

NOVEMBER 1998

**MARITIME
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Workboat Annual

A Family Tradition

Two companies on two coasts with compelling family histories work to dominate their markets

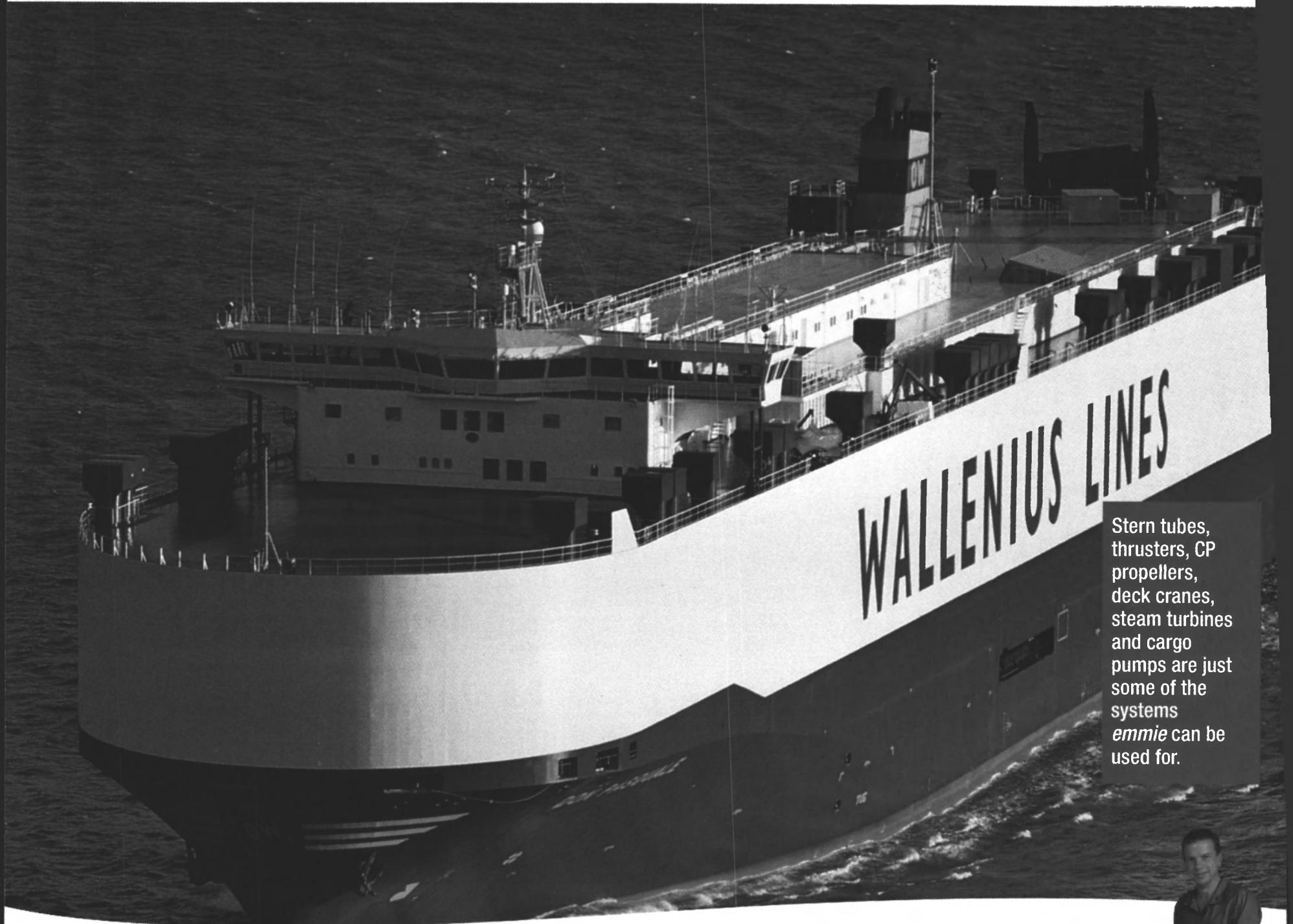
The More That Things Change...

...the more they stay the same, at least in Finland, which continues to dominate high-value, high tech ends of the maritime market

Workboat Products & Services Guide • Ferry Boat Focus • Marine Finance • Software Solutions
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Investment In Design: Star Cruises makes pioneering investment in the name of safety

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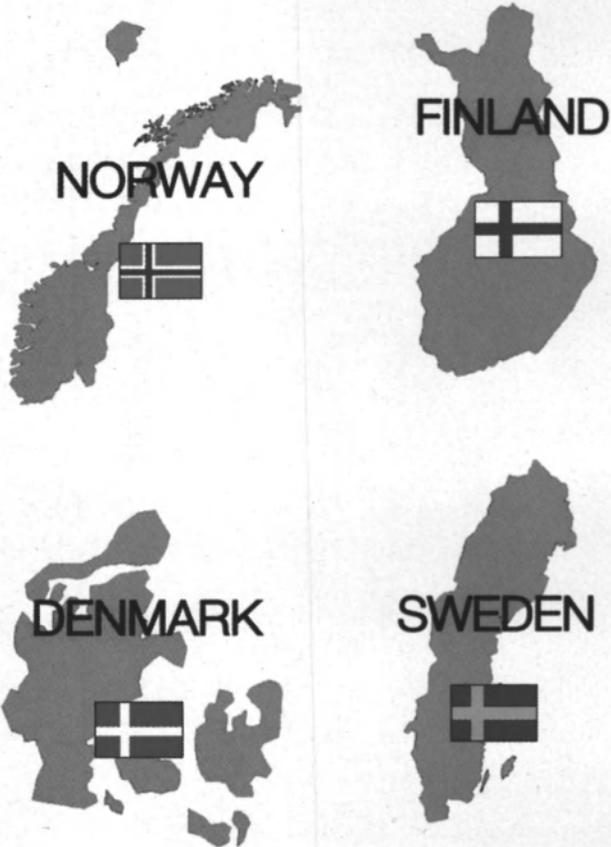
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MARITIME REPORTER AND ENGINEERING NEWS

ISSN-0025-3448
USPS-016-750

No. 11

Vol. 60

Founder: John J. O'Malley 1905 - 1980

118 East 25th Street
New York, NY 10010
(212) 477-6700

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Pictured on this month's cover is *Neuwerk*, a multipurpose vessel delivered in 1997. The 25 ft. (78.4-m) vessel features a host of advanced technological equipment from STN Atlas Marine Electronics, including: diesel-electric propulsion system; electrical power generation/distribution; power management; alarm and monitoring system; navigation and communication equipment; and a safety and sonar system.

8 Simulated Voyage, Real Experience
Star Cruises has procured its own vessel simulator, to ensure that its considerable investment in new tonnage is operated in the most efficient and safe manner. — by David Tinsley

24 It Was Hopping In Hamburg
The SMM Exhibition in Hamburg was once again the world's largest showcase for the latest marine equipment advances.

49 All In The Family
This year's workboat annual takes an indepth look at two of the industry's traditional powerhouses, Crowley Maritime Corp. and McAllister Towing & Transportation.

96 Finnish Maritime Report
Finland's contributions to the maritime market, particularly the high-value, high-technology niche, are stronger than ever.
— by David Tinsley

98 A Team Effort
The merger which created Aker Yards — four shipbuilders comprising seven shipyards in three countries — is set to take the art of building unique ships to profitable new heights.

13 Marine Finance
27 Software Solutions
37 Legal Report: Ocean Shipping Deregulation Passed
40 Ferry Boat Report: Victaulic Fittings aid in modular construction; Blount delivers new fast craft design
64 Help Yourself: Non-metallic bearings aid self-unloading barges.
70 Workboat Products & Services Guide
104 Ship Repair & Conversion
108 People & Company News
125 Buyer's Guide
128 Advertisers Index
129 Classifieds

Subscriptions: One full year (12 issues) \$18.00 in U.S.; outside of U.S. \$96.00 including postage and handling. For subscription information, contact: Dale Barnett, fax: (212) 254-6271.



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

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

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

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EDITOR'S NOTE

Strong Bloodlines

While the trend in the business, home and abroad, is largely focused on the "corporatization" of the maritime market, it is interesting to note the continued success of several large, family-built,



owned and operated ventures. The Workboat Annual edition affords us the opportunity to provide in-depth insights into two such operations, Crowley Maritime Corp. and McAllister Towing and Transportation. The two operations are decidedly divergent, based on more than the 3,000 miles that separates them.

As contributing writer J.L. Shaw's report (starting on page 49) tells, Crowley Maritime is highly regarded industry-wide for its efforts in advancing the design of ships, boats and machinery in a never ceasing effort to maximize efficiency and performance. While the company is still largely family-owned and operated, it is not the traditional "family" operation, boasting a 200 vessel fleet, more than 5,000 employees and annual revenues in excess of \$1.1 billion. The company's influence extends well beyond its Oakland, Calif. headquarters, as, for example, Crowley Marine Transport is its east coast deep sea shipping arm.

The Pacific region, however, is where the company has made its indelible mark, with the procurement and operation of a fleet of advanced propulsion tug boats operating under the Vessel Management Services banner. VMS has already taken five new Voith Schneider-propelled tugs, and five more are on the way Tom Crowley, Jr., who took the reigns of the company in 1994 upon his father's death, has set a course of expansion sans merger, and has his sites set simply on remaining a profitable, low cost operator.

The "new" McAllister Towing is emerging from a five year legal battle in which the company was effectively split in two. The family, however, maintains control of the portion upon which the company began in 1864, tugboat operations and ferry services, and is embarking on extending its record of excellence with a fifth generation of McAllisters. The report, filed by Chris Palermo, managing editor of *MR/EN* sister publication *MarineNews*, starts on page 50.

Gregory R. Franthum

Coming Up In MR/EN in 1999

January 1999

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Star Cruises gets aggressive on safety with purchase of its own sophisticated simulator



by David Tinsley,
technical editor

By David Tinsley

By the time Star Cruises' fine new German-built fleet addition, *SuperStar Leo*, makes her first visit to Cruise Bay, Singapore, the company's captains and the local pilots will have made more than 100 simulated entries with the ship into those waters.

Emergency maneuvers and worst-case current and wind conditions incorporated into the program will have helped determine the best procedures under differing circumstances. Of even greater significance, the whole process of familiarization and training will have been conducted on a state-of-the-art simulator purchased by the shipowning company, and installed at its modern terminal and headquarters building in Port Klang, Malaysia.

Since the shipping industry traditionally looks to training and research institutions for simulator-based needs, Star Cruises' initiative in acquiring its own, highly sophisticated system is exceptional.

"With this investment, we are becoming pioneers, doing something that many major shipping companies have been talking about," observed Fleet Captain **Gustaf Gronberg**. "I would be surprised if other leading cruise companies did not follow the lead we are taking," he added. Progressive Star Cruises, which has rapidly worked its way up through the international league in the cruise market, has implemented a major fleet renewal and development program.

The recently-commissioned, 75,000-gt *SuperStar Leo* and new-build consort *SuperStar Virgo* from Meyer Werft, are set to be followed by two further luxury vessels of 85,000-gt, and more orders are in prospect.

The company has also added a high-speed dimension to its operations, through the phasing in to service of the Austal-built, 82-m catamaran RoRo ferry *SuperStar Express*, and can be expected to pursue further opportunities in that field. Designed and engi-

neered in Germany by STN Atlas Elektronik, and incorporating mathematical models from the Danish Maritime Institute (DMI) in Copenhagen, the simulator delivered to Star Cruises is intended to meet the company's long-term requirements arising from its operations in both the cruise and ferry sectors.

The acquisition of a own simulator reflects practical considerations of its particular operating domain in heavily trafficked waters such as Singapore and the Strait, Port Klang, the Strait of Malacca, and Hong Kong. In the initial stage, all those areas will be available for exercise purposes, along with Keelung, the Taiwan Strait, Xiamen, Phuket and Langkawi. Furthermore, it will provide a service to the shipping community at large on a commercial basis, and thereby generate an additional income stream for its owner, under a joint management and marketing agreement with DMI.

The scope of Star's simulator stands to be substantially increased as a result of the accord with the Danish organization, which gives the Malaysian company access to the institute's database. This includes port models pertinent to the fleet's cruise oper-

ations, embracing areas such as New York, Dover, Stockholm and Alexandria. Australian ports will shortly also form part of the database. As a further indication of the company's circumspect approach to safety and efficiency, lessons learned from the aviation sector have been reflected in the system installed by Star. Provision has been made for training in equipment failure, to better prepare masters and officers to handle unforeseen events and malfunctions at the worst moments, and to develop skills in managing such situations.

"Star Cruises has always given safety top priority, and we believe that the cruise industry should aim to have as high a safety profile as the airline sector," confirmed **M. Gronberg**. Underscoring an analytical as well as pragmatic line of concerns operational and safety matters, the company plans to fit voyage data recorders (VDRs) on all its ships before the end of 1998. In conjunction with VDR supplier Consilium Marine and DMI, Star is looking to transfer real event data as borne in the future shipboard data recording equipment, on to its simulator so as to provide a more authentic basis to its training programs.



The crew of *SuperStar Leo* will have the advantage of having "sailed" into Singapore more than 100 times prior to the ship's maiden voyage, complements of the new, sophisticated simulator purchased by Star Cruises.

Frontier tanker

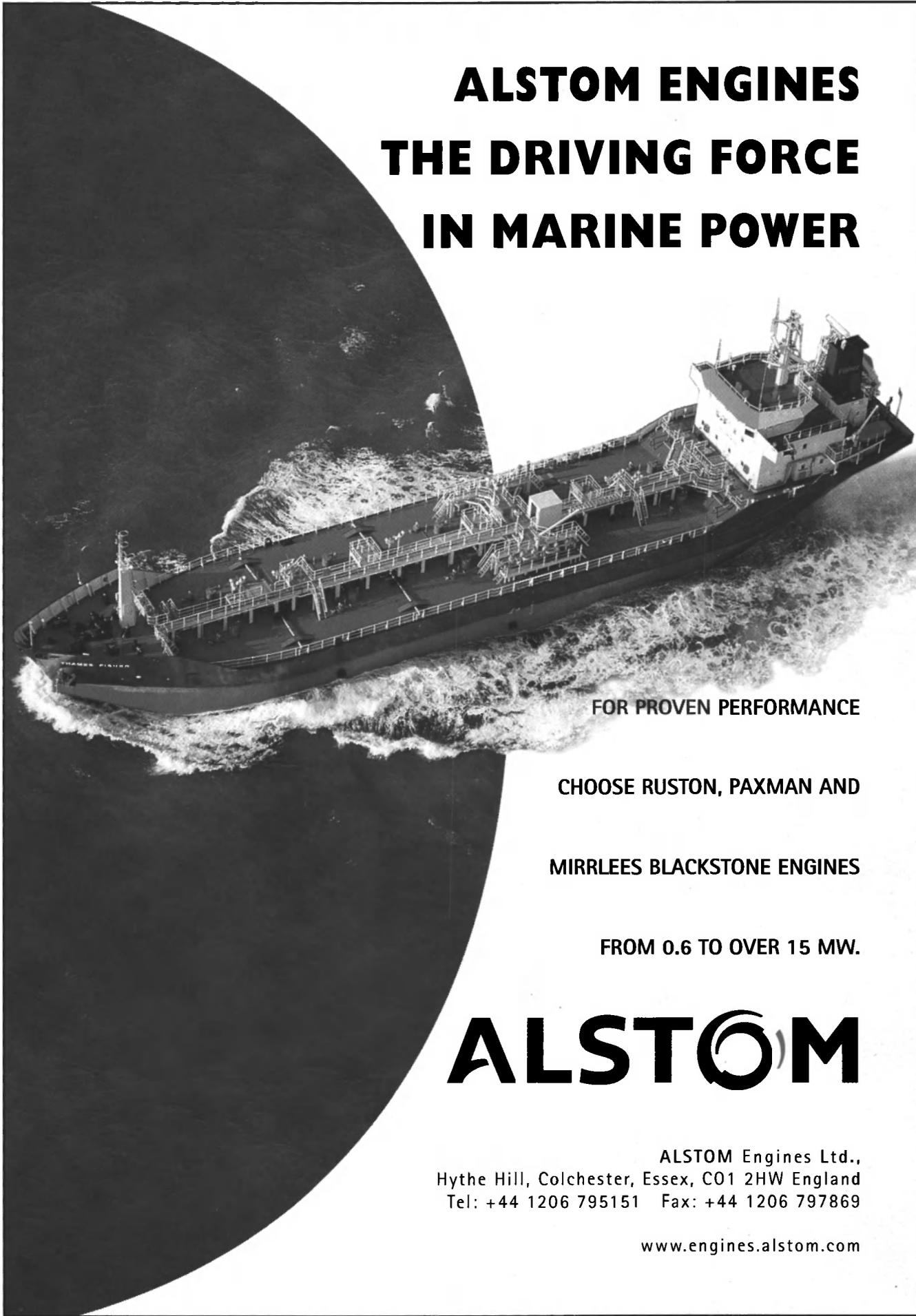
By the very nature of their operating environment, and the long-term expectations of their users, the new generation of shuttle tankers rank among the toughest yet most technically refined vessels, designed to ensure uninterrupted service in arduous conditions. The launching of both the A P Moller Group and BP Shipping to the shuttle tanker sector, the 100,000-dwt Loch Rannoch has been designed and constructed for a 20-year life in waters as rigorous as those encountered west of Shetland in the north-east Atlantic. BP Shipping will operate the vessel on behalf of BP Exploration, which has fixed her for an initial seven-year term from sponsor owner A P Moller's Maersk Company. Exhaustive attention to structural strength and reliability, state-of-the-art finite element modeling, the incorporation of significant margins in scantlings, and the adoption of highly compartmentalized hull configuration has been complemented by the application of the full redundancy principle to her propulsion and associated systems. Delivered ahead of schedule and within budget by Daewoo Heavy Industries, Loch Rannoch has been assigned to continuous-cycle duties lifting crude oil in 50,000-barrel lots from the Schiehallion floating production, storage and offloading (FPSO) vessel to the Sullom Voe terminal on Shetland, some 150-km to the east. On the European offshore oil industry's Atlantic frontier, Schiehallion poses considerable demands on production and transportation by virtue of the harsh weather and sea conditions prevailing for much of the year. Indicative of what can be expected in operation, the design criteria for the tanker's dynamic positioning (DP) performance and bow loading arrangements have been based on a significant wave height of 6-m, compared with 4.5-m for similar-capacity vessels deployed in the North Sea. The forecastle and bow mooring deck height including bulwark has been raised by 3-m relative to that which would be deemed necessary for the North Sea, which itself can be treacherous at times. A frequently large angle of divergence between wind and waves, a characteristic of conditions in the waters west of Shetland, has necessitated particular attention to the DP engineering design, given the implications

for uptake operations based on the shuttle tanker maneuvering and lying abaft the FPSO.

Two low-speed MAN B&W diesels, located in separate engine rooms, and driving twin Ulstein controllable pitch propellers, with twin Schilling high-lift rudders, gives form to the redundancy concept which infuses the design. In fact, long-term risk management

thinking pervades every aspect of the technical project. One expression of this has been the failure mode and effect analysis carried out on the DP system by Lloyd's Register, to which classification of the tanker has been entrusted. The exercise was undertaken to help ensure that no single failure would lead to greater than 50 percent loss of DP capability, in accor-

dance with the DP(AA) notation. Besides two huge thrusters of 2.5-MW apiece located in 3-m diameter tunnels in the bow, Loch Rannoch has an 800-kW tunnel thrust unit built into each skeg. DP(AA) confirms that her hydrodynamic system with automatic control is capable of moving, maneuvering and holding the desired heading and position of the



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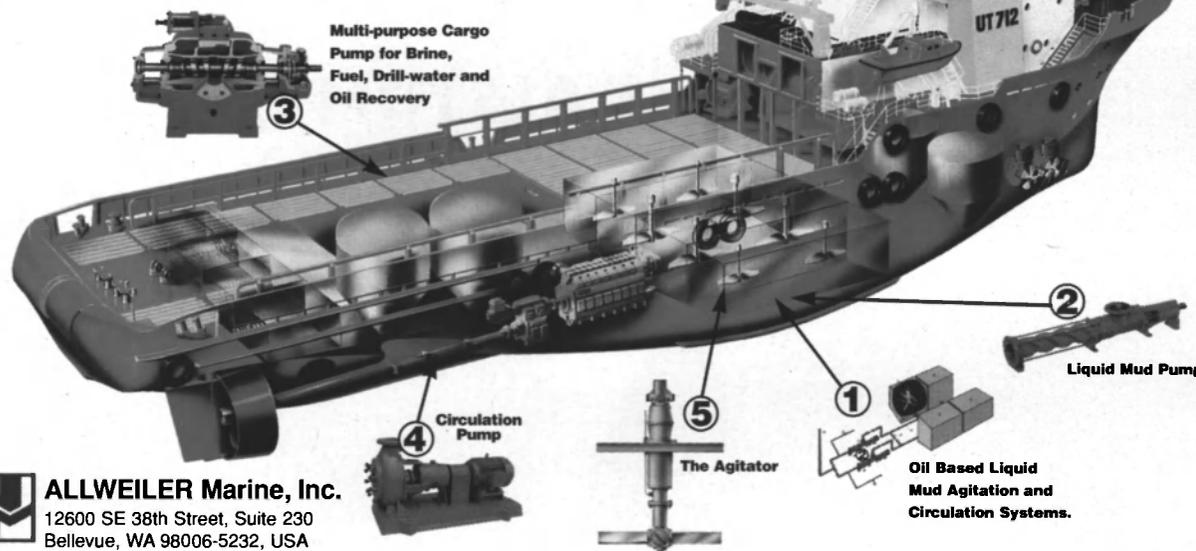
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ship, and that power, con thruster and other syst pertinent to the DPS h been configured so that a f should not result in loss position. For such tank loss of position or deviatio course while on station when approaching or dep. ing the offshore unit co have serious consequen from a cessation of offload to collision.

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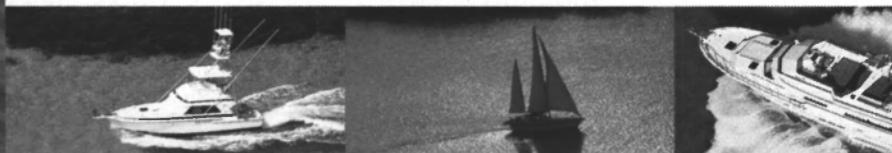


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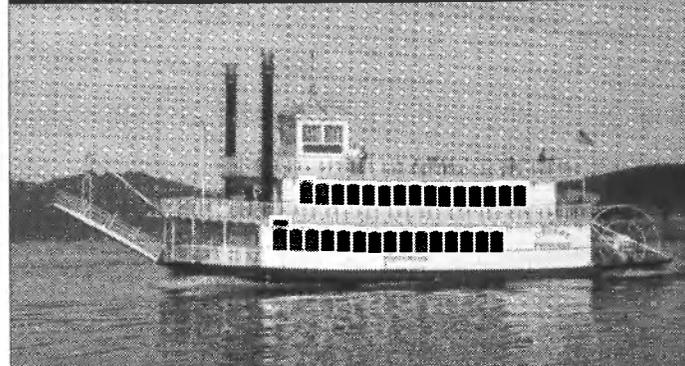
(Top) SkipperLiner luxury vessels rank among the finest and strongest, and earn profits in a variety of configurations. 30' to 160' lengths. 14' to 60' beams. We have excellent custom design/build abilities.

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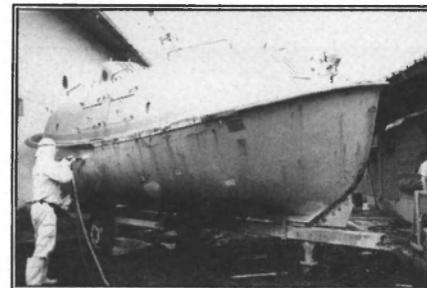
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Gets \$140M VLCC

Contracts

A Engineering and Heavy Industries Ltd. won a \$140 million building contract with off. Halla will build two 200,000-ton VLCCs, scheduled to be delivered in the first half of the 2000.

Caland Finalizes

Contract Order

Caland NV won a five-year contract from Chevron unit OMC Ltd. A consortium, led by OMC's subsidiary SBM, will build a floating production, storage and offloading system to be used off the Angolan coast. The other consortium members are ABB and Coflexip.

Polish Shipyard Signs

Large Dutch Deal

Stocznia Szczecinska and Dutch shipowner Splenethoff Schiedamschevaartwacht skantoor signed a contract worth more than \$120 million for the construction of four 19,200-dwt ships.

TransCoastal Marine

Wins Four Contracts

Houston-based TransCoastal Marine Services Inc. won four new line and fabrication contracts, to be performed by year-end in the U.S. Gulf Coast region. The agreements have a combined value exceeding \$8 million.

Hoegh Sells Ships

to Oldendorff

Leif Hoegh & Co.'s sold parts of its Hoegh Lines division to German shipping firm Egon Oldendorff (OHG). The sale will reportedly cover sale of the Liner service of Hoegh Lines and four multi-purpose vessels. Oldendorff would buy the vessels *Hoegh Duke*, *Hoegh Dene*, *Hoegh Drake* and *Hoegh Dyke* for \$9 million each. The vessels will be delivered from December 27 to March 30, 1999 and will be chartered back to Leif Hoegh for a two-year period for \$1,950 a day.

Korea Foreign Ship

Orders Down 21.9 Percent

Foreign shipbuilding orders won by South Korean companies during the first nine months of this

year fell 21.9 percent year-on-year to 6.83 million gt, the Korea Shipbuilders Association said. The association said orders during the same nine-month period of 1997 were 8.75 million gt. Foreign ship orders won in September totaled 299,500 gt, 15.7% of the amount

for the same month of 1997.

Pride Completes Rig

Acquisition

Pride International, Inc. completed the purchase of the M.S.V. *Amethyst*, a dynamically posi-

tioned, self propelled semisubmersible drilling rig capable of working in water depths of up to 4,000 ft. The rig is currently working offshore Brazil for Petroleo Brasileiro S.A. under a charter and services contract that expires in 2001.

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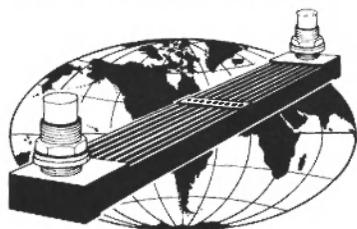


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Baydelta Orders Two More Z-Drive Tugs

Caterpillar's diesel engines were chosen to power a pair of new Z-drive ship assist tugs for Baydelta Maritime of San Francisco. The vessels are being

built at Marco Shipyard, Seattle, and will be nearly identical to two Cat 3516B powered tugs Marco previously delivered to Baydelta.

Two electronically-controlled Cat 3516B engines, each producing 2,200 bhp at 1,600 rpm, will power the vessels, driving two Ulstein Z-

drives with nozzles and 94.5-in. alloy propellers. This configuration will allow the vessels a top speed of 14 knots. Electrical service will be provided by two Cat 3304B generator sets with hydraulic PTOs on the front to provide power for the bow line handling winch and fire

pump motor.

The new boats are scheduled to enter service on May 1 and 1999.

Circle 1 on Reader Service Card

Ingalls Awarded \$86.7 Million Contract

The U.S. Navy has exercised fiscal-year-1999 \$86.7 million contract option with Litton's I Shipbuilding division for continued life-cycle engineering technical services in support of Navy's fleet of Ticonderoga (C class Aegis cruisers, and Spr (DD 963) and Kidd (DDG class destroyers.

Canadian Pacific Acquires ANZDL

Canadian Pacific has signed an agreement to acquire the container shipping business Australia Zealand Direct Line (ANZDL) from its two owners, S Delmas Vieljeux of France and Brierley Investments of Zealand.

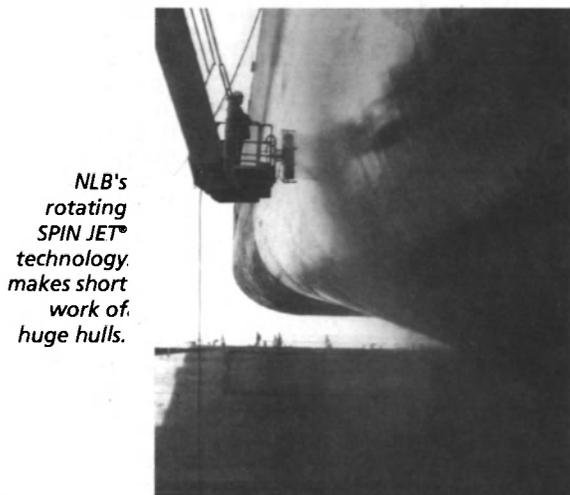
The transaction includes ANZDL's containershipping services and brand name in two regional trades: U.S. west coast and from Australia/New Zealand and TransTasman. Also included are ANZDL's organization, chartered ship and container ANZDL will become part of Ships, Canadian Pacific's container shipping business.

BIW Continues DDG 51 Contract Work



In 1985, Bath Iron Works (BIW) was awarded the lead ship design and construction contract for the U.S. Navy's DDG 51 Class. The *Arleigh Burke* was delivered in April, 1991. The Navy plans for 10 of the DDG 51 Class destroyers to be built through FY 2004, representing an estimated total program cost of \$40-\$45 billion with the last ship scheduled to be delivered in 2009. BIW was contracted for 27 destroyers and has delivered

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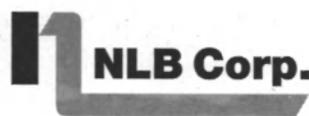
NLB can provide the ULTRA-CLEAN 36 system with various power options and mountings, as well as lances, hose and specialized nozzles. (You can even cut through pipes or bulkheads without heat or flame.) With 25-plus years' experience solving tough surface preparation problems, NLB can get you shipshape in a hurry.



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Schlumberger Debuts New Production Logging Technology

Schlumberger Oilfield Services announced what it is calling a breakthrough in production logging technology. The technology, called PS PLATFORM, is designed to provide E&P operators with the most advanced method of measuring and interpreting fluid flow in producing wells in the most cost effective manner.

PS PLATFORM is the next generation of production logging systems, offering greater reliability, better efficiency and real-time flow quantification," said Rod Nelson, Vice President of Product Development for Schlumberger Wireline & Testing. "Its innovative sensors identify the nature of wellbore flow regimes as well as help to significantly improve confidence in the production diagnosis. These new sensors also provide pinpoint accuracy to eliminate inconclusive surveys, even in difficult production log environments such as deviated or high water cut wells." The PS PLATFORM logging tool is designed to be compact and has been designed with flexibility in mind, with the operator having the choice of acquiring data in real time or storing it inside the tool's memory, for retrieval after completion of the operation. Significantly, both modes of operation utilize the same sensors allowing superior resolution and coherent data sets. Compared with standard measurement tools, PS PLATFORM is smaller, faster, more reliable and more efficient to run.

"During worldwide field testing over a wide range of environmental and geographical conditions, the tool's reliability and efficiency provided significant savings to our clients, enhancing recovery and improving management of oil company assets. This new service will prove to be of tremendous value to producers in today's cost-sensitive environment and when combined with additional new production technology currently in testing, operators will have unprecedented capability to modify and therefore maximize production," added Nelson.

13. Under separate contracts, BIW also serves as the Class Design Agent for the DDG 51 Class and as the AEGIS Destroyer Planning Yard providing maintenance and modernization support to the ships already in the fleet.

In its Class Design Agent role,

BIW is currently completing a major design upgrade (DDG 51 Flight IIA) which will be implemented beginning with the nineteenth ship, DDG 79.

The Flight IIA ships will incorporate dual helicopter hangars, the Evolved Sea Sparrow Missile sys-

tem, the Kingfisher mine-detection system and a number of additional survivability and reliability related upgrades.

BIW started cutting steel for the DDG 79 in 1996 and the ship is scheduled for delivery in February, 2000.

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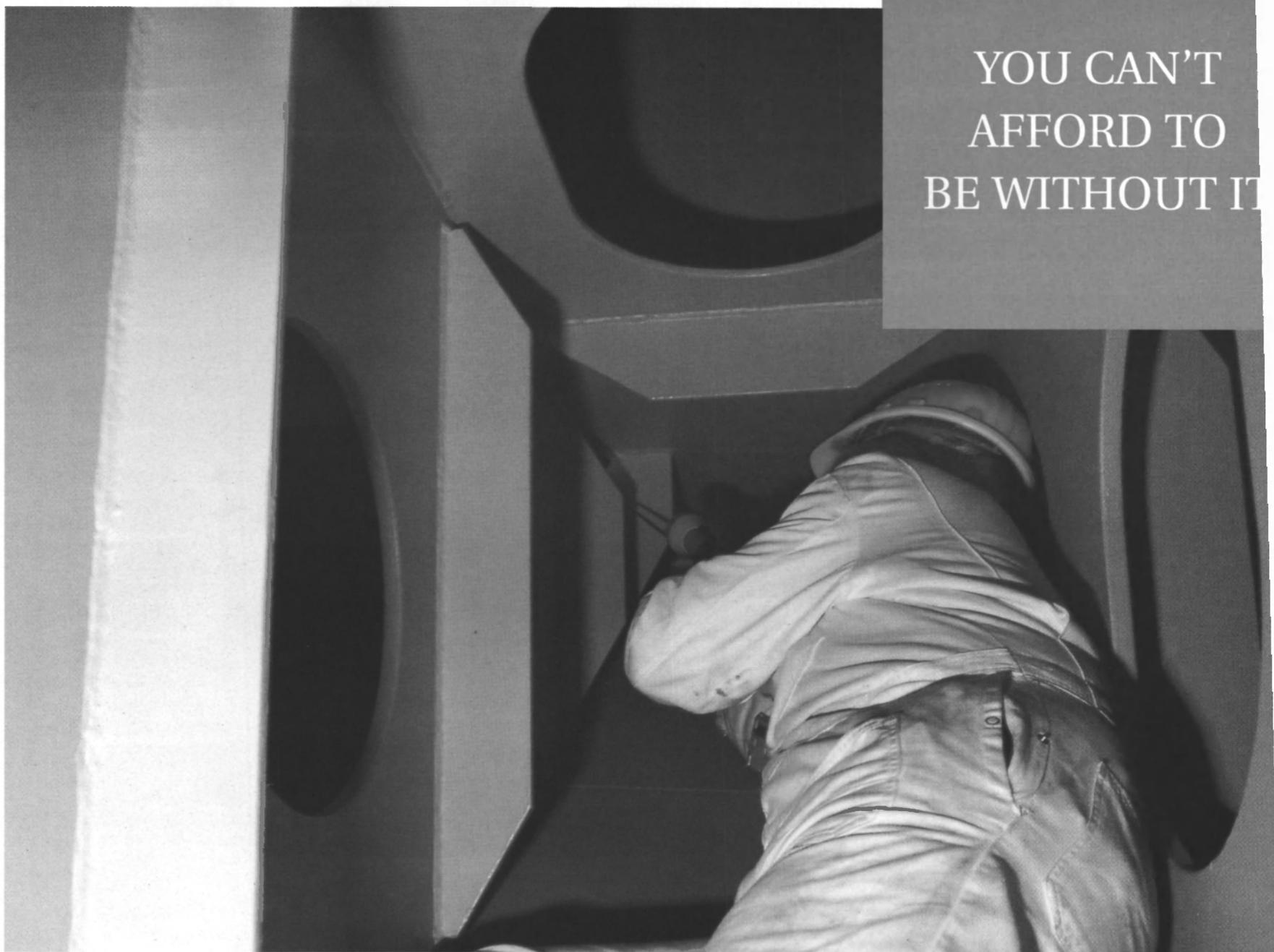
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LINE FINANCE

○ Marine Exercises on For Third Tanker

Avondale Industries, Inc. has announced that ARCO Marine of Beach, Calif. has exercised an option for a third crude carrier, valued at \$164 million. Avondale currently has two 125,000-dwt crude carriers under construction for ARCO Marine under a contract awarded in 1997. Delivery of the third ship is scheduled for February 1999. ARCO Marine has options for two additional ships under construction as part of its contract with Avondale.

○ Ten & Partners Issues A New Study

New York-based Poten & Partners, a ship and cargo brokerage and consulting firm, has released Tanker Prospects for the 21st Century, a forecast of tanker prospects to 2005. The 208-page report covers worldwide economic activity, oil demand, and crude oil flows across five classes of tankers. Projected demand for each class of tanker is compared to projected supply to arrive at a supply/demand balance, forming the basis for a rate forecast. The report takes into effect oil consumption in Southeast Asian nations, the growth in short haul oil, and mandatory phase-outs of a large portion of the world tanker fleet.

Circle 45 on Reader Service Card

○ Five-Well Contract For Transocean Offshore

Transocean Offshore, Inc. has announced that its fourth-generation semisubmersible *Transocean Richardson* has received a five-well, minimum 190-day contract from Spirit Energy 76, Unocal Corp.'s Lower 48 exploration and production unit. The five-well program, to be executed in the U.S. Gulf of Mexico, is expected to commence immediately following the conclusion of the rig's current work program with Shell Deepwater Development, estimated to be April 1999. In 1997, the *Transocean Richardson* set the current world water depth drilling record for a moored semisubmersible in 5,297 ft. (1,615 m).

○ Friede Goldman Offshore Wins Jack-Up Contract

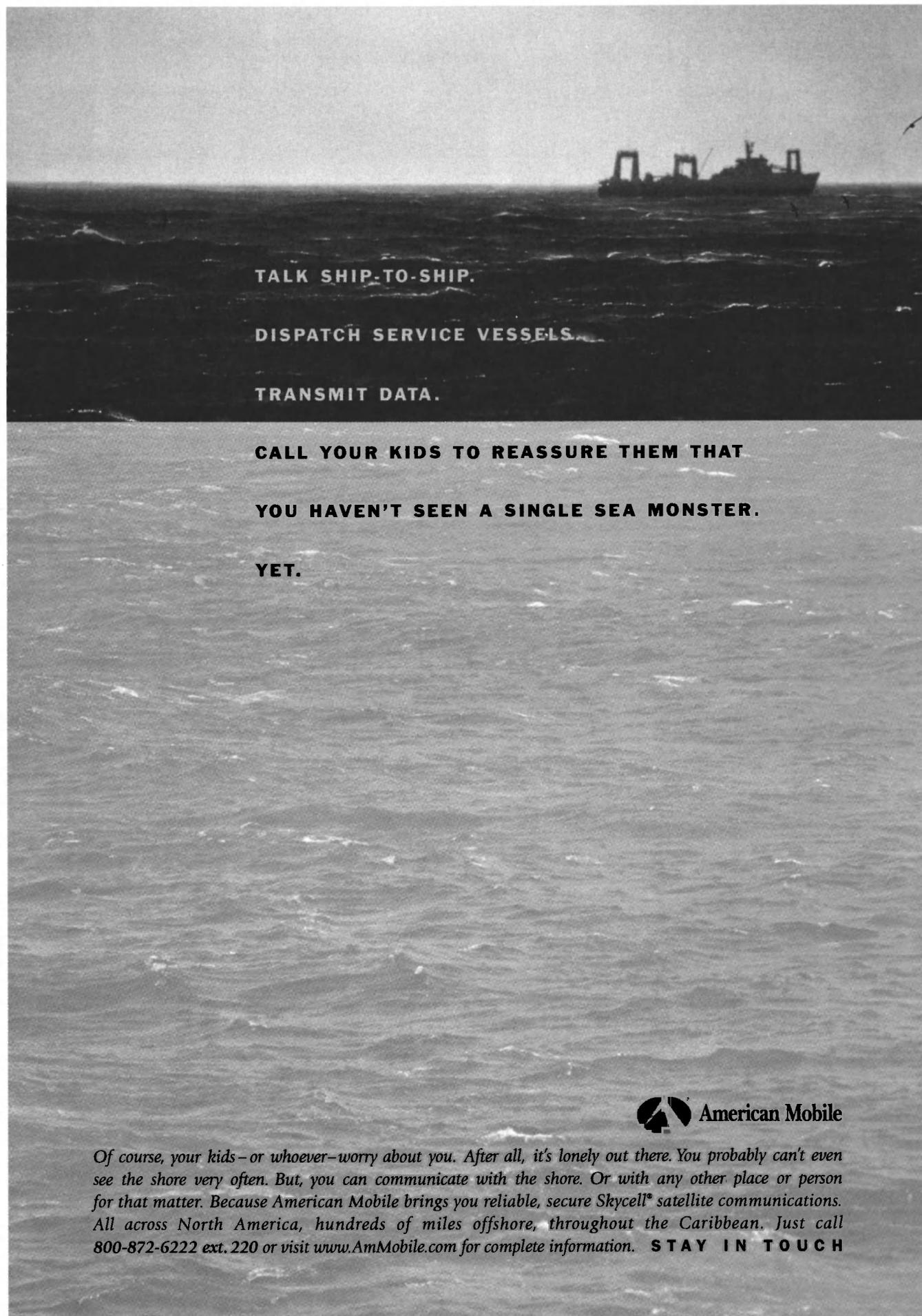
Friede Goldman International, Inc. announced a contract for its subsidiary Friede Goldman

Offshore from Houston-based R&B Falcon for the *Phoenix IV* jackup rig. The vessel is a Bethlehem design, 200 ft. (61 m), mat supported cantilevered class rig. Friede Goldman is currently working on R&B Falcon's *Falcon 100* semisubmersible rig at the HAM Marine shipyard in Pascagoula, Miss.

○ COMSAT Wins Nine-Year, \$18-Million Contract

COMSAT Mobile Communications (CMC) has won a nine-year contract with AT&T, valued at approximately \$18 million, to provide global satellite communications services allowing sailors and marines at sea to call home.

AT&T's Direct Ocean Service allows military members to make personal calls at \$1 a minute, using AT&T's Global Prepaid and AT&T calling cards with special satellite telephones onboard Navy vessels. Service is scheduled to be available on all battlegroup-deployed ships by the end of the year. Calls made from the vessels



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Low Technology Engine Ordered From Coltec



Coltec Industries Inc. has received an order valued in excess of \$2.5 million for the first dual-fuel engine based on its technology licensing agreement with MAN & W Diesel Inc. The 12-cylinder M/MAN 32/40DG engine incorporates emission-reduction technology pioneered by Coltec's Fairbanks Morse Engine Division and MAN's advanced dual-fuel capabilities. Fairbanks Morse's Enviro-Design technology reduces nitrous oxide emissions to as low as one gram per bhp hour. Dual-fuel engines are powered by natural gas and pilot fuel, a form of diesel oil. The engine will provide 6,192 bhp to drive a four MW electrical generating system for the city of Sabetha, Kansas, and is scheduled for delivery in the second half of 1999.

Circle 61 on Reader Service Card

CDI Marine Awarded Phase II Contract

CDI Marine Group has been awarded a contract for phase II development, detail design, prototype fabrication and demonstration testing of a Joint Modular Lighter System (JMLS) for the U.S. government. The contract is valued at an estimated \$20.5 million in revenue, of which \$15 million will be paid in subcontracted costs. CDI Marine Group will receive approximately \$5.5 million in revenue from the contract. The JMLS will provide a means of discharging cargo from strategic sealift ships and moving cargo to shore in the event port entry is denied, degraded or not available.

CDI Marine will provide program management and detail design for the project. The company will be joined by two of its divisions: Band, Lavis and Associates (BLA) providing advanced engineering, systems engineering and

test management; and M&T, providing acquisition logistics support. American Management Systems will support the development of an integrated product data environment life cycle cost model, and Baltimore Marine Industries will fabricate all JMLS modules.

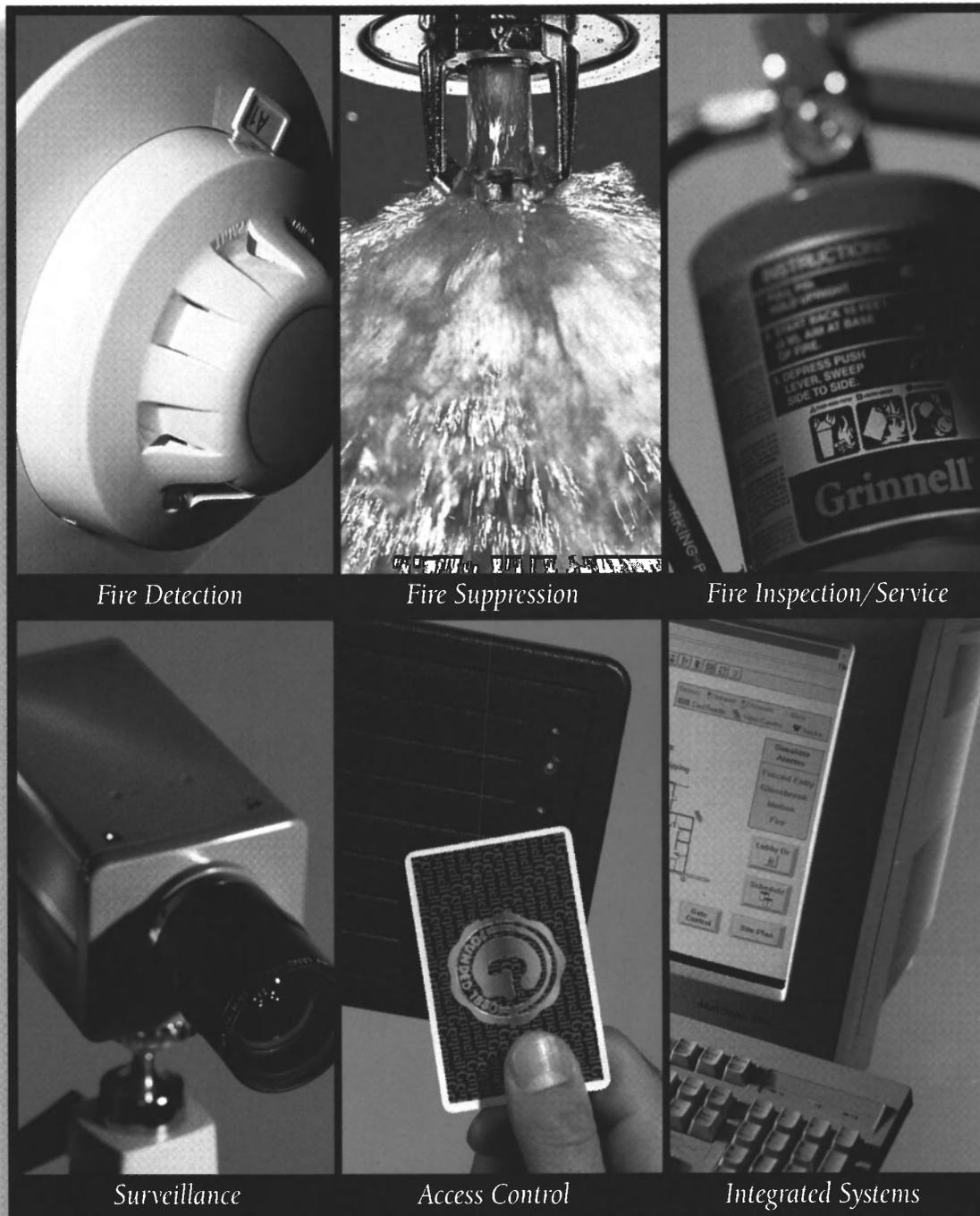
Circle 72 on Reader Service Card

GE Gas Turbines Ordered For Spanish Navy Frigates

GE Marine Engines has received an order from Empresa Nacional Bazan, Madrid, for eight GE LM2500 aeroderivative gas turbines. The units will be used on four F-100 class frigates being built by Bazan for the Spanish

Navy. GE will deliver the first two LM2500 gas turbines in 1998, and the remainder in 2000, 2001 and 2002. The Spanish naval fleet already includes a total of 17 LM2500s: 15 units on six Santa Maria class frigates, and two on the *Principe de Asturias* aircraft carrier.

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\$13.5 Million Contract For Sperry Marine

Sperry Marine, Inc. has won a contract worth more than \$13.5 million from the Canadian Navy to supply Ship's Inertial Navigation Systems (SINS) for all Halifax-

class ships. The contract, awarded in July 1998, calls for the company to supply dual MK 49 Ring Laser Gyro systems for all 12 of the ships, and one system to be used as a land-based trainer. The MK 49 is an inertial navigation system which is designed to provide pre-

cise position, velocity, attitude and attitude rates in digital and analog formats.

The contract includes provision for installation support and training, and delivery is scheduled to begin in mid-1999.

Circle 74 on Reader Service Card

\$12 Million Orders For Atlas Shaft Generators

Hamburg-based STN A Marine Electronics has received orders worth approximately \$12 million for 12 proprietary shaft generators from the Kvaer Warnow and Aker MTW yard, Germany and Hyundai Heavy Industries in South Korea. To be fitted to new-generation container ships under construction by three yards, the systems are to be delivered between April and the end of next year.

Circle 75 on Reader Service Card

Cegelec Wins DPS, Medium Voltage Drive Contracts



Seillean FPSO

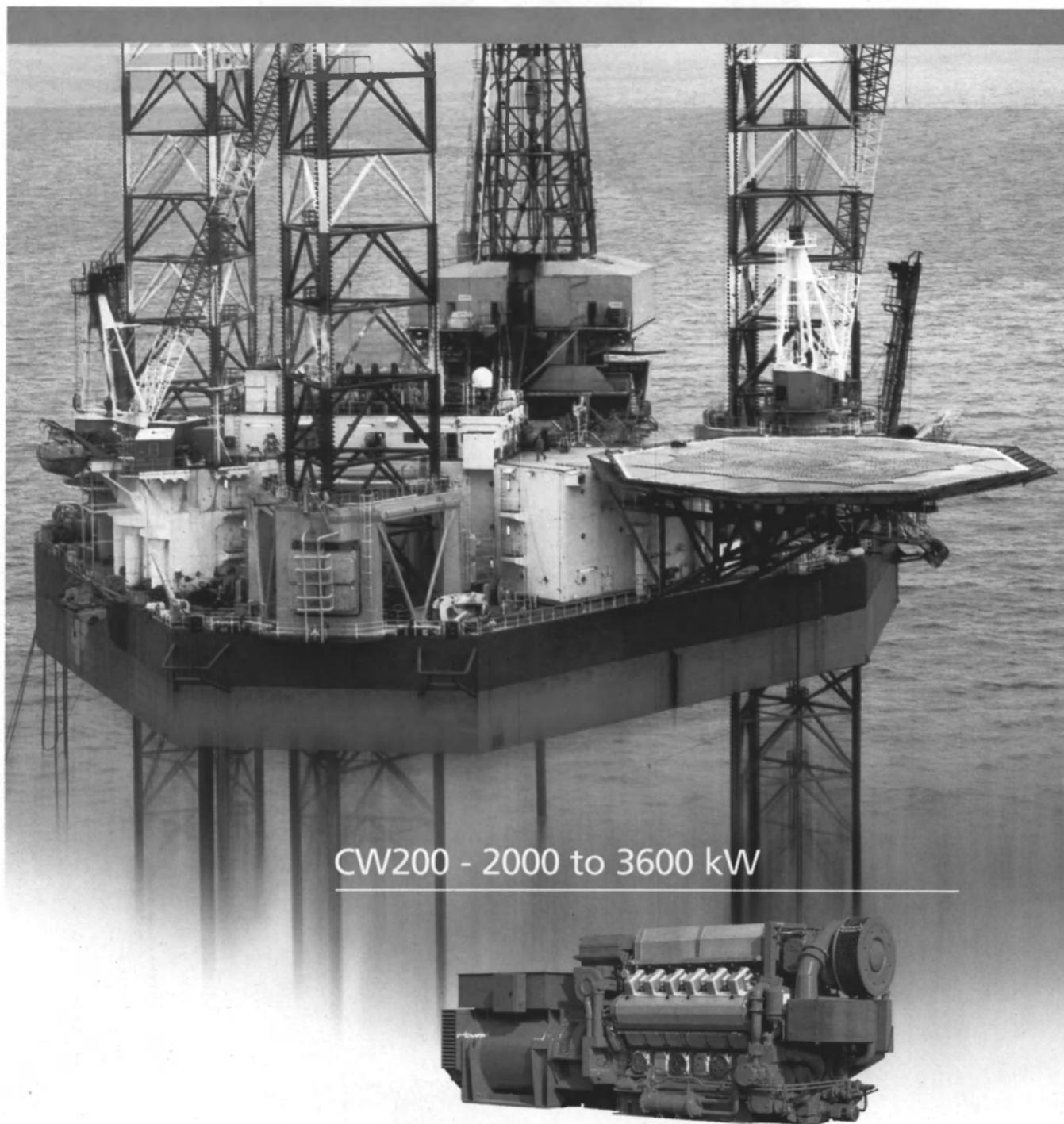


Artist impression of Pride Africa/Angola vessels.

The Marine and Offshore Division of Cegelec projects has won a contract from R & B Falcon to upgrade the *Seillean* FPSO vessel. The contract is for the supply, installation and commissioning of a dynamic positioning system (DPS). *Seillean* will be used by Petrobras in the Roncador field, on a production well of approximately 6,300 ft (1,900 m). To help operation in such depths, Cegelec will provide its triple voting DPS 903. The DPS 903 comprises a three unit suite, each unit capable of controlling the vessel independently. If a fault occurs in one of the three units, the remaining two downgrade to a Duplex DP control system. Cegelec will also provide an acoustic reference system for accurate position measuring.

Cegelec has also been awarded two contracts by Pride Foramer to supply and install Alspa VDM medium voltage drives for two drillships, *Pride Africa* (conversion) and *Pride Angola*.

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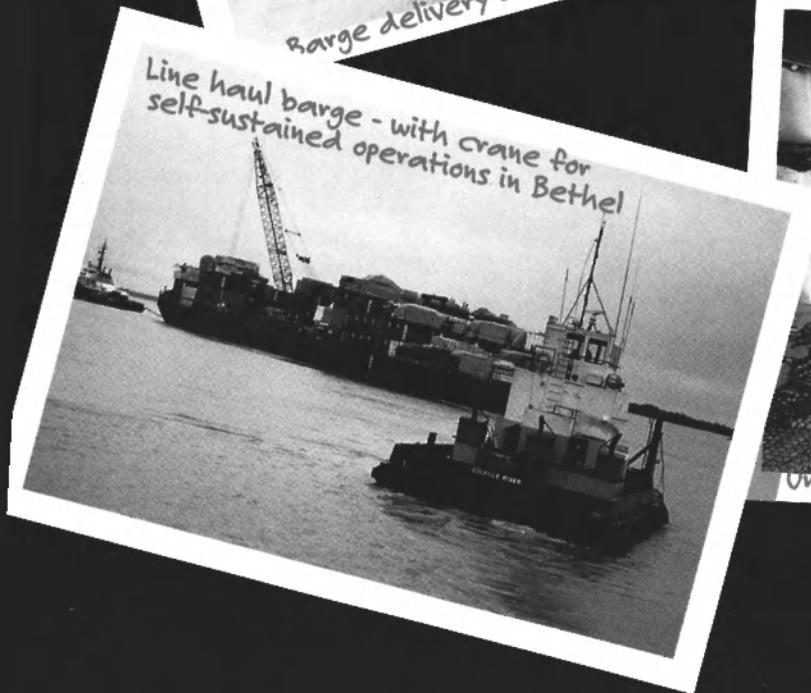
Making a successful 5,200 mile run from Seattle to Kaktovik, Alaska, in unfriendly weather is difficult. Add dozens of stops in-between, treks upriver that can be as long as 600 miles, service to as many as 128 remote destinations and you've got something that takes more than luck. It takes Integrated Logistics.



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Coastal village on Kodiak Island



Line haul barge - with crane for self-sustained operations in Bethel



Unloading cargo barge



Refueling at Kotzebue

Crowley's first venture into integrated logistics actually started way back in 1958 when our newly formed joint venture was called upon to re-supply the stations of the DEW line (Distant Early Warning) in Alaska. That activity eventually evolved into providing total logistics for up to 128 locations throughout Alaska. Even today, to get the job done right it still takes line-haul vessels to carry the cargo. The cargo then has to be lightered onto the beach in shallow water locations. And from the beach it has to be trucked inland or hauled upriver on barges to remote locations where it is either warehoused or delivered right to the door. Fuel is delivered in bulk by barge, plane, or helicopter.

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New Ferry Features Cat Propulsion

The first fast ferry in the Irish Ferries fleet will feature four Caterpillar 3618 main propulsion engines each rated at 7,200 kW. The new 284 ft. (86.6 m), being built by Australian Austal Ships Pty Ltd. at its Henderson,

Freemantle yard, will be able to carry 800 passengers and 200 cars at a service speed of 39 knots. This speed will provide a crossing time from Dublin to Holyhead of under two hours. The Cat engines will drive Kamewa 112 S11 waterjets through Reintjes gearboxes.

Circle 44 on Reader Service Card

STN Atlas Wins Contracts

Hamburg-based STN Atlas Marine Electronics has been awarded contracts for twelve proprietary shaft generators from Hyundai Heavy Industries of Ulsan, South Korea; Kvaerner Warnow of Warnemünde; and Aker MTW, Wismar. Deliveries to the

yards are scheduled to come in April 1999 and will be completed by the end of the year.

Circle 43 on Reader Service Card

Renold Hi-Tec Clinches Spanish Navy Contracts

U.K. based Renold Hi-Tec Couplings has been awarded a contract to build main propulsion transmission couplings for new Spanish Navy frigates. The main order is for eight 848 I Series Cardan shaft couplings each capable of transmitting 4,000 kW of power at 1,000 rpm. Main propulsion for the frigates is provided by Bazan-Bravo 12 engine, a derivative of the CAT 3608 Series. Renold Hi-Tec was awarded a contract to supply couplings to drive the ship's generator sets. The coupling selected was the new MSC, designed to satisfy the latest generation of fail safe coupling suitable for marine propulsion, generator sets and compressors. The couplings will provide protection on Bazan MTU 12 V 36 diesel engines, rated at 1,200 kW at 1,800 rpm.

DRS To Acquire NAI Technologies

DRS Technologies, Inc. has signed a definitive agreement to acquire NAI Technologies, Inc., a leading provider of rugged computers, peripheral equipment and integrated systems for military, government and commercial applications. The agreement follows the company's announcement in April of the signing of a letter of intent for NAI Technologies to merge with a subsidiary of DRS in a stock transaction. DRS expects the acquisition will be completed by the end of its fiscal third quarter, which ends December 31, 1998.

First Design Agreement For Pier 400 Awarded

The first major design agreement for the development of the Port of Los Angeles' Pier 400 was approved recently between the Los Angeles Harbor Commission and Brown & Root, Inc. of Alhambra, Calif. The \$1.4 million agreement calls for the design of the transportation corridor to Pier 400, providing highway, rail and utility access to a new land mass currently being created by dredging and landfill. Under the agreement, Brown & Root will provide geot-



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al and engineering support as including the design of two lar bridge structures, retainalls, roadway alignments, the lor water system and a naturss supply line.

con Awarded Training port Contract

ogicon, Inc. a Northrop mman company, has been arded a five-year, indefinite ivery/indefinite quantity /IQ) contract from the Naval rface Warfare Center to support e AEGIS Training and Readiness enter in Dahlgren, Va. Logicon ill provide overall technical and gineering support, which onsts of systems engineering, inteation, development, mainteance, documentation and operaton of training tools.

Nautronix Delivers DP System To SEDCO Fleet

Following on from the successful operations of Nautronix dynamic positioning and acoustic positioning equipment on-board the *Sedco 707* semi-submersible, Nautronix has been awarded another contract by Sedco Forex to supply dynamic

and acoustic positioning equipment to the *Sedco 709*.

The *Sedco 709* semi-submersible will soon be upgraded for deepwater drilling operations off the coast of West Africa. The existing DP system will be replaced with a Nautronix ASK4003 Triple Redundant Dynamic Positioning

System and the RS915 ultrashort baseline/short baseline acoustic positioning system will be re-commissioned for 2,000 m operating depth.

Nautronix will also be equipping the *Sedco 709* with a TCS4001 Thruster Control System and TAC Three-Axis Control.

Circle 65 on Reader Service Card

BIMCO To Offer Innovative ISM Course

The ISM Experience: A BIMCO Workshop is the title of BIMCO's newest residential course, which will be held in Copenhagen from Nov. 16-18.

The first of its kind, this BIMCO course will address issues of concern to those responsible for ISM compliance across the industry following the passing of the first International Safety Management (ISM) Code deadline in July. In particular, participants will share their compliance experiences with others while at the same time learning exactly which steps they need to take to ensure that their compliance status remains current. In addition, the ISM Code regulations to be met by 2002 will be discussed in detail, enabling attendees to approach the deadline with the knowledge necessary to help their company meet the requirements well in advance. An intensive workshop session is the centerpiece of the course, providing participants with the opportunity to work hand-in-hand with top industry experts to solve common problems associated with the ISM Code, including continued compliance and the upcoming deadline. They will also discuss practical recommendations for maritime authorities and investigate methods of improving ISM-related procedures.

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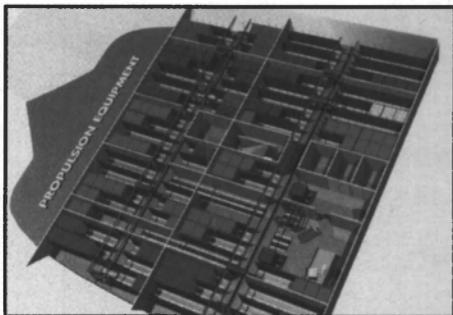
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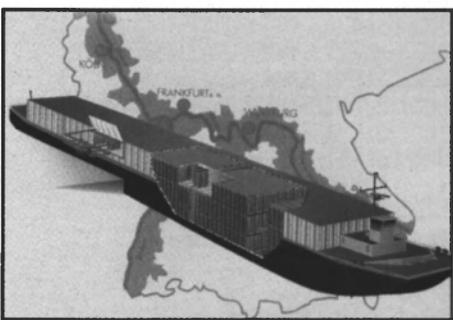
Many maritime market leaders had assembled in Hamburg, Germany last month for the SMM '98 exhibition, widely considered the world's premiere shipbuilding and ship machinery event. Neither Hamburg nor SMM dared disappoint, as the exhibition lured its usual mix of top quality companies from around the globe. The 18th SMM attracted 1,191 exhibitors from 43 countries and approximately 35,000 trade visitors from more than 50 countries. While the exhibition obviously maintains a stronghold with the national crowd, an impressive 36 percent of visitors traveled from abroad. The following are some of the more compelling developments noted during the week-long event.

KSW Garners Attention For Innovative Seaborne Pallet Handling System

Hamburg-based KSW Systems has already garnered a lion's share of attention for and interest in its innovative Automatic Seaborne Pallet Handling System (ASPH). The ASPH concept bridges the maritime market, as innovative uses have been identified and contracts secured in a diversity of instances, including the cruise ship market, reefer market, and inland barge applications.



KSW cruise ship arrangement.



KSW inland barge concept.

The cruise market is, in fact, a new application of the system just this year, according to Dirk Lehmann, general manager. The system (pictured) is designed for large cruise ships of 1,500 passengers or more, and is being sold as a change from the pure manual food and beverage storage and retrieval into a computerized, fully automatic mode of operation. The systems, while providing obvious workflow solutions, can also help organize a ship's storage to such a degree that KSW claims a shipyard can squeeze up to 10 more passenger cabins on a 2,500 passenger ship

by incorporating the ASPH central store system, and the crew to handle the all-important food and beverage handling can be reduced by two.

On the inland navigation side, KSW is a founder of the newly launched Pallet Shuttle Group. Teamed with inland navigation companies Lehnkering and EWT, and utilizing the marketing services of Gemako, KSW Systems is aiming to market a transportation service for palletized cargoes on the European Waterway System. A pallet shuttle barge (pictures), which can carry the equivalent of 50 truckloads of palletized cargo, will jointly use a liner service push boat. ASPH Barges can be used for all kind of palletized cargoes, from bananas to high value electronics.

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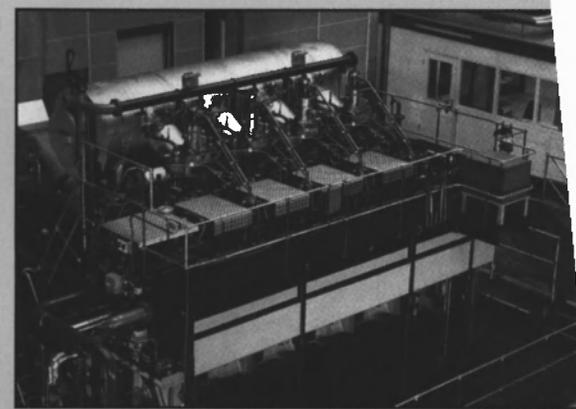
PROPULSION UPDATE

"Intelligent Engine" Testing Underway At Wärtsilä NSD

Wartsila NSD Corp. continues to extend its leading research and development programs with the announcement that the world's biggest common rail is being used successfully in HFO operation on the camshaft-less RTX-3 Technology Demonstrator engine running on test beds in Winterthur, Switzerland.

The new Sulzer RT-flex concept is being developed by Wärtsilä NSD, and the RTX-3 Technology Demonstrator is a four-cylinder two-stroke engine with a 580 mm bore and a maximum continuous power output of 8,500 kW (11,560 bhp) at 105 rpm. The manufacturer points out that this is the largest modern diesel engine with a common-rail injection system to operate successfully on heavy fuel oil.

The Sulzer RT-flex concept (aka. "Intelligent Engine") is designed to monitor its own condition and adjust key parameters for the best engine performance. Touted benefits to shipowners include considerable life-cycle savings, allowing them to better control engine operating costs while giving flexibility in engine operation to optimize for criteria such as exhaust emissions, fuel consumption and times between overhaul. While various



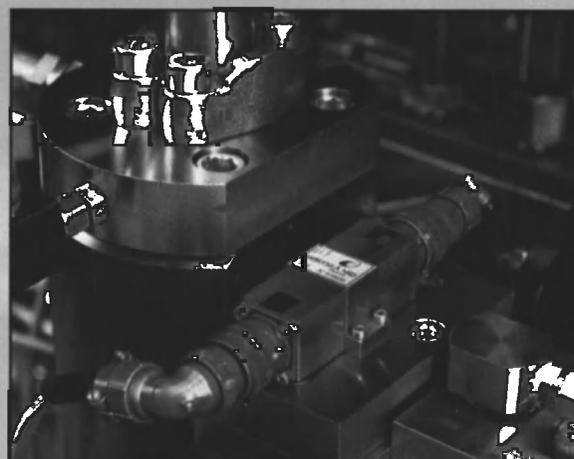
Top of the RTX-3 Technology Demonstrator.

MAPEX diagnostics systems already in service with Sulzer diesel engines give many of the condition monitoring functions for the engine, the "intelligence" software — which will combine the parts to form the whole — is currently under development.

Whereas past intelligent engine concepts from the company have been purely for research, the RTX-3 is actually a prototype to prepare for the commercial introduction of the new Sulzer RT-flex series of camshaft-less engines. It is planned that one or more Sulzer RT-flex engines will be installed onboard a ship for operational trials in normal shipboard environments, and the commercial roll-out of the new series is currently slated for 2001.

Uncommonly Advanced Technology

While Winterthur has long been the home of advanced intelligent engine studies, the RTX-3 Technology Demonstrator is unique in that it features the Sulzer Common Rail fuel injection system, a system which is designed to reduce the hydraulic power requirements and enables the fuel and hydraulic pumps to be arranged in a neat package driven off the



The most vital element of the Sulzer Common Rail is this rail valve.

(Continued on page 124)

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SMM '98: Post Show Report

Marine "Black Boxes" to the Forefront

Recorder is designed to meet the requirements of IMO Resolution A.861(20) and provides a record of shipboard information which can be retrieved in the case of a maritime accident. The information is collected from a variety of onboard sensors and written as data on two duplicate Magneto-Optical disks. One disk can be exchanged on a regular basis to provide the shipowner with archived logs of vessel movements, while the second is housed in a sealed capsule, designed to withstand deepwater submersion and fire while maintaining data integrity.

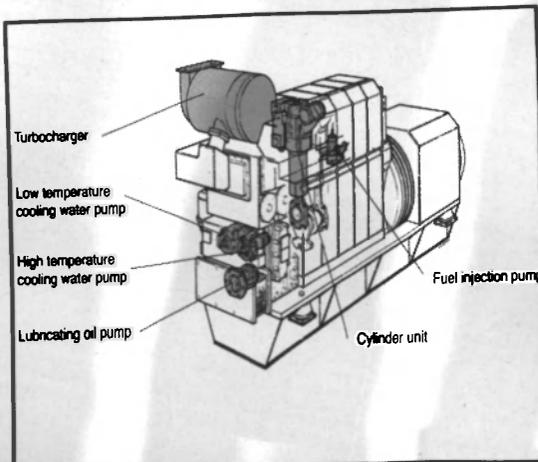


The Kelvin Hughes Nucleus 2 Voyage Data Recorder

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MAN B&W Exchange Service Ensures Smooth Sailing

To help owners maintain tight sailing schedules in the face of reduced engine

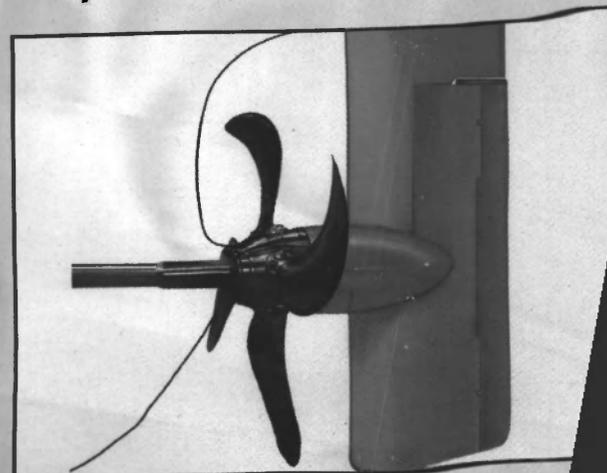


room staff, MAN B&W has introduced an Exchange Service designed to smooth regular service of the company's L16/24 engines. Exchange Service is based on the replacement of used units during a major overhaul with renovated units. The replaced units are simply returned in the same packages as those used to transport the renovated unit, helping to minimize onboard work. In principle, all parts of the engine are addressed by the concept, but the following components are purpose-designed to benefit: cylinder units (including the complete cylinder head, piston, liner, connecting rod and fuel injection valve); turbocharger; injection pumps, HT and LT cooling water pumps; and lubricating oil pump.

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SMM Post Show Report Continued on page 120

PropacRudder Arrangement Improves Efficiency 5%



The new PropacRudder from Wärtsilä NSD is touted as being 5 percent more efficient.

A new product from Wärtsilä NSD is the PropacRudder, a so-called semi-balanced horn rudder, whose characteristic is a streamlined torpedo bolted to the rudder horn. The streamlined torpedo is designed to create a more homogenous water flow both in front of the rudder and in the propeller slipstream, which gives an increased operational efficiency of five percent. The better efficiency offers many advantages, including the ability to operate a vessel at higher speeds but at lower engine output, helping to reduce operating costs and fuel costs. The PropacRudder can be used in many arrangements, according to its installation. The greatest gain will reportedly be seen on full-hull screw vessels.

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Marine "Black Boxes" to the Forefront

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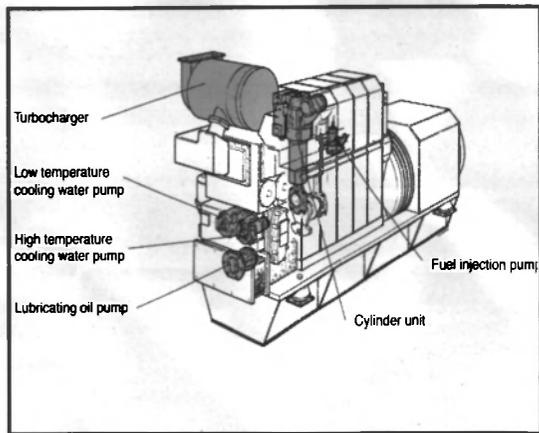
The Kelvin Hughes Nucleus 2 Voyage Data Recorder

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MAN B&W Exchange Service Ensures Smooth Sailing

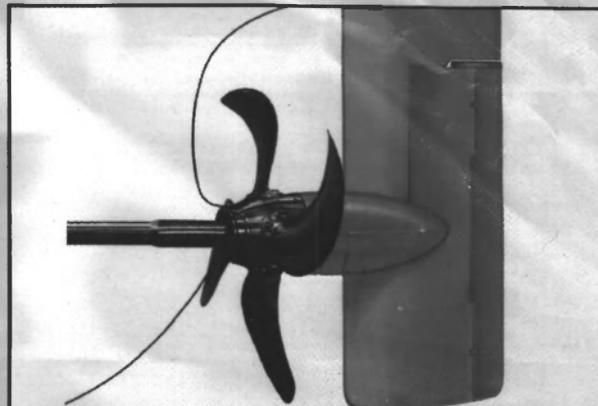
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SMM Post Show Report Continued on page 120

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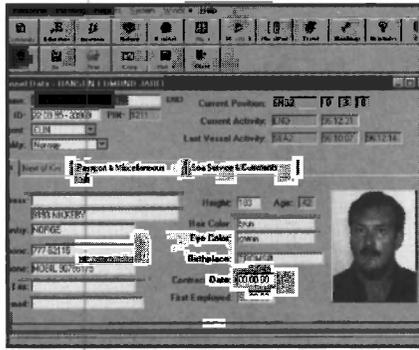
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News and information from the makers of shipboard and shore-side software solutions for the maritime industry. To have your product or service considered for inclusion in this section, send details to Elizabeth Malcolm at: fax: (212) 254-6271; e-mail: malcolm@marinelink.com

AMOS Personnel Launched



AMOS Personnel - SpecTec

SpecTec, a supplier of computerized software solutions to the marine industry, launched AMOS Personnel at the recent SMM Exhibition in Hamburg. The new system is designed to aid compliance with the recent Standards of Training Certification and Watchkeeping (STCW) legislation and will support the maritime personnel department in the daily work of managing ships' officers and crew. AMOS Personnel is a fully integrated system comprising personnel information, planning, travel arrangements and reporting. The system has five categories of personnel information: general information, certificates, training, insurance arrangements and assignment history.

Circle 64 on Reader Service Card

New Solutions From Drew Marine

Ashland Chemical Company's Drew Marine Division has introduced new software for its PC-based engine monitoring system to accommodate multi-user access, along with an equipment upgrade for enhanced reliability. The DPA Diesel Performance Analyzer, which monitors cylinder and injection pressure on all types of two-stroke engines as well as four-stroke medium-speed engines, can now support Windows NT in addition to Windows 3.1 and 95. A new 20 ft. (6 m) cable made from flexible, oil and temperature resistant Viton material, connects the pressure sensor attached to the cylin-

ders with the charge amplifier.
Circle 18 on Reader Service Card

SPAR Software For Smaller Yards

SPAR Associates, Inc., developer of the Perception software for the ship and yacht building indus-

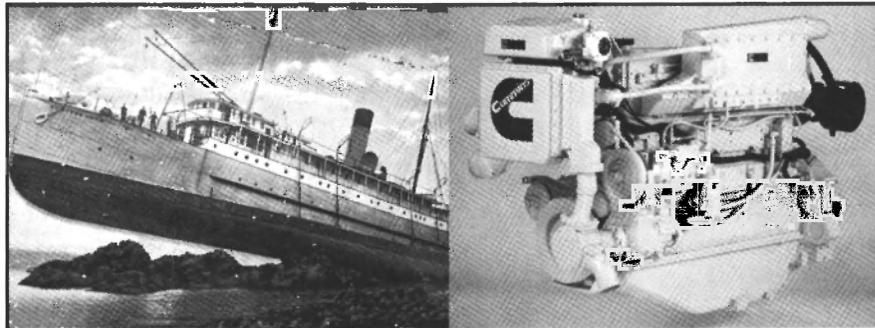
tries, has introduced Perception-Lite, geared toward smaller shipyards. The new software can accommodate a maximum of four simultaneous users and provides functions to plan contracts, track costs, coordinate purchasing and production. The system is also able to link to word processing, spread

sheet and database software as well as many CAD packages.

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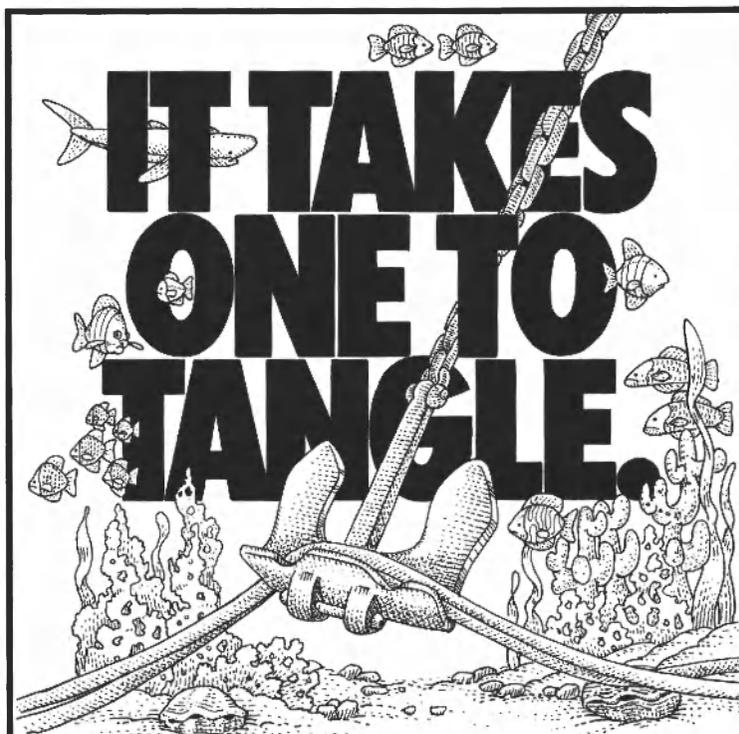
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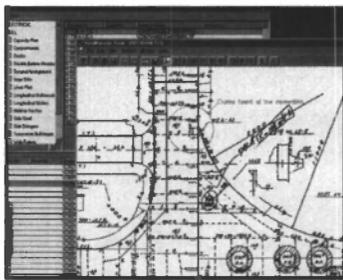
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 - 13218 Martha's Vineyard to Block Island
 - 400 The West Indies
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 - 18020 San Diego to Cape Mendocino
 - 18480 Approaches to Straits of Juan de Fuca
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Vessel Drawing Module of SafeNet.

puterized life-cycle fleet management and information network for ship owners. SafeNet allows access to all classification-related technical and survey details for both hull and machinery by

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Circle 63 on Reader Service Card

GLM Software Addresses HBL

Hydrostatic balance loading (HBL), the loading of petroleum cargo at reduced levels to minimize outflow in case of grounding, requires calculations to determine not only the required levels of loading but also how the ship's stability is affected.

Creative Systems, Inc. has added the ability to plan, simulate and calculate HBL to its software General Load Monitor (GLM). GLM is an on-board version of the General Hydrostatics software used by naval architects.

Circle 29 on Reader Service Card

Norsk Hydro Sees \$88M In Millennium Bug Costs

Norsk Hydro ASA expects to spend \$88 million in upgrading computers to counter the so-called millennium bug. However, the company reports that the financial hit will not take its complete toll in 1999 as a small portion was incurred prior to 1998, 50 percent is expected to

be incurred in 1998 and the remainder in 1999.

B&V Software Sales Near Mark

Shipping software developer Burmester & Vogel is set to pass the 200-client mark for its innovative Laytime Calculation for Windows program launched in 1995. The Hamburg-based specialist is on course to increase the number of users by about 25 percent during 1998, with worldwide sales boosted by the introduction of a range of enhancements over the past 18 months. The package, used by shipowners, operators, charterers, and increasingly by brokers, is designed to eliminate complicated and time-consuming manual calculation of demurrage and despatch — reducing the risk of potentially expensive errors in quantifying time use against time allowed for loading and discharging. The program takes into account all standard contract clauses and exceptions such as public holidays, bad weather and technical defects. Automatic features include detection and display of the time a ves-

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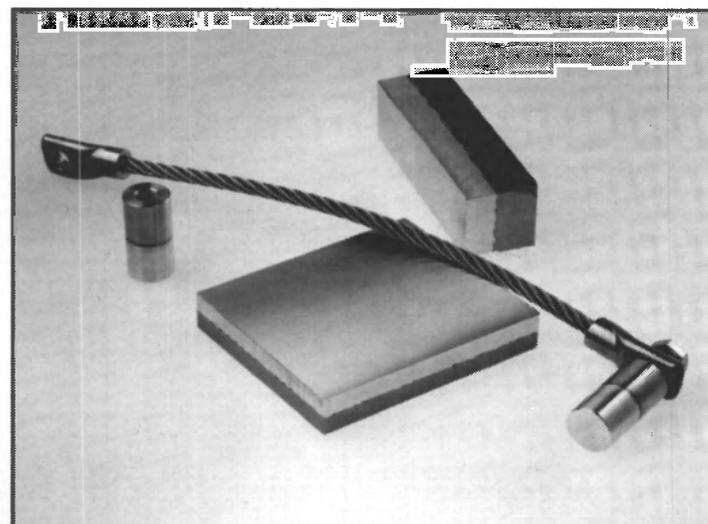
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sel comes on demurrage, individual day analysis and calculation of demurrage/despatch dues and demurrage commission. Laytime Calculation for Windows is one of seven software packages in Burmester & Vogel's 'The Shipping System' range which also features Voyage Estimation, Actuals and Results, Hire/Freight/Commission Invoicing, Position List, Fixture Report and S&P Broker systems.

Circle 62 on Reader Service Card

New Additions to C-MAPNT

The C-MAPNT charting system now offers two new information products: Tide Info and Port Info. Tide Info displays real time tidal predictions, calculating tidal heights for any past or future date, for the maximum and minimum tidal height, for the time of day, and for sunrise and sunset. Port Info allows mariners to quickly know what facilities are available at a given port anywhere in the world.

Circle 27 on Reader Service Card

Seaman's Church Expands Services Inward

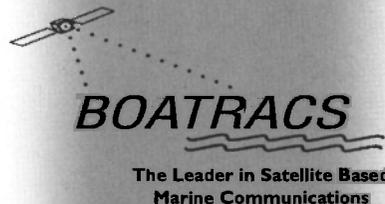
The Seamen's Church Institute (SCI) of New York and New Jersey announced a new program to send chaplains of different faiths to tow boats regularly running cargoes up and down the Ohio and Mississippi Rivers. SCI Associate Executive Director Rev. **Jean Smith** said, "Whereas there are several religious organizations sending ministers to ocean-going vessels, this is the first ministry to seafarers working on American inland waterways. We are thrilled to bring this program into being because we feel that river mariners have much the same harsh demands as ocean mariners in hours worked, dangers faced, and painful absences from home and family." The program now has centers in Paducah and Louisville, Ky.; Memphis and Nashville, Tenn.; and Henderson, Ind. It will eventually have locations in 10 cities along the length of the Ohio and Mississippi Rivers. Both volunteer Site Chaplains and another nine River Chaplains will be recruited from supportive clergymen and women along the 1,000 mile stretch of river.

For the third year, SCI will be distributing Christmas packages containing hand-knitted items to mariners working on the inland river waterways during the holidays. The SCI Christmas on the River program hopes to place packages on at least 200 vessels during Christmas week of 1998. Christmas on the River compliments SCI's Christmas at Sea program, which annually distributes over 12,000 gift packages containing hand-knit scarves, gloves, and hats.

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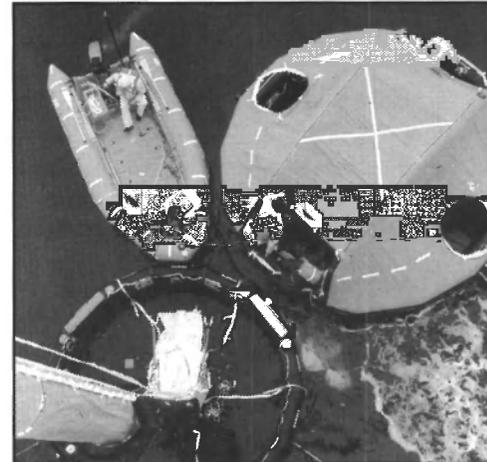
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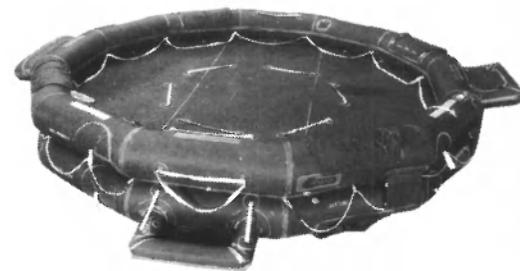
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Circle 245 on Reader Service Card

Double-Hull VLCC *New Vista* Completed

New Vista, a 298,500-dwt VLCC ordered by Golden Ocean Group Ltd. was recently completed at Hitachi Zosen's Ariake Works. The tanker, under Hong Kong registry,

was delivered to the owner Golden Sound Corporation, on September 14. It is the ninth double-hull VLCC built by Hitachi Zosen and is scheduled to be put into service



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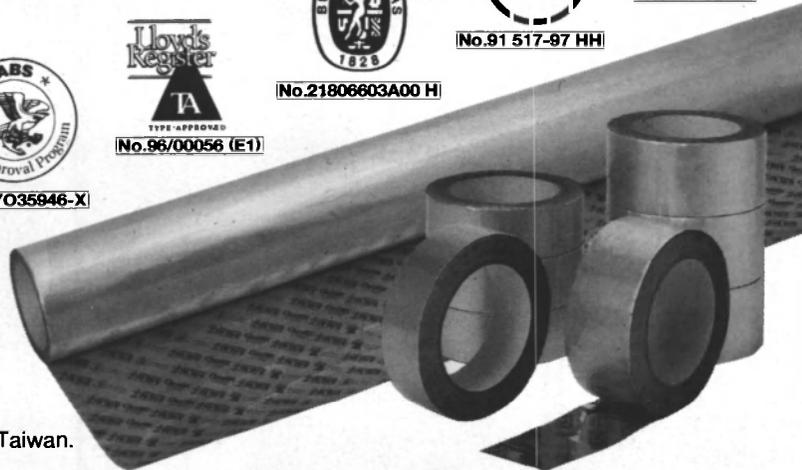
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on the Middle East-U.S. route.

New Vista is equipped with wing ballast tanks to ensure well-balanced hull strength, and make the hull lighter by reducing the amount of strengthening steel members needed. Inside the double-hull structure, access trunks from the top deck to the double bottom improve ventilation and facilitate inspection work within the double hull.

In accordance with SOLAS rules, the tanker provides its crew with safe access to the emergency towing equipment at the forward deck in bad weather. To increase the tanker's propulsion efficiency, it has been fitted with a large bulbous bow below the water line and a Hitachi Zosen super stream duct nozzle in front of the propeller. The outer hull has been coated with self-polishing copolymer (SPC) paint designed to ensure long-term hull-fouling prevention.

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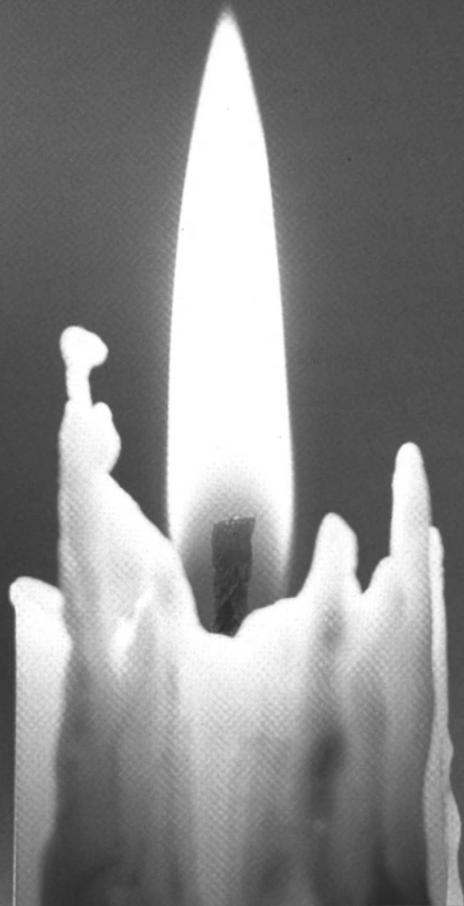
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New Vista

Main Particulars

Shipbuilder	Hitachi Zosen
Vessel type	Double Hull VLCC
Owner/Operator	Golden Sound Corp.
Classification society	ABS
Keel laying	March 1998
Launch date	July 1998
Delivery date	September 1998
Length, o.a.	1,092 ft. (332.9 m)
Breadth	197 ft. (60 m)
Depth	96.8 ft. (29.5 m)
Draft, summer	62 ft. (18.9 m)
Gross tonnage	159,423 m.t.
DWT, design	298,500 m.t.
Sea speed	15.6 knots
Complement	31 persons
Main engine ...	Hitachi Zosen MAN B&W 7S80MC

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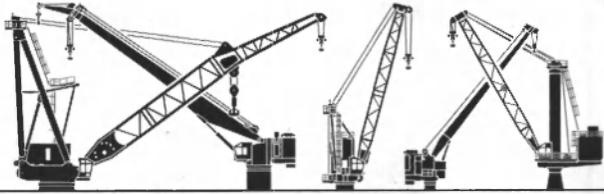
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GULF COAST REPORT

E&P Spending Projected To Drop

Analysts predict spending cuts for the oil majors, as oil prices have fallen to the lowest levels in 12 years, resulting in considerably lower third quarter earnings. Spending on exploration and development, the key to future production growth, seems the most likely area to feel the effects of diminished investment.

Amoco Corp. said return on capital in the first nine months of 1998 was 8.8 percent, down from 13.3 percent in the year-ago period, or little more than three percentage points more than it could get from investing in the relatively risk-free U.S. 30-year bond. In August, Amoco and British Petroleum Co. Plc announced plans to merge.

Amoco's third-quarter earnings fell to \$295 million from \$635 million in the year-ago period.

Analysts say even at Exxon Corp., the world's largest and publicly traded oil major, returns on capital have fallen to some 10 percent from a historical rate of 14 percent to 16 percent, in the past nine months.

Exxon reported third-quarter net income fell to \$1.4 billion from \$1.82 billion in the same quarter last year.

For Texaco Inc., which saw third-quarter earnings drop 56 percent, the focus for the future remains one of bearing down hard on costs at its ailing Caltex Asian refining and marketing venture with Chevron Corp.

Texaco reported third-quarter net income slid to \$215 million from \$490 million in the year-ago period.

The company says it is going to keep a cautious eye on its capital spending plans, which stood at almost \$2.8 billion in the first nine months of this year. Past spending enabled Texaco to increase oil and gas output by nine percent from a year ago. Both U.S. and international exploration and development spending at Texaco slowed in the third quarter as large projects were completed.

"Texaco continues carefully to assess investment projects, given the current and projected industry environment. Adjustments in spending have

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GULF COAST REPORT

made by deferring non-critical projects," Chairman and CEO **ter Bijur** said in a statement. Analysts expect oil companies' stream spending, for exploration and production, to fall 10 to percent next year.

They are also questioning some the more bullish statements on economic recovery coming out of oil companies.

Mobil Corp. said it is looking forward to a recovery in Asian oil demand in 1999 or 2000 and sustained growth thereafter. Despite its bullish outlook on the Asian market, Mobil, too, will bear down on costs.

Mobil said it expects to see \$300

million in benefits from a downstream venture with Shell in Australia.

Mobil's European deal with BP is targeting \$800 million in annual savings.

Industrial Canal Lock Reopens

The New Orleans District, USACE reopened the Industrial Canal lock in New Orleans after completing a major repair project. The \$6 million, two-month project was completed two days ahead of schedule.

"The job had to be done on time,

Halter Delivers AHTS To Seacor



Halter Marine Group Inc., Gulfport, Miss. delivered the *Seacor Vanguard*, a 255-ft., 14,000-hp anchor handling/tug supply boat (AHTS) to Seacor Marine of Houston. Based out of Port Fouchon, La, the vessel is working in the Gulf of Mexico under charter to an oil company in support of a deepwater drilling program. Built at Moss Point Marine, the vessel is the 25th Halter-built OSV to be operated by Seacor. The vessel measures 255 x 60 x 22 ft. (77.7 x 18.3 x 6.7 m), and is powered by four 16-645 F7B diesel engines. The propulsion package generates 14,000 hp through Reintjes gears, driving Berg CP propellers in Kort nozzles. Maneuverability and station keeping are aided by two 800-hp SMI bowthrusters

and an 800-hp SMI stern-thruster.

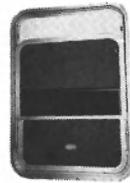
To successfully complete the rigors of its job, the vessel is outfitted with a Smatco electric driven combination traction and drum winch. The traction unit has a continuous line pull of 750,000 pounds and holds 13,000 ft. of 3.5-in. wire. The drum unit has a line pull of one million pounds at bare drum, and 500,000 pounds at full drum. It can hold 8,200 ft. of 3.5-in. wire.

Navigation systems aboard are state-of-the-art, and include: two Decca Racal radars; a Kongsberg-Simrad DP system; magnetic compass; gyro compass; autopilot; Sperry/Trimble GPS; Sperry doppler speed log and a complete GMDSS station.

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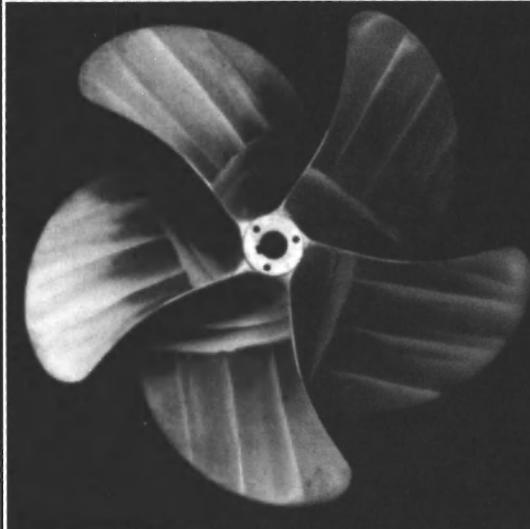
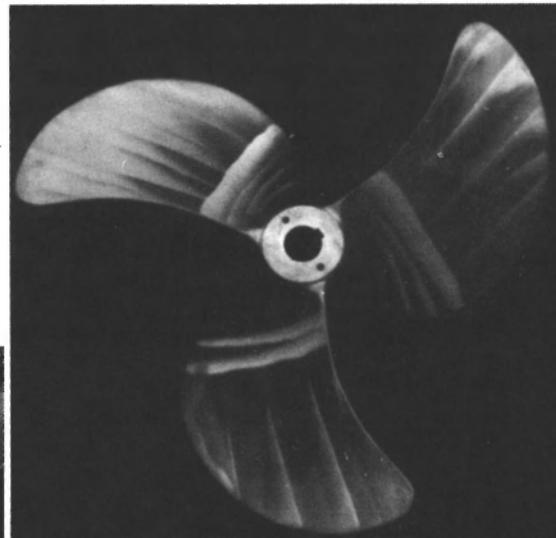
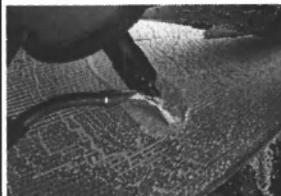
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because of the strain imposed on the inland-waterway industry by a 60-day closure," said Col. **William L. Conner**, district engineer of the New Orleans District.

More than 60 members of the district's Operations Division, drawn in from all across south Louisiana, worked 24 hours a day in two 12-hour shifts.

The project began July 27, so most of the work was done in the worst of the summer's heat at the bottom of a 55-ft. deep chamber. The

77-year-old lock showed its age in its first dewatering and major overhaul in 20 years. Concrete was replaced in portions of the 640 x 75 ft. chamber, and in four of the eight valves used to drain and fill it.

Six of the lock's 10 gates, built around 1920, were removed for sandblasting and replacement of weak spots in their 250-ton steel structures.

New seals were installed, as were pintles, the supports upon which the gates pivot for

each locking. The project's \$6 million included \$4 million for dewatering and reg repairs. The remainder was for design, coordination and emergency repair. Equipment brought in from as far away as the Corps' R Island (Ill.) District, which lent one of two crick barges employed.

Ingalls Flexes Commercial Arm

With considerable Navy construction still its way, Ingalls' latest commercial deal (for multipurpose jackup boats for Searex) comes less than a year after it won a major coup on the Gulf by taking a \$152 million order from Edison Chouest Offshore for the construction of up to 36 deepwater OSVs.

According to Ingalls vice-president of public and industrial relations, **D.F. Knecht**, these boats are being popped out at the rate of one month, with several already delivered.

Although Ingalls has always been a strong Navy builder over its history, commercial construction has certainly not been left out. During World War II, in its original facilities on the east bank of the Pascagoula River, Ingalls produced troop ships for the Navy, as well as escort aircraft carriers, submarine tenders and net layers.

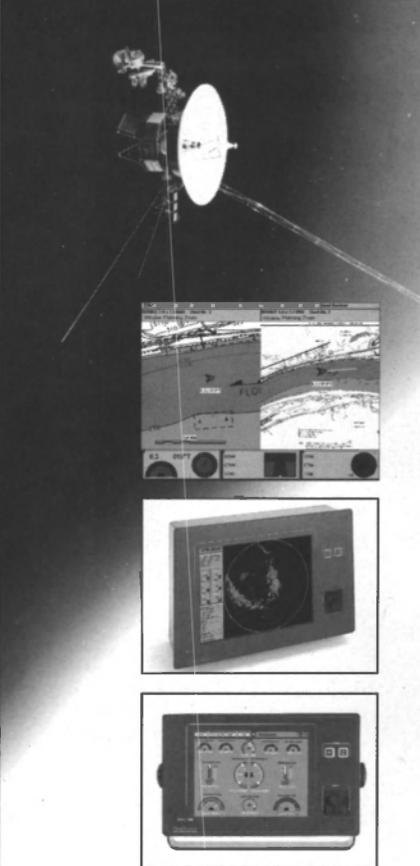
After the war, Ingalls built amphibious assault ships, destroyers and, beginning in the 1950s, attack submarines, but in the late 1950s it also launched significant commercial passenger tonnage, including twins Brazil and Argentina for Moore McCormack Line and more utilitarian Atlantic for American Banner Lines.

The latter, a tourist class ship, was converted out of old C4 freighter Badger Mariner.

In addition, Ingalls finished three passenger-carrying freighters for Delta Lines, Del Mar, Del Norte and Del Sur.

By working closely with computer designers and manufacturers, Ingalls has developed an advanced, proficient three-dimensional computer-aided design (CAD) system for the shipbuilding/marine production industry. The design process for ships built at Ingalls is accomplished using a CAD system, which is linked with an integrated computer-aided manufacturing (CAM) production network of host-based computers and localized minicomputers located throughout the shipyard.

Because of these investments in new technology, Ingalls has emerged as the leading designer and builder of five of the U.S. Navy's newest classes of surface combatants, including Spruance and Kidd class destroyers, Tarawa and Wasp class amphibious assault ships, and Ticonderoga class Aegis missile cruisers. In addition to the Wasp class, Ingalls is one of two domestic shipyards currently building Arleigh Burke class Aegis guided missile destroyers. These 505 ft., 8,850 displacement ton ships are powered by four gas turbine jet engines that can drive the vessels in speeds in excess of 30 knots.



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Ocean Shipping Deregulation Act Passed Into Law

The Ocean Shipping Reform Act of 1998, S. 414, obtained the President's signature on October 1, 1998 after clearing the House in October 1998 and the Senate earlier in October. The act repealing outdated shipping laws and introducing more competition in the U.S. international shipping market is essential for continued growth of our market-based economy," said Senator **John McCain** (R-AZ). Though this bill specifically amends the Shipping Act of 1984, its scope extends back as far as 1875, as noted in the report submitted by Senator McCain to the Committee on Commerce, Science and Transportation in July 1997.

As he reports, the chronic condition of ocean liner shipping overcapacity was primarily the result of international policies which emphasized national-flag carriers and, in the interest of national security, a strong shipbuilding program. In their efforts to stop ocean shipping overcapacity from degrading into "rate wars," liner companies began forming conferences, the first in 1875, to work together and establish pricing policies.

The Shipping Act, 1916 (1916 Act) was the first attempt by the U.S. government to review and regulate the shipping conferences. The act gave immunity from U.S. antitrust laws, mandated open conference requirements, and prohibited discriminatory rate practices. The United States Shipping Board was created to enforce the act.

Some 45 years later, Congress passed the 1961 Amendments to the 1916 Act in response to claims of anticompetitive conduct by conferences. In addition to the establishment of the Federal Maritime Commission (FMC), the 1961 Amendments called for mandatory tariff filing. The FMC was responsible for approving carrier agreements, a process which caused delays and frustrated ocean carriers. These delays and other factors including increased productivity and illegal practices, eventually led to further reform of the 1916 Act.

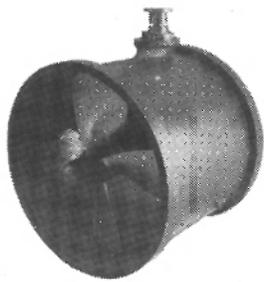
The Shipping Act of 1984 (1984 Act) brought in greater flexibility to contracts and reassessed the agreement review process. It also recognized the increasing role of

non-vessel-operating common carriers (NVOCCs) in facilitating intermodal ocean transportation. As part of the 1984 Act, an

Advisory Commission on Ocean Shipping Conferences in Ocean Shipping was formed to compile a report on the regulatory system and present

it after a period of five years. When the report was released in April 1992, it indicated several areas of concern within the industry,

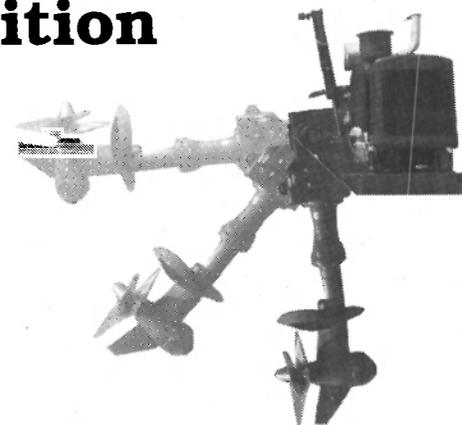
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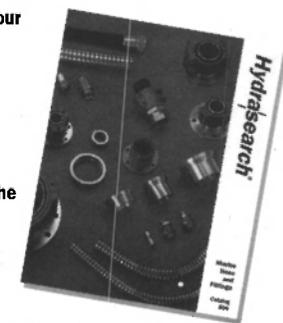
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Victaulic Fittings Help Todd Pacific Achieve Economies Of Modular Construction

With a major metropolitan area bisected by Puget Sound, and major islands dotting the vicinity, Seattle, Wa. relies on RoRo ferries for a great deal of its public transportation needs. Service is provided to 20 different locations throughout the Seattle/Tacoma metropolitan area, with more than 400 daily trips carrying an annual total of more than 23 million passengers.

To meet the demand in the early 1970s, Washington State Ferries commissioned ships in a new Jumbo Mk I class. Jumbo Mk I class vessels are 440 ft. (134 m) long, and capable of carrying 2,000 passengers and 206 automobiles at 18 knots.

In 1988, the Washington legislature confirmed the need for an even larger 460-ft. (140 m) ferry, Jumbo Mk II class, which would carry 2,500 passengers and 218 automobiles at a speed of 18 knots. The first ferry was delivered in August 1997, the second in June 1998, and the third is to follow within the next year. MV Tacoma and MV Wenatchee are presently in service on the Sound, while MV Puyallup is expected to be completed in early 1999. All three vehicles were built at Todd Pacific Shipyards in Seattle.

Chief engineer Norman Whyte managed



MV Puyallup under construction at Todd Shipyards.

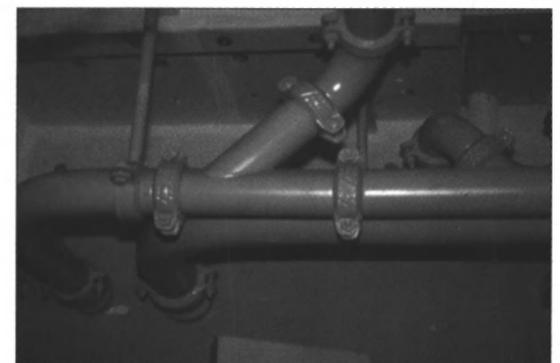
the engineering department during the development of the production drawings which were formatted to meet modular construction building methods and maximize pre-outfitting of the ship structure before assembly at the building berth. Mr. Whyte explained that "the old traditional method was like stick building and

expensive. With the Jumbo Mk IIs, the ferry is divided into 116 steel units. Piping, ventilation, lighting, floor plates and painting are completed on each unit to achieve maximum pre-fit, aiming for 86 percent completion before each unit is attached to other units."

A Jumbo Mk II ferry contains more than 56,400 ft. of pipe. Connecting this pipe are more than 8,000 Victaulic couplings and fittings for roll-grooved pipe. "Todd Pacific Shipyards is using roll grooving in selected piping systems and designed the piping drawings to suit the roll grooving method. To use the Victaulic roll groovers we set up a fabrication shop to prepare the pipe efficiently," said Mr. Whyte.

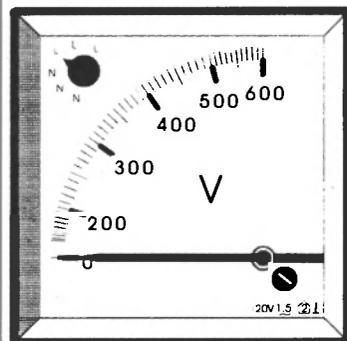
Get Into The Groove

The grooved end system involves cold-rolling a groove into the pipe to receive a bolted coupling that incorporates a synthetic polymer gasket which in turn seals the connection on the outside diameter of the pipe. A resilient C-shaped gasket provides a leaktight seal that is further strengthened by compression when the coupling is tightened and by subsequent line pressure or vacuum. The groove where the pipe and fitting engage forms a self-restraining joint



Victaulic grooved piping system, showing y-joint.

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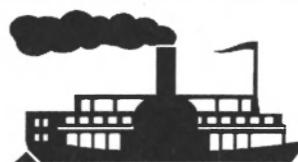
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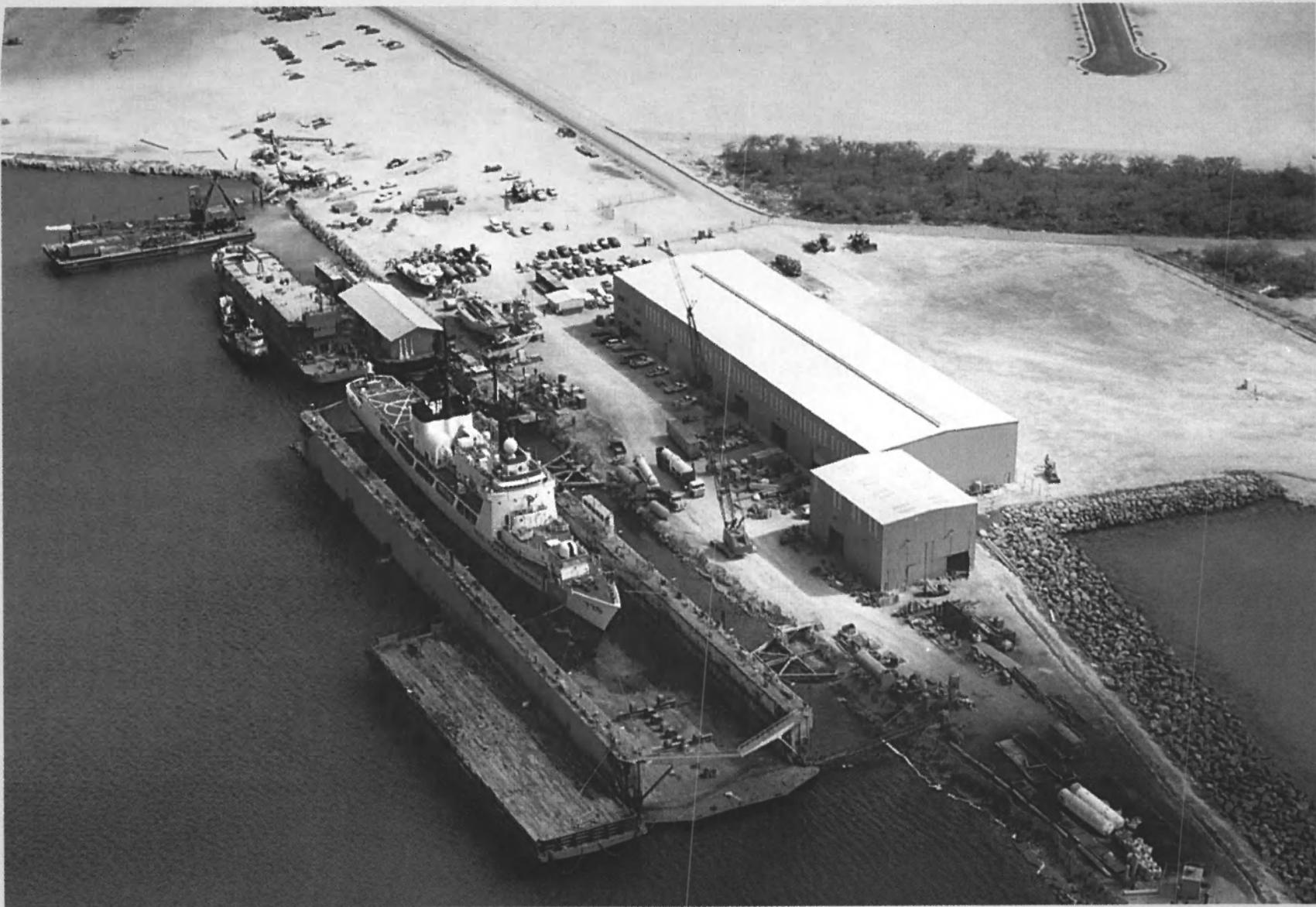
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FERRY BOAT REPORT

capable of withstanding thrust loads of the normal marine standards which require a safety factor of four over the maximum rated operating pressure.

Grooved end piping systems have received approval for shipboard and offshore piping from: U.S. Coast Guard, American

Bureau of Shipping, Lloyd's Register of Shipping, and Germanischer Lloyd, among others. Products are manufactured to ASTM standards F1476, F1548, and F1155, and Victaulic is an ISO 9001 certified company.

Grooved end piping systems are designed to be easier to install

than welding, and are designed to be more reliable than threading or flanging, resulting in a lower total installed cost. "On a typical ship under construction, we have experienced pipe shop cost savings of up to 30 percent in reduced labor," Mr. Whyte said. He considers a major advantage of the fittings to



MV Tacoma

be in "ship repair and onboard modifications. Victaulic fittings require no hot work and can be worked on in situ on the ship; welded joints require gas freeing or removing piping from the ship for modifications or repairs to be carried out."

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Blount's New Look In Catamarans



EXP 299 fast ferry from Blount Industries.

EXP-299, launched in August 1998, is a new 40 ft. (12 m), high-speed experimental catamaran being tested on Narragansett Bay. **Luther H. Blount** of Blount Industries has designed the new Cat to go faster, cost less, make a low wake and be difficult to sink. The fast ferry is built on the principle of lightweight permanent buoyancy and a new process of attaching fiberglass to aluminum. It is powered by twin Mercurys at a total of 500 hp, and weighs 5,000 lbs without fuel and passengers. At 40 knots the vessel's wake was minimal and full-speed operation close to marinas has been uneventful. The EXP-299 made a trial test run from Providence to Newport in just over 30 minutes.

Circle 156 on Reader Service Card

Halter Launches Fifth Texas Ferry

Halter Marine Group, Inc. recently launched the *Robert H. Dedman*, a 500 passenger/ 70 vehicle double-ended ferry for the state of Texas. The new ferry, the fifth



Satellite Airtime



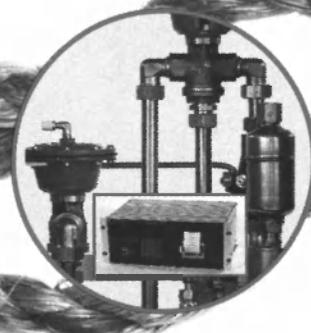
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FERRY BOAT REPORT

built for the state by Halter, is under construction at Halter's Gulfport, Miss. shipyard with delivery planned for later 1998. The ferry is planned for use on the route from Galveston to Bolivar Peninsula as well as inland service.

It will be powered by two EMD 12-645 E6 diesel engines developing a total of 2,500 hp, driving Voith-Schneider cycloidal propulsion steering units mounted below the bow and stern. Electrical service power will be provided by two Detroit Diesel 8V92 diesel engines

driving two 150 kW Lima generators. The all steel ferry will be able to carry 4,500 gallons each of potable water, fuel and oil. Sewage will be stored in a 4,500 gallon holding tank for shoreside disposal.

Robert H. Dedman features an

"island" type superstructure with passenger deck topped by two pilot houses, one fore and one aft which further aid steering and mooring.

When completed, the ferry will be U.S. flagged and certified by the American Bureau of Shipping.

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Fast Ferry Launched At Fincantieri's Muggiano Yard

The latest fast ferries in the Superseacat family, *Superseacat Three* and *Superseacat Four*, were launched in October at Fincantieri's Muggiano Yard and Riva Trigoso Yard respectively. The Superseacats are 328 ft. (100 m) long overall, and capable of carrying at least 800 seated passengers, 175 cars and 26 crewmembers at a full load speed of approximately 40 knots.

Seacontainers Ltd. commissioned the monohull light-alloy fast ferries in November 1995, at a purchase price of approximately \$151 million. The first two ferries, *Superseacat One* and *Superseacat Two* have been operating on North European lines for two seasons.

The ferries feature two decks for vehicle parking and employ a U-turn system on the car decks to speed disembarkation. Safety and emergency features include four "dry shod" slide chute escape systems directly into life-rafts.

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Superseacat Three, Four Main Particulars

Shipbuilder	Fincantieri's Riva Trigoso and Muggiano Yards
Vessel type	Deep-V monohull, light alloy
Design, superstructure	Sergio Pininfarina
Design, interiors	Vittorio Garroni Carbonara
Owner/Operator	Seacontainers Ltd.
Classification Societies	Registro Italiano Navale, Det Norske Veritas
Launch date	October 1998
Length, o.a.	328 ft. (100 m)
Length, b.p.	289 ft. (88 m)
Beam	56 ft. (17.1 m)
Depth	35 ft. (10.7 m)
Passengers	800
Vehicles	175
DWT	340 tons
Speed, full load	40 knots

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Appoints Westgas' Markussen Norway Head

French ship classification society Bureau Veritas appointed Bjorn Markussen as its chief executive for Norway. Markussen has more than 30 years' experience in the shipping industry, most recently as president of Westgas AS in Bergen and before that as senior vice-president and managing director of Norwegian Gas Carriers AS in Oslo, BV said. BV has recently doubled its network of surveyors in Norway in response to rising demand for classification from the Norwegian shipowning market. Mr. Markussen is also currently a board member of the Norwegian Ship Research Institute and a member of the coordinating research committee of the Norwegian Shipowners Association.

U.K. To Pilot First Full Digital Navigation Charts

The first digital navigation chart service to give comprehensive coverage of international shipping routes is to be launched as a pilot operation early next year, the U.K. Hydrographic Office said. The Admiralty Digital Chart Service will be offered to deep-sea vessels fitted with equipment capable of displaying digitally developed navigational charts and scanned versions of conventional charts.

Digital charts, known as Vector charts, and their weekly updates will be provided free over the 12 month duration of the pilot operation, the Hydrographic Office said. Initially, only a limited range of vector charts will be available but the Hydrographic Office said the number will rise rapidly over the year. The Hydrographic Office covers most of the world with its range of 2,700 scanned charts, known as raster charts. The IMO recently gave a go-ahead for the dual electronic use of digital and scanned charts. A full commercial sales service for the vector charts is planned to start in 2000, the Hydrographic Office said.

Circle 169 on Reader Service Card

Alexander & Baldwin Names President

Alexander & Baldwin Inc. has named W. Allen Doane president and CEO. He succeeds R.J. Pfeiffer, who will remain chairman of the board of Alexander & Baldwin and subsidiaries. Doane was also named to the boards of both A&B and Matson Navigation Co. Inc., its ocean transportation subsidiary. Doane will remain president and CEO, and a member of the board, of A&B-Hawaii, Inc. (ABHI), A&B's property management and development, and food products subsidiary. Doane joined ABHI as executive vice president and COO in 1991.

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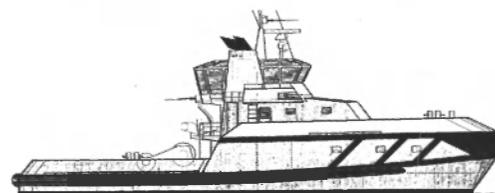
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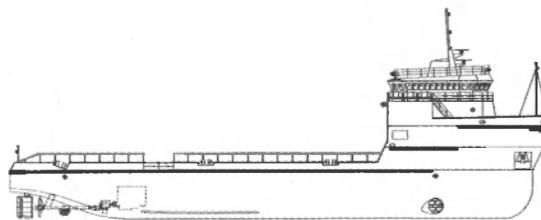
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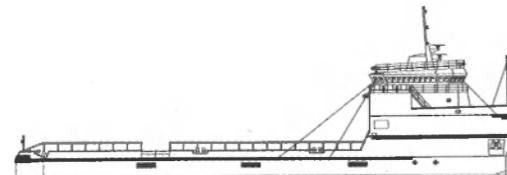
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Circle 224 on Reader Service Card

Evergreen's Chairman Addresses Industry Challenges

Evergreen Marine Corporation is equipped to maintain its leadership position in the global trade arena well into the new Millennium, according to Evergreen Group Chairman **Yung-fa Chang**.

Evergreen's agenda includes further enhancing its service stan-

dards with new vessels, developing new services that encompass an expanded global network and enlarging economies of scale, among other points. Dr. Chang delivered his thoughts during a rare public speech. Group Chairman Chang spoke at Evergreen's Global Agency

Management Meeting in Taipei, which drew some 175 people from 54 countries.

He noted as the challenges:

- The growth (and competition) in the number of post-Panamax vessels: Chang said in 1996 there were 38 post-Panamax vessels afloat. By the year 2000 there will

be 107.

- The future of alliances: "The great deal of effort to main smooth cooperation between members," he said. He also noted the combined services offer more sailings than independent Evergreen on certain routes.

- The imbalance of export and imports: In noting the huge trade pattern swings, he noted the impact of the Asian financial crisis turmoil "has increased substantially the empty repositioning costs. Evergreen's worldwide strategy," he added, "is to meet these challenges head-on with a long term plan.

According to Chang, the plan includes:

- Build express and large-size vessels to enhance service standards: By 2001, Evergreen will have 13 U-class vessels gradually entering the fleet, bringing the express fleet to 38 vessels to provide minimum twice-weekly express service on the transpacific and Far East/Europe route. In addition, 2,500-3,000-TEU S-type ships will enter the fleet after the year 2001, to be used on the Far East/Africa/South America services. For Uniglor, 11 new A-type ships of 1,164 TEU capacity will be enhanced by another 10 P-type 1,618-TEU vessels. The P-types will be employed in the Persian Gulf service and the A-types will be used in intra-Asia services, according to the fleet arrangement plan.

- To develop new routes and markets: Group Chairman Chang noted Evergreen commenced service in the North America/ South America trade and also joined the New Australian South Asia Consortium service, placing one vessel into this Singapore/Australia service.

- To strengthen freight rates and reduce costs: This strategy impacts every ship operator in the world, Dr. Chang said. "Current low freight rates have created a negative profit situation among most carriers. Hence, carriers must work together to increase freight rate levels." Acknowledging the fact this may be a difficult challenge, he said it is important for carriers to reduce costs, especially on port charges, inland transportation, repositioning of containers and other operational expenses.

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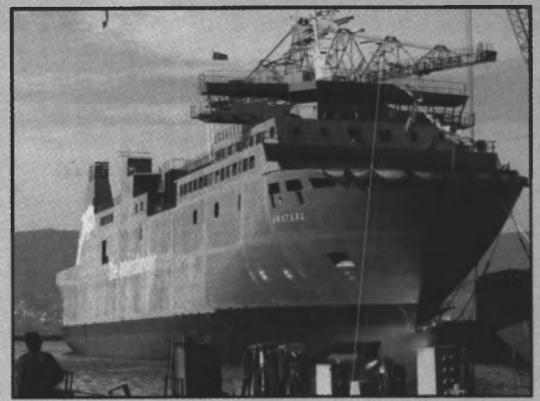
New Rail-Ferry Enters Service

Aratere is a rail-ferry vessel built by the recently privatized Spanish shipbuilder, Hijos de J. Barreras for New Zealand's TranzRail. The new vessel will replace a 1974-built ferry, *Aratika*, in its service across the Cook Strait.

in the bottom hold.

A side ramp/door located at the aft port side is another means of loading and unloading trucks and cars. *Aratere* has two load lines: one for acting as a cargo RoRo, and the other as a passenger ferry. The vessel is equipped with four electrical cage induction motors, driving two fixed pitch propellers through reduction gears, each driven by two motors.

The vessel is equipped with four electrical cage induction motors, driving two fixed pitch propellers through reduction gears, each driven by two motors.



Aratere	
Main Particulars	
Builder	Hijos de J. Barreras S.A.
Type	Rail-truck ferry
Operator	TranzRail/The Interislander
Keel date	September 1998
Length	492 ft. (150 m)
Beam	450 ft. (137 m)
Depth	66 ft. (20.2 m)
Design	18 ft. (5.5 m)
Deck cantling	19.6 ft. (6 m)
Deck	25 ft. (7.6 m)
Deck	42 ft. (12.8 m)
Design	3,060 tons
Tonnage	12,300
Speed	19.5 knots
Water ballast	2,950 cu. m.
Heeling tanks	.860 cu. m.
Oil	.370 cu. m.
Oil	.35 cu. m.
Oil	.50 cu. m.
Oil	.22 cu. m.
Oil tank	.60 cu. m.

The ferry is designed to load and discharge rail wagons or vehicles and road vehicles simultaneously over the stern via shore-based double link spans. From the train deck, a fixed ramp extends to the bottom deck so that cars and vans can be placed

Vessel Christening Takes Humanitarian Slant

As part of the launching ceremony of P&O Nedlloyd's second vessel to join its Southampton Class, the company made significant contributions to a new care home for orphans who were victims of the 1995 Kobe, Japan earthquake.

The new vessel, christened *P&O Nedlloyd Kobe* and the second of four 6,690 TEU vessels to be launched this year, was named during a traditional Japanese ceremony at the Port of Kobe Shinko. In accordance to local culture, P&O Nedlloyd "borrowed" the name of the city and subsequently returned the compliment by making the donation to the new care home called "Hamakaze no ie", or House of the Sea Breeze.

The Kobe will be operating in P&O Nedlloyd's Northern European - Far East Service in cooperation with Grand Alliance partners.

P&O Nedlloyd Kobe	
Main Particulars	
Shipbuilder	IHI
Vessel type	Containership
Class	Lloyds Register of Shipping
Number of sister ships	3
Launch date	September 1998
Length	984 ft. (300 m)
Breadth	140.4 ft. (42.8 m)
Draft	46 ft. (14 m)
Length, b.p.	935 ft. (285 m)
Speed	24.5 m
Complement	19
Cargo capacity	6,690 TEU
Main engine	DU Sulzer 12 RTA 96C
Auxiliary engines	MaK 9R32
Propeller	Stone Manganese
Bow thruster	Kawasaki
Coating	Nippon Paint
Radio Equipment	Sailor
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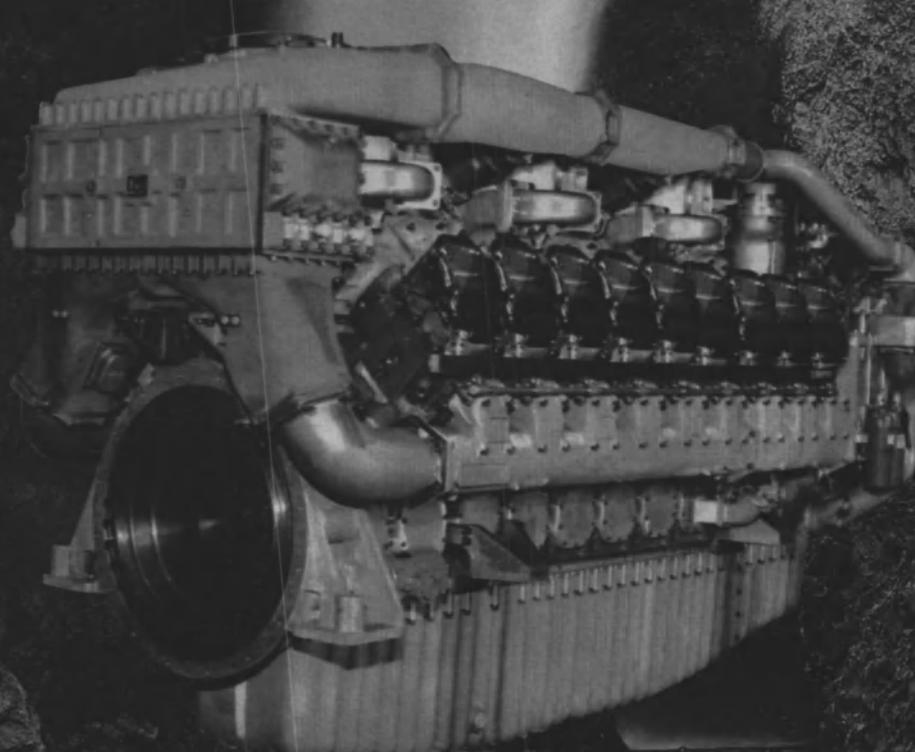


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Tom Crowley Jr.

Driven To Leave His Mark For Generations To Come

by J.L. Shaw, contributing writer

Oakland, California headquartered Crowley Maritime Corporation has always kept a low profile on the American shipping scene as a family company in its third generation of leadership that has steered a slow and steady course. However, new blood brings new ideas, and Tom Crowley Jr., who accepted the company's reins as president and CEO in 1994, upon his father's death, is overseeing a firm that plainly has its eyes on the future.

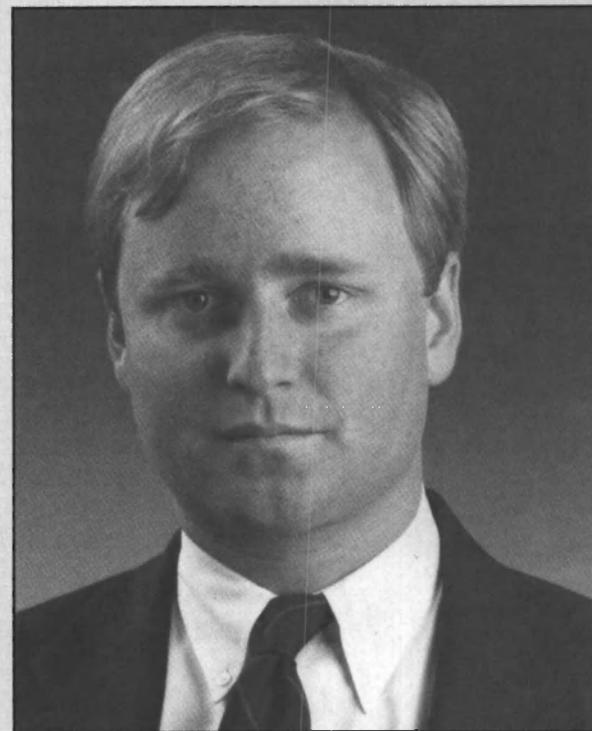
Last year, Crowley Marine Transport, the Corporation's East Coast-based deep-sea shipping arm, took delivery of three new Korean-built container ships, all for trading to Latin America. Korean-built *Sea Jaguar*, *Sea Cougar* and *Sea Lynx*, all of 2,100 TEU capacity, have since been joined by 2,480 TEU *Sea Panther* and 2,460 TEU sisters: *Sea Tiger*, *Sea Leopard* and *Sea Puma*. The latter three vessels replaced three smaller Crowley-owned ships, *Sea Wolf*, *Sea Fox* and *Sea Lion*, which have been chartered out for the Atlantic services of Lykes Lines.

In the Pacific, where Crowley has traditionally stayed out of the deep-sea business, it has purchased two double-hulled product tankers,

Coast Range and *Blue Ridge*, and placed them under the control of Crowley Petroleum Transport, a new Long Beach, Calif.-based subsidiary. Despite stringent new environmental regulations, Crowley feels money can be made with the tank ships.

The Oakland firm also feels money can be made with advanced propulsion tug boats and has created another subsidiary, Vessel Management Services Inc. (VMS), to manage a fleet of new Voith Schneider-propelled tugs. Five of these have already been delivered and five more are on the way. Last year, Crowley's first two Voith-Schneider tugs, 120-ft. *Protector* and *Guard*, joined the fleet following their completion by Nichols Bros. Boatbuilders of Freeland, Wash. These 5,500 hp twins, designed for tanker escort as well as ship assist, have since been followed by the first three of six Harbor class tugs ordered from Nichols Bros.

The harbor series are similar in design to the Protector class, but are somewhat smaller, with ship-assist their primary duty rather than tanker escort. They feature a 105 x 36 ft. hull with power coming from twin Caterpillar 3516Bs generating a combined 4,800 hp. This compares to the combined 5,500 hp generated by the Protector class'



Caterpillar 3606 engines.

While the Protector class has a direct bollard pull of 60 tons and an estimated indirect pull of 150 tons, the smaller tugs are capable of a static pull of 54 tons and an indirect pull estimated at about 120 tons. The six harbor class were designed by Guido Perla & Associates of Seattle and are being turned out by Nichols at three-month intervals under names *Master*, *Captain*, *Guide*, *Leader*, *Scout* and *Chief*.

Although highly efficient, use of Voith Hydro propulsors presents some hull design difficulty in that the area of the hull where the propulsors are mounted must be almost perfectly flat. The two plates on which the blades rotate on the Protector class are slightly more than 13 ft. in diameter and are five ft. apart, thus the bottom width of the hull at that point must be more than 31 ft. This results in a deadrise in the area where the units are installed of 2.73 degrees. By contrast, the deadrise at the same

(Continued on page 60)



Crowley Master



Computer image of new Prince William Sound tanker tug.

A Family Tradition

With legal battles in the rearview mirror, McAllister is set to thrive

by Chris Palermo, managing editor, *MarineNews*

With roots dating back to 1864, the McAllister Towing and Transportation Company is one of the oldest American family-run operators of water transportation existing today. More than five years ago, law suits filled with animosity threatened to end the history of four generations of McAllisters at the helm of the company. But a last-minute agreement secured the towing and ferry components, which reverted to Captain **Brian A. McAllister**, now the sole owner.

The conflict began in January 1993, when **William Kallop**, president, and Brian McAllister, chairman of the board, each filed suits against one another. Kallop's suit claimed he owned 100 shares of the company's stock, while McAllister owned 99 shares; thus making Kallop the majority shareholder. McAllister's suit, accompanied by a written agreement dated August 1979, contended that both Kallop and McAllister each owned 99 shares of the company's stock.

A Delaware Court of Chancery ruled in favor of McAllister in July 1995. In June 1996, the Delaware Supreme Court upheld the decision.

The Court of Chancery designated a custodian to auction the company if the shareholders were unable to resolve their difference. On the eve of the auction, a divisive reorganization agreement was reached between the two, with McAllister retaining the tugboat and transportation business and Kallop receiving the oil exploration, production and oilfield support businesses.

Admittedly, according to Brian McAllister, the agreement was not reached amicably, but rather, out of necessity.

"He didn't want to see the company auctioned off, and neither did we," says McAllister. "Each of us had a bid ready, though, and there were probably 10-15 companies in New York City, sitting in the offices of investment bankers, waiting to submit a bid."

In 1864, Capt. **James McAllister**, a young seaman, emigrated from Ireland to New York to find employment in New York Harbor, a veritable hotbed of maritime activity. Shortly thereafter, he purchased a small sail lighter, which he employed carrying freight between ships and piers in New York Harbor. Originally called the Greenpoint Lighterage Co., the operation evolved into McAllister Brothers, Inc., one of the largest towing and transportation companies in the U.S.

In the early years, business was excellent, as New York Harbor became the largest distribution center and port the world would ever know. Thousands of tugs, barges, lighters and ferries were owned and operated by railroads, oil companies and family-owned enterprises. These vessels moved both people and freight up the Hudson River to the Erie Canal, the Canals to the Delaware River and along the ports of the Long Island Sound.

By the turn of the century, Capt. James McAllister, an older, more prosperous boat operator, entered the excursion boat business. He formed the McAllister Steamboat Company



At the helm for good: Following lengthy and often acrimonious legal battles regarding the company's ownership, McAllister Towing & Transportation Co. is set for a fresh start. Pictured, from left to right, is: Eric McAllister, vice president, corporate development; A.J. McAllister, vice president, sales; Brian McAllister, president, and Buckley McAllister, vice president, general counsel.

with his partners, his sons and brothers, who had followed him over from Ireland.

By 1909, the McAllisters had acquired a fleet of four side-wheelers from the Starrin Company, and renamed them: *Ajax*, *Aurora*, *Amphion* and *Atlas*. In 1914, the company was awarded a contract by the Interstate Park Commission to operate vessels between the Battery and Bear Mountain, a major tourist attraction. The pride of the fleet was *Grand Republic*, a 4,000-passenger majestic side-wheeler.

In 1916, James McAllister passed away. In the settlement of the estate, one of the sons, Daniel, took the reins of the McAllister Steamboat Company, and accepted the fleet of excursion boats. For the next six years, **Daniel McAllister** won contracts for new routes, bought boats and established himself as a leading steamboat excursion operator in New York Harbor.

On April 25, 1924, a raging dockside fire destroyed steamers *Grand Republic*,

The McAllister "Family" Album



Highlander and *Nassau* where they were berthed at 155th Street on the Henry Hudson River. *Grand Republic* and *Nassau* sank, and *Highlander* burned to the main deck. Daniel began to rebuild *Highlander* with a \$500,000 contract with the Federal Shipbuilding Company, and then renamed the vessel *Bear Mountain*.

In 1931, Daniel won a contract to provide ferry service for tourists to the Statue of Liberty, outbidding 10 other harbor operators. The government contract helped him through the financial crises, but he was outbid for the contract in 1937. In 1938, he suffered a stroke, and passed away a year later. Upon his death, equipment was auctioned off to satisfy creditors. Six months later, *Bear Mountain*, acquired at the auction for \$50,000, was resold for \$350,000.

The growing popularity of the automobile, coupled with the massive destruction of the Great Depression, signaled the end of the steamboat era. Long Island Sound service that had been provided by companies including the Fall River Line, the New London Line, the New Haven Line, the lines to Providence, the Montauk Line, and of course, the McAllister Steamboat Company, all ceased to exist. All that remained were the Bridgeport & Port Jefferson Steamboat Company, which ironically, was sold to the McAllister Tugboat Company in 1961.

The depression also brought McAllister Brothers, the towing company, to near ruin, but the third generation of McAllisters: Anthony, James and Gerard are credited with pulling the company through the difficult years.

The Fourth Generation

In 1969, McAllister Towing and Transportation (MT&T) was formed by Brian, his brother Anthony, and cousins Neill and James, as a vehicle for the acquisition of McAllister Brothers. The prior generation, Anthony Sr. (father of Brian and Anthony) and James P. (J.P.), the father of Neill and James, owned and operated the company, and had expressed an interest in retiring by the late 1960s. The junior McAllisters wanted to carry on the family business, but the senior McAllisters wanted to liquidate their equity interests, and sell the company. Several buyers began negotiating

to purchase McAllister Brothers. The junior McAllisters, especially Brian, did not want to work for a "Wall Street outfit," and began trying to put together an offer to purchase the company.

In the early 1970s, Brian invited William Kallop to join MT&T, to

strengthen the offer. Kallop was working with another group that was also trying to purchase McAllister Brothers. Kallop agreed to join MT&T as an equal stockholder. Finally, Brian and Anthony's brother Bruce was added to the group. Bruce was an

attorney practicing maritime law, and didn't work for the corporation. With Bruce leading the negotiations, MT&T purchased McAllister Brothers.

However, a rivalry between J.P. and Anthony Sr. complicated the deal. If all stockholders had equal

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interests, the sons of Anthony Sr. would own more stock than the sons of J.P. To accommodate the wishes of J.P., James and Neill each received an extra 49 shares, making their combined stockholdings equal to the sons of Anthony Sr. However, MT&T had an option to repurchase the shares without the consent of Neill and/or James.

Tax aspects of the buyout precipitated what would later cause the company to be torn apart. Anthony Sr. could not accept the deal unless his proceeds from the sale of McAllister Brothers were treated as capital gains, as compared to ordinary income – a difference of 40 percent. To accomplish that, his sons could not own 50 percent or more of the corporation, and one share needed to be assigned. Due to the feud between J.P. and Anthony Sr., an extra share issued to Neill or James was out of the question. Instead, it was issued to Kallop, the only non-family member. In 1974, MT&T purchased McAllister Brothers for approximately \$15 million. Kallop held 100 shares; Bruce, Tony and Brian each held 99 shares and

James and Neill each held 148 shares.

The Lawsuit

In early 1979, Bruce announced his intention to leave MT&T – he had accepted a position as deputy assistant secretary of commerce for Maritime Affairs. The company repurchased his stock; and his shares were not redistributed.

Brian attempted to equalize the shares of all the stockholders, following Bruce's departure. The uneven ownership bothered him. In the words of Kallop, Brian "went on a crusade" to equalize the shares in 1979. An agreement was drafted, by which Kallop would turn in his one extra share, and Neill and James would turn in their extra 49 shares. Neill and James rejected the agreement; which was bothersome, but not fatal, since their shares could be repurchased by the company without their consent.

Kallop's share became more important. In August, 1979, an agreement was drafted, which Kallop and Brian both signed, transferring a single share of

Kallop's stock back to MT&T. This agreement would become the central issue of the lawsuit years later; stating, "I hereby give, transfer and deliver to the Company one share of Common Stock as a contribution capital. At the request of the Company, I shall execute such further documentation, if any, as may be necessary or desirable to fully effectuate such transfer."

According to court testimony, Kallop intended to transfer his share back to MT&T, but had a change of heart approximately one month later. He stated during testimony he felt concern about a possible investigation by the IRS into a tax fraud conspiracy; yet at the time, he told no one of his decision to rescind. Nevertheless, the transfer agreement had been signed.

Over the next seven years, Neill, James and Anthony all retired from the company, leaving Kallop and Brian as sole stockholders. In 1986, after Anthony retired, the stockholders agreement, in place since 1974, expired, since there were fewer than three shareholders. A new agreement was drafted, once again reaffirming Kallop's

contribution of his additional share to the company, providing a guarantee each shareholder would remain a director as long as he remained a stockholder, and providing a third director would be elected jointly by the two stockholders. That third director was **Lawrence Chan**.

From 1986 to 1991, Kallop and Brian saved the company from bankruptcy, and turned it into a successful enterprise. However, by 1990, Kallop was reevaluating MT&T's heavy investment in tugboats. He determined the tugboat operations were chronically losing money, and would never be profitable. He also realized that Brian, president of MT&T and supervisor of the tugboat operations, was unlikely to support reducing MT&T's role in the tugboat industry.

A formal director's meeting was scheduled for October, 1991. Brian feared Kallop and Chan planned to remove him as an officer of MT&T, and checked the company's financial statements. He found 199

(Continued on page 55)

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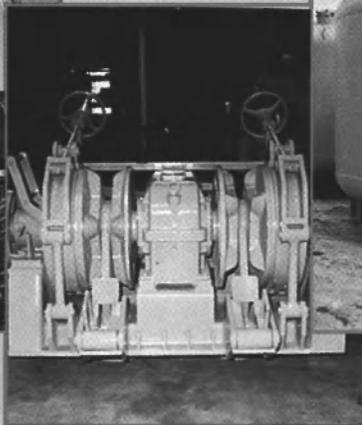
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Shifting Tides Continue To Produce Uncertainty

With the per barrel price of oil seemingly entrenched in the \$12 to \$14 range, the offshore exploration market continues to send mixed signals regarding the level and timing of offshore exploration and production plans. As uncertainty, more often than not, equals fear, questions and speculation surrounding the future course of crude values has put a crimp in the near-term outlook for many of the companies which build and supply workboats for the offshore markets.

According to a recent report from the Paris-based International Energy Agency (IEA), oil markets rallied in September, but the rally was apparently fueled by temporary factors, and IEA reasoned that a sustained recovery is unlikely until a parallel Asian recovery takes place. The upward swing saw prices for West Texas Intermediate and Brent jump by more than \$2 per barrel, with WTI briefly jumping over the \$16 mark and dated Brent approaching \$15.

The real pressure created by the all-encompassing Asian financial crisis, however, is best seen in the continuing downward projection for consumption in 1998 and beyond. In its September report dated October 8, IEA once again reduced estimates of the region's demand in 1998 more than one million barrels per day lower than projected one year ago. Projections for 1999 are currently running 170 kb/d below initial estimates made two months ago, as difficulties in Malaysia, Indonesia, the Philippines, Korea and Japan have reduced expectations for these countries, as well as created "downside sensitivity" for other countries in the region including China and India.

Mixed Messages

Despite the prolonged Asian financial crisis and consistently low per-barrel pricing, there is still a commitment to discovering and recovering resources from lucrative deepwater developments, and new hot spots offshore Africa and in the Caspian Sea are garnering considerable attention. While E&P budgets have been decreased across the board, it is interesting to note that there has not been a wild stampede to eliminate this work altogether.

One major player, however, did issue the proverbial shot across the bow with an announcement of earnings disappointment last month. Global Industries, Ltd. announced that lower activity levels and inclement weather in the Gulf of Mexico and delayed activity in Mexico negatively impacted second quarter earnings for fiscal 1999. For the quarter ended September 30, 1998 earnings are expected to be down approximately 40% in comparison to fiscal 1998 second quarter earnings.

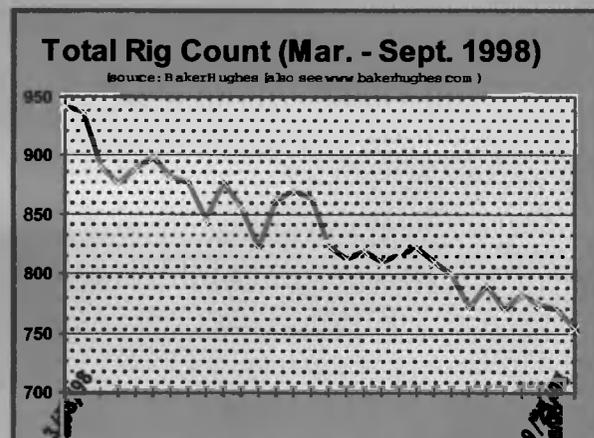
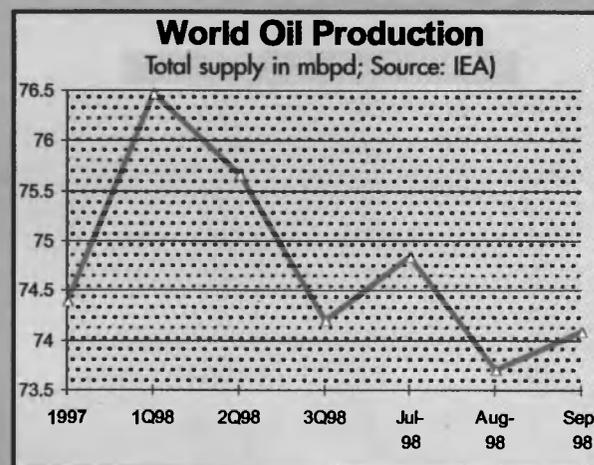
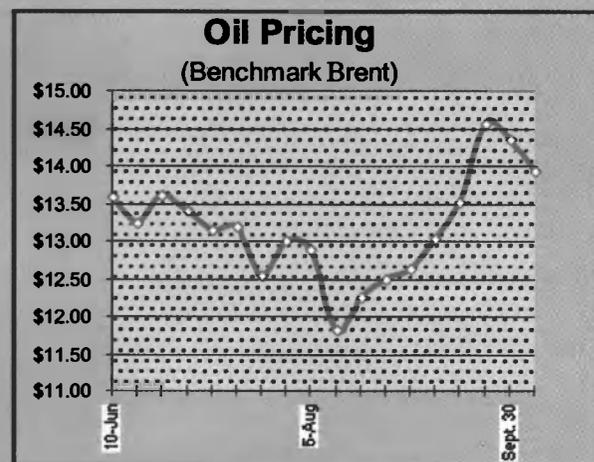
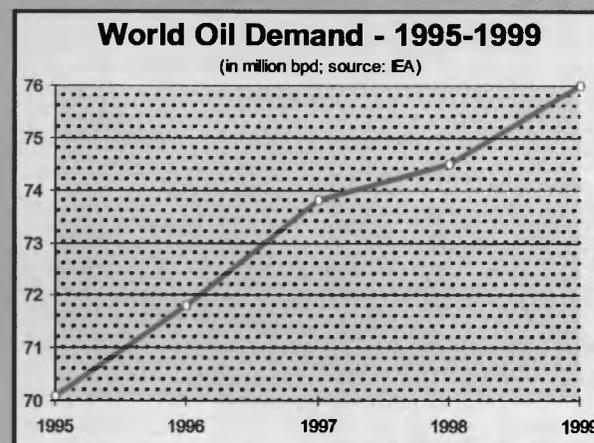
As a result, Global's Chairman and CEO, William J. Dore, said in a statement "We have already implemented various cost reduction initiatives, including a worldwide salary reduction for most of our salaried staff and we have scaled back our planned capital expenditure budget because we believe that the continued weakness in oil prices and the current economic recession in many parts of the world may cause further contractions in the offshore marine construction sector."

While Global perhaps sees the oil barrel as half empty, another major, Rowan, sees it as half full. Rowan reported that it expects the market for drilling rigs to improve, after reporting a 40 percent drop in net income in the third quarter. Net income fell to \$32.5 million, or \$0.38 per share, compared with analyst forecasts of \$0.33 according to First Call, from \$54.3 million, or \$0.61 per share a year ago. Revenues declined to \$183.5 million from \$195.5 million as rig utilization fell to 84 percent of Rowan's fleet from 99 percent a year ago due to declining drilling activity as a result of low oil prices. While reporting the lower results, the company remained characteristically upbeat, projecting that there will be an "inevitable improvement" in offshore drilling business.

Another positive is the relatively steady amount of ordering activity on the offshore front. While it does not resemble the bull rush of several months back, the procurement of new equipment is still humming.

Friede Goldman Offshore recently won a contract from Houston-based R&B Falcon for the Phoenix IV jackup rig. The Phoenix IV, a Bethlehem design, 200 ft. (60.9 m), mat supported cantilevered class rig, is scheduled to arrive at the shipyard later this week with a target departure date of mid November. Friede Goldman is currently working on R&B Falcon's Falcon 100 semisubmersible rig at the HAM Marine shipyard in Pascagoula, Miss.

Transocean Offshore Inc. reported that its fourth-generation semisubmersible Transocean Richardson has received a five-well, minimum 190-day contract from Spirit Energy 76, Unocal Corp.'s Lower 48 E&P unit. Revenues to be generated over the minimum 190-day contract period are \$30.4 million. Transocean Richardson is one of seven full or partially-owned fourth-generation semisubmersibles in the Transocean Offshore Inc. fleet, and one of nine units currently active in the company's fleet and capable of drilling operations in water depths exceeding 3,000 ft. (914 m). In 1997, Transocean Richardson set the current world water depth drilling record for a moored semisubmersible in 5,297 ft. (1614.5 m).



(Continued from page 52)

shares listed in the statements, as compared to the 198 he expected to find. He checked the stock record book, and found Kallop still held a certificate for 100 shares.

Over the next year, an uneasy peace existed; while Kallop attempted to convince Brian to reduce the tugboat operations, and Brian contested Kallop's extra share, and thus, his perceived role as controlling shareholder, as well as Chan's status as a director of the company. Brian and Kallop became embroiled in a corporate struggle as to the direction of the company, disputing the distribution of management responsibilities, corporate strategies, personnel decisions and investment opportunities.

In December 1992, Brian attempted to restore a tentative peace between the stockholders through an agreement outlining a standstill philosophy. Kallop rejected the agreement, since it required unanimous stockholder approval of any company action. At the director's meeting that concluded December 11, 1992, Brian was removed from his position as president of the company, and replaced with Kallop. Brian was elected chairman of the board, and it became abundantly clear there were no plans for Kallop to turn in his extra share.

On January 26, 1993, Kallop filed suit in the Supreme Court of the State of New York, claiming although having signed the Letter of Agreement, the transfer of stock, never officially occurred, leaving him in possession of 100 shares of stock, making him the majority and controlling shareholder in the company. Two days later, Brian countersued in the Court of Chancery of the State of Delaware, claiming the signed Transfer Agreement was valid, and that Kallop's lawsuit was without merit, and an attempt to defraud him.

After nearly three years of legal battles, The Court of Chancery of the State of Delaware found in favor of Brian, claiming the Letter of Agreement drafted in August 1979 was a valid transfer of one share of stock from Kallop to MT&T, leaving Kallop an equal shareholder, with 99 shares. But even after the Supreme Court upheld the decision a year later, a full two years passed before a

negotiated agreement was finalized between the two parties.

Kallop received the offshore services company, Offshore Express, as well as the fabrication company, Offshore Specialty Fabricators, both based in Houma, La. In addition, he received the oil producing

company, Petrotech, based in Peru, which produces approximately 20,000 bpd and 20 million cu. ft. of gas per day.

Brian retained the tugboat operations and the ferry service from Port Jefferson, N.Y. to Bridgeport, Conn., in other words, the very

foundation the company was built upon to begin with.

In the last six months of negotiations, Brian brought his two sons – Buckley, an attorney; and Eric, an investment banker – into the mix, to help arrange for the money needed for a final bid, should it

The advertisement features a large, central image of a white bucket of Hempel paint. The bucket has a black lid and a label with the Hempel logo, which includes a globe and the text 'HEMPPEL Estd 1916'. Above the bucket, the word 'HEMPPEL' is written in large, bold, black letters. To the left of the bucket, there is a tilted box containing the text 'Hempel Coatings (USA), Inc. ISO 9001 Certified by LRQA'. The background of the advertisement is a dark, textured surface, possibly a wall or a piece of fabric, with the word 'WORLD' on the left and 'WIDE' on the right, separated by the bucket. The overall aesthetic is industrial and professional.

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Layout: Art-ist Photo: Husano

have come to that. The sons worked on a strictly volunteer basis, but with the division, are now employed by the new company, and are envisioned, along with Brian's nephew, A.J., vice-president of sales, as being the fifth generation of McAllisters to oper-

ate the company.

And such guidance is certainly needed, with the added pressure of Moran Transportation Company's recent acquisition of Turecamo Maritime, Inc. Competitors since the 1860s, Moran and McAllister have engaged in some intense

price wars over the past 10 years. Moran's purchase results in the company having a far larger fleet now than McAllister.

"[The purchase] was really a disappointment to me," says Brian. "McAllister had the reserves to buy Turecamo, but we couldn't resolve

our own problems quickly enough. I don't know how much Moran paid, but we'll ultimately know, since it's a publicly registered company."

Prior to the sale, Moran and McAllister were close in size; now, Moran holds a sizable lead in vessels (approximately 85 to McAllister's 50) and port activity (approximately 13 ports to McAllister's nine).

Brian laughs when people ask if this new acquisition will result in price wars; stating the tugboat business has been a fairly depressed business development for years - basically a carry-over effect from the oilfield services collapse in the mid-1980s.

"A lot of the operators came to the Northeast after the crash, and began offering services at very reduced rates," Brian says. "We had to cut some costs. We matched the Gulf of Mexico crew costs, lowered our overhead and lowered our prices to stay competitive."

"Basically, when we diversified in the 1980s, we became heavily involved in the oilfield services industry," Brian says. "We hit a zenith in 1985, with nearly 35 OSVs. By the time the collapse ended, we had 18 left, and we had sold some tugboats as well, all in the name of survival."

Moran and Turecamo, by comparison, hadn't diversified in that direction, and as a result, managed to pick up a lot of vessels at bargain prices, including one of McAllister's boats.

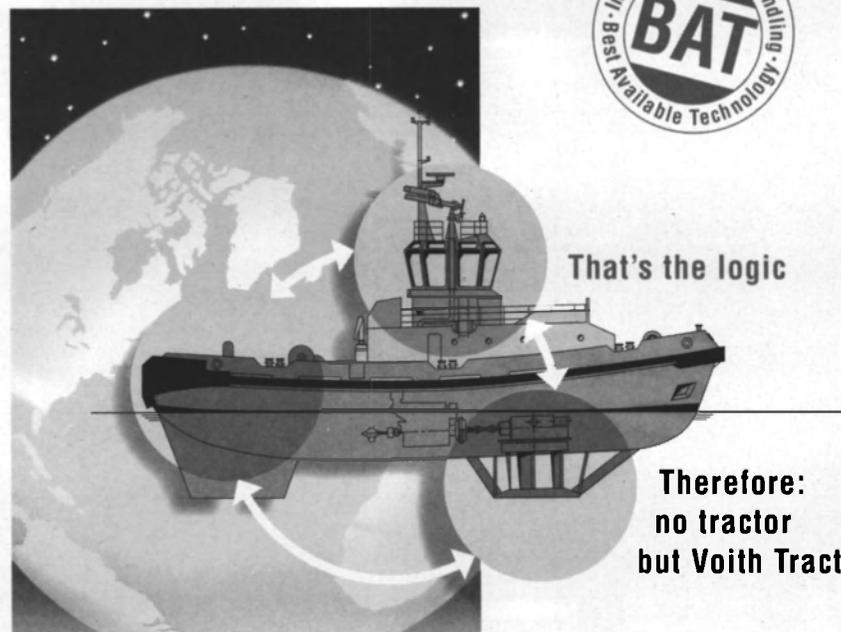
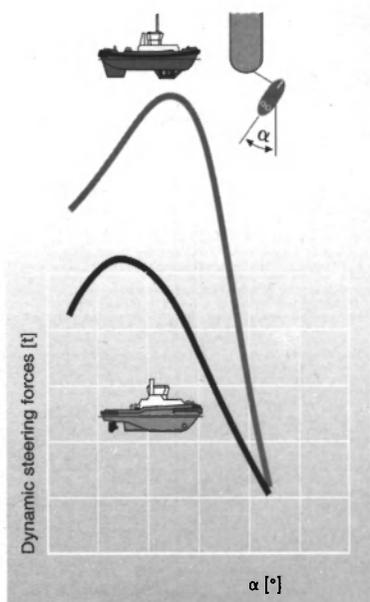
"You saw brand new \$3.5 million vessels, being delivered and going straight into lay-up, only to be sold a few years later for \$500,000," says Brian.

Now, as Brian looks to refurbish his fleet, he is optimistic he will be on the receiving end of those bargains. "It's possible if the price of oil stays where it is, there will be a lot of bargains around again," he says.

The Future

Because the company's primary business is shipdocking, it has, since 1962, concentrated its new-buildings on tractor tugs. It was in that year that McAllister acquired, from the Dravo Corp., two flanking rudder tractor tugs. Since then, McAllister has built 17 more, the most recent being *Brooks K. McAllister*, a Z-propeller tug, built in 1986. In fact, *Brooks K.*, at 4,300 hp, was the first high-powered Z-

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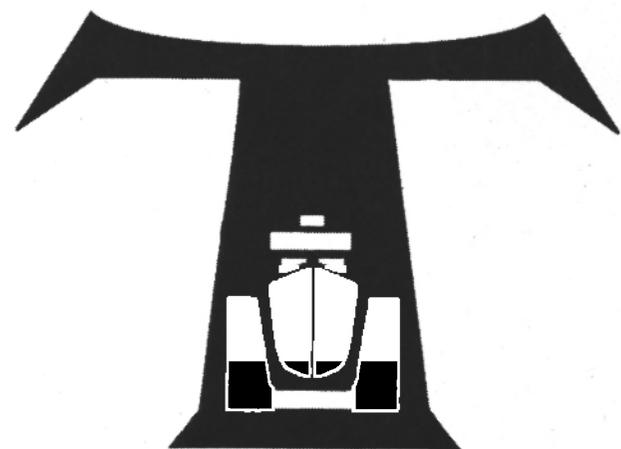
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propeller tug on the East Coast. Tractor tugs have the ability to steer a vessel astern, as well as ahead. This concept was started on the Mississippi River, with the introduction of flanking rudders and became a necessity for the riverboats when handling their

large fleet of barges. Tractor tugs – whether cycloidal, Z-propeller or flanking rudder – are all major improvements to conventional tugs, which had no ability to control the tug in “reverse.” Today, Z-propeller tugs are the least expensive, compared

to cycloidal or flanking rudder design. For this reason, McAllister has chosen the Z-propeller option for its future building program, which includes plans to build four new Z-propeller tractor tugs, over the next few years. Designs have already been sent to four or five

shipyards, but the planning is still in the early stages.

“The Z-propeller is a highly maneuverable and powerful tug that allows an operator to control how the tug is reversed as compared to a single-screw tug, which provides reverse movement alongside the ship only,” says **A.J. McAllister**, the company’s new vice-president of sales, and former pilot captain for the company, “With the single-screw tug, the shipdocking procedure must be precisely executed, to maximize the ahead and stern thrust of the tug.”

“It’s the ultimate tool for shipdocking work,” says Eric, Brian’s son, the investment banker, now holding the title of vice-president, corporate development.

“But even rebuilding existing tugs can be expensive,” Brian says. “To rebuild as a Z-propeller or a twin-screw tug can cost nearly \$5 million alone. That’s a lot of money when you’re looking to refurbish a fleet of 50 tugs.”

Yet, he freely admits some older single-screw tugs in the fleet do need to be replaced or upgraded, to at least 3,000 hp – in fact, that is the main problem on his plate, currently. Still, he realizes upgrading is definitely the way to go, since newbuild costs are prohibitive.

“New building prices won’t go down unless we experience a recession,” Brian says. “And then, we wouldn’t be looking to buy, anyway.”

But for now, the company is looking to get itself back on track as a major player in the industry.

“For years, there’s been a perception in the industry that we were undermanaged and there was little communication with some of our major customers,” says Brian.

“Basically, there are three main areas for us to focus on,” says Buckley, Brian’s son, the attorney, now vice-president and general counsel. “We need to focus on addressing our customer’s needs – a lot of the company’s focus the past few years was on the oilfield services industry. We intend to improve our equipment and our training programs, and we need to focus on the maritime commerce on the Eastern seaboard. For years, that was nearly a zero focus, as much of the company’s interest was in oilfield services; today, we’re making it our priority.”

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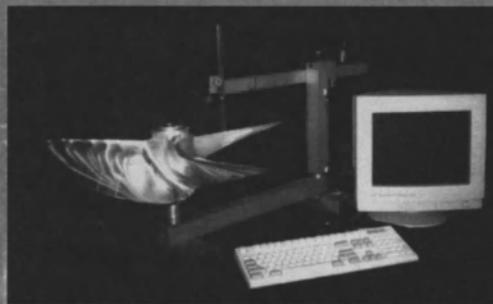
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(Continued from page 49)

spot on a Z-drive application would probably be in the range of 22 degrees. The wide, flat hull amidships has its advantages, though, as it provides a very spacious engine room layout.

Leverage for the German-designed propulsors is provided by a large skeg mounted on the keel line aft. The design of the skeg is critical as to shape, size and location because, when driven through the water, it establishes a sheer force that, in combination with the

bulk of the hull, is much greater than that of the propulsion system alone.

The business end of the Voith Schneider propulsors is made up of a rotating blade plate on which are mounted five angle-adjustable airfoil blades. On Crowley's Protector

class these blades, or vanes, measure 6.5 ft. long and 32 in. wide at the top, tapered to 26 in. wide at the bottom. The angle of the blades - from a fully feathered position in which the narrowest part of the blade slips through the water as the plate rotates, to a fully-opened position in which the widest part of the blade is pushed through the water, is adjustable from the wheelhouse.

Under normal operating conditions, each blade moves from fully feathered to fully open and back during one rotation of the plate. The arc of rotation during which the blades open and close is infinitely variable, and determines the direction of thrust. The result is tremendous force with very delicate control.

All the Voith Schneider propulsion units used on the Crowley boats were developed and built by Voith Schneider Hydro Marine Technology of Heidenheim, German. Beyond their use of Voith Schneider propulsion, the new VMS tugs have their differences. As the major mission of the Protector class is tanker escort work on the West Coast, they were based on a 120 x 41.5 ft. steel hull supporting a high-visibility wheelhouse. Both boats are equipped with two Skum fire monitors, each remotely controlled from the wheelhouse.

Water volume for firefighting is supplied by two 6,600 gpm pumps driven off the main Caterpillar 3606 engines. On the working deck of these vessels a Markey Model DWSS 52 main winch mounted aft carries 750 ft. of 10 in. diameter soft line and can produce a line speed of 125 fpm with a line pull of 25,000 lbs.

The winch does not have clutches. Instead, the drum brakes, which can withstand a static line pull of 400,000 lbs., are set automatically at the neutral point as the drum rotation moves from forward to reverse. The winch also features a tension-monitoring and alarm system that automatically compensates for the number of layers on the drum and gives a digital display in the pilot house.

This tension display is critical when the boat is being operated in the indirect mode while undertaking tanker escort. North of the Nichols yard, Dakota Creek Industries at Anacortes, Wash. is building two large "Prince William Sound" tanker escort tugs for



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These 153 x 48 ft. boats are the result of a unique design-build-operate contract signed between Crowley and the Alyeska Pipeline Service Company for tanker escort and spill response operations in Valdez harbor and Prince William Sound. They are to be propelled by twin Caterpillar 3612Bs furnishing 10,192 maximum continuous hp to two Voith Schneider Model 36 GII/270 propulsors. This will result in a static bollard pull in excess of 100 tons and an indirect pull of approximately 260 tons.

The escort tugs will carry the same firefighting equipment as the Protector class but will also be outfitted with boom, spray dispersant arms and Desmi skimmers for oil spill recovery work. Internal tanks will be capable of storing 70,000 gal. of recovered oil. The first of the yet-to-be-named escort vessels is expected to enter service early next year while the second will follow three months later. There is the possibility that two further escort tugs, slightly smaller in size, will also be built.

Crowley has not limited its high-technology investment to machinery alone. Going beyond the capabilities of its state-of-the-art tugs, the company has joined with ARCO Marine, one of its main customers, in a bridge management training program to reduce the chance for error at the machine/human interface. Though it is unusual in the industry for a tug company and tanker company to team up for training, Crowley and ARCO consider it a logical outgrowth of the cooperative relationship they enjoy.

In Alaska, the two companies work together in one of the world's most sensitive geographical locations — environmentally and politically — and there are a growing number of new operating requirements to be met. A joint CMS/ARCO simulator training program has been ongoing at the MarineSafety International (MSI) facility in San Diego for over two years. The teaming of Crowley and ARCO personnel for simulator training is an innovative approach that serves the dual purpose of satisfying regulatory requirements while reducing overall training costs for both companies.

The joint training utilizes two interactive simulators that enable the ARCO tanker crew, the Crowley tug crew and even pilots

to train on the same scenario simultaneously, viewing the same simulated scenes, reacting to the same set of simulated circumstances, and interacting just as they would in actual situations. While the provision of the latest in high-technology tugs and tanker

escort vessels, along with up-to-date training methods, has garnered Crowley considerable praise from its customers, the company is not standing on its laurels.

In 1994, it initiated a multi-year program called Focus 2000 to revitalize its long-standing philosophy

that "Customers Come First." This program has also brought about the formation of two new joint ventures, the Marine Response Alliance, set up in 1994, and Clean Pacific, created in 1995, both to efficiently provide emergency services according to the require-



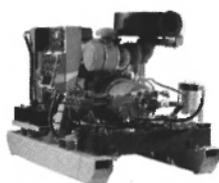
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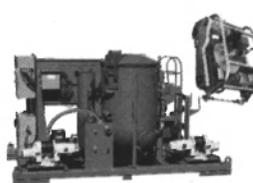
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ments of the Oil Pollution Act of 1990. It has also seen a number of Crowley's older tugs and barges modernized. To date, three of Crowley's Robin class tugs and three 400 x 100 ft. barges have been refurbished, and about 50

percent of the firm's 730 series barge fleet has been rebuilt.

The Sea Robins were originally built around twin Alco V-12 turbo 251Es generating 4,860 hp but these have been traded in for Caterpillar 3606Bs generating

5,000 hp. In recent months, the first of 17 Invader class tugs targeted for life extension began the process. According to Dave Kiraly, Crowley's senior port engineer in charge of the refurbishment project, each of the twin-screw, triple-

rudder tugs will take about four months to overhaul, with the EMD 20-645-E5 main engines getting a complete tear-down and rebuild.

"Rebuilding the engines is key to refurbishment because it increases the tugs' reliability by starting the vessel off with zero hours again," said Kiraly. "This means marked improvement in the overall operational performance of each vessel."

The Invaders, all built between 1974 and 1977, have proven to be a strong and reliable design for Crowley's line haul and contract towing business while the smaller Sea Robins, also of mid-1970s vintage, have proven useful in situations demanding less horsepower. One business Crowley has stepped out of is the passenger trade, and ironically it was the ferrying passengers between ships and shore that got Crowley its start on San Francisco Bay over a century ago. However, with a new course set, Crowley decided that the passenger trade no longer fit in with its other businesses.

Nevertheless, the overall Crowley operation remains substantial. Crowley Maritime Corporation, still primarily family and employee-owned, now has more than 100 offices in major ports and cities around the globe. From its Oakland headquarters it oversees four primary operating subsidiaries: Crowley Marine Services (CMS) and Vessel Management Services (VMS), both based in Seattle; Crowley American Transport (CAT), headquartered in Jacksonville; and Crowley Petroleum Transport (CPT), based in Long Beach. Together, these firms employ more than 5,000 people worldwide, operate more than 200 vessels and generate annual revenues in excess of \$1.1 billion.

Although consolidation is currently sweeping the deep-sea trades, and even beginning to make serious inroads into the U.S. tug industry, Tom Crowley Jr. doesn't feel Crowley will be a part of it.

"We see no reason to merge with other companies," he said. "We want to be a profitable, low-cost regional operator," - a course that has brought Crowley Maritime to where it is today, and one Tom Crowley Jr. feels will see it well into the 21st century.

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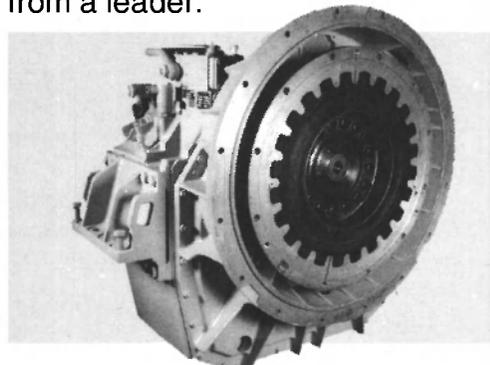


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they unload tons of taconite, gravel, calcite or other bulk mineral cargo. The self-lubricating bearings are designed to simplify maintenance by reducing the amount of lubrication needed to prevent cor-

rosion of the large diameter shafts. The self-unloading barges are part of the tug-barge concept that is emerging more often in Great Lakes shipping. Instead of a traditionally powered ship, a giant

barge is constructed with a notch at the stern, into which a tugboat is locked hydraulically, enabling the two vessels to function as a single ship. The automated barge contains the self-unloading system and performs all cargo transfer operations, while the tugboat provides the power and navigation capabilities. Unlike the flat-ended barges that are tied together and pushed along inland waterways, these barges have the hull of a Great Lakes ship. This allows them to handle rough seas that can develop on the Great Lakes but which would capsize a river barge. On a self-unloader, a belt conveyor travels the length of a vessel's hold, running beneath large hoppers with bottom-discharge gates that can be controlled to empty onto the belt. At one end of the vessel, the conveyor elevates the material it is carrying to the deck, where it discharges onto a boom conveyor. Often, the cargo-elevating function is accomplished by a second belt conveyor installed over the top of the first so the entire assembly can be configured into a horizontal "J" shape, with the top conveyor holding the material in place during the inversion. Topside, the material is discharged to a conveyor carried on a boom that may be several hundred feet long, which transports it to stockpiles on shore. Generally, the material is stockpiled in rows, as the ship moves slowly alongside the dock while the conveyor continues to discharge material. The pivoting boom allows discharge either to port or starboard side.

From Ship To Tug Barge

Typical of the self-unloading concept is a barge completed recently by Bay Shipbuilding, Sturgeon Bay, Wisconsin. Originally a 1953-vintage steamship known as the *J.L. Mauthe*, the vessel has been shortened slightly and converted to 20,000-ton tug-barge. Now named the *Pathfinder*, it is in service on the Great Lakes for Cleveland's Interlake Steamship Co.

Lifting and lowering the boom is a hydraulic cylinder mounted above it at the pivot end. The 21-in. bore x 125-in. stroke cylinder, weighing more than 22 tons, is attached to the supporting structure by a yoke with a vertical pin that allows rotation, as well as a

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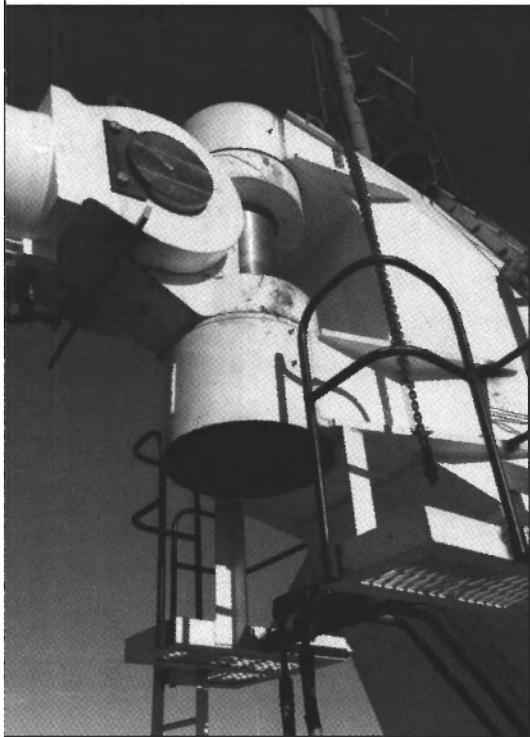
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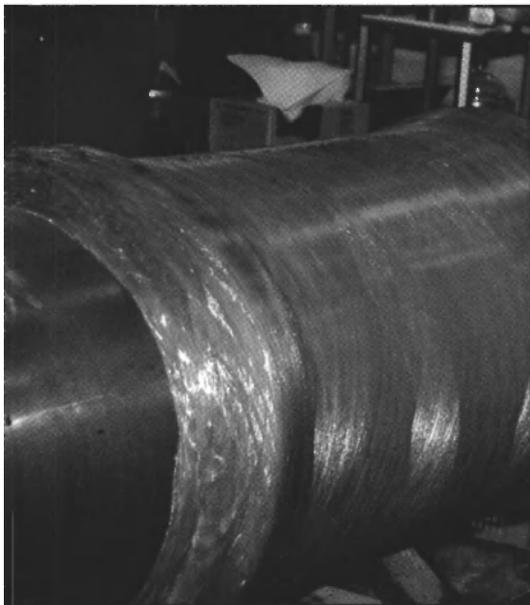
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Top: View from stern of *Pathfinder*, a tug-barge undergoing conversion at Bay Shipbuilding, shows support structure for boom at right, with hydraulic cylinder being installed.



Closeup shows dual-pivot cylinder mounting, which allows the boom to swing and elevate easily. Duralon bearings support the vertical pin.



Duralon bearing is shown during manufacture, after filament-winding operation that combines fiberglass epoxy resin matrix with a woven Teflon and polyester fiber bearing element.

horizontal pivot that permits vertical motion about its axis.

The vertical pin rotates on a large self-lubricating filament-wound Duralon non-metallic bearing, constructed from a filament-wound fiberglass epoxy resin matrix with a woven Teflon and

polyester fiber bearing element, made by Rexnord Corporation. The bearing for the vertical pivot eye assembly is 15.625-in. I.D.

The assembly requires a minimum of lubrication to prevent the metal shafts from corroding. In service, they are subjected to ambi-

ent temperature extremes from over 100 degrees F to -20 degrees F or lower, plus some moisture and dust. In addition, the leverage of the long boom and loaded conveyor exerts complex and heavy forces on the bearings.

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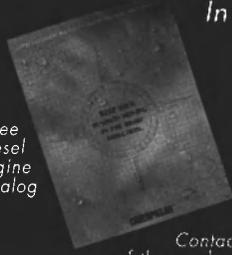
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Candies Gets First Of Series From Bender

Agnes Candies is the first of four vessels being built by Bender Shipbuilding & Repair for Otto Candies, Inc. of DesAllemands, La. It is a new generation offshore oil-field supply boat, designed and

equipped with state-of-the-art systems and equipment to more efficiently and safely carry out its supply and service mission in the offshore oilfields of the Gulf of Mexico as well as worldwide. The vessel is

U.S. flagged, will be crewed by U.S. citizens, and is certified to U.S. Coast Guard, American Bureau of Shipping, and SOLAS regulations.

The christening ceremony for *Agnes Candies* was held on September 22, 1998 at Bender



Agnes Candies

Shipbuilding in Mobile, Al. The vessel was christened by Mrs. **Agnes Candies**, the wife of the late Capt. **Otto B. Candies**.

Otto Candies, Jr., Chairman of the Board and CEO of Otto Candies, Inc. and Tom Bender, president of Bender Shipbuilding, executed a contract for the construction of four 220 x 54 x 20 ft. (67 x 16.5 x 6 m) platform supply vessels, with an option for four additional vessels in May 1997.

"The construction of this state of the art vessel is the culmination of the effort and cooperation expend-

ed by both the Candies and Bender companies.

The knowledge and experience of three generations of our family owned and operated companies went into this project.

It is a positive statement to the industry of both Tom Bender's and our resolve to construct and own vessels that will be an enduring legacy for future generations," said Mr. Candies. The design of the vessel was completed by Bender in consultation with Otto Candies, Inc. personnel.

The two year construction period for the first four vessels will require employment of over 250 shipyard workers at Bender's Mobile shipyard.

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Halter Delivers Second SDM



Halter Marine Group has delivered *St. Johns*, the second in a series of three revolutionary Ship Docking Modules (SDM) to Hvide Marine, Inc. Now in service at Tampa Bay, Fla., the vessel follows the first Halter-built SDM, *New River*.

The patented 90 x 50 ft. (27 x 15 m) SDM design, which requires only two crew members to operate, was conceived by **Erik Hvide**, chairman and president of Hvide Marine, Inc., and refined by the Elliott Bay Design Group.

The double-ended, 4,000 hp harbor tug has skegs mounted on each end, featuring Z-drives mounted forward and aft and offset 6.5 ft.

MetalCraft Marine Delivers Vessels To U.S. Park Service



The U.S. National Park Service has taken delivery of two welded aluminum Bullnose-model high-speed landing craft barges from MetalCraft Marine Inc. of Kingston, Ontario, Canada.

The 24-ft. (7 m) and 27-ft. (8 m) vessels, both 9.5 ft. (3 m) wide, were manufactured by MetalCraft Marine Group member Stanley Custom of Parry Sound Ontario. Propulsion installation and interior finishing were done at MetalCraft's Small Craft Division in Kingston. The barges will be used for general transportation and maintenance on Lake Powell, the reservoir on the Colorado River upstream from Glen Canyon Dam.

Both barges are powered by MerCruiser 350 Magnum EFI engines with Multi-Point Injection putting out 350 hp through Alpha drive legs. The 24-ft. (7 m) Bullnose achieved a top speed of 44 mph light.

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from the center to provide 100 percent of its bollard pull in any direction. It can move sideways with a maximum draft of 16.2 ft. (5 m), or just 5.2 ft. (1.6 m) on the hull and 11 ft. (3.4 m) on the skegs.

Two Caterpillar 3516BTA diesel engines, developing a total of 4,000

hp at 1,600 rpm power *St. Johns*. They turn the Z-drives with 86 in. diameter propellers in nozzles. Maximum speed is 11.5 knots, with a service speed of nine knots.

The ship's service power is provided by two 75 kW Detroit Diesel 4-71 generator sets. A Markey

DYSF-39 hawser winch is located on the deck and a 3,000 gpm remote-controlled fire monitor is mounted atop the pilot house. Protecting the saucer-shaped SDM is a 45,000 lbs. Schuyler model SR3D fender system.

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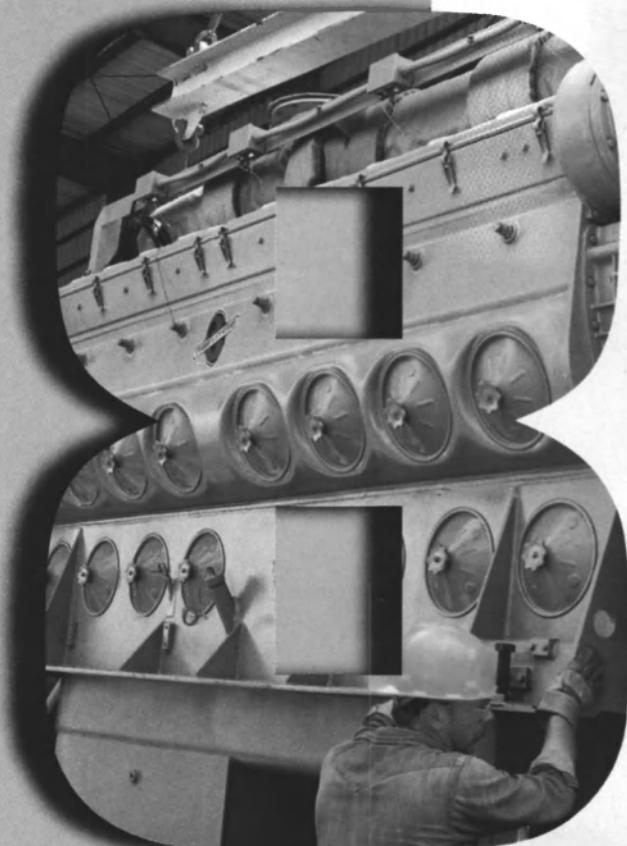


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is the
Number!

Otto Candies, Inc.



**Motor Vessel
"Agnes Candies"**

- 220 feet long x 54 wide
- Bender Shipbuilding & Repair Inc.,
Mobile, AL
- Built 1998
- Owner: Otto Candies, Inc.

Built in modules for expedited construction, each of this new supply boat series is equipped with 6 Detroit Diesel and 2 rebuilt EMD engines. The stern houses three DD gensets and two EMD drive units. Two more DDs power bow thrusters and a third DD is housed on the deck as a backup.





new line built with 32 S&S engines

8 ENGINES PER SHIP sounds like a lot, but in this case, they're just what the owner ordered. When Otto Candies, Inc. ordered 4 of a new class of supply vessels to serve the Gulf offshore industry, it had one goal in mind: build tough, versatile, efficient boats with power to spare. That's because these ships have to deliver tons of fuel, water, and drilling muds to deep water sectors and remain on station in almost any condition.

The new ships are being built by Bender Shipbuilding & Repair, Inc. in Mobile, AL, using a computer-integrated manufacturing process that creates modular sections for expedited construction. No less than **eight** Stewart & Stevenson engines per ship are installed for a total order of 32 engines. Twin rebuilt GM-EMD 16-645 E6 engines, capable of 1,950 hp at 900 rpm provide main propulsion. Maneuverability is provided by a pair of

Detroit Diesel 16V-149 engines, each developing 900 hp, to drive twin KaMeWa bowthrusters. Three DD 12V-71W gensets each create 250kw service power, and a 75kw DD 4-71N backup genset is on board for emergencies.

Otto Candies, Inc. took delivery of the **M/V Agnes Candies** in September. It was named for Mrs. Otto Candies, Sr., who christened it in a ceremony at the Bender Shipyard in Mobile. Mrs. Candies is the matriarch of the Candies family which owns and operates a fleet of tugs, supply vessels, ocean barges, river pushboats and river barges worldwide.

Stewart & Stevenson engines were chosen to power these new vessels because our DD and EMD engines have given many years of reliable service in the Candies fleet. Let us show you how S&S can provide reliable power at a low cost for your vessel.



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Workboat Product & Services Guide

ADTECH Plastic Systems Corp.

ADTECH Plastic Systems Corp.'s epoxy systems are fast becoming a cornerstone in the marine manufacturing and repair industries. The company offers many technologically advanced marine systems, from epoxy laminating systems to blister repair fillers to set-fast adhesives to easy sanding fairing compounds.

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Allied Shipyard, Inc.

Allied Shipyard, Inc. is a complete marine service for small to medium-sized vessels working in the offshore and inland marine industries. With two locations — Larose Division in Larose, La.



and Golden Meadow Division in Golden Meadow, La. — Allied is near the heart of the fishing, oilfield, and petro-chemical industries of the Gulf Coast.

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Apollonio Naval Architecture

Apollonio Naval Architecture continues to focus on fast commercial craft and advanced yachts. Notable is their *Straits Express*, reportedly the only U.S. designed catamaran in U.S. service to hold more than 150 passengers and travel at speeds more than 30 knots. The firm specializes in easy-to-build, low wake designs exactly suited to owners' requirements.



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Avon Marine Inc.

Avon Marine manufactures and markets inflatables designed for recreational, work-

boat, and life-saving uses. Avon provides well tested, carefully designed hull shapes, raised bows, outstanding buoyancy and stability to enable the inflatables to withstand much rougher conditions than rigid craft of comparable size.



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Bainbridge International

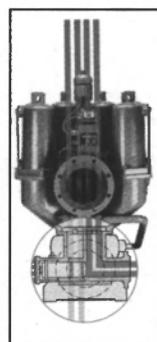
Cover Guard is a flame retardant protective covering system used to prevent damage to floors, walls, decking and equipment of all types during marine construction, repair or service work. The Cover Guard system is extremely cost effective, environmentally friendly, clean and significantly safer than hardwood, plywood, corrugated and other protective materials.



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Boll & Kirch filters aim to provide the best protection for diesel engines on ships around the world. Extended engine life, easy maintenance, reliability and safety are just a few of the many advantages of the company's fully automatic lube oil and fuel oil filters.



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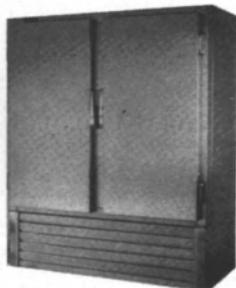
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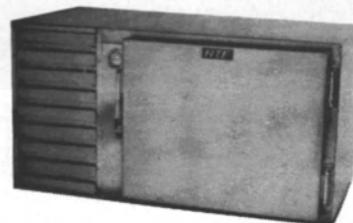
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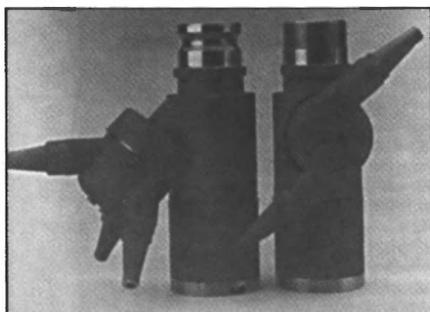
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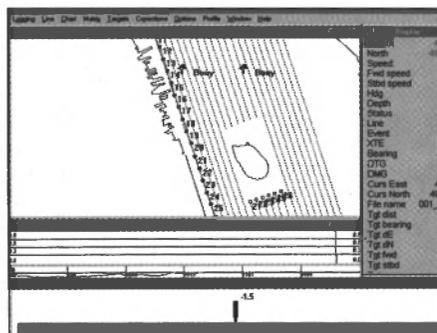


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Edgewater Machine and Fabricators, Inc.
Edgewater Machine and Fabricators, Inc. has been a diversified manufacturer within

the marine industry for more than 40 years. The company has the talent, equipment and facilities to engineer, prototype, test and finish to order specifications. Having supplied nearly 2,000 winches, davits, windlass and other deck handling equipment to the marine industry, Edgewater has earned a reputation for supplying extremely rugged, reliable, and easily maintained equipment

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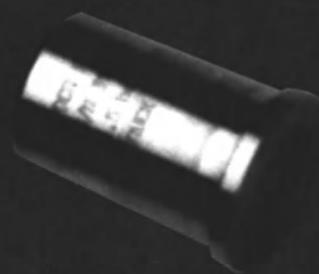
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advanced digital electronic governing systems. ESI is also an authorized distributor of EMD diesel engine power products manufactured by Electro-Motive Division of General Motors Corp. **Circle 122 on Reader Service Card**



vessel owners and operators of passenger ferries, car ferries and riverboat casinos. The company manages one of the largest passenger vessels in the U.S., one of the largest riverboat casino in the world for Caesars, and has privatized the City of Jacksonville ferry service. **Circle 123 on Reader Service Card**



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Jesse Engineering manufactures Wallace Coast benders, Pipe Shop custom software, pipe fabrication equipment for storage, selection, cutting, flange welding, CNC bending, conveying, saddle hole and branch cutting, plasma cutting and beveling, and system integration. **Circle 125 on Reader Service Card**



Kiene Diesel Accessories

Kiene Diesel Accessories manufactures a complete line of Cylinder Pressure Indicators for measuring diesel engine firing pressures, along with indicator valves and accessories for most of the diesel engines manufactured. In addition to standard products that are available from stock, Kiene can provide solutions

for obsolete or discontinued products. **Circle 126 on Reader Service Card**

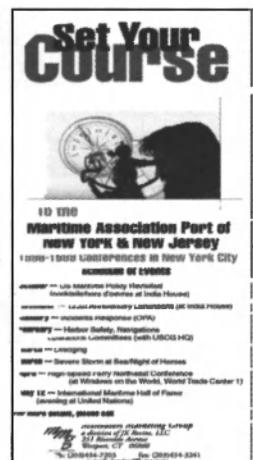


Lloyd's Register

Lloyd's Register promotes safety, quality and reliability throughout the design, construction and operating life of all types of ships, craft and floating structures. LR provides classification, statutory and technical advisory services covering structural design and construction, and materials and equipment used. In areas of operation safety, LR helps shipowners and operators develop and implement systems to meet legislation such as the International Safety Management (ISM) code. **Circle 162 on Reader Service Card**

Maritime Association Port of New York & New Jersey

The 1998-1999 conferences in New York City schedule of events includes the following: November - 125th Anniversary Luncheons; January - Incidents Response; February - Harbor Safety/ Navigations Operations Committees; March - Dredging; March - Severe Storm at Sea/ Night of Heroes; April - High-Speed Ferry Northeast Conference; May - International Maritime Hall of Fame. **Circle 127 on Reader Service Card**



Markey Machinery Co., Inc.

The type DYSW-32-18 Hawser Winch/Anchor Windlass was utilized on Foss Maritime's tractor tug *Daniel Foss*.

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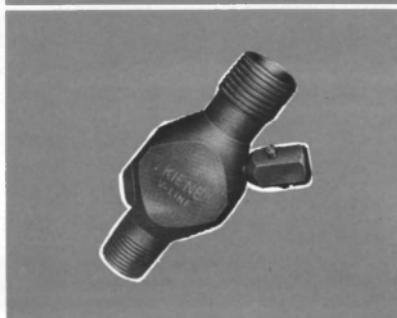
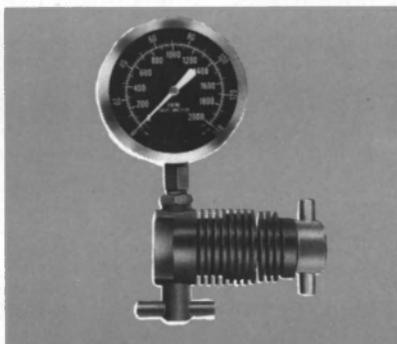
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Hawser Winch/Anchor Windlass.

Designed for ship-assist operations, the drum has a capacity for 400 ft. of 6 in. circumference line with a performance of 15,000 lbs.

at approximately 165 ft. per minute. The drum is controlled from either a wheel-house or local control station. Braking capacity is 300,000 lbs. at the top layer for each drum, and operation is automatic. **Circle 128 on Reader Service Card**

Mascoat Products

Delta T Marine Insulating Coating is designed to replace or enhance thermal insulating materials found in shipboard construction. The coating contains no solvents or harmful VOCs. Delta T can be applied quickly with airless spray equipment reducing total application time and significantly reducing installation costs. Overall, the coating is designed to be lightweight, cost effective, and carry the additional benefit of surface barrier protection. **Circle 129 on Reader Service Card**

Nautical Outfitters



Nautical Outfitters of Largo, Fla. offer high quality marine accessories including the

new Monitor Marine *Snap Shut*. The piece is cast in 316 stainless steel and is machined to function as a snap shut device for doors and compartment closures. The device is designed to be as impervious as possible to the sun, salt and other marine environment factors, as well as matching the hatch handles, finger pulls, deck fills and padeye currently available on the market. **Circle 130 on Reader Service Card**

Nautronix

Nautronix is a specialized marine electronics company which designs, manufactures and distributes its products worldwide. Nautronix operates in four market sectors: Offshore; Naval and Oceanography; Commercial Marine & Boating; and Mining. The company has recently been awarded a contract to supply an ASK5002 Dual Redundant Dynamic Positioning System, TCS5001 Thruster Control System, TAC Three-Axis Control, Data Logging System, and Advanced Dual RS5D Short Baseline (SBL) Acoustic Positioning System for one of the world's deepest drilling vessels, *Joides Resolution*. **Circle 131 on Reader Service Card**



Nishiyama Corp.

Nishiyama Corporation produced FN Tape

which is used to prevent fires caused by a splash of flammable oil in a ship's engine room. The tape consists of aluminum foil and non-combustible woven fabric which will not burn even if brought



into contact with fire. No special tools are needed to apply the tape. **Circle 132 on Reader Service Card**

NTN Corporation

NTN Corporation is involved in research and development, manufacture and sale of bearings, automotive constant-velocity joints, precision machines and equipment,

as well as mechatronics-related products. The company is attuned to environmental concerns and incorporates stringent, self-imposed standards for the emission of exhaust gases and waste water. **Circle 133 on Reader Service Card**



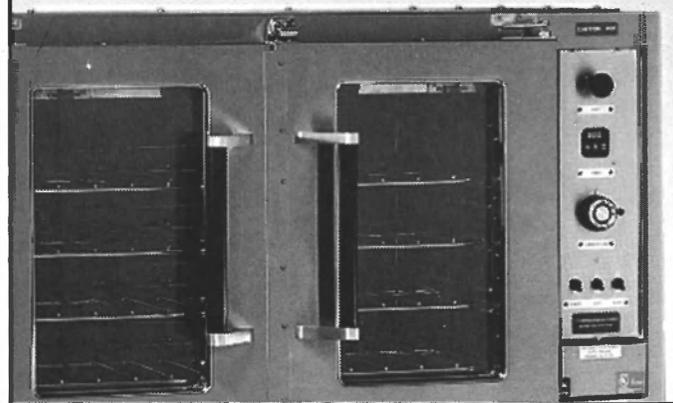
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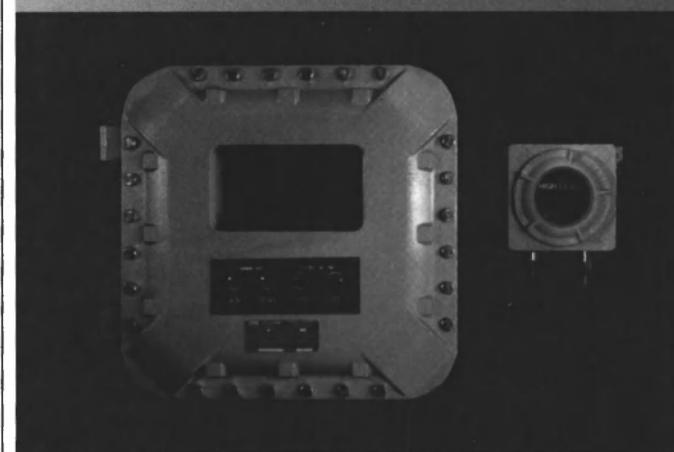
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Circle 134 on Reader Service Card



Pelican Rope Works

(photo pickup from last ad) 11-PPPP

Pelican Rope manufactures braided ropes designed to provide a combination of quality, price and customer service. Rope is available in double braid, 12-strand, 8-plait, sizes from 3/16 in. to 1.25 in. diameter, nylon, polyester, Spectra, or Kevlar. Colors and urethane coatings are also available.

Circle 135 on Reader Service Card

Prosar Technologies, Inc.

Prosar Technologies, Inc. is recognized as one of the fastest growing companies in the marine and aviation survival industries. Prosar holds technical approvals and patents in a wide range of products including water activated PFD and raft lights, personal strobe lights, emergency position indication beacons (EPIRBs), emergency locator transmitters (ELT), radio direction finders, and search and rescue transponders (SARTS).

Circle 136 on Reader Service Card



Q-Mar

Q-Mar Inc. offers version 3.0 of its Sailsafe electronic navigation software, the major component of the company's PC platform Electronic Chart Display and Information System (ECDIS) product

line, which includes a ship-based console version and an autonomous portable version designed as a carry onboard system for pilots.

Circle 137 on Reader Service Card

Red Fox Environmental Services

Red Fox Environmental is a major manufacturer of marine sanitation devices, land based



waste water and sewage treatment systems and industrial trash compactors with more than 5,000 systems in operation worldwide.

Circle 138 on Reader Service Card

RGF Marine Environmental Technologies

Since the introduction of the Bilge 4000-C, RGF Marine Environmental Technologies, Inc. has received U.S. Coast Guard approval, IMO, Transport Canada and Chilean Maritime Approvals. This non-ferrous unit is rated for 1,100 gpd and its filtration capacity is under 15 ppm. The 4000-C, designed to be ideal for workboats, fishing vessels, ferries and tugs, is a highly durable and economical bilge mounted oil water separator.

Circle 139 on Reader Service Card

Rice Propellers

The Nautilus is Rice's answer to propulsion applications where low underwater noise and vibration levels are critical. Nautilus is available with three, four or five blades. It is certified ISO class S from 30 in. up to 60 in. diameter, and class I and II up to 140 in. diameter. The blade area ratio can be selected to meet any requirement.

Circle 140 on Reader Service Card



Sabre Engines Ltd.

The Perkins Sabre marine diesel inboard engine range is now available to boatbuilders, owners and operators throughout the U.S. and Canada via a number of marine-focused Perkins dealers. The entire range of engines are designed to have enduring reliability, build quality, low maintenance and good cost-of-ownership. Perkins Sabre engines are easy to install and maintain, and feature low engine noise and exhaust emissions.

Circle 141 on Reader Service Card

Seacraft Shipyard Corporation

Seacraft Shipyard Corp. is a full service, 24-hour shipyard with more than 35 years of experience specializing in repair, conversion and construction of all types of aluminum and steel vessels. The company performs normal repairs and maintenance such as U.S. Coast Guard inspections, bent or broken propellers, shafts and rudders, electrical and mechanical repairs, as well as major repairs including repowering, replacing bottoms, lengthening vessels and repairing fire- or collision-damaged vessels.

Circle 142 on Reader Service Card



Spurs Marine Manufacturing, Inc.

Made of hardened stainless steel, Spurs cutters cut lines, nets and weeds with each turn of the propeller blade, eliminating entanglement and damage to prop, shaft and bearing seals. Cutter systems for all size vessels are kept in stock.

Circle 143 on Reader Service Card

S&S Propellers

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

Circle 144 on Reader Service Card

Tech Power Controls Co.

Tech Power Controls Co. specializes in the design, engineering, manufacturing and support services associated with electrical, electronic, power distribution, diesel and gas power generation, along with industrial drives and control systems.

Circle 145 on Reader Service Card



The General Ship Repair Corporation

The General Ship Repair Corporation specializes in dry docking and pierside repairs of all types of work boats and barges. The shipyard is family-owned and operated, serving the Port of Baltimore for more than 70 years. The fully-integrated facility is capable of performing all types of repair, conversion and construction on vessels. The floating dry dock can accommodate vessels of 900 ton displacement with 60 ft. between wing walls and a flat keel of 152 ft. Machine shop, fabrication shop, pipe, electrical and sandblast/paint shops are available.

Circle 146 on Reader Service Card

The United States Merchant Marine Academy - Continuing Education

The United States Merchant Marine Academy offers one of the most extensive maritime continuing education programs in the country. Instructors include outstanding Academy faculty and subject matter experts from the industry. Classroom lecture is augmented by the Academy's 22 engineering labs, 12 nautical science labs, and simulators.

Circle 147 on Reader Service Card

Western Machine Works

Western Machine Works originally developed hydraulically actuated towing pins fitted with a cable hold-down block and has manufactured them for



more than 30 years. Western tow pin units are used for general towing service and with the new generation of "tractor" berthing tugs.

Circle 148 on Reader Service Card

ZF Marine

ZF Industries is one of the largest manufacturers of marine transmissions in the world.



Founded in 1915 by Count von Zeppelin, ZF is a leader in drive train technology. ZF Marine, handling from 10 - 10,000 input

horsepower, has three locations in North America: headquarters in Ft. Lauderdale, and branch offices in New Orleans and Seattle.

Circle 149 on Reader Service Card

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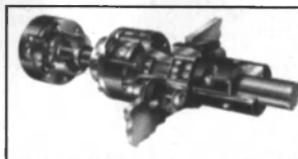


use. It works on fiberglass, wood, steel and

resin. It can laminate several layers of fiberglass without abrading between layers; yet, when applied in the final layer, it cures for easy sanding. The resin does not require any additional dispensing equipment for its

aluminum, above and below the waterline, including hulls, decks, transoms, keels, cabin floors and rudders. Its high-performance, vinyl ester formula cures quickly. Quart and gallon sizes are available. **Circle 79 on Reader Service Card**

American Marine's Aquadrive Systems
The Aquadrive Anti-Vibration System, from



while helping to eliminate engine to propeller shaft alignment problems. This innovative technology allows the engine to be

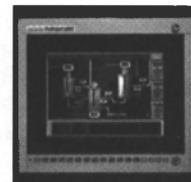
American Marine, greatly reduces vibration and noise,

super soft mounted. Instead of attaching the propeller shaft to a moving engine, it is aligned to the Aquadrive thrust bearing. This thrust bearing is attached to a rigid bulkhead so that the push of the propeller is against the Aquadrive bearing and the bulkhead. The engine transmits power to the thrust bearing through special Aquadrive constant velocity joint axles.

Circle 80 on Reader Service Card

New Screen Option for Drilling Systems Control

Azonix Corporation announced a new version of its ProPanel industrial computer will be introduced with a 15 in. flat panel, active matrix screen and enhanced Hi-Brite.



ProPanel is the world standard for certified operator workstations, according to the company.

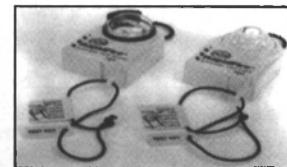
Circle 81 on Reader Service Card

New Automatic Vest Light

ACR Electronics offers the RapidFire, a small, waterproof automatic light designed to be packed into any style of life vest.

Used in conjunction with an inflatable life vest, the

RapidFire automatically lights when the vest inflates.



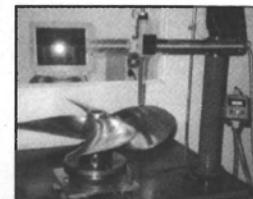
During inflation, the light's pull-pin, which is secured to the bottom of the inflation chamber with a clip, is released. With standard, non-inflatable life vests, the light is activated by manually pulling the unit's pull-pin lanyard.

Circle 82 on Reader Service Card

Propeller Repairs

Black Dog Propellers is capable of handling propellers from two in. to five ft. in diameter, and from one

to seven blades. The company works to ISO 484/2 Class Tolerances,



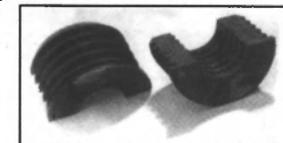
which allows the customer to choose various degrees of accuracy to suit a particular application. The company measures pitch to the .001 in. continuously over as many as 10 radii per blade. Utilizing the measured data combined with performance data, the company calculates pitch and design for individual vessels.

Circle 83 on Reader Service Card

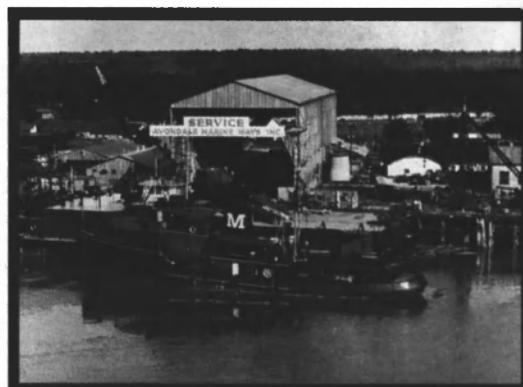
EMC Sealing Plugs

Beele Engineering has developed and launched a series of CSD sealing plus of the EMC type.

The rubber of the new EMC sealing plugs incorporates a carbon black,



which, by comparison with conventional carbon



AVONDALE IN THE BEGINNING



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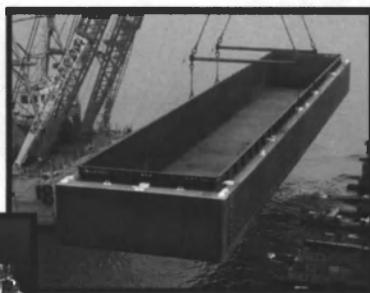


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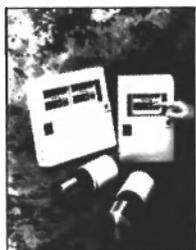
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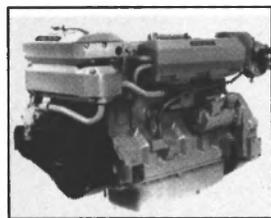
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blacks, possesses a unique morphology which makes it exceptionally suitable for electrically conductive applications.
Circle 84 on Reader Service Card

Cathelco Wins Orders To Refit Tugs
 Cathelco Ltd.'s Micro system is designed to eliminate the build-up of marine growth in pipework and engine cooling systems. Launched less than a year ago, the Micro system is an ultra-compact version of the company's electrolytic anti-fouling systems, specially aimed at small- to medium-sized craft, including tugs, dredgers, fishing boats and luxury yachts.
Circle 85 on Reader Service Card

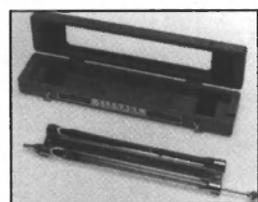


John Deere Engines
 Deere Power Systems Group offers diesel engines in 3.9, 4.5, 6.8 and 7.6 L configurations, with hp ranging from 71 to 300 for propulsion applications. Multiple hp ratings are available to enable each engine to match different marine needs. The largest



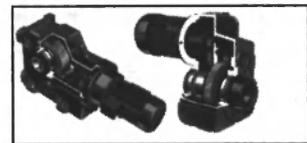
unit, the 6076AFM, is an aftercooled 7.6 L engine, with 215 and 250 hp ratings at 2,200 rpm and a 300 hp rating at 2,400 rpm. The engine also features an increased power-to-weight ratio due to a 10 percent reduction in the weight of the engine.
Circle 86 on Reader Service Card

Visgage Viscosity Comparator
 The Visgage, from Louis C. Eitzen Company, Inc., is a pocket-sized viscosity comparator which is designed to quickly and conveniently measures mineral oil viscosity on location.



Used for decades in the marine industry, the Visgage allows engineers to check any lubricating oil — from a light spindle oil to heavy gear oils.
Circle 87 on Reader Service Card

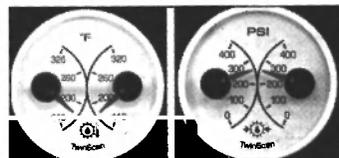
Expanded Gear Drive Line
 The Falk Corporation has introduced two new gear drives providing maximum energy efficiency and application flexibility over traditional worm gear drives. The clean, compact design of the



Ultramite Type UJ shaft-mounted gear drive is perfect for beltless shaft-mounting applications. It's available with base, shaft or flange-mounted styles; in five different sizes; and in horizontal or vertical mounting. The Ultramite Type UB

gear drive, with helical and bevel gearing, features an energy-efficient right-angle design.
Circle 89 on Reader Service Card

New Meters Monitor Transmission
 FloScan Instrument Company of Seattle has introduced a set of meters into its TwinScan line that give at-a-glance monitoring of

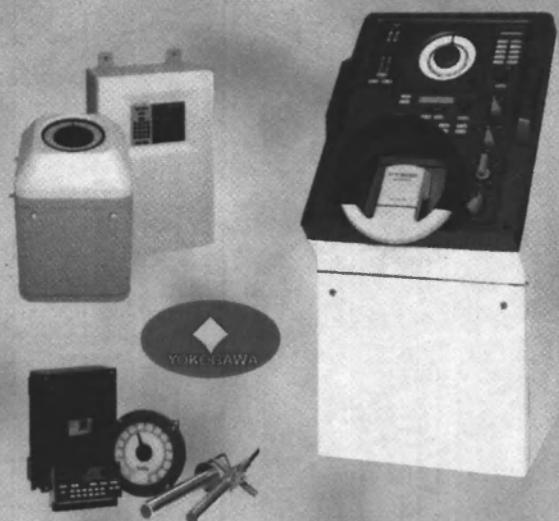


transmissions in twin engine boats. One of the new two-in. meters monitors port and starboard transmission oil temperature, the other shows oil pressure. Opposing

transmissions in twin engine boats.

needles tell the skipper at a glance if both gears are operating the same, or if one has gone outside the norm. Floscan said the new TwinScan transmission monitors could alert the skipper to problems, which might prove extremely expensive, not to mention disruptive to the voyage.
Circle 90 on Reader Service Card

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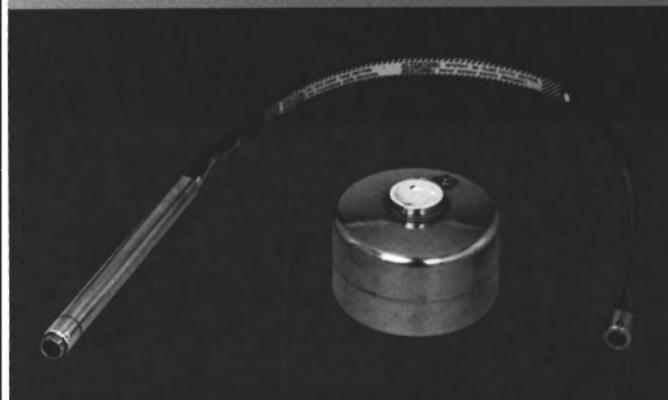
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Epoxy Kit for Small Repairs
The West System Handy Repair Pack, from Gougeon Brothers, contains two resin and hardener packs, high-density filler, an application

brush, mixing stick, pipe cleaner, two cleaning pads and instructions.

In all, enough materials are provided for two minor repairs. The combination 105 Resin with 205 Hardener forms a high-strength, waterproof epoxy, which bonds with wood, fiberglass, reinforcing fabrics and metal.

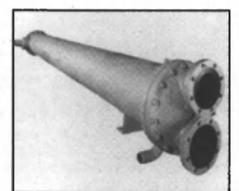
Circle 91 on Reader Service Card

Ammonia Condensers

ITT Standard offers two 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, and offers the greatest resistance to salt water corrosion, while new welded plate condensers feature quality construction with laser welded tita-

nium plates for longer life, operating efficiency and lower maintenance. Both are compact, easy to clean, and feature corrosion-resistant titanium for long service life.

Circle 92 on Reader Service Card

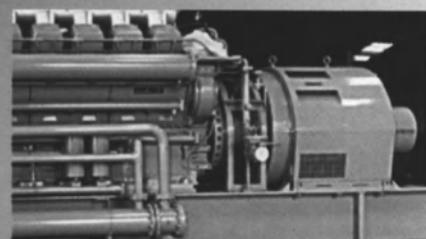
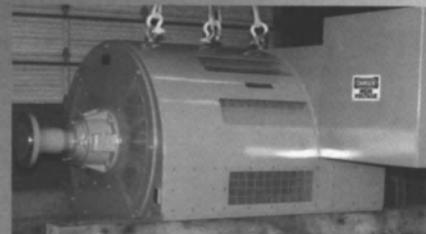
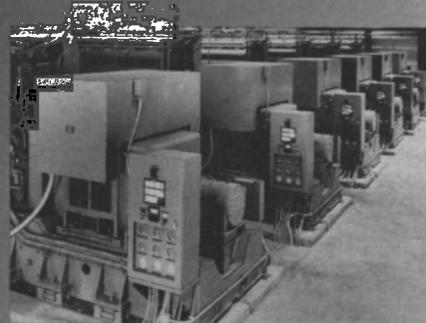


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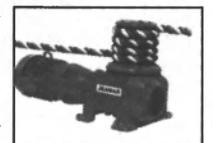
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Circle 222 on Reader Service Card

Extended Line of Capstan Winches
Jeamar Winches has introduced its extended line of capstan winches. Eight models are now available with starting line pulls from 2,000 to 20,000 lbs. All models are direct drive, self-locking and non-reversible. Air or hydraulic drive is available as an option on some models. Other options include horizontal drum mounting, higher speeds and controls.

Circle 93 on Reader Service Card



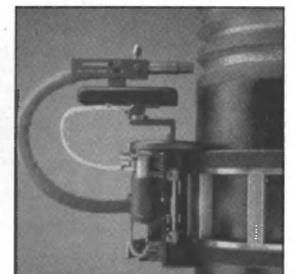
Pipe Welding System from Lincoln Electric

The Lincoln Electric Company, along with Magnatech Limited Partnership and Sabre International, Inc., offer a

system for open root welding on pipe: the Autoweld system.

Highlighting the system is the surface tension transfer (STT) process, which offers greater ease of operation, better back beads and edge fusion, as well as less spatter and smoke.

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Circle 244 on Reader Service Card

Smart Wave Marine Converter-Battery Charger

MagneTek offers the Smart Wave marine converter-battery charger, which features

microprocessor-controlled operation, providing readily available, precise, user-friendly charging. The three-step charging process is displayed by an illuminated LED display. Red, green and yellow lights indicate the respective charging stages: constant current, constant voltage and floating.

Circle 97 on Reader Service Card



Markey Machinery Deck Equipment

Markey Machinery produces custom deck equipment for workboat and research vessels. Products include tow winches, cap-

stans, research winches, windlasses, mooring winches, traction winches and hawser winches. Recent projects include Vessel Management



Service's Harbor Class Tractor Tug *Master*, Hvide Marine Service's *SDM New River*, and refurbished research winches for NOAA vessels *Miller Freeman* and *Chapman*.

Circle 98 on Reader Service Card

Water Jet Surface Preparation

NLB's new brochure includes a pull-out guide to U.S. and international surface prep standards for water jets, as well as a pump selection chart. High-pressure and ultra-high pressure water jetting (to 36,000 psi, or 2,500 bar) are ideal for ship cleaning and offshore surface preparation. According to the company, water jetting produces a "white metal"



finish, without the grit, dust or sparks of sandblasting.

Circle 99 on Reader Service Card

Polyurethane Knee Boot

Norcross Safety Products offers a knee boot made of the lightweight, but durable, polyurethane. Constructed of injection-molded polyurethane – the upper and outsole are chemically bonded into one piece through reaction injection molding – this all-in-one-piece manufacturing process ensures an inherently strong, durable boot, says the company. The boot also features a ladder anti-slip reinforcement between the sole and the heel, and an integrated kick-off lug for easy removal.

Circle 100 on Reader Service Card

Mobile Rig Register

The 1998 edition of Offshore Data Services' Mobile Rig Register is a 476 page compendium, divided into six sections,



each a valuable reference tool in its own right. The sections include All-time Rig Name Index, Previous Rig Name Index, Rig Designs, Rig Specifications, Rig Owners' Fleet Profiles and Rig Fleet

Demographics. The book outlines the 42 new units ordered in 1997, the 65 rigs that changed owners and another 14 units that were retired or added to the fleet.

Circle 101 on Reader Service Card

Larger Size Fender Covers

Polyform's new Elite Fender Covers are now available in a larger size. New fender cover sizes fit Polyform's F-7 (41-in.) through F-13 (77-in.) Series fenders. Fully wear tested, the extra-heavy-duty knit polyester gets near-perfect ratings for color fastness and resistance to sunlight, repeated washings, friction and seawater, says the company.

With the addition of these sizes, Polyform Elite Fender Covers are available in nine sizes overall.

All sizes come in either black or blue and have a heavy-duty draw string to secure both ends.

Circle 102 on Reader Service Card



Thickness Gauge with Waveform Display

Panametrics has introduced the handheld 36DL PLUS, an advanced, ultrasonic thickness gauge

combining powerful thickness measurement features with sophisticated data acquisition and output capabilities in a rugged, water-resistant case.

Its four in. wide bright LCD simultaneously displays a thickness measurement in large, bold numerals and a high resolution A-Scan waveform for precise thickness verification.

Circle 103 on Reader Service Card

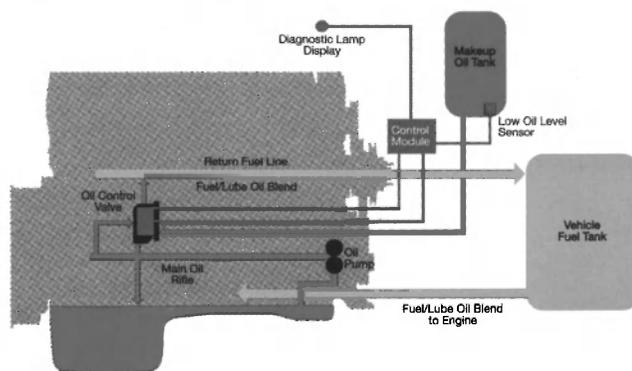
Reiss Manufacturing

Reiss Manufacturing offers a custom silicone and fluorosilicone compound, formulated to meet all specifications. Used on diesel engines as marine seal and gaskets, the silicone is temperature resistant to 700 degrees F, fire resistant and has no odor. Silicone is stable compared to organic rubber, not affected by corrosives, does not

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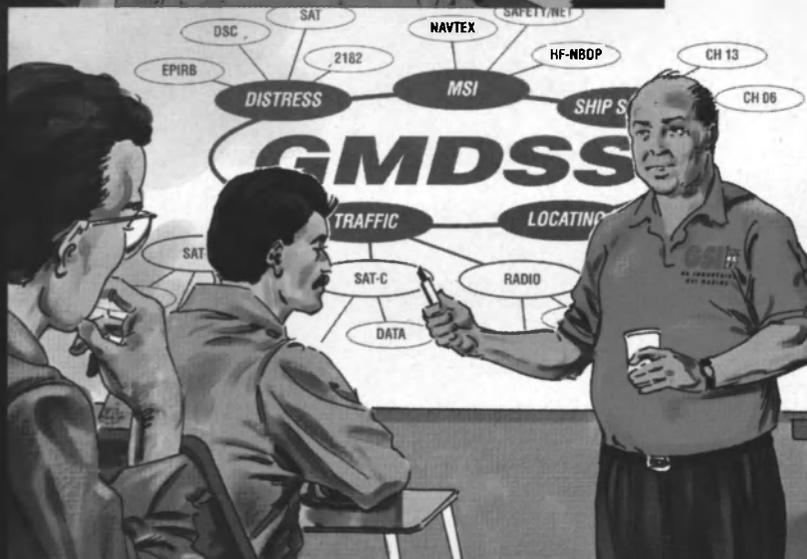
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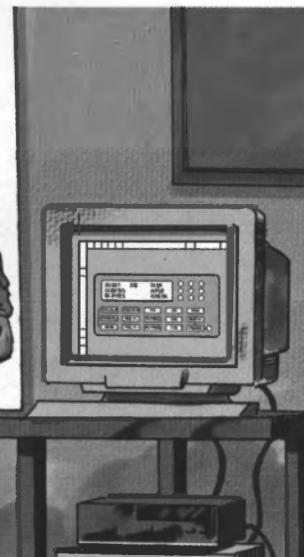
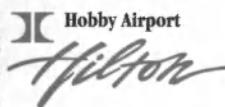
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Retrax, Inc.'s retractable drydock cover enables drydocks to maintain the flexibility for loading and unloading with the use of overhead cranes, while shading workers



from the sun in summer, and minimizing wind chills and keeping out rain and snow, during the winter. The covers are custom-fitted to any drydock, and are made in two, three, four or more movable sections, with each section retracting to 35 percent of its extended length. Two people can open and close the sections in minutes, or if required, the retractable cover may be engineered to move with electricity or air located on the drydock.

Circle 105 on Reader Service Card

Rice Speed Nozzles

Rice Propeller's Speed Nozzle and Kaplan Speed Propeller offers eight percent more



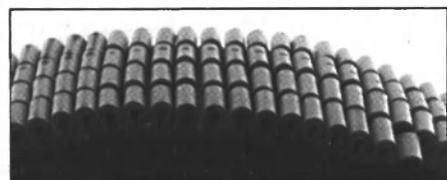
thrust and a seven percent increase in fuel-saving over other types, says the company. This improvement is due to the hydrodynamic profile of the nozzle and the conversion of the standard Kaplan propeller into a "Skewed Kaplan." As a result, the propeller pitch can be increased, increasing the flow through the nozzle, resulting in additional thrust.

Another characteristic of the Speed Nozzle is its structural strength. The shape is continuously curved and cambered with the steel plate press formed in three sections thereby increasing the strength of the steel structure.

Circle 106 on Reader Service Card

Schuyler Rubber Fender

The new Model SR3D-2 (non-marking



grey) fender, from Schuyler Rubber Co., Inc., allows for maximum rubber deflection and durability in combination with a non-marking grey color. The design was recently accepted for three new Z-drive tugs, which are under contract for the U.S. Navy in Honolulu, Hawaii. The SR3D-2 multi-loop design has been patented and is expected to appear on several more new

tugs.

Circle 108 on Reader Service Card

T-185 Radar from Si-Tex

The T-185 radar, from Si-Tex, offers a convenient menu and two easy-to-use function keys to quickly access frequently used modes. Other features include a bright, clear seven-in. CRT display, four kW power

and a 19.9-in. slotted waveguide radome antenna providing 15 ranges from 1/8 to 32 NM. When connected to a navigation system and gyrocompass or fluxgate compass,



L27/38 The new generation grows



The L27/38 has joined the L16/24 as the second engine in MAN B&W Holeby's new generation of auxiliary marine engines. It is based on the same award-winning design concept.



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A medium-speed HFO engine in the 1500-2880 kW range, the compact L27/38 has a robust, pipeless and maintenance-friendly design. Its benefits include optimal operational efficiency, minimal daily maintenance and unsurpassed reliability that have won world leadership for MAN B&W Holeby's GenSets. The L27/38 will set the standard for the world fleet's marine engines until well into the 21st century.

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WORKBOAT ANNUAL

the T-185 displays own vessel's track and offers Head Up as the standard mode. North Up, Course Up and True Motion modes are also available. It repeats position and NAV information in a large easy-to-read presentation as well.

Circle 109 on Reader Service Card

Fluorescent Dye Protects Against Leaks
Spectronics Corporation's Spectroline fluo-

rescent leak detection products have been approved and recommended for all air-conditioning and refrigeration systems in the U.S. Navy fleet. The main ingredient in Spectroline is Ar-Glo fluorescent dye. The dye is added to an



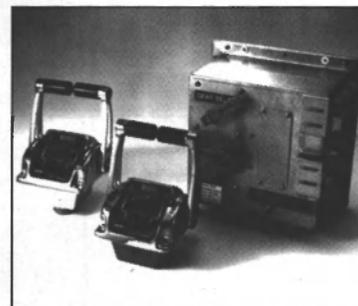
AC&R system and circulates with the lubricant. Wherever the refrigerant leaks out, so does the dye, which remains at the site of each and every leak.

Circle 110 on Reader Service Card

Electronic Control Package From Twin Disc

Twin Disc, Inc. offers an enhanced marine electronic control system designed to inter-

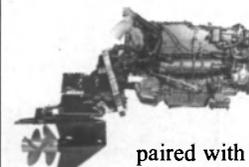
face with mechanical and electronic engine and transmission systems. The EC200 system provides



propulsion shift and throttle timing logic to improve overall operation and convenience. The system consists of cast aluminum bronze control heads, stainless steel control boxes and connected cables. An access panel located on the top of the control enclosure permits easy setup and maintenance.

Circle 111 on Reader Service Card

Diesel Sterndrive Package Delivers 250hp



Yanmar Diesel America offers the 6LP-DTZE, a six-cylinder diesel engine

paired with MerCruiser Bravo One, Bravo One, Bravo Two or

Bravo Three sterndrives. Originally available in an inboard configuration, the turbocharged, waste-gated engine produces 250 hp at 3,800 rpm. The 6LP-DTZE engine with sterndrive weighs only 1,077 lbs. It offers an exceptional power-to-weight ratio, says the company. Engine noise and vibration are minimized with an overhead cam, 12 valves and a two-stage fuel injector system.

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Lexair Inc. Offers High Quality Valves

Lexair Inc. of Lexington, Ky. offers the maritime industry a variety of bronze high pressure valves, solenoid and pilot direct operated; 2- and 3-way poppet type valves in sizes 1/4" to 2" NPT. Pressures to 500 psi. The valves are bronze and stainless steel construction, and offer extremely low pilot signals with operating ratio of 10:1.

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Angle Stop Valves Catalog

Loeffler Corp., a leading supplier of ship valves to the U.S. Navy for more than 70 years, has available a free catalog of angle stop valves in 1.5, 2, 2.5, 3, 3.5, 4 & 5 -in. sizes. These valves are made to NAVSEA specifications and are 100 percent hydrostatically tested before shipment.

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River Towboat with Air Flex Clutches



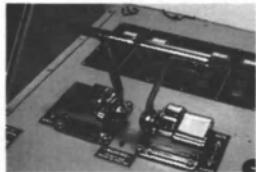
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Nichols Delivers Second Harbor Tug

Nichols Brothers Boat Builders delivered *Captain*, the second 105 ft. (32 m) harbor tug in a series of six, to Vessel Management Services, Inc. (VMS) a vessel construction subsidiary of Crowley Maritime Corporation.

Designed by VMS and Guido Perla & Associates (GPA), Seattle naval architects, the hulls utilize the patented Voith Schneider hull shape. GPA also provided detailed engineering

services that underlie the modular shipbuilding and zone outfitting techniques used by Nichols Brothers.

Captain, measuring 105 x 36 x 15 ft. (32 x 11 x 4.6 m), uses Caterpillar 3516B engines, which drive Voith Schneider 28G/210 cycloidal units through Falk reduction gears. Engines provide 4,800 hp for 107,500 lbs. of forward bollard pull, and a top speed of 14.3 knots. Electricity is



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supplied by CAT 3304 diesels that deliver 105 kW at 1,800 rpm.

Deck equipment includes three Markey winches, Amsteel-blue capstans, North American deck crane, Schuyler loop fendering and a Switlick six-man liferaft.

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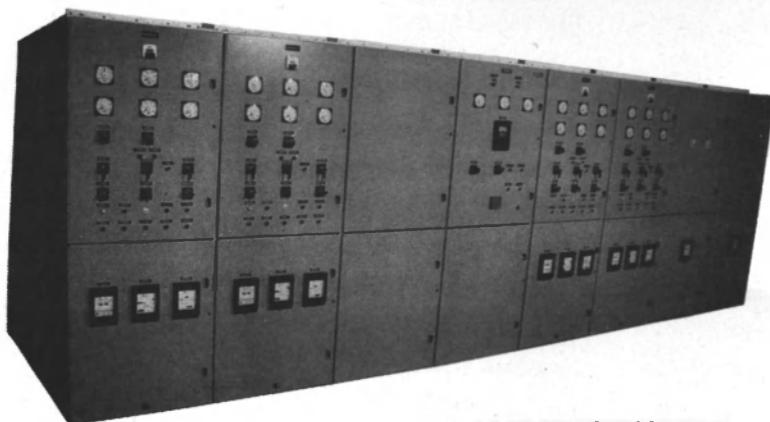
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Quality, Diversity Drive Atlantic Marine Holding Co.'s Success

Atlantic Marine Holding Company has forged an enviable reputation around the globe in all aspects of vessel construction, conversion and repair. With four distinct shipbuilding, repair and conversion facilities — two based in Jacksonville, Fla. and two based in Mobile, Ala. — the company offers shipowners a unique mixture of physical facilities, technical capabilities and organizational experience.

"We try, in all instances, to provide our customers with the best value, which includes highly competitive pricing and on-time delivery" said Thomas P. Jones, vice-president, Atlantic Marine Holding Co.

To ensure success continues well beyond the new millennium, the company is committed to a program of investing considerable resources to add to and upgrade its already impressive facilities.

"Our shipyards are all works in progress," said Mr. Jones. "We continually strive to increase productivity, and to stay ahead of the market with the most modern facilities and personnel."

Capital investments are primarily focused on reducing the cost of production while maintaining quality and reducing construction time, and increasing capacity for both newbuilding and repair. For example, a 640-ft. pier was recently added to Atlantic Dry Dock Corp.'s arsenal, which will provide additional space for topside conversions. While shipyard upgrades are sizable, investment does not stop there.

The company counts its employees — line workers through top management — as the foundation upon which the company is built. To this end, the company takes great measures to ensure it recruits and retains top talent, and outfits them with the best technology available. "You can attribute our quality work, in large part, to our workforce," said Kevin E. Wilson, sales and marketing manager for Atlantic Marine Inc. and Atlantic Dry Dock in Jacksonville. Atlantic Marine Inc. originated in Jacksonville in 1964, specializing in new construction. Atlantic Dry Dock Corp. was the result of Atlantic Marine's fast growth, and is a ship repair company which has developed a reputation for high quality and on-time, on-budget repair and conversion jobs on the commercial market, and an expert in complex military vessel overhauls.

"Our strength is, of course, our quality of work, but equally our ability to schedule and finish work on time or ahead of schedule," said Mr. Wilson. "The key is to get that vessel back to work making money."

In 1989, the company purchased the former ADDSCO Industries, thus creating two new divisions in Mobile. Today, a modern 650 acre site is the home of new construction (Alabama Shipyard) and repair (Atlantic Marine - Mobile) facilities. The move proved prudent, as both yards have become industry leaders, culminating with Alabama Shipyard delivering the 16,000-dwt chemical tanker *Amalienborg*, the first self-propelled oceangoing vessel built for export by an American shipyard in more than 40 years.

New Construction

Alabama Shipyard has surged to the forefront of commercial newbuilding in the U.S. with the delivery of the above-mentioned chemical tanker for Denmark's Dannebrog Rederi AS. While the ship carries the "Made in U.S.A." tag, it embodies the international respect and cooperation Alabama Shipyard commands, as the ship's equipment list includes a virtual "Who's Who" of the world's premier ship equipment outfitters.

The Mobile new construction facility is able to build ships up to 800 x 160 ft. (245 x 49 m) and features two 150-ton gantry cranes, a 275-ton bridge crane and a 300-ton transporter. Alabama Shipyard has earned its success with a steadfast commitment to advanced facilities, and features: an enclosed building for blasting and priming all steel plates, profiles and pipe; an automated

(PLC controlled) system which can process more than 23 tons of plate and structure per hour; two CNC plasma cutting machines; and a panel line featuring state-of-the-art one-sided welding.

Atlantic Marine Inc., the company's newbuild arm in Jacksonville, has found itself popular among buyers of high technology, high quality tonnage. "We will give you a quality ship, and you will get it on time. When we make a commitment, we keep it," said Edward P. Doherty, president, Atlantic Marine Inc. The yard's portfolio contains a diversity of vessels, from the 360-ft. gaming vessel *Majestic Star*, to a series of 190-ft. OSVs currently being prepared for delivery to Hornbeck Off-shore Services. The yard recently launched the first of four OSVs. Mr. Doherty attributes the yard's success with unique vessels to its adherence to modular construction techniques, and its investment in technology, particularly in the areas of steel cutting and handling, as well as CAD systems, as a means to this end.

Repair & Conversion

Atlantic Dry Dock Corp. in Jacksonville recently completed a technically complex barge conversion for Crowley. While the job was impressive in its own right, it is more impressive to note the entire project, from conception design to delivery, took about 120 days. The Barge *CMC 450-10* conversion included: the fabrication and installation of an 82 x 66 ft. double deck, a 50 x 50 ft. landing pad, and a complete cargo and pipe manifold system; installation and piping for seven P-tanks and batch mixer for drilling process; and installation of a four-point mooring system, complete with two winches, fair lead rollers and turning sheaves.

Atlantic Dry Dock Corp. is able to utilize its commercial expertise to perform military work more quickly and cost effectively. For example, the *M/V Tarago* — which represents the biggest single ship project ever for Atlantic Dry Dock — is currently undergoing major conversions for the U.S. Marine Corps Pre-positioning Ship Program. The conversion, which will see the ship re-flagged from the Bahamas to the U.S., and re-classed from BV to ABS, includes: the installation of more than 3,000 tons of steel; installation of twin 60-ton cranes; installation of new HVAC for the cargo decks; installation of a list control system; and outfitting of a new firefighting system.

Atlantic Marine Inc. - Mobile has carved a lucrative niche in the high-profile cruise ship repair business. Situated just 700 nautical miles from Miami, the yard offers dry dock Alabama, one of the largest floating dry docks in the U.S. With its tremendous capacity (lifting capacity of 50,000 long tons displacement), dual wingwall cranes and four dock arms, the unit is the centerpiece of the yard's competitive edge. This facility was chosen for the third and final phase of the prestigious *Glomar Explorer* project, which saw the former naval vessel converted to an ultra-deepwater drillship.

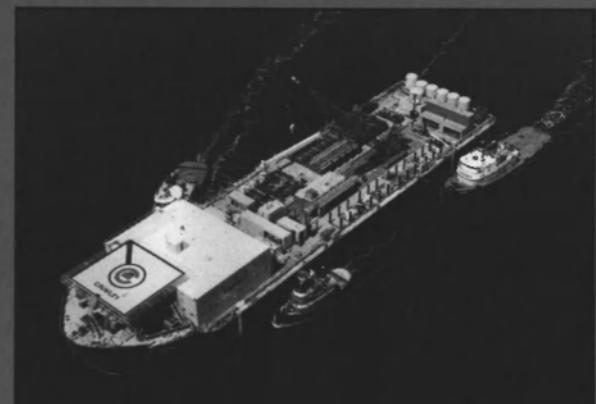
Certified Quality

With intense price pressures and competition, shipyards must prove their quality to compete. Atlantic Marine Inc. - Jacksonville's newbuild shipyard was recently certified to ISO 9002 quality standards for shipbuilding and ship construction services by Lloyd's Register Quality Assurance by the following national certification bodies: RAB (U.S.); TGA (Germany); and INMETRO (Brazil). Conveniently located on 81 acres on the St. Johns River and Intracoastal Waterways in Jacksonville, Atlantic Marine specializes in the building of all types of vessels ranging from 70 to 400 ft. long. Atlantic Marine Inc. - Mobile, was the first commercial shipyard to gain accreditation to the ISO 9002 standard when it was certified in 1993, while Atlantic Dry Dock Corp. was ISO 9002 certified in 1995.

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Aerial view of Atlantic Marine Inc. — Jacksonville.



Atlantic Dry Dock Corp. in Jacksonville recently completed a challenging conversion for Crowley.



Alabama Shipyard was the site of the construction of *Amalienborg* the first commercial ship built for export by a U.S. yard in more than 40 years.



Atlantic Marine Inc. — Mobile is a strong competitor in the high-profile cruise ship repair market.



Alabama Shipyard, Inc. - Mobile, Alabama



Atlantic Dry Dock Corp. - Jacksonville, Florida



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in Mobile, Alabama

Alabama Shipyard, Inc. Commercial Shipbuilding

Atlantic Marine, Inc. Repairs & Conversions

tel 334/690-7100 fax 334/690-7107

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Foss Maritime Receives ASD Thruster Tug

ASD thruster tug *Daniel Foss*, the first of three state-of-the-art conversions from conventional twin screw to azimuthal stern drive (ASD) tugs for Foss Maritime Company, Seattle, has been delivered by Marine Industries Northwest, Inc. (MINI), Tacoma.

In addition to being fitted with new Ulstein model 900H ASD units together with Nautican high-performance nozzles and skewed propellers, *Daniel* emerged from the shipyard with new Caterpillar 3512B main engines and an all-new, high-visibility pilothouse containing a modern control station.

The conversion increased 96-ft. *Daniel's* bollard thrust from 55,000 to more than 90,000 bs., and its horsepower from 2,250 to 3,300 hp. The Seattle-based ASD-thruster tug is more maneuverable for assisting ships, escorting tankers and performing barge work on Puget Sound. The conversion of *Daniel* and two subsequent tugs – including Long Beach-based sister tug *Peter Foss* – from twin screw to ASD-

thruster technology is part of a \$10 million enhancement of Foss tugs assisting ships and escorting tankers coastwide.

MINI's installation of the Ulstein ASD units on *Daniel* significantly increases bollard pull and maneuverability due to the ability of the units to rotate 360 degrees. The tug can turn on its own axis and has high thrust in all directions. Conversion work commenced with removal of the traditional pilothouse forward and the previous main engines, reduction gears and steering units. Added was a newly fabricated pilothouse amidships that has far better visibility for ship assist and other harbor services work. New thruster foundations were installed and various engine room systems modified to accommodate the larger Caterpillar engines.

Following the pierside work, *Daniel* was dry-docked for hull modifications, including a new keel profile and bottom contour changes aft, required for conversion of the tug to ASD-thruster propulsion. The Ulstein units were



then mounted aft. After returning to the water, work was completed in the engine room and other improvements were made, including a new Markey model DYSW-42 line handling hawser winch forward of the house on the main deck to facilitate ship assisting in the ASD mode. As part of Foss' fleet enhancement program, Long Beach-based *Phillips Foss* is currently being retrofitted at Foss Shipyard in Seattle. The 114-ft. tug and sister vessel *Jeffrey Foss*, will return to service with Nautican propeller nozzles, skewed propellers and high-performance rudder assemblies.

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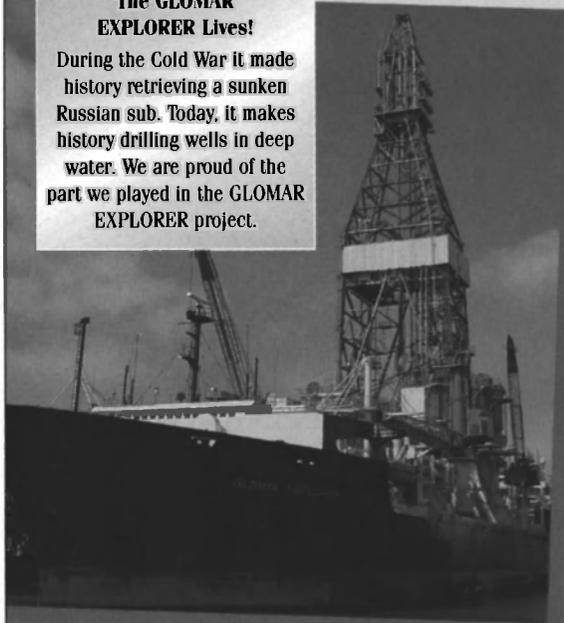
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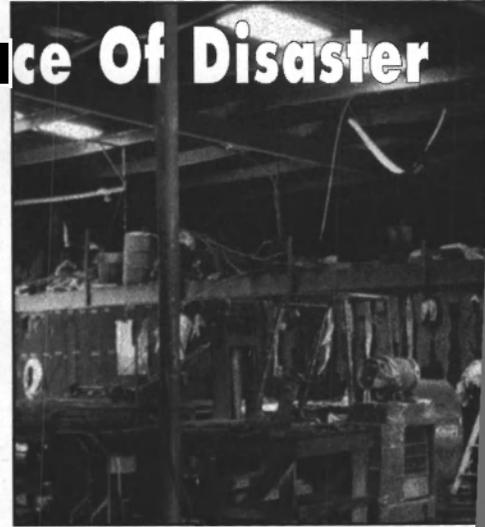
SEI Thrives In Face Of Disaster

Earlier this year, when Superior Energies Inc.'s (SEI) 12,000-sq.-ft. facility in Groves, Texas burned to the ground in a matter of hours, many observers would have thought the calamity big enough to drive a similar sized business to the "out-of-business" ranks.

But SEI — which manufactures insulation systems components, primarily used for diesel engine exhausts, gas turbines and manifolds to the marine offshore, gas transmission and compressor power generation markets — reacted quickly and decisively to ensure the business did not skip a beat.

In fact, as the fire was still raging, all of SEI's personnel were sent to Houston and Mobile, Ala. to work on projects, effectively not missing an hour of work. Office personnel were literally set up under a group of oak trees, using cellular telephones to gather new supplies, office trailer and additional equipment to resume normal operations at the earliest possible date.

During the crisis, SEI was unbe-



Even after a fire gutted SEI's facility in Groves, Texas, the company hardly missed a beat, meeting 93 percent of its shipment dates.

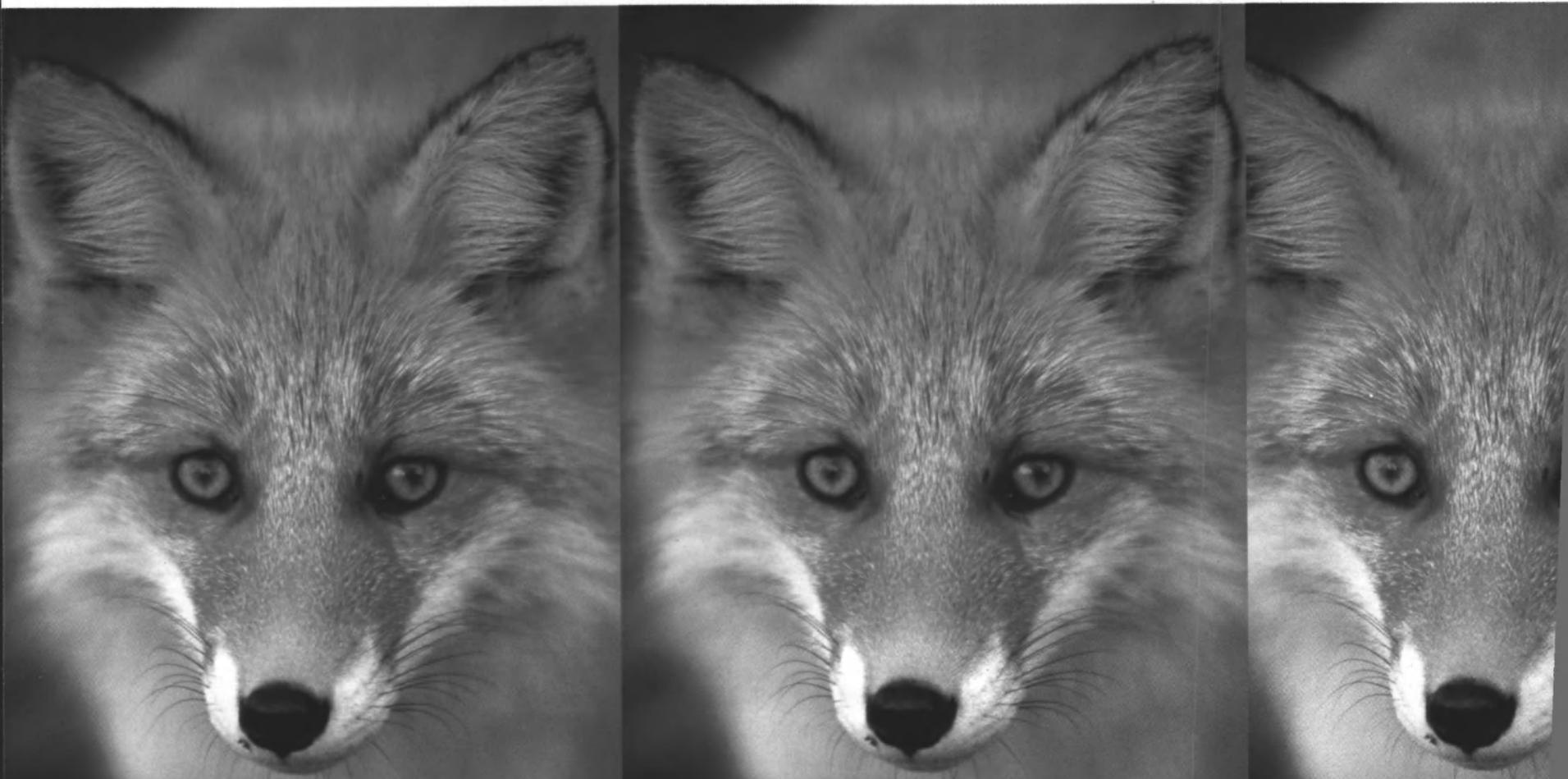
lievably able to meet 93 percent of its shipment dates for insulation products while, literally, working under a circus tent for two months.

Bred For Success

SEI was born in the garage of Jim Scott in 1978. Burton's Shipyard in Port Arthur, Texas was building a pair of supply boats, boats powered by a pair of re-manufactured 16-cylinder engines. During sea trials,

(Continued bottom next page)

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Haley Marine Gears: A Small Company With A Big Following

Haley Marine Gears, which has facilities in Greenville, Miss. and Belle Chasse, La., has long been a staple of the workboat business in the Gulf area. The family owned and operated company is relatively small, working among many larger, corporate-owned entities. But it has carved a considerable niche, relying on its penchant for meeting its customers needs quickly with quality products.

Earlier this year the company celebrated its 25th anniversary. **E. Ray Haley** started the business in 1973 to build gears and related components specifically for the marine market. Today, the company employs more than 75 people in those two locations, serving customers around the world.

The company now is built around three divisions: Haley marine Gears Inc., Haley Clutch & Coupling Co., and Haley Marine Gears International.

Haley Marine Gears Inc. is tasked with gear cutting, grinding and manufacture. Haley Clutch & Coupling specializes in the manufacture of pneumatic and hydraulic clutches and torsional couplings. Haley Marine Gears International, based at the Belle Chasse facility, has a full capacity machine shop and technicians which provide services around the world.

While Ray Haley is indeed pleased to watch over the company

extreme heat was effecting the performace of the engines themselves, and the yard was tasked with lowering engine room temperature. Burton's came upon a new product, Temp-Set Covers, that was used in the insulation of manifolds and turbos. Using the pproducts, the engine room temperature was lowered 28 degrees F ambient, and subsequently engine efficiency was enhanced. The company quickly built its business with well-known operators such as Tidwater and Zapata, and subsequently become involved directly with many engine makers, such as EMD, Detroit Diesel and Caterpillar. The Temp-Set Cover comes in a "do-it-yourself" kit, to eliminate the need for using contractors and to speed installation time.

Circle 198 on Reader Service Card

he created, the rewards are made that much sweeter by the fact that his four sons all are officers in the company, working to ensure the Haley Marine Gears reputation is

sustained for generations to come. **Kyle Haley** serves as president of Haley Marine Gears Intl.; **Neal Haley** is vice president of Haley Marine Gears; **Darrel Haley** is

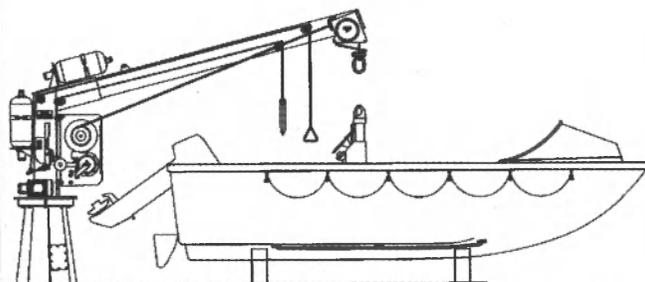
vice president of Haley Clutch & Coupling; and **Lee Haley** is vice president in charge of quality control.

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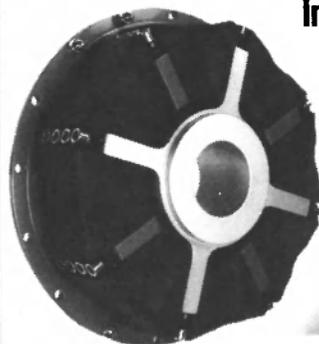
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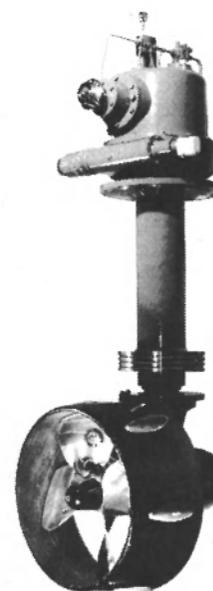
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Tug Delivered to Caillou Island Towing

Caillou Island Towing, Houma, La., recently took delivery of a like-new boat that emerged from the charred remains of a 16-yr. old

hull. "We replaced ribs and hull plating," said **Rory Dupre**, operations manager. "We totally rebuilt the house; it's basically a brand new boat."

For power, the company chose a pair of six-cylinder Cummins KTA

19M engines, turning shallow-pitched 62 x 42 in. open wheels.

The 1,200 hp tug is 62 x 24 ft. (19 x 7 m), and carries a full slate of Simrad electronics in the wheelhouse, including radar, autopilot and GPS/Loran combination. With accommodation for six, the vessel is involved with inland rig moving and offshore pipe barge movements. She is equipped with electric deck winches for rigging face wires to push equipment and H-bitts aft for soft line towing of barges.

The boat is also equipped with a pair of Cummins four-cylinder, B-series, 3.9-liter, 35 kW gen. sets.

Circle 39 Reader Service Card

Conrad Shipyard Delivers RoRo



Conrad Shipyard, in Morgan City, La., has delivered a new RoRo freight warehouse barge to Maybank Shipping Company, Inc. Classed ABS Maltese Cross, A1, All Oceans and USCG certificated, the barge is 278 ft. long, 80 ft. wide and 18 ft. deep, and features a shaped bow for improved towing in all weather conditions.

The perimeter of the barge is outfitted with a steel binwall, capped with a combination steel truss/PVC-impregnated fabric roof system furnished by K-Con Building Systems, resulting in a 246 x 73 x 30 ft. watertight cargo compartment. Access to the cargo area is through two 46 x 20 ft. hydraulically operated ramps, supplied by MacGregor USA.

Power for the hydraulic power unit is provided by a 120 kW generator set housed in a machinery compartment located below the cargo deck. The generator also supplies power to mooring equipment and to lights and ventilation blowers in the overhead of the cargo area. These components provide "around the clock" working conditions for loading and unloading. The barge allows the operator to load, transport and unload critical cargoes in premium condition.

Circle 164 on Reader Service Card

Kvichak Marine Industries' New OSRV

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Edmonds, Wash., is a fast response boom boat, stationary skimmer and advancing skimmer in a single package.

Widgeon is the fifth pollution control vessel Kvichak has built for Clean Sound. It is the first vessel of its kind, however, to incorporate two different oil skimming systems into one skimming platform. The KML Convertible OSRV is designed for fast response and safe effective operation in harbor, near shore and offshore environments. The recovery system can be safely deployed and operating within minutes by a crew of two.

The oil recovery equipment is fully integrated into the hull of the vessel and features a patented LORI Recovery Channel design. With the side doors and sweeping boom deployed, the 38 x 12 ft. all-aluminum OSRV becomes a 19 ft. wide "oil slick processing system." The vessel can advance at speeds up to three knots for maximum open-water oil encounter rates. When the vessel is stationary, the MARCO Flow Induction system creates a powerful inflow of surface water to draw oily water through the recovery channel.

Two recovery modules are supplied with the vessel. The MARCO 12 in. Filterbelt and LORI three chain Brush Pack are oleophilic skimming devices, which automatically separate oil from seawater. Both technologies are unaffected by the floating debris normally found in an oil slick. The operator chooses the Recovery Module, which is best suited to the operating conditions and oil slick characteristics, and can "shift gears" by changing modules as conditions change.

Other vessel features include: Twin StarDec 444/300 engines rated for 300 hp @ 3,600 rpm coupled to Konrad outdrive legs; Keypower bowthruster, deck-mounted davit, 220 gal. diesel fuel tank, Hynautic hydraulic steering system, 33 barrel recovered oil tank, 24 in. diameter access hatch, and a top-end speed of 28 knots.

Circle 165 on Reader Service Card

ECTUG's Point Halifax Led The Way

In July, the largest container-ship ever to berth in North America, Maersk Line's 6,000 TEU *Regina Maersk*, arrived in the port of Halifax, Nova Scotia. She was assisted to her berth by the 4,250

bhp tug *Point Halifax*, one of the five tugs operated by Eastern Canada Towing (ECTUG), a wholly-owned subsidiary of Cory Towage Ltd., in the Port of Halifax.

ECTUG operates in the ports of Halifax, Sept-Îles and Port Hawkesbury.

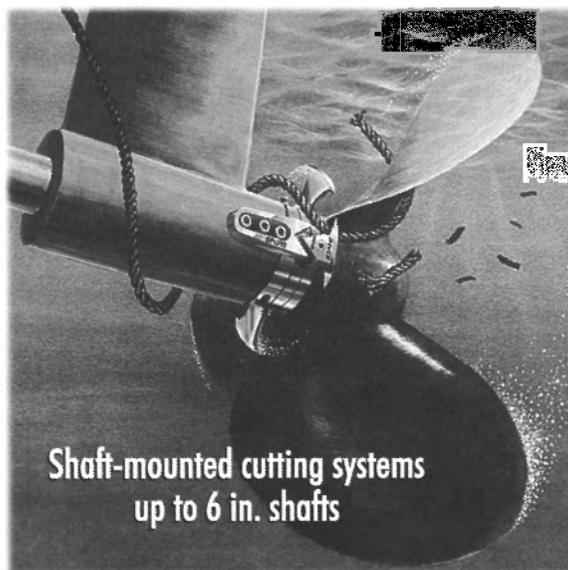
Halifax is a multi-purpose port and five of ECTUG's fleet of nine tugs are based there to serve a wide range of customers — container ships, tankers, general cargo vessels, bulkers, auto carriers, shipyard, visiting naval units and cruise vessels. ECTUG has

provided active and passive escorting of tankers from the Halifax harbor mouth to the Imperial Oil Terminal since 1992.

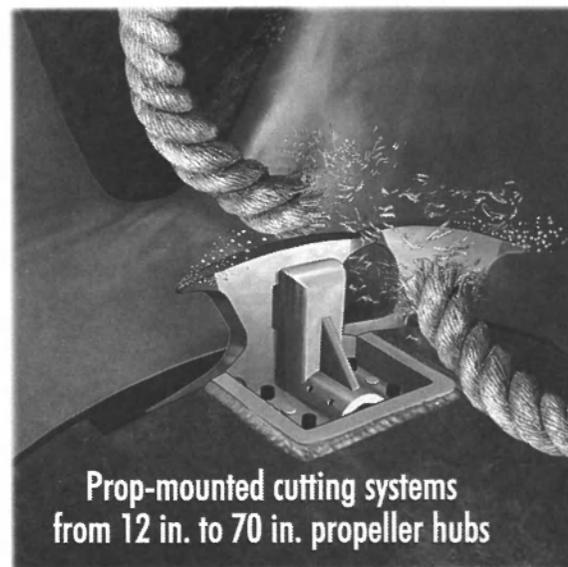
At Sept-Îles, ECTUG operates two tugs on long-term charter to the Iron Ore Company of Canada at their bulk shipping terminal.

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HEAVY-DUTY SIGNALS by Kahlenberg



Model S-120 Piston Horn

Chosen for use on aircraft carriers as well as commercial vessels over 200 meters in length, the S-120 utilizes an oscillating piston driven by 7-1/2 horsepower 3 phase 220/440 volt electric motor producing 143 dB and a fundamental frequency of 94 Hz in 1/3 octave band at one meter.



Kahlenberg Signals were developed to withstand the punishing use of commercial and military service. Their durability has been demonstrated over decades of service on ocean-going vessels ranging from naval warships to commercial vessels. Military specifications have required extensive testing for many of these whistles and the accessories supplied with them, which have proven the exceptional qualities of Kahlenberg design and manufacturing.

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Model S-203C/S-203 CHT

For vessels over 75 meters in length, this design allows both whistles to exceed 143 dB (1/3 octave band). The S-203C and S-203 CHT are virtually maintenance free. Durability is ensured by the use of bronze and marine aluminum construction materials throughout. For the most extreme cold weather operation, Model S-203 CHT (shown) includes a thermostatically controlled, heated enclosure for both the combination manual/electric valve, and the horn-sounding body.

Circle 285 on Reader Service Card

VMS Takes Another

Guide is the third of six 105-ft. (32 m) Harbor Class tractor tugs designed and constructed for Vessel Management Services, Inc. (VMS), a Crowley Maritime Corp. subsidiary. VMS has entered into a

long-term bareboat charter of *Guide* to Crowley Marine Services. Each of the six ship assist and escort tugs will feature Voith Schneider twin cycloidal propulsion and a hydrofoil-shaped skeg that provides greatly improved steering, control, and seakeeping

ability when the vessel is running at high speeds in the skeg-first direction. In addition, the unique hydrodynamics of the hull result in increased tons of steering and braking force, which are available to assist or control a vessel at higher speeds. The 4,800-hp *Guide* is



powered by two Caterpillar 3516-B engines and has an indirect bollard pull in excess of 120 tons at 10 knots. *Guide* was built by Nichols Bros. Boat Builders in Freeland, Wash.

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Guide
Main Particulars

Shipbuilder	Nichols Bros. Boat Builders
Vessel type	Harbor Tractor Tug
Owner/Operator	Vessel Management Services Inc. / Crowley Marine Services
Designer	Guido Perla & Associates, Inc.
Flag	USA
Number of sister ships	5
Contract date	May 1997
Float out date	September 1998
Delivery date	September 1998
Length, o.a.	105 ft. (32 m)
Length, b.p.	97 ft. (30 m)
Breadth, molded	36 ft. (11 m)
Gross tonnage	.366 ITC, 275 RGT
Displacement	582 LT
Engine controls	Kobelt
Steering controls	Voith-Schneider
Deck machinery	Markey Equipment Co.
Shafting	Voith-Schneider
Bearings	Cooper Split-bearings
Coatings	International Paint
VHF radio	SEA
Radar	Furuno
Compass	Azimuth
GPS	Trimble
Autopilot	Robertson
Pumps	Pump Industries
Heat Exchangers	Fernstrum
Air conditioning	Novenco
Liferafts	Swilik
Fendering	Schuyler

Mini-Slide System for Liferafts

DBC Marine Safety Systems has introduced a new mini-slide system in conjunction with its conventional IBAs and liferafts. The mini-slide has been designed to meet USCG and international regulations for evacuating passengers from low freeboard vessels in the safest and quickest method available. The mini-slide is available in two different sizes to work on freeboard heights of up to eight ft. and 13 ft. Packaged in a lightweight and compact valise, the mini-slide is portable and can be deployed from any evacuation station.

Circle 150 on Reader Service Card

wer Boost For it 3500B Engines

The 3500 Series B engines from Caterpillar's Engine Products Division have been released in two further versions, 3512B and 516B, with a longer stroke providing more displacement for additional power. The engines benefit from a 13 percent increase in power, as well as seven percent improvements in power to weight ratio and fuel economy. The new arrangements will be available in mid-1999.

Circle 158 on Reader Service Card

Croatian Company Licensed For Holeby GenSets

The production of MAN B&W Holeby GenSets in Croatia has been boosted by a license agreement between the Denmark-based licensor and Adriadiesel. The agreement, signed in January in Copenhagen, made Adriadiesel a full member of the MAN B&W Diesel A/S license family, along with an existing active Croatian licensee, Brodosplit. Adriadiesel is executing its first contract for Holeby GenSets which calls for 15 5L23/30H engines for five 13,000-dwt/4,300 car carriers being built at the Uljaink yard. Ship deliveries are planned to start in June 1999, the first pair destined for Dyviship of Oslo, the second pair for Providence Shipping Inc. of Monrovia and the last vessel for Montagua Bay Shipping.

ISF Launches STCW Compliance Record Book

The International Shipping Federation (ISF) has launched a "Personal Training and Service Record Book" to assist seafarers that are already qualified to demonstrate their compliance with the revised STCW Convention. The passport-style book allows records of all STCW related training and experience to be maintained in a single place that seafarers can carry with them throughout their seagoing careers. It is intended to help them demonstrate their ongoing competence to port state control inspectors, or when seeking to revalidate their qualifications.

New Operations Director For Cory Towage

Cory Towage Ltd. has announced the appointment of

Paul Stone as operations director. Based at the company's head office in Woking, England, Mr. Stone entered the position in mid-October. According to Cory Towage's managing director, **Graham Philip**, Mr. Stone will have responsibility for day-to-day operations as well as "establishing operational policies, regulating health, safety & environment

(HS&E) procedures, crew training and personnel development."

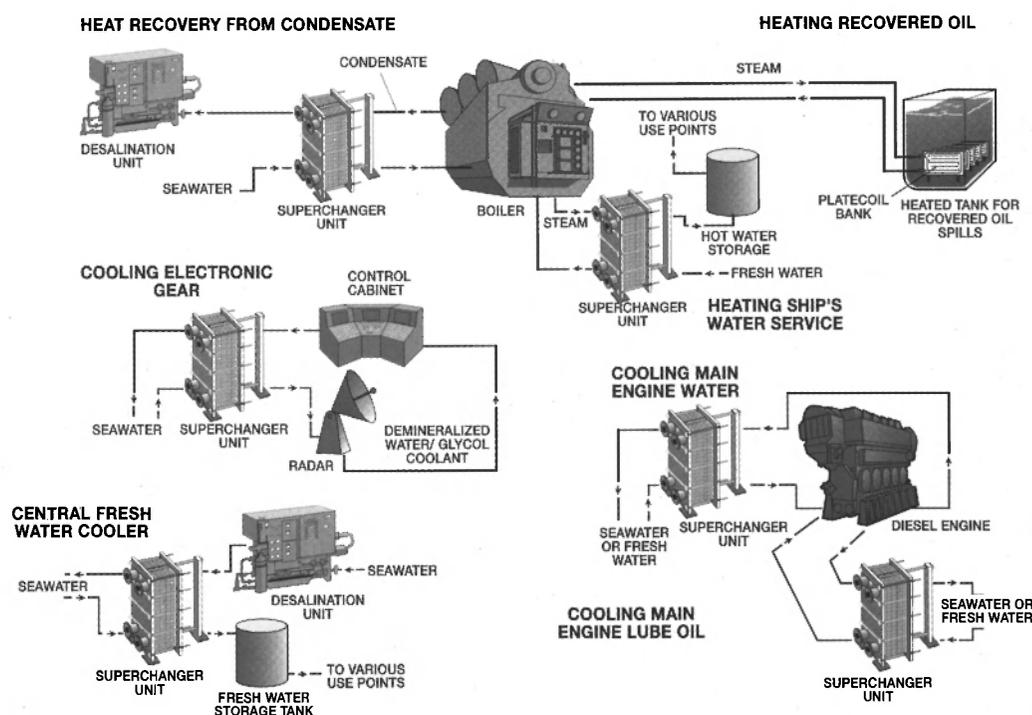
AMC Acquires Talon Sea Anchor

Aker Marine Contractors, Inc. (AMC) of Houston, Tex. recently acquired Talon Sea Anchor, Inc. and its parent company HMH Anchors International, Inc. The

new entity will be named Aker Marine Anchors, Inc. Included in the transaction was the Talon Stealth Anchor, a U.S. designed and fabricated, high-holding power, drag-embedment anchor. **Curt McCabe**, developer of the Stealth Anchor and former COO of Talon Sea Anchor, will assume the position of vice president of sales at Aker Marine Anchors.

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H E A T E X C H A N G E R S



Always well-regarded for delivering advanced technological solutions, Aker's recent acquisition of the Rauma-based Finnyards promises to help the yard extend its delivery of tailored niche solutions.

Clearing the path with innovation

By David Tinsley, technical editor

The level of Finland's contribution to innovative maritime technology and product quality is equivalent to that of countries of far greater economic and industrial size. It is a reflection of the country's essential propensity towards higher value-added activities, and of its unerring endeavors to maintain a technological edge in targeted fields. The current success in attracting a high volume of capital-intensive cruise ship newbuild work to Finnish yards has an enormous, positive knock-on effect for the maritime cluster as a whole. But an ability to continuously demonstrate versatility in providing solutions to specialized needs across-the-board, as regards shipbuilding, design, ship operating, engineering, systems and materials applications is the basis for sustained Finnish competitiveness in generally difficult international markets.

One of Finland's central aims as a member of the European Union, which it joined at the start of 1995, is to bring a strengthened northern dimension to the EU's work. The marine sector is playing its part in this. Until the break-up of the Soviet Union, Finnish yards, designers and marine equipment producers played a prominent role in the construction of cargo ships, icebreakers and other vessels purpose-built for the North-

ern Sea Route.

Despite the contraction in tonnage demand from Russia, Finland's maintenance of the wherewithal for Arctic maritime technology, and its operational as well as design and production capabilities, place it in a strong position to meet the needs of future projects arising from the exploitation of resources in northern Russia and its ice-bound Arctic waters. The enormous oil and gas reserves of the Barents Sea and the mineral deposits in the north are of long-term strategic importance to a European market characterized by a huge, overall dependence on external supplies of energy and raw materials. Adeptness at developing potentially cost-acceptable transportation solutions for such environments is a Finnish strongpoint. Today, newbuild activity is concentrated within and around two companies, Kvaerner Masa-Yards and Aker Finnyards, both owned by Norwegian industrial groups.

While Finland's share of global shipbuilding production is a modest two percent, its output is typically in the upper echelons of the business as regards unit values and levels of technical sophistication. Moreover, the penetration of certain capital-intensive sectors is high, as with the 20 percent-plus stake in the worldwide cruise ship construction market.

The propensity of Aker Finnyards for diverse, tailor-made projects, at

time of increasing standardization in the shipbuilding industry, as again been demonstrated by a recent order calling for the delivery of a seismic research vessel, using parts of the hull of an existing trawler.

As the Finnish entity within Aker Maritime, which also encompasses two Norwegian shipyard groups and a German builder, the modern Rauma establishment is playing to its strengths in taking on a contract for a research vessel, which also reflects a particular area of Aker shipbuilding expertise in Norway.

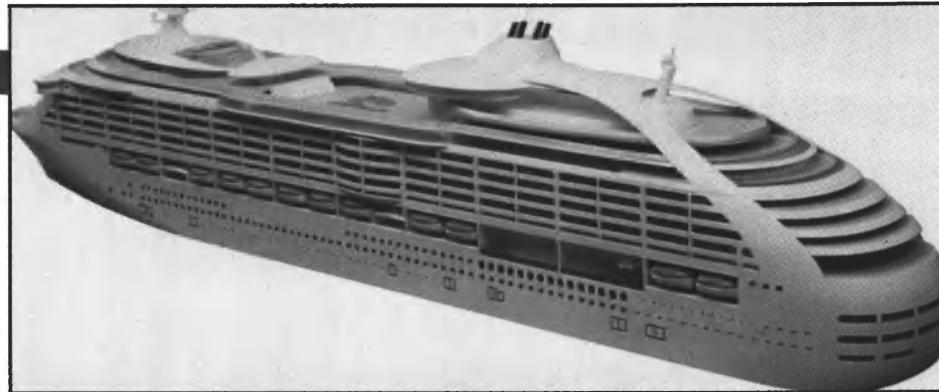
Aker Finnyards' track record includes 20 vessels for scientific, geotechnical, biological, Antarctic and seismic research. The latest order, worth \$61.4 million, calls for handover next summer of a 275.5 ft. x 60.6 ft. (84 m x 18.5 m) vessel, based on a trawler of 216.5 ft. x 46 ft. (66 m x 14 m), on which will be incorporated two new decks aft for research equipment and an additional tier of superstructure.

The yard's flexible business disposition and broad skills base was also underlined by the near-simultaneous commissioning of an ice-strengthened bulk carrier and a missile boat for the Finnish Navy. Valued at some \$30.7 million, the self-sustaining, 13,200-dwt bulker has been designed to be able to serve Finland's northernmost ports in the most severe winter ice conditions, while also meeting the requirements for worldwide trade.

Her ability to work raw material import and export cargoes in and out of Finnish harbors on a year-round basis strengthens the role of Helsinki owner ESL Shipping in support of the national economy. Much of the productive sector, including companies involved in the export-oriented forestry products and metals industries, is located in the north and west of the country, on the shores of the Gulf of Bothnia.

Besides the seismic vessel contract, the \$225.2 million orderbook includes a series of three RoRo freight ships, and also deck structures for a production platform, illustrating the complementary development of business in ship construction and steel fabrication.

The 1999 delivery program will open with a 9,300-dwt RoRo of 2,270 lane-m capacity for Turku-based operator Engship. The newbuilding is to be phased into service transporting trailers and trucks between Turku and the



Kvaerner has the knack of making fantasy a reality. Here is the concept of an "ultra-sized" cruise ship for Royal Caribbean Cruise Lines. The first of three of the 136,000 grt, \$500-million vessels is under construction at Kvaerner Masa-Yards now.

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Aker Finnyards Steps Out To The World

The face of shipbuilding around the globe, for better or worse, is undergoing a significant metamorphosis, forced in part by a cracked and crumbling global economy and ship prices which are mired in a trough. Specialized tonnage makers in Europe have been teaming, merging and acquiring one another for several years in an effort to build larger corporate structures which are designed to have more inherent cost efficiencies, as well as a natural resiliency to individual niche pressures due to diversity of product.

The latest major player to emerge from this sort of grouping is the Aker RGI and Aker Maritime-owned Aker Yards, the result of the merger of four shipbuilders (Aker Finnyards, Aker Brattvaag, Aker MTW and The Langsten Group) comprising seven shipyards in three countries. The yards are as diverse as they are similar, and are able to build a wide range of specialized vessels and offshore structures, as well as capable of bringing tailor-made concepts to reality.

The recent SMM exhibition was the first "public" showing of the group, according to **Otto Søberg**, Aker Yard's president and CEO. In actuality, the Group is still one-step shy of being complete, as Mr. Søberg conceded that the last step of the formal establishment of the merger was recently initiated. "But for all practical purposes, we are working as a group."

According to Mr. Søberg, it is in the context of the Group where the strength of Aker Yards lies. He points to the ability of Aker Yards to build a wide range of products to the same technical excellence as a major factor in driving the yard's business for years to come. Mr. Søberg vows not to become so entrenched in any one niche, however, that the overall health of the group is compromised by a downturn in one segment (i.e. offshore).

To ensure that the Aker Yards chain is strong, focus is being given to each of the links. To this end, Mr. Søberg revealed that there is a large restructuring currently underway at Aker Finnyards, and the



Aker Finnyards was recently contracted to build a 276-ft. (84-m) seismic research vessel.



Otto Søberg, president and CEO of Aker Yards, sees the group's diversity as a major strength. "If you are good in your market niche, you can survive."

group is concentrating investment on re-developing the yard's processes and facilities, as well as a "shake-up" on the corporate side. Providing specialist solutions to the maritime market is a never-ending process of finding and developing new projects, and as such, Mr. Søberg finds it difficult to give an overall evaluation of future "markets." "You will find projects out there ... always," he said, adding "although it is hard to see a lot of the shipyards going bankrupt. It is a hard market."

Mr. Søberg, like so many of his colleagues, continues to call for capacity containment in Japan and Korea as the only real means to control plummeting ship prices and restore prices to "where they should be."

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The Yards

Name	Aker Brattvaag
Location	West Coast Norway (5 companies)
Employees	400
Turnover	\$100 million
Name	Aker Finnyards
Location	Rauma, Finland
Employees	1,150
Turnover	\$200 million
Dock	.260 x 85 m
Lifting capacity	.300 tons
Dock capacity	.150,000 dwt
Name	Aker MTW
Location	Wismar, Germany
Employees	1,450
Turnover	\$260 million
Dock	.340 x 67 m
Lifting capacity	.1,000 tons
Dock capacity	.300,000 dwt
Name	The Langsten Group
Location	W. Coast, S. Coast Norway (4 yards)
Employees	300
Turnover	\$190 million

Finnish Maritime Report

North Sea port of Harwich, under charter to the Anglo-German firm ArgoMann Ferry Services.

The follow-on deliveries from the Rauma yard will be two 11,000-dwt RoRos, contracted by long-established Finnish owner Bore, and laid out with 2,600 lane-m for freight. Each of the sisters will be deployed in a cross-trading role, having been committed to P&O North Sea Ferries for the traffic between Teesport and Zeebrugge.

The technical highlight of the shipyard's activities in the current year was the 318 ft. (97 m) *Botnica*, an embodiment of the revolutionary concept of combining an icebreaker with an offshore support and construction vessel, first applied in the Finnyards-built *Fennica* and *Nordica*. The marrying of brute force, state-of-the-art maneuverability and first-class seakeeping properties has opened up new possibilities both in ice-breaking and subsea intervention duties, providing the scope for year-round revenue-earning, specialized employment and obviating the long idle periods associated with traditional icebreakers.

Botnica applies the same principles as her elder consorts but on a slightly smaller scale. She also incorporates a moonpool, allowing a wider range of offshore tasks in

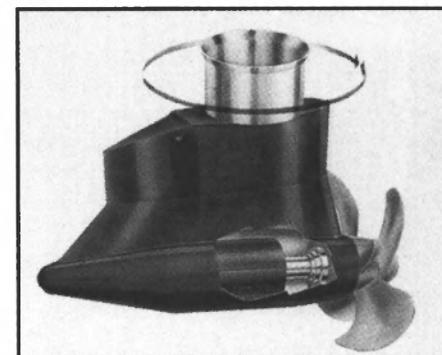
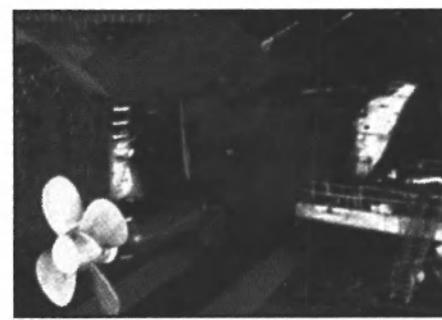
heavier weather conditions than with conventional methods, and also features Azipod propulsion. Aker Maritime holds 60 percent of the shares in Aker Finnyards, and has the right and the obligation to acquire the remaining 40 percent over the next three years.

Power In Pods

Electric podded propulsion technology, emanating from the Finnish engineering domain, has provided the market with an attractive alternative to conventional drive arrangements for a widening range of specialized vessel applications. This year has seen the Azipod system make its debut in the passengership sector, through installations in the sev-

enth and eighth Fantasy-class cruise liners out of Kvaerner Masa-Yards, namely the *Elation* and the newly-completed *Paradise*. The revolutionary system is set to make a substantial impact on the luxury vessel market, having also been specified this year for new-build cruiseship projects initiated by Royal Caribbean, Carnival Cruise Lines and its Italian associate Costa Crociere, and also by Hapag-Lloyd. A clutch of other orders for the Azipod, electric-drive azimuthing units are in the offing for orders lodged with various European yards.

The Azipod concept — which has gained considerable favor in the cruise market — has passed with flying colors in the rigorous operating conditions encountered by the ice-breaking tanker *Uikku* (above).





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Finnish Maritime Report

Germany's Meyer Werft, under contract to Royal Caribbean, will fit a pair of cycloconverter-controlled Azipods rated at 19.5-MW each, the most powerful units ordered to date, to a new breed of 86,000-gt, 2,100-passenger vessel incorporating a combined gas and steam turbine (coges) power plant.

Royal Caribbean's Eagle-class trio of 136,000-gt newbuilds from Kvaerner Masa will each have three 14 MW podded units, while the next generation of 82,000-gt, Carnival group vessels from the Finnish builder will each employ two 17.6-MW Azipods.

Azipod has a proven track

record in difficult ice navigation conditions, having been retrofitted in 1993 and 1995 to two Finnish 16,000-dwt products carriers, *Uikku* and *Lunni*, purpose-designed for Arctic and Baltic trade. As a further stage in its application to ice-prone waters, the system has been adopted in a pair

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Icebreaking Supply Ships Delivered By KMY

Arcticaborg is one of two icebreaking supply ship newbuildings built at Kvaerner Masa-Yards Helsinki New Shipyard for Wagenborg Kazakhstan BV, a company in the Sutch shipowning group Wagenborg. Arcticaborg and her sistership Antarcticaborg were ordered in December 1997 and delivered to Wagenborg in October 1998.

The vessels are designed for year-round operation in the Caspian Sea. They will begin to serve drilling platforms operated by Offshore Kazakstan International Operating Company (OKIOC) for which they are on long-term charter.

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Arcticaborg Main Particulars

Shipbuilder Kvaerner Masa-Yards
Vessel type Icebreaking supply vessel
Owner/Operator Wagenborg Kazakhstan BV / OKIOC
Classification society Bureau Veritas
Contract Date December 1997
Length, o.a. 213.5 ft. (65.1 m)
Breadth 54 ft. (16.4 m)
Draft, loaded 9.5 ft. (2.9 m)
Height 14.4 ft. (4.4 m)
DWT 675 tons
Speed 13 knots
Main engine Wärtsilä 6L26
Main generator van Kaick DGS
Harbor genset Valmet, Stamford
Emergency genset Valmet, Stamford
Propulsion ABB Azipod Oy
Icebreaking performance ahead 2 ft. level ice (0.6 m)
Icebreaking performance astern 3.3 ft. level ice (1 m)
Bollard pull 32 tons
Diesel oil capacity 400 tons
Fire pumps, monitors Kvaerner Eureka
Step up gears Kumera
Fire extinguishing system Hi-Fog, Marioff
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Machinery automation system ABB Marine
Cabling Nokia, Helkama
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Oil mud system Bergen Rorhandel
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Icebreaking supply vessels designed for long-term charter in the northern Caspian Sea. The 213 ft. (35 m) sisters *Arcticaborg* and *Antarcticaborg*, each equipped with two 1,620-kW podded propulsors, have been completed by Kvaerner Masa for a new Kazakhstan affiliate of the Dutch company Wagenborg Shipping. The shallow-draft newbuilds will provide year-round support to drilling platforms run by Offshore Kazakhstan International Operating Company (OKIOC), a consortium in which Shell is a leading player.

Nemarc Shipping's *Uikku* and *Lunni* provided the first sea-going reference for the Double-Acting (DA) operating principle, whereby a vessel is strengthened and engineered for navigating stern-first in hard ice conditions, with the bow designed for good seakeeping and open-water characteristics. The Wagenborg sisters give form to the concept for the first time in a new-building project.

The Rauma-built, dual-role *Botnica* and her twin 5-MW Azipod propulsors will bring the electric podded drive into the Baltic icebreaker scenario during the winter period. Kvaerner Masa-Yards has also incorporated the system into its proposal for a novel design of icebreaker devised as an economic solution to Finnish ports' varied channel-maintenance needs. The so-called oblique icebreaker, whose unconventional shape would enable a single vessel to clear varying widths of ice from fairways in a single pass, would use an Azipod unit in each of three apexes of the hull. While a considerable proportion of its capacity is currently absorbed in the construction of large, high-grade cruise ships, with orders and options covering slots some years ahead, Kvaerner Masa has maintained its endeavors in the field of ice-going vessel technology. The company and its predecessors have produced about 60 icebreakers over the past 45 years, predominantly for Arctic and Baltic service, plus around 50 special Arctic ships. It is keen both to maintain continuity in the construction of icebreaking vessels and to establish contractual links with the Russian federation, following its long-standing contribution to the fleet controlled by the former Soviet Union.

A shipbuilding deal which has been under negotiation for a sub-

stantial time would meet both objectives. The subject design, of some 16-MW power output, would fulfill a combined supply and research icebreaker role sought by the Russian authorities. As a further example of the country's adeptness in developing maritime

technology for application in the polar latitudes, Finnish-based ILS Consulting, in conjunction with Norwegian tanker specialist Navion, has formulated a new concept of vessel for loading and transporting oil in Arctic waters.

Known as the Arctic Shuttle,

the design is based on the integrated tug-barge principle, and thereby differs fundamentally from alternative solutions proposed for northern Russian waters, such as the various Double Acting Tanker (DAT) designs drawn up by Kvaerner Masa-

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Yards. A multi-purpose capability is conferred by the Arctic Shuttle, since the 86-m by 23-m pusher tug unit would be able to function independently as an icebreaker when not required to serve as the 22-MW propulsion and command vessel for the 869 x 124.6 ft. (265 x 38 m) tank barge. The carrying unit, with an envisaged capacity of about 97,000-cu m, would incorporate a submerged turret loading (STL) facility, specially reinforced for operations in heavy ice.

Instigated by a feasibility study for an offshore field development in northern Russia, the technical project had as one of its parameters the requirement for the tug-barge combination to ensure a speed of around three-knots in ice of one-m thickness. Studies are being progressed to optimize the combined design for open-sea navigation. The attributes of the Kvaerner Masa-Yards' proposed Double-Acting Tanker in this respect, are one of its major strong-points, since it offers a level of open-water hydrodynamic efficiency not normally attainable by vessels designed to trade in extremely

difficult ice conditions. Kvaerner Masa-Yards has a letter of intent for the construction of a 90,000-dwt newbuild employing the DA concept. The tanker would be able to combine year-round trading to the Barents Sea region, inside the Arctic Circle, with a shuttle tanker role. Using Azipod propulsion, the design is strengthened for stern-going operation in thick ice, allowing the use of a bulbous bow for most efficient, forward-going navigation in open-water conditions.

Finnish prowess in four-stroke diesel technology has found new expression in the potent Wartsila 64 engine, the champion in the medium-speed power stakes. While the exhaustive technical program continues, a commercial response to the product development initiative is already shaping up, as reflected in a clutch of commitments from European shipowners to the new design.

Offering a nominal output of around two-MW in its in-line versions, the environmentally-favorable Wartsila 64 provides a platform for engine efficiency levels of 55 percent and beyond. Its attrib-

utes have been favored for a 16-knot containership newbuild at the Sietas yard in Germany. Although little has been disclosed regarding the ship design, the vessel is known to have been fixed for regular trade between Finland, U.K. and the Netherlands. The seven-cylinder installation will be derated to 12,600-kW, and the agreement includes an option on a second engine for a follow-on vessel.

Enterprising Dutch company Spliethoffs, which runs a large fleet of mainly multi-purpose cargo and container vessels from its Amsterdam headquarters, has also specified the 64 engine in its six-cylinder model for a series of 19.5-knot newbuilds in Japan. Each of six 18,900-dwt container-moduled, general purpose cargo ships, three from Mitsubishi Heavy Industries and three from Tsuneishi Shipbuilding, will accordingly have a plant of 12,060-kW output.

The manufacturing arrangements for the Wartsila 64, which was conceived in Finland and prototype-tested at the company's Vaasa research center, bear out the great store which Wartsila NSD

holds by its focused-factory principle. The 640 mm-bore machine will be assembled not in Finland, but at the Grandi Motori Trieste (GMT) plant in north-eastern Italy, which offers the requisite scale for handling and concentrating the production of the heavyweight in the medium-speed range.

GMT is owned on a 60:40 basis by Fincantieri and Wartsila NSD, although the Finnish influence on operations is stronger than the share participation suggests, to the extent that the Trieste factory today incorporates much of the Finnish philosophy as regards production operations.

Weaker than anticipated results for Wartsila NSD, the largest division within the Helsinki Stock Exchange-quoted Metra industrial group, gives added relevance to the company's focused production policy. Difficult international market conditions have necessitated new measures to restore profitability, notably including changes to establishment levels in certain foreign plants. The focused-factory idea is regarded as crucial to ensuring long-term competitiveness.

POSTAL BULLETIN

21875, 9-1-94, Page 17



Statement of Ownership, Management, and Circulation (Required by 39 U.S.C. 3685)

1. Publication Title Maritime Reporter/Engineering News		2. Publication No. 0025-3448		3. Filing Date 9/29/98	
4. Issue Frequency Monthly		5. No. of Issues Published Annually 12		6. Annual Subscription Price none	
7. Complete Mailing Address of Known Office of Publication (Street, City, County, State, and ZIP+4) (Not Printer) Maritime Reporter and Engineering News 118 East 25th. St, New York, NY 10010					
8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not Printer) Maritime Activity Reports 118 East 25th. St. New York, NY 10010					
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do Not Leave Blank)					
Publisher (Name and Complete Mailing Address) John C. O'Malley Maritime Activity Reports, 118 E. 25th. New York, NY 10010					
Editor (Name and Complete Mailing Address) Greg Trauthwein Maritime Activity Reporter, 118 E. 25th. St New York, NY 10010					
Managing Editor (Name and Complete Mailing Address) Christopher Palermo Maritime Activity Reports, 118 E. 25th. St. New York, NY 10010					
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PS Form 3526, October 1994

(See Instructions on Reverse)

PAGE 18, 9-1-94, 21875

POSTAL BULLETIN

13. Publication Name Maritime Reporter and Engineering News		14. Issue Date for Circulation Data Below September 1998	
15. Extent and Nature of Circulation		Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies (Net Press Run)		36,235	37,171
b. Paid and/or Requested Circulation (1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not Mailed) (2) Paid or Requested Mail Subscriptions (Include Advertisers' Proof Copies/Exchange Copies)		0	0
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))		31,952	32,163
d. Free Distribution by Mail (Samples, Complimentary, and Other Free)		3,110	2,602
e. Free Distribution Outside the Mail (Carriers or Other Means)		713	2,131
f. Total Free Distribution (Sum of 15d and 15e)		3,823	4,733
g. Total Distribution (Sum of 15c and 15f)		35,775	36,896
h. Copies Not Distributed (1) Office Use, Leftovers, Spoiled (2) Return from News Agents		460	275
i. Total (Sum of 15g, 15h(1), and 15h(2))		36,235	37,171
Percent Paid and/or Requested Circulation (15c / 15g x 100)		88.2%	86.5%
16. This Statement of Ownership will be printed in the November 98 issue of this publication. <input type="checkbox"/> Check box if not required to publish.			
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PS Form 3526, October 1994 (Reverse)

cer Finnyards Names jistio VP

Timo Suistio has been appointed vice president of sales and marketing with Aker Finnyards.

Southwest Marine Appoints New NORSHIPCO Head

Southwest Marine has appointed **Alexander J. Krekich** as president of the newly acquired Norfolk Shipbuilding and Drydock Corporation (NORSHIPCO).

New Director and VP At Palmer Johnson

Daniel Shea has been appointed director of product development at Palmer Johnson Inc. In addition, Palmer Johnson has promoted **Michael Schinkten** to vice president and general manager.

C.Plath Gyrocompass Wins German Type Approvals

C.Plath, a business unit of Litton Marine Systems, has been granted BSH Type Approval for the Navigat X MK1 and MK1 HSC (high speed craft) gyrocompasses.

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Daewoo Relocates New Jersey Office

Daewoo Heavy Industries American Corporation, Shipbuilding Division is located at 8 York Avenue, West Caldwell, New Jersey 07006 as of October 12, 1998. The main telephone number of the new office is (973) 618-2500; fax (973) 618-2483 or (973) 618-2473.

Knudsen Elected To MLA Board

Jean Knudsen, vice president and claims manager for the All American Marine Slip (AAMS) unit of the marine insurance organization Marine Office - Appleton & Cox (MOAC), has been elected to the board of directors for the Maritime Law Association (MLA). The MLA is the principal organization of the admiralty bar created to advance reforms in U.S. maritime law.

Parker Names Distributors

Parker Hannifin's Mobile Systems Division has appointed new full-line distributors that provide customers with complete

mobile hydraulic systems solutions. Newly appointed distributors include Cross Fluid Power in Greensboro, N.C., covering North Carolina, South Carolina, Georgia, Alabama, Virginia, northwest Florida and portions of Mississippi, Tennessee and West Virginia; and Power Dynamics in Harvey, La., servicing the state of Louisiana.

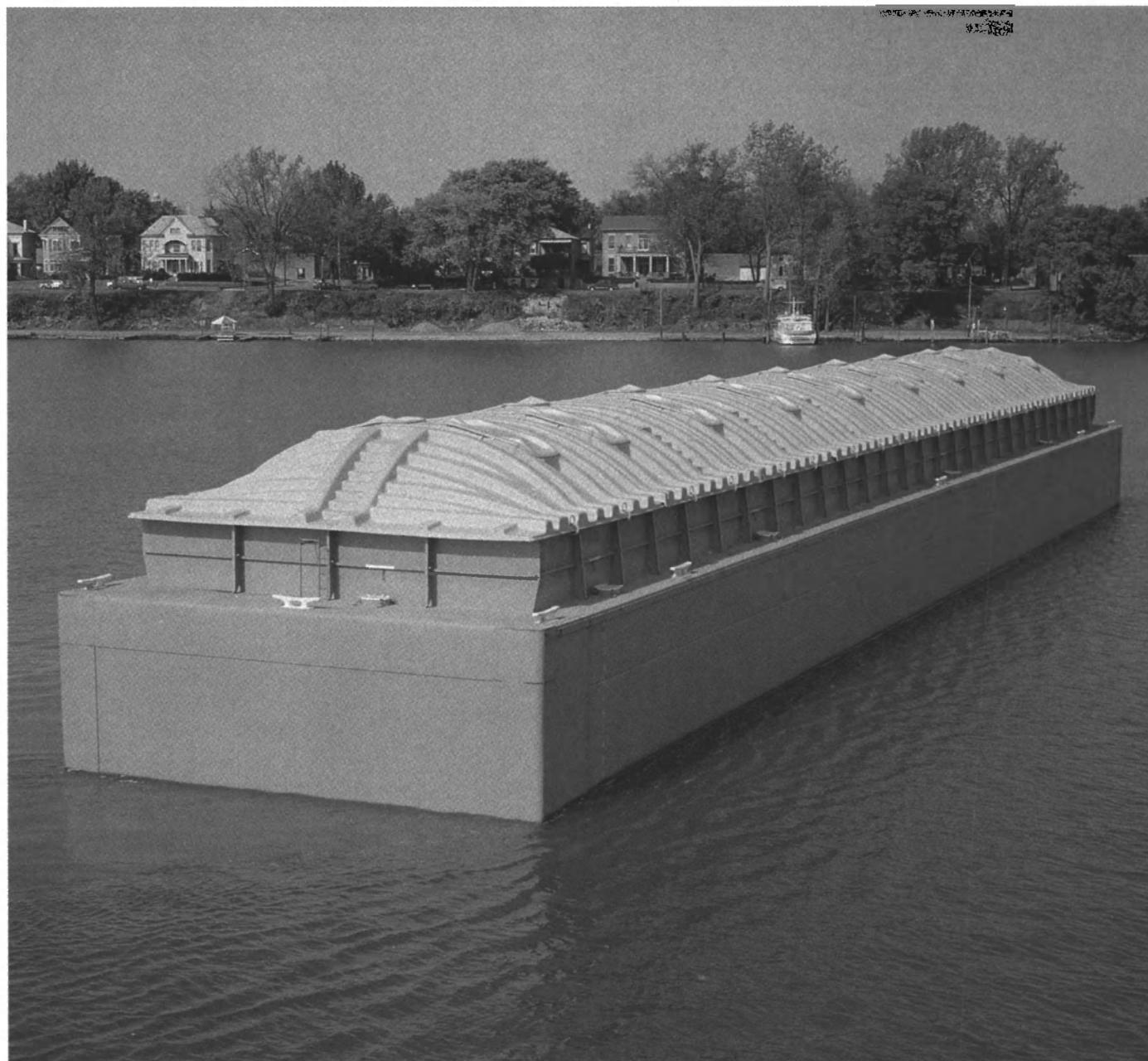
Totem Resources Changes Name

Totem Resources Corp. (TRC), a maritime holding company headquartered in Seattle, Wash. has changed its name to Saltchuk Resources, Inc. Saltchuk, meaning saltwater in Chinook vernacular (the trading language used by Native Americans from Oregon to

Alaska), refers specifically to the Puget Sound region.

Retired Navy Vice Admiral Joins McDermott

VAdm. **John B. LaPlante**, retired from the U.S. Navy, has joined McDermott Intl. as director of the Mobile Offshore Base (MOB) Program Development.



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Lisnave Continues To Set Trends

By Alan Thorpe, International Editor

Despite the intended reorganization of Lisnave, which will eventually lead to the closure of the large Margueira shipyard near Lisbon, business at Lisnave has continued to set trends. The company has won contracts from shipowners located in 26 different countries — Norway, U.K. and U.S. being the most dominant — and the Margueira yard is boasting in excess of 90 percent drydock occupancy so far this year.

The most significant contract still at the yard involves the 137,159-dwt storage unit *Serepca 1*. Owned by Elf Exploration (Cameroon), part of Elf Aquitaine, she is at the yard for drydocking, which comprises 800 tons of steel renewal and general repairs. She arrived at the yard during mid-May after being towed from Cameroon to Lisnave and is expected to leave during early-October 1998. Previous to the ship docking at Lisnave, yard workers carried out voyage repairs before she entered drydock.

The aim of this repair operation is to extend *Serepca 1*'s life as a storage vessel for an additional seven years. With regards to the repair work, it was originally estimated that some 40 tons of steel was needed to be replaced in the ballast tanks, but on further inspection, the owners and classification society decided to renew 800 tons in the cargo tanks. Lisnave carried out internal tank cleaning,

followed by 17-day de-slopping and gas-freeing operations at a cleaning station. This change in repair work extended the vessel's visit at Lisnave from 34 days to approximately five months. The vessel was converted to a FPSO 14-years ago and since then has been operating off the west coast of Africa for Elf.

Lisnave's Mitrena yard is presently dedicated to offshore platform repairs and conversion of bulk carriers into drilling vessels for Houston-based offshore company Falcon Drilling. These conversions include the *Peregrine VI* and the *Peregrine VIII*, which will be able to drill to depths of 10,500 ft. (3,200 m). This yard is also carrying out a conversion of a drilling platform, the *PX*, for Brazilian oil major Petrobras, doubling the vessel's deep drilling capacity from 1,970 ft. (600 m) to 3,937 ft. (1,200 m).

Wilton Fijenoord Takeover Imminent

There have been some further developments with the proposed takeover of the Wilton Fijenoord (WF) repair facility in Schiedam. Both yards' workers councils are expected to agree terms which includes a promise from YVC that there will be no redundancies at the time of the amalgamation, which is expected to take place during the first half of 1999. There are currently 145 workers employed at YVC's Bolnes shiprepair yard and a further 275 at WF. RDM Technology Holding



The *Coastal Golden*, which is being converted to a drillship for Falcon Drilling at Lisnave's Mitrena Shipyard.

BV acquired the shares of Wilton Fijenoord Holdings BV earlier this year and will retain ownership of Verolme Botlek and the naval part of WF, which includes a fairly busy spares and support contract involving submarines built at WF for the Taiwanese Navy. RDM is also expected to sell the panamax floating dock, which is currently part of the WF shipyard. When the move by YVC Bolnes to WF takes place, there will be a total of six docks (three graving and three floating) involved, which, according to YVC is too much and therefore another floating dock is likely to be placed on the sale and purchase market. The WF facility will then carry on in a smaller scale following the sale of some of the site to industrial interests in the shiprepair industry, with a shipbuilding capability in the 40,000 dwt capacity covered dock. The new operating name for the yard will be Rotterdam United Shipyards. The shipbuilding side of YVC's activities is not likely to move until after the year 2001.

Lloyd Werft Bremerhaven, Germany, has continued its dominance of the cruise market by winning a \$23.2 million contract from

Finland's Birka Line, for the conversion of the 21,484 grt passenger RoRo *Birka Princess*. The contract, which will see the yard fully occupied until the end of the first quarter of 1999, will primarily involve bringing the vessel up to current environmental standards. Additions include a waste gas purifying installment for the engines, as well as a fire-extinguishing system. The conversion side of the contract will see the yard extend one deck and construct a panorama lounge extending over two decks. A total of 62 new passenger cabins will be built, bringing the total to 559 cabins (a total of 1,100 passengers). A new restaurant will also be included.

FPSO Conversion Proceeds In Singapore

The latest stage in the construction of the FPSO for the Triton Field has taken place with the *Triton 1* arriving in Singapore for further modification and installation work prior to sailing for the U.K. The *Triton 1*, a 105,000 dwt, 624,000 barrels capacity unit, was constructed by South Korea's Samsung Heavy Industries (SHI) under a contract originally signed

The LNG carrier *LNG Matthew* alongside at BMI. The re-activation of the large LNG carrier *LNG Matthew*, formerly the *El Paso Gamma*, is now almost complete at Maryland's Baltimore Marine Industries (BMI), with sea and gas trials to be completed and then delivery during the early part of November this year. The ship had been laid-up for a total of 16 years, the re-activation process beginning during early-February 1998.



With Singapore's Tanker Pacific then assigned to Kvaerner Oil Gas Ltd (KOGL), Croydon following a contract for the design, construction, in-installation and commissioning of the Triton FPSO being awarded to KOGL by Amerada Hess during August 1997.

The original design was upgraded following KOGL's take-over of the construction program to give the hull added strength and service life by enhanced steel grades and thicknesses. The hull, which currently has its own propulsion unit, has now arrived at Singapore's Sembawang Shipyard for execution of the modification workscope, including the installation of a Bluewater designed mooring turrets casing.

This turret casing is constructed with top and bottom bearing housings, approximately 20 ft. (6 m) in diameter and 82 ft. (25 m) apart, and is to be integrated to the double bottom structure that was prefabricated by the yard. These bearing housings were checked for precise alignment, marked and

machined to very fine tolerances. The entire structure, weighing some 250 tons, is to be integrated into the No. 1 cargo tank when the vessel is in drydock using a sheer-leg floating crane.

Other works by Sembawang Shipyard include installation of the topsides support stools, stern discharge grillage, cooling water caissons, fire pumps, HVAC system and major deck cable trays and cabling work conforming to stringent North Sea offshore standards. When completed *Triton 1* will sail from Singapore to Teesside during late October for topsides installation including two production and two utility 'pallets' and a Bluewater designed turret mooring system. The fabrication work will be carried out at KOGL's facility at Port Clarence, a former Trafalgar House site, on the north side of the Tees and the integration at Cargo-fleet Wharf, on the south side of the river. During this process the main propulsion unit will be decommissioned and the rudder and propeller removed.

Triton 1 is then expected, during

the third quarter of 1999, to be towed out to the North Sea where she will go on station to serve the Bittern Field, formerly known as Abbot (Amerada Hess) and Razorbill (Shell), and Texaco's Guillemot West Field. The individual fields will be developed using subsea trees, control systems, manifolds, and flowlines provided by Amerada Hess and partners. When the vessel takes her first cargoes of oil and gas, the ownership will be transferred from KOGL to Amerada Hess. It is expected that the unit will stay on station for at least 15 years.

OSV In Sea Trials

The 3,548 dwt Bahamas offshore supply vessel *Kommandor 3,000*, which is currently chartered with Oslo-based DSND, is to undergo further conversion work to enable her to undertake pipelaying work off the Brazilian coast. The vessel is currently undergoing sea trials, following a 10-month conversion project - converted from a RoRo vessel to an OSV at Fredrikshavn's Orskov Staal-skibsvaerft. DSND

has recently concluded a provisional agreement with Brazilian state-owned oil group, Petrobras, to enter into a supply contract, worth \$77 million, to supply a further vessel for laying flexible pipelines in Brazilian waters. The agreement has a term of two years plus a one-year option, with delivery during the second quarter of 1999. The latest conversion project will commence at the beginning of next year at a yet unnamed shipyard in Europe.

Keppel And Hitachi Zosen Set To Merge

More details have now been released regarding the proposed Keppel/Hitachi Zosen (Singapore) merger, which is now expected to take place by the end of this year. Singapore's Keppel Corp. and Japan's Hitachi Zosen Corp. have agreed to collaborate on projects in the region and to merge their shipyards in Singapore on revised terms. The two companies have signed an understanding to jointly pursue and work on investment projects in mainland China, Indo-

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Finnlines Vessel Undergoes Ballast System Conversion

At the end of 1997, Finnlines Ltd. acquired a 6,100-dwt RoPax vessel built in Indonesia in 1996. The vessel which was then called M/S Gotland and now sails under the name of M/S Finnarrow was

intended for use in the growing truck ferry service of Finnlink Oy between Naantali in Finland and Kapellskar in Sweden.

In order to adapt the vessel for the quick loading and unloading

required in truck ferry service, she was converted to facilitate through-driving. Originally, the vessel was equipped with one stern ramp and two internal ramps: after the conversion, both the main



deck and the upper deck provide a through-drive facility. The bow is equipped with a main deck ramp and doors, and an upper deck door. The stern is provided with a main deck ramp and an upper deck ramp.

As the capacity of the original ballast system was found to be too low for quick cargo handling, the ship owner decided to install entirely new ballast systems with a considerably higher capacity, separately in the stern and in the bow. Deltamarin Ltd. was chosen as the designer of the ballast system, and ACOMARIN Engineering Ltd. as the equipment supplier. The contract of the equipment deliveries was closed in April 1998, with deliveries scheduled for May and June.

The capacity of the ballast pumps (two pieces) was set at 1,200 cu. m./h/pump at a counter pressure of 1.5 bar. Electro-hydraulic actuators were used, eliminating the need for external pipelines which would have been difficult to install through existing accommodation spaces. Each high-torque actuator has its own built-on power unit that houses all the required hydraulic components, such as a bi-directional pump, a tank, safety and lock valves, as well as the electric components, such as position transmitters, limit switches, pressure switches and relays. By utilizing individual power units, the system does not require a centralized power unit or a magnetic valve center.

The new ballast system can pump the required ballast in approximately 20 minutes. The delivery included all equipment required for instrumentation, such as pressure measuring components, level transmitters, and float switches. Finnarrow was docked at the Helsinki Repair Yard Oy's shipyard in Helsinki in May 1998 and delivered to Finnlines in early July.



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China, India and ASEAN countries.

Under the agreement, Keppel will sell all the shares of the wholly-owned subsidiary Keppel Shipyard in Tuas to HZSL at \$158 million, to be raised by HZSL issuing new ordinary shares of \$0.20 each at a revised price of \$0.52 per HZSL share to Keppel. In the earlier proposal, the price per HZSL share to be issued to Keppel was \$0.59.

Following the merger, principal shareholders Keppel and Hitachi Zosen through their wholly owned subsidiary, Hitachi Zosen (Asia) Holdings Pte Ltd (HZA), will have interests of about 59 percent

and 29 percent respectively in the enlarged share capital of HZSL, which will be renamed Keppel Hitachi Zosen Limited.

Approvals for the proposed merger by shareholders of HZSL and relevant authorities are expected to be obtained by November this year. Upon completion of the proposed merger, expected to take place by the end of the year, Keppel will make an unconditional take-over offer for all HZSL shares not already owned by Keppel and parties acting in concert with it at a price of not lower than \$0.52 per HZSL share. HZA has undertaken to maintain its 29 percent stake in Keppel Hitachi Zosen.

Waterjetting Solution Adopted By Victor Lenac

Waterjetting continues to grow in popularity among shipyards seeking an efficient and environmentally acceptable solution to conduct surface preparation. Croatian shipyard Victor Lenac is the latest in a long line to order waterjetting equipment, as it has added WOMA waterjetting equipment which includes four containerized ultra-high pressure water jet units "Ecomaster Twin Jet" and three containerized ultra-high pressure waterjetting units "325 Z-2000."

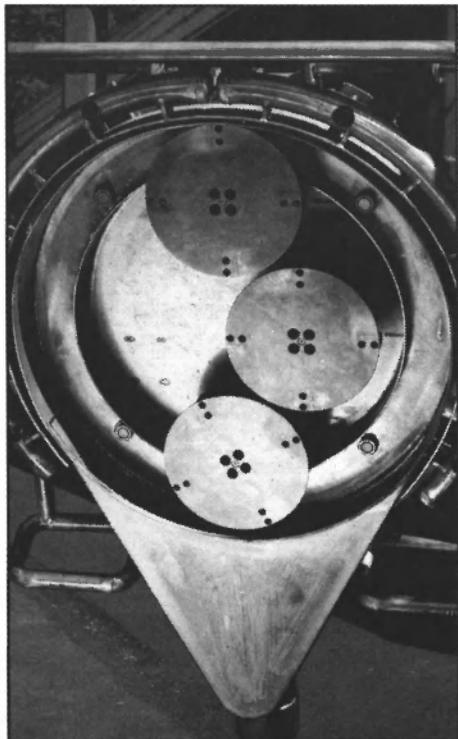
The Twin Jet units generate an operating pressure of 2,000 bar and a water flow rate of 2 x 20 l/min., and comprise two in-line high-pressure plunger pumps. The power rating of the electrically driven systems is 144 kW. With the Twin Jet, two water tools can be run independently and simultaneously, each with a water flow rate of 20 l/min. The Twin Jet accessories contain four emission-free working cleaning tools dubbed ERC — including a 30-m high working platform, and eight surface preparation tools, dubbed Speedy 2000/E24 — for high performance. Also, part of the system is a suction line for the jetting water and the removed paint that is driven by an electric booster pump.

The 325-Z units are capable of generating an operation pressure of 2,000 bar and a water flow rate of 56 l/min. Also driven by electric motors, the power rating is 202 kW. The corresponding water jet cleaning tools are nine electrically driven ultra-high pressure guns and nine surface preparation tools. In order to perform emission-free

ship wall paint removal, two systems are ordered that work at an operation pressure of 2,000 bar and a water flow rate of 56 l/min.

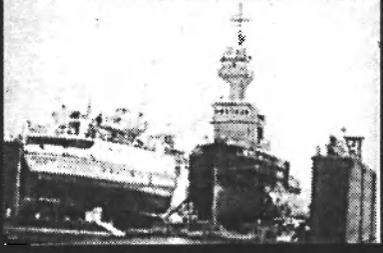
Also, the delivery includes a plunger conversion set for the 325 Z units to run the pumps at an operating pressure of 1,000 bar and a water flow rate of 132 l/min. This package contains WOMA's Double RRC 1000 for mechanized wall cleaning, and a WOMA tank cleaning head for cleaning ballast tanks and containers.

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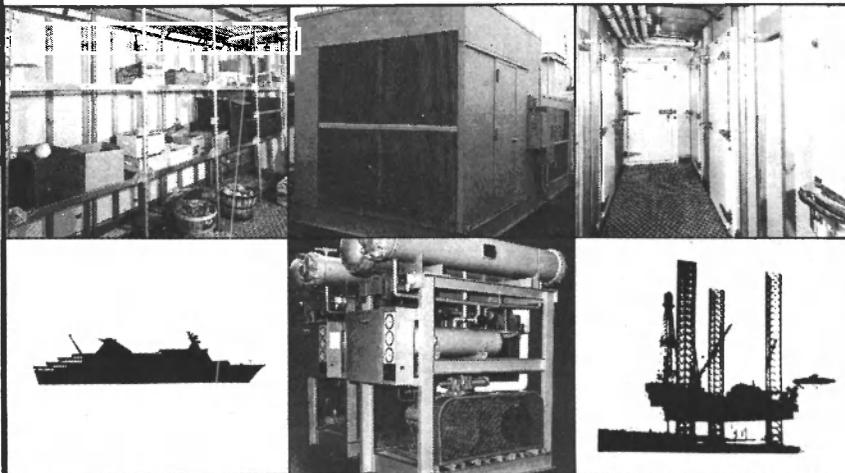
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AAPA And MarAd Update Port Risk Guide

The Port Risk Management and Insurance Guidebook is a resource for risk management professionals at public ports authored originally in 1985 and updated in 1998 by the American Association of Port Authorities (AAPA) and the Maritime Administration (MarAd).

The guidebook, written from the port's perspective and geared toward the basics of insurance and risk management, is designed to serve as a practical "how-to" manual and educational reference text for experienced port risk managers and other industry representatives.

VDMA Marine Directory Now On CD-ROM

The 1998/99 version of the German Marine Equipment Directory is now available on CD-ROM. The directory includes the top German marine and offshore equipment manufacturers with their complete addresses, contacts, foreign representations as well as production



program and web link. Supplier information such as product description and pictures is also included.

Circle 32 on Reader Service Card

GLM Software Addresses HBL

Hydrostatic balance loading (HBL), the loading of petroleum cargo at reduced levels to minimize outflow in case of grounding, requires calculations to determine not only the required levels of loading but also how the ship's stability is affected.

Creative Systems, Inc. has added the ability to plan, simulate and calculate hydrostatic balance loading (HBL) to its software General Load Monitor (GLM). GLM is an on-board version of the General Hydrostatics software used by naval architects.

Circle 29 on Reader Service Card

Southwest Marine Acquires NORSHIPCO

Southwest Marine has officially acquired Norfolk Shipbuilding & Drydock Corp. (NORSHIPCO). The Norfolk Va. shipyard joins Southwest Marine's existing facilities in San Diego, San Pedro and San Francisco, Calif., and Ingleside, Tex. It is reported that the transaction will raise Southwest Marine's annual revenues to approximately \$400 million.

Stolt Parcel Tankers Wins Safety Award



From left to right: Gerhard E. Kurz, president of Mobil Shipping and Transportation Co.; Archibald N. Stewart, chairman of International Registries, Inc.; and Samuel A. Cooperman, president and CEO of Stolt Parcel Tankers, Inc.

Stolt Parcel Tankers, Inc. a subsidiary of Stolt-Nielsen S.A. has been awarded the 1998 McGuire Safety Award for its high standards of seamanship, vessel maintenance, crew training and safe operation.

The award was presented to Samuel A. Cooperman, president and CEO of Stolt Parcel Tankers, by Gerhard E. Kurz, president of Mobil Shipping and Transportation Company, who was last year's winner. Candidates for the award are nominated each year by representatives of the International Association of Classification Societies (IACS).

Stolt-Nielsen Hit Hard in 3Q

Stolt-Nielsen S.A. reported a net income for the latest quarter of \$24.1 million, on net operating revenue of \$478.4 million, compared with net income of \$40.1 million on net operating revenue of \$415.6 million for the third quarter of 1997.

Net income for the nine-month period ended August 31, 1998 was \$82.2 million on net operating revenue of \$1,294.4 million. This compares with net income of \$93.9 million on net operating revenue of \$1,121.1 million for the same period in 1997. Commenting on the results, Christopher J. Wright, president of Stolt-Nielsen S.A., said, "During the third quarter the results of Stolt-Nielsen Transportation Group deteriorated but Stolt Comex Seaway had a record quarterly profit and Stolt Sea Farm continued its improvement."

YG Earns Short Course Approval

YG Consultants have been approved by the Bahamas Maritime Authority for the following STCW95 training courses: crowd management; safety training for personnel providing direct service to passengers; passenger safety, cargo safety and hull integrity training; and crisis management and human behavior training. YG Consultants is now seeking U.K. Maritime and Coast Guard Agency approval.

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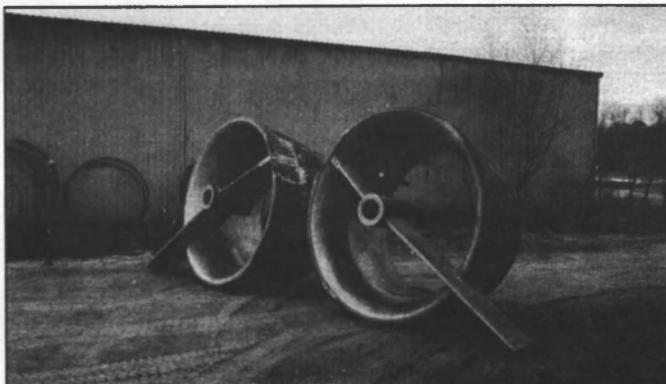
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Drew Marine Forms Alliance With Kärcher

Ashland Chemical Company's Drew Marine Division has been named marine sales agent for Kärcher high-pressure washers. Kärcher equipment is designed to be highly efficient and durable, making it a good match for the demanding conditions of the marine environment. The high-pressure washers utilize brass cylinder heads and stainless steel cylinders and valves. All models are equipped with pumps capable of drawing seawater and feature high operating pressures with adjustable flow rates.

Circle 30 on Reader Service Card

Gallagher Acquires Marispond

Gallagher Marine Systems, Inc. (GMS) has announced that Marispond, Inc. has become a wholly owned subsidiary of GMS. Both companies are major providers of Oil Pollution Act of 1990 (OPA-90) compliance services in the U.S. **Carlo Palmieri** of GMS will act as vice president of Marispond. **Gerard T. Gillon**, chairman and CEO of Marispond, has been elected to the GMS Board of Directors.

Binnersley Joins Healy & Baillie Hong Kong

The New York based international law firm of Healy & Baillie LLP has announced that **Nigel J. Binnersley** has joined its Hong Kong office. Mr. Binnersley has practiced as a solicitor in Hong Kong since 1985. **John D. Kimball**, managing partner in New York stated, "Having a person of Mr. Binnersley's experience join our Hong Kong office is another step in our commitment to service the needs of clients in Hong Kong, China and the Far East."

Construction Superintendent Appointed At Nautica

Nautica recently announced the promotion of **Alan Prejean** to Construction Superintendent. He will manage approximately 21 employees for Nautica. According to **Danny LeBlanc**, vice president of the company, Mr. Prejean's "diverse experience makes him a valuable resource for Nautica as we expand."

Chubb Offers Revised Ocean Cargo Policy

The Chubb Group of Insurance Companies introduced a revised ocean cargo policy offering insureds several new features as well as clearer policy language.

Two major new features offered in the revised policy are broadened duration of risk and extra expenses. The broadened duration of risk feature extends that coverage to include insurance protection for shipments during loading at the point of origin and during unloading at the final destination (including delays for unloading for up to 72 hours). Extra expenses now standard in the policy include the cost of additional freight or other expenses incurred to re-route or re-forward cargo due to government actions and port strikes.



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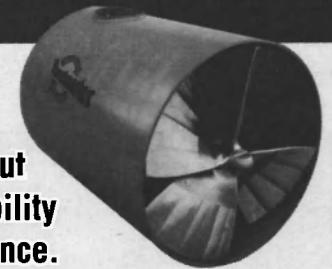
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PEOPLE & COMPANY NEWS

ACBL Appoints Six

American Commercial Barge Lines LLC (ACBL) has announced the following promotions: Capt. **Tom More** will join the River Operations department as Port Captain-Ohio River; **Ron L.**



Captain Tom More



Ron L. Loughmiller



Darrell C. Sneed



Glenn W. Jones



Mark Stevens



Jim Humbert

Loughmiller, Darrell C. Sneed and **Glenn W. Jones** have been appointed system planners; **Mark Stevens** has been named director of fleet operations; and **Jim Humbert** has been named manager of liquid logistics.

Astrup Names Account Representatives

The Astrup Co. has announced the appointments of **Brian Lott**, **Robert Hoffner** and **Jerry Ray** as account representatives. Mr. Lott will be responsible for calling on companies located in the San Diego and Southern Orange County areas. Mr. Hoffner, working from the Cleveland branch, will be calling on companies in the greater Cleveland metropolitan area. Mr. Ray will be contacting companies from Portland, Ore. north to Seattle, Wa., British Columbia, and Alaska. Astrup is a supplier of materials used in the manufacture of awnings, signs, tents, outdoor furniture and umbrellas, marine tops - interior and covers - and associated products.

SubSea Appoints Product Manager

SubSea International, Inc. has appointed **Tom Missig** to the position of Manager of Projects, Louisiana. Mr. Missig will be responsible for overseeing SubSea's expanding remote systems technology and deepwater development activities throughout Louisiana and the Gulf of Mexico.

Kerr Norton Promotes Two General Managers

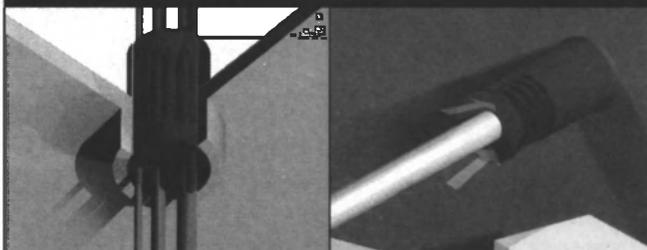
Kerr Norton Marine, the non-liner bulk ship division of Norton Lilly International, has promoted **Andy Lingaitis** and **Duffy Daniels** to the position of general manager of marine operations. Mr. Lingaitis will oversee operations in California, while Mr. Daniels will be responsible for operations in Washington state and Oregon. Both will report to **Doug Gutwig**, VP for the West Coast and Canada.

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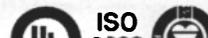
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Sperry Provides IBS for CVN 75



The U.S. Navy's newest aircraft carrier, USS *Harry S. Truman* (CVN 75) is equipped with a highly automated integrated bridge system (IBS) that will permit its crew to navigate more safely and efficiently with fewer watchstanders on the bridge. The IBS provided by Sperry Marine, Inc. included a computerized Voyage Management System (VMS) with ECDIS. The VMS integrates input from GPS sensors, navigation radars, depth sounder, speed log, gyro-compass and other systems through an ethernet fiber optic network, and provides a constantly updated picture showing the ship's precise position and movement, together with surface radar contacts and other data, superimposed on an electronic nautical chart display.

The *Harry S. Truman* is the first Navy ship to be fitted with Litton's new direct chart reader, which permits the ECDIS to utilize electronic charts taken directly from the digital cartographic database of the national Imagery and Mapping Agency (NIMA). The ship will be one of the first to meet draft standards for the Navy's new ECDIS-N program, under which the entire U.S. fleet will transition from paper

Inmarsat Sets Date For Privatization

Inmarsat's assembly of member governments, meeting in Greece, agreed by consensus that Inmarsat, an internationally-owned cooperative, will become a public limited company on April 1, 1999.

The new structure com-

prises two entities: a public limited company that will seek an initial public offering (IPO) within approximately two years of formation, and an intergovernmental body to ensure that Inmarsat meets its public service obligations, including the GMDSS.

The new company, which will be headquartered in London, will be governed by a 15 member fiduciary Board of Directors consisting of the CEO and 14 non-executive directors, three of which will represent developing countries.

charts to electronic over the next 10 years.

Circle 4 on Reader Service Card

Touch-Screen GMDSS System Launched

ICS Electronics Ltd. has announced the launch of its new GMDSS area A2/A3 communication system, the ICS TOUCHCOMM TC2. The TC2 uses ICS's touch screen technology which allows control of both the VHF and MF/HF radios via one control panel. The system is enclosed in a rugged steel case mounted on shock absorbers, and is designed for use within A2 areas by any vessel required to comply with IMO requirements. It is also suitable for use in A3 areas by smaller vessels which are not required to fully comply with IMO carriage requirements, such as large yachts, fishing vessels and the smaller naval vessels.

Circle 20 on Reader Service Card

New Furuno Sensor

Furuno's PG1000 Integrated Heading Sensor combines a three-axis magnetometer, incli-

nometer and integral vibrating gyrosensor to provide a highly accurate and stable readout of a ship's heading.

These sophisticated components are contained within a durable, compact, waterproof case that protects against the elements at sea. The Furuno PG1000 sensor is designed for maintenance-free operation and ease of installation. The PG1000 detects terrestrial magnetism and produces compass data that can be utilized in serial formats such as NMEA 0183 and Furuno AD-10. Typical applications include True Radar Echo Trail and True Motion, video plotters, scanning sonars and more.

Circle 88 on Reader Service Card



Koden's MD-3441 Radar

The Koden MD-3441 radar provides the power of a four kW, 19.9-in. slotted waveguide radome antenna providing 15 ranges from 1/8 to 32 nautical miles. It offers breakthrough refinements for smooth radar operation, including programmable function keys.

Circle 95 on Reader Service Card

New Option for Marine Satellite Antenna

KVH Industries, Inc., is now offering a new option — Secure Telephone Unit-Type III — for use with its Tracphone marine satellite antenna. The antenna and option, part of American Mobile Satellite Corp.'s Skycell service, which

provides secure end-to-end voice communications throughout North America, will encrypt voice and data to ensure secure communications over public telephone networks.

The new STU-III capabilities enable Tracphone to meet demanding security needs of U.S. Government agencies, by providing end-to-end security over a public switched telephone network.

Circle 94 on Reader Service Card



Vanuatu Warns Against "Crying Wolf"

Vanuatu has appealed to shipowners to cut down on the rising number of false EPIRB alerts as the administration believes many are caused by human error. Vanuatu is not alone in its concern as globally false EPIRB alarms are so high that the International Maritime Organization's COMSAR sub-committee regularly debates this issue. It aims to find ways to reduce the proliferation of false EPIRB and DSC alerts around the world.

Vanuatu supports this work as so far in 1998, Vanuatu Maritime Services Ltd. (VMSL) the company administering the country's registry has reported 17 false alarms and in the past 21 months a total of 39 — as many alerts as in the previous three years.

"If this progression continues, we could expect the number of alerts to double again by the end of 1999," warned **Don Sheetz**, executive vice-president of New York-based VMSL. "This increase must be stopped, but we can only achieve this if we get the help of shipowners."

The concern is twofold added Mr. Sheetz: Not only is this costly to shipowners and administration but it leads to complacency on the part

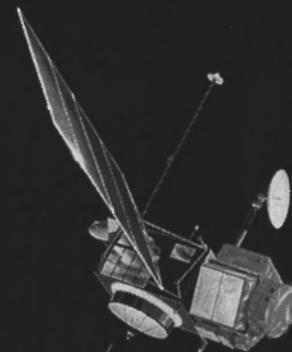
of administrations and rescue co-ordination centers." And he added: "I still remember the fable about the 'boy who cried wolf.' After listening to his false cries for so long, the village folk suffered the consequences when they turned a deaf ear to his cries when a wolf did appear. The more alerts we respond to which turn out to be false, the more we become complacent. We begin to think all the alerts are false."

Mr. Sheetz explained that the main reasons for false alerts include: radio surveyors or other ships' personnel failure to secure the unit; water washdown; failed equipment due to age, weather or sun conditions and improved satellite monitoring. Ten of the alerts were from vessels deleted from the registry that had not re-coded their EPIRBs, or from unidentifiable vessels whose EPIRBs were improperly coded to begin with.

Mr. Sheetz estimates the cost of each alert at \$1,000 excluding the dispatch of search and rescue resources. "Each false alert means the waste of time, manpower and communications costs," he warned.

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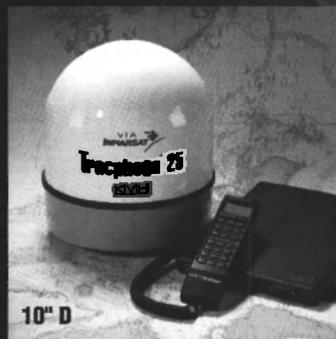


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(Continued from page 110)

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Circle 351 on Reader Service Card

EuroCom Industries A/S (ECI) has completed a license and supplier agreement with Motorola, Inc. for the development, production and marketing of satellite telephones to the new communication system Iridium. The SAILOR Iridium System will be marketed in two versions, a single channel SC4400 and a multi-channel MC4000. The terminals will be launched in the spring of 1999.

Ingalls Teams Up To Lift 2,400 Tons

In early September, Ingalls Shipbuilding in Pascagoula, Miss. teamed with its customer, Transocean Offshore Inc., and J. Ray McDermott Inc. to accomplish a 2,400-ton lift as part of its contract to outfit the drillship *Discoverer Enterprise*. A 5,000-ton capacity barge crane was utilized to lift a 2,300-ton mud module onto the *Discoverer Enterprise*, an advanced drillship being outfitted by Ingalls for Transocean. The module, which houses the ship's mud processing and pumping equipment, was built by Red Fox Fabricators and brought to Ingalls by barge. The barge crane was brought to Ingalls from J. Ray McDermott's facilities in Morgan City, La. More than 150 tons of rigging equipment was used for the lift, bringing the total lift about 2,400 tons. The lift was the first of four to be accomplished in the outfitting process at Ingalls. The drillship, will be 111,000 tons fully loaded and is capable of drilling in waters up to 10,000 ft. deep.

Land-Sea To Distribute For IF

Land-Sea Power Ltd. has been selected as an authorized distributor to handle the line of marine diesel engines from Italian manufacturer Isotta Fraschini (IF). The engines in the 1,300 and 1,700 series, for both new and re-power applications, range in output from 300 to 3,200 hp. The Sulzer line features engines with outputs up to 80,000 hp. Land-Sea power is responsible for the Western Canadian region, for engine and parts sales as well as servicing. IF will complement Land-Sea Power's current line, which includes Yanmar diesel engines, Crusade gas engines, and Mase Marine Generators.

Circle 3 on Reader Service Card

Yeoman Sales Strong, New Sales Rep Appointed

Yeoman has announced that to date it has sold more than 15,000 chart plotting units utilizing the Mouse for Maps technology. Ms. **Susan Murch** has recently joined the company as national marine sales representative. She will be responsible for setting up dealers, attending boat shows, conducting seminars and launching the retail campaign for Yeoman products.

Canadian Tanker Uses RISE System



Kometik with insert showing use of RISE system.

The RISE (rubber insert sleeves expanding) firesafe multi-penetration and sealing system, developed and marketed by Beele Engineering BV of the Netherlands, was used for the fire-safe and smoke-tight ducting of large numbers of cables through bulkheads and decks on board the new Canadian tanker *Kometik*. The 120,536-dwt *Kometik* carries crude oil from the Hibernia field to a number of terminals in North America. It features a double hull and 14 cargo tanks with a total capacity of approximately 140,000-cu.-m.

With the RISE system, all cables passing through the conduit opening are enclosed in protective sleeves made of firesafe FRR/LEHF (fire resistant rubber/low grade of expanding, halogen free) rubber. In a fire situation, when the FRR/LEHF is in direct contact with flames, a chemical reaction occurs causing the material to foam. This foam completely closes holes, cracks and other openings, providing protection against, fire, heat and toxic and corrosive gases.

Circle 5 on Reader Service Card

ABS Group Forms New Venture

The ABS Group of Companies

with Nautical Technology Corporation (NTC) of New York have formed the joint venture, ABS Nautical Systems, Inc. to expand and market the SafeNet fleet management network. ABS has recently released a new version of SafeNet, including modules

for hull maintenance and vessel drawings.

NTC's program Ship Manager has been integrated into SafeNet and offers modules on maintenance and repair, inventory and purchasing, crew management and payroll, and code compliance.

The new venture, ABS Nautical Systems, has recently announced the appointment of its executive team. **Doughitt Briggs** and **Jack Kitchura** have been named president and vice president, respectively. The founder and president of NTC, **Kostas Douzinas**, has



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Alfa Laval Introduces Alcare

The Alcare concept from Alfa Laval Marine & Power offers customers continuous support for

their operations on a global basis in the form of customized care packages.

Key features of Alcare are: a global spare parts distribution network, guaranteeing delivery within 24-48 hours; continuous opera-

tions support in the form of service and repairs; preventive maintenance programs tailored to customers' specific needs; personnel training to increase the skills of engine room crews and thus the efficiency of the equipment; and a

consultancy service to raise operating efficiency, improve maintenance standards, and reduce maintenance costs.

Circle 35 on Reader Service Card

Eco Seal Tech Opens Houston Office

Eco Seal Tech, Inc., a manufacturer of machined rubber and plastic parts, has opened a manufacturing facility in Houston, Tex.

Circle 7 on Reader Service Card

More Cooling/Less Space From ITT Standard

ITT Standard offers PlateFlow plate-and-frame heat exchangers which are designed to provide close temperature control of fluids for heat recovery applications where space is a prime consideration. Countercurrent flow yields heat transfer coefficients that are three to five times greater than other types of exchangers.

The units can be specified in 20 different models.

Circle 6 on Reader Service Card

Clean Seas Converts Oil Spill Response Vessel

Clean Seas, LLC recently converted its 181 ft. (55 m) oil spill response vessel, the Mr Clean III, with two Lori Five brush skimming systems furnished by Hyde Products.

The conversion included a new design concept developed by Clean Seas which places the oleophilic brushes perpendicular to the hull, the oil being directed by a sweep arm and boom into one door for contact with the rotating brushes.

TMA Expands Norfolk Office

Technology, Management and Analysis Corporation (TMA) has announced the expansion of its office in Norfolk, Va. to support contracts with the Naval Sea Systems Command Strategic Sealift Program Office and the Fleet Technical Support Center, Atlantic (FTSCLANT). TMA engineers and analysts will perform technical software documentation reviews and digitization, as well as engineering management services for Strategic Sealift Program ship requirements.



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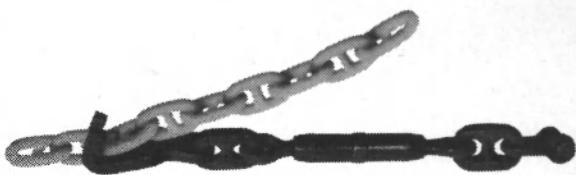
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Circle 303 on Reader Service Card

Crowley Marine Converts Barge for Amoco



Crowley Marine Services de Venezuela (CMSV) recently converted the barge CMC 450-10 to a comprehensive barge for Amoco Venezuela Energy Co. BV. The barge, which was converted at Atlantic Dry Dock Corp., is utilized in the Punta Pescador field in Eastern Venezuela. The fully outfitted barge can support an entire drilling operation with bulk materials, casing, water and fuel. Built to SOLAS standards and ABS certification, the CMC 450-10 is being used as an accommodation, tender, warehouse and drilling support platform. It is equipped with oil well cementing equipment, a rain water collection system, a 60-ton pedestal crane, and a 230-ton crawler crane.

Strømme Relaunches Rochem Chemicals

Strømme Ships Service, a major supplier of labor saving equipment and maintenance products, has launched a new range of Rochem Marine Chemicals, including Rochem Aquaclean — a water based degreaser and tank cleaner which has been used to successfully clean tanks with problem residues. The products are designed to be high quality, cost effective, and non-polluting. The range of chemicals may be utilized for all cleaning on board ship, from cargo tanks and engine rooms to galley and accommodation areas.

Circle 76 on Reader Service Card

Kvaerner President & CEO Steps Down

The Board of Directors of Kvaerner ASA, the Anglo-Norwegian international engineering and construction company, has asked **Erik Tonseth** to step down from his position as President and CEO of Kvaerner. Mr. Tonseth has accepted the request and has announced that he will also step

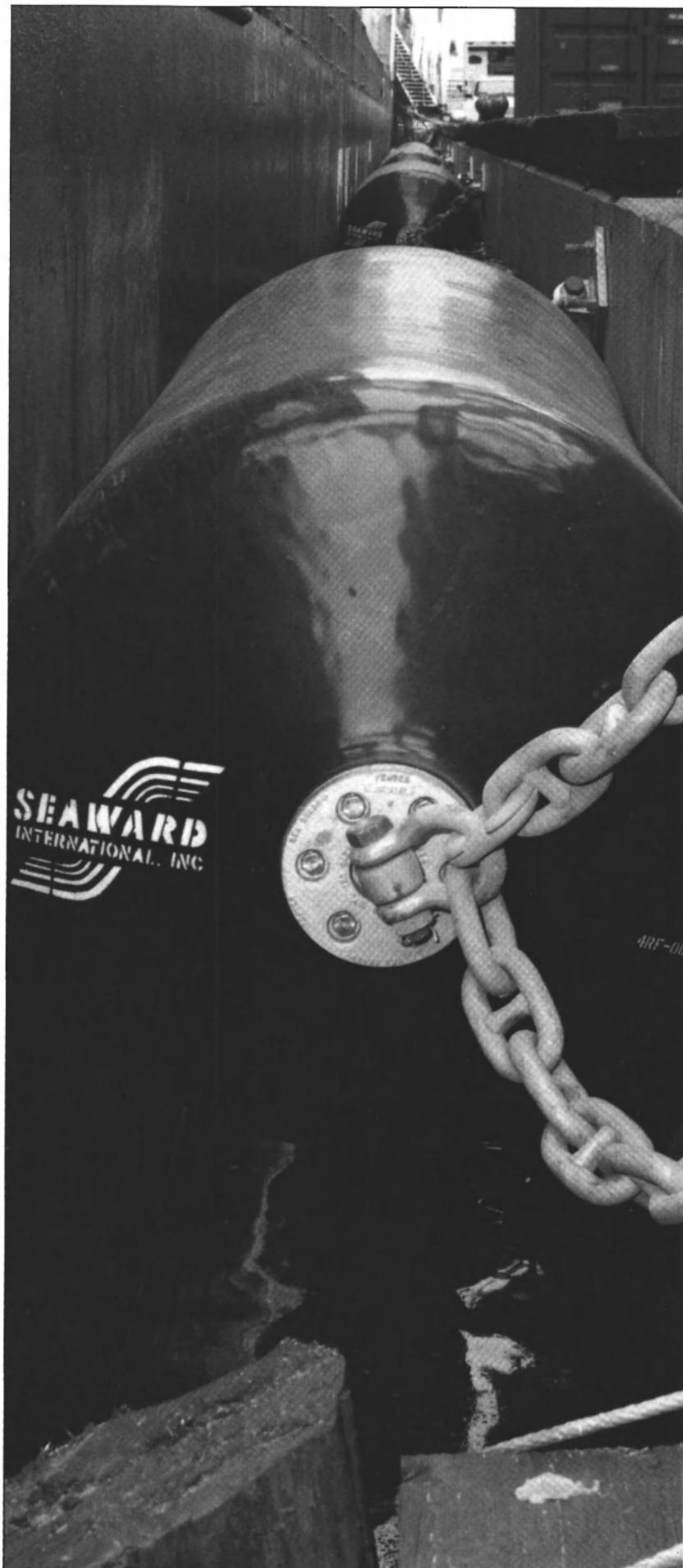
down from the Board of Kvaerner ASA. Until a new chief executive is appointed, the Chairman of the Board, **Christian Bjelland**, will assume the responsibility of Chairman and CEO. In the interim, **Tore N. Sorensen** has been appointed Managing Director.

Autronica Launches Interactive Fire Alarm

Autronica AS has recently launched an interactive, self-testing fire alarm system for use on board ships, dubbed Autosafe Self Verify. The system uses digital

technology and includes a combined smoke and temperature detector. The system tests itself automatically daily, with no need for test gas or smoke. The new system requires as little as 70 percent of the cabling of other systems.

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Lasco Reorganizes

Lasco Shipping Co. has announced several new appointments in line with its new Team Management Organizational Structure. **Yeung Ki Kim** has been appointed senior vice president, Strategic Projects. He will

evaluate the long-term comprehensive maintenance systems for the company's managed fleet of vessels. **Kazumi Oshima** joins Lasco as a director in its Tokyo office. **Hugh Stephen Rynn** joins Lasco as vice president, Technical Services. Lasco's new structure is divided by the types of vessels and

commodities served, with team alignments to serve the various trades in which Lasco operates.

IT Research Project For European Shiprepair

With the support of the EC, a three-year multi-million ECU pro-

ject was inaugurated in July. Named SYRIOS (Small Shiprepair Yard Integrated Operation Systems), the project comprises nine partners from four EU member states. The consortium comprises four shipyards: Tyne Dock and Dunstons in the U.K., Neorion in Greece, Viana do Castelo in Portugal, and AWES Shiprepair Group, the European trade association. In addition, two universities, Newcastle and Patras, and two software houses, Intrasoft and Kockums Computer Systems complete the consortium.

The project aims to strengthen the competitiveness of the European shiprepair sector, especially for smaller companies. SYRIOS plans to contribute advanced, generic Information Technology (IT) solutions and extend the awareness and use of IT through training and cooperation within the maritime academic and IT sectors.

Atlantic Marine Certified To ISO 9002 Standards

In September, Atlantic Marine, Inc. of Jacksonville, Fla. was certified to ISO 9002 quality standards for shipbuilding and ship construction services by Lloyd's Register Quality Assurance by the national certification bodies RAB (U.S.), TGA (Germany) and INMETRO (Brazil). Atlantic Marine is a new construction shipyard specializing in the construction of all types of vessels ranging in size from 70 to 400 ft. (21 to 122 m).

Circle 77 on Reader Service Card

Teekay Shipping Expands Board

C. Sean Day has recently been appointed the eighth member of the board of directors of Teekay Shipping Corp. Mr. Day is president and CEO of Navios Corp., a bulk shipping company based in Stamford, Conn. Teekay Shipping, of the Bahamas, provides international crude oil and petroleum product transportation services to major oil companies, traders and government agencies, principally in the region spanning from the Red Sea to the U.S. west coast.

Kamewa A-Series Debuts In Italy

Kamewa Water Jets launched its new A-series aluminum water jet, designed for outputs of

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between 500 and 2,700 kW, at the Genoa Boat Show, Italy. The A-series will be delivered as a complete, standard, pre-assembled package and is designed for work boats, naval vessels, yachts and ferries. The unit package includes the welded aluminum inlet duct; the pump unit; steering nozzle and split reversing bucket, including steering and reversing rods; shaft; water lubricated bearing in the guide vane chamber and thrust bearing on the back of the inlet duct; and steering and reversing cylinders. The unit can be mounted by welding or bolting.

Circle 23 on Reader Service Card

From Russia With Love

Odyssey, an oil-drilling rig converted to a 436 x 200 ft (133 x 61 m) semi-submersible satellite launch platform, has completed its journey from Russia, via Singapore, to Long Beach, Calif. The platform joined the Sea Launch Commander which serves as a rocket-assembly plant and mission-control center.

Bay Diesel Promotes Belouin

Bay Diesel Corp., a supplier of heavy marine, industrial and power generation services, has promoted **Don Belouin** to Worldwide Sea Service Division manager. Mr. Belouin, formerly of Aalborg Ciser Denmark, joined Bay Diesel when it acquired Aalborg Ciser in 1995.

GTD Monitor Is CSA Certified

Gas Tech, Inc., a manufacturer of gas monitoring equipment, has announced the CSA certification of its GTD portable diffusion multi-gas monitor. The GTD instrument takes remote air samples by lowering a water tight sensor block containing up to four sensors (ammonia, carbon monoxide, chlorine, combustible gases, hydrogen sulfide or oxygen), via a 20 or 50 ft. extender cable, into confined spaces prior to entry.

The monitor features an audible and visual alarm on the main unit as well as an additional audible alarm in the sensor module.

Circle 22 on Reader Service Card

New Data Collector, Real Time Analyzer Line

Predict-DLI has introduced a

new DLI Watchman DCX line of four-channel vibration, diagnostic data collectors and real time analyzers.

The DCX includes two micro-processors — a 120 Mhz Intel Pentium, and a 40 Mhz Texas Instruments digital signal proces-

sor — and operates in Windows 98 with a transfective, LCD touch screen.

Simultaneous triaxial data collection is initiated by swiping a barcode, selecting test points from machine images or clicking on a hierarchical tree of

plants/areas/machines/locations. Measurement types include FFT (to 3,200 lines) and time domain (2,048 points) to 40 kHz, Phase, ISO overalls, demodulated spectra, and speed.

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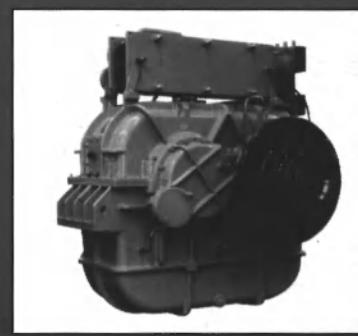
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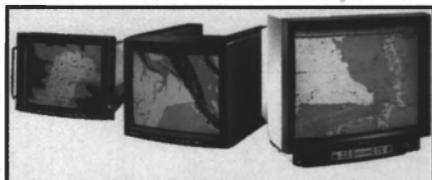
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Barco Offers Line Of ECDIS-Compliant Monitors

Barco recently announced it has complemented its 21-in. ICD 321 ECDIS-compliant display with the ICD 319 (19-in.) and Orion 16 (29-in). Barco's line was created to address the quickly changing environmental conditions on board ships, while providing the required color stabilization and calibration capabilities to accurately render ECDIS colors.

The ICD 319, ICD 321 and Orion 16 all feature ambient light control and quick degauss functions, along with advanced electronic monitoring facility

Circle 51 on Reader Service Card



quickly changing environmental conditions on board ships,

Wismarer Propeller Links With Schottel

Last year Siemens and Schottel announced the jointly produced SSP Propulsor with power ratings to 30 MW. This year, it was announced that the innovative propulsion system will be produced in Wismar at Wismarer Propeller-und Maschinenbau GmbH, which was recently acquired by Schottel-Werft from Dieselmotoren-Werke Rostock (DMR).

Circle 50 on Reader Service Card

Siemens Automation On Aurora

In building the 76,000-grt *Aurora* for P&O, Meyer Werft in Papenburg has outfitted the 885-ft. (270-m) ship with the Siemens make SIMOS IMAC 55 automation system. This is a fully digital integrated computerized system for open-loop and closed-loop monitoring, alarm and control. It consists of 13 operations stations and controls all engineering systems.

Circle 52 on Reader Service Card

Restech Extends Safety Line

Restech Norway AS has extended its line of Pneumatic Line Throwers by introducing three new projectiles to its line-throwing system.

The inflatable life sling projectile is capable of shooting an inflatable safety device up to 320 ft. (100 m); the rubber tipped projectile is intended as a "boat-to-boat" projectile, accomplishing its task of securing a line while minimizing damage to the recipient boat; and the light stick projectile is designed to be easily visible at night.

Circle 53 on Reader Service Card

Kamewa Debuts Seven-Blade Impeller

Kamewa introduced a new seven-bladed impeller, designed for the SII waterjet series, recently. The new design reportedly offers substantially reduced pressure pulses, improved cavitation characteristics and the potential to use smaller waterjet units in a number of appli-

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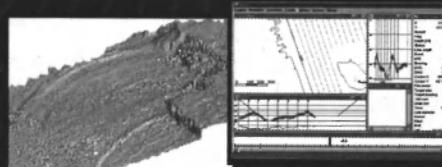
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cations.

The new design is also reportedly useful in reducing noise and vibration signatures.

Circle 54 on Reader Service Card

Scana Moland's New Graphic Workstation Easier To Use

The new Graphic Workstation from Scana Moland is the latest in the MA100 Alarm, Monitoring and Control system.

The new unit presents ship's operations on a high-resolution color graphic screen, which was devised with ease-of-use in mind. The Scana Moland Graphic Workstation runs under Microsoft Windows NT operating system.

Circle 55 on Reader Service Card

RWO Offers Full Line Of Shipboard Water Treatment Systems

RWO-Water Technology of Bremen has specialized in oil/water separation since 1975, and has more than 5,000 shipboard references worldwide speaking for its experience. The company offers all kinds of water and waste water treatment systems, including oil/water separation systems; sewage treatment systems; water treatment equipment; oil content measuring devices; and waste water purification systems.

Circle 57 on Reader Service Card

APL Retrofits With Everglide Bearing Pads

After incurring high hatch cover bearing pad maintenance costs on its first innovative post-Panamax container ship series, American President Lines (APL) specified MacGregor's Everglide pads to solve the problem. APL was a containership innovator, building the first post-Panamax series in the late 1980s.

But with innovation sometimes comes growing pains, and APL encountered unexpectedly high hatch deformations in the new C10 design, which caused cracking of the hatch covers.

APL managed to solve this problem with modifications to the

hatch covers and bearing pads, but at the cost of very high maintenance.

In July, APL completed retrofitting a maintenance-free solution using MacGregor's Everglide bearing pads.

APL's C10 series comprises five 4,500 TEU vessels built in Germany — three by lead yard HDW and two by Bremer Vulkan — and led into service by President Truman in 1988. HDW incorporated features of

Germany's 'Ship of the Future' program in the C10, and the cargo stowage arrangements included a new innovation: a lashing bridge system on deck to support the container stacks.

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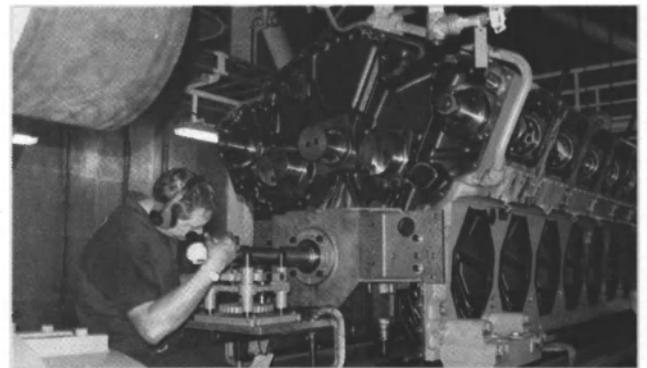
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AMSTERDAM RAI

Aker Finnyards Delivers Tali

Finnyards Ltd. and ESL Shipping signed the contract on the delivery of this ice-strengthened 13,200 dwt bulk carrier in the summer of 1997. The vessel was delivered in mid-August 1998.

M/V Tali is designed mainly for carriage of bulk cargo, such as grain, iron ore, coal and coke. The 450 ft. (137.15 m) long and 71 ft. (21.6 m) wide vessel will sail under Finnish flag predominately in the Baltic and Northern European areas, but also meets the rules and



requirement of world wide traffic. The bulk carrier is classified in the highest Finnish ice class (1 A Super). It can visit the most northern Finnish ports, even under severe ice conditions, ensuring the energy management and raw material exports and imports.

M/V Tali Main Particulars

Shipyards	Aker Finnyards	Centrifugal pump	Behrens
Vessel type	Bulk cargo carrier	Screw pumps	Leistritz
Length	450 ft. (137.15 m)	Plate coolers	Alfa Laval
Breadth	71 ft. (21.6 m)	Steam boiler plant	Aalborg Industries
Draft	26.7 ft. (8.15 m)	Starting air compressors	Sperre
DWT	13,200 tons	Silencers	Palossaren Metall
Speed, service	14 knots	Bilge water separator	B+V Industrietechnik
Classification	LR	CO2 Fire Extinguishing	Unitor
Steel plates	Rautaruukki	Fresh water generator	Alfa Laval
Profiles	Inexa	Sewage treatment plant	Format
Paints	Hempel	Vacuum WC-system	Evac
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	MarGregor-Navire	Tunnel thruster	Komewa
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SPECIFICATIONS

- Length: 78', Width: 26.5', Draft: 2.5'
- Tonnage: 91 gross tons
- Cruise Speed: 25-26 knots with 150 passengers
- Maximum Speed: 28-31 knots light
- Main Engines: (4) 550 hp Luggar 6140AL
- Generator: (1) 30kw Northern Lights single-phase 240V
- Propulsion: (4) Hamilton 362 water jets
- Fuel: (2) 1,200 gallon tanks
- Water: (1) 110 gallon tank
- Waste: (1) 150 gallon tank

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- (1) Furuno 1941 radar
- (2) Icom M-58 VHF's
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- (2) Sitex LCS 180 depthsounders
- (1) Newmar phone com system

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Clarification

Due to a technical glitch, the first few paragraphs of an article in the October 1998 edition did not print clearly. ("The Data Advantage" by Paul Stern, marketing manager, Comsat; Maritime Reporter & Engineering News, October 1998, pg. 22). Following is the introduction to the story.

The information age has arrived for vessels at sea. Vessel masters and operations managers need to communicate with each other, their suppliers and their customers in a timely and cost efficient manner.

There are, of course, many different ways to communicate. Different satellite services offer some combination of fax, voice, data or telex. Of all these offerings, data is the fastest growing choice and the one with the brightest future. At the same time, because it is the newest option for sailors at sea, there is still a lot of mystery about why and how to use a data transmission service.

Satellite data communications provides many advantages: planners know exactly when a ship will arrive in port, speeding up transfers of goods by automating customs procedures and reports. With timely and reliable satellite data communications, ships can also send and receive a variety of business reports such as changes in manifests, navigational charts, orders for spare parts and supplies, bay and crew reports...to name just a few.

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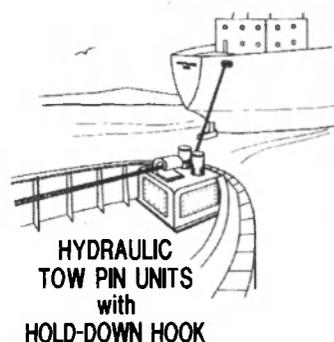
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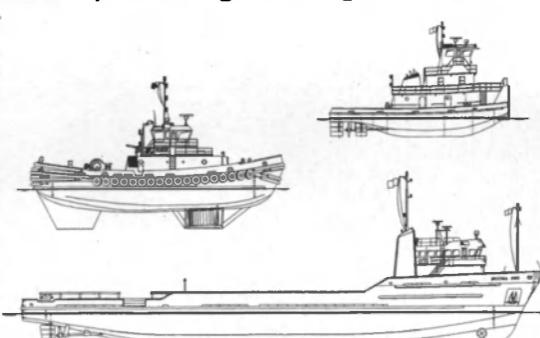


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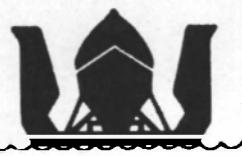
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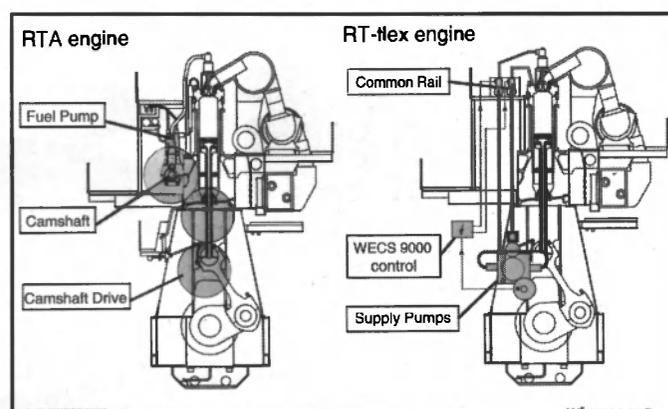
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SMM '98: Post Show Report

(Continued from page 24)



The Sulzer RT-flex Concept.

crank-
shaft.

In the usual fuel injection system of a Sulzer RTA two-stroke diesel engine, the valve-controlled injection pump generates the pressure, times the injection and meters the quantity of fuel injected with only limited flexibility to influence the variables. The Sulzer Common Rail system allows the function to be separated and subsequently, allows for more flexibility. With the Common Rail system, the user gets: precise volumetric fuel injection control; variable injection rate shaping; well-proven high-efficiency fuel pumps; and free selection of injection pressure. Also, the manufacturer reports that it is ideally suited for heavy fuel oil.

High-efficiency fuel pumps feed a high-pressure fuel manifold, the Common Rail, arranged at the level of the cylinder covers.

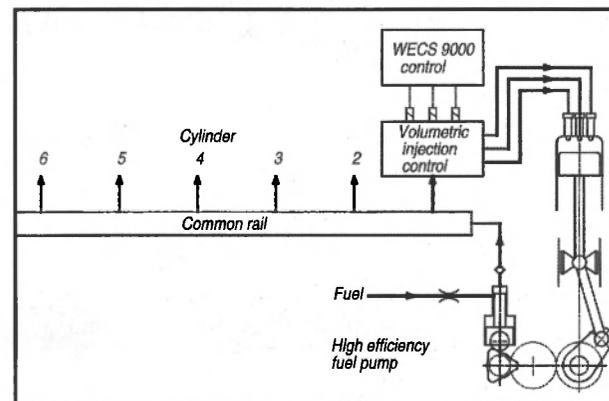
The fuel pumps are based on the proven design of the jerk-type injection pumps used in the Sulzer ZA40S four-stroke engines, and run on a multi-lobe cam to deliver adequate quantities of fuel to the Common Rail at the usual high pressure ready for injection. Fuel is delivered from the Common Rail through the injection control unit to the fuel injection valves.

There is a control unit for each engine cylinder. It regulates the timing of fuel injection, provides control of the volume of fuel injected, and sets the shape of the injection pattern.

The three fuel injection valves in the respective cylinder cover are independently controlled so that they may be programmed to operate separately or in unison as necessary.

The company said that during testbed trials, the Sulzer Common Rail system is able to operate on the same grades of heavy fuel oil, namely up to 700 cSt viscosity. Also, it is designed for high fuel injection pressures.

Circle 46 on Reader Service Card



The Sulzer Common Rail System.

Maritime Reporter/Engineering News

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Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006

Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

Kobell Mfg Co., Ltd., 8238-129 St. Surrey, B.C. V3W0A6

Stork-Kwant BV, P.O. B. 23, 8600 AA Sneek, Netherlands

Electronic Marine Systems, 800 Fendale Pl., Rahway, N.J. 07065

AutoNav Marine Systems Inc., 55A Clipper St., Coquitlam, B.C., Canada V3K 6X2

Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068

CONTROL VALVES

Leslie Controls, 12501 Telecom Dr., Tampa, FL 33637

CONVERSIONS & REPAIRS

Vancouver Shipyards, 50 Pemberton Ave., N. Vancouver, B.C. CANADA V7P 2R2

COOLERS/FREEZERS

Western Engineers, 2112 SE 8th Ave., Portland, OR 97214

COUPLINGS

Mapeco Products, 91 Willenbrock Rd. Unit B, Oxford, CT 06478

Centa Corp., 8185 Cass Ave., Darien, IL 60561

Haley Clutch and Coupling Corp., 1820 Hwy. 1 North, Greenville, MS 38702

Fetterolf Corp., P.O. Box 103, Skippack, PA 19474

Lo-Rez Vibration Control, Ltd., 186 West 8th Ave., Vancouver, B.C. V5Y 1N2

American Vulcan, P.O. Drawer 673, Winter Haven, FL 33882

MMC Int'l, 60 Inip Drive, Inwood, NY 11096

Renold Hi-Tec, 512 W. Crescentville Rd, Cincinnati, OH 45246

CRANE-HOIST-DERRICK-WHIRLEYS

Lake Shore Inc., P.O. Box 809, Iron Mountain, MI 49801, 1150

Bisso Marine Co., P.O. Box 4113, New Orleans, LA 70178

Holly Hoist Corp., P.O. Box 86, St. Clair Shores, MI 48080-0086

Edgewater Machine & Fabricators, P.O. Box 358, Edgewater, FL 32132-0358

Marine Travellift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235

McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

Liabherr-Werk Nenzing GMBH, A-6710 Nenzing/Austria, Tschelenga 3, P.O. Box 10

Xtek, Inc., 11451 Reading Road, Cincinnati, OH 45241

CRANKSHAFT DEFLECTION ANALYZER

FCS, Inc., 22 Main St., Centerbrook, CT 06409

CRANKSHAFT REPAIR

In-Place Machining, 1929 North Buffum St., Milwaukee, WI 53212

CUSTOM CABLE CONNECTOR

Glenair, Inc., 1211 Airway, Glendale, CA 91201-2497

CUSTOM CLOSURES

Waltz & Krenzer, 91 Willenbrock Rd., Oxford, CT 06478

CYLINDER LINERS

Silsan A.S., P.O. Box 127, TR-01210 Adana, Turkey

CYLINDER LOAD ANALYZER

General Thermodynamics, 210 South Meadow Rd., Plymouth, Ma. 02360

DAVIT SYSTEMS

Lake Shore Inc., P.O. Box 809, Iron Mountain, MI 49801, 1150

Holly Hoist Corp., P.O. Box 86, St. Clair Shores, MI 48080-0086

Wein Lambie N.A. Inc., 18 Ridgecrest Drive, Bridgewater Nova Scotia, Canada B4V 3V8

DECK MACHINERY - Cargo Handling Equipment

Lake Shore Inc., P.O. Box 809, Iron Mountain, MI 49801, 1150

Markey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788

McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454

Skookum, Inc., P.O. Box 280, Hubbard, OR 97032

Leenstra Machine, P.O. Box 9, Drachten, Netherlands, 9200AA Intercontinental Engineering, P.O. Box 9055, Kansas City, MO 64168

Edgewater Machine & Fabricators, P.O. Box 358, Edgewater, FL 32132-0358

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

Pusnes, PO Box 102, N-4818, Faervik, NORWAY

Smith Berger Marine

FENDERING SYSTEMS/BUOYS - Dock & Vessel
Plastic Piling Inc., 1485 South Willow Ave., Rialto, CA 92376
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Urethane Products, 17007 South Broadway, Garden, CA 90248
Duramax Marine, 16025 Johnson St., P.O. Box 67, Middlefield, OH 44062-0067
Viking Fender Co., 1160 Slate St., Perth Amboy, NJ 08861
Ultra Poly, Inc., 2926 South Steele St., Tacoma, WA 98409
Promar, 115 Industrial Blvd., Kearneysville, W. VA 25430
Schuyler Rubber Co., 16901 Woodred Rd., Woodinville, WA 98072

FIBERS

Wellington, P.O.B. 244, Madison, GA 30650

FILTERS/FILTER SYSTEMS

Boll Filter, 15 International Dr., East Granby, Ct. 06206
Kraissl Co., 299 Williams Avenue, Hackensack, NJ 07061
Tech Oil Products Inc., 4308 W. Admiral Doyle Dr., New Iberia, LA 70560

FIN STABILIZERS

Luber-Finer, Inc., 200 South 4th St., Albion, FL 62806-1313

Blohm & Voss Industrie GmbH, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY

Ralko Ltd.: U.S.A. Repts: Simplex-Turner Inc., P.O.B. 675, Tonawanda, NY 14151-0675

FIRE & SAFETY PRODUCTS

Nautical Safety Products, P.O. Box 590462, Houston, TX 77259

AGI Shipboard Fire Service Ltd., 561 Wain Rd., Sidney B.C. Canada V8L 5N8

IMSSCO, 2040 Harbor Island Dr., Suite 201A, San Diego, CA 92101

Nautical Safety Products, P.O. Box 590462, Houston, TX 77259

Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807

Unitor Ship Service Inc., 2375 West Esther Street, Long Beach, CA 90813

Grinnell Fire Protection, 835 Sharon Drive, Westlake, OH 44145

American Pacific Corp., 3770 Howard Hughes Pkwy, Las Vegas, NV 89100

Grinnell, 835 Sharon Drive, Westlake, OH 44145

Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501

Bainbridge, 252 Revere St., Canton, Mass. 02021

FLUID HANDLING EQUIPMENT

Graco, Inc., P.O. Box 1441, Minneapolis, MN 55441

FUEL CONSERVATION

Instruments Computer & Controls, Inc., 70 South Bow Rd., Hooksett, NH 03106

FUEL DECONTAMINATION

Fuel Dynamics, 707 Mullet Dr. #110, Cape Canaveral, FL 32920

Environmental Solutions Int'l, 11002 Raccoon Ridge, Reston, VA 20191-4911

GALLEY EQUIPMENT

Cospolich Refrigerator Co., 949 Industry Rd., Kenner LA 70062

Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Ave, Boca Raton, FL 33431

Lang Manufacturing, P.O. B. 905, Redmond, WA 98073

Marine Accommodations, Inc., 3830 Williamsburg Park Blvd., Building 7, Jacksonville FL 32257

GANGWAYS, LADDERS

Nautical Safety Products, P.O. Box 590462, Houston, TX 77259-0462

StipNot Safety Flooring, 2545 Beaufait St., Detroit, MI 48207

Wooster Products Inc., 1000 Spruce St., P.O. Box 896, Wooster, OH 44691

GEARS & GEAR REPAIR

Haley Marine Gears International, Inc., 2600 N. Concord Belle Chasse, LA 70037

Nico Marine Specialties, 39 Louisiana St., West Wago, LA 70094

The Falk Corp., PO Box 492, Milwaukee, WI 53201-0492

Marine Gears, P.O. Box 689, Greenville, MI 38702

Centofanti Marine Systems, Inc., P.O. Box 660, West Elizabeth, PA 15088-0660

Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227

GENERATOR

Alaska Diesel, 4420 14th Ave., NW, Seattle, WA 98107

Baylor Co., 500 Industrial Blvd., Sugarland, TX 77478

GMDS

International Communications, 813 Diligence Dr. Ste 120, Newport News, Va. 32606

Furuno USA, Inc., 271 Harbor Way, S. San Francisco, CA 94080

Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017

Sea, Inc., 7030 220th S.W. Mt. Lake Terrace, WA 98043

HEAT EXCHANGERS

Alfa-Laval Separation Inc., 955 Meams Rd., Warminster, PA 18974

Beard Industries Inc., P.O. Box 31115, Shreveport, LA 71130

Computube - A Division, of Britannia Heat Transfer, Ltd., 15-20 Coleshill Industrial Estate, Station Road, Coleshill, Birmingham B46 1JP UK

Crane Heatex, 17 Grandview Ave., West Orange, NJ 07052

HEAT TRANSFER FLUID

Paratherm Corp., 1050 Colwell Rd., Conshohocken, PA 19428

HIGH TEMPERATURE ELASTOMER

Greene, Tweed & Co., 2075 Detwiler Rd., Kulpville, PA 19443-0305

HOISTS

Holly Hoist Corp., P.O. Box 86, St. Clair Shores, MI 48080-0086

HORN/WHISTLES

Kahlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

Kookum Sonics, Inc., 933 Industry Rd., Ste105, Kenner, LA 70062

HOSE & FITTINGS

Hydrasearch Co., Chesapeake Bay Business Park, 100 Log Canoe Circle, Stevensville MD 21666

HYDRAULICS

Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken, NJ 07030

Engine Monitor, Inc., 179 Hickory Ave. Harahan, LA 70123

Hamilton Jet, P.O. Box 709, Christchurch, NEW ZEALAND

Offshore Inland, Inc. 3521 Brookdale Drive, Mobile, AL 36618

Ultra Hydraulics Limited, Cheltenham Road East, Gloucester, GL2 9QN, ENGLAND

Demaree Inflatables Boats, 410 Oak St., Friendsville, MD 21531

Ocean Technical Services Inc., 1140 Peters Rd., Harvey, LA 70058-1705

HYDRAULIC SYSTEM FLUSHING

Consolidated Fluid Power, 155 Wright Ave., Dartmouth, N.S. Canada B4C 3M1

HYDRAULIC TRAINING

Consolidated Fluid Power, 155 Wright Ave., Dartmouth, N.S. Canada B4C 3M1

INFLATABLES

Ocean Technical Services Inc., 1140 Peters Rd., Harvey, LA 70058-1705

INSULATION

Blohm & Voss Light Insulation, Bartels & Laders GmbH, Norderebstrasse 15, 20457 Hamburg GERMANY

Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501

Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123

Mascoat Products, 3500 E. T.C. Jester, Suite N, Houston, TX 77018

Pacor, Inc., P.O. Box 107, Westville, NJ 08093x

Superior Energies Inc., P.O. Drawer 386, Groves TX 77619

INTEGRATED MONITORING SYSTEMS

Datastar, Unit 100, 18 Gostick Place, N. Vancouver, BC Canada

INTERIORS

Custom Ship Interiors, Inc., P.O. Box 882, Solomons, MD 20688

Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980

Insulations, Inc., Rt. 5, 12360 Leisure Rd, Baton Rouge, LA 70807

Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave, Boca Raton, FL 33431

Marine Accommodations, Inc., 3830 Williamsburg Park Blvd., Building 7, Jacksonville FL 32257

Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

Directions in Design, 1848 Craig Rd., St. Louis, MO 63146

James P. Cole & Associates, 2116 Sherman St., Hollywood, FL 33020

ISOLATORS

Lo-Rez Vibration Control, Ltd., 186 West 8th Ave., Vancouver, B.C. V5Y 1N2

JET BOWTHRUSTERS

Thrustmaster of Texas, P.O. Box 840189, Houston, TX 77084-0189

JOINER—Watertight Door—Paneling—Ceiling System—Decking

All Alpha Int'l., Inc. P.O. Box 498985, Cincinnati, OH 45249

Branton Int'l., 1101 Edwards Ave., Jefferson, LA 70181

CustomShip Interiors, Inc. P.O. Box 882, Solomons MD 20688

Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980

Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123

Marine Accommodations, Inc., 3830 Williamsburg Park Blvd., Building 7, Jacksonville FL 32257

Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

Panel Specialists, Inc./Thermax, 3115 Range Rd., Temple, TX 76501

Walz & Krenzer, 91 Willenbrock Rd., Unit B4, Oxford CT 06478

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Duramax Marine, 16025 Johnson St., P.O. Box 67, Middlefield, OH 44062-0067

The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

LASER ALIGNMENT

Boland Industrial & Consulting Services, P.O.B. 91360, Mobile, AL 36691

LIFEBOATS/RAFTS

American Eagle Mfg., Inc., 780 Pearie Jensen Way, LaConner, WA 98257

Avon Marine, 11215 Young River Ave., Fountain Valley, CA 92708

DBC Marine Safety Systems, 12351 Bridgeport Rd., Richmond, B.C. CANADA V6V1J4

Norsafe AS, P.O. Box 115, N-4818 Faerвик, Norway

Edgewater Machine & Fabricators, P.O. Box 358, Edgewater, FL 32132-0358

Viking Life Saving Equipment, 1625 N. Miami Ave., Miami, FL 33136

Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806

Zodiac of North America, P.O. Box 400, Stevensville, MD 21666

LIFESAIVING EQUIPMENT

MGI International, 119-225 West 1st St., North Vancouver, B.C. CANADA

Stearns Manufacturing, P.O. Box 1498, St. Cloud, MN 56302

LIGHTING SYSTEMS / EQUIPMENT

ACR Electronics, Inc., 5757 Ravenswood Rd., Ft. Lauderdale, FL 33310-5247

Archway Marine, 4501 Swan Ave., St. Louis, MO 63110

Gotten Marine, 160 Van Brunt St., Brooklyn, NY 11231

Kookum Sonics, Inc., 933 Industry Rd., Ste105, Kenner, LA 70062

Pauluhn Electric Mfg. Co., Inc. P.O. Box 53, Pearland, TX 77588

Francis Searchlights/Stam Supply Co., 4415 6th N.W., Seattle, WA 98107

LINE A NET CUTTER SYSTEMS

Spurs Marine, 201 S.W. 33rd Street, Ft. Lauderdale, FL 33315

LIQUID OVERFILL PROTECTION SYSTEMS

E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151

King Engineering Corp., P.O. Box 1228, Ann Arbor, MI 48106

Gems Sensors, Inc., 1 Cowels Rd., Plainville, CT, 06062

LOGISTICS

VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs, MS 39564

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

Lake Shore Inc., P.O. Box 809, Iron Mountain, MI 49801, 1150

Gotten Marine Co. Inc., 160 Van Brunt St., Brooklyn, NY 11231

Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27604-1851

Maritime Power 200 Henderson St., Jersey City, NJ 07302

MANAGEMENT SYSTEMS A SERVICE

Hornblower Marine, Pier 3 Ferboat Santa Rosa, San Francisco, CA 94111

PCS Marine, 174 Colonnade Road S., Nepean, Ontario K2E715

MARINE ACCOMMODATIONS

Marine Accommodations, Inc., 3830 Williamsburg Park Blvd., Building 7, Jacksonville FL 32257

MARINE BUILDING SUPPLIES

King Wholesale Supply, Co., Inc., P.O. Box 4002, New Orleans, LA 70178-4002

MARINE CEILINGS

Hydro-Aluminium, Vik Verk, N-5880 VIK I SOGN, Norway

Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807

Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501

MARINE CONSULTANTS

PCS Marine, 174 Colonnade Road S., Nepean, Ontario K2E715

Resolution Management, 11 Eves Drive Suite 140, Mariton, NJ 08053

Hornblower Marine, Pier 3 Ferryboat Santa Rosa, San Francisco, CA 94111

Boland Industrial & Consulting Services, P.O.B. 91360, Mobile, AL 36691

Kvaerner Masa Marine, 201 Defense Hwy., Annapolis, MD 21401

MARINE DECKING

E.H. O'Neill Co., 1405 Chippendale Rd., Lutherville, MD 21093

Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980

Insulations, Inc., Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807

Selby, P.O.Box 1600, Sapulpa, OK 74067

Flexible Decking, 2708 N. Australian Ave. Ste. 9, West Palm Beach, FL 33407

StipNot Safety Flooring, 2545 Beaufait St., Detroit, MI 48207

MARINE DRILLING & BLASTING

Marine Drilling & Blasting, Inc., P.O. Box 18098, Beverly Hills, CA 90209-4098

MARINE ELECTRONICS

Frank L. Beier Radio, 2001 Ridgelake Dr., Metairie, LA 70001

Autronica USA, 234 Industrial Pkwy, Northvale, NJ 07647

Kookum Sonics, Inc., 933 Industry Rd., Ste105, Kenner, LA 70062

Saab Marine Electronics AB, Box 13045, 402 51 Goteborg, SWEDEN

Advanced Marine Technology, 2003 Western Ave., Suite 725, Seattle, WA 98121

Marine Electric & Process Control, 3931 Leary Way NW, Seattle, WA 98107

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale, FL 33310-5247

Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY

Interstate Electronics, 1001 E. Ball Rd., Anaheim, CA 92803

Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

MARINE EQUIPMENT

Lake Shore Inc., P.O. Box 809, Iron Mountain, MI 49801, 1150

Plastic Piling Inc., 1485 South Willow Ave., Rialto, CA 92376

Waterman Supply, P.O. Box 596, Wilmington, CA 90748

Maritime Power Corp., 200 Henderson St., Jersey City, NJ 07302

Northeast Tech., P.O. Box 38189, Olmstead Falls, Ohio, 44138

Bohnet & Associates, 1150 Rule Rochelle, Sidell, VA 70458

Scardana Americas Bkg., 502 Empire St., Montreal, Greenfield Park, J4V1V7, Canada

MacGregor, 20 Chapin Road, Unit 1012, NJ 07058

McElroy Machine, P.O. Box 4454, Biloxi, MS 39535-4454

MARINE FINANCING

Debis Financial Services, 201 Merrit 7, Suite 70, Norwalk, CT 06856

Bank Corp., 3 Riverway Ste, 1900 Houston, TX 77056

Safeco Credit Co. Inc. 499 156th Ave. NE, Redmond, WA 98052

MARINE PAINTINGS

Serba Art Studio, 6 Ridge Drive, Old Saybrook, Ct 06475

MARINE SEATING

Stidd Systems Inc., P.O. Box 87, 220 Carpenter Drive, Greenport, NY 11944

MARINE SHAFTING

Western Branch Metals, Inc., 2401 Wesley St., Portsmouth, VA 23707

Kahlenberg Bros, P.O. Box 358, Two Rivers, WI 54241

MARINE SURPLUS SALES

Defense Reutilization & Marketing Service, 2163 Airways Blvd., Memphis, TN 38114

MARINE SYSTEMS SIMULATION

Applied High Technology, 4 Place Dee Commerce

Brossard, Suite 201 Quebec Canada J4W-3B3

MARITIME TRAINING A SCHOOLS

Calhoun MEBA Engineering School, 27050 St. Michaels Road, Easton, MD 21601

GSI Marine, 4016 Strawberry Road, Suite B, Pasadena, TX 77504-3050

OPULSION EQUIPMENT

Outrigger, Diesel Engines, Gears, Propellers, Shafts, Bines

Avondale Industries, Harvey Quick Repair, P.O. Box 116, Harvey, LA 70058
American Air Filter, P.O. Box 35690, Louisville, KY 40432
ABB Drives Inc., P.O. Box 372, Milwaukee, WI 53201-0372
ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND
ABB TURBOCHARGER, INC., 1460 Livingston Avenue, N. Brunswick, NJ 08902
Aquamaster-Rauma Ltd., Box 220, SF-26101, Rauma, FINLAND
Kamewa America Inc., 106 Park Place, Suite 200, Covington, LA 70433, USA
Kamewa AB, Box 1010, S-68129, Kristinehamn, Sweden
Kamewa Finland Oh, "Aquamaster", Box 220, FIN-26101 Rauma, Finland
Avtron Manufacturing, 7900 E. Pleasant Valley, Independence, OH 44131
Brunvoll A/S, P.O. Box 370, N-6401, Molde, Norway
ZF Marine 3131 SW 42nd St., Ft. Lauderdale, FL 33312
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
Centa Corp., 8185 Cass Ave., Darien, IL 60561
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
deWijns Marine International B.V., Postbus 320, 1969 NJ Heemskerk, Nederland
The Falk Corp., PO Box 492, Milwaukee, WI 53201-0492
Fincantieri, Diesel Engines Div—GMT, Bagnoli della Rosandra 334, Trieste, ITALY
GE Naval & Drive Turbine Systems, 166 Boulder Dr., Fitchburg MA 01420
GEC ALSTHOM Diesels Inc., 10801 Kempwood Dr. Ste 1, Houston, TX 77043-1412
Goltens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
Harbormaster Marine Inc., 31777 Industrial Rd., Livonia, MI 48150
Harrington Metal, 6720 124th Ave. Lennville, MI 49408
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Krupp Mak, 7655 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9
LIPS B.V., P.O. Box 6, 5150 BB Drunen, The Netherlands
Lohmann & Stoiterfoht, P.O. Box 1860, D-58408 Witten, Germany
Lo-Rez Vibration Control, 186 West 8th Ave., Vancouver, BC CANADA, V5Y 1N2
Mapeco, Inc., 91 Willenbrock Rd., Unit B4, Oxford CT 06478
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY
MAN B&W Diesel, 17 State St., New York, NY 10004
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Holeby, DENMARK
MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15, DK-9900 Frederikshavn, DENMARK
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-86153 Augsburg 1 GERMANY
Ornithruster, Inc., 743 N. Main St., Orange, CA 92668
Onon Corp., 1111 Cedar Creek Rd., Grafton, WI 53024
Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND
Rolla SP Propellers SA, Via Silva 5, P.O. Box 251, 6828 Balerna SWITZERLAND
S&S Propellers, 26-15 123rd St., Flushing, N.Y. 11354
Schottel (Baylor), 500 Industrial Blvd., Sugarland, TX 77478
Karl Senner Inc., 25 W Third, Kenner, LA 70062
Schottel-Werft, Manizer Strasse 99, D-56322 Spay/Rhein, GERMANY
Schottel North America, Inc., 1505 Corbin Ave., Hammond, LA 70403
Siemens Electric Ltd., 1180 Courtnepark Rd., Mississauga, ONTARIO
Stewart & Stevenson, 1400 Drestrehan, P.O. Box 8, Harvey LA 70059-0008
Thrustmaster of Texas, P.O. Box 840189-12227 IFM 529, Houston, TX 77284-0189
Ulestein Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY
Ultra Hydraulics Limited, Chellenham Road East, Gloucester, GL2 9QN, ENGLAND
Voith Hydro Marine Technology, P.O.B. 1125, D89509, Heidenheim, GERMANY
Marine Propulsion Inc., 1505 Corbin Ave., Hammond, LA 70403
The Cincinnati Gear Company, 5657 Wooster Pike, Cincinnati, OH 45227

Propulsion Systems, 609 N.W. St., Seattle, WA 98107
Renold Hi-Tec, 512 W. Crescentville Rd., Cincinnati, OH 45246
Bird Johnson, 110 Norfolk St., Walpole, Mass., 02081
U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021

PUMP—Repair—Drives
Scardana Americas Bkg., 502 Empire St., Greefield Park, J4V1V7 Canada
Gilkes, Inc., PO Box 628, Seabrook, TX 77586
Hamworthy Marine, Inc., 1129 Hospital Dr. Ste 3C, Stockbridge, GA 30281
Marine Electric & Process Control, 3931 Leary Way NW, Seattle, WA 98107
Kraissl Co., 299 Williams Avenue, Hackensack, NJ 07061
Vita Motivator, 566 Parker St., Newark, NJ 07104
Alfa Tec Inc., 4027 21st Ave. West, Seattle WA 98199
Ampco Pumps, 4000 West Burnham St., Milwaukee, WI 53215

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

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

RH PROPULSION
Boll Filter, 15 International Dr., East Granby, Ct., 06206
Goltens, 160 Van Brunt St., Brooklyn, NY 11231

RIGID INFLATABLE BOATS
Avon Marine, 11215 Young River Ave., Fountain Valley, CA 92708
Willard Marine, Inc. 1250 N. Grove St., Anaheim, CA 92806
Zodiac of N. America Thompson Creek, P.O. Box 400, Stevensville, MD 21666

ROPE—Manila—Nylon—Hawesers—Fibers
American Mfg. Co., 200 Southpark Rd., Lafayette, LA 70508
Bayer AG, D-41538, Dormagen, GERMANY
Phillystran, Inc., 151 Commerce Drive, Montgomeryville, PA 18936-9628
Pugel Sound Rope, 1012 Second St., Anacortes, WA 98221
Pelican Rope Works, 4001 Carriage Dr., Santa Ana, CA 92704
Rasmussen Equipment Co., P.O. Box 81206, Seattle, WA 98108
Wellington, P.O.B. 244, Madison, GA 30650

RUDDER BEARINGS & BUSHES
Duramax Marine, 16025 Johnson St., P.O. Box 67, Middlefield, OH 44062-0067
Thordon Bearings, Inc., 3225 Mainway, Burlington, Ontario Canada L7M 1A6
Vesco Plastics, P.O. Box 40647, Cleveland 2022, South Africa

SAFETY PRODUCTS

Viking Life Saving, 1625 N. Miami Ave., Miami, FL 33136
Sea, Inc. 7030 220th S.W., Mountlake Terrace, WA 98043
Welin Lambie N.A., Inc., 18 Ridgecrest Drive, Bridgewater Nova Scotia, Canada B4V 3V8
New England Marine & Industrial, 200 Spaulding Turnpike, Portsmouth, NH 03801
Nautical Safety Products, P.O. Box 590462, Houston, TX 77259

SANITATION DEVICE—Pollution Control
Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130
Exceltech International Corp., 1110 Industrial Blvd., Sugarland, TX 77478
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Headhunter Inc., 214 SW 21st Terrace, Fort Lauderdale, FL 33312
AlfaTec, Inc., 4027 21st Ave. West, Seattle, WA 98199
Owens Mfg., Hwy 92, Youngsville, LA 70592

SATELLITE COMMUNICATIONS
American Mobile Satellite Corp., 10802 Parkridge Blvd., Reston, VA 22091
Boatrac, Inc., 6440 Lusk Blvd. #D-201, San Diego, CA 92121-2758
Furuno USA, Inc., 271 Harbor Way, S. San Francisco, CA 94080
KVH Industries, Inc., 110 Enterprise Center, Middleton, R.I. 02842-5268
ICG Satellite Communications, 8400 NW 52nd St., Suite 110, Miami, FL 33166
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27604-1851
Iridium A.N., 8449 S River Pkwy, Tempe, AZ 85284
Norwegian Telecom, Postboks 6701 St. Olavs Plass, N-0130, Oslo, Norway
PTT Telecom, Station 12, P.O. Box 30150-2500 JD The Hague, NETHERLANDS
Radio-Holland USA, 8943 Gulf Freeway, Houston, TX 77017
Singapore Telecom, 15 Hill Street, Telephone House, 2nd Storey, Singapore 0617
Telstra Mobile Satellite & Radio Services, 79 St. Hilliers Rd., Auburn NSW 2144, AUSTRALIA
Comsat Maritime Services, 6560 Rock Spring Drive, Bethesda, MD 20817-1146
Land Sea Systems, 849 Seahawk Circle, Suite 103, Virginia Beach, VA 23452

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

SCARIFIERS
Desmond-Stephan, P.O.B. 30, Urbana, OH 43078

SEALS
John Crane Marine, USA, 1536 Barclay Blvd, Buffalo Grove, IL 60089
Blohm & Voss Industrie GmbH, P.O. Box 10 07 20, D-20457 Hamburg, GERMANY
Duramax Marine, 16025 Johnson St., Middlefield, OH 44062
Circle Seal Controls Inc., 2301 Wardlaw Circle, P.O. Box 3300 Corona, CA
U.S.A. Reps: Simplex-Turmar Inc, P.O. Box 168, Little Neck, NY 11363-0168

SENSORS
Gems Sensors, One Cowles Rd., Plainville CT 06062

SHAFT HORSEPOWER MEASURING SYSTEM
Instruments Computers & Controls, 70 South Bow Rd., Hookset, N.H. 03106

SHAFT SEALS
Duramax Marine, 16025 Johnson St., Middlefield, OH 44062

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

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

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

SHIPBOARD EMERGENCY RESPONSE
AGI Shipboard Fire Service Ltd., 561 Wain Rd., Sidney B.C. Canada V8L 5N8

SHIPBOARD FURNITURE / SWITCHING SYSTEMS
Engineered Data Products, P.O. Box 565, Woodbury, NJ 08096

SHIPBUILDING—Repairs, Maintenance, Drydocking
American Eagle Mfg., 780 Pearle Jensen Way, La Conner WA 98257
Arntel, Inc., P.O. Box 3107, Brownsville, TX 78523
Astilleros Espanoles, S.A. Ochandiano, 14-16 28023 El Plantio SPAIN
Atlantic Marine, Inc. P.O. Box 3202, Mobile, AL 36652
Atlantic Marine, Inc., 8500 Heckscher Dr., Jacksonville, FL 32226
Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150
Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601
Bisso Marine Co., P.O. Box 4113, New Orleans, LA 70178
Blount Marine, 461 Water St., Warren, R.I. 02885
Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250
Caridoc, P.O. Box 1147 Port Of Spain, Trinidad, W.I.
Chris-Marine AB, P.O. Box 9025, S-2000 39, Malmo, SWEDEN
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Eastern Shipbuilding Group, 2200 Nelson Street, Panama City, FL 32402
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
GMD Shipyard, Flushing Ave. & Cumberland, Brooklyn, NY 11205
Gulf Coast Fabrication, Inc., P.O. Box 539, Lakeshore, MS 39558
HDW, Kiel, Germany, USA Rep.; Roland Marine Inc., 90 Broad St., NY, NY 10004
Halter Marine Group, Inc., 13085 Industrial Seaway Rd, Gulfport, MS 39503
Hitachi Zosen, Hitachi Shipbuilding & Engineering Co., 1-1-1 Hitotsubashi Chiyoda-Ku Tokyo 100 Japan
In-Place Machining Co., Inc. 929 North Buffum Street, Milwaukee, WI 53212-3793
Jacksonville Shipyards, 750 E. Bay St., Jacksonville, FL 32202
Jeffboat, Inc., P.O. Box 610, Jeffersonville IN 47130
Kvaerner Masa-Yards Oy, Box 132, SF-00151, Helsinki, FINLAND
Kvichak, 615 N. 34 St., Seattle, WA 98103
Leevac Shipyards, P.O. Box 1190, HWY 90 East, Jennings, LA 70546
Lindenau GmbH, Skagerrakufer 10, Postfach 9093 D-2300 Kiel, Friedrichsorf GERMANY
Motor-Service AB, Box 2115, 144 04 Ronninge, SWEDEN
Munson Hammerhead, 780 Pearle Jensen Way, La Conner WA 98257
Newport News, 4101 Washington Ave., Newport News, VA 23607
Peterson Builders, Inc., 101 Pennsylvania Ave., Sturgeon Bay, WI 54235-0650
Thomas Marine, 37 Bransford Street, Patchogue, NY 11772
Samsung Heavy Ind., 25, 1-ka, Bongrae-dong, Chung-ku, Seoul, Korea

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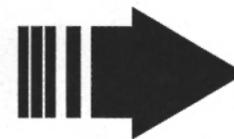
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5	ABB Turbochargers	turbochargers	200	71	Kamewa Finland Ltd.	propulsion	286
107	Adrick Marine	refrigeration/air conditioning	201	c4	Karl Senner	propulsion equip.	287
c2	Alfa Laval	fuel & lube oil treatment separators	202	72	Kiene Diesel	diesel engine test & svc. equip.	288
123	Allen Marine	marine equipment	389	30	King Wholesale Supply Co., Inc.	marine supplies and equipment	289
10	Allweiler Marine	cargo handling systems	392	99	Kobelt Manufacturing Co.	marine control systems	290
120	Almon Johnson Ltd.	marine equipment	206	97	Kvaerner Masa-Yards Oy	shipbuilders	291
64	Ambar Marine	RIB workboats	203	113	KVH Industries Inc.	satellite communications	292
53	AmClyde	winchs & cranes	207	73	Lang Manufacturing	marine equip.	293
17	American Mobile Satellite	satellite communications	208	124	Leevac Shipyards	shipyard	294
124	American Shipyard Corp.	shipyard	209	10	Leica Navigation	marine navigation	295
91	American Vulcan	couplings	210	32	Lieber-Werk Nenzing GMBH	cranes	296
100	Ameriforce	skilled welders/laborers	204	7	Lloyd's Register	software	297
42	Amfels	shipyard/repair	211	74	Loeffler Corp.	valves & bells	298
40	Apollonio Naval Architects	naval architects	212	52	Luber Finer, Inc.	filter systems	299
110	AR Larson Co.	marine supplies and equipment	213	42	Mackay Communications	marine supplies and equipment	301
105	Astilleros Espanoles	shipyard	214	43	Mackay Communications	navigation/satellite comm.	300
1	AT&T Mobile Satellite	satellite communications	215	89	Magellan Systems Corp.	navigation electronics/GPS	384
27	AT&T Undersea Cable	undersea cable charts	nrsn	81	Man B&W Holey	marine supplies and equipment	302
86	Atlantic Marine	adveritorial	217	12	Manly Marine Closures	hatches	371
87	Atlantic Marine	ship builder	216	116	Marine Electric & Process Control	electric service	303
92	Avon Marine	unbeatable inflatables	219	41	Marisco Limited	dry dock/ship repair	373
76	Avondale Shipyards	shipyard	218	124	Mascoat Products	coatings/marine insulation	369
124	Baier Hatch Co.	hatches	220	108	Miracle Steel Structures	marine supplies and equipment	304
99	Bailey Refrigeration	refrigeration	221	28	MMC International	tank gauging	305
78	Baylor Co.	generators	222	116	Motor- Services Hugo Stamp	diesel engine parts	306
35	Beclawat Manufacturing	windows & doors	223	60	Nera AS	communications	307
45	Bender Shipbuilding & Repair	shipyard	224	46	Newmar	navigation/power supplies	308
78	Betterway Products	marine supplies and equipment	374	30	Nishiyama Corp. of America	marine supplies and equipment	309
75	Blount Marine	boatbuilder	225	14	NLB Corp.	waterblasting	310
38	Boat Crew USA	employment	226	28	Northwest Technical Industries	explosively bonded metals	311
56	Boatlife	sealants	370	123	Ocean Technical Services	inflatables	312
29	Boatrac Inc.	satellite communication	227	90	Offshore Inland Inc.	hydraulics	313
47	Bollinger	shipyard	228	77	Offshore Systems Int'l	navigation	314
67	Carhartt, Inc.	marine workwear	229	123	Owens Manufacturing	sanitation	315
65	Caterpillar	propulsion	382	77	Pelican Rope Works	rope	316
82	Centofanti Marine Systems	engine & gear controls	388	74	Phillystran Inc.	rope mooring lines	358
119	Cincinnati Gear Co.	marine gears	230	45	Prosar Technologies, Inc.	PFD Lighting	391
100	Circle Seal Controls, Inc.	seals	231	12	Puget Sound Rope	ropes	317
79	CMB Cummins Engine Co.	engines	232	84	Q-Mar, Inc.	navigation	318
120	Coastal Oceanographics	marine electronics	233	34	Radio-Holland USA	electronics	319
110	Computube	heat exchanger tubes	234	109	Rasmussen Equipment Co.	marine equipment	320
111	Comsat Mobile Comm.	satellite communications	235	3	Raytheon	navigation	321
84	Consolidated Switchgear	marine supplies and equipment	236	90	Red Fox Environmental Services	environmental services	368
21	Crowley Marine Services	shipyard	237	91	Renold HITEC	marine supplies and equipment	377
110	CSD North America	sealing systems	238	94	RGF Environmental Group	oil water separators	322
27	Cummins Marine	engines	239	35	Rice Propeller	propellers	323
20	Cummins Wartsila S.A.	engines	240	38	Ross Engineering	nav/comm equipment	394
108	Custom Nozzle	nozzles	241	70	RTP Manufacturing	refrigerators & freezers	324
40	Custom Ship Interiors	ship interiors	242	13	RW Fernstrum	cooling systems	325
51	Cygnus Instrument	ultra sonic thickness testing	243	58	S&S Propeller	propellers	326
78	DataStar Marine Products Inc.	monitoring systems/alarms	244	4	Safeco	marine financing	327
29	DBC Marine Safety Systems	evacuation systems	245	98	SBA Interior	interiors	328
15	Debis Financial Services	marine financing	246	119	Scandinavian Micro Systems	marine supplies and equipment	329
44	Dry Air Technology	marine supplies and equipment	248	88	Schottel-Werft	propulsion	330
c3	Eastern Shipbuilding	shipyard	249	64	Schuyler Rubber	fendering	331
91	Edgewater Machine	deck equipment	375	85	Sea-Tel	satellite systems	334
26	Edison Chouest Offshore	offshore supplies	250	44	Sea Ark Marine	marine supplies and equipment	332
99	Effer S.P.A.	cranes	251	92	Sea Craft Shipyard Corp.	shipyard	333
71	Electronic Marine Systems	technology	252	118	Seatrade Cruise Shipping '99	convention	335
73	Electronic Marine Systems	technology	253	115	Seaward International	fenders	336
75	Electronic Marine Systems	technology	254	117	Seaward International	fenders	337
77	Electronic Marine Systems	technology	255	40	Selco USA	meters	338
46	Envirovac	sanitation device	256	101	Ship Repair & Conversion Exhibition	exhibition	339
122	Europort	show	372	16	Sigma Coatings	coatings	340
36	Ferro Corp.	epoxy repair system	257	66	Simrad	DP systems	383
124	Flexible Decking by Daniello Corp.	deck coatings	258	11	Skipperliner Shipyards	shipyard	341
61	Flow International Corp.	coatings removal	259	62	Smith-Berger Marine	deck hardware	342
82	Foster Refrigeration	refrigeration	387	93	Spurs Marine	line & net cutters	343
39	Fuel Dynamics	fuel decontamination	260	34	Standard Communications	communications	385
109	G.J. Wortelboer Jr. B.V.	anchors, chains	261	59	Station 12	telecommunications	344
9	GEC Altsom Diesel	propulsion	262	68,69	Stewart Stevenson	diesel engines	345
124	General Ship Repair Corp.	ship repair yard	263	72	Summer Equipment Ltd.	steering gear systems	346
106	Goodall	hose & fittings	264	22	Superior Energies Inc.	manufacturing & contracting	347
83	Griffin-Oaks Marine Management	marine management	381	57	Tampa Bay Shipbuilding	shipyard	380
19	Grinnell Fire Protection	fire & safety systems	265	32	Tano Corp.	propulsion control system	348
80	GSI Marine	training	386	46	Tech Power Controls	electrical motor drives	350
88	Haley Clutch & Coupling	gears	268	12	Technofibre	lifeboat repair	349
18	Halter Marine	shipyard	269	114	Thermax	bulkhead panel	351
37	Harbormaster	propulsion systems/equipment	266	109	Thrustmaster of Texas	jet bowthrusters	379
75	Harrington Marine	kort nozzles	267	95	Tranter, Inc.	heat exchangers	352
55	Hempel	coatings	270	39	UK Hydrographic Office	marine supplies and equipment	353
91	Holland Roer Propeller	propellers	271	48	Uniservice Americas	water treatment	354
58	Hornblower Marine	marine management services	272	12	Urethane Products Corp.	foam filled fenders & buoys	355
124	Houma Fabricators	shipbuilding/repair	273	94	Vancouver Shipyard	shipyard	356
109	Houston Marine	marine supplies and equipment	274	123	Viking Fender	fendering	357
37	Hydrasearch Co.	hose and fittings	275	56	Voith Hydro GMBH & Co.	shiphandling technology	359
23	Icom America	communications equipment	nrsn	33	Volks Constructors	marine supplies and equipment	360
121	In-Place Machining	crankshaft repair	276	62	W.L. Gore	packing material	361
73	Insulations, Inc.	marine contractors	277	31	Wartsila NSD Corp.	propulsion	378
121	Intecolor Corp.	marine monitors/computers	278	116	Washington Chain	chains, cleats	362
121	Intercontinental Engineering & Manufacturing	deck machinery	279	36	Watercom-Waterway Comm.	communication systems	363
107	International Ship Repair & Marine Services	marine supplies and equipment	280	94	Waterman Supply	marine equip.	364
25	Iridium N.A.	satellite communications	281	32	Western Branch Metals	boat shafting	390
25	Iridium N.A.	marine supplies and equipment	brc	124	Western Machine Works	shipbuilders	365
110	ITW Philadelphia Resins	chocking	282	114	Willard Marine	inflatable boats	366
103	Jeffboat, Inc.	shipbuilder	283	106	Xtek, Inc.	crane components	367
100	JW Fishers	underwater cameras	284	63	ZFI Marine	propulsion systems	376
				38	Zito Towing	inland barge towing & repair	393

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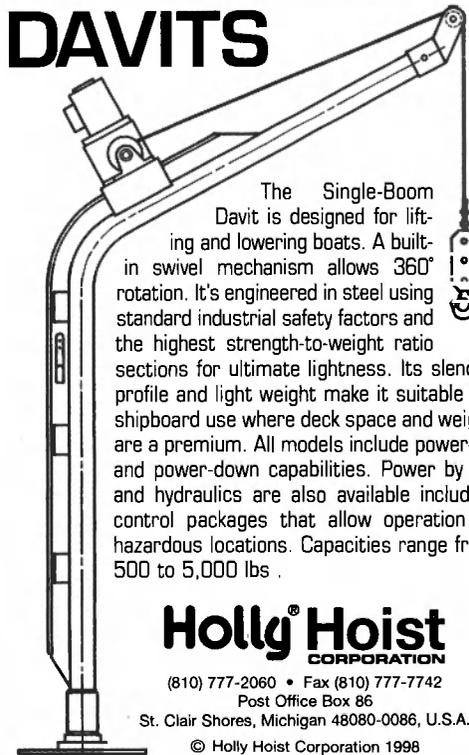
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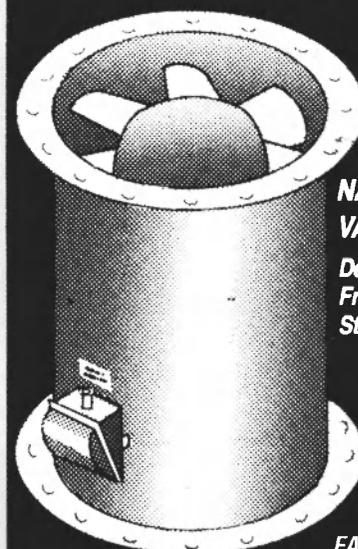
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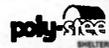


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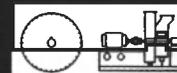
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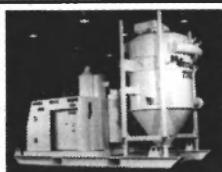
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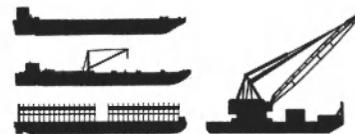
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Acquisition Center (AMTSTA-DSA-TA-AQ)
Warren, MI 48397-5000
Attention: Deborah Walker

TACOM is seeking information from potential sources for potential procurement of Logistic Support Vessels (LSV), 1 to 3 vessels. The LSV will be used for movement of rolling stock and containers. It will use shallow ports and be able to unload and load at the beach. The requirements are:

- 1) Operate offshore
- 2) Operate at a beach having a 1:30 gradient with a 900 ST deck load
- 3) Operate at sustained speed of 15 kn in sea state 3 with 2,000 ST deck load
- 4) Minimum 2,000 ST deck load
- 5) Minimum 10,500 SQFT cargo area
- 6) 5,500 range w/ 2,000 ST deck load (able to cross ocean)
- 7) Accommodations for 8 officers & 24 enlisted
- 8) Stern and bow ramps (25' wide openings)
- 9) USCG and ABS

Two sets of arrangement drawings, pictures, list of major equipment, capabilities, price data, etc. are requested for vessels which meet these requirements or could be modified to meet these requirements. Information should be sent to the above address by January 4, 1999. No phone inquiries will be accepted.

Proprietary information submitted will be protected when so designated. A response to this announcement is not a requirement for participation in any future procurement program should such a program develop, nor will data provided be used to qualify prospective offerors for any future solicitations. No reimbursement for any costs connected with providing TACOM this information will be made. This sources sought announcement is not to be construed as a commitment by TACOM to award a contract, nor is it a Request for Proposal.

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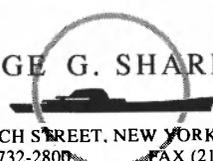
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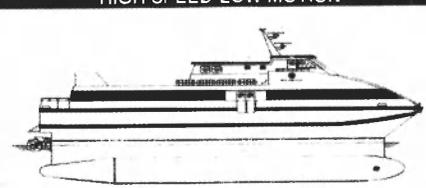
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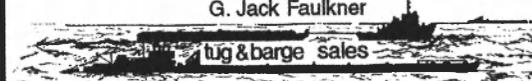
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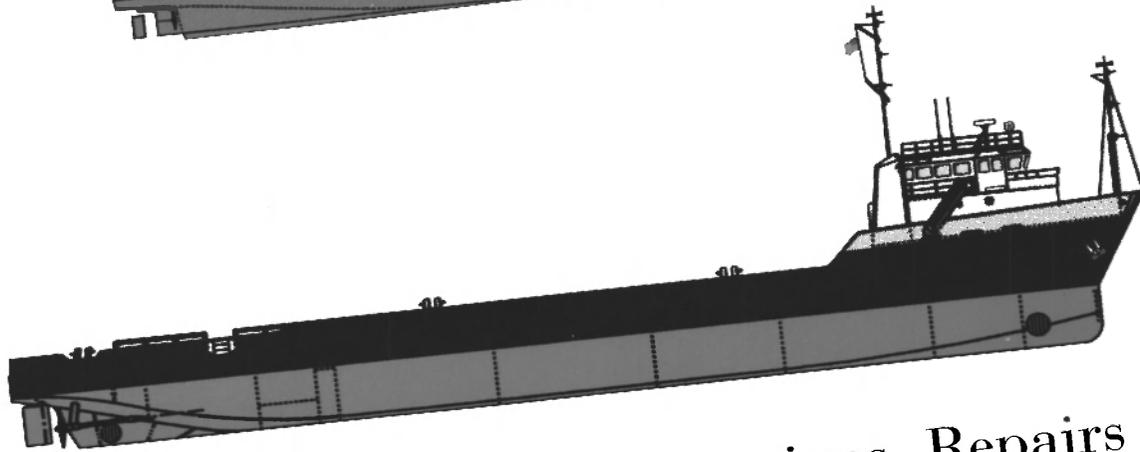
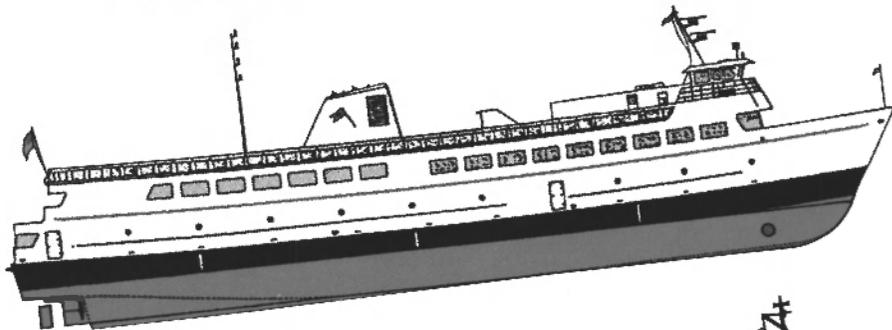
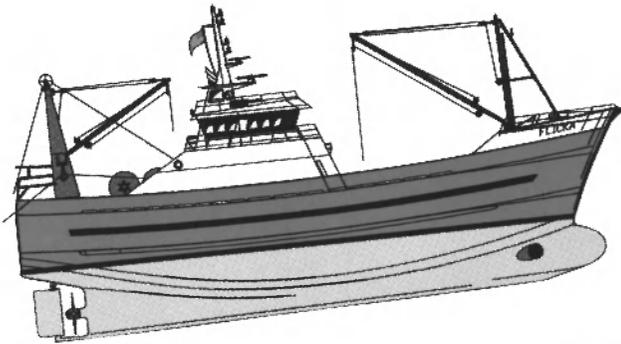
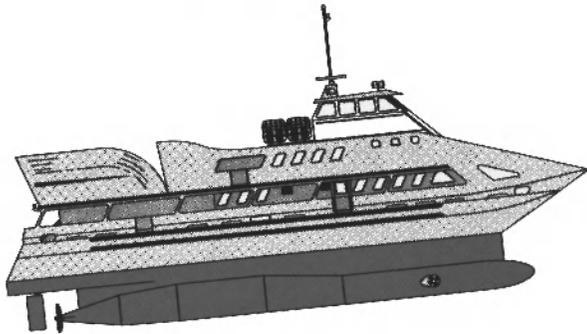
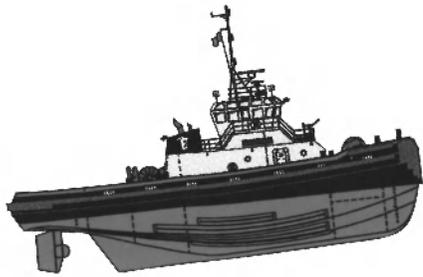
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