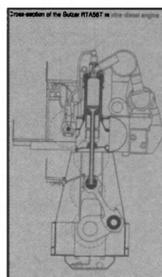
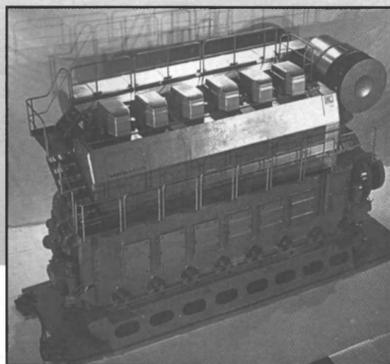
The main features of the new engine design are: big unit output; integrated low NOx combustion; high efficiency; minimized parasitic loads; low oil consumption; easy installation; and reliability.

The low NOx combustion process, which is a feature of all new-generation Wärtsilä diesel engines, reportedly guarantees a NOx value which is below the proposed IMO curve, without any loss in fuel consumption.

The high efficiency is a result of the low NOx combustion process, the high maximum cylinder capacity and the high efficiency turbocharger, together with a lot of attention to air ducts and exhaust pipes. The turbocharger is, in fact, an example of simultaneous engineering because it represents the new TPL family by ABB Turbo Systems. The parasitic loads are minimized by using engine driven pumps for oil and water. Special projects to optimize the efficiency of the pumps have been run simultaneously.

The WECS engine control and monitoring system is built on the engine, and the engine computer communicates via a BUS system. This means only one cable is needed for the function itself.

For more information on the Wärtsilä 64
Circle 48 on Reader Service Card



Cross section of the RTA58T.

New Engine Completes Sulzer Line-Up For Bulk Carriers, Tankers

New Sulzer Diesel has added a new engine type to its Sulzer RTA series of low-speed marine diesel engines. The Sulzer RTA68T engine joins the existing RTA48T, RTA58T and RTA84T types, thus completing its RTA-T series which is specially designed for the propulsion of bulk carriers and tankers.

With a cylinder bore of 680 mm, the RTA68T has a maximum continuous output of 3,740 bhp/cylinder (2,750 kW/cylinder) at 92 rpm. In models with five to eight cylinders, it covers an overall power range of 11,400 to 29,920 bhp (8,400 to 22,000 kW). It is intended to provide propulsion for vessels in the 80,000 to 200,000 DWT range.

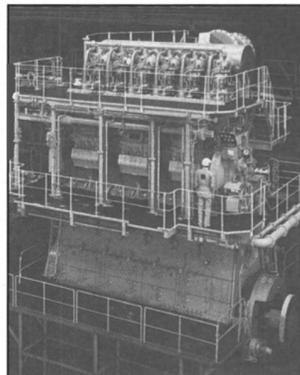
The RTA68T is of the same design concept as the mid-range RTA48T and RTA58T types.

The series is especially notable for its dimensions, and is designed to give ship designers more freedom by delivering shorter engine rooms.

Particular care has been also taken to deliver a longer time between overhauls. The systems are within the scope of experience, with brake mean effective pressure (bmep) of about 18.2 bar, and mean piston speed of 8.3 m/s. The high level of the camshaft, which is characteristic of the RTA-T engines, allows shorter high pressure pipes from the valve-controlled fuel injection pump, and thus even better fuel injection regulation in spite of the elongated stroke.

The RTA68T, RTA58T and RTA48T will reportedly be able to meet the planned IMO limits for NOx exhaust emissions without any additional equipment.

For more information on the new engine
Circle 47 on Reader Service Card



The 6RTA48T on the test bed in July.

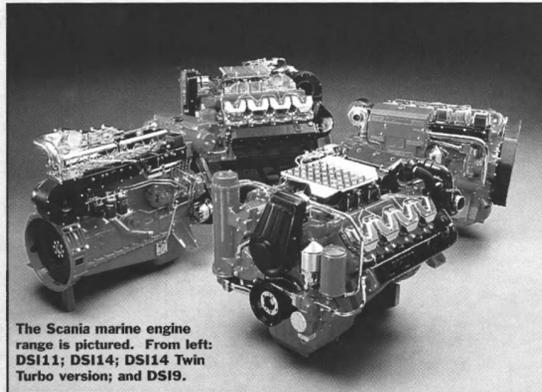
Scania Debuts Three Engines

Three new high-performance diesels from Scania Industrial & Marine Engines debuted at Germany's SMM exhibition in October. The company's all-new, nine-liter DSI9 engine, with a pilot boat rating of 400 hp at 2,200 rpm, reportedly has an extra half liter displacement compared with its predecessor, but is 55 mm shorter. Different applications of the model feature different outputs, ranging from 221 to 450 hp (115 to 331 kW). In addition, the new DSI9 offers the unique features for which the company's engines are renowned, including a combined cyclone/centrifugal lube oil cleaner and the "saver" ring, which eliminates coke build-up on the piston top land and harmful bore polishing.

Scania DSI14 tops the company's range, featuring the latest development of the 14-liter, V8 diesel, with ratings for commercial use ranging from 461 to 675 hp (339 to 497 kW) depending on application. Earlier in 1996, the company released a power boat version of this engine rated at 750 hp (551 kW), demonstrating the potential of the V8. This new engine features twin watercooled turbochargers and an unique triple charge cooling system. A freshwater intercooler is integrated into each of the inlet manifolds and a seawater intercooler at the rear of the engine provides primary cooling of the charge air.

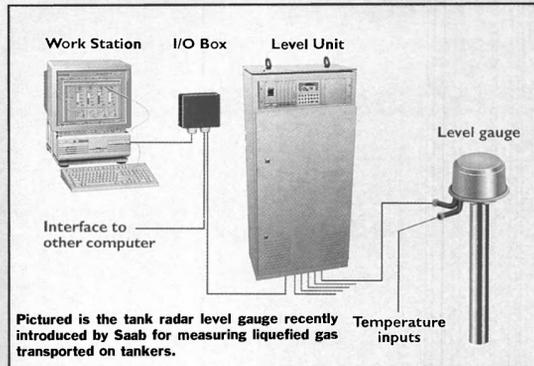
Rounding out the engines that debuted at the recent show was a model from Scania's 11-liter series — the DS/DSI11 — rated from 315 to 600 hp (232 to 442 kW) in a power boat version.

For more information on Scania Industrial & Marine Engines
Circle 36 on Reader Service Card



The Scania marine engine range is pictured. From left: DSI11; DSI14; DSI14 Twin Turbo version; and DSI9.

Saab Releases Tank Radar For Gas Tankers



Pictured is the tank radar level gauge recently introduced by Saab for measuring liquefied gas transported on tankers.

Saab Marine Electronics has released a new radar level gauge for liquefied gas transported on tankers. The benefit of this equipment is full control of tank measurement, including measure level, tank pressure, vapor and liquid temperatures, as well as trim and list. Saab's new radar gauge can be used on LNG, LPG and other liquefied natural gases. This new gauge is a refinement of the company's G3 system, which was developed after extensive experience based on installation of more than 500 gauges on shore-based LPG and LNG tanks.

Until now, gauges for LNG tanks have been duplicated for each tank, ensuring a level measurement in case of repair or replacement of one gauge. However, one Saab gauge may reportedly replace duplicated level gauges on LNG tankers.

The company's new gauge is without moving parts, and has only its stainless steel cone antenna in the tank vapor, fitting into still pipes 100 mm in diameter. The still pipe directs the microwaves so that the gauge can measure reliably even when liquefied gas is boiling. A microwave, transparent pressure seal in the top part of the antenna cone enables the radar electronics to be quickly and safely replaced during operation in case of any failure.

The system uses the measured tank pressure, vapor and liquid temperature together with input of cargo composition for its calculations of corrected level, also making these parameters available for cargo quantity calculations. Saab expects this system will enhance the measuring accuracy needed for custody transfer calculations on LNG tankers. The creation of this technology for marine applications was the company's response to customer requests.

For more information on Saab Marine Electronics
Circle 37 on Reader Service Card

Kvichak Delivers Seven New Gillnetters

Exceeding its production run of 1995, Kvichak Marine Industries has delivered seven new Bristol Bay gillnetters. These deliveries bring to 45 the number of Kvichak 32-footers in the Bay fleet. "This really was a nice-sized production run this year," said Kvichak Vice President Keith Whittemore. "Our customers received the attention they deserve, and all of the boats were finished ahead of schedule."

Kvichak added a few new features to this year's production run, including re-engineering the boat for computer-controlled plasma cutting to ensure construction precision and consistency. The boat now features a deeper tunnel to reduce draft and increase speed, which trials reportedly proved effective. Increased buoyancy aft also added to the speed factor, and the rudder was moved aft to allow for greater maneuverability. Kvichak also increased the

size of the working deck, and its 1996 design now packs 20,000 lbs. of fish under the board.

More powerful engines are also a factor this year, with one owner opting for a 510-hp MAN diesel and four owners choosing the new 700-hp Lugger 6140. During trials on Lake Washington, the Lugger powerplant reportedly drove a Kvichak gillnetter to a measured-mile light speed in excess of 25 knots, and achieved a speed of 23 knots in a ready-to-fish setup. That engine drove a four-bladed, 28-ft. (8.5 m) Kruger and Sons prop through a ZF-350 marine transmission.

Kvichak's gillnetters are 32 ft. (9.7 m) long, with a beams of 13.6 ft. (4.1 m). Displacing 23,000 lbs., the vessels can reportedly carry 400 gallons of fuel and 60 gallons of potable water.

For more information on Kvichak
Circle 40 on Reader Service Card



Two of the seven 32-ft. (9.8-m), all-aluminum gillnetters built by Kvichak Marine Industries of Seattle, Wash., for the 1996 Bristol Bay Alaska salmon season are shown during pre-delivery trials on Lake Washington.

BUYERS DIRECTORY

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.

ABRASIVES

Emmett Creek Garnet, 2615 North Fourth Street, Coar d'Alene, ID 83814
Ervin Industries, Inc., 3893 Research Park Drive Ann Arbor, MI 48106-1668

ACOUSTICS

ProfectUL, 253 Windsor Way West, Bainbridge Island, WA 98110
BBN Acoustic Technologies, 70 Faucett St., Cambridge, MA 02138

ADHESIVES

Life Industries, Corp., 2081 Bridge View Dr., Charleston, SC 29405

AIR CONDITIONING AND REFRIGERATION - Repair & Installation

ABB Flak Marine, Box 1043, S-436 21 ASKIM SWEDEN
Adco Marine, 1410 Central Ave., Farmingdale, NY 11735
Carrier Transcold, P.O. Box 4805, Syracuse, NY 13221

ALARMS, FACTORY MUTUAL-APPROVED

Melgard Mfg. Corp., 7755 Gross Point Rd., Skokie, IL 60076-0226
SELCO 353 A Ashby Commons Dr., Atlanta, GA 30338

ALUMINUM BOATS

American Eagle Mfg., 780 Pearle Jensen Way, La Center WA 9857
Morton Mfg., 780 Pearle Jensen Way, La Center WA 9857
Workstaff, Inc., 10824 Bonnell Hwy S.E., Bothell, WA 98012-6869

ASBESTOS ABATEMENT

Chempro Environmental, 3405 Highway 33, Neptune, NJ 07753

AUCTIONEERS

MACI Auctioneers, 2234 Hills Rd., Richmond, VA 23230

AUTOPILOT SYSTEMS

ComNav Marine, 1915 Stainsburg Ave., Vancouver, B.C. CANADA

BALLAST

Mineral Research & Recovery Inc., 4620 South Coach Dr., Tucson, AZ 85714

BARGE REPAIR - CONSTRUCTION

Motro Marine, Inc., 4652 Phillips Hwy, P.O. Box 47080, FL 32247

BAKNET STRAINERS

Beard Industries, P.O. Box 31115, Shreveport, LA 71130

BEARING - Rubber, Metallic, Non-Metallic

B.F. Goodrich, Engineering Products, 150 Division Dr., Wilmington, NC 28401
Blom & Voss Industrie GmbH, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
Kahlerberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

BEARING - Steel

Orion Corp., 1111 Cedar Creek Rd., Grafton, WI 53024
Orion Engineering Plastics, 2535 Praine Rd., Eugene, OR 97402
Thurston Bearings, Inc., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6

BILGE OIL/FUEL ABSORBER

Northstar Marine, 84 Wall Street, Farmingdale, NY 11735

BILGE SYSTEMS

Nelson Div., Exhaust & Filtration Sys., Hwy. 51 West, P.O. Box 428, Stoughton, WI 53589

BOAT SHAPING

Western Branch Metals, Inc., 2401 Wesley St., Portsmouth, VA 23707

BOILERS

Clarke Chapman Canada, 1075 North Service Rd. West, Oakville, Ontario CANADA

BOW THRUSTERS

Van Dusen & Meyer, Inc., 50 Parrott Dr., Shelton, CT 06484-0558

BRIDGE WIPEERS

In-Mar Systems, Yellowstone Terrace, Kenner, LA 70064

BROKERS

151 Maritime Services, 34062 El EncantoR, Dana Pt. CA 94929
Captain Astad Group, Inc., P.O. Box 350486, Ft. Lauderdale, FL 33335
Jack Faulkner, 2419 Caddy Lane, P.O. Box 371, Flossmoor, IL 60422
Mowbray's Rig & Barge Sales Corp., 35 De Hart St., Monmouth NJ 07960

BULKHEAD SEAL/PANELS

Blom & Voss Industrie GmbH, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501
U.S.A. Reps. Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

CABLE TRANSIT SYSTEMS

O-Z Geveyr, Nelson Firestop, P.O. Box 726, Tulsa, OK 74101-0726

CALCULATING SYSTEMS

Albacore Research, 3080 Uplands Rd., Victoria, B.C. CANADA V8R 6B4
All Alpha Int'l, Inc., P.O. Box 498985, Cincinnati, OH 45249
Autoship Systems Corp., 4403 611 Alexander St., Vancouver, BC, Canada V6A1E
Creative Systems, Inc., P.O. Box 1910, Port Townsend, WA 98368

IMSAs 20 Ridgely Ave., Annapolis, MD 21401

Kokum Computer Systems AS, PO Box 50555, S-202 15 Malmo SWEDEN
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029
TIMSCO, P.O. Box 81390, Mobile, AL 36681

CARDIO MONITORING & CONTROL SYSTEM

Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017

CELLULAR TELEPHONE SERVICE

Colnet, 400 Main St., Stamford, CT 06901

CHAINS

All Alpha Int'l, Inc., P.O. Box 498985, Cincinnati, OH 45249
Crandall Dry Dock Engineers Inc., P.O. Box 603604, Chelsea, MA 02150
Marit Chain, 230 Avenue Desandrouins, 5900 Valenciennes FRANCE
Washington Chain & Supply Inc., Box 3845, Seattle, WA 98124
Waterman Supply Co., P.O. Box 396, Warrington, CA 90746

CHEMICALS

Ashland Chemical/Drew Amnoid Marine, One Drew Plaza, Broomfield, NJ 07005
Unisevic Americas, 57174 Hardin Rd., Shidell, LA 70461
Unitor Ship Service Inc., 2375 West Esther Street, Long Beach, CA 90813

CLAMPING - Pipe, Tubes, Hose

291, 12749 Richfield Ct., Livonia, MI 48150

CLASSIFICATION SOCIETY

American Bureau of Shipping, 2 World Trade Center, 108th Fl., New York, NY 10048
Det Norske Veritas, 70 Grand Ave., Riveredge, N.J. 07661

CLUTCHES

Haley Clutch and Coupling Corp., 1820 Hwy. 1 North, Greenville, MS 38702

COATING WELDER

Bug-O-Systems 3003 W. Carson St., Pittsburg, PA 15204

COATINGS / COATINGS PROTECTION

Corrosal, Inc., 1045 12th Ave. NW, FSA, Issaquah, WA 98027
Euronavy, 2600 NW 55 in Court, Ft. Lauderdale, FL 33309
Royal Chemical Corp., 2705 Concord Rd., Belle Chasse, LA 70037

COAXIAL CABLES

Times Microwave Systems, P.O. Box 5039, Wallingford, CT 06492

COMMUNICATIONS SERVICE

Ascum Talco AG, Eppendorfer Weg 234, D-20251 Hamburg, GERMANY
AT & T Maritime Services, 101 Jefferson Pkwy, Short Hills, NJ 07078

COMPOUNDS

TWI Philadelphia Resins, 130 Commerce Dr, Montgomeryville, PA 18936

COMPRESSORS

Hamworthy Marine Inc., 1129 Hospital Dr. Ste 3C, Stockbridge, GA 30281
Computer Lofting
Barastars Lofting Co., Inc., 1616 Barastars Blvd., Ste. 4, Marrero, LA 70072

COMPUTER / COMPUTER SOFTWARE

Kdmx Computer, Inc., One Chestnut St., Nashua, NH 03060
Applied Flow Technology, 7253 Hahn St., Louisville, OH 44641
Autoship Systems Corp., 4403 611 Alexander St., Vancouver, BC, CANADA V6A1E
Chand Corporation, 157 Hwy 654, Matthews, LA 70375
Creative Systems, Inc., P.O. Box 1910, Port Townsend, WA 98368

IMSAs 20 Ridgely Ave., Annapolis, MD 21401

Marine Management System, 102 Hamilton Ave., Stamford, CT 06902
Microautics, P.O. Box 1017, Rockport, ME 04856
Plankowner Software, P.O. Box 536, Ledyard, CT 06339
Senlec OSevero Octas, 4 Parque Tecnologico de Madrid, 28760 Tres Cantos - Madrid SPAIN

CONDENSERS/REPAIRATORS

Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130

CONSOLE-GMDS

Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017
Sea, Inc., 7020 220th S.W., Mountlake Terrace, WA 98043

CONTROL SYSTEM-Monitoring

Engine Monitor, Inc., 179 Hickory Ave. Harahan, LA 70123
GEC ALSTHOM Diesels Inc., 10801 Kemwood Drive, Suite 1, Houston, TX 77043-1412
Ian Conrad Bergen, 2929 Gulf Breeze Way, Gulf Breeze, FL 32561

CONTROL SYSTEM-Monitoring

Engine Monitor, Inc., 179 Hickory Ave. Harahan, LA 70123
GEC ALSTHOM Diesels Inc., 10801 Kemwood Drive, Suite 1, Houston, TX 77043-1412
Ian Conrad Bergen, 2929 Gulf Breeze Way, Gulf Breeze, FL 32561

CONTROL SYSTEM-Slewing

Engine Monitor, Inc., 179 Hickory Avenue Harahan, LA 70123
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068

CONTROL VALVES

Leslie Controls, 1921 Telecom Dr., Tampa, FL 33637

CONVERSIONS & REPAIRS

Vancouver Shipyard, 50 Pemberton Ave., N. Vancouver, B.C. CANADA V7P 2R2

CORROSION CONTROL

Corrosal, Inc., 1045 12th Ave. NW, FSA, Issaquah, WA 98027
TMT Services Corp./RUSTECO P.O. Box 11398, Torrance, CA 90513

COLLING

American Vulkan, P.O. Drawer 673, Winter Haven, FL 33882
Apollo International, 78 Degraw St., Brooklyn, NY 11231
Haley Clutch and Coupling Corp., 1820 Hwy. 1 North, Greenville, MS 38702

CRANE-HOIST - DEBRICK - WHEELS

Typic International, 1061 East 250th Street, Euclid, OH 44132

CRANE-HOIST - DEBRICK - WHEELS

Basco Marine Co. P.O. Box 4113, New Orleans, LA 70178
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
McClary Machine & Mfg. Co., Inc., P.O. Box 4454, Sioux Falls, MS 56335-4454
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

CRANES

Clarke Chapman Canada, 1075 North Service Rd. West, Oakville, Ontario CANADA
Lakeshore, Inc., P.O. Box 809, Iron Mountain, MI 49801
T.C.W., 1607 Port Barnmouth Pl., Newport Beach, CA 92660

CRANKSHAFT DEFLECTION ANALYZER

FCI, Inc., 22 Main St., Centerbrook, CT 06409

CRANKSHAFT REPAIR

Gottens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
In-Place Machining Co., Inc. 1929 North Buffum Street, Milwaukee, WI 53212-3793

CYLINDER LOAD ANALYZER

General Thermodynamics Corp., P.O. Box 1105, Plymouth, MA 02360

DECK CAULKING/REPAIR

Life Industries, Corp., 2081 Bridge View Dr., Charleston, SC 29405

DECK MACHINERY - Cargo Handling Equipment

Lakeshore, Inc., P.O. Box 809, Iron Mountain, MI 49801
Marley Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98154-0788
McClary Machine & Mfg. Co., Inc., P.O. Box 4454, Sioux Falls, MS 56335-4454

DECK MACHINERY

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Smith Berger Marine Inc., 516 South Chicago Street, Seattle, WA 98108

DECK MACHINERY

Clarke Chapman Canada, 1075 North Service Rd. West, Oakville, ONTARIO CANADA
Intercontinental Engineering, P.O. Box 9055, Kansas City, MO 64168
McClary Machine & Mfg. Co., Inc., P.O. Box 4454, Sioux Falls, MS 56335-4454

DECK MACHINERY

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Planes, PO Box 102, N-4818, Farnik, NORWAY
Skokvold, P.O. Box 280, Halden, OR 97102

DECK MACHINERY

Smith Berger Marine Inc., 516 South Chicago St., Seattle, WA 98108
T.C.W., 1607 Port Barnmouth Pl., Newport Beach, CA 92660
Timberland Equipment, P.O. Box 690, Woodstock, Ontario M4S 7Z2 CANADA
Ulven Forging, Inc., P.O. Box 425, Hubbard, OR 97032

DECK MACHINERY

Waterman Supply Co., P.O. Box 456, Warrington, CA 90748

DECONTAMINATION - REVERSE OSMOSIS

Lifestream Water Systems, Inc., P.O. Box 634, Huntington Beach, CA 92647
Matrix Desalination, 5235 S.W. 11th Ave., Fort Lauderdale, FL 33315

DIESEL ACCESSORIES

General Thermodynamics Corp., 210 South Meadow Rd., P.O. Box 1105, Plymouth, MA 02360

DIESEL ENGINE ANALYZER

FCI, Inc., 22 Main Street, Centerbrook, CT 06409

DIESEL ENGINE - Spare Parts & Repair

Alaska Diesel, 4420 14th Ave. NW, Seattle, WA 98107
Caterpillar, Inc., Engine Div., P.O. Box 610, Mossville, IL 61552-0610
Cummins Engine Co., 4500 Leids Ave., Ste. 301, Charleston, SC 29405-8521

DIESEL ENGINE - Spare Parts & Repair

Cummins Mid-South, Inc., 110 E. Airline Highway, Kenner, LA 70062
John Deere, John Deere Rd., Moline, IL, 61205
DM Nonship Co., VA 23010, Norfolk, VA 23051-2100
GE Transportation Systems, 2901 East Lake Rd., Erie, PA 16531-0001

DIESEL ENGINE - Spare Parts & Repair

GEC ALSTHOM Diesels Inc., 10801 Kemwood Drive, Suite 1, Houston, TX 77043-1412
Gottens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
GTC Chemical Services, Inc., 8920 Lawndale Suite A, Houston, TX 77012

DIESEL ENGINE - Spare Parts & Repair

In-Place Machining Co., Inc. 1929 North Buffum Street, Milwaukee, WI 53212-3793
Kene Diesel, 323 S. Fairbanks, Addison, IL 60101

DIESEL ENGINE - Spare Parts & Repair

Kattenberg Marine, 17 Grandview Ave., W. Orange, NJ 07052
MAN B&W Diesel AG, Stadtdachstrasse 1, D-86150 Augsburg 1, GERMANY
MAN B&W Diesel AS, Tegholmsgade 41, DK-2450 Copenhagen SV, DENMARK

DIESEL ENGINE - Spare Parts & Repair

MAN B&W Diesel, 17 State St., New York, NY 10004
Motor-Service AB, Box 2115, S-144 04 Rominge, SWEDEN
Motor Service/Hugo Stamp, 3190 SW 48 Ave., Ft. Lauderdale, FL 33315

DIESEL ENGINE - Spare Parts & Repair

Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, CO1 2HW, ENGLAND
Ulsten Bergen AS, PO Box 924, N5028 Bergen, NORWAY
Wartsila Diesel, 201 Defense Highway, Annapolis, MD 21401

DISPUTES ANALYSIS

Resolution Management, 11 Eves Drive Suite 140, Marlton, NJ 08053

DIVING & SALVAGE

Basco Marine Co. P.O. Box 4113, New Orleans, LA 70178
H.J. Marthuse, P.O. Box 23123, New Orleans, LA 70183
Brennon
Fishes, 65 Anthony St., Berkeley, MA 02779

DOORS - MARINE & INDUSTRIAL

Brennon
Insulations, Inc., 1101 Edwards Ave. Harahan, LA 70123
Mapoco Wale & Krenzer, Inc., 90 Forest Ave., Locust Valley, NY 11560

DRIVE SHAFTS

Aquadrine Systems, 17 Ave. D, Atlantic Highlands, NJ 07716

DRY DOCKS-Design

Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Crandall Dry Dock, 2 Williams St., Chelsea, MA 02150

DUCTORS

Ultra Helicals, 556 Parker St., Newark, NJ 07104

ELECTRICAL EQUIPMENT

Askew Hardware Products, Inc., 2920 Supply Ave., Commerce, CA 90040
L.F. Gaubert & Co., Inc., P.O. Box 50520, New Orleans LA 70150

ELECTRONIC/ELECTRONIC DISPLAY

Senoco Marine Inc., 3721 SW 47th Ave., Ste. 309, Ft. Lauderdale, FL 33314

ELECTRONIC INFORMATION SUPPORT

Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY

ELEVATOR SERVICE

Alimak Elevator Co., 1100 Boston Ave., Bridgeport, CT 06610
Milor Elevator Service, 840 South Military Trail, Deerfield Beach, FL 33442

EMPLOYMENT

Boat Crews, 1 Seine Court, Suite 309, New Orleans, LA 70114
Marine Jobs, Inc., 800 Downtown Blvd. Ste. 111, Mobile, AL 36609

ENGINEERING SERVICES / MARINE ENGINEERS

Kvaerner Mass Marine Inc., 201 Defense Highway, Suite 202, Annapolis, MD 21401
NKF Engineering, Inc., 4200 Wilson Blvd., Arlington, VA 22203
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

ENGINE - EFFICIENCY/TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, Plymouth, MA 02360

ENGINE ROOM LIGHTING/MONITORING & CONTROL SYSTEMS

Pauluhn Electric Mfg. Co., Inc., 1616 N. Main, P.O. Box 53, Pearland, TX 77581
Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017

Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031
TODCO, Inc., P.O. Box 1087, Marion, OH 43302
OTHER—Waterlight Doors—Paneling—Ceiling Systems—Decking
Al Alpha Int'l., Inc., P.O. Box 498685, Cincinnati, OH 45249
Branton Ind., 1101 Edwards Ave., Jefferson, LA 70181
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., 3115 Flange Rd., Temple, TX 76701
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Wais & Krepner, Inc., 39 Forest Ave., Locust Valley, N.Y. 11560
HEEL COOLERS
R.W. Fenstrom & Co., 1716 Eleventh Ave., Meromines, MI 4958
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
The Water Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307
IFEEDS/STARTS
American Eagle Mfg., Inc., 780 Pearle Jensen Way, LaConner, WA 98257
Dunlop Beaufort, 12351 Bridgport Rd., Richmond, B.C. CANADA V6V1L4
Norsale AS, P.O. Box 115, N-4818 Farnok, Norway
Viking Life Saving Equipment, 1625 N. Miami Ave., Miami, FL 33136
Willard Marine Co., Inc., 1250 N. Grove St., Anahem, CA 92806
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666
IFEEDS/STARTS
MCI International, 119-225 West 1st St., North Vancouver, B.C. CANADA
Stearns Manufacturing, P.O. Box 1488, St. Cloud, MN 56302
LIGHTING SYSTEMS / EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 5757 Ravenwood Rd., Ft. Lauderdale, FL 33310-5247
Archway Marine, 4501 Swan Ave., St. Louis, MO 63110
Datex Inc., P.O. Box 1150, Kinder, LA 70648
Gullen 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, Pearland, TX 77581
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CALENDAR OF EVENTS

NOVEMBER

Oil Pollution: November 18-19, London. Contact: International Business Communications Ltd., Gilmoora House, 57-61 Mortimer St., London W1N 8JX; tel: +44 (0) 171 637 4383; fax: +44 (0) 171 631 3214.

SSC/SNAME Symposium: Quality and Human/Organizational Error in Ship Structures: November 18-20, Sheraton National Hotel, Arlington, Va. Contact: Alex Landsburg, tel: (202) 366-1923; fax: (202) 366-2288.

Flags: Achieving Excellence in the Ship Registry Business: November 19-20, London, U.K.

Contact: Carleen L. Kluss, International Marketing Strategies, 28 Southfield Ave., Stamford, CT 06902, tel: (203) 406-0106; fax: (203) 406-0110.

Marine Fuels: Specifications, Testing, Purchase and Use: November 19-21, New Orleans, La.

Contact: Kristina Falkenstein, American Society for Testing and Materials, 100 Barr Harbor Dr., West Conshohocken, Pa. 19428-2959, tel: (610) 832-9500; fax: (610) 832-9635.

Second ASTM Symposium On Steel Forgings: November 20-21, Hyatt Regency New Orleans, La.

Contact: Earl Sullivan, American Society for Testing and Materials, 100 Barr Harbor Dr., W. Conshohocken, Pa. 19428-2959; tel: (610) 832-9709.

ASNE Delaware Valley Section Intelligent Ships Symposium: November 25-26, Adams Mark Hotel, Philadelphia, Pa. Contact: American Society of Naval Engineers, 1452 Duke St., Alexandria, Va. 22314-3458, tel: (703) 836-6727; fax: (703) 836-7491.

The Strategic Importance of Oil & Gas Technology: November 26-28, Edinburgh, U.K.

Contact: Clansman Monarch Ltd., Quality Court, 27 Maritime Lane, Edinburgh EH6 6RZ, U.K., tel: +44 131 554 1122; fax: +44 131 554 1123.

Viet Portex '96: November 26-29, Hanoi, Vietnam. Contact: Hamburg Messe und Congress GmbH, Postfach 30 24 80, 203308 Hamburg/Lungiusstraße 13, Germany; tel: +49 040 3569 2190; fax: +40 040 3569 2187.

DECEMBER

Containerisation: December 1-2, London. Contact: International Business Communications Ltd., Gilmoora House, 57-61 Mortimer St., London W1N 8JX; tel: +44 (0) 171 637 4383; fax: +44 (0) 171 631 3214.

AWO Winter Conference: December 4-5, Ritz Carlton, Washington, D.C.

November, 1996

Contact: American Waterways Operators, 1600 Wilson Blvd., Ste. 1000, Arlington, Va. 22209, tel: (703) 841-9300; fax: (703) 841-0389.

Asia Pacific Cruise Convention: December 4-7, World Trade Centre, Singapore. Contact: Chris Cotton, Miller Freeman/Seatrade, 4401 China Resources Building, 26 Harbour Rd., Hong Kong, tel: +852 2827 9128; fax: +852 2827 7831.

Ekanoplans & Very Fast Craft: December 5-6, The University of New South Wales, Sydney, Australia.

Contact: L.J. Prandolini, Sydney Branch, The Institute of Marine Engineers, 58 Melba Dr., East Ryde, NSW 2113, tel: +61 2 9878; fax: +61 2 9878 4669; e-mail: sbimare@msn.com.

International Workboat Show: December 5-7, Ernest H. Morial Convention Center, New Orleans, La.

Contact: Diversified Expositions, P.O. Box 7437, Portland, Maine 04112-7437; tel: (207) 842-5508; fax: (207) 842-5509.

ASNE Channel Islands/Inland Empire Sections Combat Systems Symposium: December 10, NSWC Port Hueneme, Calif.

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.

JANUARY 1997

28th International Boat Show: January 18-26, Düsseldorf, Germany. Contact: Düsseldorf Trade Shows, Inc., 150 N. Michigan Ave., Ste. 2920, Chicago, IL 60601, tel: (312) 781-5180; fax: (312) 781-5188; internet: <http://www.dtsusa.com/dts/>.

13th Chesapeake Sailing Yacht Symposium: Date TBA, U.S. Naval Academy, Annapolis, Md. Contact: Walker Stammnitz, tel: (703) 413-9200, ext. 4213; fax: (703) 413-9221.

FEBRUARY 1997

Advanced Materials For Marine Construction: February 5-7, New Orleans, La.

Contact: Office of Special Programs and Continuing Education, Colorado School of Mines, Golden, Col. 80401, tel: (303) 273-3321; fax: (303) 273-3314.

ASNE Channel Islands Section Eleventh Annual Logistics Symposium: February 11-13, Los Angeles Sheraton Airport Hotel, Los Angeles, Calif.

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.

Underwater Intervention 1997: February 17-19, Adams Mark Hotel, Houston, Texas.

Contact: Underwater Intervention Committee, 2611 FM 1960 West, Ste. F-204, Houston, Texas 77068, tel: (800) 316-2188; fax: (713) 893-5118.

MariTrends '97: February 22-27, Hyatt Regency New Orleans at Louisiana Superdome, New Orleans, La. Contact: Passenger Vessel Association, 1600 Wilson Blvd., Ste. 1000A, Arlington, Va. 22209, tel: (703) 807-0100; fax: (703) 807-0103.

13th Fast Ferry International Conference & Exhibition: February 25-27, Singapore.

Contact: Fast Ferry International, Milroy House, Sayers Lane, Tenterden, Kent TN30 6BW, U.K., tel: +44 1580 766960; fax: +44 1580 766961; e-mail: info@fastferry.co.uk.

Application of Fluid Dynamics in the Safe Design of Topsides and Superstructures: February 26, London, U.K.

Contact: The Institute of Marine Engineers Conferences Dept., 76 Mark Lane, London EC3R 7JN, tel: +44 (0) 171 481 8493; fax: +44 (0) 171 488 1854.

MARCH 1997

1997 Customs/Trade/Finance Symposium of the Americas: March 2-4, Hotel Inter-Continental, Miami, Fla. Contact: Stuart Newman Associates, 3191 Coral Way, Ste. 204, Miami, FL 33145, tel: (305)461-3300; internet: <http://www.americastroade.com/Symposium>.

International Program for Port Planning and Management: March 3-14, New Orleans, La.

Contact: Director, IPPPM, CUPA/LUTAC, University of New Orleans, New Orleans, La. 70148, tel: (504) 280-6519; fax: (504) 280-6272.

SNAME Gulf Section Ship Production Symposium: March 12-14, New Orleans, La. Contact: Edward Gaines, tel: (601) 935-1357; fax: (601) 935-1693.

All Electric Ship '97: March 13-14, Paris, France.

Contact: AES General Secretariat, 48 rue de la Procession, 75724 Paris Cedex 15, France, tel: +33 1 44 49 60 60; fax: +33 1 44 49 60 17.

Fishing '97: March 13-15, Aberdeen, Scotland.

Contact: Clare Northcott, EMAP Heighway, Meed House, 21 John St., London WC1N 2BP, U.K., tel: +44 171 470 6301; fax: +44 171 831 2509.

Shipping '97: March 17-19, Stamford, CT. Contact: Carleen L. Kluss, International Marketing Strategies, 28 Southfield Ave., Stamford, CT. 06902, tel: (203) 406-0106;

fax: (203) 406-0110.

Remote Sensing for Marine and Coastal Environments: Technology and Applications: March 17-19, Clarion Plaza Hotel, Orlando, Fla. Contact: Wendy Raeder, conference coordinator, ERIM, P.O. Box 134001, Ann Arbor, Mich. 48113-4001; tel: (313) 994-5123; fax: (313) 994-5123; e-mail: raeder@erim.org.

ASNE Day 1997: March 18-20, Sheraton Washington Hotel, Washington, D.C. Contact: Whitney Emerson, American Society of Naval Engineers (ASNE), 1452 Duke St., Alexandria, Va. 22314-3458; tel: (703) 836-6727; fax: (703) 836-7491.

International Gaming Business Expo '97: March 18-20, 1997, the Sands, Las Vegas, Nev.

Contact: Ulla International, Inc., 200 Connecticut Ave., Norwalk, Conn. 06856-4990, tel: (203) 852-0500.

1997 Power Machinery and Compression Conference: March 26-27, University of Houston Hilton and Conference Center, Houston, Texas. Contact: University of Houston Continuing Education Center, tel: (713) 743-1181.

PetroVietnam '97: March 26-28, Ho Chi Minh International Exhibition and Convention Centre, Ho Chi Minh City, Vietnam. Contact: Vietnam Oil and Gas Corp., Reed Tradex, Reed Tradex House, 323 Bond St., Office Villa, Muang Thong Thani, Choengwattana, Nonthaburi 11120, tel: (662) 503-2199; fax: (662) 503-4100-1.

APRIL 1997

1997 International Oil Spill Conference: April 7-10, 1997, Fort Lauderdale Convention Center, Fort Lauderdale, Fla.

Contact: Conference Manager, 1997 Int'l Oil Spill Conference, 655 15th St., NW, #300, Washington, D.C. 20005, tel: (202) 639-4202; fax: (202) 347-6109.

Innovative Technology For Challenging Environments: April 8-9, London, U.K. Contact: Fleur Heapy, The Institute of Marine Engineers, 76 Mark Lane, London EC3R 7JN, tel: +44 171 481 8493; fax: +44 171 488 1854; e-mail: conf@imare.org.uk.

AWO 1997 Annual Convention and Board of Director Meeting: April 10-11, 1997, Arlington, Va. Contact: Tina Gardner, manager, Administrative & Member Services, American Waterways Operators, 1600 Wilson Blvd., Ste. #1000, Arlington, Va. 22209, tel: (703) 841-9300; fax: (703) 841-0389.

China Fast Ferry & Commercial Craft Show: April 13-16. Contact: Craig Moyes, Prishow Ltd., 16A Chelsea Wharf, Lats Rd., London SW10 0QJ,

U.K., tel: +44 171 376 7777; fax: +44 171 352 0818.

International Offshore Mechanics & Arctic Engineering Conference: April 13-17, Japan. Contact: ASME International, 345 E. 47th St., N.Y., N.Y. 10017-2392, call tel: (212) 705-7037 for more information.

Maritime Vietnam '97: April 16-18, 1997, Ho Chi Minh City International Exhibition and Convention Centre, Vietnam. Contact: RAI Exhibitions Singapore Pte. Ltd., 1 Maritime Sq., #09-01, World Trade Centre, Singapore 099253, tel: +65 272 2250; fax: +65 272 6744.

Marine Indonesia '97: April 23-26, Jakarta, Indonesia. Contact: Overseas Exhibition Services Ltd., 11 Manchester Sq., London W1M 5AB, U.K., tel: +44 (0) 171 486 1951; fax: +44 (0) 171 486 8773.

SASMEX '97: April 29-May 2, Baltimore. Contact: U.S. Marine Safety Association (USMSA), 1900 Arch St., Philadelphia, Pa. 19103-1498, tel: (215) 564-3484; fax: (215) 963-9785.

International Trade Fair for Logistics (LOG '97): April 29-May 2, 1997, Essen, Germany. Contact: Essen Trade Shows, 70 W. 36th St., Ste. #605, N.Y., N.Y. 10018, tel: (212) 356-0406; fax: (212) 356-0404; <http://www.dtsusa.com/dts/>.

MAY 1997

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.

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.

ODRA '97 (The Second Int'l Conference on Marine Technology): May 13-15, Pomeranian Princes' Castle, Szczecin, Poland. Contact: Sue Owen, conference secretary, 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@witmi.ac.uk.

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.

Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken, NJ 07030
 Jastram Engineering, 485 Mountain Hwy N., North Vancouver, B.C. CANADA V7J 2L3

STERN TUBE BEARINGS
 Kobelco Marine Engineering Co., 6F Tatsunuma Bldg., 3-19 Yaesu 1-Chome, Chuo-Ku, Tokyo 103, JAPAN
 U.S.A. Rep. Roland Marine Inc., 90 Broad Street, New York, NY 10004

STERN TUBE BUSHES
 Kobelco Marine Engineering Co., 6F Tatsunuma Bldg., 3-19 Yaesu 1-Chome, Chuo-Ku, Tokyo 103, JAPAN
 U.S.A. Rep. Roland Marine Inc., 90 Broad Street, New York, NY 10004

STERN TUBE SEALS
 Blohm & Voess Industrie GmbH, P.O. Box 10 07 20, D-20457 Hamburg, GERMANY
 U.S.A. Reps. Simpler-Turner Inc. P.O. Box 158, Little Neck, NY 11362-0158
 Kobelco Marine Engineering Co., 6F Tatsunuma Bldg., 3-19 Yaesu 1-Chome, Chuo-Ku, Tokyo 103, JAPAN
 U.S.A. Rep. Roland Marine Inc., 90 Broad Street, New York, NY 10004

STIFFNER WELDER
 Bug - O - Systems, Inc., 3003 W. Carson St., Pittsburgh, PA 15204

STORAGE/WORKSHELTERS
 Poly-Steel Shelters, 1209 E. Ocean Blvd., Stuart, FL 34996

STRAINERS & FILTERS
 Kessel Co., 291 Williams Ave., Hackensack, NJ 07601

STUFFING BOXES
 Kahlerberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

SURVIVAL EQUIPMENT
 Sea, Inc., 7030 220th St., Mountlake Terrace, WA 98043

TANK LEVELING INDICATORS
 American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
 Bergen Tank, 3409 Gulf Breeze Pkwy, Gulf Breeze, FL 32561
 ERL Marine Products Div., P.O. Box 1026, New Albany, IN 47151-1026
 Jan-Contad Bergen, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561
 IMO Industries, Dams Sensors Division, One Cowles Rd., Plainville CT 06062
 Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
 MMC International, 60 Inp Dr., Inwood NY 11096
 Saab Marine Electronics AB, P.O. Box 13045, S-402 51 Goteborg SWEDEN
 Technical Marine Service, 6040 North Cutter Circle, Portland, OR 97217

TANK LIQUID LEVEL GAUGES
 King Engineering Corp., P.O. Box 1228, Ann Arbor, MI 48106
 Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
 Melitiae, Inc., 59 Pieter Rd., Littleton, MA 01460
 Midland Mfg. Corp., 7733 Gross Point Rd., Skokie, IL 60076-0226

TESTING SERVICES
 Wyle Laboratories, 7520 Governors Dr. S.W., Huntsville, AL 35807

THERMAL INSULATION
 Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123

THICKNESS TESTING
 Cygnus Instruments, 1953 Moreland Parkway, Suite 202, Annapolis, MD 21401
 M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

TORSONAL VIBRATION SPECIALISTS
 Hobel Engineering, 1320 Kemper Meadow Dr., Cincinnati, OH 45240
 M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331
 Predict/DLI, 253 Winslow Way West, Bainbridge Island, WA 98110
 T.W. Spaeltgens, 186 W. 8th Ave., Vancouver, BC CANADA V5Y 1N2
 Vibration Engineering Corp., 5300 Gamebird, Houston, TX 77034

TOWING - Barges, Vessel Chartering, Lightering, Salvage, etc.
 Jack Fullmer, 2418 Candy Lane, Flossmoor, IL 60422

TRAINING COURSES
 Marine Safety Int'l., Marine Terminal Laguarda Airport, NY 11371
 Star Center, 2 West Dixie Highway, Ocala, FL 33404

TRASH COMPACTOR
 International Compactor, P.O. Box 5918, Hilton Head, S.C. 29938

TURBOCHARGERS
 ABB Turbocharger Co., 1460 Livingston Ave., North Brunswick, NJ 08902
 Turbo-USA, Inc., 2755 NW 82nd Ave., Miami, FL 33122

ULTRASONIC TESTING
 M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

ULTRASONIC THICKNESS GAUGES
 Cygnus Instruments, Inc., 1953 Moreland Pkwy, Suite 202, Annapolis, MD 21401

VACUUM TOILET SYSTEM
 Envirovac, Inc., 1260 Turret Dr., Rockford, IL 61111
 Fast Systems, Inc., 3240 N. Broadway, St. Louis, MO 63147
 Jets Vacuum Sewage System, P.O. Box 14, N-6060 Hareid, NORWAY

VALVE CONTROL SYSTEM
 Elliot Mfg., P.O. Box 773, Sirmontion, NY 13902

VALVES AND FITTINGS
 Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663
 Decoyline Machine & Tool, 5100 Bedford Ave., Philadelphia, PA 19144-1788
 ERL Marine Products Div., P.O. Box 1026, New Albany, IN 47151-1026
 Stacy Fetters Corp., P.O. Box 103, Skippack, PA 19474
 Jan-Contad Bergen, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561
 Leslie Controls, 12501 Telecom Dr., Tampa, FL 33637
 Loeffler Corp., 201 E. Lincoln Hwy., Perkasie, PA 19047-4097
 MMC International, 60 Inp Dr., Inwood NY 11096
 Midland Mfg. Corp., 7733 Gross Point Rd., Skokie, IL 60076-0226
 Service Valve & Fitting, P.O. Box 9665, Mobile, AL 36609

VAPOR RECOVERY CONTROLS
 E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026
 Midland Mfg. Corp., 7733 gross Point Rd., Skokie, IL 60076-0226

VENTILATION SYSTEMS / PRODUCTS
 ABB Flakt Marine, Box 1043, S-458 21 ASKIM SWEDEN

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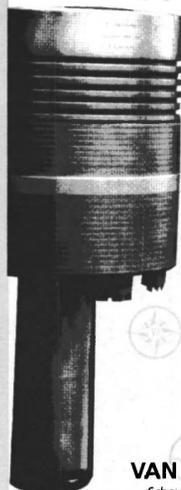


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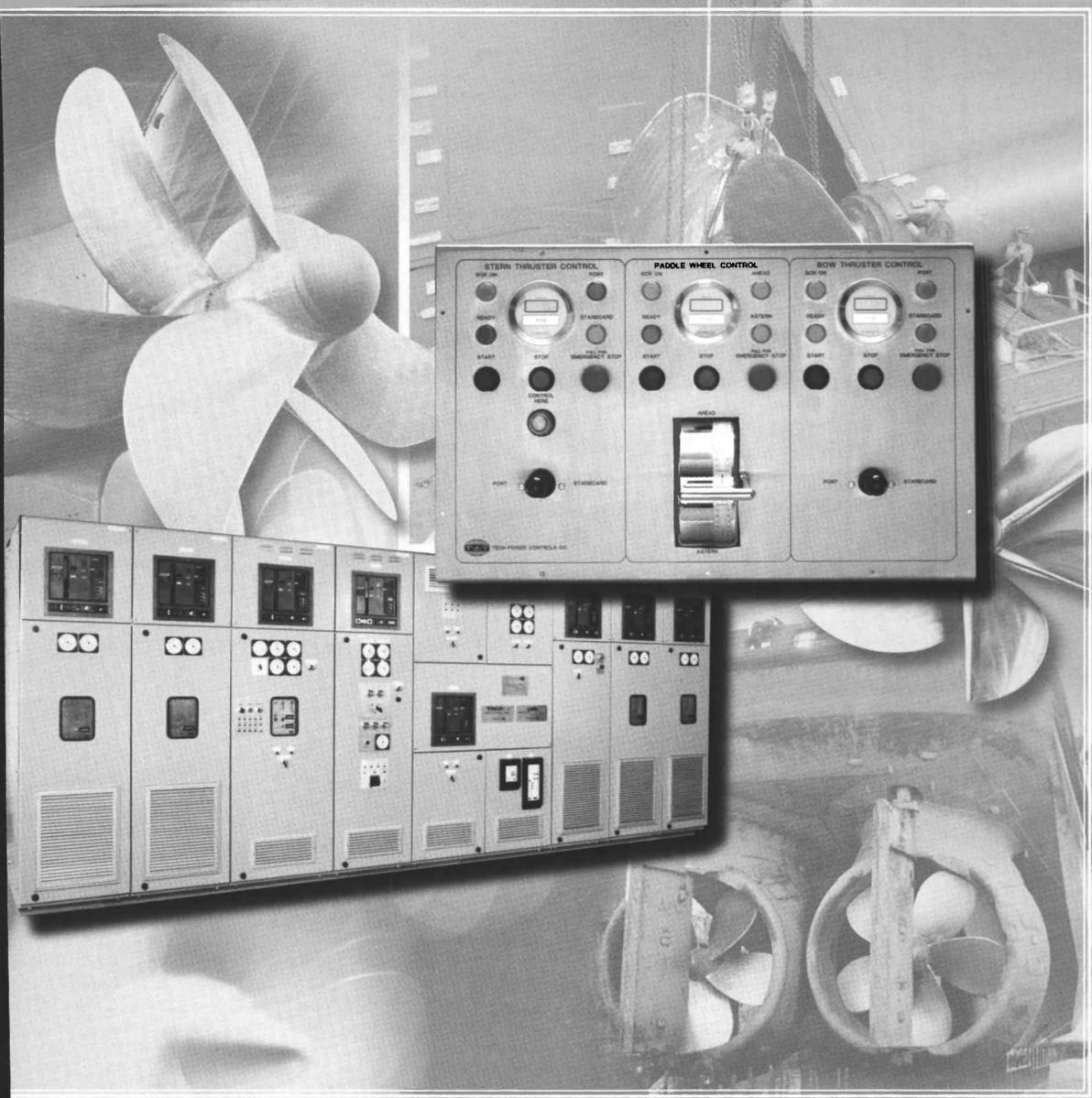
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