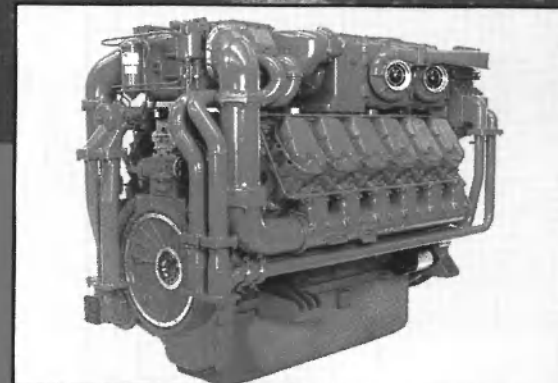


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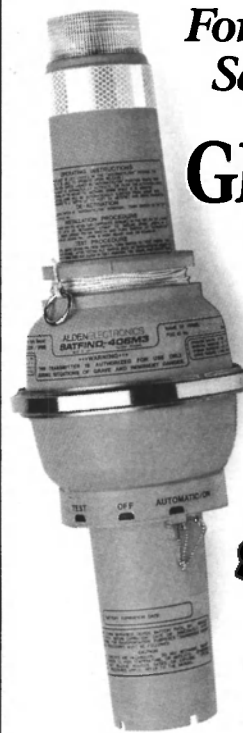
- **Intl. Workboat Show**
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ON THE COVER

The Cruise Ship market accounted for some landmark deals to start the year. Read what industry insiders have to say regarding the potential of this market segment; Holland America's SS Rotterdam; Paxman's VP 185, story starts on page 60.

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Fednav Taps Daewoo To Build Two Ships

Fednav Group, a Canadian Shipping Company, signed a contract with Daewoo Corp. and Daewoo Shipbuilding & Heavy Machinery Ltd. of South Korea for the building of two highly specialized ice-class bulk carriers. The vessels are scheduled for delivery in early 1995.

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Greenpeace Wants Companies, Traders To Share Liability For Oil Spills

Greenpeace called on the International Maritime Organization's (IMO) Maritime Safety Committee to set up a worldwide regime of unlimited liability for tankers and for all restrictions on oil spill compensation payments to be lifted.

Greenpeace's formal proposal was submitted at the IMO's Maritime Safety Committee in London.

Greenpeace, with membership of approximately six million people, is advocating a no-fault system in order to avoid costly court cases, and agrees with tanker owners who claim oil companies and traders should share liability for tanker accidents.

The maximum oil spill liability cover available from the protection

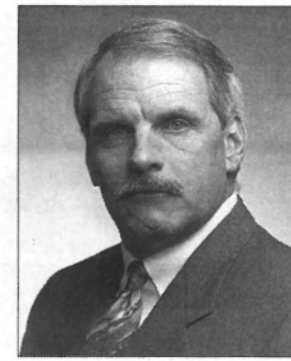
and indemnity clubs and the commercial markets is presently \$700 million.

A number of prominent tanker operators, including Shell International Marine Ltd. and A.P. Moller of Denmark, have refused to allow any of their ships carrying dirty oil to call at U.S. mainland ports since the U.S. acted unilaterally with its own spill regulations.

Greenpeace also called for the

banning of all older single-hull tankers by the year 2005, although the IMO agreed last year that older tankers would have 30 years in which to comply with new double-hull and other construction requirements.

Wartsila Diesel Makes New Appointment



Terry E. Sirois

Wartsila Diesel North America, Inc. announced the appointment of Terry E. Sirois as vice president, diesel service.

Mr. Sirois is responsible for all service and parts support, plus customer training for users of Wartsila's family of diesel engines throughout North America, including Central America.

Wartsila Diesel supports its customers in the marine and power industries from its headquarters in Annapolis, Md. and 14 other offices throughout the region.

President Of Moran Shipping Resigns

Michael T. Black, CEO of Moran Shipping Agencies, Inc., announced that its president, Joseph A. Cano, left the company and its New York-Philadelphia affiliate, Kurz-Moran Shipping Agencies, Inc., at the end of June.

After 13.5 years with the Moran Companies, Mr. Cano has decided to pursue alternative career options and professional interests.

Mr. Cano devoted considerable time and energy to the Maritime community through years of service on the Board of Directors of The Association of Ship Brokers and Agents (USA), Inc. (ASBA), acting as its president in 1991 and 1992, as well as other groups such as The Maritime Association of the Port of New York and New Jersey, and the National Association of Maritime Organizations. Mr. Black also announced that Mr. James L. Bowser, general manager of Kurz-Moran Shipping Agencies, Inc., will assume full operational responsibility for the New York and Philadelphia offices on Mr. Cano's departure.



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BOATS & BARGES

Bender Shipbuilding And ENSCO Drilling Christen Drilling Barge

Bender Shipbuilding & Repair Co., Inc. joined ENSCO Drilling Company (EDC) for a christening ceremony for the ENSCO X, the second of two drill rigs constructed by Bender for oil exploration on Lake Maracaibo, Venezuela. The two drill rigs are Bender's first drill rig construction projects and represent an expansion by the Mobile-based shipbuilder into a new market of international ship construction.

The ENSCO X is one of two drilling barges built by Bender for EDC, a division of Energy Service Company, Inc. (ENSCO) of Dallas, Texas. The barges are part of a four-barge construction program begun by ENSCO last May. The additional two barges are being built by a Texas shipyard. Financing of approximately \$65 million for the four barges is being provided by Nissho Iwai Corporation of Japan.

The new barges represent a significant expansion of ENSCO's international contract drilling operations. The four new barges will



Donna S. Spearman christens the ENSCO X.

join two other EDC barge rigs, the ENSCO V and ENSCO VI, and two Lagoven-owned rigs operated by EDC under labor contracts, all of which are already working on Lake Maracaibo for Lagoven under long-term contracts.

The 200 x 85 x 14-foot ENSCO X drilling barge is specifically designed and constructed for oil exploration in the shallow waters of Lake Maracaibo, and is equipped for ex-

ploratory and production drilling in water depths ranging from 25 feet to 120 feet.

The barge includes living quarters and accommodations for a crew of 16, a helicopter deck and a derrick rising 147 feet from the drilling floor.

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Saab Marine Finds Business In Retrofit Market; Lands Huge Japan Deal

Due to growing environmental concern, higher quality demands from both crews and charterers as well as new legislation, there is a current need for owners to upgrade their tonnage. Capitalizing, Saab Marine Electronics has recently received several retrofit project orders for its radar-based level gauging system, Saab TankRadar.

The most recent retrofit order was from the French shipowner Compagnie General Maritime, for

the retrofitting of two 2,400-dwt chemical carriers. The order covers the supply of radar level gauging and temperature monitoring for the ship's 12 cargo tanks. Another order was from Mobil Shipping Co. Ltd. in London for level gauging systems on three of its older tankers. But Saab has found success in more than the retrofit business.

At the recent Nor-Shipping show, the company announced an order to supply its radar-based level gauging system, Saab TankRadar, for a floating storage tank terminal located off Shirashima Island in Japan.

The plant consists of eight huge floating vessels, each 700,000-dwt. The tanks are built like vessels with a double hull and each vessel is divided into seven tanks. The delivery from Saab Marine Electronics includes level gauging in all seven tanks on each vessel, and each tank will have two gauges installed with individual Tank Display Units for display of ullage. The total number of gauges will be 112. In 1992, Saab Marine Electronics became the first company in the world to be awarded an ISO 9001 international quality assurance certificate for development, design and manufacturing of radar-based level gauging systems.

Saab Marine Electronics is a member of Saab-Scania's high technology Combitech Group.

For more information on Saab Marine Electronic,

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PROPULSION UPDATE

Paxman Diesel Launches New Engine, The VP185

By Marcus Gibson, contributing editor

"The launch of a new family of diesel engines is a rare occurrence," said **William Van-Orden**, commercial director of Paxman Diesels at Colchester, England, when he unveiled the company's latest concept, the VP185 12-cylinder powerplant.

Combining "strength, compactness, light weight and economy," said Mr. **Van-Orden**, the VP185 is the first major initiative of the post-Cold War era by a company once heavily dependent on military sales.

In the U.S. market the VP185 is intended as a successor to Paxman's widely used and reliable Valenta engines, which have been fitted into the U.S. Coast Guard's Island class and the U.S. Navy's Cyclone fast patrol boats.

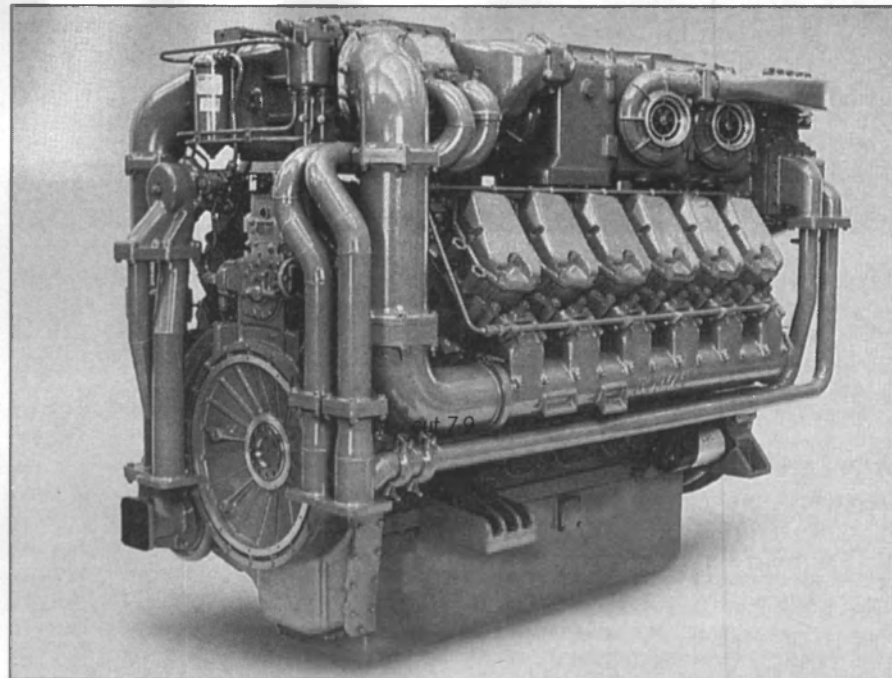
The cube-shaped engine has been introduced not only for military craft, but also for use in fast ferries, catamarans, hydrofoils and luxury yachts.

The VP185 measures 6.5- by 9.1- by 4.9-feet, with a light weight of 6.9 tons. It offers up to 2,610 kWb (3,500 bhp) at 1,950 rpm, providing 1.5 MW and more at 50 Hz or 60 Hz,

with a fuel consumption of 200 g/kWb hr. At continuous ratings at this fuel consumption, the VP185 produces a 15 percent improvement on its Valenta and Vega predecessors. Its low weight, small size and high power should enable operators to increase payloads and efficiency.

The VP185's turbocharger, a two-stage intercooler, aftercooler unit, nestles neatly between the cylinder banks and above the engine, a compact design created by **John Ramsden**, Paxman's chief designer. The company claims the system delivers excellent torque characteristics and rapid response with this system. The VP185 has a 90-degree Vee configuration with a 185mm bore and a 196mm stroke. A single, solid, central camshaft, driving valve gear and unit pump injectors, forms the heart of the engine. The crankcase is made of high-strength spheroidal graphite cast iron designed to withstand peak firing pressures.

Extra effort was also given to minimize the number of parts, in order to maximize reliability and reduce maintenance. The manufac-



The new Paxman VP185

turer claims the engine is very accessible for service.

The user-friendly approach begins with good-sized crankcase doors to provide access to connecting rods and crankshaft for in-situ servicing. General overall intervals start at 15,000 hours, although many owners of Paxman Valenta engines have reached up to 24,000 hours.

For development and production of the new engines, the Colchester factory has introduced the "right first time" manufacturing methods. New automated machine tools have been purchased and tolerances of many components are checked on a special quality-control device

mounted on a single piece of granite which weighs 80 tons. In addition, an extensive testing program of VP185 prototypes has been carried out at performance conditions far beyond those to be expected from standard operating schedules. As Paxman deems a monitoring system as integral to the VP185 package, the data acquisition unit is mounted on the engine itself. Protected by anti-vibration mounts, the system is connected to a VDU screen and up to 128 parameters are available simultaneously. For more on the new engine,

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Maritime Reporter/Engineering News

Jean-Paul Brillaud Elected Inmarsat Council Chairman

Jean-Paul Brillaud of France has been elected chairman of the Inmarsat Council for the coming year.

Mr. Brillaud succeeds Richard K. T. Fong of Singapore whose term ended with the council's recent 45th meeting in London.

Inmarsat, a 67-member-country cooperative, operates a global system of satellites to provide mobile communications for maritime, aeronautical and land mobile users worldwide. The Inmarsat Council, which normally meets three times a year, comprises delegates from those organizations appointed by major Inmarsat member countries to represent their interests in Inmarsat.

Mr. Brillaud is currently head of the Satellite Communications Policy Division at France Telecom. With a background in engineering, Mr. Brillaud has been with the organization since 1973.

For more information on Inmarsat,

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Ingalls Plans Tanker Using Curved Plate Construction

Ingalls Shipbuilding, the Pascagoula-based subsidiary of Litton Industries, is in agreement with Marinex International of New Jersey to prepare a design package for the bow and stern sections of a 324,000-dwt crude carrier type.

The tanker class, known as the Marc Guardian, incorporates slightly curved steel plate in place of flat plate. The curved plate has been developed by Marinex in conjunction with shipyard operator Metro Machine Corporation of Norfolk, Va., which has reportedly invested \$2 million in research and development on the Marc Guardian tanker project.

The curved plate construction is less complex than preceding plates and is aimed at making U.S. shipbuilding more competitive internationally.

Metro Machine is planning to build and coat double-skinned sections 50 feet long for the parallel body. These sections would then be fabricated to close tolerances by highly-automated equipment in climate-controlled cubicles.

Ingalls is planning to design and construct the bow and stern sections at its Pascagoula yard in Mississippi.

Metro-built midbodies will then be joined to the foreship and after sections transferred from Ingalls.

For more information on Ingalls,

Circle 80 on Reader Service Card

ICB Shipping Orders Two VLCCs

ICB Shipping of Sweden has placed an order for two 290,000-dwt

VLCCs from Daewoo Shipbuilding & Heavy Machinery of South Korea. ICB Shipping is the first European operator to place an order for VLCCs this year.

The first vessel is scheduled for delivery at the end of 1994, and the second for the first half of 1995. The second vessel will be equipped with a double hull.

ICB reportedly believes that low newbuilding activity and reduction of fleet by scrapping will create the conditions for a better freight mar-

ket beginning in 1994.

For more information on Daewoo,

Circle 81 on Reader Service Card

H-DIL Wins Canadian Coast Guard Contract

Halifax-Dartmouth Industries Limited (H-DIL) has won the contract for work on the Canadian Coast Guard vessel Sir William Alexander.

The work on the vessel includes sand blasting, painting, mooring equipment overhaul, rudder and propeller inspections, as well as general mandatory inspections.

The Sir William Alexander is a buoy tender/icebreaking vessel which is based in Halifax. It was last in Halifax Shipyard in June 1992, when work was done on the propeller.

For more information on H-DIL,

Circle 4 on Reader Service Card



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663-7000 381-9000 342-1000 852-8000 297-2000

MHI To Deliver 290,000-dwt Double-Hulled VLCC

Mitsubishi Heavy Industries, Ltd. (MHI) has completed its first double-hulled design very large crude oil carrier (VLCC), which was christened at a ceremony at MHI's Nagasaki Shipyard & Machinery Works.

The 290,927-ton tanker Ocean Guardian was delivered to Ocean

Transport Co., Ltd. of Liberia on May 26th. For more on MHI,

Circle 85 on Reader Service Card

South Korea's Daewoo Wins Two Newbuilding Contracts

Daewoo Shipbuilding & Heavy Machinery Ltd. agreed with Westfal-Larsen & Co. of Norway to build

three 46,000-ton open hatch general cargo-container carriers, for \$44 million per ship. The first is scheduled for delivery in 1995. Daewoo also signed an agreement with Marubeni Corp. of Japan to build a ship to carry 5,000 automobiles. The reported contract price is \$45 million, and the vessel, which will be rented to Mitsui Osk Lines, is scheduled for delivery early in 1995. For more on Daewoo,

Circle 142 on Reader Service Card

World-Wide Shipping Sells VLCCs For Scrapping

World-Wide Shipping of Hong Kong and Mobil Oil of the U.S. have both sold VLCCs to Chinese breakers for scrapping. World-Wide has sold a total of three vessels and Mobil has sold one. World-Wide's most recent sale, a 237,000-dwt vessel, received \$163.50 per ton. The second was sold for \$162.50 per ton, and the first for \$161 per ton. Dr. Helmut Sohmen, World-Wide chairman, is a strong advocate of scrapping as a means of increasing freight rates for shipowners.

Raytheon Awarded \$67 Million Navy Contract

The U.S. Navy awarded a \$66.9 million contract to Raytheon Co. for engineering and technical services required to support the AEGIS defensive system program. For more information on Raytheon,

Circle 141 on Reader Service Card

SPD Offers Free Brochure On MIL-SPEC Circuit Breakers And Switchgear

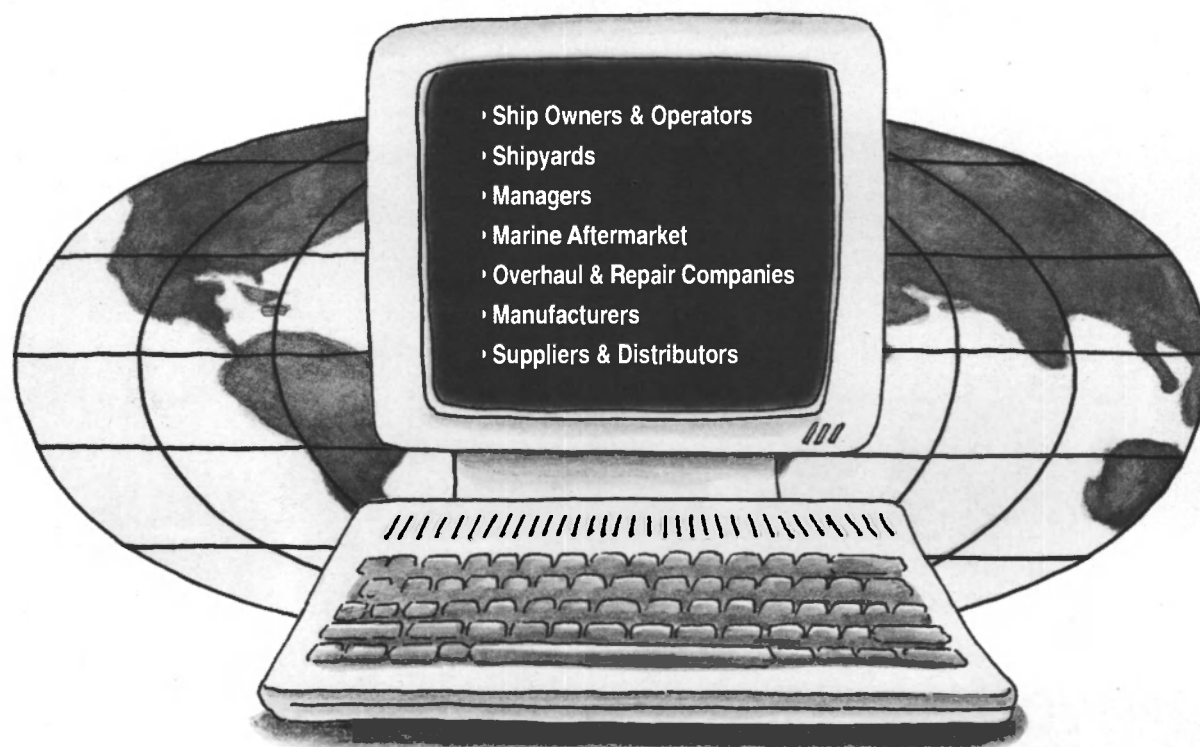
SPD Technologies offers interested customers a free 48-page color brochure entitled Mil-Spec Circuit Breakers and Switchgear. This includes molded case breakers from five amps through 1,600 amps. The SPD brochure is a guide to selecting from an extensive line of circuit breakers and switchgear. The circuit breakers are divided into two categories, molded case circuit breakers (ACB) and air circuit breakers (ACB). Each category includes application and technical data, rating charts and product descriptions. Each piece of equipment is with a photograph and a full-page description. The switchgear section contains photos and text describing the SPD selection of Navy switchgear. For a free copy of the SPD brochure,

Circle 140 on Reader Service Card

Sea-Land, APL Move To Reflag Containerships

Sea-Land Service, Inc. moved to abandon the U.S. flag for 13 of its 41 ships, and American President Line followed suit saying it too will seek to re-register several of its vessels under foreign flag. Both companies are following through on threats made when maritime reform legislation failed earlier this year. Cost savings estimates of flagging out are about \$3 million per year per ship. Sea-Land is estimating 550 U.S. jobs will be lost when it places 13 ships under the flag of the Marshall Islands by year end.

The Global Marine Parts Department...



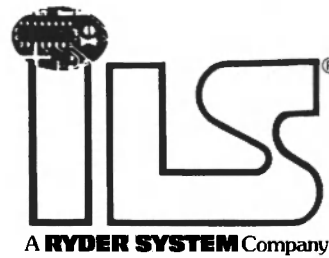
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With ILS, you can search the inventories of hundreds of marine suppliers worldwide to find the parts you need - in seconds. We can tell you who has the parts and equipment you are looking for, with just a few keystrokes. We even give you the information to contact the seller directly.

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Crawley, West Sussex, UK
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Circle 237 on Reader Service Card

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28023 Madrid - Spain

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Fax: (341) 387 81 14

Circle 206 on Reader Service Card

The Shipbuilders of Spain

BOATS AND BARGES

Peterson Builders And England-Based Cougar Marine Team For MK V Navy Program

Peterson Builders, Inc. (PBI) of Sturgeon Bay, Wis. and Cougar Marine, Ltd. of Hamble, England have agreed to a teaming arrangement which gives PBI access to Cougar's design expertise for asymmetrical catamaran hull forms to 150 feet (45 meters) in length and speeds in excess of 35 knots.

PBI also has the exclusive right



Michael J. Hitt

to market the design and intellectual property rights for asymmetrical catamarans in the U.S. and Canada.

The first product of this collaboration is PBI's submission in response to the U.S. Navy MK V SOC solicitation, a 70-foot (21-meter), all aluminum catamaran craft, capable of sustained speeds in excess of 50 knots and a continuous cruising speed of 47 knots.

The craft is powered by two conventional MTU marine diesel engines, each driving a Rolla surface-piercing propeller, and a SeaTech marine diesel loitering engine driving a Hamilton water jet.

Peter Sutcliffe, Cougar's commercial sales executive, said, "The direct parent craft of the PBI MK V SOC was built under our Cougar Cat 2100 design by a Spanish yard and has been successfully accepted into service by the Spanish Customs Service to work Atlantic and Mediterranean coastlines."



The Cougar Cat 2100 as a Spanish Customs Patrol Craft.

According to PBI's director of business development, Allen Powell,

"Having already supplied more than 30 65-foot (19.8-meter) MK III patrol craft to the U.S. Navy, based upon a conventional fast mono-hull design, we came to the conclusion that the time was right for us to offer something more advanced, but proven in operation."

We had known of Cougar Marine's pioneering work in the field of fast catamarans for some time and their second generation Cat 2100 appeared to meet the Navy's design parameters exactly."

In other PBI news, Michael J. Hitt was named manager of marketing and sales. Mr. Hitt has been with the shipbuilder since 1972, having held positions in engineering,

materials management and estimating. His duties will include developing and expanding markets for the shipyard.

For additional information on Peterson Builders, Inc.,

Circle 7 on Reader Service Card

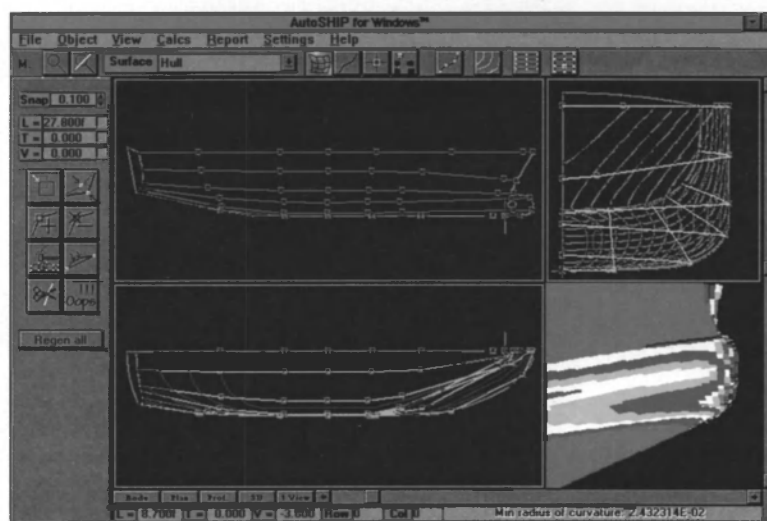
Finnyards Launches Second Multipurpose Icebreaker

The second icebreaker ordered by the Finnish National Board of Navigation was launched at the Rauma shipyard of Finnyards Ltd. on June 18. The Nordica, joining its sistership the MS Fennica, will operate as an icebreaker in the winter and a supply support vessel in warmer months.

This is our new AutoSHIP for Windows™ program. We started with NURBS curves and surfaces, the high-end CAD standard. Then we added new extensions to NURBS to allow extruded, rotated, blended and developable surfaces. Curves may be embedded on surfaces or even other curves. Any edge of a surface may be attached to a curve or another surface. Change the hull shape and have the deck, cabin, keel, even thrusters and moonpools adjust automatically. AutoSHIP for Windows™ exports to AutoHYDRO, AutoSHIP BUILDER, AutoPLATE, our nesting and NC cutting programs, DXF, IGES, 3-D Studio™ and other major programs.

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Vancouver, Canada V6A 1E1
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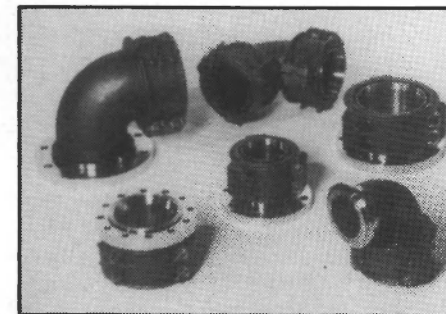
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Circle 227 on Reader Service Card

Maritime Reporter/Engineering News

Container Tax Introduced To Fund Maritime Reform

A tax of up to \$15 per 20-foot container may be levied on exporters and importers of ocean transportation commodities beginning in 1997, to fund U.S. maritime revitalization under a plan announced by House maritime leaders.

A new 10-year subsidy reform initiative was introduced that includes new taxes on containers and on cruise vessel passengers.

The proposals are expected to raise \$200-250 million annually.

The taxes would pay for \$1.9 billion in subsidies over a 10 year period, beginning in FY '96 and covering 90 U.S.-flag vessels.

To study the efficiency of the subsidized U.S.-flag fleet and to benefit shippers hit by the new tax, the proposal is apparently responsible for creating a new office at MarAd.

The container tax will be modeled after the harbor maintenance tax, a tax paid by shippers on the value of U.S. import and export cargoes. The fee of \$10 to \$15 for each 20-foot cargo container they ship could rise to \$30 for containers of 40 feet or larger.

Ports apparently support efforts to preserve the U.S. fleet but urge legislators to be "very careful" about adding another trade tax, according to **Eric Stromberg**, president of the American Association of Port Authorities (AAPA).

Proposed Bill Requires Navy To Repair At U.S. Yards Only

Legislation requiring the Navy to do all regular maintenance and repair work on its vessels solely in U.S. shipyards was introduced by Rep. **Randy Cunningham** (R-Calif.). This measure would eliminate the implication of the current law that leads to speculation that while ships with home ports in the U.S. must be repaired in the U.S., a vessel with a foreign home port may be repaired abroad. However, the measure would provide that emergency repairs on Naval vessels may be permitted abroad.

Rep. **Cunningham** thinks that the bill is necessary because the U.S. ship repair industry is "on the verge of economic collapse." Rep. **Cunningham** went on to say that there is not enough work to save the industry from extinction, owing to the decline in the domestic merchant marine, continued unfair trading practices, foreign shipyard subsidies and proposed cuts in the Navy fleet.

Danyard Offers New Monohull Ro/Ro Concept

In recent months, the design team at Danyard of Frederikshavn have been working on a "new generation" of Ro/Ro vessels, based on a slender, monohull design, powered by a medium speed diesel engine.

The company believes this design concept, known as the "Cargo Cruiser" concept, will offer considerable advantages over conventional

Ro/Ro ships working in a shortsea environment. The company claims that the concept has reached the stage where preliminary discussions with potential customers are in progress, and a new "Ro/Ro era" at Danyard could begin in the near future.

Danyard is reportedly now moving into the marketing for the Ro/Ro's, attempting to re-assert itself in the freight Ro/Ro market.

For more information on Danyard,

Circle 82 on Reader Service Card

First Thermal Expands U.S. Operations

First Thermal Systems, Inc. announced that it has expanded its U.S. operations by opening a new business office located at 13231 Champion Forest Drive, Suite 110, Houston, Texas 77069; tel: (713) 537-5455; fax: (713) 440-6604.

According to **J.R. Leak, Jr.**, executive vice president, "This expansion is only the first of several planned expansions for fiscal year 93-94."

Paul Coleman will manage the Houston office. First Thermal is a Chattanooga, Tenn.-based manufacturer of thermal fluid systems and vaporizers. For more information on First Thermal products and services,

Circle 16 on Reader Service Card

Next time you think of steering — steer to Jastram!

Shore Boat Builders chose Jastram steering systems when commissioned to build this 14 metre aluminum coast guard vessel.

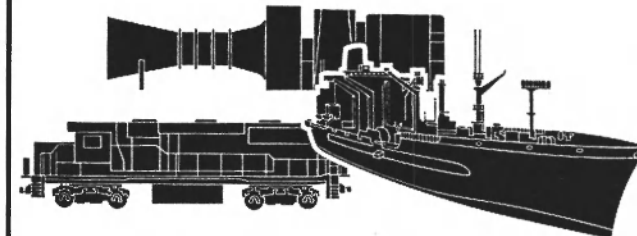
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Circle 232 on Reader Service Card



Save when you select pre-engineered Orion bearings for rotating machine applications

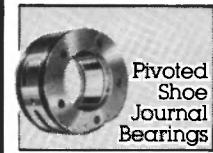
Save Design Time
ORION has pre-engineered bearings in the most popular sizes for typical load/lubrication conditions.

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Grafton, WI 53024
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July 27, 28, 29

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DAY 1 - TUES, JULY 27TH

(3) BORING MILLS: G&L 350P, Bullard 74" & King 52" V.T.L., (11) Lathes: Monarch 22" x 24", Aleson 25 x 192" CL, 20" x 78" CL, L&S 25" x 96", AM 20" x 72", Lebond 16" x 72, 14" x 36", P&W 16" x 78", S&L 16" x 60", All above Q.C., G.H., Gisholt SL & Univ. #3 Turret, (4) HORIZONTAL & VERTICAL MILLS: Frazzari FWAHM, K&T 315 TC-16 Horizontal, (2) BRIDGEPORT 2 CNC, 9" x 42" tables, vert, (5) RADIAL ARM DRILLS: Carlton 19" x 6", 9" x 3", American 17" x 5", 11" x 4", Archdale 13" x 3", (12) GRINDERS: METAL SPRAY EQUIPMENT, (3) HORIZONTAL & VERTICAL SAWS, (2) DOALL C912A Horizontal, DOALL 36" Vertical, MILL & LATHE TOOLING, PRECISION & INSPECTION EQUIPMENT, SHOP TOOLS & SUPPLIES, HYDRAULIC TEXT SYSTEMS.

DAY 2 - WED, JULY 28TH

(3) PRESS BRAKES: 1982 Accutpress 750 ton x 16 ft, Cincinnati 75 ton x 10', Cincinnati 400 ton x 16', (3) POWER SHEARS: Cincinnati 4310 1/2" x 10', Niagara 3/16" x 12' MAKES 1/8" x 10', PYRAMID ROLLS: Grenen 2" x 10', Bereh 3/4" x 12', IRONWORKERS: Univ. KBL 1 1/2, Buffalo 1/2, SEMI-AUTOMATIC CUTTING MACHINE: Airoco Servograph, HYDRAULIC PIPE BENDERS: Wallace 4", Hydraulic, Pacific 500 ton bulldozer, WHEELABRATOR 19" x 30', (5) BAND SAWS, (5) WELDING MANIPULATORS: Panjiris Model #1000, Unique 14 x 30', Hobart 10' x 6', Linde 14' x 12', 18' x 20', WELDERS, WELDING POSITIONERS, PLANNER & HORIZONTAL BORING MILLS: G&L 360P Planer, Cincinnati Portable, 3 1/2", Sellers 5", (5) LATHES: Lebond 32" x 40', 17" x 40', 13" x 48", Aleson 18" x 45", 16" x 54", SHEET METAL MACHINERY, WOODWORKING EQUIPMENT.

DAY 3 - THURS, JULY 29TH

TRUCK SHOP & SUPPLIES: RAIL: 16,500 ft, 90#, (53) CONTAINERS: 20, 27 & 40 ft, (6) MOBILE CRANES: 74 P&H 75 ton 4 axle hydraulic, Grove 50 ton 4 axle hydraulic, Hydraulic 15 ton, A.W. 10 & 5 ton Tough Terrain, Lindbelt HC33 25 ton 3 axle, (6) RUBBER-TIRED LOADERS: CAT 966B, (2) Cat 930, Cat 920, Bobcat 743, Case 580CK, CRALWER LOADER: 74 Cat 977L, 4:1 Hydraulic ripper, (2) LOADER BACKHOES, (4) MECHANICS TRUCKS: ROLL-OFF TRUCK: '81 Pete, 335 HP, FLATBED BOOM TRUCK '84 Ford F800, Pitman 10 ton, (4) TRUCK TRACTORS, (8) FLATBED TRUCKS, (13) PICKUPS, (10) MISC TRAILERS, (9) DIESEL GENERATORS: Cat D399, 800 KW, D398A, 500 KW, 850 KW, (2) 300 KW, (4) 30-60 KW, CONTAINER HOIST: Le Toumeau Self-Propelled, 30 ton, (4) MANLIFTS: (3) JLG & (1) Simon 60 ft, Scissor Lift, (18) FORKLIFTS, (10) AIR COMPRESSORS, (8) WELDERS.

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Exceptional target detection is assured with the 2800's by a combination of Furuno's exclusive low noise microwave integrated circuit receiver, matched pulse lengths and repetition rates, echo averaging and stretch, with full 15-level signal quantization. This performance package assures detection of even the weakest targets in the worst conditions of clutter.

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On-screen data readouts include range, bearing, course, speed, CPA, TCPA, BCR (bow crossing range), and BCT for up to 3 selected targets, as well as own ship course and speed.

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Directory Of Cruise Ship Suppliers

NOTE: This limited review of cruise ship suppliers and repair yards is provided as a service and source for the readers of the *Maritime Reporter & Engineering News*. The following directory includes select exhibitors which participated at the recent Cruise Shipping '93 and Cruise & Ferry '93 trade exhibits. The publisher assumes no responsibility for errors or omissions.

Suppliers & Manufacturers

ABB Flakt Marine AB
P.O. Box 1043, S-436 21 Askim, Sweden
Tel: +46 31 689800; Fax: +46 31 284289
(Specializes in air conditioning for luxury ships)

ABB Stal Marine AB, Butangsgatan 14-16, S-601 87 Norrköping, Sweden
Tel: +46 11 21 40 00; Fax: +46 11 20 29 80
(Refrigeration plants (air conditioning for accommodations, engine rooms), water-chillers)

Alfa-Laval
955 Mearns Road, Warminster, Pa. 18974-0556
Tel: (215) 443-4000; Fax: (215) 957-4859
(Equipment for fuel and lube oil treatment, desalination and engine cooling)

Aquamaster-Rauma Ltd.
Soujanitie 5, SF-26100, Rauma, Finland
Tel: +358 38 3791; Fax: +358 38 379 4804
(Thrusters, deck machinery, boilers, incinerators, sewage treatment)

Atlas Marine Services, Inc.
6960 N.W. 46th Street, Miami, Fla. 33166
Tel: (305) 594-7433; Fax: (305) 593-2371
(Provides galley, bar and pantry design, layout; dealer for Atlas Marine Service cruise line equipment by Toastmaster)

Aurionica Marine
Drammensveien 126, N-0277, Oslo, Norway
Tel: +47 22 55 34 10; Fax: +47 22 55 30 46
(Engine room monitoring systems, condition control systems, fire detection systems)

Bainbridge/Aquabatten Inc.
252 Revere Street, Canton, Mass. 02021
Tel: (800) 422-5684; Fax: (617) 821-2609
(U.S. distributor for Megafilm, a flame retardant temporary flow and wall protection system)

Bianchi & Cecchi
Via Corsica 21/17, I-16128 Genova, Italy
Tel: +39 10 585035; Fax: +39 10 5531326
(Lifeboats and tenders)

Bolidt Synthetic Products
Edisonweg 14, NL-2952 AD
Alblasserdam, Netherlands
Tel: +31 1859 13444; Fax: +31 1859 16148
(Manufactures and installs synthetic resin-based deck coverings)

Brintons Ltd.
P.O. Box 16, Exchange Street, Kidderminster, Worcs DY10 1AG, England
Tel: +44 562 820000; Fax: +44 562 515597
(Carpets)

Brown Brothers and Co. Ltd.
Rosebank Works, Broughton Road, Edinburgh EH7 4LF, Scotland
Tel: +44 31 556 2440; Fax: +44 31 556 3253
(Specializes in all aspects of motion control, including latest VM Series folding fin stabilizers)

Brunvoll A/S
P.O. Box 370, N-6401, Molde, Norway
Tel: +47 72 51966; After Sept. 9, 1993 -
Tel: +47 71 25 19 66; Fax: +47 72 53424
(Manufactures transverse thrusters and azimuth propulsion thrusters)

Caird & Rayner Clark Ltd.
Severalls Lane, Colchester, Essex CO4 4PD, England
Tel: +44 206 852121; Fax: +44 206 851572
(Complete fresh water packages)

Casino Supplies GmbH
Oldenburger Allee 18, D-3000 Hannover 51, Germany
Tel: +49 511 610987; Fax: +49 511 614443
(Gaming equipment)

C.C. Jensen A/S
Rødeledsvej 60, DK-5700 Svendborg, Denmark
Tel: +45 62 21 20 14; Fax: +45 62 22 24 50
(Ships windows and side scuttles)

Cegelec
13 rue Antonin Raynaud, 92309 Levallois Perret Cedex, France
Tel: +33 1 47 48 70 00; Fax: +33 1 47 48 74 85
(Electric propulsion, production, management)

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(continued on page 71)

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Circle 266 on Reader Service Card

Maritime Reporter/Engineering News

PROPULSION UPDATE:

The Latest On Slow-Speed Crosshead Diesel Engines

By Graeme MacLennan, contributing editor

The MAN B&W range of MC crosshead two-stroke engines covers the widest range of cylinder sizes (from 260mm to 900mm) and unit outputs (2,200 to 51,840 kW/2,960 to 70,440 hp) available from a single marque. Five of the largest and potentially most powerful models, 12K90MC-C, have been built by Hyundai Heavy Industries, which began making MAN B&W engines nine years ago. The engines are installed in 25-knot, super-wide, trans-Pacific container ships owned by the Hyundai Merchant Marine, for which they have a rated duty at 67,080 hp (49,434 kW), but are normally operated at 60,370 hp at 100.4 rpm.

Most recently Spanish licensee Astilleros Espanoles built a similar engine at its Manises factory near Barcelona. This is the first of two engines Astilleros will build for a 400 MW power generation project, which encompasses a four-engine, barge-mounted plant for service in the Philippines.

MAN B&W has three 900mm cylinder bore models, the longest stroke L90MC slow-running version for tankers and deep draft bulk carriers; the 2,550mm stroke K90MC and the 2,300mm K90MC-C for draft limited vessels such as container ships. Only the Japanese, Korean and Spanish licensees have the capacity to build the 12-cylinder engines of this size.

Several models in the range have been improved recently, improvements including increases in the scantlings of the structure and moving parts to meet the higher firing pressures. A new design of shorter, thicker and bore-cooled cylinder liner has been adopted for the engines of more than 600mm bore.

New Sulzer Diesel reported a 17.3 percent increase in the value of orders received and a 33 percent increase in the value of deliveries last year. A major Sulzer engine achievement anticipated in the near future will be the introduction into service of its most powerful engine, a 12RTA84C of (41,260 kW) 56,100 hp, to be installed in the first of two 4,000 teu ultra-Panamax hatch-coverless container ships for Royal Nedlloyd Lines. The RTA84C series of shorter-stroke, large-bore engines has been widely specified for this application.

The DU-Sulzer 7RTA84T engine, presently undergoing tests in Japan, is the first of a new and exceptionally long-stroke engine specially suited to propelling large deep-draft full-bodied tankers, where a very slow propeller speed is needed. This engine has a normal full-power speed of 78 rpm and of 54 rpm at the

economy rating E4. This will be the first production engine to incorporate VEC (variable exhaust valve closing) and VIT (variable injection timing), enabling flexibility and sustained fuel economy to be attained over a wide range of powers. This is very desirable for large tankers, which may spend half of their seetime on ballast voyages.

New Sulzer has upgraded its Series 2 RTA engines of 520mm, 620mm and 720mm cylinder bore to develop nine percent more power, a benefit accompanied by longer life of components subject to wear and better overall reliability. This may make it possible to install an engine with fewer cylinders, but the advantage of these developments can be taken in the form of a 2 g/kWh reduction in fuel consumption at the MCR.

These advances were made possible by the application of the latest technical developments: the higher powers by changes to the crankshaft shrink-fit and the bearings; extended component life by an improved arrangement of cylinder liner cooling leading to better distribution of wall temperatures and stresses; and new

thicker, pre-profiled and plasma-coated uppermost piston rings. There are now three fuel injection valves, to ensure even firing temperature distribution.

VIT, which maintains optimum fuel efficiency over the full power range, is now electronically controlled.

Research Engines

The two European crosshead engine licensers now have highly sophisticated full-size experimental engines, upon which development involving higher mechanical and thermal loading can be taken further.

These are the Sulzer 4RTX54 "Technology Demonstrator" and the MAN B&W 4T50MX research engine. In each case, provision has been made for widely variable electronic control of the principal events of the operating cycle: fuel injection timing quantity and duration; exhaust valve timing; cylinder liner lubrication; and starting air timing. Hydraulic actuators will eventually enable designers to dispense with

the engine camshaft and its gear or chain drive.

Both the Copenhagen and Winterthur designers have very energetic partners in Japan (Mitsui with MAN B&W and Diesel United with Sulzer) who have, over the past few years, built and conducted extended tests of the first production examples of high-powered engines, notably those intended for large and fast container ships.

Mitsubishi enters the international market after many years during which its larger engines were seldom fitted in non-domestic-flag tonnage. Recently, however, a number of the largest models have been exported to Europe for installation in VLCCs. To meet a wider demand, they have extended and updated their range with three new engines, two of them to replace, eventually, less competitive middle-weight models.

The third is specifically aimed at the large containership, a sector for which their European contenders already have well-received, high-powered, faster-running versions.

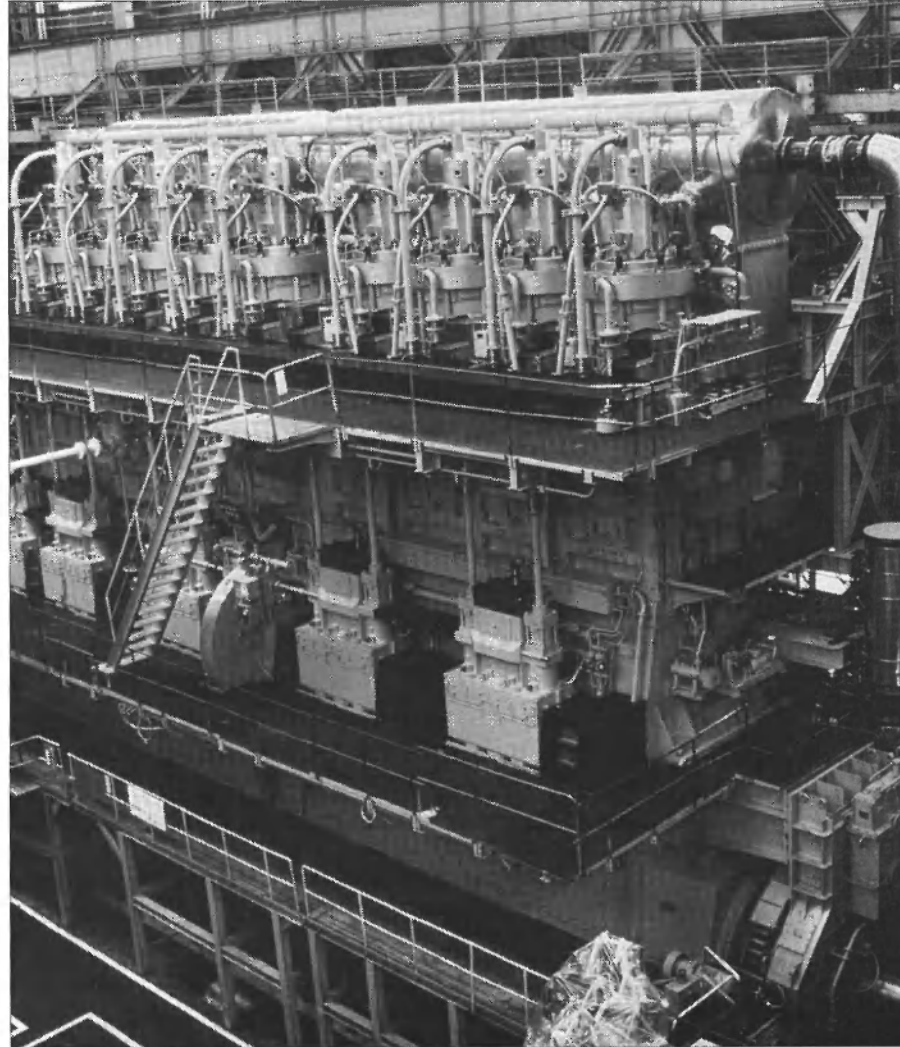
A modified 600mm engine, the UEC60LSII, has an extended piston stroke and a raised running speed to achieve a 12.5 percent rise in cylinder output to 2,799 hp at 105 rpm, without impaired fuel consumption. The entirely new models are the UEC50LSII of 1,870-bhp (1,375 kW) per cylinder at 124 rpm, and a "mini," the UEC33LSII of 733 hp (539 kW) at 210 rpm, for which a number of orders are in hand.

Perhaps the most striking market success has been the order for the first examples of the containership engine, UEC85LSC, placed by the Swiss-based Norasia Line for ship building in Germany. This is based on the 850mm by 3,150mm UEC85LSII model, fast becoming established for VLCCs, with piston stroke reduced to 2,360mm and running speed raised from 76 to 102 rpm, for a cylinder output of 5,300 hp (3,898 kW).

The VLCC Cosmo Delphinus has been at sea for months fitted with the pioneer high-powered pair of contra-rotating propellers, driven by 7UEC75LSII engine of 21,400 bhp (15,435 kW).

A report on the performance of this plant is eagerly awaited by the industry, as is the anticipated 15 percent improvement in fuel consumption.

Last year Mitsubishi granted a manufacturing license to Dieselmotorenwerk Rostock, now part of the major Vulkan shipbuilding, ship repairing and marine engineering group, for its range of crosshead engines.



Westinghouse intends to manufacture diesel engines such as this Sulzer RTA 84 series low-speed model in the U.S.

ANNUAL REVIEW & BUYERS GUIDE FOR DIESEL ENGINES

Alaska Diesel

Lugger delivered three 12-cylinder 12V140A engines for installation in a Mississippi River pushboat. These engines, the most powerful in the Lugger line, are rated at 950 hp at 1,800 rpm for continuous duty.

The order follows successful repowers by the same customer with other Luggers. Last year, a 70-foot pushboat was repowered with triple Lugger 6170As, rated at 640 hp.

Lugger 6170As are also at work in charter fleets around North America. A new heat exchanger version was recently introduced to the market, which will widen the range of applications this proven engine can handle.

New 16- and 20-kW Northern Lights generator sets also debuted in recent months. The Northern Lights 844 and 844L found immediate acceptance because of their high power-to-weight ratios and modest overall dimensions. These new

gensets are also available in "C" versions specially configured for the commercial boat market. C Series Northern Lights are now available from 16 kW to 80 kW. Northern Lights' latest innovation is its Soot Trap and Regeneration Systems (STARS). STARS is a totally automatic and maintenance-free catalytic system for reducing soot. The system, which was developed for 20-200 kW generator sets of any make, also helps to lengthen engine life by adding load when the generator system is underloaded. Luggers and Northern Lights are both made by Alaska Diesel Electric. For more information on Alaska Diesel Electric, Inc.,

Circle 76 on Reader Service Card

Caterpillar Inc.

The Engine Division of Caterpillar Inc. provides diesel or gas en-

gines for medium and heavy duty on-highway trucks, stationary and mobile industrial applications, commercial and pleasure boats, construction equipment, locomotives, and for electric power generation. Seven families of Cat Engines range in power from 54 to 8,000 bhp (40 to 5,970 kW).

Caterpillar's current marine propulsion offerings range from 85 to 7,270 bhp (63 to 5,420 kW). Caterpillar also offers marine auxiliary packages from 50 to 5,200 kW.

As reported in the company's 1992 Annual Report, sales of engines and engine parts were \$3.2 billion, 32 percent of total company sales and revenues. Caterpillar's marine product offering, especially its high performance product line, has expanded rapidly in recent years. More product line expansion is planned for the future. For more information on Caterpillar Inc.,

Circle 60 on Reader Service Card

Cummins Engine Co.

Cummins Marine has consolidated worldwide operations, engineering and marketing in Charleston, S.C. Offering engines with ratings from 64 to 1,385 hp, Cummins Marine diesels continue as the standard in fishing and workboat applications. From gill netters to supply and crew boats, from bay shrimpers to casino boats to high-speed ferries, Cummins' diverse product line continues to meet commercial customer's needs. More than one million of the popular Band C Series engines power many different types of equipment and vehicles worldwide, including fishboats, workboats, log skidders, pleasure boats and pickup trucks, and are available in ranges from 64- to 400-hp. The NT and V28 Series engines both are equipped with Cummins' patented PT fuel system, and come in ranges from 195 to 725 hp.

The V903 engine is the first Cummins engine to be used in the pleasure boat market. It is an eight-cylinder, V-configuration engine producing 285- to 450-hp.

Finally, the 19-liter K Series engine is an in-line six-cylinder diesel which delivers up to 680 hp. The KV engines are 12 cylinders (1,045 hp) and 16 cylinders (1,385 hp).

Founded in 1919, Cummins is reportedly the world's leading producer of diesel engines in the 200-plus hp range. For more information on Cummins Engine Co.,

Circle 61 on Reader Service Card

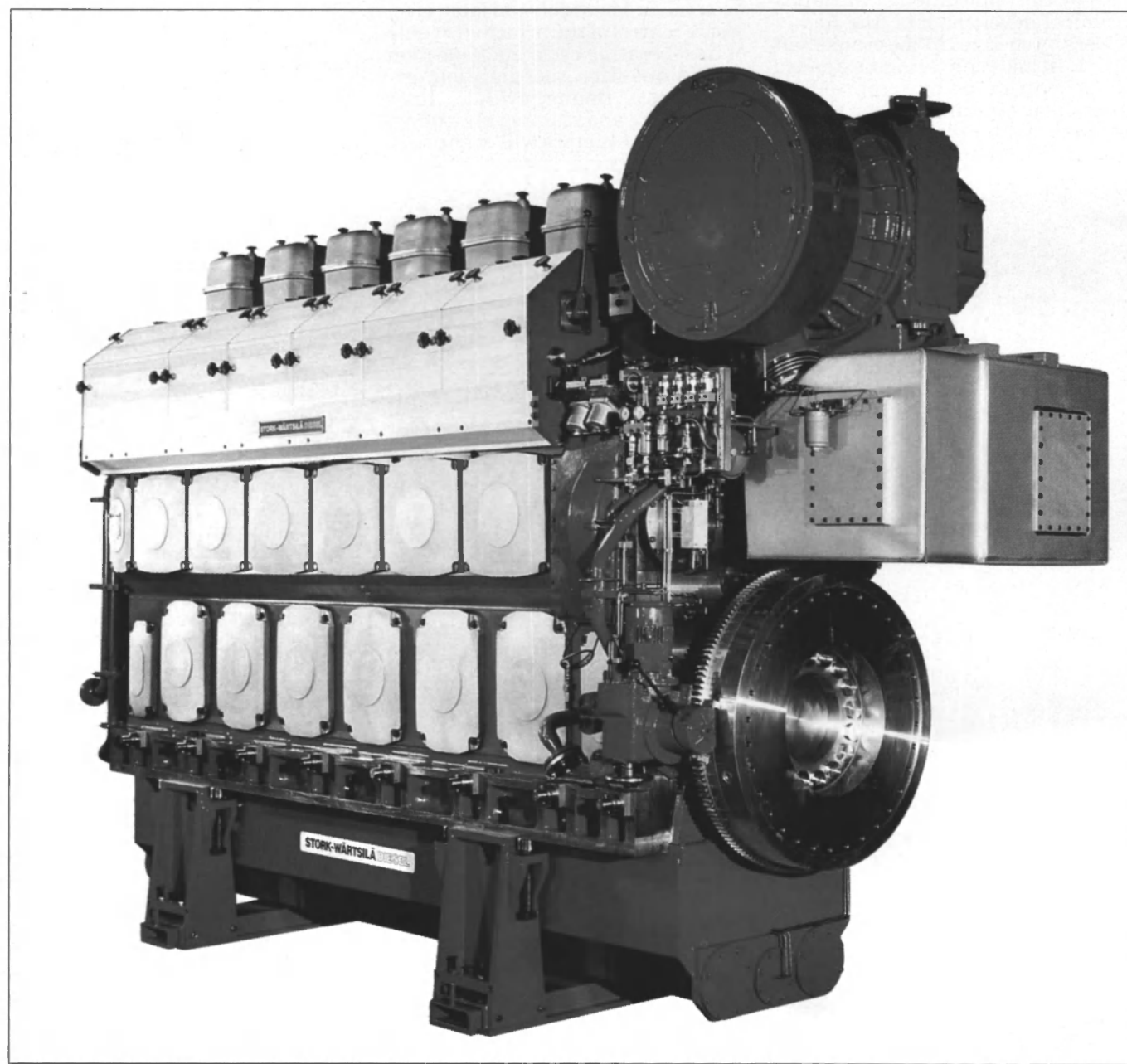
Daihatsu Diesel (USA), Inc.

Daihatsu medium-speed diesel engines, reduction gears and systems for use as marine propulsion plants are original developments of Daihatsu Diesel Mfg. Co., Ltd., and are specially designed to feature durable construction and total economy. Daihatsu manufactures four marine diesel engine series—M, DLM, DKM and DVM models—ranging in power output from 200 to 6,000 hp in single unit installations. The four-stroke M Series features three in-line six-cylinder models, ranging from 240 hp at 1,850 rpm to 430 hp at 1,800 rpm.

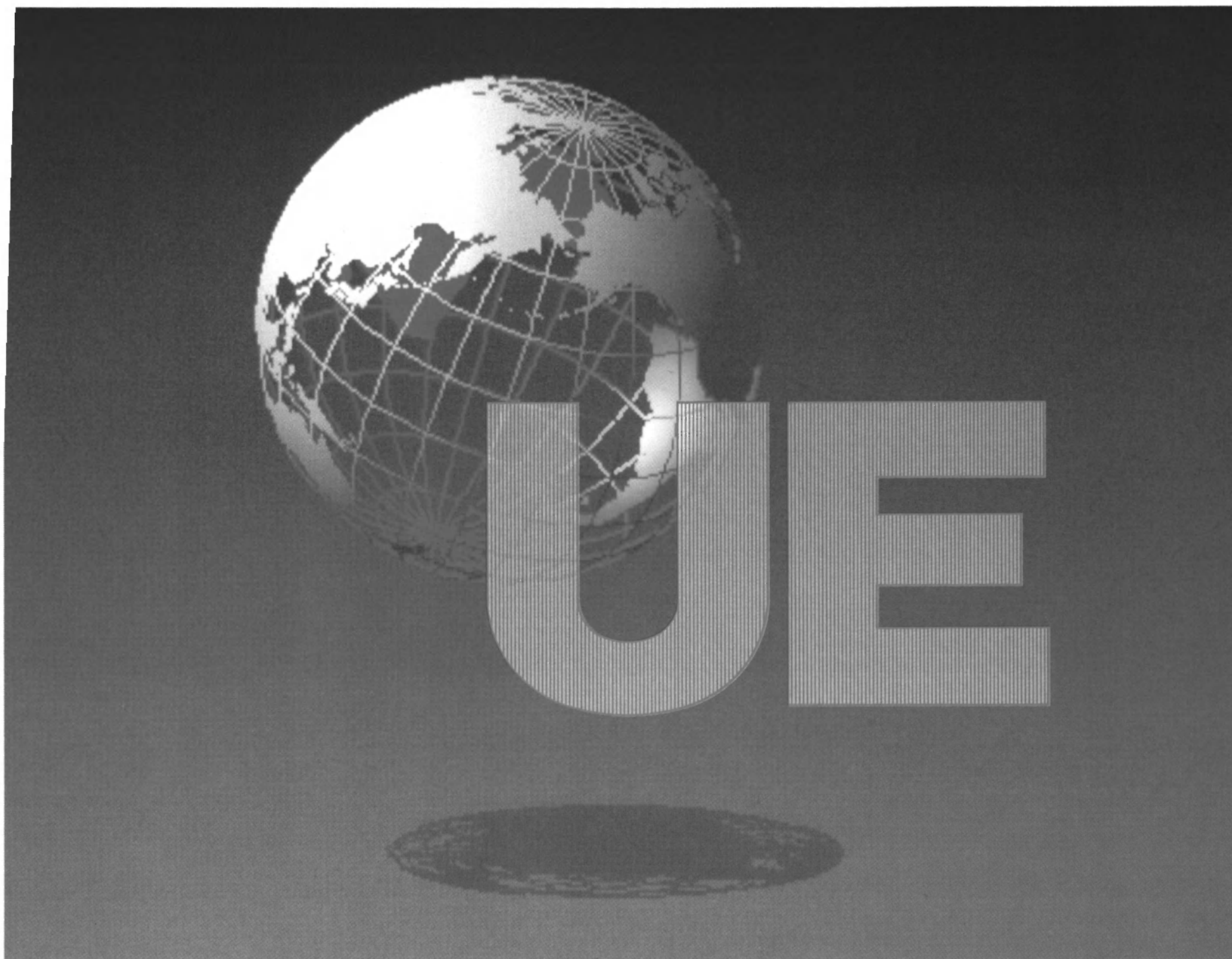
The DLM Series has 11 in-line models with either six or eight cylinders. The in-line diesels range in power output from 600 hp at 1,350 rpm to 4,200 hp at 500 rpm.

The DKM Series incorporates two in-line models, one a six cylinder, ranging in power from 3,000 hp at 720 rpm to 4,000 hp at 720 rpm. The DVM Series has six "V" models, three six- and three eight-cylinder diesels, ranging in power from 2,100 hp at

(Continued on page 22)



The new SW38 diesel engine from Stork-Wartsila Diesel

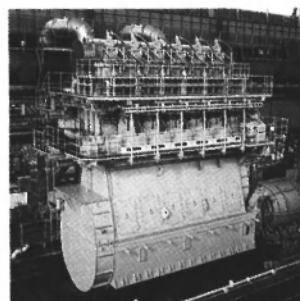


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Circle 24 on Reader Service Card

(Continued from page 20)

900 rpm to 6,000 hp at 600 rpm. Model with bores of 240 mm or more of the DLM, DVM and DKM Series can burn heavy fuel oil.

For more on Daihatsu,

Circle 62 on Reader Service Card

Deere Power

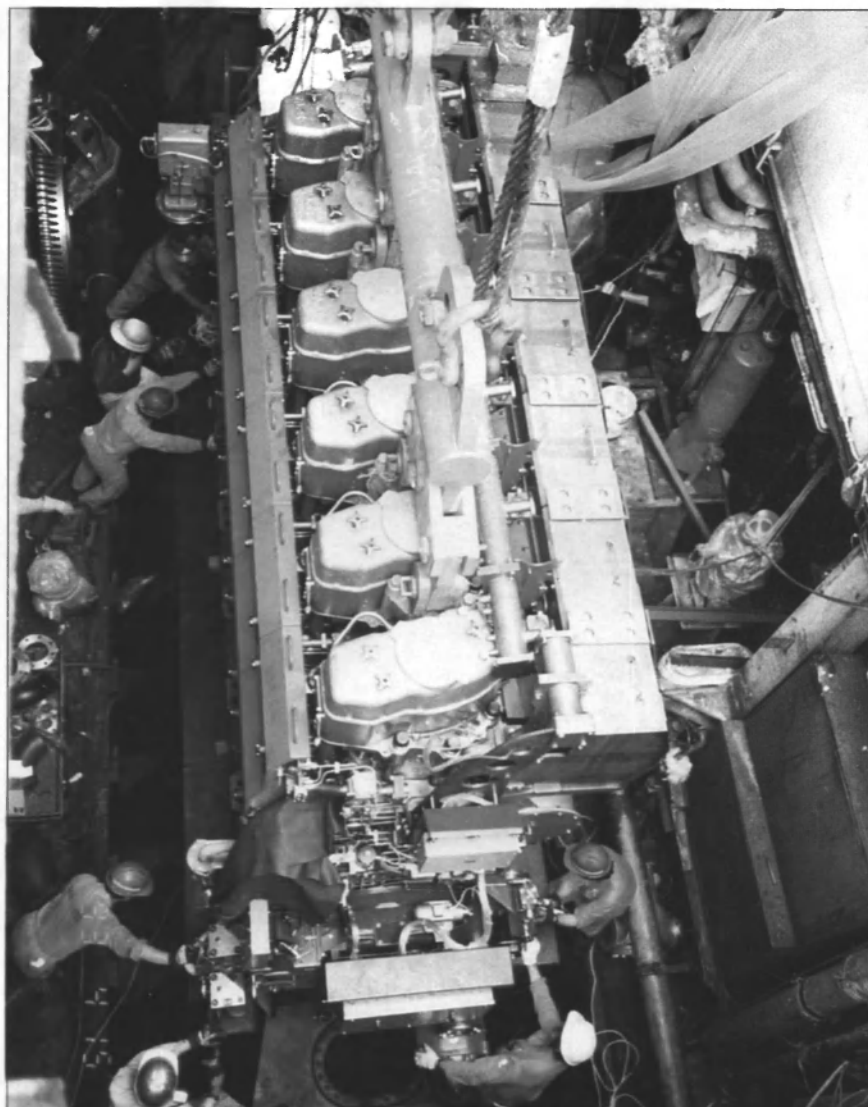
The latest development in the John Deere marine engine line is increased horsepower ratings on the 6068TFM (turbocharged) 6.8 L and 6076AFM (aftercooled) 7.6 L diesel engines.

The 6068TFM has two new ratings in addition to the existing 155- and 175-hp. The first, designed for coastal fishing, charter boat and other marine applications that operate less than 2,000 hours annually, generates 195 hp at 2,500 rpm.

The second new rating, intended for pleasure craft, coastal fishing boats, police, fire, spill response and rescue type craft that operate less than 800 hours per year, generates 220 hp at 2,600 rpm.

The 6076AFM (aftercooled) 7.6 L diesel engine is available with one new rating in addition to the existing 215- and 250-hp ratings. Designed for coastal fishing, charter boat and similar marine applications that operate less than 2,000 hours per year, the new engine generates 300 hp at 2,400 rpm. For more information on Deere,

Circle 63 on Reader Service Card



A Krupp MaK 6M 552C medium-speed engine being installed on the Eagle Reliance at the Pan-United Shipyard Pte. Ltd.

Detroit Diesel Corporation

Detroit Diesel Corporation provides a complete line of premium marine engines to meet each commercial marine customer's differing demands for propulsion and auxiliary power systems. Detroit Diesel propulsion engines provide power for pumps, hoists, generators and other accessories. Detroit Diesel engines provide the advantage of a common engine family with considerable parts interchangeability.

New innovations include Detroit Diesel Electronic Controlled (DDEC) engines and the new CODOG/CODAG propulsion systems.

The Detroit Diesel Electronic Control (DDEC) system is the first totally integrated electronic control technology available in the marine power industry. Skippers of boats equipped with the DDEC system will immediately sense responsiveness of their crafts, at both high and low speeds. DDEC technology supplies built-in engine synchronization, on-board system diagnostics and, most importantly, early warnings for engine malfunctions - before damage occurs. The totally integrated system improves overall boat performance and maintains constant governed speed by automatically compensating for inter-

mittent accessory loads, so necessary for commercial applications.

The DDEC system enables commercial boat manufacturers to offer five power options from the Detroit Diesel 6V-92TA with 325 bhp at 1,800 rpm to the 16V-149TI with 2,400 bhp at 2,100 rpm.

Textron Lycoming and Detroit Diesel have joined to market fully integrated Combined Diesel and Gas Turbine marine propulsion installation packages, capable of operating as either diesel or turbine or as diesel and turbine. The Textron Lycoming/Detroit Diesel combined diesel or gas turbine and combined diesel and gas turbine (CODOG/CODAG) marine propulsion packages are fully engineered, offering customers a "total package" of a high-horsepower, light-weight, economical and maintainable operation of their marine craft.

For more information on Detroit Diesel Corporation,

Circle 64 on Reader Service Card

EMD

The Electro-Motive Division (EMD) of General Motors produces diesel power for marine propulsion, offshore and land-based oil well drilling rigs, power generation and other industries.

A complete line of GM/EMD en-

gines is available to meet requirements for marine propulsion and marine generator set applications. A complete power package with engine, reverse-reduction gear or generator and accessories is available from EMD power products distributors worldwide. The propulsion units are also available without skid mounting for direct application to the vessel structure.

For marine propulsion, EMD offers eight-, 12-, and 16-cylinder Roots Blown 645E6 Series engines and eight-, 12-, 16- and 20-cylinder turbocharged 645F7B and 710G7A diesels. The Roots Blown models offer a power range from 1,050 to 2,100 at 900 rpm. For genset applications, EMD engines cover a continuous output range from 745 to 3,220 kW at 60 Hz-900 rpm and 570 to 2,865 kW at 50 Hz-750 rpm. For free literature on EMD marine diesels,

Circle 99 on Reader Service Card

Fairbanks Morse — Coltec Industries

During 1993, Fairbanks-Morse is celebrating its 100 year anniversary of the production of internal combustion engines at its location in Beloit, Wis.

Fairbanks-Morse has achieved many firsts in design and application of medium-speed engines, and

today provides the market with a wide range of high horsepower engines of any U.S. manufacturer. The Division continues to be the leading supplier of high horsepower engines to the U.S. Navy and Coast Guard, while increasing its focus and emphasis on commercial sales opportunities worldwide.

Specific emphasis is being placed on the "gas" engine market, which includes engines sold as spark-fired units or in dual fuel configurations. The Division has recently introduced the Enviro-Design™ series of engines which includes models of the proven opposed-piston engine in the 1,000 to 3,000 kW ranges, and the Colt-Pielstick PC2 series available up to 8,400 kW in dual fuel mode.

With such a large kW capacity in a single unit, the PC2 can provide a cost-effective alternative to gas turbines in cogeneration applications up to 100 MW. This is especially true considering its 43 percent thermal efficiency while providing the lowest NO_x emissions of any engine in its class today.

Since the Division's introduction of its Enviro-Design product line, many developers, engineers and independent power producers are specifying Fairbanks-Morse gas and dual fuel engines as standard in their project proposals. This is not only due to the ease of permitting the Enviro-Design product, but also reportedly because low fuel consumption and operating costs provide attractive paybacks.

For more information on Fairbanks-Morse - Coltec Industries,

Circle 65 on Reader Service Card

Fincantieri

Following the merging of Isotta Fraschini Motori S.P.A., the Diesel Engine Division of Fincantieri appears on the market with two trademarks, GMT and Isotta Fraschini. The GMT and Isotta Fraschini production range covers high-speed and medium-speed diesels with power outputs extending from 150 to 40,500 kW per engine.

In addition to all the usual forms of technical assistance, the Diesel Engine Division of Fincantieri offers special, fixed-fee maintenance contracts. By each contract, the Division itself assumes the responsibility for the maintenance and operational efficiency of the engines.

For more information on Fincantieri,

Circle 66 on Reader Service Card

Hedemora Diesel AB

Hedemora Diesel is a manufacturer of diesel engines six to 18 cylinders, 500 to 3,000 kW at 1,000/1,500 rpm for several applications. Their engines have successfully undergone 35 degree inclination tests and also satisfy all other DnV requirements for offshore installations.

Hedemora Diesel currently sup-

Maritime Reporter/Engineering News

ply the main engines for the type 471 submarine for Royal Australian Navy. Hedemora Diesel is able to offer the market a comprehensive engine selection with output per unit from 20 kW up to 15,000 kW by utilizing a variety of fuel and combustion technology applicable to heavy oil, marine diesel, gas oil and the newest development of natural and biogas fuel systems.

Hedemora Diesel has its origins in an engineering company established in the 19th century in Bergslagen, traditional heartland of the Swedish mining and metal industries. The production of engines was started in 1906, and the first diesel engines were built in 1946.

For more information on Hedemora Diesel AB,

Circle 67 on Reader Service Card

KHD Canada

At the Hanover Fair, the Deutz MWM division of the KHD group presented the new 234B diesel engine series, further developed from the well-established 234 series with new technology which will be introduced within the power class up to 1,360 kW. Essential features of the new Deutz MWM product include: long-stroke technology, four-valve technology, Hallo swirl and a new cooling system. Together with an enlarged displacement from some 1.8 to 2.2 l per cylinder (22 percent), this technology establishes the precondition for an uprating maximum of 33 percent. The major objectives of the advancement were higher output with identical installation space requirement and lower emission levels with maximum operating economy. The Deutz MWM TEM system (Total Electronic Management), presented in 1992, will now, after the introduction of the 234B series, also be used within this power range for spark ignition. For more on the Deutz MWM 234B,

Circle 111 on Reader Service Card

Krupp MaK

Krupp MaK markets medium-speed diesel engines in the power range from 1,073- to 14,751-hp. The German engine builder offers four different series, both as in-line and "V" configurations, with speeds between 425 and 1,000 rpm.

The goal of the current Krupp MaK C engine program is to incorporate the latest developments to improve economy, operational safety and exhaust emissions.

Krupp MaK recently added the M 20 engine series to its medium-speed diesel line.

The M 20 is a long-stroke engine with 200 mm diameter and a stroke of 300 mm in the output range from 900 to 2,700 kW (1,207- to 3,621-hp) at 1,000 rpm.

The M 20 is available in six-, eight- and nine-cylinders in-line and 12- and 16-cylinders in a "V" configuration with speeds between 900 to 1,000 rpm.

The M 20 is geared toward coastal

July, 1993

and inland vessels both as main propulsion and auxiliary power applications. Krupp MaK reports the fuel consumption to be about 183 g/kWh. The new model is suitable for both main propulsion and auxiliary power and can be operated on all established grades of heavy fuel oil.

For free literature detailing the new M 20 diesel from Krupp MaK or any other company products,

Circle 100 on Reader Service Card

MAN B&W Diesel A/G, A/S

MAN B&W Diesel is a wholly owned subsidiary of MAN Aktiengesellschaft, Munich, Germany, and a leading manufacturer and designer of two-stroke and four-stroke diesel engines and exhaust gas turbochargers.

MAN B&W Diesel has facilities in Augsburg and Hamburg in Ger-

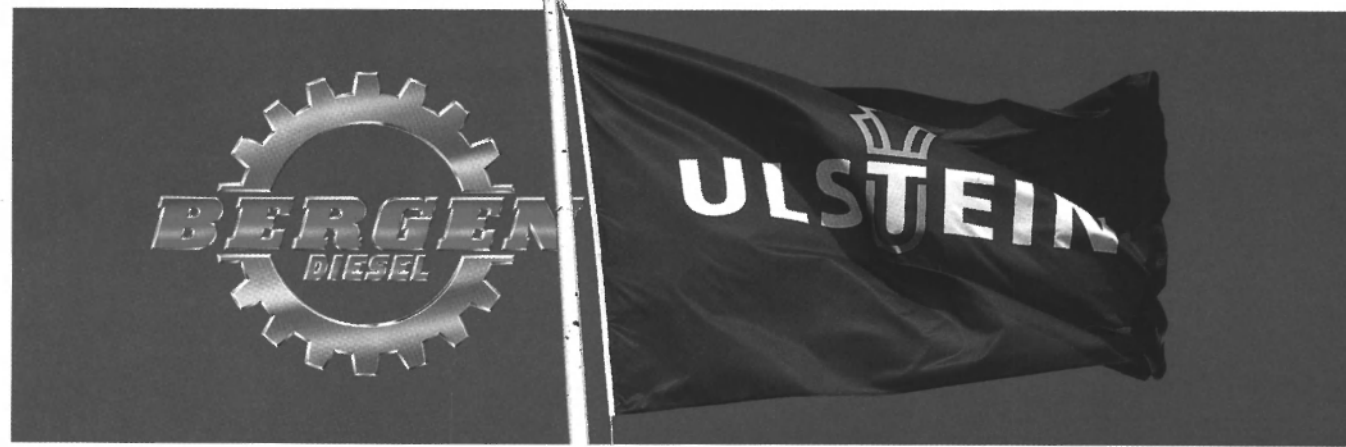
many, and in Copenhagen, Frederikshavn and Holeby in Denmark, as well as over 30 licensees around the world.

At the Augsburg works, 20/27, 25/30, 32/40, 40/45, 40/54, 48/60, 52/55 B and 58/64 series medium-speed four-stroke marine diesel engines are manufactured, with a power range of 610 to 23,850 hp (450 to 17,550 kW).

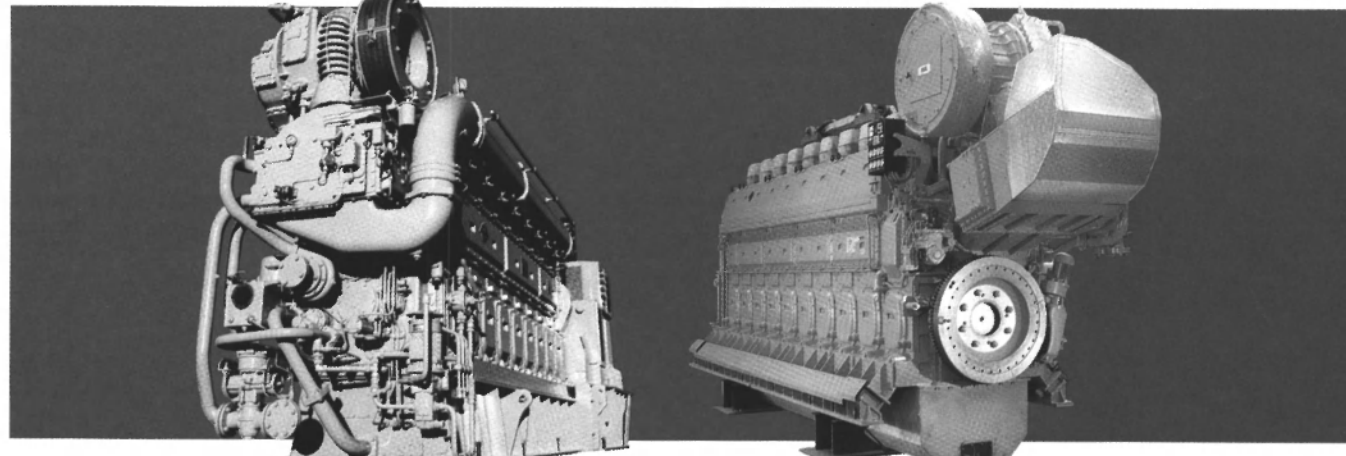
(Continued on page 24)

ULSTEIN

Ulstein Bergen AS manufactures medium-speed diesel main propulsion- and auxiliary engines for ships, as well as diesel- and lean-burn gas engines for land based power generation. The company employs a workforce of 420 persons and is located in Bergen, Norway.



NEVER CHANGE A WINNING TEAM



THE TEAM IS THE SAME
- WE HAVE ONLY CHANGED THE NAME

Bergen Diesel has developed and manufactured main engines and generating engines for ships, as well as diesel- and lean-burn gas engines for land installations since 1943. Quality in all details has always characterized Bergen Diesel products, and our workforce continues to take pride in the high level of its craftsmanship. The team is the same, we have only changed the name.

Ulstein Bergen is still recognized worldwide as a manufacturer of economical, reliable medium-speed diesel engines for propulsion and generating power plants.



Ulstein Bergen AS has been found to conform to Quality System standard: BS5750: PART 1: ISO 9001, EN29001: 1987.

ULSTEIN

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Circle 260 on Reader Service Card

(Continued from page 23)

Dual fuel engines with an output range from 550 to 2,205 hp (405 to 1,620 kW) are also built, as well as exhaust gas turbochargers for two- and four-stroke engines.

32/40 is their most recent engine type.

Based on the successful concept of their three large-bore medium-speed engines 58/64, 48/60 and 40/54, the tried and proven compo-

nents were adopted in smaller dimensions.

Developing a cylinder output of 600 hp (440 kW), the 32/40 covers the output range from 3,600 to 5,400 hp (2,640 to 3,960 kW).

The facilities at Copenhagen design the MC, L-MC, K-MC and S-MC series of low-speed two-stroke diesel engines for marine and stationary applications in the 1,350-70,300 hp output range.

The Holeby Works manufacture the four-stroke 23/30H and 28/32H diesel gensets for oceangoing, coastal and fishing vessels in the 720-5,400 hp (500-4,000 kW) power range. The Frederikshavn Works offer engines and complete propulsion systems in the 1,090-10,800 hp range, and CP propellers of up to 26 feet in diameter capable of absorbing up to 20,400 hp.

The propulsion systems are based

on two-stroke engine series S26, S/L35 and L42MC and four-stroke engine series 23/30A and 28/32A together with Alpha reduction gearboxes, CP propellers and the Alphasonic remote control system.

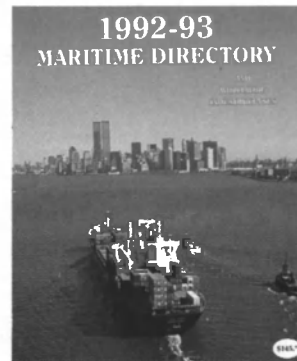
For more information on MAN B&W Diesel,

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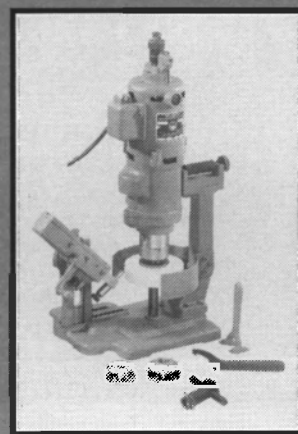
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Circle 226 on Reader Service Card

Mitsubishi Heavy Industries America

In an effort to broaden its market appeal, Mitsubishi Heavy Industries Ltd. extended the power range at the lower end of its two-stroke UEC engine series with a small bore diesel design.

The Japanese firm added the 330-mm bore UEC 33LSII, which is offered in four- and eight-cylinder versions, covering an output range from 1,570-5,870 bhp at 158-210 rpms. The new model has a longer stroke, as compared to the 370-mm stroke model, which was the smallest bore model in the UEC family prior to the UEC33LSII's introduction. The longer stroke provides enhanced fuel economy and the new design is said to offer high reliability and simplified maintenance.

Earlier, Mitsubishi had added two large bore models to the UEC series for the bulkier and very large crude carrier markets.

One of the models, a 30,000-bhp six-cylinder 850mm bore UEC85LSII, was commissioned in a Japanese VLCC.

The other model, the 750-mm bore UEC75LSII, was installed in the first of seven AP Moller VLCCs being built by the Odense yard in Denmark.

For free literature detailing Mitsubishi diesels,

Circle 101 on Reader Service Card

MTU North America

MTU Friedrichshafen, a member of Deutsche Aerospace AG, has been able to hold its share of the fast ferryboat market throughout the past fiscal year. MTU received orders comprising 82 engines which will see service in 38 fast ferries, ranging in size from 30 to 60 meters (98 to 197 feet). In all, 35 ships will be powered by a twin-engine powerplant, and the remaining three by a four-engine system. All engines to be used are of the 396 series (MTU designation TE74 and TE74L).

The 16-cylinder version (generating 2,000 kW and 2,720 hp at 1,900 rpm) will be installed on 29 vessels. The 12-cylinder version (generating 1,500 kW and 2,040 hp at 1,900 rpm) is slated for installation in the nine boats.

Most of the yards involved in the construction of the 38 vessels are located in Scandinavia, Singapore and Australia.

In 1989, as part of MTU's continuous development program, the TE version of the 396 engine was introduced and was readily accepted by customers. The TE suffix denotes engines with split engine and charge-air cooling circuits with plate-type heat exchanger, in which charge-air temperature is controlled in close accordance with engine load. Series 396 TE engines in twin-hull ferryboats have logged up to 11,000 operating hours without any notable malfunctions, according to the manufacturer. In 1992, MTU passed a significant milestone with the sale of the 10,000th engine from the 396 series. In the 396 series, MTU Friedrichshafen has a technologically mature product with a unique breadth of application, a product which will continue, in the coming years, to enjoy outstanding sales opportunities on the world market.

For more information on MTU North America,

Circle 69 on Reader Service Card

New Sulzer Diesel

New Sulzer Diesel Ltd. in Winterthur, Switzerland, has a family of three basic engine types: the RTA series of low-speed two-stroke diesel engines, the ZA40S medium-speed four-stroke diesel engines and the S20 high-speed four-stroke engines. At the top of the power range, the Sulzer RTA84C engine has become the market leader in the propulsion of large, fast containerships, with 59 engines delivered or on order. The first 12-cylinder engine of this type, giving 45,840 kW (62,400 bhp) output, completed testing in July. Three further 12-cylinder engines were recently ordered for 4,800 teu containerships contracted in Japan. The longest-running RTA84C engines have 17,000 hours operation and they have earned an excellent reputation. They are already giving two-years service between overhauls.

The first example of the RTA84T engine is currently undergoing testbed trials at the Aioi works of Diesel United Ltd. in Japan. Specifically designed for VLCCs, the RTA84T offers much lower propeller speeds. In the RTA84T, part-load fuel economy has been considerably improved by incorporating flexible engine setting with variable injection timing, variable exhaust closing and load-dependent cylinder cooling. In the medium-power range, the Sulzer RTA52U, RTA62U and RTA72U upgraded engine designs, which were announced last year, are coming into production at various licensees.

The Sulzer ZA40S has established considerable market success in the cruise ship, ferry and Ro/Ro vessel markets. Early this year, three separate cruise ships were ordered in Italy and Finland, together having 16 engines totalling 142,560 kW (194,040 bhp): for Carnival Cruise Lines, P&O Cruises and NYK Line. These will all be diesel-electric "power station" installations to meet the vessels' complete energy requirements for propulsion, maneuvering

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and electrical services. The diesel generating sets will be resiliently mounted for the maximum comfort of passengers and crew.

The Sulzer S20 is primarily being applied in marine generating sets with a power range of 420-1,400 kW (570-1,960 bhp). It is specifically designed for reliable operation on heavy fuel oil so that it can be employed in uni-fuel installations burning the same fuel as the much larger

main engines. For more information on New Sulzer Diesel Ltd.,

Circle 70 on Reader Service Card

GEC ALSTHOM Paxman Diesels Ltd.

GEC ALSTHOM Paxman Diesels Ltd. manufactures compact,

high speed diesel engines in the power range from 750 bhp to 4,900 bhp.

Established in 1865, Paxman has been at the forefront of diesel technology for the last 60 years. Its current range of successful Valenta and Vega engines was recently joined by the new VP185. Initially available in 12 cylinder format, the 12VP185 develops a maximum of

(Continued on page 26)

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Circle 24E on Reader Service Card

(Continued from page 25)

3,500 bhp at 1,950 rpm for high speed marine applications.

With an overall length of approximately 9' by 6' by 4', and at just under seven tons, the full marine specification engine can truly be classed as a compact unit making it ideal for high speed ferry, larger luxury yacht or for on board power generation applications.

Designed to complement the Paxman Valenta and Vega engine

range, which are well known in the military markets, the VP185 is expected to feature prominently in the commercial markets during the next few years.

Paxman expertise, coupled with unparalleled customer support, full training and overhaul facilities, and supported by a worldwide network of representatives and distributors, enables Paxman to offer customers complete application packages.

For additional information on

Paxman Diesels Ltd. and its new engine family,

Circle 71 on Reader Service Card

SeaTek Advanced Marine Propulsion

SeaTek introduces the latest addition to their range of high performance marine diesels.

This new six cylinder engine will be marketed along with the highly successful 6-4V-9 six cylinder diesel which produces 600 hp in production form.

This new 10.3 liter engine will be offered in standard form with a power output of 720 hp. In terms of size, the new engine can be fitted as a direct replacement of the existing 600 hp engine which will remain in production.

The 600 hp 6-4V-9 and the 720 hp 6-4V-10 are raw-water cooled, inline six, wastegate turbocharged, four-stroke diesels. Unlike any other marine diesel, the SeaTek family has dual overhead cams, four valves per cylinder and a unique "Swans Neck" intake manifold that promotes low end torque and improved low end combustion.

The water-cooled turbocharger and wastegate ensure a smooth, even transition from idle through full boost at 3,150 rpm.

If plans call for the building a 38-foot to 58-foot pleasure or patrol boat, SeaTek marine diesel engines will provide the performance edge with only half the weight of comparative diesels. SeaTek's diesel marine engines are precision built strictly for marine use, with proven reliability and longevity in offshore racing.

For more on SeaTek engines,

Circle 72 on Reader Service Card

S.E.M.T. Pielstick

The range of S.E.M.T. Pielstick engines starts from the PA4 high-speed engines with a power of 740 kW (1,000 hp) at 1,500 rpm, and reaches 23,400 kW (31,825 hp) per unit with the medium-speed PC type at 430 rpm. S.E.M.T. Pielstick have much experience with its diesel engines in service on merchant and navy ships, as well as in non-maritime applications. S.E.M.T. Pielstick facilities are located in three sites in France, and the company's engines are manufactured by 25 licensees in the world. Some recent developments with the company's engines include: The PC4-2B engine has an output of 1,300 kW per cylinder at 430 rpm, a 570 mm bore and 660 mm stroke and is available in variations from 10 to 18 cylinders. Six 18-cylinder engines of this type were recently put into service in an Indian powerplant, and four more engines have recently been ordered from other buyers. The PC2-6B engine has an output of 630 kW per cylinder at 530 rpm, a 400 mm bore and a 500 mm stroke, and is available in variations from six to 18 cylinders. A recent innovation for this type of engine is the possibility of using a cast-iron frame machining in S.E.M.T. Pielstick's Saint-Nazaire facility of an 18-cylinder engine, which is part of an order for three engines. Also, a sequential turbocharging which consists of supercharging the engine with only one turbocharger for loads up to 50 percent of the nominal power, and to put in service the second identical

Maritime Reporter/Engineering News

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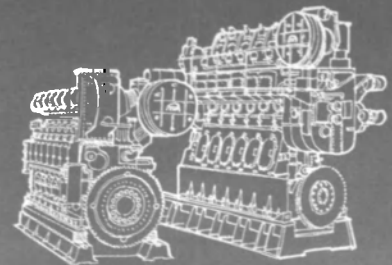


This pioneering achievement still retains its guiding
impetus, and not only for us. Thorough comparison

with all other energy systems has proven

its trend-setting role in the development of

economically optimised
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generation technology throughout the world.



MAN B&W Diesel Augsburg/Copenhagen

Circle 243 on Reader Service Card

turbocharger for higher loads, has been developed for the PA6 engine. This concept improves the engine performance at low loads concerning the fuel consumption, smoke emission, fouling resistance and transient performances.

The 12 PA6 V 280 STC engine was chosen by the French Navy for the CODAD propulsion of the new "La Fayette" class frigates and more recently, the 16 PA6 V 280 STC was selected by the Royal Navy of Oman for its new class corvettes built by Vosper Thornycroft. For more information on S.E.M.T. Pielstick,

Circle 73 on Reader Service Card

Stewart & Stevenson

Stewart & Stevenson Services, Inc., with branches in Harvey, La., and Houston, Texas, is one of the world's largest distributors of Detroit Diesel and General Motors-EMD engines from 50- to 4,300-hp.

With a normal inventory of hundreds of diesel engines and generators, a staff of experienced mechanical, electrical, and marine engineers, along with 24-hour worldwide parts and service, Stewart & Stevenson offers an excellent support network to its customers.

Full service branches, two remanufacturing plants, and over 200 dealers are ready to provide full service to customers, from financing a vessel to training and technical support. Stewart & Stevenson can provide custom-engineered power systems for all marine applications.

For free literature detailing the services, as well as the complete line of diesels supplied by Stewart & Stevenson,

Circle 103 on Reader Service Card

Volvo Penta

Volvo Penta offers a broad range of diesel stern drives featuring legendary durability, dependability and reliability.

From the smallest 115 propshaft hp 4-cylinder model AD31/Duoprop to the exciting new 216 propshaft hp supercharged KAD42/Duoprop, only Volvo Penta commands the sea with such a wide range of diesel stern drive products. Volvo Penta's 4-cylinder AD31/Duoprop and 6-cylinder AD41/Duoprop feature a turbocharger, aftercooler and state-of-the-art combustion technology to deliver optimum power. The most recent entry into Volvo Penta's diesel range is the already popular KAD42/Duoprop, which incorporates a supercharger, turbocharger and aftercooler for performance characteristics similar to gas V-8, but with the exceptional fuel economy and durability of a diesel.

The single prop stern drive from Volvo Penta incorporates innovative ideas and uses an 18-step painting process for maximum corrosion protection. New for Model Year 1994, Volvo Penta is offering a sport

performance two propeller drive, the DPX. This new drive, with diesel power, pushes boats into the mid 50 mph range and offers all the benefits of Duoprop with a more hydrodynamic design.

The DPX also features a standard external hydraulic steering system for precision control at all speeds. All Volvo Penta diesel stern drives have been successfully employed in the commercial sector in patrol boats, fishing vessels and

pleasurecraft up to 50 feet in single, twin and triple installations. For more information on Volvo Penta,

Circle 74 on Reader Service Card

Wartsila Diesel

The Wartsila Diesel Group designs and manufactures medium- and high-speed diesel engines. With thousands of diesel engines

delivered to over 50 countries, Wartsila Diesel has wide experience in both marine and land-based installations. In the marine sector, Wartsila Diesel engines have a solid record of successful operation as both main engines and auxiliaries. The range of applications varies from passenger ferries, offshore drilling rigs, ice-breakers and tankers to fishing vessels.

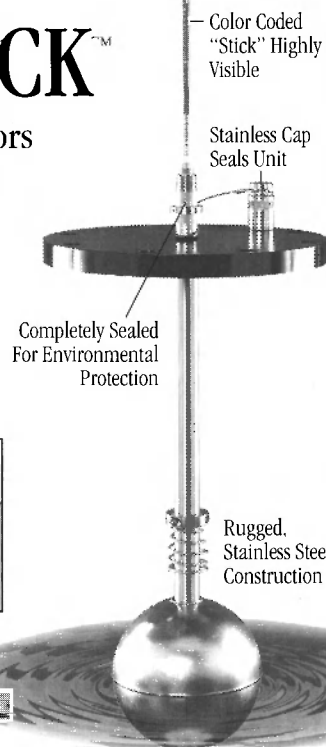
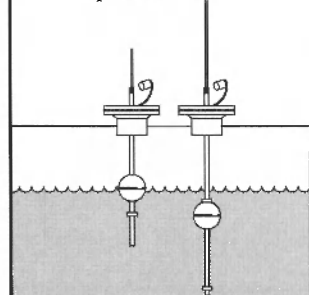
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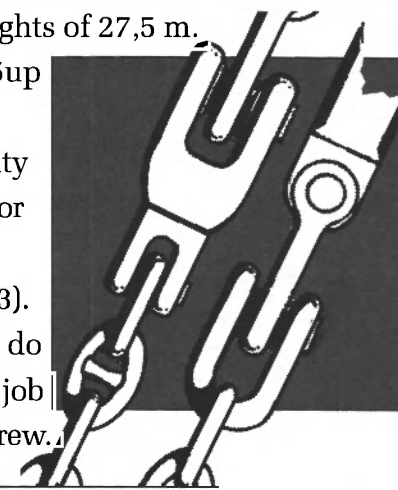
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(Continued from page 27)

Whether for newbuildings or conversions, Wartsila Diesel's propulsion systems, propellers and control systems round off the product range for the complete engine rooms.

The power range of the Wartsila Diesel engines is from 300 to 16,300 kW. Wartsila Diesel products are globally known for their modern design, low fuel consumption and high reliability. Spare parts are available on a 24-hour basis.

The Wartsila Diesel Group has production companies in Finland, Sweden, Norway, France and the Netherlands. The Group also manufactures engines in Spain and India, and has concluded licensing agreements for manufacture in South Korea and Indonesia.

For more information on Wartsila Diesel Group,

Circle 102 on Reader Service Card

Westinghouse Marine Division

Westinghouse's Marine Division provides world-class, American-made low- and medium-speed diesel engine technology to its customers. Under an agreement with New Sulzer Diesel Ltd., Westinghouse intends to manufacture low- and medium-speed diesel engines for the U.S. Navy's Strategic Sealift program and commercial markets. Westinghouse-built Sulzer engines

provide financial savings to customers over each engine's life-cycle through lower fuel and maintenance costs. These engines are well-suited for Ro/Ros, ferries, passenger cruise ships, and cargo vessels of all types. Three-quarters of the world's shipping fleet is powered by low-speed diesels and Westinghouse is the only U.S. manufacturer of these engines.

As an experienced systems integrator, Westinghouse has brought together leading marine propulsion component designers to become a high-quality U.S. source for marine diesel engines, components and complete propulsion systems for Sealift and commercial applications. Westinghouse supplies a complete design and manufacturing package, including Westinghouse reduction gears, Westinghouse-built Escher Wyss controllable pitch propellers, which are Navy-qualified to 50,000 hp, and line shafting from Jorgensen Forge. For more information on Westinghouse Marine,

Circle 75 on Reader Service Card

NEVA '93: Focus On World Shipbuilding And Developments In the C.I.S.

The realities and trading possibilities for the shipping industries developing in Russia and the Republics will be on display in St. Petersburg, Russia, at NEVA '93, scheduled for September 14-18.

The major C.I.S. maritime organizations and their manufacturing industries will join the hundreds of international exhibitors. The major shipbuilders and repairers of Europe are scheduled to participate and the qualified visitors throughout the C.I.S. will find Kvaerner Group, Bremer Vulkan and Lisnave among many others in the four exhibit halls. Primary equipment manufacturers such as KaMeWa, MacGregor Navire and Wartsila Diesel will also be present.

To date 30 percent of the exhibition space has been reserved by former Soviet Shipbuilders and more than 5,000 trade visitors are expected total. For the conference portion of NEVA '93, 30 speakers, 12 from the C.I.S., will present papers. For more information,

Circle 116 on Reader Service Card

Negron Marine Consultants Appointed McMurdo Equipment Distributors

Negron Marine Consultants announced its appointment as the exclusive distributors for McMurdo marine products in the U.S., Canada and Mexico. McMurdo marine manufactures a line of marine safety equipment, and is well known for its line of personal safety lights and life jackets. For more information,

Circle 117 on Reader Service Card

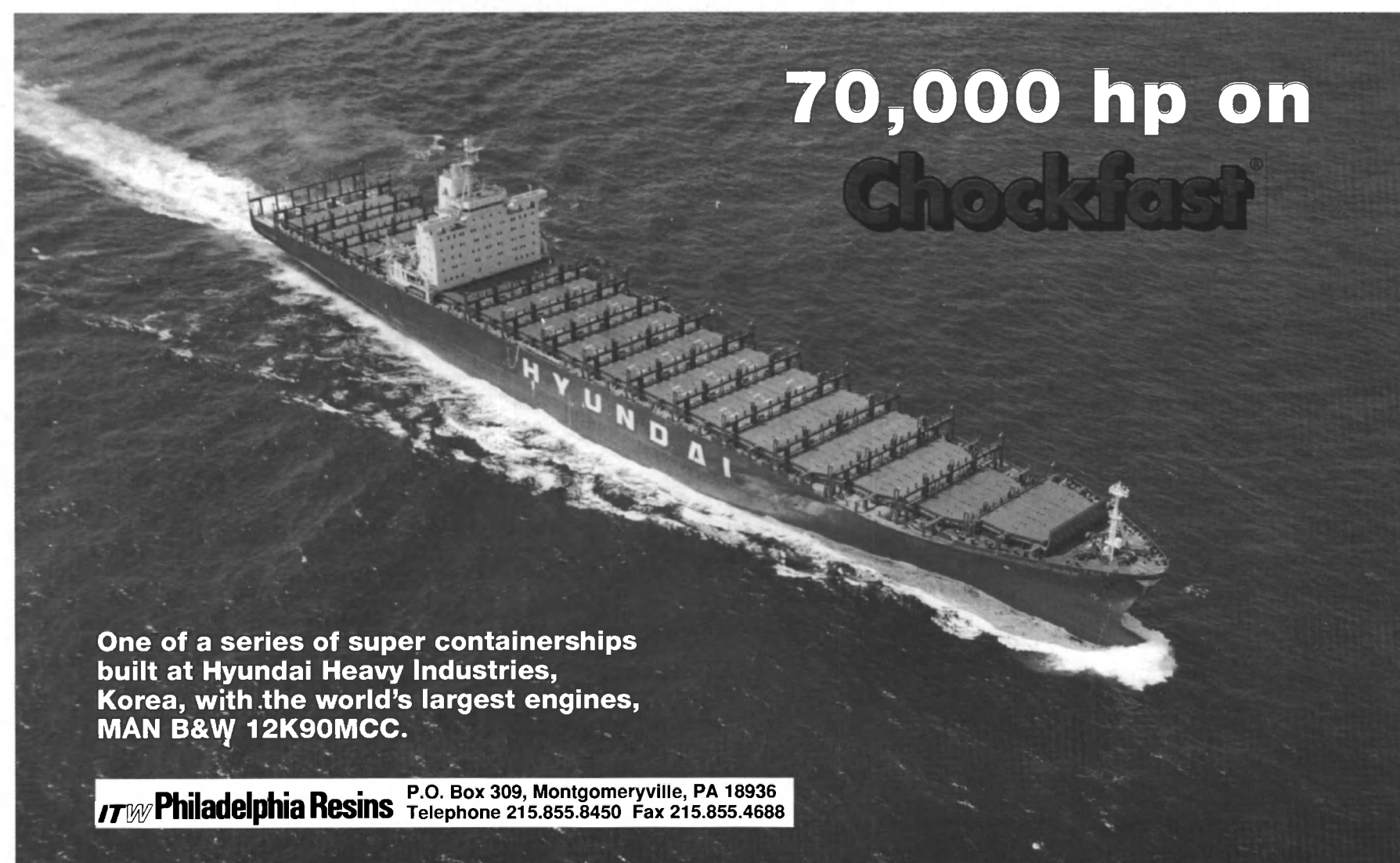
Marine Systems Inc. Provides Full-Service Diesel Engine Repair

Marine Systems Inc., an authorized service center for EMD, is a full-service marine diesel engine repair company. Founded in 1966, MSI is recognized as a customer-driven, quality performance organization. Today, MSI's network of repair facilities are strategically located in Houma, La.; Chesapeake, Va.; E. Alton, Ill.; National City, Calif.; and Seattle, Wash. Factory trained technicians and replacement parts can be dispatched to locations worldwide, 24 hours a day, seven days per week. The company's services range from trouble shooting and diagnosing engine performance problems, to complete engine overhauls and engine component rebuilding either on the customer's vessel or in one of its repair facilities. All repairs are performed in strict compliance with OEM procedures, standards and specifications. MSI is able to perform block welding and machining repairs both in the field or in one of its repair facilities.

MSI also provides repair service to the reduction gears used on today's vessels. As with its engine repair capabilities, the level of service includes trouble-shooting, complete overhaul and replacement parts.

For more information on MSI,

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Last Of Five Ro/Ro Ships Launched At NKK

NKK Corp., a Japanese company involved in steel making and ship building, announced the launching of the last of five Ro/Ro ships to carry sheet steel in the nation's coastal trade.

The fifth vessel, named Shiryu Maru, is capable of carrying 2,800 tons of cargo and will transport about 30,000 tons of steel coil monthly from NKK's Fukuyama Works to a distribution terminal in Osaka.

American Systems Wins \$10.5 Million Navy Contract

American Systems Engineering Corp., Virginia Beach, Va. was recently awarded a \$10.5 million maintenance contract by the U.S. Navy.

The maintenance work will be done on Atlantic and Pacific fleet aircraft carriers. The work is expected to be completed by next April.

Shell To Reorganize Tanker Fleet

The shipping division of Royal Dutch/Shell Group, Shell International Marine Ltd., is planning the reorganization of its tanker fleet.

Shell International is hoping to establish a single organization that will be responsible for Shell's owned and chartered ships, in place of the four divisions that each run their own fleets now.

The proposals follow an earlier decision to further scale down Shell's tanker fleet size to approximately 30 vessels from 42 by 1997.

Shell began reducing its shipping operations because of the high cost of running its own fleet. The Valdez accident prompted further review of Shell's shipping activities.

Shell also has a fleet of 18 LNG carriers, three LPG ships and two coal ships.

To begin the reorganization process, Shell has sold some million-barrel tankers following its decision not to allow any of its own ships carrying dirty oil to call at U.S. mainland ports since the Valdez spill. The company has also ordered new double-hull product tankers.

Stork Services BV Continues Diesel Spares Expansion

Stork Services BV, the Dutch supplier of diesel engine spares and repair facilities, continues to expand its worldwide organization, having established branch offices in Sweden and Germany to complement those in the U.K., Greece and Singapore.

The company recently passed the audit for approval of their quality system according to ISO 9000a for "Repair and Construction of Industrial Equipment and Diesel Engine Components."

Warehousing facilities were moved to the Rotterdam suburb of Hoogvleit where approximately \$11 million in inventory is kept in a newly acquired building of 33,000 sq. ft. Spares for all versions of B&W 23 & 28 engines were added to the line of Sulzer, B&W and MAN spares offered. For more information on Stork Services BV,

Circle 49 on Reader Service Card

CSX Executive Urges Maritime Reform Policy

A second executive from the ranks of ocean carriers has called for decisive action from President Clinton and Congress on maritime policy. Duane Cassidy, senior vice president for sales and marketing at CSX Transportation Inc. said that failure to enact maritime reform

legislation will cause the loss of a large part of the remaining U.S. maritime industry. The first executive to call for change in maritime policy was W. James Amoss, Jr., chairman of Lykes Bros. Steamship.

The shipping lines claim that if they don't receive annual subsidies of \$2.5 million a ship over the next 15 years, they'll have no choice but to build and crew replacement ships overseas.

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ABB Turbo Systems

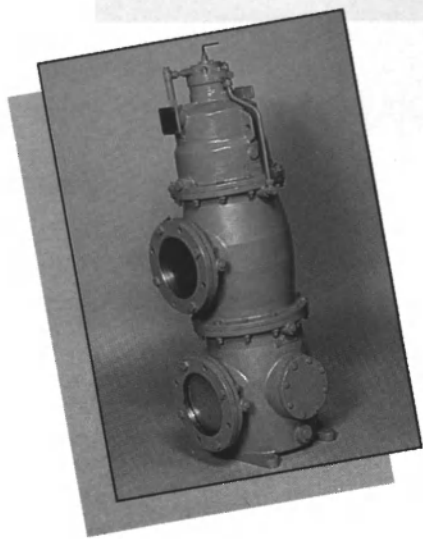
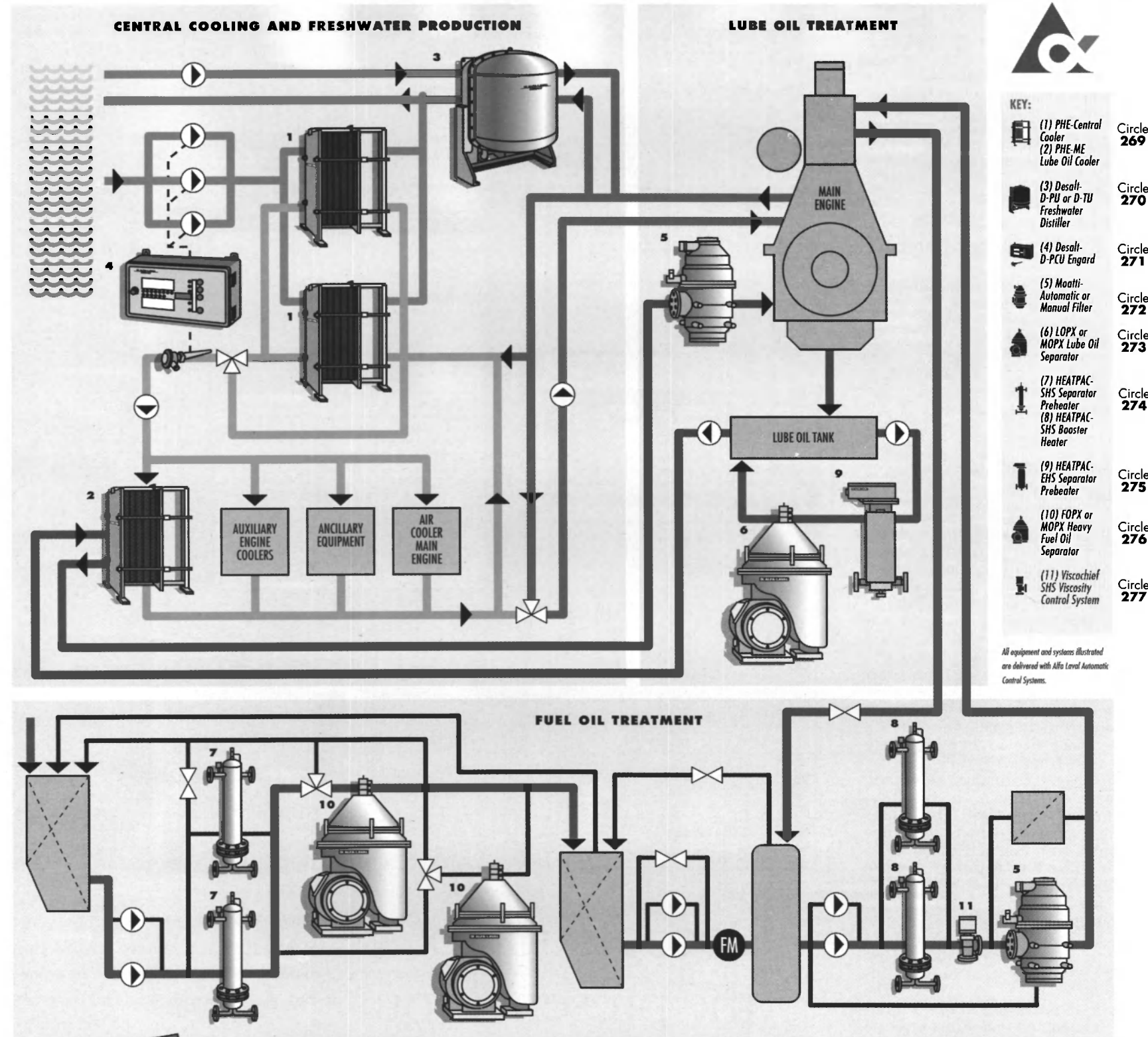
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Information on any of the components and systems shown above is available by circling the appropriate Reader Service Card Number next to the key... OR contact: Alfa Laval Marine & Power, 955 Mearns Road, Warminster, PA 18974-0556 USA. (215) 443-4000 (215) 957-4859 FAX.

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REVIEW

Marine Fuels, Lubes & Additives

The following article is based on the results of a limited survey of many of the top suppliers of marine lubricants and fuel additives conducted by the editors of the Maritime Reporter & Engineering News. Further information including specifications sheets and literature is available on any of the products reviewed in this article. To obtain the free information, simply circle the appropriate Reader Service Number on the post-paid reader service card bound in this issue.

BP Marine

Circle 105 on Reader Service Card
Offered by BP Marine, ENERSYN, a line of superior, synthetic, functional fluids, is designed specifically for those applications on board where fluids having enhanced properties can deliver important benefits. The ENERSYN family of synthetic products spans applications in gas, air and refrigeration compressors, as well as centrifuge gearboxes.

ENERSYN GCS 180 is a lubricant based on specially selected polyethylene glycols. ENERSYN GCS 180 has been approved for both rotary and reciprocating machinery types and for most of the gas cargoes commonly transported on ship. ENERSYN RX 100 is a diester-based lubricant. It is the recommended product for reciprocating air compressors in ships and it greatly improves valve and cooler cleanliness, thus reducing engine-room maintenance workload and parts replacement costs.

ENERSYN RC-S 32 is a synthetic lubricant, based on polyalphaolefins, that offers special performance features in rotary air compressors on board ships. ENERSYN HTX 220 is based on a carefully balanced blend of synthetics and has been developed to satisfy the special lubrication requirements of centrifuge gearbox systems.

Cartel Products

Circle 104 on Reader Service Card
Cartel Products has just introduced a new fuel additive that will help your vessel comply with the new government emissions standards. Cartel's Combustion Catalyst will reduce Carbon Monoxide (CO) and Nitrogen Oxide (NO_x) emissions up to 55 percent.

Along with the reduction in emissions, this new generation fuel additive will reportedly increase fuel economy up to 15 percent while reportedly increasing the power output of the engine - torque.

The Cartel Combustion Catalyst will also reduce the engine's operating temperature, which means lower engine wear and down-time.



Photo Credit: Brix Maritime

Castrol International

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Castrol has introduced Castrol Spheerol SX2, a high performance calcium sulphonate complex base grease. Specifically developed for use in the highly aggressive conditions found in marine and offshore environments, Castrol Spheerol SX2 is suitable for a wide range of applications including wire ropes, open gears, small to medium sized roller bearings, fairleads, chain drives, etc.

Extensive in-service and laboratory trials have proven the advanced properties of Castrol Spheerol SX2. These characteristics give optimum lubrication and corrosion protection over a wide operating temperature range of -20 to +150 degrees Celsius, ensuring maximum intervals between services. The NLGI rating of this grease is 2 and drop point in excess of 300 degrees C.

Chevron

Circle 29 on Reader Service Card
Chevron USA Products Company markets a variety of premium lubricants in the U.S. These include:

—Chevron Marine Engine Oils Delo 477 (SAE 30, 40, and 20W-40) - superior high dispersancy, high alkalinity, 17 TBN engine oils. They are for use in diesel engines in towboats, tugs, workboats, dredges, and in other marine industrial engine applications requiring a zinc-free oil.

—Chevron Marine Engine Oils Delo 1000, 2000, and 3000 Marine (SAE 30 and 40) - high quality engine oils developed for use in a wide variety of medium-speed trunk piston engines including the latest design high output engines burning Marine Diesel Oils, or residual fuels with low, moderate, or high sulfur content.

—Chevron Marine Engine Oil Symbol 9250 - a high quality, high performance engine oil which fully complies with Symbol 9250 of the U.S. Military specification MIL-L-9000H.

Drew Ameroid Marine

Circle 30 on Reader Service Card
Drew Ameroid Marine offers a highly effective solution for improving the overall efficiency of marine exhaust boiler systems on motorships, as well as minimizing the risk of soot-related damage due to both stack fires and acid corrosion. A blend of highly active combustion catalysts, Drew's LT Soot Release™ is a unique powder designed both to reduce combustion deposits and maintain clean heat-transfer surfaces in diesel exhaust gas economizers.

Drew's LT Soot Release combustion catalyst reduces the ignition temperature of the products of incomplete combustion by removing the combustion binders of ash and other bonded deposits. Especially well-suited for the energy-efficient recovery systems in today's motorships, this low-temperature soot remover is activated by exhaust gases with temperatures as low as 200 degrees C to generate a controlled oxidation of soot deposits. When this process is complete, usually in 15 to 30 minutes, normal soot-blowing operations remove the loosened material.

Daily treatment with LT Soot Release can eliminate or minimize the need for periodic waterwashing - and also prevents the progressive deterioration in heat transfer efficiency that typically occurs between scheduled cleanings as soot continues to accumulate. Energy loss from soot deposits is thus reduced dramatically, along with corrosion effects and stack fire potential; and system efficiency is maintained at a consistent level.

Elf Lub Marine

Circle 31 on Reader Service Card
Elf Lub Marine of France stresses quality and safety margin in designing marine lubricants.

Elf Lub Marine offers the Elf Talusia XT 70 and the Elf Talusia HR 70. The well-known Elf Talusia XT 70 has been further improved and offers enhanced performance through the application of the most recent quality standards. The improved Talusia XT 70 is very well adapted for the lubrication of all types of old and modern slow-speed engines and is currently used on more than 1,000 vessels.

The new Elf Talusia HR 70 was

specially designed to introduce an extra safety margin so as to provide optimum engine performance under the most severe conditions. With Talusia HR 70 it is possible to satisfy very specific demands from some shipowners and be in harmony with the maintenance policy they have chosen. Talusia HR 70 now has more than 60,000 operating hours on different vessels and results are in keeping with the target defined.

Exxon

Circle 32 on Reader Service Card
Exxon Company, U.S.A. markets several lines of quality marine lubricants.

Exxon's marine lubricant line includes De-Mar 17, an LMOA Generation 5 heavy duty crankcase lubricant for both main and auxiliary diesel engines.

Zinc-free, high detergent De-Mar 17 has a 17 TBN and is non-corrosive

to silver bearings.

Exxon's new product, De-Mar 17P, also zinc-free, utilizes new chlorine-free additive technology. Chlorine free oils are inherently less corrosive and are more environmentally friendly. Both De-Mar 17 and De-Mar 17P are available in a 20W-40 multigrade.

Other marine lubricants offered by Exxon include:

Spartan EP, a non-lead, extreme-pressure lubricant for enclosed gears

and bearings operated under heavy load or shock load conditions; Spartan Synthetic EP, a high viscosity index long-life extreme pressure gear and bearing lubricant; Nuto H, an anti-wear hydraulic oil; 1209 Turbine Oil, a rust and oxidation inhibited anti-wear marine turbine oil, MTL-L-17331-H approved; and Unavis N, a line of high viscosity index anti-wear hydraulic oils. Another new product has been added to the industrial marine product lineup: Teresstic SHP, a high quality synthetic turbine oil available in a variety of grades.

This is no room for compromise.

ENGINE ROOM

Why? Because most marine oils are compromises. Commercial oils that have been adapted for marine use.

But not ours. Mobil has developed truly marine-specific oils. Formulated from the beginning to meet the difficult and different demands of the marine environment.

And then we went even further. We developed a marine oil for each of the three major OEM diesels in marine service.

Detroit Diesels? There's our Mobilmar® 100 Series oils. Caterpillars? Our Mobilmar 300 Series oils. EMDs? Our Mobilgard® 450 oil. Each is designed for optimum performance in its specific engine.

How does it work in practice?

Tidewater Marine Inc. of Morgan City, Louisiana switched to Mobilmar 340 for the M/V Leslie Geismar's twin Caterpillar diesels. The uncompromising combination of Mobilmar 340, oil analyses, and preventive maintenance significantly increased oil drain intervals and decreased oil consumption, resulting in a savings of \$9000 annually. Impressive results.

For more information call Mobil at 1-800-662-4525. Then give us a chance to perform.

If we can't save you money, we don't deserve your business.

Mobil

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Ferrous Corporation

Circle 33 on Reader Service Card

Ferrous Corporation, Bellevue, Wash., has been in the business of selling fuel oil and lube oil additives to the marine industry for over 25 years.

Its products, which focus on fuel and lubricant-related problems, include combustion catalysts, a fuel dispersant and stabilizer, fuel biocides and a stern tube lubricant. The following Ferrous products offer a range of solutions to marine problems:

BT-8 is an extremely concentrated dispersant that reduces fuel incompatibility problems, removes existing tank sludge and improves fuel compatibility. BT-8 is normally dosed at 1:20,000.

MP-3 and MP-4 Combustion Catalysts are two approaches to combustion problems. MP-3 is a multi-purpose additive, combining a fuel catalyst and a dispersant. The catalyst uses an organo-metallic iron that assists in combining the fuel and oxygen, resulting in a better air-fuel mixture for more complete combustion.

MP-4 combines an oil soluble magnesium with the iron found in MP-3. While the iron improves combustion, the magnesium works as a post flame additive to counteract the effects of vanadium, sodium, sulfur and spent lube oil in the fuel. Fuel-Guard, a fuel biocide, is able to impact both the fuel and water to eliminate microbial growth ("bugs") where fuel and water interface. Sea-L-Saver impacts leaking stern tubes in a number of ways: reducing the flow of oil out of the stern tube (in most cases), protecting metal surfaces from water, and emulsifying water that does enter the tube.

The advantage of Sea-L-Saver is that the emulsified water, if allowed to sit, will separate from the lube and can be drained off. Sea-L-Saver also conditions the seals, extending their life.

Fluoramics, Inc.

Circle 34 on Reader Service Card

The secret of an effective additive, one that reduces friction between moving parts, reduces fuel consumption and provides faster starts and smoother, quieter, cooler operation, lies in the coefficient of friction (slipperiness) of the addi-

tive. Scientist **Frank Reick**, president of Fluoramics, Inc., after ten years in the laboratory, developed a method of making polytetrafluoroethylene (PTFE) particles so tiny they would pass through the finest filters. The additive Mr. Reick developed is Tufoil.

Hammonds Fuel Additives, Inc.

Circle 35 on Reader Service Card
Two good products have come together in one new fuel biocide from Hammonds Fuel Additives, Inc.

Diesel Sta-Bil[®] with Biobor[®] JF was recently introduced to the marine industry.

Diesel Sta-Bil with Biobor JF encompasses all the benefits of Sta-Bil[®], manufactured by Gold Eagle Co. in Chicago, and Biobor[®] JF, manufactured by Hammonds Fuel Additives in Houston.

Sta-Bil is designed to prevent fuel decomposition, which often sets the stage for microbial growth in diesel fuel, while Biobor JF will actually eliminate and prevent that growth.

The new biocide will eliminate existing growth of microscopic organisms that feed on diesel fuel and destroy fuel tank components and related engine parts with their presence and acid-waste by-products.

Also new from Hammonds: Biobor JF in an 8-oz. squeeze bottle version. Biobor JF is frequently added to hydrocarbon fuels, such as aviation jet fuels, marine diesel, No. 1 and No. 2 diesel fuels, home heating oil, and kerosene. When used on a regular basis, the additive will maintain fuel quality by preventing the growth of microorganisms.

Jet-Lube, Inc.

Circle 36 on Reader Service Card
Jet-Lube, Inc., an ISO 9001 Certified Specialty Lubricant Manufacturer with world headquarters in Houston, Texas, has recently introduced an expanded line-up of Marine Lubricants.

Marine Kopr[™] is a copper anti-seize compound that conforms to Military Specification MIL-A-907E.

Marine MP #2 Grease is an extremely water-resistant versatile

soap grease. It contains EP additives for protection from salt water, salt spray, rust and corrosion.

Marine Moly[™] is a lubricating paste that contains a high concentration Molybdenum Disulfide. It is available in paste or aerosol form and "plates" metal surfaces.

Marine Shield[™] is a rust and corrosion inhibitor that provides long term, heavy duty protection for metal marine parts, tools, equipment, pipe, valves, fittings and related equipment for up to 24 months.

Mobil Oil

Circle 37 on Reader Service Card
For those concerned about the impact used oil disposal has on the environment, the answer may be Mobilgard SHC 120.

Specially formulated for medium- and high-speed marine diesel engines burning distillate fuel, Mobilgard SHC 120 is proven to extend oil drain intervals up to 10 times those of conventional oils, effectively allowing the user to decrease the amount and frequency of

waste oil disposal.

The product contains no substance which would be undesirable in used oils. Its low chlorine level is well below the most stringent regulations in effect today.

In addition to significantly extended oil drain intervals and reduced waste oil disposal, Mobilgard SHC 120 can allow longer periods between engine overhauls.

Mobilgard SHC 120 is especially suited to the needs of high power concentration engines where thermal stress and loading on the lubricant is severe. Also, applications involve low temperature and/or frequent start-up, rapid loading following start-up, and abrupt shutdown after high speed operation.

Mobil also offers Mobil Progressive Fast Analysis (PFA). Within this oil analysis program is PDQ (Particle Depositor Quantifier), a ferrographic screening step in the PFA oil analysis process.

PDQ detects and analyzes metal particles which indicate metal fatigue and metal-to-metal contact in marine engines and other lubricated shipboard machinery.





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Pre-Lube

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Originally developed for the U.S. Navy, the Pre-Lube line of preservatives and lubricants are now in use throughout the world. From high speed gears and clutches to towing hawsers and standing rigging, through stationary equipment, the Pre-Lube line offers unique protection and lubrication.

Pre-Lube products will not evaporate or wash away.

Exclusive polymers bond lubricants and rust inhibitors to any surface to form a non-tacky, transparent film that will not crack or run-off.

Pre-Lube 6 contains a special rust-inhibiting polymer in a penetrating oil base. On metal surfaces of all kinds, it will penetrate, remove moisture and provide a lubricating film against corrosion.

Pre-Lube 19 is a transparent, medium viscosity, biodegradable, lubricating polymer.

It is a non-hazardous, non-polluting, non-sheening lubricating protectant designed for wire rope in the marine environment. It penetrates wire rope to provide inner strand lubricity, corrosion protection and prevent core rot.

An excellent replacement for synthetic or petroleum coatings, Pre-Lube 19 protects all metal surfaces against corrosive atmospheres and will not crack at extreme cold temperatures or run-off at extreme high temperatures.

Pre-Lube 14 is a high viscosity preservative and lubricant designed for stationary equipment. An excellent replacement for asphaltic type and heavy petroleum coatings, its polymer action dries tack-free and provides visual inspection.

Shell Oil Company

Circle 83 on Reader Service Card
Caprinus U Oil 40 is Shell's premium quality, zinc-free, single grade marine engine oil.

Formulated with a proven additive system containing a unique Shell detergent, the oil provides excellent engine cleanliness, is capable of extended oil drain intervals and has superior Total Base Number (TBN) retention in service.

Shell's additive system and the Shell detergent have enabled Caprinus U Oil 40 to meet increasing field performance requirements without reformulation.

Caprinus U Oil 40 contains Shell's MVI base oil, which produces a soft flaky carbon when burned in engines.

Soft carbon is particularly advantageous in two-stroke cycle engines having ports in the cylinder liners, as soft carbon is more easily dislodged and will not build up (especially in the liner ports) and reduce the engine's power output.

Shell Caprinus U Oil 40 is recommended for medium speed two-stroke and four-stroke diesel engines. Because of its excellent API CD performance, Caprinus U Oil 40 can be used in other diesel engines, such as those powering auxiliary engines on board marine vessels and the main engines of smaller vessels.

Texaco

Circle 39 on Reader Service Card
Texaco's worldwide association of blending plants manufacture the company's line of marine lubricants, starting with Taro Special, a SAE 50 high alkaline reserve (70 TBN) pre-

mium quality cylinder oil for large, slow-speed diesel burning residual fuels.

Taro Special offers excellent wear protection for cylinder liners and piston rings.

Doro AR 30 is an SAE 30 moderate alkaline reserve (6 TBN) premium crankcase lubricant for large, slow-speed engines, which meets the anti-wear requirements of engines equipped with a PTO unit.

Texaco offers Taro XD 30 and 40 oils with a TBN of 15, used in medium-speed engines with a maximum sulfur content of up to 1.8 percent.

For higher sulfur levels, Taro DP 30 and 40 with 32 TBN levels, along with Taro XL 40 with a 40 TBN, are also available for use in medium-speed engines.

Texaco's marine cylinder, crankcase and trunk piston oils meet the requirements of all major engine manufacturers.

Texaco's full product lubricant slate composed of synthetics, specialty oils and greases are available for all your other lubricant needs.

Auramarine Offers New, Slimmer Fuel Oil Supply Unit

Auramarine, the Finnish "Fuel Oil Booster" specialist, has created a new, slimmer Fuel Oil Supply Unit, where the installation space required is reportedly halved.

The basic fuel oil supply unit ensures a constant pressure, cleanliness, correct injection temperature and viscosity of the heavy fuel oil before it is fed into the engine.

AMB-S is a standard range of units to meet most diesel engine

designs. The makers only need to know the engine make and type, existing heating media, fuel type used, voltage used onboard and the classification society applicable.

The components of the slimmer booster still remain as accessible as in the other units of the ABM standard range. The slim-line construction allows installation in corners and other close quarters.

Service of the compact unit is easy - all the items are at hand and logically laid out. Also, installation is simple - all the necessary piping connections are on both the front and the rear of the unit.

New technical prospects are opened by the PC-based programmable logic control system added to the ABM boosters. The system enables many different controls and alarms to be installed and set, depending on the individual needs. These could be alarms for replacement intervals for wearing parts, single-button start-up feature, or duplicate controls of Econometer system for measuring consumption per nautical mile of kWh.

Due to the modulation of the boosters, Auramarine now can offer the customers even shorter delivery times.

The ABM fuel oil supply units are suitable for various applications both in marine use and in power stations on land. The design and construction of Auramarine Engineering's boosters are based on long and extensive experience. The company was established in 1974, and is now reportedly the biggest booster manufacturer in Europe, having the best know-how in the field.

For more information on Auramarine,

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 Texaco Bunker Information
 Texaco Today: Special 190th Anniversary Edition
 Texaco's Environmental, Health and Safety Review
 For information or to order the above literature, please mail this card to Texaco or fax it to: 914-253-7111 or 914-253-6002.



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Propulsion Equipment

The following editorial is a compilation of the latest product and company news from manufacturers of propulsion-related equipment. For additional information on any of the companies mentioned in the article, please circle the appropriate reader service card number, which is listed at the end of the story.

North American Marine Jet, of Benton, Ark., which serves the commercial and military markets with its marine jet products, added a new line of water jets.

The Traktor Jet III has an extremely high Bollard thrust-to-horsepower ratio, making it an outstanding waterjet propulsion system for craft operating at speeds up to 20 knots.

The Traktor Jet III features shallow draft capabilities and a low impeller rpm operating level to negate damage from ingestion of debris.

At 7,000 pounds Bollard pull thrust with only 450 shp, the Traktor Jet III out-pulls low geared props and achieves maximum efficiency in the 5-15 knot speed range without engine overload or over speed.

The Traktor Jet IV is now in final design and testing. It is a water jet propulsion system for large vessels or for heavy towing duty.

At the design horsepower of 600, the Traktor IV produces over 11,000 pounds of Bollard pull thrust at 600 rpm.

North America's NOMERA bow thrusters are based on the NOMERA 14 and 20 models with adaptation for port or starboard discharge.



Valves operated via hydraulic, air or mechanical systems provide port, starboard or neutral flow. Power requirements from 200- through 500-shp may be via direct-driven diesel engine (no gearbox or clutch) or via electric or hydraulic motor.

Founded in 1928, Lips B.V. is recognized as a leading manufacturer of propellers. The company has supplied more than 45,000 fixed-pitch propellers, with sizes up to 36 feet in diameter, for powers up to 48,000 kW. Since 1975, Lips has supplied more than 40 transverse tunnel thrusters in the range of 1,300- to 1,560-kW for dynamically positioned ships. Nozzles, stern-tube seals and bearings complete the company's product line. From its head office and main production facility in Drunen in The Netherlands, Lips B.V. coordinates additional manufacturing plants, which operate either as wholly-owned subsidiaries or as joint ventures.

In addressing the challenge of steerable thrusters, in 1981 Lips pooled its own expertise with the large-thruster know-how developed over more than 30 years by Schottel-Nederland B.V. In 1989, pursuant to an agreement with Schottel, the assets of the joint venture were vested in a new, wholly-owned company, Lips Thrusters B.V. The company wages an ongoing R&D policy to continually review production methods and upgrade them for maximum effectiveness. Lips provides a variety of thrusters, including modular thrusters, can-mounted thrusters, containerized thrusters and retractable thrusters.

Recently, KaMeWa received an order for its new Dynamic Compensation (DC) Maneuvering System for three new passenger/car ferries which are under construction at the Volkswerft yard in Stralsund, Germany. The order was placed by Norwegian ferry operator Hurtigruten. The DC system is an extended version of KaMeWa's standard joystick maneuvering system, and was developed in cooperation with SSPA Maritime Consulting AB, Gothenburg.

Brunvoll Thruster of Norway, a supplier of quality thruster systems, has delivered systems throughout



A Lips steerable thru

65-db for mess rooms, etc.

Thruster unit in a resilient m... edly conquers this problem, an... easy to install, as it is supplied... plete with: full-length double tu... ing ribs on outer tunnel for we... structure; fairings at in/outlets;... grating; resilient mounting elem... seals installed; elastomeric ball... tion; zinc anodes applied; and... treatment between tunnels.

KaMeWa, which supplies a wide... propulsion products for marine ap... also recently launched a new prop... concept, a project developed jointly by... and SKF. The propeller sleeve was d... simplify removal and mounting of fi... propellers. Based on the oil injection... it provides full interchangeability... operating propeller and spare prop... addition, it reduces the requirement fo... plete spare propeller shaft to just a... sleeve, an economical aspect geared to... shipowners.



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Ask our research scientists, engineers, marketing staff and operations personnel around the world, "What characteristic truly distinguishes Texaco?"

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• Texaco Ltd., Fuel and Marine Marketing Dept., 1 Westferry Circus, Canary Wharf, London E14 4HA. Phone: 071-719-3000; Fax: 071-719-5151.
• Texaco Inc., 2000 Westchester Avenue, White Plains, NY 10650. Phone: 914-253-4000; Fax: 914-253-6002; Telex: 1791144.



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Circle 258 on Reader Service Card

Propulsion Equipment

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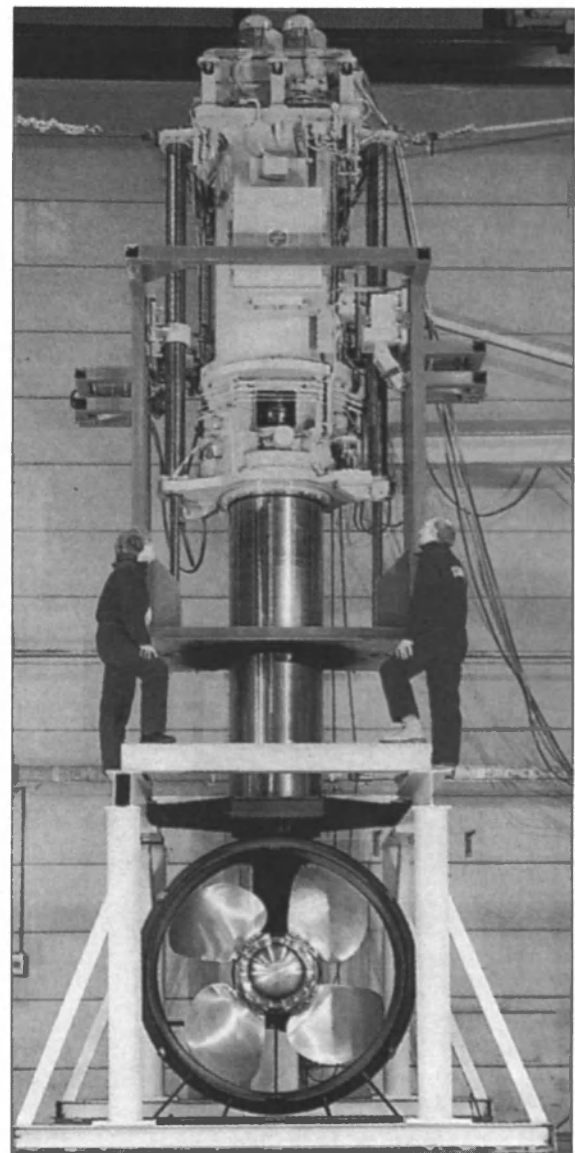
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A Brunvoll azimuth thruster for propulsion and positioning.

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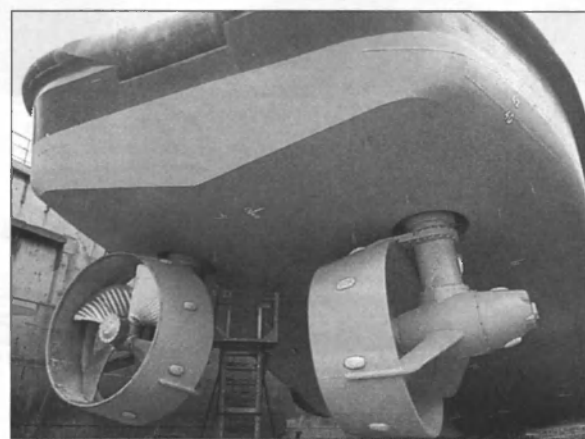
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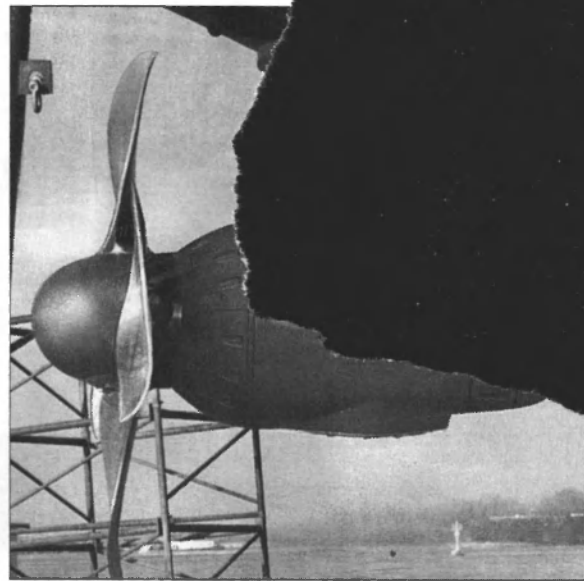
Brunvoll Thruster of Norway, a supplier of high-quality thruster systems, has delivered more than 2,500 thruster systems throughout the world since 1965. The company focuses on controllable- and fixed-pitch bow and stern thrusters; azimuthing (rotatable) thrusters; complete drive system packages, both diesel electric and hydraulic; and related control systems.

In a recent effort to reduce operational noise, Brunvoll introduced the Brunvoll Thruster unit in resilient mounting.

The unit was developed to combat noise levels of 85- to 90-db, a level common in accommodation localities above and near thrusters operating at full power. Recommendations for acceptable noise levels (as dictated by the Norwegian Maritime Directorate in regards to continuous operation), are 60-db for sleeping quarters and



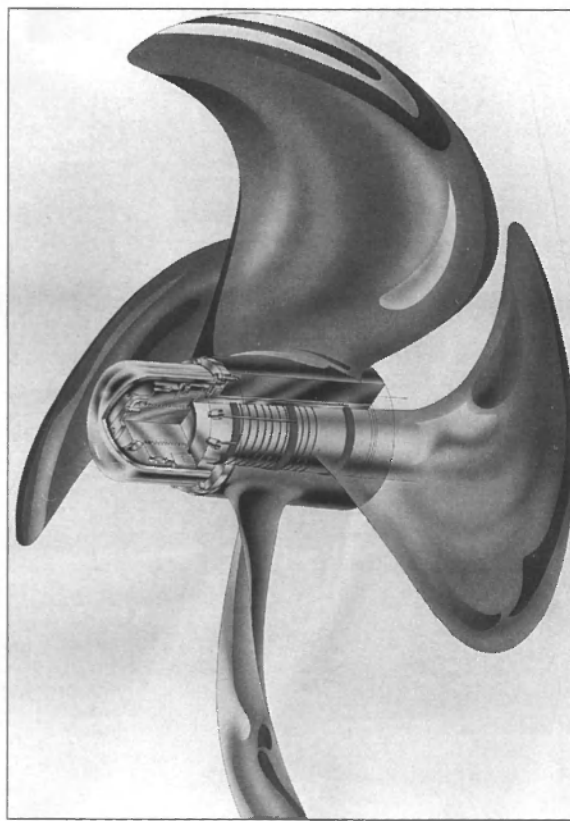
The fixed hull-mounted Compass Thruster from Ulstein is suitable for tugs, supply vessels and diving support vessels, to name a few.



A Lips steerable thruster.

65-db for mess rooms, etc. The Brunvoll Thruster unit in a resilient mounting reportedly conquers this problem, and is reportedly easy to install, as it is supplied factory complete with: full-length double tunnel; connecting ribs on outer tunnel for welding to ship structure; fairings at in/outlets; brackets for grating; resilient mounting elements installed; seals installed; elastomeric balloons in position; zinc anodes applied; and antifouling treatment between tunnels.

KaMeWa, which supplies a wide variety of propulsion products for marine applications, also recently launched a new propeller sleeve concept, a project developed jointly by KaMeWa and SKF. The propeller sleeve was designed to simplify removal and mounting of fixed-pitch propellers. Based on the oil injection method, it provides full interchangeability between operating propeller and spare propeller. In addition, it reduces the requirement for a complete spare propeller shaft to just a spare sleeve, an economical aspect geared to please shipowners.



A KaMeWa SKF Propeller Sleeve System.

Keys to the new propeller sleeve, which was officially launched last fall, are precision manufacturing and a cylindrical bore in the propeller.

The Hamilton HM Series waterjet propulsion system is a range of units designed for the efficient propulsion of a wide range of work and patrol craft and fast ferries typically in the 66- to 197-foot range. Suitable for power inputs up to 3,000 kW per unit, HM Series jets would normally be driven via a reduction gearbox.

A new 56-ton Royal Malaysian Customs patrol craft outfitted with twin model HM571 jets recently achieved a maximum continuous speed of 32 knots during trials, versus a 28-knot contract design speed. Other HM Series jet applications include crew boats for the Malaysian oil fields, a 59-foot pilot boat for the Dutch Pilots Association, patrol craft for North Africa and loiter/boost propulsion application in new Hong Kong Marine Police patrol craft. It was announced also that the HM Series was chosen for six Caterpillar-powered marine police patrol craft being built at Western Australia shipyard, and four MTU-powered Inshore patrol vessels, also being built at Western Australia.

The new HS Series of multi-stage waterjets are designed specifically to operate in the 40- to 65-knot speed range, and are proving to be a primary choice option for designers of extra high-speed craft, the manufacturer reports.

Servogear A/S of Norway, founded in 1973, has delivered approximately 900 gearboxes and propeller systems, 500 of which have been installed in high-speed crafts, both twin and monohull. Today, Servogear Propulsion System supplies a wide variety of propulsion-related equipment, including reduction gearboxes, controllable-pitch propellers, effect rudders, and more. The systems cover an engine range of 300 to 3,000 kW and speed up to 50 knots.

The company's latest gearbox, type HD 250, is designed for high-speed craft and is available in H-Drive, U-Drive and Twin-input/Single-output versions. Gearwheels are crafted of high quality steel, designed for maximum safety and minimum noise. The unit is also equipped with a built-in hydraulic operated clutch and servo system to actuate the propeller pitch.

Ulstein International has achieved an important breakthrough into the French market. The Norwegian Group is supplying propellers, shafting and thrusters for the Dreamward and Windward Kloster Cruise Line (KCL) vessels being built at Chantiers de l'Atlantique, and a further significant first is the contract to supply bowthrusters for six Lafayette frigates being built for the French Navy.

The cruise ship contract continues a long-standing Ulstein relationship with KCL having previously supplied stern gear to the Royal Viking Sun and Royal Viking Star built in Finland.

It is, however, Ulstein's first penetration of the Atlantique yard, made even more notable by the additional

supply of Ulstein Bergen diesel engines for auxiliary power.

The supply of bowthrusters to the French Naval yard of DCN Lorient is also significant. In addition to the export success in the French market warships do not normally fit thrusters. The Ulstein's Liaaen factory is to supply a 90TV-type thruster, rated at 310 kW and specially approved to comply with Naval shock-load specifications, for each of the six Lafayette-class light frigates being built. Each thruster has a diameter of 1,280 mm and will be driven at a speed of 388 rpm by an ABB electric motor through a 3.64:1 reduction gear. The first vessel in the series, F710 Lafayette, was floated out at DCN Lorient Naval Dockyard in June 1992 and is currently undergoing sea trials.

For more information on the companies mentioned in this story, circle the corresponding numbers on the Reader Service Card in this issue:

Brunvoll 125
Hamilton Jet 122
KaMeWa 121
Lips B.V. 120
North American Marine ... 96
Servogear 123
Ulstein International 124

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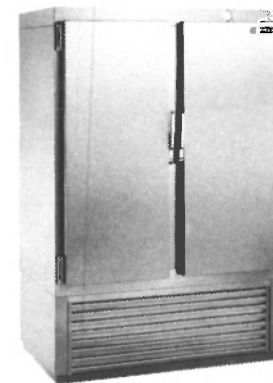
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Circle 291 on Reader Service Card

37

Japanese Shipyards Stress Quality Over Quantity

Quality, not quantity, will be the new tack in the Japanese shipbuilding industry.

of 350 passengers on two decks - one for freight and the other for cars. The ferry has a breadth of 30 feet and a depth of 10.5 feet.

The vessel will be built in accordance with Coast Guard Sub chap-

New FM Radio System To Conquer Sound Problems On Tour Boats

The new Antenna Listening Sys-

tener wears headphones and a pocket-sized radio receiver.

This system, the manufacturer claims, allows everyone in the group to hear even with the interference of engine and wind noise.

Hopkins Forms Tidewater Naval Architects Inc.



Richard R. Hopkins, Jr.

Richard R. Hopkins, Jr., formerly with General Electric Co., announced the formation of Tidewater Naval Architects Inc.

Tidewater Naval Architects was formed to provide a full-line of Naval Architecture, Marine Engineering and Marine Surveying services for Naval and commercial shipbuilding, ship repair and overhaul. In addition, they have specific experience in floating dock design, operational support, computer aided design (CAD) development and oil spill response-related technical support. Tidewater Naval Architects has its corporate office in Portsmouth, Va. For more information on this new company,

Circle 43 on Reader Service Card

Haz-Mat's Rubberizer Helps Companies Prep For OPA 90

As the deadline for OPA 90 quickly approaches, MTL is preparing to ensure that proper cleanup materials and equipment are aboard its vessels. One product already in use on several MTL vessels that has been successfully utilized already to cleanup small deck spills, is the Rubberizer from Haz-Mat Response Technologies, Inc. The Rubberizer transforms hydrocarbons, spilled into water, into a rubber-like solid on contact, ensuring it is not re-released. The product is available in booms, pillows or granular forms and can be used to clean oil from bilges, deck spills, around hydraulic storage tanks as well as oil from water.

For more information on the Rubberizer from Haz-Mat,

Circle 44 on Reader Service Card

Chris-Marine AB Enjoys Steady Growth

The Sweden-based international group of companies, Chris-Marine AB, has enjoyed steady business growth over the past two years the company reported. The Piston Ring

Groove Grinding Machine type PRG has been successfully delivered for installation at the chroming plants of some major Asian and European builders of two-stroke engines.

As for the more commonly used Chris-Marine portable maintenance machines, it appears that the wide range of cylinder liner honing machines, including various specialty versions, have had remarkable sales growth as the product helps provide substantial savings in engine operating costs.

For more information on the products and services of Chris-Marine,

Circle 47 on Reader Service Card

Unitor Strengthens With Acquisition, Alliance

Norway's international ship supply specialist Unitor AS has made two moves recently, the acquisition of marine refrigeration company Dobson and a strategic alliance with Holland's Smit Ovens, to secure and expand its role on the international market.

Unitor has taken over 33 percent of the shares of U.K.-based Dobson, and under the terms of the agreement, Unitor will take an option over the remaining shares of the company, which will create the world's largest specialist in the servicing, maintenance and spare parts of marine refrigeration systems.

"We think in total solutions for our customers," said Karsten Houm, director, Unitor. Mr. Houm explained that Dobson's strength in parts and service will nicely complement Unitor's refrigeration.

Also, after only 18 months of being actively engaged in the nitrogen generator market, Unitor has secured orders for its systems and further strengthened its position in this specialized market by forming a strategic alliance with Smit Ovens.

During the previous 18 months Unitor has secured orders for its nitrogen generators for use onboard chemical tankers, barges, offshore supply vessels and offshore platforms.

In order to improve and strengthen its market position, Unitor formed an alliance with Smit Ovens, which has extensive experience with both Inert Gas and Nitrogen Membrane systems.

For more information on Unitor products and services,

Circle 52 on Reader Service Card

Wartsila Diesels Chosen For New Projects

Samsung Heavy Industries of South Korea has ordered four Wartsila Vasa 46 engines and one Vasa 20 engine for the new type of shuttle tanker the company is building for the Conoco oil company in Texas. The propulsion system of the

vessel is diesel-electric, with each of the 7,240 kW eight-cylinder Vasa 46 engines driving the generator. The machinery concept for the new shuttle tanker was developed together with the electrical supplier ABB Marine and the oil field operators.

Also, CISPA Gas Transport S.p.A. of Trieste, Italy, a subsidiary of the Montanari Group, chose Wartsila diesel engines to power the newest member of its fleet, the ethylene carrier Vallesina.

For more information on Wartsila,

Circle 53 on Reader Service Card

AT&T High Seas Direct Promises Economical Ship-To-Shore Communications

Cruise ship companies can now provide its crew members and ship administrators with an alternate way of placing ship-to-shore calls with AT&T High Seas Direct, an enhanced high-frequency radiotelephone service.

The service provides direct access sans operator assistance, making for a more private, faster and easier call, reportedly.

The service is accessed through a high-frequency single-sideband radio and an AT&T High Seas Direct modem and handset. Calls are placed by entering a five-digit personal identification number, then dialing the number. Cruise ship companies can assign up to 99 individual PIN's per unit. At \$3.50 per minute, the service is price competitive with other modes of communication.

For more information from AT&T,

Circle 56 on Reader Service Card

Seaman's Church Instrumental In Pilot Training

The Seaman's Church Institute Maritime Training Program has been instrumental in the training and proficiency of pilots maneuvering the world's largest tankers, in many areas, including the LOOP site 18 miles off the Louisiana shore. The Maritime Training Institute greatly increases the overall operational safety of its port. Numerous operators, shippers and insurers believe that thorough and regular training can go a long way towards preventing maritime accidents. Many of the major vessel operating companies regularly train its people at the training division, utilizing state-of-the-art simulation equipment consisting of four simulated, interactive ship bridges with extensive navigation areas.

For details on the training program,

Circle 57 on Reader Service Card

Amoco Orient Wins Approval To Develop Offshore Oil Field

Amoco Orient Petroleum Co., a unit of Amoco Corp., and China Offshore Oil Nanhai East, a subsidiary of China National Offshore Oil Corp., have won approval from China's government to begin a \$650 million development of an oil field in the South China Sea.

The Lihua field is reportedly the largest oil-bearing accumulation found to date in the South China Sea.

Production on the field should begin in early 1996, with full development completed in 1997. According to Amoco, following the \$650 million development phase of the field, expected costs for the estimated 15-year production phase will be \$850 million.

For more information on Amoco Corp.,

Circle 86 on Reader Service Card

Aalborg Ciserv Corpus Christi Completes Two Major Repair Projects

Aalborg Ciserv Corpus Christi (ACCC) has completed a major project on the M/V Boa Canopus.

The vessel arrived in Corpus Christi with the need for a main engine replacement. The damaged engine was removed and its replacement was flown in from Europe.

The Nohab Polar V-12 2,500-hp replacement engine weighed approximately 14 tons.

ACCC also recently completed the first contract with the USCG on the USCG Anvil. The Maintenance & Logistics Command Atlantic (MLCA) contract consisted of mechanical, structural and piping items, along with blasting and coating.

Prior to the award of the contract, a pre-award conference was attended by Coast Guard representatives from both New York and New Orleans to ascertain the capabilities of ACCC to carry out a government contract.

For more information on Aalborg Ciserv,

Circle 87 on Reader Service Card

American Systems Wins Navy Maintenance Contract

American Systems Engineering Corp., Virginia Beach, Va. was recently awarded a \$10.5 million maintenance contract by the U.S. Navy.

The maintenance work will be done on Atlantic and Pacific fleet aircraft carriers.

The work is expected to be completed by next April.

Homogenized Fuel For Cleaner Engines From Fuel Technologies

ENRJ also reportedly reduces fouling of turbochargers and waste heat boilers while also reducing high pressure fuel pump and injector wear.

Fuel oil at system pressure 90- to 120 psi enters ENRJ's high-pressure

to 15,000-psi sheer stress which accomplishes homogenization and reduces all particulate to a more combustible state. Particles remaining in the fuel oil, even after purification, are broken down to less than 10

ABB, Kvaerner Masa New Electric Drive Azipod Honored

Kvaerner Masa Yards and ABB

Japanese Shipyards Stress Quality Over Quantity

Quality, not quantity, will be the new tack in the Japanese shipbuilding industry. Japan has reportedly held the top position in quantity since 1956 when the Japanese overtook England in shipbuilding. **Yotaro Iida**, chairman of the Shipbuilders' Association of Japan, says, "From now on, we intend to build very sophisticated, high-tech vessels that cannot be matched by other countries." As a testament to this claim, Ming Wah Shipping Co. of Hong Kong took delivery of a Japanese-made LCC done largely by robots. Research and development to help environmental conservation as well as shipbuilding technology will be the focus of the members of the Shipbuilders' Association, according to **Ir. Iida**. Automation, reportedly well-advanced in Japanese yards, will be furthered.

Shipping Industry Improves With Higher Rates In '93

The maritime industry has reportedly emerged from deep crisis in 1992 to higher freight rates, according to brokerage firm H. Clarkson & Co. In its six-month review, H. Clarkson & Co. claims that in the first four months of 1993, earnings in the dry bulk carrier market for raw materials were 20-25 percent higher than the average a year ago. Earnings for Panamax and Capes were well up on 1992, however the average daily hire of \$9,000 and \$10,500 compared unfavorably with smaller sizes. The report claims that in the period from January to April, VLCCs earned \$16,800 a day, up 37 percent on 1992 averages. Suezmax tankers fetched \$15,600, up 31 percent, and Aframax earned \$13,800, up 38 percent. The report says the maritime market's outlook for 1993 is better than it was for 1992, and 1994 looks promising. Clarkson wrote, "With more tankers due for delivery in 1993, any judgment on freight rates must depend on the view taken on future crapping."

North Atlantic Marine Announces Contract With Washburn & Doughty

Diana D. Artiaga, president of North Atlantic Marine, Inc., in Portland, Me., announced that the company has signed a contract with Washburn & Doughty Assoc. of East Boothbay, Me. to install the entire electrical and electronic systems on an 85-foot passenger ferry boat for Casco Bay Island Transit District in Portland, Me. The ferry is a diesel-propelled boat capable of accommodating a minimum of 350 passengers on two decks - one for freight and the other for cars. The ferry has a breadth of 30 feet and a depth of 10.5 feet. The vessel will be built in accordance with Coast Guard Subchapter T. The hull is of steel single chine construction with a transom stern, using twin screw propulsion. For more information on North Atlantic Marine, Inc.

of 350 passengers on two decks - one for freight and the other for cars. The ferry has a breadth of 30 feet and a depth of 10.5 feet.

The vessel will be built in accordance with Coast Guard Subchapter T. The hull is of steel single chine construction with a transom stern, using twin screw propulsion. For more information on North Atlantic Marine, Inc.

Circle 98 on Reader Service Card

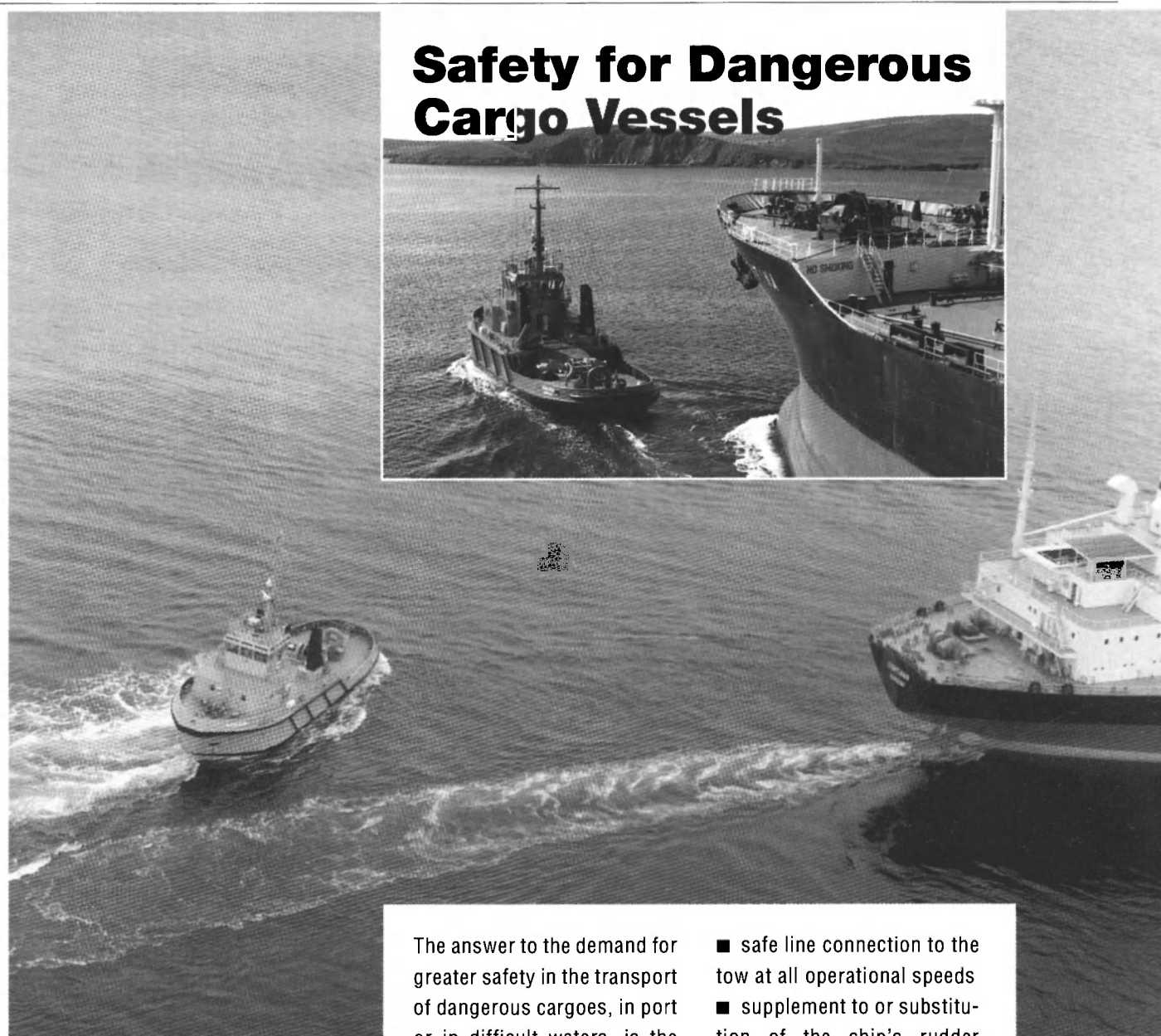
New FM Radio System To Conquer Sound Problems On Tour Boats

The new Antenna Listening System is a personal FM radio receiver system that allows ship tour guides to be heard clearly by all passengers on board. Guides wear Antenna's small, portable transmitter and speak into a hands-free microphone. Each listener wears headphones and a pocket-sized radio receiver. This system, the manufacturer claims, allows everyone in the group to hear even with the interference of engine and wind noise. The Listening System is currently being used by the Red and White Fleet for multilingual tours of San Francisco Bay. For more information from Antenna,

tener wears headphones and a pocket-sized radio receiver. This system, the manufacturer claims, allows everyone in the group to hear even with the interference of engine and wind noise.

The Listening System is currently being used by the Red and White Fleet for multilingual tours of San Francisco Bay. For more information from Antenna,

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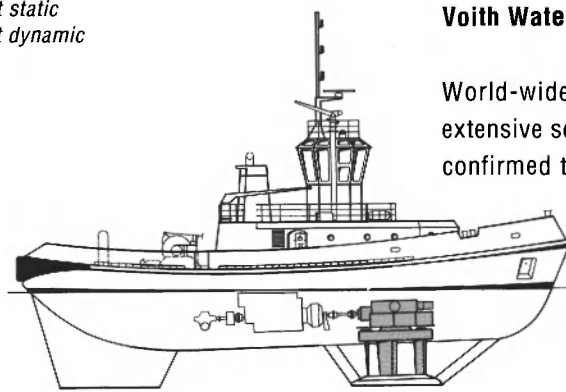
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Homogenized Fuel For Cleaner Engines From Fuel Technologies

The ENRJ high-energy homogenizer is designed to operate in a fuel oil system downstream of the heater and strainer. ENRJ produces a more homogeneous fuel, reportedly reducing fuel consumption, opacity and particulate emissions.

ENRJ also reportedly reduces fouling of turbochargers and waste heat boilers while also reducing high pressure fuel pump and injector wear.

Fuel oil at system pressure 90- to 120-psi enters ENRJ's high-pressure pump. It is then raised to 1,200-psi, at which point ENRJ's patented compensating precisely controls the process of instantaneous reduction of pressure back to original system pressure. This instantaneous reduction in pressure creates 12,000

to 15,000-psi sheer stress which accomplishes homogenization and reduces all particulate to a more combustible state. Particles remaining in the fuel oil, even after purification, are broken down to less than 10 microns in size.

For more information on the ENRJ high-energy homogenizer from Fuel Technologies, Inc.,

Circle 12 on Reader Service Card

ABB, Kvaerner Masa New Electric Drive Azipod Honored

Kvaerner Masa-Yards and ABI Stromberg Drives jointly developed the Azipod azimuthing electric propulsion drive, a development chosen as a finalist in the ASME Petroleum Division's "Best Mechanical Engineering Achievement Contest."

The first prototype 1.5 MW azipod unit was installed on the Finnish waterway service vessel Seili in late 1990. The results were reportedly so successful that Kvaerner Masa and ABB signed an agreement for further development and sale of the Azipod in spring '92.

The world's largest azimuthing propulsion drive, an 11.4 MW azipod unit, is currently under construction at Kvaerner Masa-Yards Helsinki New Shipyard. The unit will be installed in Nermarc's 16,000 dwt Arctic tanker, the M/T Uikku. The new Azipod drive will be powered by a pair of Wartsila Vasa 12V30 diesel engines, each coupled to an ABB 6,200 kVA generator and one Wartsila Vasa diesel generator. Two Alfa-Laval heavy fuel separators and four lube oil separators will also be installed.

For more information on the azipod unit,

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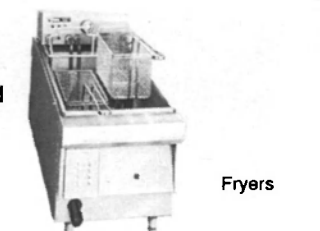
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WesTech Gear Chosen As Supplier For Deep Water Project

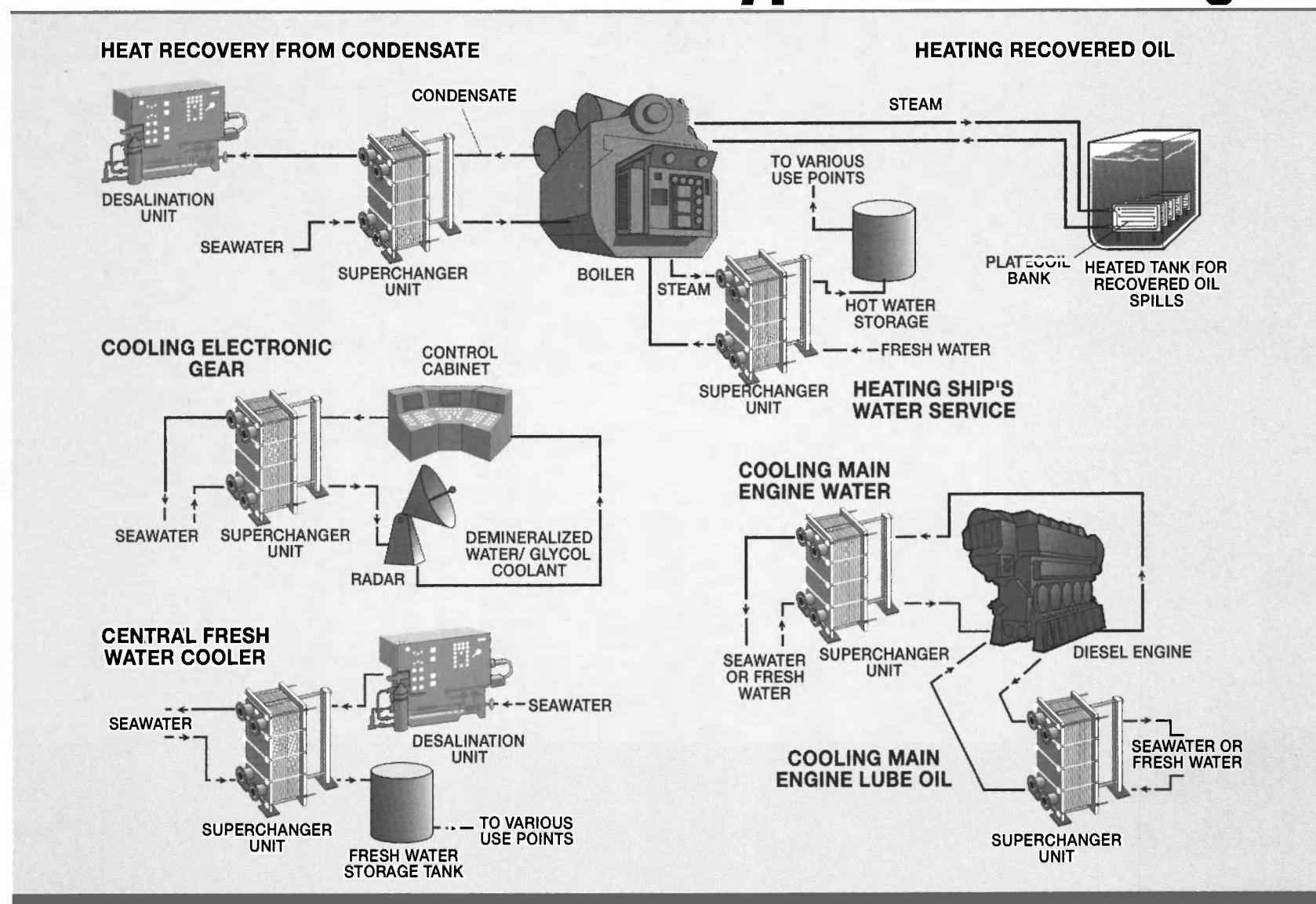
WesTech Gear Corp. of Lynwood Calif. has been selected to lead an international team in the design, manufacture, test and installation of a fully-automated pipe tensioning system for deep water pipeline construction. The system will be installed aboard the DP Pipelay Vessel Solitaire, currently under conversion by the Allseas Group. Principal sub-contractors for the pipe tensioning system include Bodewes of Nieuwerkerk, the Netherlands and Reliance Electric of Cleveland Ohio.

WesTech will manufacture the three pipe tensioners, each of 100 metric ton capacity. These tensioners incorporate a unique pipe squeeze system, proven to minimize tensioner's adverse effects upon pipe while accommodating pipe anomalies. WesTech will also accomplish overall system integration, including interface with the vessel's dynamic positioning system, and carry out the responsibilities for project management for the pipe tensioning system.

For more information on the products and services offered by WesTech Gear Corp.,

Circle 19 on Reader Service Card

How to Operate More Efficiently At Lower Cost With Tranter Plate-type Heat Exchangers



Naval ships, fleet oilers, commercial containerships, tankers and dredges are successfully finding new ways to operate more efficiently at lower cost, by utilizing Tranter's unsurpassed plate-type heat exchanger technology. Schematics presented here illustrate typical ways they are doing it.

Superchanger® plate and frame heat exchangers are used in a wide variety of shipboard applications—particularly for cooling main engine jacket water and cooling main engine lube oil with fresh water or seawater; cooling the ship's central fresh water; cooling electronic equipment; or recovering heat from condensate. They are far more efficient than tubular systems, and provide heat transfer coefficients from two to five times greater than those achieved by shell and tube units. They also require 10% to 50% less deck space and weigh up to one-sixth less.

Superchanger units can be equipped with titanium plates which offer the best resistance to corrosion and erosion when exposed to seawater. Intermixing or cross-contamination

of hot and cold liquids is virtually impossible. Low fouling rates reduce cleaning requirements for Superchanger units, that are designed for easy maintenance. They can be cleaned-in-place by backflushing, or quickly disassembled by hand, cleaned and put back in operation.

Platecoil® prime surface heat exchangers offer optimum temperature control. A Platecoil bank-in-tank unit provides wide interspaces for effectively passing solids while efficiently heating seawater containing oil from spills.

Platecoil bayonet heaters provide a large amount of efficient primary heating surface in a single unit for maintaining desired temperatures in storage tanks. These heaters help promote convection currents for better heat transfer rates and tank temperature uniformity. Platecoil suction heaters provide immediate heating for pumping oil out of tanks.

Tranter plate-type heat exchangers can be supplied in full compliance with codes and specifications as required by the ABS; the U.S. Coast Guard; shock testing per MIL-S-

901C; vibration testing per MIL-STD-167-1; and ASME U stamp per Sec. VIII Div. 1.

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Giro Engineering's Duoline Keeps Watch For Fuel Leaks

Engine room fires, especially in the advent of electronic monitoring systems when some machinery spaces may be without visual checking for some time, can be extremely dangerous on any vessel. The Duoline fuel pipe system, from Hampshire-based Giro Engineering Ltd., has overcome these problems through the development of a double-

skin system, incorporating the high pressure fuel pipe within a rigid tubular steel outer sheath, securely locked into special end fittings. In the event of the HP pipe leaking or fracturing, the fuel is retained within the space between the concentric pipes and safely drained to a holding tank.

For more information on the Duoline system from Giro Engineering Ltd.,

Circle 14 on Reader Service Card

Raytheon Debuts Vessel Traffic System

Raytheon has added vessel traffic systems to its range of marine electronics.

Within the last decade Raytheon introduced the Pathfinder Superior Technology (Pathfinder S/T), a radar that could clearly display the smallest targets in the midst of rain and sea clutter. Now the Pathfinder S/T, with its high-power and large

antenna, has become widely accepted for vessel traffic purposes. Having launched a full-range of display equipment, including the C40 and Autotrac Series, Raytheon can now supply systems meeting the requirements ranging from a simple harbor VTS to a full coastal surveillance system.

Raytheon's Vessel Traffic System is already operating in New York Harbor, and is currently being installed at the Prince William Sound. For more information on this Raytheon product,

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Offshore System's ECPINS Chosen For USCG Buoy Newbuildings



Offshore Systems Intl., Inc. of Seattle recently received a \$483,000 contract from Marinette Marine Corp. for the supply of two ECPINS (Electronic Chart/Precise Integrated Navigation Systems) for the launch of the new 225-foot U.S. Coast Guard Seagoing Buoy Tender and for a training facility.

ECPINS, which will comply with all IMO performance standards, gives the navigator "own-ship" position twice a second, warns him of dangerous waters ahead and show continuous information on all fixed and moving radar targets.

The new "Juniper" class buoy tender is designed to service navigational aids, such as buoys, and respond to marine environment spills on U.S. waterways. As part of the contract, Marinette has been granted an option to purchase additional 17 ECPINS to the year 2001. For more information on the products and services of Offshore System Intl.,

Circle 15 on Reader Service Card

Navy Selects MSI To Set Up California Ship Simulator

Marine Safety International selected by the U.S. Navy to install and operate a ship-handling training facility at the Naval station San Diego. The facility will be first ship-handling simulator of the Mississippi.

Maritime Reporter/Engineering

Boston Whaler Sold By Reebok To MacAndrews & Forbes

Reebok International Ltd. announced it has agreed to sell its subsidiary, Boston Whaler, Inc., to MacAndrews & Forbes Holdings, Inc. The purchase price was not disclosed. Reebok anticipates that the transaction will close by the end of July following the required review under the Hart-Scott-Rodino Act.

Boston Whaler, headquartered in Rockland, Mass., was acquired by Reebok in late 1988 from the CML Group. Under Reebok's ownership, Boston Whaler has introduced new technologies and innovative products, such as the 14-foot Rage[®] jet boat.

"Boston Whaler is one of the premier brands in the boating industry, whether being used for family pleasure, fishing or commercial use," said Paul Fireman, Reebok's chairman and CEO. "Under the leader-

ship of Barry Culkin, president of Boston Whaler, the company has developed new technologies and introduced innovative new products. It is the right time, however, for Reebok to focus our energies on our core brands."

MacAndrews & Forbes Holdings is a private, diversified holding company with interests in several industries. Boston Whaler will become part of a newly formed sports group at MacAndrews & Forbes.

George Napier, president and CEO of the group said, "The addition of Boston Whaler establishes us as a premier competitor in the growing sport fishing market, and the second largest independent boat builder in the U.S."

For more information on Boston Whaler products,

Circle 127 on Reader Service Card

SNAME Set To Celebrate 100th Year With Centennial Technical Program

The Society of Naval Architects and Marine Engineers' 100th anniversary will be celebrated September 14-19, 1993 at the New York Hilton Hotel and Towers. The technical and professional programs planned for the six-day meeting will recognize the preeminent place of SNAME in the past century of advancement in the disciplines of naval architecture and marine engineering, its contributions to the present development and dissemination of technical information, and the role of the Society in firming the foundations for future innovation and growth. A three-day program of technical papers will begin on Wednesday morning with a history of the Society, a presentation on the Canadian maritime industry, and a look at the relationship of a thriving merchant marine to the rise and fall of nations. Papers on U.S. Maritime policy and shipbuilding of the future will conclude the technical program for the day. On Thursday and Friday, the balance of the 16 papers will be presented.

For more information on the fast-approaching SNAME Centennial Celebration,

Circle 135 on Reader Service Card

Schichau Seebeckwerft Launches Container Vessel

On June 5, Schichau Seebeckwerft AG of Bremerhaven launched a BV 1600-type container vessel for Conti Reederei. The newbuilding has a container capacity of 618 teu below deck and 1,066 teu above, for a total teu capacity of

1,648. The vessel is driven by a MAN B&W diesel engine and is capable of speeds up to 19.1 knots. It is equipped with three deck cranes.

For more on the building capabilities of Schichau Seebeckwerft,

Circle 136 on Reader Service Card

Astilleros Delivers Double-Hulled Shuttle Tanker

The Sestao factory of Astilleros

Espanoles has delivered the double-hulled shuttle tanker, the Tordis Knutsen. The vessel is propelled by a single AESA B&W 8 S 70 MC-type two stroke engine, driving a four-blade propeller. Other equipment onboard includes Kvaerner Eureka cargo equipment and Bergen Diesel generators. For more information on Astilleros Espanoles,

Circle 137 on Reader Service Card

ACH Launches Paglia Orba, Ro/Ro Passenger Ship

Ateliers Et Chantiers Du Havre recently launched the Paglia Orba, a 541-foot Ro/Ro passenger ship ordered by the Societe Nationale Maritime Corse Mediterranee (SNMCM) in February of 1992.

The vessel, able to accommodate 196 passengers, is powered by four 4,930 kW, medium speed Wartsila Vasa 16V32 DF engines, driving a pair of KaMeWa propellers on Maag-make shaft lines.

The vessel has a 19-knot service speed.

Wartsila Vasa also supplied the generating sets, three 1,180 kW 4 R 32 DF model types. The vessel also features two harbor boilers and four exhaust gas boilers, SNACH fin stabilizer and two fins, and a pair of 1,400-kW bow thrusters.

The vessel is classified Bureau Veritas 1 3/3 E, Ro/Ro Passenger Vessel - High Sea - F - RMC.V - Aut Port STB.CSA - PFA - STB.

For additional information of the shipbuilding capabilities of Ateliers Et Chantiers Du Havre,

Circle 138 on Reader Service Card

John Deere Increases Power On Two Marine Engines

Deere Power Systems Group has increased the horsepower ratings on two of its marine diesel engine models. The 6068 (turbocharged) 6.8 L diesel engine is available with two new horsepower ratings in addition to the current 155- and 175-hp ratings at 2,400 rpm. The first new rating, designed for use in coastal fishing, charter boats and other marine applications that operate less than 2,000 hours annually, generates 195 hp at 2,500 rpm.

The second new rating, intended for use in pleasure craft, coastal fishing boats, spill response, police, fire and rescue-type craft that operate less than 800 hours per year, generates 220 hp at 2,600 rpm. Deere's 6076AFM (aftercooled) 7.6 L diesel engine is available with one new power rating in addition to the 215- and 250-hp ratings currently available. Designed for applications operating less than 2,000 hours per year, the new engine generates 300 hp at 2,400 rpm. For more information on Deere engines,

Circle 139 on Reader Service Card

Chantiers De L'Atlantique's Cruise Liner Christened By Barbara Bush

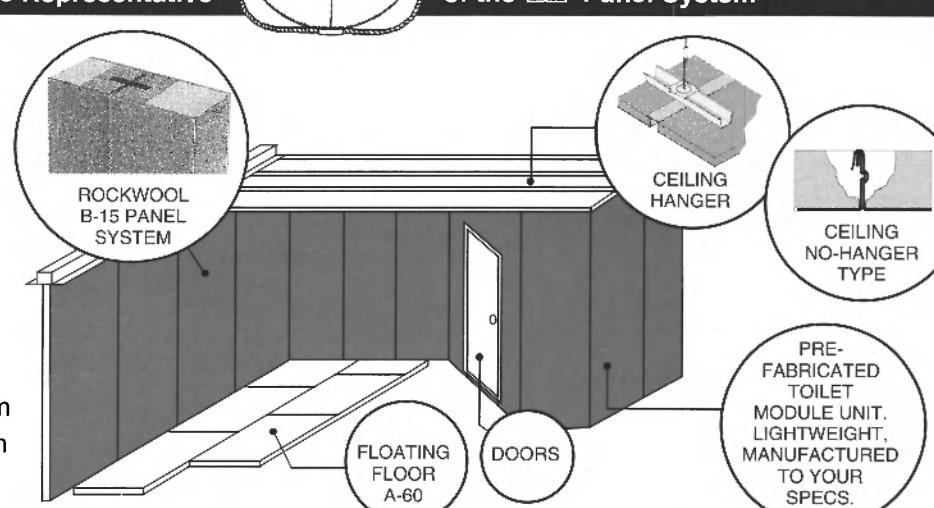
The cruise liner Windward, built by GEC Alsthom's Chantiers de l'Atlantique at Saint Nazaire in France for Kloster Cruise Limited, was christened by Barbara Bush in Los Angeles in early June.

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ING BIP THE #1 PANEL MANUFACTURER IN THE WORLD. THE SYSTEM IS IDENTICAL TO THE EUROPEAN BRANDS (TNF, DAMPA, ISOLAMIN, NORAC, MOMEK), BUT APPROX. 15%-20% LESS EXPENSIVE. THE SYSTEM CARRIES CERTIFICATES OF APPROVAL FROM MOST CERTIFYING AUTHORITIES (SOLAS, GL, DNV, DOT, BV, LR, ABS, USCG, CCG).

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Circle 294 on Reader Service Card

Indiana State Senate Passes Amendment To Allow Riverboat Gaming

In a surprise move, the Indiana state Senate passed an amendment to its budget that would allow up to 11 gaming boats, five on Lake Michigan, five on the Ohio river and one on Lake Patoka.

The Indiana House had already passed a budget this month which contained a version of this statute.

The Senate riverboat gambling amendment to Indiana's proposed

budget will provide for a 20 percent tax on adjusted gross receipts and doesn't set betting limits. If the budget with riverboat gaming passes and is signed by the governor, as is currently expected, the cities which want the boats will still have to approve it via local referendum. It is planned to create an Indiana Gaming Commission to license and regulate the industry.

U.S. Naval Labs, NTTC Team For Technology Transfer

Employees of U.S. Naval Laboratories will receive detailed training in ways to transfer advanced technologies to American business under a new agreement with the National Technology Transfer Center (NTTC).

Navy and NTTC officials recently announced an agreement to design and deliver a specialized training program in technology transfer for U.S. Naval research laboratories. According to officials involved, links between the private sector and federal laboratories are key in determining whether U.S. industry can remain competitive on an international market.

Holla Wins \$62 Million Deal From Van Ommeren

Van Ommeren, a Rotterdam-based tank storage, shipping and transport group, has recently awarded a \$62 million tanker contract to Halla Engineering & Heavy Industries of South Korea.

The deal is reportedly for a pair of 45,000-dwt double-hulled product carriers, scheduled for delivery in late 1994 and early 1995. At \$31 million per vessel, it is evident the price tag for this type of carrier has dipped recently.

Van Ommeren Tankers operates 10 ships in coastal shipping, European distributive trades and long distance traffic. It plans to commission an 11,500-dwt tanker newbuilding being built at Singapore's Sembawang Bethlehem yard.

Orkot Wins French Carrier Contract

One of the most prestigious and sophisticated marine construction projects in Western Europe, the building of the French Navy aircraft carrier the "Charles De Gaulle," will be completed in 1998. Powered by twin nuclear reactors and boasting a host of high-tech developments,

the vessel will be fitted with rudder bearing made by Orkot Limited of Rotherham. The contract for the Charles De Gaulle for Orkot is reportedly the results of years of close cooperation between the French Directorate for Shipbuilding (DCN) and the development staff of Orkot.

The vessel will feature twin rudders moving on 500-mm diameter shafts. The initial order is for a total of six bearings, two upper bearings and one lower bearing for each rudder.

For more information on the products and services of Orkot,

Circle 130 on Reader Service Card

MarAd Business: Permission To Sell Given, Contracts Awarded

The Maritime Administration (MarAd) has given Central Gulf Lines, Inc. of New Orleans permission to sell the 15,694-dwt cargo vessel Rover to Eckhardt Marine GmbH, a German corporation. The vessel was built in 1969 in Pascagoula, Miss., and will be scrapped in Indiana.

MarAd has also received an application from Ogleby Norton Co., of Cleveland, Ohio, for permission to sell the 14,600-dwt cargo vessel Robert C. Norton and the 14,600-dwt bulk carrier William A. Reiss. The proposed purchaser is Corostel Trading Ltd., of Quebec.

Finally, MarAd awarded a \$1.77 million contract to Stevens Technical Services of Brooklyn, N.Y., for test activation and deactivation of the Ready Reserve Force (RRF) vessel Cape Mendocino. The work will include general main engine equipment repairs to activate the vessel and necessary maintenance repairs for lay-up and deactivation. The work will be done at Brooklyn Navy Yard Drydocks in Brooklyn and is expected to be completed within 58 days.

Siemens Selected For Upgrading Of LNG Carriers

Siemens Energy and Automation,

Inc. Marine Systems, Atlanta, Ga., has been selected as the single source of supply by Argent Marine Operations, Inc. and Cabot LNG for the engineering, manufacturing and installation of the automation for the upgrading of the 125,000-cubic-meter LNG Carriers "Southern," "Arzew" and "Gamma" built at Newport News, Va.

The contract was won in strong competition with other vendors. For more information on Siemens Energy & Automation,

Circle 131 on Reader Service Card

Lang Offers Standard Stainless Steel Exteriors On Full Line

Lang Manufacturing of Redmond, Wash. has announced "standard stainless steel exteriors" on its entire line of marine galley ranges and convection ovens.

This move comes at a time when the shipping industry is stressing cost reduction.

"By standardizing our galley ranges and convection ovens to stainless steel we can increase our quality while reducing the cost of equipment to our customers," said Mark Jones, national sales manager, marine division.

Through ongoing innovation and attention to detail, Lang has been able to meet the needs of its diverse customers. For additional information on the entire Lang Manufacturing product line,

Circle 132 on Reader Service Card

Austal Ships Wins \$21 Million Ferry Contract, Debuts Computerized Stabilizer System

Austal Ships has won a \$21 million contract to build three 40-meter gas turbine-powered catamaran passenger ferries for owners in the People's Republic of China. The West Australian aluminum shipbuilder has now sold 17 high-speed catamarans to Asian operators since its first delivery to China in October, 1990.

The latest orders have been placed for the Shun Gang Passenger Transportation Corporation, the Panyu (Hong Kong) Passenger Cargo Transportation Jointly Owned Company Limited, and the Zhong Shan-Hong Kong Passenger Ship Co-op Co. Ltd.

The 354-passenger ferries are scheduled to be launched in December and delivered early in 1994. They will measure 131-feet with a 38-foot beam. "They will be the first turbine-powered ferries built by Austal and will be the fastest vessels we have completed, with a fully-laden speed of 39.5 knots," said Austal chairman John Rothwell.

The new vessels will be outfitted with TF40 turbines manufactured

MSC Awards \$9.9 Million Contract To Norfolk Yard

The U.S. Navy's Military Sealift Command Central Technical Activity has awarded a firm-fixed-price contract valued at nearly \$10 million to Norfolk Shipbuilding and Drydock Corporation of Norfolk, Va., for the drydocking, overhaul and interim modifications to the living spaces on the combat stores ship USS San Diego. The work will begin on August 12 and be completed by December 10, 1993.

As a USNS ship, San Diego will join MSC's Naval Fleet Auxiliary Force, a group of 43 ships operating in direct support of Navy combatant ships.

BMT Model Tests U.S. Strategic Sealift Ship

Model experiments on a design for a 24-knot, Ro/Ro strategic sealift ship for the U.S. Navy has been carried out by the British Maritime Technology Group (BMT) in its Teddington (U.K.) ship model towing tanks. The model testing was commissioned by Kvaerner Masa Marina Inc. of Vancouver in conjunction with a major U.S. Shipyard and was won by BMT Vessel Hydrodynamic consultancy team in competition with other towing tank facilities in Europe and North America.

The role of the vessel will be to carry heavy Ro/Ro equipment at high speeds and at short notice to destinations around the world

Circle 133 on Reader Service Card

For more on the Ocean Leveller,

Circle 134 on Reader Service Card

Maritime Reporter/Engineering News

PROPULSION UPDATE

GE Introduces Alternative Technology For Naval Ship Propulsion

GE Marine & Industrial Engines (M&IE) introduces the LM2500R gas turbine, touted as an alternative technology for naval ship propulsion.

The proposed LM2500R design is a recuperated version of GE's widely used LM2500 gas turbine, which recently has been updated to 29,500 bhp for U.S. Navy combatant ships and to 32,000 bhp for the U.S. Navy Sealift program.

Some benefits of the new design include:

- significant improvement in the part power efficiency of the LM2500: more than 30 percent at lower power levels;
- minimal changes to the current engine design to make retrofit to LM2500-powered ships practical and installation in new surface combatants as simple as possible;
- elimination of cost and time required to develop a new aeroderivative engine system aimed at comparable fuel savings: the LM2500R development is one-tenth the cost of the alternative technology currently being pursued and can be implemented in one-half to one-third of the time.

Some features of the new LM2500R include:

- retention of the present 16-stage compressor, all high pressure and power turbine discs, most of the support structure, and all support bearings and shafting to provide a high degree of commonality with the current LM2500 engine;

- a thermodynamically and aerodynamically direct replacement to the present combustor with the shorter, current production CF6-80C2/LM6000 combustor design;
- the redesign of the high pressure turbine blades and vanes

to open the nozzle area by 10 percent;

- installation of variable area turbine nozzles in the power turbine to maintain high cycle temperature at partial power;
- modification to the compressor rear frame and combustor casing to provide air to and from the recuperator.

Upgrade of an LM2500 gas turbine to the LM2500R configuration can be done in lieu of an overhaul at little additional cost. Upgrading one LM2500 gas turbine module per shaft on CG-47 and DDG-51 class ships to the LM2500-recuperated configuration would provide significant fuel savings, together with the operational benefits of increased range.

GE estimates that within three years, it could complete development of the LM2500R and begin retrofitting the Navy's fleet with LM2500Rs.

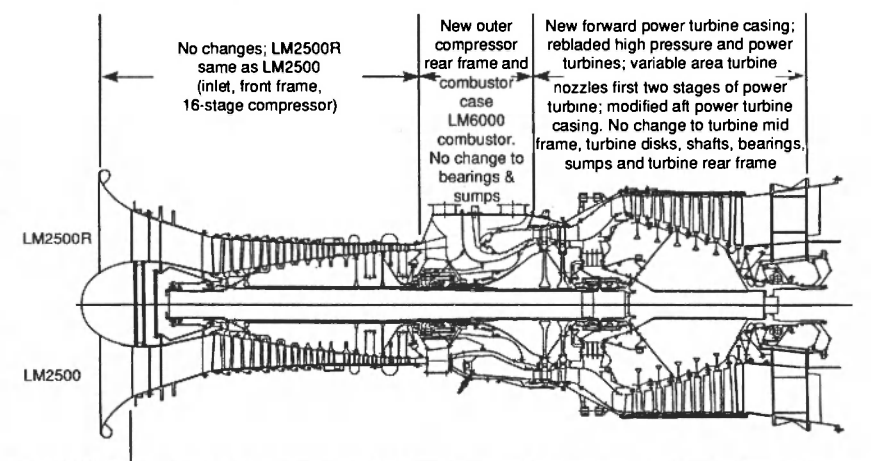
The LM2500 marine propulsion gas turbine currently powers the U.S. Navy's entire fleet of surface combatants, which consist of more than 140 frigates and destroyers. The Navy has nearly 500 LM2500s for its existing and planned ships.

GE Marine & Industrial Engines is headquartered in Evendale, Ohio.

For more information on GE Marine & Industrial Engines, and the company's entire range of propulsion solutions,

Circle 95 on Reader Service Card

LM2500 Fuel Conservation Program LM2500R - Recuperated LM2500



Lo-Rez Vibration-Control Systems On New Shaver Tug "Vancouver"

The exceptionally-low level of engine-produced vibration and noise in the new Shaver Transportation state-of-the-art 3,000-hp 76-foot tugboat Vancouver is largely attributable to the Lo-Rez Vibration-Control Systems.

This tug is an evolutionary step upwards from the well-known Robt. Allan/Cates tug design concept. Mike Boschero, vice president of engineering at Shaver, stated, "This is the smoothest and quietest work boat I've ever been on." Mr. Boschero went on to say, "We will certainly put another Lo-Rez system in any new tugs we order."

The Lo-Rez system consists of 12 BR4-L5 steel-spring vibration isolators astride the Detroit 16V149TI DDEC 1,500 hp propulsion engines, two steel-spring F/HF torsionally-soft power transmission flexible couplings (with double-row pilot bearings) and two High Lateral Flexibility (HLF) double laminated-disc coupling assemblies between the engines and the hard-mounted Niigata ZP-2A Z-feller units. The overall mechanical isolation efficiency of the Lo-Rez system ap-

proaches 97 percent at full power and speed. Noise-level in the wheel house and deck house is 67dBA at 1,700 rated rpm. For more on Lo-Rez Vibration-Control Systems,

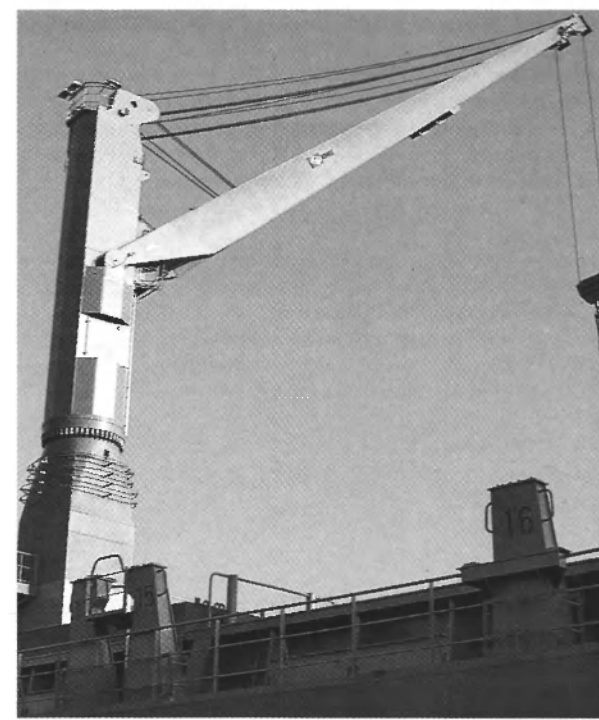
Circle 58 on Reader Service Card

MarAd Challenged On Contract

The General Accounting Office claims the Maritime Administration made an error in not awarding cargo vessel repair contracts to New York shipyard Stevens Technical Services. New York congressional and Senate representatives supported the challenge to MarAd's awards to large shipyards in Norfolk, Va. MarAd claims that Stevens does not meet its new standard, which includes the ability to overhaul and dry-dock naval warships. The GAO has told MarAd that the Small Business Administration (SBA) should be asked to determine Stevens' capability to perform the contracts. Should the SBA decide that Stevens meets the criteria, MarAd must terminate the contract awarded to Norfolk Shipbuilding for repairs on one vessel and must give the contract to Stevens.

July, 1993

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Circle 236 on Reader Service Card

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Kvaerner Mandal Yard Launches First Of New Generation Of Naval Vessels



The first naval vessel of a new generation, the Oksoy Class, has been launched.

The first of a series of nine new Mine Counter-Measure Vessels (MCMV) for the Royal Norwegian Navy (RNoN) was launched by the Kvaerner Mandal yard in Norway.

Built to specifications demanding very high standards of safety and operational efficiency, the design is known as an Air Cushion Catamaran (ACC) or Surface Effect Ship (SES).

The vessel recently launched is the first of four Mine Hunters of the "Oksoy Class." The next five vessels will all be Mine Sweepers - of the "Alta Class." The vessels measure 180 feet with a 44-foot beam. The entire building process takes place indoors. The production environment largely resembles the conditions of an aircraft factory. These facilities make the Kvaerner Mandal a.s one of the most modern yards in the world.

The vessels are equipped with several computer-assisted systems for maneuvering, navigation, dynamic positioning and other operational tasks. And the SES, with its bridge structure spanning the two identical twin-hulls, in itself facilitates having all systems duplicated for maximum redundancy (twin-system configuration).

For more information on Kvaerner Mandal yards,

Circle 110 on Reader Service Card

Newbuilding Of An Integrated Pusher Barge Completed



The Pan-United pusher tug.

Pan-United Shipyard Pte. Ltd. has delivered a 8,000-dwt cement barge and a 102-foot Pusher Tug. The barges are named "Burau I" and "Burau II." Burau I and Burau II, owned by Juta Integrasi, will be carrying cement and plying between Langkawi and Port Klang. Burau I is 282 feet long, with a beam of 77 feet and draught of 18 feet.

Burau II is 102 feet long, with a beam of 33 feet and a draught of 12 feet. The tug is propelled by 2 Yanmar main engines. Electrical power will be generated by two Yanmar diesel generators. When fully loaded, the pusher barge

will be able to travel at a speed in excess of eight knots.

For more information on Pan-United Shipyard,

Circle 109 on Reader Service Card

Ingalls Shipbuilding Delivers Cruiser To U.S. Navy

The 17th Aegis guided missile cruiser to be built for the U.S. Navy by Ingalls Shipbuilding division of Litton in Pascagoula, Miss., joined the U.S. Atlantic Fleet in June, 1993. USS Cape St. George (CG 71) was commissioned at the Norfolk Naval Station in Norfolk, Va. Captain Donald Hendrix Nash, USN, accepted command of the new ship, with Lieutenant Commander Michael K. Mahon, USN, as executive officer. Ingalls began fabrication work for CG 71 in November, 1989. The ship's keel was laid in November, 1990, and she was launched on January 10, 1992. Upon completion of post-launch outfitting, as well as dockside and at-sea testing, CG 71 was delivered to the Navy by Ingalls in April, 1993.

For more information on Ingalls,

Circle 107 on Reader Service Card

Ulstein Launches Major New Reefer Design



An artist's rendition of Ulstein International's new reefer design.

Ulstein International is targeting the reefer ship sector with a range of new ship designs to satisfy market requirements and has introduced several innovative features. In addition to adopting freon-free refrigerant plant, the designs have been optimized for controlled atmosphere operations.

Kjetil Leine, project manager at Ulstein International, said the reefer concepts embrace two standard ship sizes of 535,000-sq.-feet and 450,000-sq.-feet, each arranged for very high pallet-handling rates. Common parameters include design draughts of 24 feet. The larger design has a wider beam of 80 feet, versus 71 feet, and length is increased from 458 feet to 521 feet to achieve the larger cargo volume.

Ulstein International is also participating in the Reefers for the Future project initiated by classification society Det Norske Veritas. The project's aim is to improve the state-of-the-art knowledge of reefer technology and investigate if improvements can be made to refrigeration, ship design and performance, and cargo handling. It is recognized that 30 percent of the reefer fleet is more than 20 years old and a wave of newbuildings is expected in 1994 and 1995. Co-partners include DNV, Dole Fresh Fruit, Cool Carriers, Hagglands MTT, MacGregor Navire, Ticon Insulation and ABB Stal Marine. For more information on Ulstein International,

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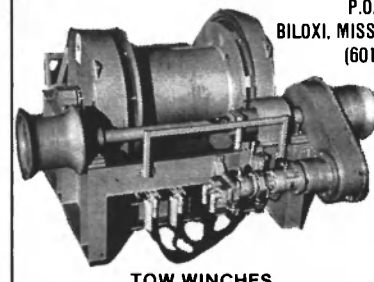
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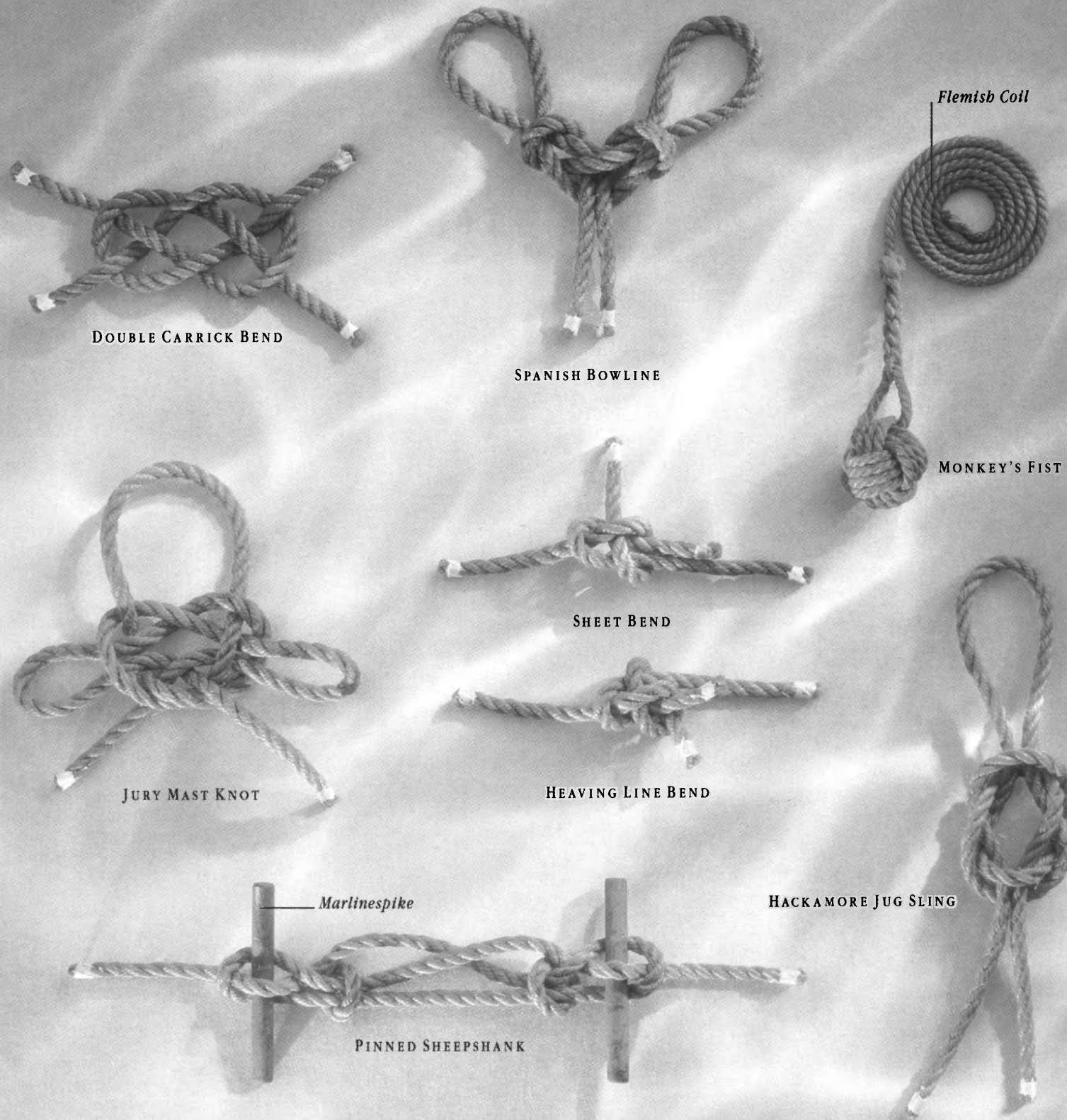
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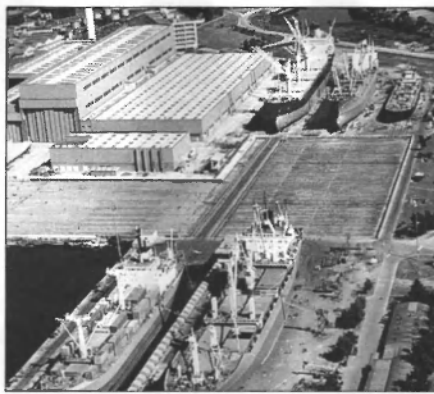
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**Wesley D. Wheeler Now
Exclusive Agent For
Tandanor**

Tandanor Shipyard recently named New York-based Wesley D. Wheeler as its exclusive agent for the U.S. Privatized in 1992 and located on the outskirts of Buenos Aires, Argentina, the yard's facilities consist of 181,840-sq.-meters (about 46 acres) with 4,600 feet of



The Tandanor Shipyard, Argentina.

available quay.

Tandanor has one of the world's largest Synchrolifts able to accommodate Panamax vessels. Gantry and floating cranes from seven to 73 tons are available, as well as mobile cranes. Facilities include water and electric power service, crew services and offices for owners. A tank cleaning and inerting facility is included.

Contact Wesley D. Wheeler at 60 Sutton Place South, New York, N.Y. 10022-4168; tel: (212) 371-9590; fax:

(212) 371-9661. For more information on Tandanor's capabilities from Wesley D. Wheeler,

Circle 18 on Reader Service Card

**Salco Offers Large Vessel
Security System**

Salco Industries has announced the availability of its Security Control Panel for applications in large vessels. Developed for the U.S. Coast Guard, the M-800 system incorporates the latest advancements in microcomputer technologies to function in hostile marine environments and is housed in a weatherproof enclosure. It is capable of monitoring eight hard-wired protective sensors.

For more information on marine security systems from Salco,

Circle 41 on Reader Service Card

**Magnavox Introduces Satellite
Communication Data
Option**

Magnavox has introduced a new high-speed data option which can support simplex or duplex high-speed data transmission between ship and shore at speeds up to 64,000 bits per second through the MX2400 Plus Inmarsat-A ship terminal.

The MX 2400 Plus is a commercial marine satellite communication system which is widely used on U.S. Navy ships. The high-speed data channel can be used to send compressed video as well as data files, or to multiplex up to eight normal telephone circuits on a single satellite channel. In addition to high-speed data, the MX 2400 Plus also supports high-quality voice, fax, telex and slower-speed data communications.

For more information from Magnavox,

Circle 42 on Reader Service Card

**Ocean Marine Adds Two
New Sales Agents**

Ocean Marine Brokerage Services, Inc. of Titusville, Fla., announced the arrival of Captain **Ken Abbott** and **Ed Rosman** as the two newest sales agents on the staff. Both will work out of the Port Canaveral, Fla. office. Captain **Abbott** brings many years of experience in a wide variety of commercial vessels and has served in the past as a delivery captain for Ocean Marine. **Mr. Rosman** specializes in electronics and small commercial fishing vessels.

For more information on Ocean Marine,

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Kvaerner Ships Equipment Secures Marine Equipment Orders

Kvaerner Ships Equipment AB of Gothenburg, Sweden, the Ro/Ro specialist within the worldwide Kvaerner Eureka marine equipment family, has secured orders for the design of the cargo access equipment for the recently contracted Leif Hoegh and Wallenius car carriers in Korea.

These contracts follow closely on the heels of another, to the first of two 33,400-grt Grimaldi car carriers contracted from Germany's Flender Werft.

Kvaerner Ships Equipment AB will be responsible for the design of the comprehensive ship sets of Ro/Ro access equipment for Leif Hoegh's two 6,000-PCTCs (Pure Car/Truck Carriers) ordered from Hyundai Heavy Industries and Wallenius Line's two 6,000 PCTCs on order at Daewoo Shipbuilding & Heavy Industries.

As no two vessels are the same, and by utilizing CAD, Kvaerner can pass on benefits and savings to both the shipowner and builder, from the initial design through any alterations.

Delivery of the Leif Hoegh vessels and the Wallenius ships is set for the end of 1994 and beginning of 1995.

For more information on the products and services of Kvaerner Ships Equipment,

Circle 45 on Reader Service Card

Hagglunds Reports Strong Beginning in 1993

Hagglunds Marine, a leading international manufacturer of cargo, service and offshore cranes, has announced record orders during the first five months of 1993.

The first quarter the Ornskoldsvik, Sweden-based manufacturer obtained orders for 88 crane units for 24 vessels being built predominantly by German shipowners at yards in Poland, Germany, Denmark and Korea. One of the latest orders, at Gdansk Shipyard for Latvian Reefer shipping, is to supply six 10,000-dwt vessels with set of three cylinder-luffing LC cranes.

Hagglunds Marine has also been awarded a major contract for cargo-loading cranes from the U.S. Navy. The cranes are to be fitted on board vessels in the Strategic Sealift Program. The first stage covers an order for four cranes, with options for a total of 80. The contract was received in cooperation with MacGregor-Navire and Hyster.

For more information on the products and services of Hagglunds Marine,

Circle 46 on Reader Service Card

ESA Successfully Tests World's Most Powerful Engine

Official testing of the world's most powerful engine was carried out at the Manises factory of Astilleros Espanoles. The engine, a 70,320-bhp AN-Burmeister 12K90MC-S, will be installed at the diesel-generating plant of Mindanao Island, Philippines, on a floating barge with another identical one to be built also by Astilleros Espanoles. The company got the order as a member of a consortium including BWSC of Denmark and Mitsui of Japan. Astilleros Espanoles will supply two of the four engines, together with their corresponding alternators and some electrical equipment. The project is valued at \$54 million. The two-stroke, constant pressure turbocharged with intercooler engine generates 240 kW at 102.9 rpm, and is 78 feet long and 12 feet tall.

For more information from Astilleros Espanoles,

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July, 1993

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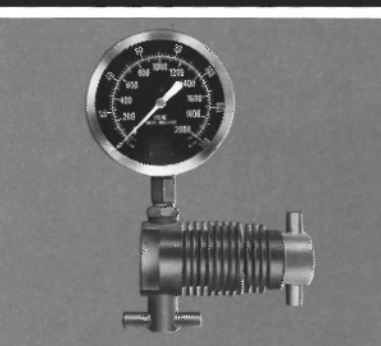

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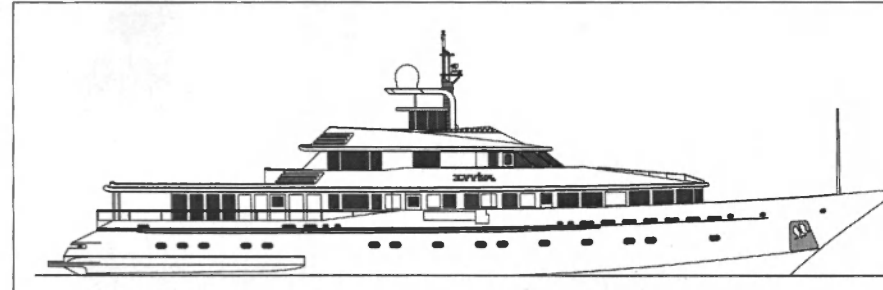
BOATS AND BARGES

Admiral Marine Works Launches 161-Foot Motoryacht M/Y Evviva

In early July Admiral Marine Works Inc. launched the 161-foot M/Y Evviva, reportedly the largest fiberglass reinforced plastic (FRP)

motoryacht ever built in North America, and one of the largest privately-owned FRP motoryachts in the world.

The Evviva is a product of advanced composite engineering and technology, reports the yard, and there is no structural wood used in the ship. All interior furnishings, for



example, are Nomex honeycomb aircraft panels.

Powered by MTU 16V 396 TB9 engines, through ZF transmission driving Lips propellers, the Evviva can attain a high speed of 25 knot and maintain a 20-knot cruising speed. Propulsion is aided with a American bow thruster.

The yacht's full complement of navigation and communication equipment consists of: North-Star GPS; Furuno depthfinder, sonar and weather fax; C-Plath gyrocompass; Com-Nav autopilot; JRC sat-con Sailor and Robertson Shipmate VH radios; Toshiba and Motorola phones; and Alden EPIRB.

The Evviva has a 30-foot beam and an approximate eight-foot draft with a 550,000-pound displacement when fully loaded. The vessel can carry more than 19,000 gallons of fuel, more than 1,200 gallons of water, with the capacity to generate 4,000 gallons of water per day.

Admiral Marine Works specializes in building high-quality custom composite yachts to 200-feet (6 meters). The company integrates traditional shipbuilding techniques with advanced technology to produce world-class vessels. For more information on the building capabilities of Admiral Marine,

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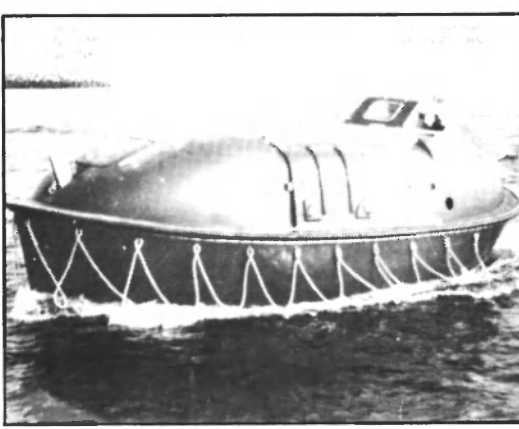
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Liaison: Liu Sang



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Circle 268 on Reader Service Card

Credit Available For New Ships At Brazil's Yards

Brazil's depressed shipyards will make credits totaling \$212 million available for export ships built at the shipyards.

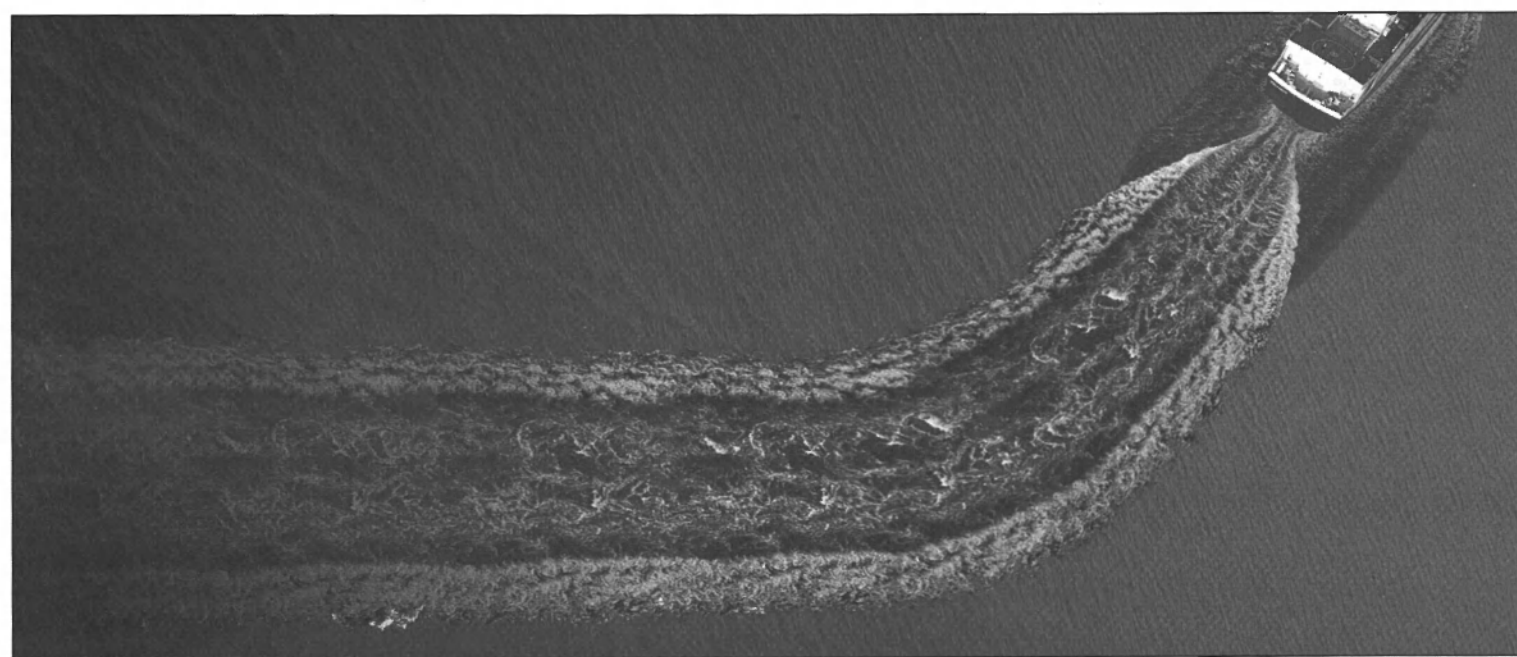
The availability of the credit has been designed to reactivate Brazil's badly depressed shipbuilding industry and tap the international market. The funds will be offered to foreign and domestic borrowers building ships, offshore oil field equipment and river and lake navigation equipment.

Helio Paulo Ferraz, president of Sinaval, the national shipbuilding association, said the accord would allow the construction of new ships during the next three years. Approximately \$172 million of the accord will be made available immediately for building and porting new ships. Another \$40 million will be used to resume interrupted construction of 10 vessels that was halted by a lack of funds in the country's national shipbuilding fund.

This number includes five tankers being built for the federal monopoly Petrobras.

Maritime Reporter/Engineering N

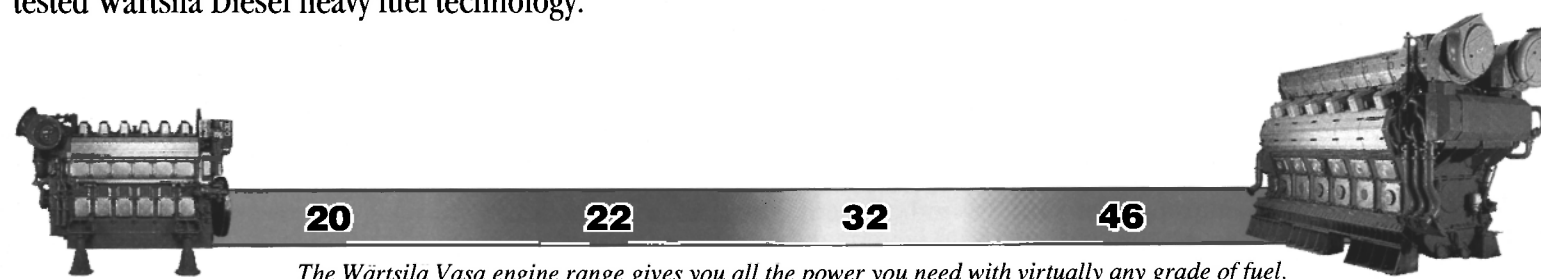
Technology that changed the course of the marine business for the better



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The Future Of American Shipbuilding

Commercial Conversion: Today's Key To Keeping Naval Building Capability For Tomorrow

by John Stocker, Shipbuilders Council of America

The problem for American shipyards is almost entirely driven by the decisions made by the U.S. Government over the past 12 years. American yards became dependent on the Government market when the **Reagan** Administration ended the commercial shipbuilding subsidy program in 1981. Prior to that time, the industry had delivered, on average, about 20 commercial ships per year (1955-1985). The workload offered an alternative to the U.S. Navy as a customer. This was particularly important when the Navy workload declined, as it did, following the Vietnam War. In 1974, for example, only three Naval ships were delivered. By contrast, in 1973/1974, there were nearly 100 commercial ships on order and, in fact, commercial shipbuilding accounted for about two-thirds of the total shipbuilding workload from 1973-1978. By 1978, the Naval market had also begun to pick up and at the end of the 1970s, American shipyards employed 187,000 people in shipyards on all three coasts and the Great Lakes.

However, 1981 was the watershed year. Driven by a desire to

remove the Government from private markets, the **Reagan** Administration terminated funding for the construction differential subsidy program and, with that termination, the commercial shipbuilding market collapsed in the U.S.

This policy decision meant that U.S. yards became a one-customer industry. The structure of the market shifted to meet the requirements of the military. This meant that the 1980s saw the industry shed 40,000 production jobs and, for all practical purposes, the collapse of the commercial sector.

As economic theorists will claim, there are two extraordinarily unstable market conditions; when there is a single supplier (monopoly) or when there is a single buyer (monopsony). In a monopoly, the single producer can distort prices, manipulate supply, and thereby make the consumer's decision-making risky and costly. In a monopsony, the buyer is in control of the market. The suppliers are left to make uneconomic decisions regarding production pricing that can lead to bankruptcy and financial failure. In economic theory, the natural result of a

monopsony market is that the buyer, through his or her decision-making, will inadvertently drive all producers, but one, out of the market. Thus, the theoretical end result is that the monopsony market becomes a monopoly market.

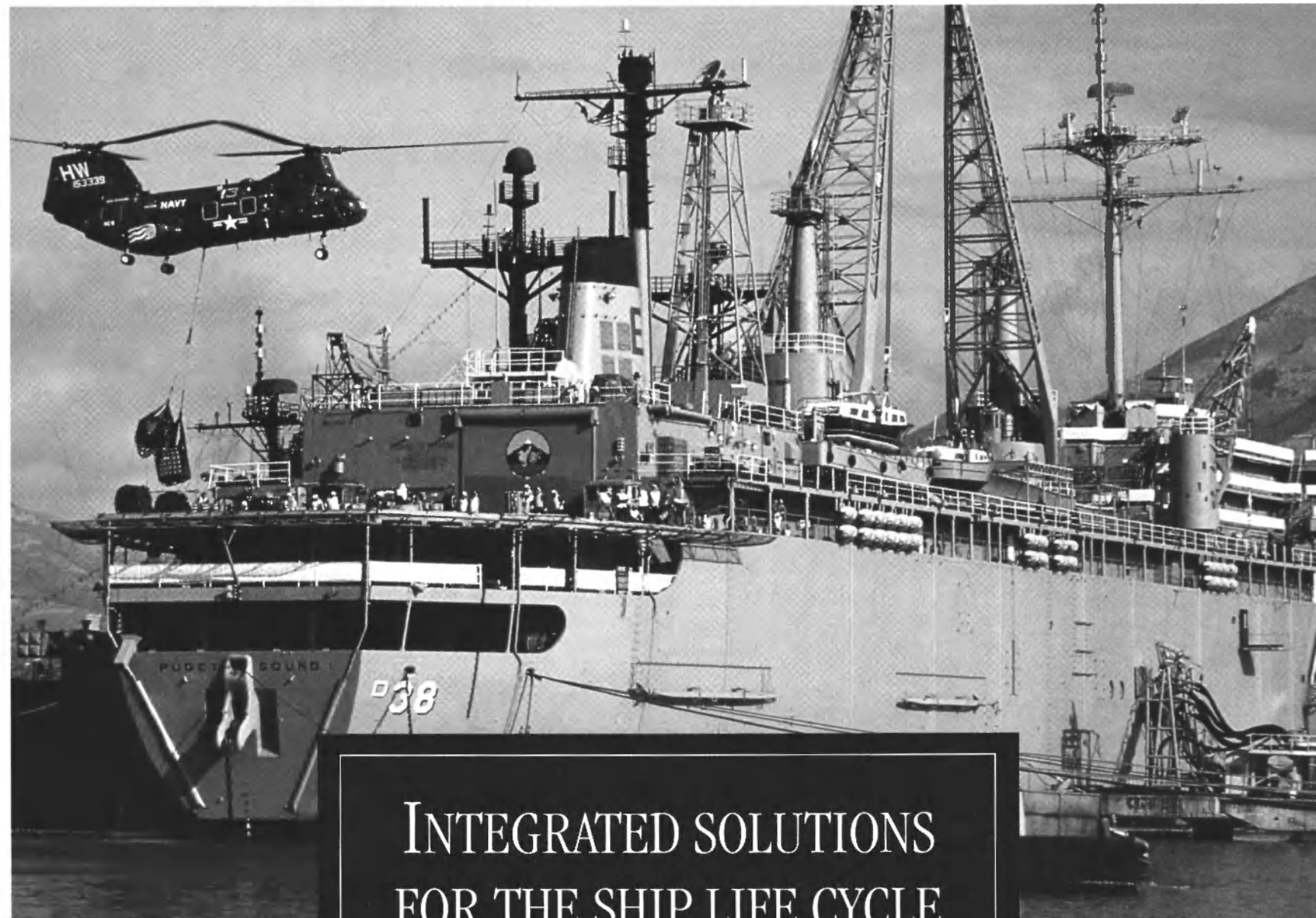
Thus, the 1981 decision that caused the commercial market collapse made the industry more dependent on Government, rather than less dependent. The downsizing that will come with the decline in defense spending will mean that two-thirds of the shipbuilding capability will disappear. The marine equipment supplier base will be even more adversely affected. The Shipbuilders Council of America estimates that the total impact on our industries will mean the loss of 72,000 shipyard production jobs, 60,000 supplier jobs, and an additional 48,000 jobs in second-tier and supporting industries. The total near-term impact, by 1998, will mean more than 180,000 Americans added to the unemployment rolls. Since 1981, the combined industry job loss will total over 300,000 by 1998.

Shipbuilding is a fabrication process that requires inputs of raw

materials and components from other industries. Thus, economic activity in shipbuilding means that industries that manufacture turbines, propulsion control systems, navigation systems, telecommunications, and so on will benefit from the activity in shipbuilding. Not surprisingly, our competitors in Japan, Korea, and Europe understand this basic economic principal.

But past Administrations have failed to understand this fact. They deluded themselves into thinking that shipbuilding was a free market, unaffected by government actions. But in their own domestic market, through the military shipbuilding program, they should have understood that market distortions were plentiful. If we couldn't make our domestic market distortion-free, how could we expect the international market to be free from distortions? The Council began the re-education process in 1989, when it filed a trade petition with the **Bush** Administration to show that market distortions were real. The Japanese, Korean, and European Governments made it a standard practice to support their shipbuilding

Maritime Reporter/Engineering News



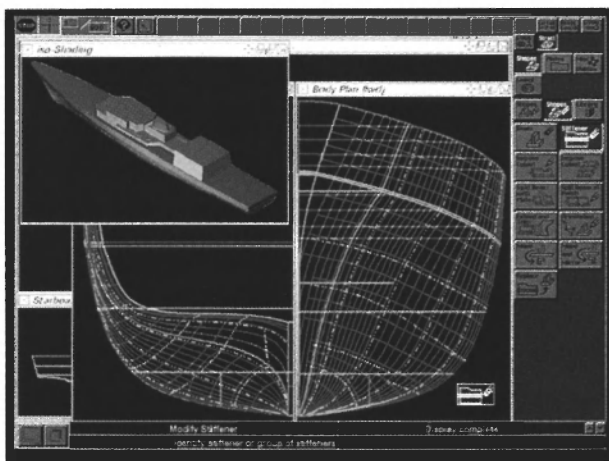
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CONTRACT AWARDS OF 1,000 LIGHT DISPLACEMENT TONS+ PLACED WITH U.S. PRIVATE SHIPYARDS, 1992 (\$ in Millions)

Shipyards	Navy No.	Vessel Type	Delivery	Light Tons	Approx. Price
Bath Iron Works	DDG-68	Guided Missile Destroyer	9/96	8,300	\$250
Bath Iron Works	DDG-70	Guided Missile Destroyer	3/97	8,300	\$250
Bath Iron Works	DDG-72	Guided Missile Destroyer	9/97	8,300	\$250
Ingalls Shipbuilding	DDG-69	Guided Missile Destroyer	5/97	8,300	\$285.8
Ingalls Shipbuilding	DDG-71	Guided Missile Destroyer	1/97	8,300	\$285.8
Intermarine	MHC-58	Coastal Minehunter Ship	9/95	895	\$62.3
Intermarine	MHC-59	Coastal Minehunter Ship	11/95	895	\$62.3
Intermarine	MHC-60	Coastal Minehunter Ship	1/96	895	\$62.3
Trinity Industries	T-AGS-62	Surveying Ship 1	1/95	3,019	\$42.9
Ingalls Shipbuilding	LHD-6	Amphibious Assault Ship	12/97	28,500	\$760.9
Total	10 ships			75,704	\$2,312.3

Source: Shipbuilders Council of America

industries through their massive subsidy programs.

The **Bush** Administration understood our point. They attacked the problem by launching negotiations to get our trading partners to terminate their practices. Unfortunately, those negotiations failed, although the draft trade agreement, which had been accepted by the U.S. industry as important, meaningful, and effective, was a powerful docu-

ment. Now the survival of the industry hinges on the ability of the Congress to pass legislation to punish those countries that place American yards at a disadvantage.

Why do we care about foreign subsidies? Because the U.S. industry is largely unsubsidized. And the international market is where our future is. The market for new ships will grow dramatically in the 1990s. Coupled with the capacity reduc-

tions that were achieved in the 1980s, there will be a tight squeeze between demand and the availability of capacity to meet that demand. Therefore, prices will increase. This is a perfect market for a new market entry to make an effort to access that market. Therefore, the whole strategy of the **Clinton** Administration should be to focus on achieving market access for U.S. shipbuilders. The projected military workload will be insufficient to support the industry. We need to build 30 to 50 commercial ships per year to utilize present physical capacity. Eventually, to achieve financial health, U.S. shipbuilders must have 10 percent market share. The Administration is looking at shipbuilding. They understand that shipbuilding jobs are good-paying, skilled industrial jobs. They understand the multiplier effects of the shipbuilding economic activity. The problem they face is that the Treasury has been depleted to such an extent that seeking funds in more than a limited way will be difficult.

Thus, governmental policy will be needed to help the industry out of the mess that previous Administrations have created. First, the campaign on foreign subsidies must be-

come tougher and more disciplined. Re-start the negotiations, but support passage of legislation that will retaliate against those countries that continue to subsidize their industries. Second, support efforts to bring new technologies to the shipbuilding production process. This includes working with the Advanced Research Projects Agency to refine and sharpen the focus of the National Shipbuilding Initiative, an expanded research and development effort. Third, improve the availability of funding within the Title XI program (the ship mortgage guarantee fund) and make it available for export customers. Fourth, until the foreign subsidy programs are terminated provide a short-term war chest that will target competition in those countries that continue to refuse to end their subsidy practices. The short-term transition fund should be focused on achieving the benefits of series production. The approach defined above will mean that a shipbuilding and repair capability can survive the transition process. Not only does the country need a shipbuilding capability from an economic perspective, it also needs to maintain a capability that will be available to renew the Naval fleet when the Navy re-enters the market in the year 2006-2010 time frame. Even with a fleet of 300 ships, new ships will have to be built to replace those that age. But with the cuts in force structure that are taking place and recognizing that we have built 353 naval vessels since 1972, we have a pretty young fleet now, but it will be older in the 2010 time frame. How will we replace that fleet if our capability to build is gone? The transition from defense to commercial markets can be achieved. The shipbuilding industry needs to diversify in order to reduce its dependence on government, and the government needs a shipbuilding industry because of its economic character and its defense utility. The 1990s can be a prescription for renaissance.

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Symbol	Type	No. of Vessels
AOE	Fast Combat Support Ship	3
CG	Guided Missile Cruiser	4
CVN	Aircraft Carrier (Nuclear)	2
DDG	Guided Missile Destroyer	20
LHD	Amphibious Assault Ship	4
LSD	Dock Landing Ship	3
MCM	Mine Countermeasures Ship	4
MHC	Coastal Minehunter Ship	10
SSBN	Ballistic Missile Submarine	5
SSN-688	Attack Submarine (Nuclear)	11
SSN-21	Attack Submarine (Nuclear)	2
T-AGOS-19	Ocean Surveillance Ship (SWATH)	2
T-AGOS-23	Ocean Surveillance Ship (SWATH)	1
T-AGS-45	Deep Ocean Survey Ship	1
T-AGS-60	Oceanographic Survey Ship	3
T-AO	Fleet Oiler	7

Total **82**

**Note: There are currently no conversions or modernizations underway

Source: Shipbuilders Council of America

PROPULSION UPDATE

Stork-Wartsila Debuts Its New SW 38 Engine In Zwolle, The Netherlands

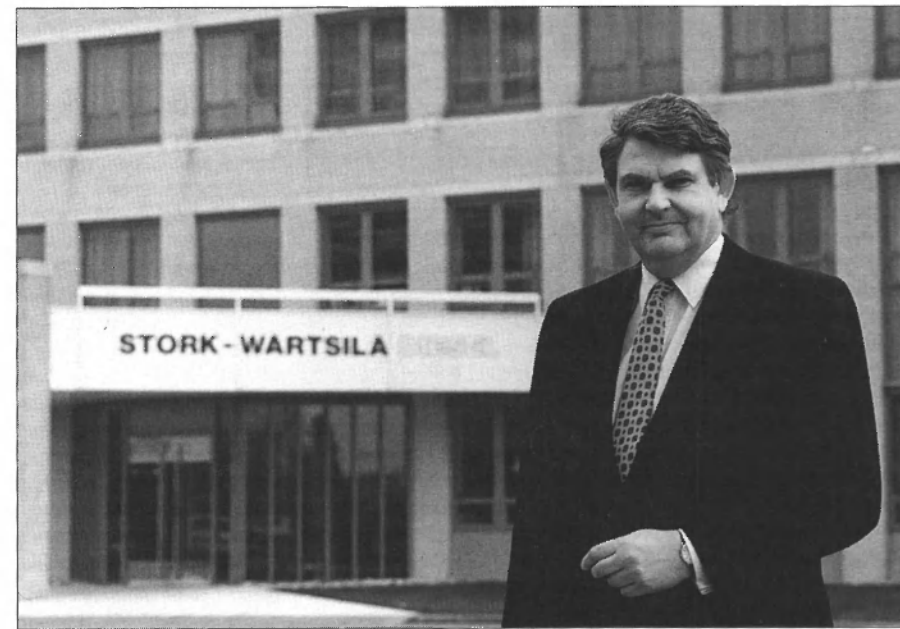
By Greg Trauthwein, managing editor

The new SW 38 of Stork-Wartsila Diesel B.V. is the first engine developed with the combined resources of the Wartsila Diesel Group. Dubbed the environmentally conscious engine by its makers, the SW 38 was recently introduced at Stork-Wartsila's plant in Zwolle, The Netherlands.

"The SW 38 was the full developmental responsibility of Stork-Wartsila, with the full support of the Wartsila Diesel Group," said **Max J. Wieringa**, president and CEO of Stork-Wartsila Diesel.

The SW 38, which has a power range of 3,960 to 11,880 kW and an output per cylinder of 660 kW at 600 rpm, is available in six-, eight- and nine-cylinder in-line configurations and 12-, 16- and 18-cylinder Vee-configuration models.

The new model was conceived to replace an aging model. "The SW 38 will replace the well-known 410 engine, and fits fairly well between the Vasa 32 and Vasa 46 engines," said **Henk Th. Metz**, director of diesel technology, Stork-Wartsila. The SW 38 was designed with low emissions and fuel consumption, reliability and low maintenance costs, and overall cost effectiveness in mind. The new diesel engine is reportedly the shortest, smallest and (in terms of weight) the lightest engine in its range (see chart on page 58 for specifics).



Mr. Max Wieringa, president and CEO of Stork-Wartsila Diesel, along with colleagues from Wartsila Diesel Intl., recently introduced its new diesel engine, the SW 38.

SW 38 Technical Data

Cylinder bore	380 mm
Piston stroke	475 mm
Speed	600 rpm
Piston speed	9.5 m/s
Piston displacement	54 l/cyl.
Mean effective pressure	24.5 bar
Firing pressure, max.	180 bar
Cylinder output	66 kW
Output range	3,960 to 11,880 kW

"Existing 400mm engine designs are getting old, and we know there is a big market for this engine on the marine side," said **Daniel Paro**, director of research and development, Wartsila Diesel International S.A.R.L.

To reduce maintenance costs and time, the SW 38 was designed and built with 40 percent less parts than the 410, according to Mr. Wieringa. And because of the engine's reported operational reliability, the servicing intervals are predictable and logis-

tically plannable.

While the SW 38 was designed and developed by Stork-Wartsila in Holland, it was supported by the total Wartsila Diesel Group Research and Development network. This means proven technology were incorporated into the engine.

For example, the anti-polishing ring in the cylinder liner for removing carbon from the piston top, a solution tested in other Wartsila

(Continued on page 58)

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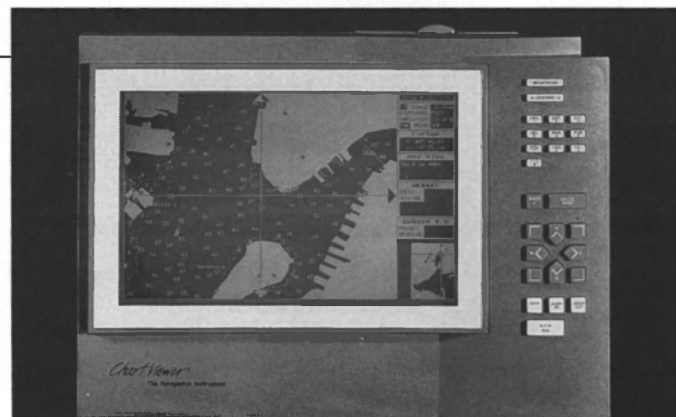


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58

(Continued from page 57)

Diesel Group engines with positive results, bring benefits such as no liner polishing, reduced liner wear, low oil consumption, and, overall, clean piston operation.

The installation of the SW 38 is facilitated by the fact that the engine features compact dimensions (see chart below for specifics). The SW 38 is designed for engine-driven pumps and engine-mounted coolers and filters, because this is an energy-saving way of providing auxiliary functions to the engine.

Finally, the SW 38 incorporates the latest technology to maximize fuel consumption and minimize emissions. While this is often seen as a contradiction in terms, the SW 38 incorporates a new combustion philosophy which reportedly makes it possible to reduce NO_x emissions 50 percent without affecting fuel consumption. Properties which help make this possible include stroke/bore ratio of greater than 1.25, a maximum cylinder pressure of 210 bar, and a maximum injection pressure of 1,500 bar. The engine designed and will be developed for heavy fuel operation.

For more information on the SW 38,

Circle 40 on Reader Service Card

SW 38 Dimensions

Engine type	Length	Height	Width	Weight (tons)
6 SW 38	5980	3980	2080	49.0
8 SW 38	7455	4330	2400	66.0
9 SW 38	8055	4330	2400	74.0
12 SW 38	7030	4170	3700	82.0
16 SW 38	8430	4450	4635	107.0
18 SW 38	9130	4450	4635	120.0

SW 38 Power Ratings

Engine type	Output in kW and HP at 600 rpm	
	kW	HP
6 SW 38	3960	5385
8 SW 38	5280	7180
9 SW 38	5940	8080
12 SW 38	7920	10770
16 SW 38	10560	14360
18 SW 38	11880	16155

Finnyards Tapped To Build Offshore Patrol Vessel For Frontier Guard

The Rauma-based shipbuilders, Finnyards Ltd., and the Frontier Guard of Finland have signed an agreement for the construction of an offshore vessel. The new ship is to be used in all weather conditions in the Baltic Sea, and will be suitable for rescue and cleanup tasks. For more information on the capabilities of Finnyards,

Circle 108 on Reader Service Card

Maritime Reporter/Engineering News

Turnbull Inc. Supplies Seats For Klondike Express During Repower At Nichols

Turnbull Inc. recently supplied all seating installed aboard the "Klondike Express," formerly the Clipper II, of Phillips Cruises and tours, Anchorage, Alaska. While the 268-passenger vessel was being repowered at the Nichols Yard, Turnbull Inc. seating was installed, and it consisted of the TI 400 series clamshell bench seat, the TI 600 series seat with retractable seat cushions, the TI 500 series customized tables and a TEI 800 series helm chair. Turnbull Inc. was developed as a complete source for innovative transit seating, and all of its products exceed USCG and MarAd requirements for fire load. For more information on Turnbull,

Circle 119 on Reader Service Card

Henemann, Saez Chosen As New Leaders Of AWES

Frederich Henemann of Bremer Vulkan and Juan Saez of Astilleros Espanoles are the new chairman and vice chairman respectively of the Association of Western European Shipbuilders (AWES). They were appointed by the annual assembly of AWES held in Viana do Castelo (Portugal).

IDB Sets Record Growth In Cruise Ship Service

IDB Mobile continues to set record growth in services to cruise ships using both voice and telexmarsat service. Currently, more than 50 ships are using IDB Mobile.

CruisePhone, IDB's sales agent for the cruise industry, headquartered in Pompano Beach, Fla., is unique in providing both satellite and cellular passenger service to cruise ships, service that creates an untapped, on-board revenue source for the ships. With the CruisePhone system, passengers are able to call right from the privacy of a cabin, and the cruise line earns revenue.

According to John Kimbrough, resident of CruisePhone, "We continue to set record-month after record-month ... In 1993, an estimated \$40 million worth of phone bills will be made from cruise ships and most of the cruiseliners are realizing this potential and are trying to secure the extra business. This increase for IDB Mobile is due largely to the cruise line's ability to earn higher profits for passenger calls made via IDB Mobile." Ships of Royal Caribbean Cruise Lines, Costa Cruises, Princess Cruises, Paquet French Cruises, as well as others are using IDB Mobile on a regular basis. For more information on IDB Mobile,

Circle 91 on Reader Service Card

Atlantic City Casinos Band Together, Seek To Dock In Philadelphia

Several representatives of Atlantic City casinos have taken options to purchase Philadelphia piers at which to dock floating casinos, according to state Senator Vincent J. Fumo.

Sen. Fumo's remarks have been

confirmed by a senior aide to Mayor Ed Rendell, claiming that they "know that some casinos are taking out options on piers using straw men" to keep corporate identities private.

Riverboats, as opposed to casinos, are attractive to the casino industry because they cost a tiny fraction of the investment to build.

Riverboat casinos would reportedly bring in such a tremendous

revenue that the economics of waterfront real estate in Philadelphia would be significantly altered.

The city has apparently tried unsuccessfully for some 20 years to create the kind of tourist developments that draw people to Baltimore, Boston and San Francisco.

Riverboat gambling will reportedly generate \$25 million annually in taxes for the city.

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The Sun Viking

Cruise Market Outlook

Recent Orders, Future Prospects Bode Well For Cruise Ship Builders, Repairers and Suppliers

By Greg Trauthwein, managing editor

While the fervor over the recent spree of newbuildings and options contracted in the cruise ship segment for the first half of 1993 is encouraging, long term prospects for the building and outfitting of passenger cruise ships is strong according to industry insiders, and based on the industry's recent history and well-recorded penchant for growth.

While the latest news of multi-million dollar vessels contracted for multi-ship orders will always dominate the headlines, some more subtle recent, non-related maneuverings seem to indicate that those who build, repair, supply and operate cruise ships are in for a prosperous voyage.

Looking Back

It is no secret that the cruise market has enjoyed a market boom over the past ten or more years which few industries can match. The cruise industry has experienced an average annual passenger growth rate of nearly 10 percent according to the Cruise Line International Association's (CLIA) January 1993 survey. By CLIA's best estimates, by the year 2000, the cruise market will accommodate up to eight million passengers per year and represent a \$50 billion dollar opportunity. Similarly, this consumer interest has fueled demand for new tonnage, and according to **Jim Godsman**, president of CLIA (New York), between 1981 and 1992 the

average capacity increase was 8.2 percent. While the demand for capacity for the next half decade is a more modest 5.2 percent, based on vessels contracted and planned, said **Mr. Godsman**, it still represents a boon to the builders and suppliers. "Any story on the cruise market has to start with the question, is the market there?" said **Mr. Godsman**, "and the answer is an emphatic 'Yes.'" He has, though, noticed increased caution on the part of owner/operators of late, a fact he attributes to the rising cost of vessels, the process of raising capital, yard competition and the economy in general. Despite these concerns, **Mr. Godsman** is bullish on the coming years, because the cruise market's changing demographics—in 1986

the average age of new cruisers was 52 years, today it is 43 years according to CLIA statistics—equates to demand for new designs and amenities, which in turn means new buildings or refittings. "Recent deliveries are geared to a younger market, you can see it," he added.

"We have probably seen the most dramatic period of growth in passenger shipping," said **Rod McLeo**, executive vice president of sales marketing and passenger service with Royal Caribbean Cruise Line (Miami), and chairman of the managing committee of CLIA. "In the past 52 months we have more than tripled the size of our company, going from 4,000 to 14,000 berths. A lot of the major players were gobbling up ships over that period." Desp

Newport News Looks To Enter Cruise Ship Market

At the recent Nor-Shipping Show, held June 8-11 in Oslo, Norway, rumors were flying about Newport News Shipbuilding's (NNS) entrance into the cruise ship newbuilding market. Maritime Reporter spoke with NNS's **J. Scott Bartlett**, director, commercial ship marketing, at the show, to get the official word on the shipbuilder's intentions concerning this lucrative market.

MR/EN: Where is NNS in regard to any commercial building?

Mr. Bartlett: We are in transition. Newport News has been building naval warships, the finest in the world, for a long time, and has built many fine commercial ships in the past. We are going through a transition phase to reenter the market for construction of high-tech, high-value commercial ships. Really, what we can say, is that we can build just about anything.

MR/EN: What about the stiff competition for cruise shipbuilding?

Mr. Bartlett: Cruise ships are very unique in that there are few competitors. Those that are building cruise ships now have dominated the market, and few other builders have been able to gain access. Even some of the finest Japanese shipbuilders have not been able to penetrate that market. At Newport News, we have the quality standards and resources that are an essential ingredient to cruise ship construction. We are adopting the techniques and developing the unique subcontractor base that should enable us to make the transition to commercial competitiveness.

MR/EN: Has Newport News spoken with specific shipyards regarding a technology transfer or partnership for the building of cruise ships?

Mr. Bartlett: For newbuilding (of cruise ships), we haven't talked to shipyards specifically about a partnership, but certainly we are willing to consider any appropriate cooperation.

MR/EN: Specifically, has NNS taken any steps in entering the cruise ship market?

Mr. Bartlett: We have met with all of the major cruise ship owners and we are aware of the opportunities. We have done preliminary design work and monitored the market. We believe we have the capability to build the finest cruise ships. In the years when we built passenger ships, we built some of the best in the world. Recently, we have performed a number of critical ship repair jobs for cruise ships, and the owners have been extremely pleased.

the tremendous growth, Mr. **McLeod** does exercise caution in predicting a similar boom any time soon. "The rate of new building introductions has slowed up, despite a spurt in newbuilding announcements over the first few months of this year. But when you look at the ships on order, it is not an insignificant amount."

The landmark cruise ship orders to kick off the first half of the year have been well documented in these pages, but a short review is in order:

— Royal Caribbean Cruise Line (RCCL) signed contracts with France's Chantiers de l'Atlantique for the construction of up to three ships worth approximately \$1 billion; Chantiers has delivered four ships to RCCL since 1987;

— Carnival Cruise Line (CCL) signed a contract with Italy's Fincantieri Cantieri Navali Italiani for construction of the largest cruise ship ever, a 95,000-gt vessel with 1,300 cabins;

— Japan's NYK Line signed with Kvaerner Masa-Yards for the 50,000-gt Crystal Symphony, for delivery in the spring of 1995; and finally

— Celebrity Cruise Lines Inc. (CCLI) has order a pair of ships from Germany's Meyerwerft, and holds the option for a third. The first, a 1,740-passenger, \$317.5-million vessel, is due for delivery in

July, 1993

windows of opportunities opened at the yards, and pricing became very attractive."

However, according to **Georges Lesavre**, director of commercial at Chantiers de l'Atlantique (Paris, France), the prospects for a strong cruise ship market are in place. Chantiers, which stopped building passenger ships between 1968 and 1983 in order to capitalize on the burgeoning tanker market, made heavy investments when it decided to build cruise ships again in order to capitalize on the anticipated market, according to Mr. **Lesavre**. Based on the yard's success with RCCL over the past six years, it appears the investment has paid off, and then some. When we decided to start making cruise ships again, "we first invested in people, in forming a special passenger ship sales department. We then made investments in restructuring passenger ship designs, which we had lost since 1968," said Mr. **Lesavre**.

Mr. **Lesavre** believes there is room for five or six major builders of cruise ships in the world, and he said that the prospects for the market will really explode once countries other than the U.S. get into the cruise ship buying market.

Repair & Refit

While the media focus stays on the multi-vessel, multi-million dollar orders of record size ships, many yards and suppliers will be pleased to find substantial business on the repair and refit side of the cruise ship market. An important piece of legislation from the International Maritime Organization (IMO) could help the process along substantially.

According to **John Estes**, president of the International Council of Cruise Lines (ICCL) (Washington, D.C.), the IMO recently renegotiated the "Safety of Life at Sea" treaty, a treaty which originated 19 years ago and is among the U.S., Norway, Great Britain, Italy, Greece, The Bahamas, Liberia, Panama and The Netherlands. The major impact of

the most recent renegotiation is the elimination of a grandfather clause which stipulated that if a ship was in existence before a safety regulation was implemented, it did not have to comply with this regulation. "Because a ship is old does not mean it is unsafe," said Mr. **Estes**. "But there may be new technological safety advances that can bring all ships up to standard."

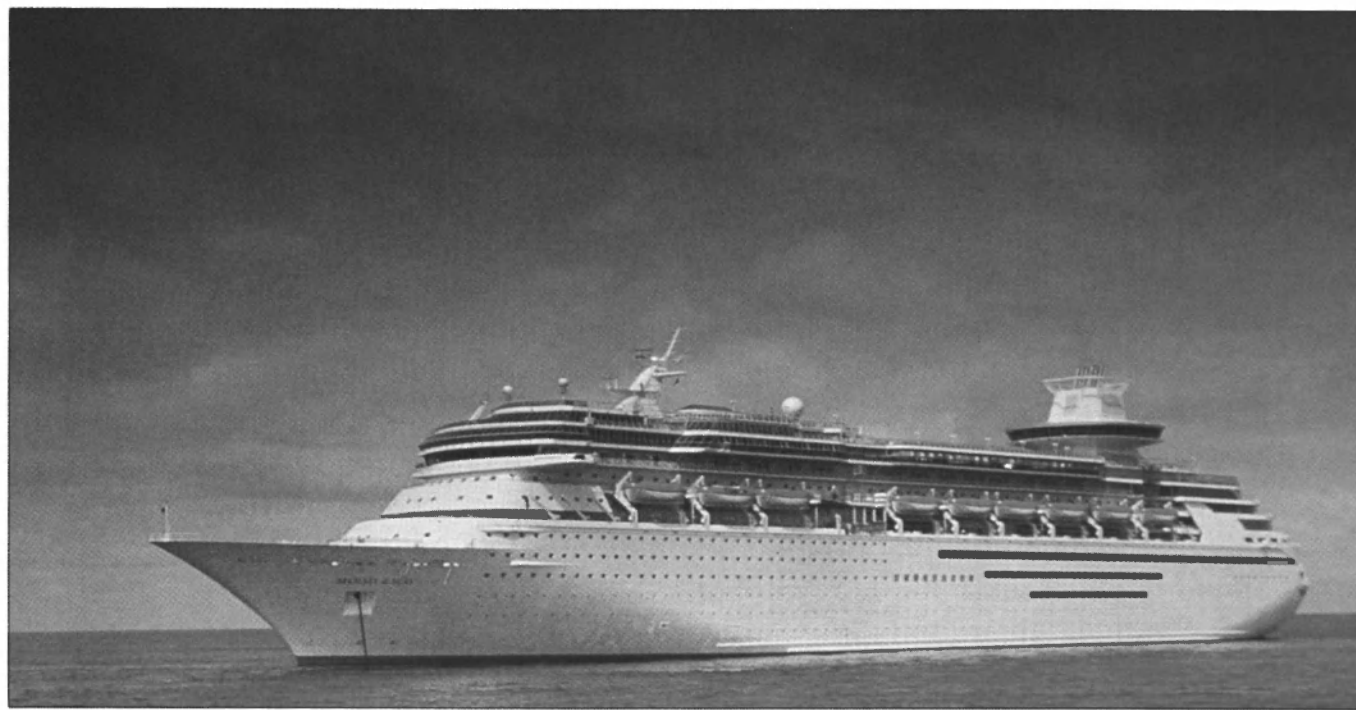
Essentially, then, when the grandfather clause is entirely phased-out, all vessel owner/operators will be responsible for ensuring every ship is in compliance with the latest safety equipment regulations and standards, a potential boon to suppliers and yards alike.

According to Mr. **McLeod**, he has seen estimates suggesting that 15 to 25 percent of the cruise ship berth supply will have to be withdrawn when the regulations are fully phased in.

"This is going to cause owners of older vessels to make significant decisions," he said. "Cruise lines could be looking at between \$30 and \$40 million to maintain older ships, and that capital investment may not be warranted on a 40- to 50-year-old hull."

Mr. **Estes'** organization represents all of the major cruise lines of the world with respect to legislative, regulatory and operational issues.

The ICCL is currently working with politicians on two critical legislative pieces, the Clay Bill and the Gibbons Bill, which could affect the future of the cruise market. The Clay Bill, which seeks to extend U.S. labor laws to foreign-flag ships, goes against the U.S.'s history of being a maritime leader and encouraging free seas, according to Mr. **Estes**. Another piece of legislation, the Gibbons Bill, is also contradictory to the free seas concept, he said. The bill, in essence, penalizes owners for purchasing ships in foreign subsidized yards. "We (ICCL) have no problem with the elimination of foreign subsidies, but shipowners should not be penalized; this is a government policy," said Mr. **Estes**.



Royal Caribbean Cruise Line's Majesty of the Seas.

**Blount Designs, Builds
"All American" Waterways
Small Cruise Ship**

For cruising in North and South America, the Niagara Prince, hull #287, is designed and built by Blount Industries. The Niagara Prince marks the eighth overnight small cruise ship built by this company, and completion is expected before

the summer of 1994.

Designed for a minimum air draft of 16.5 feet, it will navigate the Erie Canal through to Buffalo and the Chicago River, giving it access to U.S. western rivers and a route through mid-America to the Gulf of Mexico, as well as Central and South America.

Specifications are for a vessel 166-feet long, with a 40-foot beam and a maximum full-load draft of 6.5 feet, able to accommodate 84 passengers

and 18 crew. Built for American Canadian Caribbean Line of Warren, RI, the vessel will be propelled by a pair of 600-hp engines with 125 kW generators. Aided with a 150-hp bowthruster, the designed speed of the Niagara Prince is 12 knots.

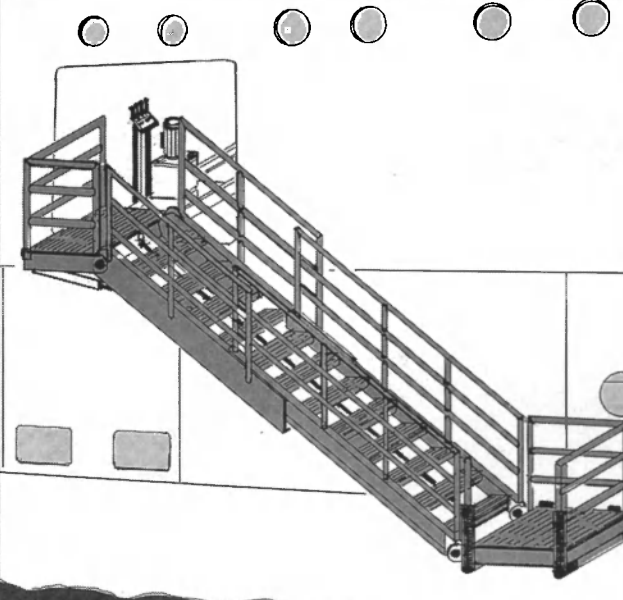
Other design features from Blount include a 30-foot bow ramp for beach landings, a 40-by-six-foot stern dock for launch operations, and windowed staterooms in all categories. Classed as a USCG sub-

chapter T-L regulated vessel, it is being built to meet SOLAS '74 near-coastal and carry a restricted ABS ocean loadline.

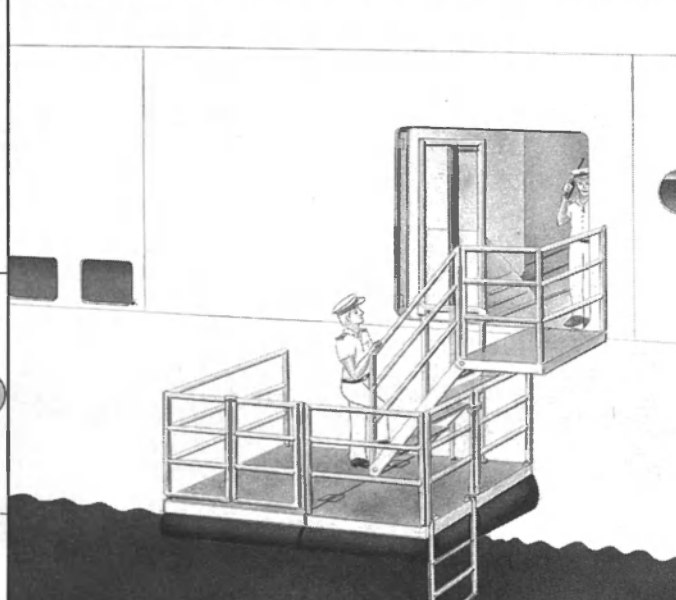
For more information on the building capabilities of Blount Industries,

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Circle 286 on Reader Service Card

EVAC Breaks Into Japanese Market, Will Supply NYK-Owned Cruise Ship

Evac Marine Systems of Finland, a supplier of vacuum toilet systems to the shipping industry, has broken into the Japanese passenger vessel market by securing an order for the supply of the complete marine sanitation system to Crystal Cruises (NYK) 48,000-grt, 960-passenger cruise liner, which is being built at Finland's Kvaerner Masa-Yards.

Due for delivery in 1995, the cruise liner will be equipped with a total of 830 Evac-90 B toilets of the company's latest silent-flush type. Evac will also be responsible for the supply of five 5m³ stainless steel collection tanks, each fitted with three pumps and three ejectors.

For more information on the products and services of Evac,

Circle 78 on Reader Service Card

Rev. Larom Oversees Seaman's Church Institute



Rev. Peter Larom

The Rev. Peter Larom is director of The Seaman's Church Institute (SCI), a non-profit organization founded in 1834 to promote the dignity, well-being and professional advancement of merchant seafarers from around the world.

No stranger to the maritime service, as a young man Fr. Larom served as a seaman on both a Norwegian and Swedish tanker. Prior to assuming leadership of SCI in October 1992, Fr. Larom, an Episcopal minister, spent seven years as rector of Grace Church in Whi Plains.

Rodriguez Group Launches First Aquastrada Ferry

On June 5 Italy's Rodriguez Group launched the first "Aquastrada" ferry. The vessel is capable of doi

Maritime Reporter/Engineering Ne

40 knots at full load, which includes 450 passengers and 120 vehicles. For additional information on the Aquastrada from the Rodriguez Group,

Circle 48 on Reader Service Card

Sea Mea Designs New Rescue Boat Davits

Sea Mea, Inc. has recently designed a rescue boat davit, commissioned and fabricated by Woods Hole, Martha's Vineyard and Nantucket Steamship Authority. The davit has been installed on the passenger/car ferry M/V Eagle by its owner. The davit launches/retrieves a 12-foot Avon rigid hull inflatable boat by means of two single part wire-rope falls, with an operating time of approximately 30 seconds. When stowed, the boat is required to be secured vertically in reference to the deck to minimize stowage space. Sea Mea also offers a full-range of other custom-sized boat davits as well as a full-range of Cargo Access Equipment. For more information on the products from Sea Mea,

Circle 9 on Reader Service Card

ACI Introduces Environmentally-Friendly Products At Show

Aalborg Ciserv International (ACI) Group recently displayed some environmentally-friendly products at the Nor-Shipping exhibition. Included was a new "Aalborg boiler," the light weight, compact AQ-18 design. The oil burner is mounted on top of the boiler, and the membrane wall furnace is located in the center of the generating tube bank. The unit is designed to give space to a long and natural flame path.

The company also introduced the organic iron oxide combustion improver, dubbed Ferrocene, to the marine market. The product is automatically dosed into the heavy fuel oil for the diesel engine in order to reduce fouling of engine and turbochargers, reportedly making cleaning procedures required less frequently and making coatings easier to remove.

For more information on these and more products from Aalborg Ciserv International,

Circle 10 on Reader Service Card

Rolla Improves Quality With New Production Methods

Rolla SP Propellers, in a continuing goal to maintain leadership in the production of high performance propellers, has increased its in-house NC production. The Swiss firm has installed an IBM RISC/6000 work station and the Catia

July, 1993

CAD-CAM program by Dassault Systems. It is capable of generating 3-D models in a sophisticated and complete form. Also, through a sister firm, Rolla SP Propellers SA has acquired a MECOF CS-1000 milling machine with characteristics which allow the development of propellers over 3,000mm in diameter while maintaining quality. For more information on the products of Rolla,

Circle 11 on Reader Service Card

Brown Brothers Announces Recent Orders

Kvaerner Masa-Yards have awarded Brown Brothers the contract to supply the ship stabilizers for the new cruise vessel "Crystal Symphony." The VM600 folding fin stabilizers, to be manufactured in Edinburgh, will feature one piece fins of 16.24-sq.-meter per.

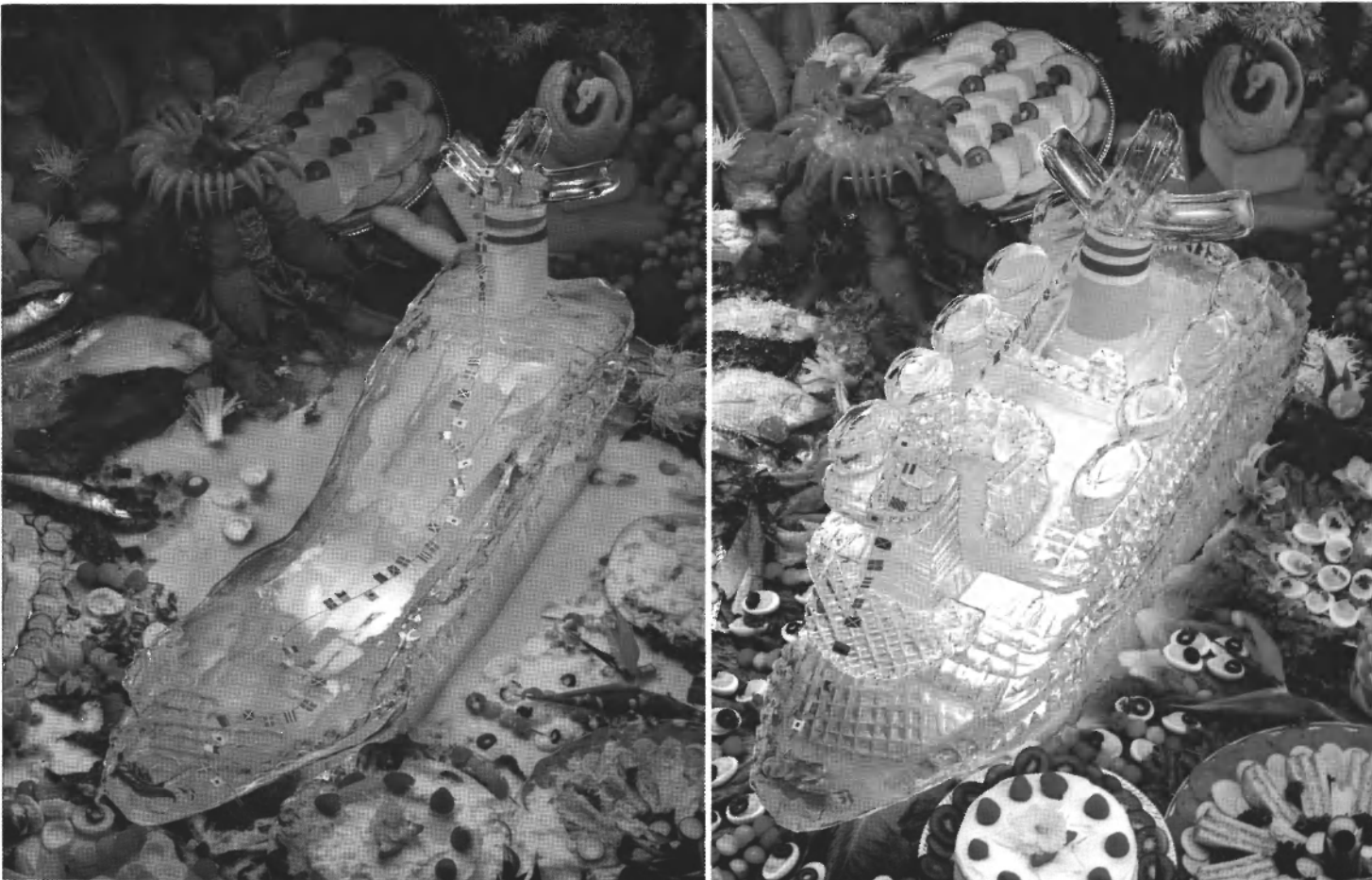
Since its introduction last year,

Brown Brothers has received orders for six sets of VM series stabilizers to shipowners Caledonian MacBrayne, Carnival Cruise Line, P&O Cruises, NYK and N&T.

The company also announced the signing of a contract with Nordstrom and Thulin of Sweden for folding fin stabilizers. The order was signed at Cruise & Ferry '93 in London.

For more on Brown Brothers,

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Which Cruise Ship Has Carrier Air Conditioning?

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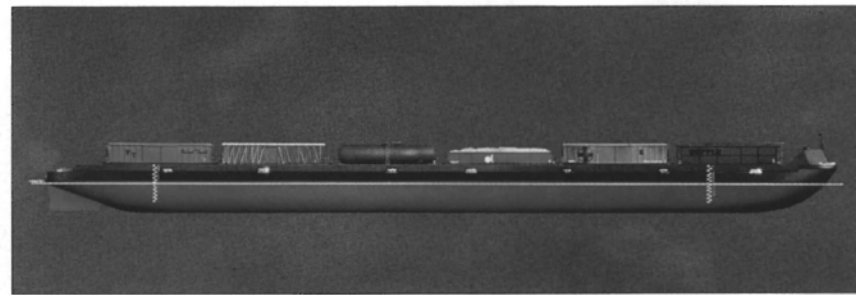
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Circle 211 on Reader Service Card



Elliot Bay Design Group Designs Barge For Ketchikan Pulp Company

Reportedly The First Car/Tank Barge To Meet OPA 90 Requirements



The 402-foot rail car/tank barge being built at Gulf Coast Fabrication, Inc.

Elliot Bay Design Group of Seattle has designed a 402-foot rail car/tank barge for Ketchikan Pulp Company that is believed to be the first of its kind to meet Oil Pollution Act of 1990 (OPA 90) requirements and to be classed by the American Bureau of Shipping (ABS).

The double-hulled steel barge, designed to meet the specific needs of Louisiana-Pacific Company's Alaska subsidiary, will carry three different tanked cargoes in addition to 40 rail cars. A total of 12 independent tanks will hold 165,000 gallons of diesel oil, 27,500 barrels of fuel oil, and 13,000 barrels of caustic soda.

To meet OPA 90 and ABS Class A1 requirements, the new multi-function barge incorporates a number of strengthening and safety features. These include one-inch-thick deck and bottom plating, 5/8" side

shell plating, and three independent cargo handling systems.

On the main deck, a five-inch-high oil containment coaming will enclose the entire area, with nine-inch-high coamings at each pumping station. The new vessel will also have a permanent, deck-mounted 20-foot spill response container carrying containment boom, sorbents and other equipment.

Now under construction at Gulf Coast Fabrication, Inc. in Pearlinton, Miss., the barge is scheduled for delivery in December, 1993. When completed, it will be 402 feet long, with a beam of 78 feet and a molded depth of 21 feet. The dwt will be 9,000 long tons, with a light ship weight of 2,900 long tons.

For more information on Gulf Coast Fabrication,

Circle 5 on Reader Service Card

BOATS AND BARGES

Atlantic Marine Delivers Caterpillar-Powered, Rodney E. Lay-Designed Alton Belle Casino II

Atlantic Marine, Inc. of Jacksonville, Fla., delivered the Alton Belle Casino II to Alton River Boat Gambling Partnership of Alton, Ill.

Designed by Rodney E. Lay & Associates, Inc. of Jacksonville, Fla., the triple deck vessel is 222 feet long and 66 feet high and accommodates 1,200 passengers and 100 crew.

The vessel is powered by two Caterpillar 3412TA marine engines with Twin Disk reduction gears. Caterpillar also supplied two 3508, 715 kW generator sets for shipboard electrical service; a 3304, 113 kW generator set for emergency power and a 3208TA engine to power the Schottel SST170 48" bow thruster. A computerized state-of-the-art climate control system provides year-round passenger comfort.

The three casino decks have a total of 23,000 sq. ft. with 1,200

gaming positions which includes 900 slot machines.

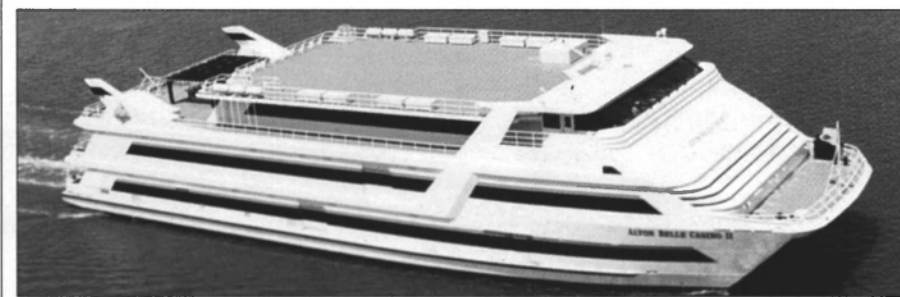
The impressive interiors of the Alton Belle II were designed by Interior Design International, Seattle, Wash.

In addition to the Alton Belle II, Atlantic has built four other casino vessels: three paddlewheel vessels (Diamond Lady, Emerald Lady, and Par-A-Dice) and one ultra modern catamaran-style gaming vessel (Empress).

Established in 1964, Atlantic constructs all types of vessels, including dinner boats, ferry boats, research vessels, tugs, barges and fishing vessels for the American and International market.

For more information on Atlantic Marine, Inc.,

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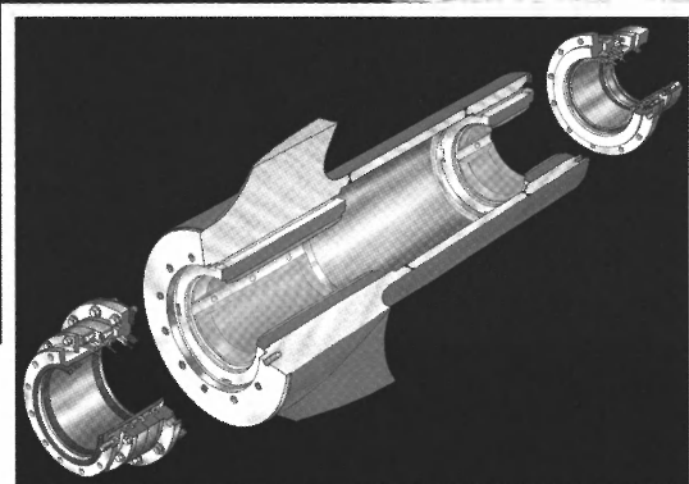
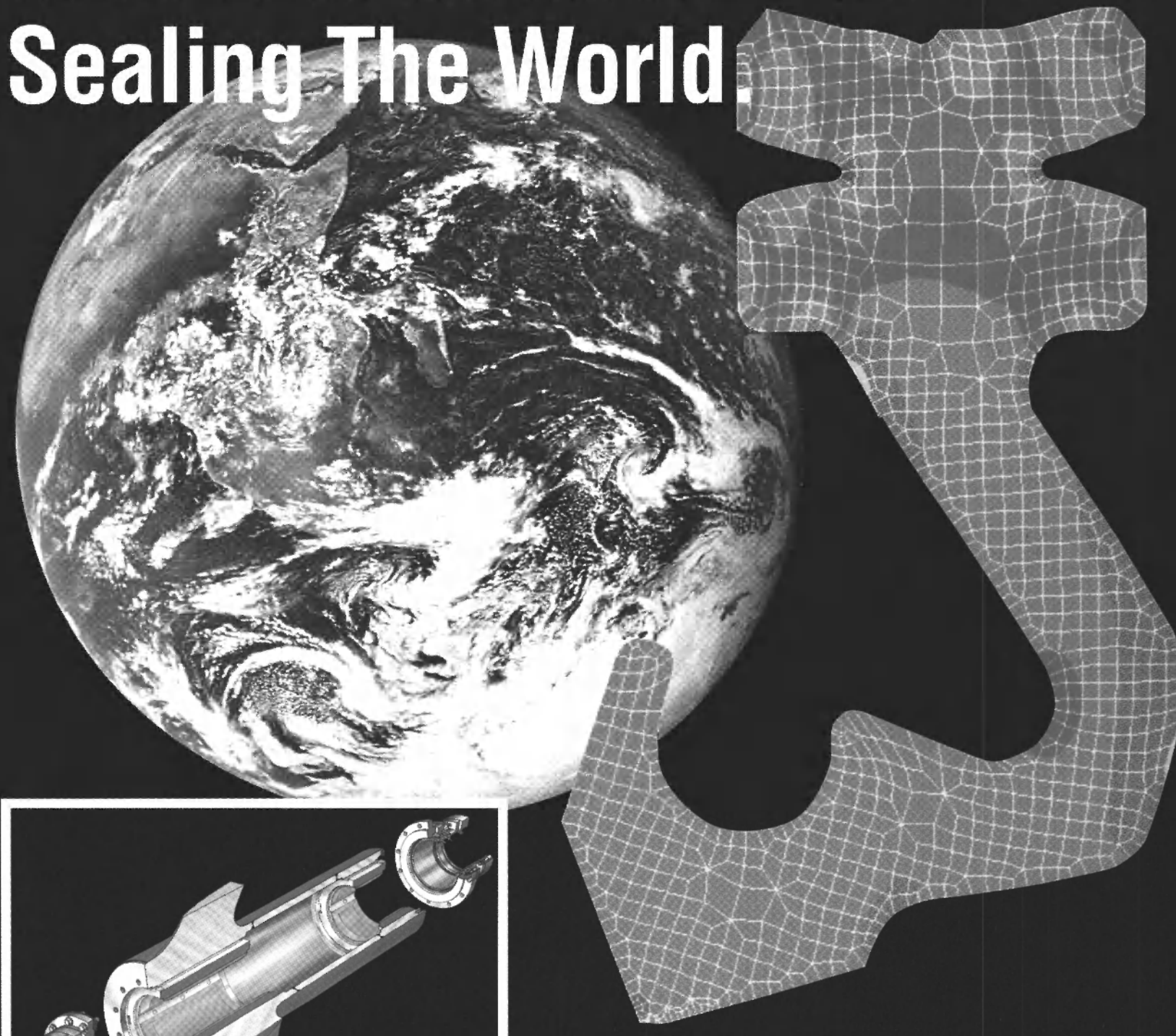
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P.Y.I. Inc. Offers Mechanical Seal To Replace Stuffing Box

The P.S.S. (Packless Sealing System), manufactured by P.Y.I., Inc. of Edmonds, Wash., has recently increased its range of seals to accommodate shafts up to eight inches in diameter. The manufacturer claims there are three advantages to using its product. First, the seal elimi-

nates all shaft wear, as there is no friction. Second, the seal reportedly requires no maintenance or adjustment, and several users report in excess of 30,000 operation. Finally, P.Y.I. claims the P.S.S. system will eliminate water accessing the bilge through the stern tube.

For additional information on the Packless Sealing System,

Circle 113 on Reader Service Card

Royal Chemical Corp. Offers New Coating

Royal Chemical Corp. of Belle Chasse, La. has successfully developed Royal Rust Kote as a new technology in ballast and void coatings. The coating is reportedly: low cost, requires minimum surface preparation, has no VOCs, is non-toxic, leaves no slick, is non-slippery, dries

hard yet flexible, is heat resistant to 275 degrees F, penetrates rust, can be walked- and painted-on, will not sustain combustion, is easy to use and effectively resists washout, peeling and chipping. The coating is used in various instances, and has been used on cranes, equipment in storage, external tank coatings, pipes, etc. For more information,

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INTRODUCING THE NEWEST ADDITIONS TO THE JOHN DEERE DIESEL FLEET

Two new 6.8 L diesels join the growing line of John Deere marine engines.

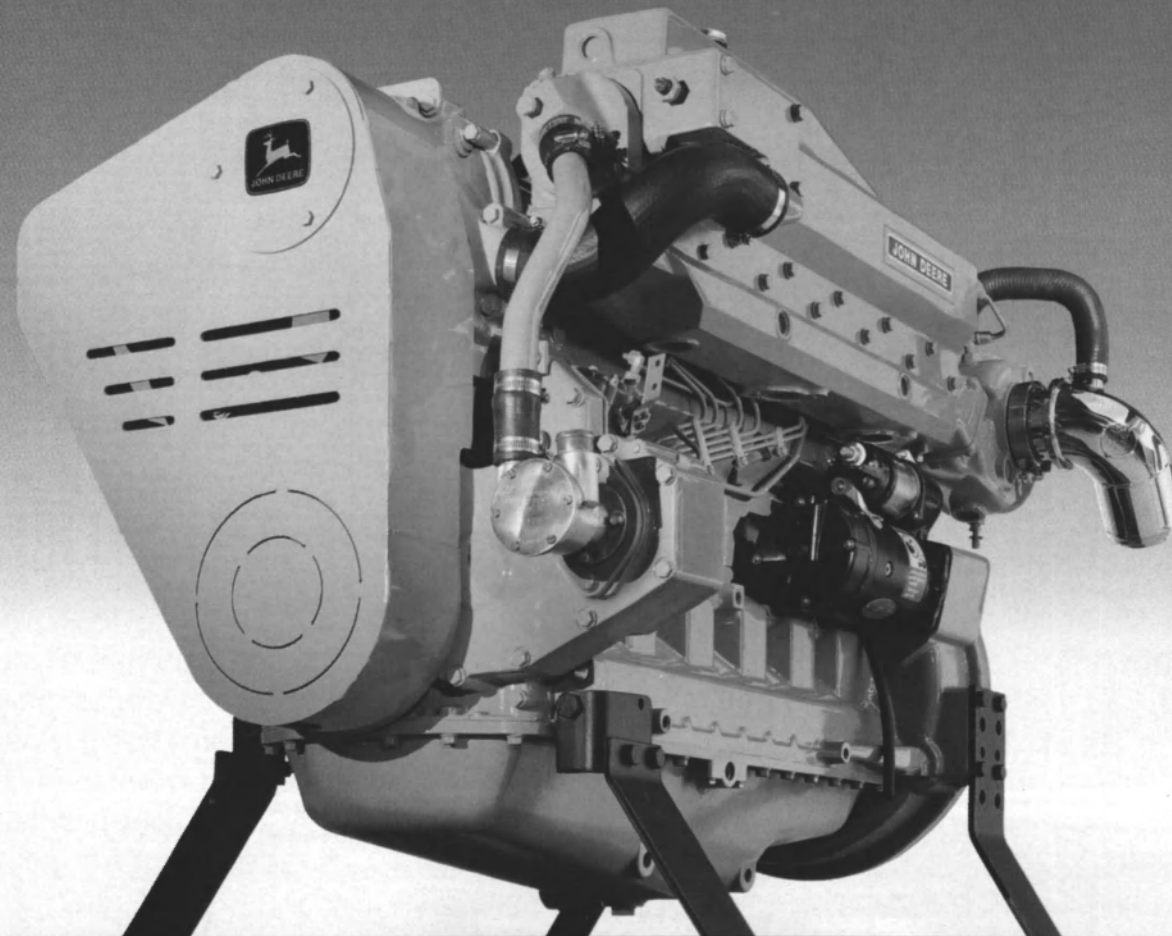
The naturally-aspirated 6068DFM delivers 130 horsepower, and the turbocharged 6068TFM produces 175 horsepower.

Like all John Deere engines, these quiet, smooth-running, 6-cylinder in-line diesels are loaded with features that will help keep your boat on the water.

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Check the chart below for brief specs on all five of our engines, then contact your John Deere engine distributor for details. Or call Deere Power Systems, 319/292-6060. FAX: 319/292-5075.



MODEL	4039DFM	4045TFM	6068DFM	6068TFM	6076AFM
Displacement	3.9 L	4.5 L	6.8 L	6.8 L	7.6 L
Configuration	4 cyl	4 cyl	6 cyl	6 cyl	6 cyl
Power	80 hp	115 hp	130 hp	175 hp	250 hp
Aspiration	Natural	Turbo	Natural	Turbo	Turbo/After

Circle 214 on Reader Service Card

To find out more about John Deere diesel engines for marine applications, contact one of our authorized distributors listed below.

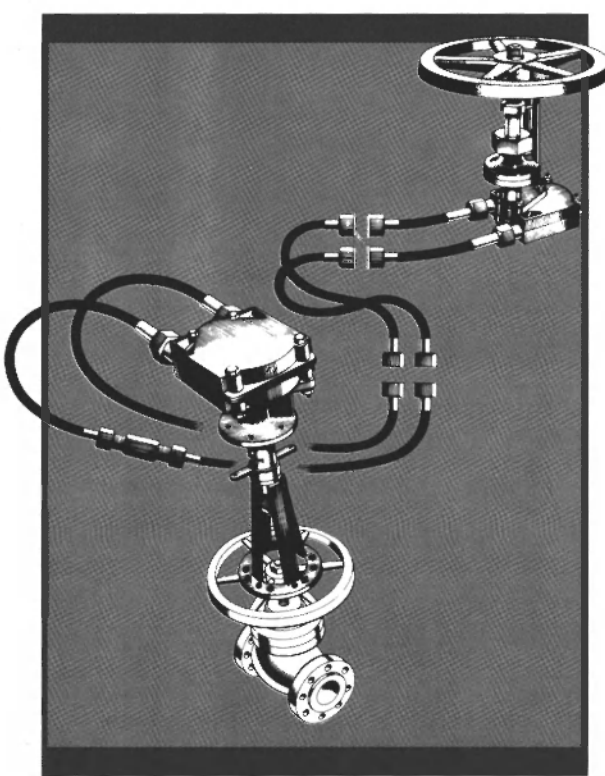
- For North America contact:**
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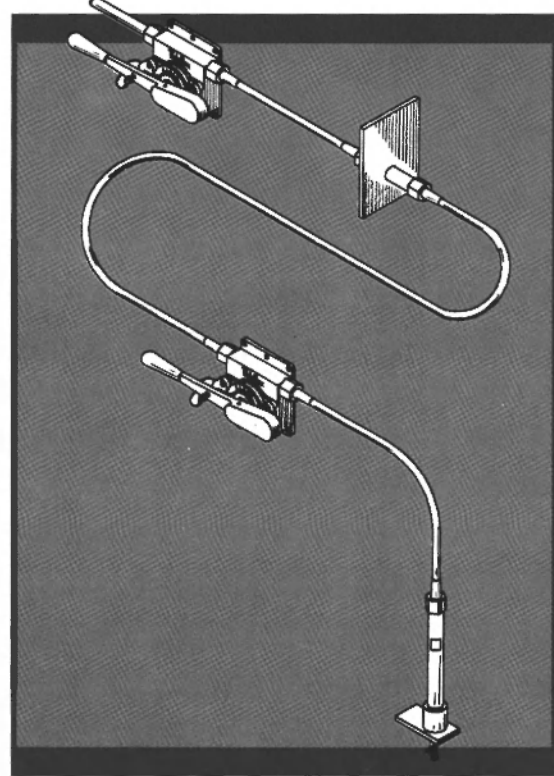
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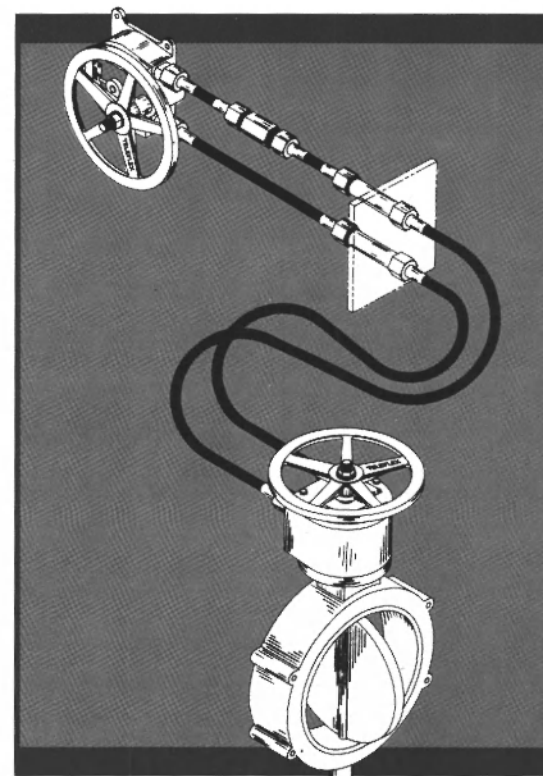
RMVA: Remote Mechanical Valve Actuator Systems for applications requiring delivery of multiple-turn rotary motion from remote locations.

- Meets U.S. Navy MIL-STD-777E and Tech. Manual S6435-QJ-MMC-010



RTVA: Remote Trip Valve Actuator Systems for applications requiring delivery of quick-acting linear motion from remote locations. Systems include a patented shock compensator coupling.

- Meets U.S. Navy MIL-A-24780 and Tech. Manual S6438-AA-DDT-010/ODME5



RVVO: Remote Vent Valve Operator Systems are lightweight, low-profile operators that bolt directly to flanges of 1/4-turn ventilation valves. Systems incorporate a patented override feature at the valve for local operation.

- Meets U.S. Navy Tech. Manual S6435-QJ-MMC-010

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CALENDAR

Maritime Technology 21st Century Exhibition & Conference Set For Australia

Australia will play host to the world marine industry at the Maritime Technology 21st Century Conference and Exhibition.

The event is scheduled to run from November 23 to 26 in Melbourne, Australia, concurrently with Offshore Australia, the Australian International Oil and Gas Conference.

Exhibitors expected to display their wares at Maritime Technology 21st Century encompass all facets of the shipbuilding industry, including:

- ship builders and designers,
- ship repairers and maintenance,
- suppliers representing engine, navigation and communication and fire and safety system manufacturers, and many more.

Concurrent with the exhibition will be a conference, complete with papers presented on topics such as: future ship design and construction; propulsion systems and ancillary equipment; marine control systems; navigation systems; regulation and insurance; and more.

For additional information on the Maritime Technology Exhibition & Conference, see its listing located under "November," or,

Circle 6 on Reader Service Card

JULY

Maritime Communications and Control: July 7-8, London

Contact: **Rhian Bufton**, conference organizer, The Institute of Marine Engineers, The Memorial Building, 76 Mark Lane, London EC3R 7JN; tel: +071 481 8493; fax: +071 488 1854.

AUGUST

Offshore Northern Seas Conference & Exhibition: August 23-26, Stavanger, Norway

Contact: Offshore Northern Seas '94, P.O. Box 410, N-4001 Stavanger, Norway; Tel: +47 4 55 81 00; Fax: +47 4 55 10 15.

SEPTEMBER

SNAME Centennial Annual Meeting and International Maritime Exposition: September 14-19, New York

New York Hilton Hotel. Contact: The Society of Naval Architects and Marine Engineers, 601 Pavonia Ave., Jersey City, N.J. 07306. tel: (201) 798-4800; fax: (201) 798-4975.

Offshore Europe '93: September

7-10, Scotland
Aberdeen Exhibition & Conference Center. Contact: Offshore Europe Partnership, Rowe House, 55/59 Fife Road, Kingston upon Thames, Surrey KT1 1TA; tel: +44 81 549 5831; fax: +44 81 541 5657/974 8077.

NEVA '93—The International Shipping Exhibition: September 14-18, St. Petersburg, Russia

Contact: **Roderick Keay**, Dolphin Exhibitions Ltd., 112 High St., Bildeston, Suffolk IP7 7EB England; tel: +44 9 741087; fax: +44 9 741628.

Icelandic Fisheries Exhibition 1993: September 15-19, Laugardalsholl, Reykjavik, Iceland

Contact: **Patricia Foster**, exhibition director, Icelandic Fisheries Exhibition, Reed Exhibition Companies (U.K.), Oriol House, 26 The Quadrant, Richmond-on-Thames, Surrey, U.K. TW9 1DL; tel: +44 81 948 9800; fax: +44 81 948 9870.

Gateways To Emerging Markets: A Russian Far East and Pacific N.W. Trade Conference: September 20-22, Vladivostok, Russia

Contact: In the U.S., **Sue Simon**; tel: (206) 461-2268, fax: (206) 554-7211; In Russia, **Pavel Gorshenin**, Port of Vladivostok; tel: 4323 219388.

National Waterways Conference: September 15-17, Memphis, Tenn.

Contact: National Waterways Conference, Inc., 1130 17th St., N.W., Washington, D.C. 20036-4676; tel: (202) 296-4415; fax: (202) 835-3861.

Tanker Industry Convention: September 27-29, London, U.K.

Royal Lancaster Hotel. Contact: **Vanessa Stephens**, The Seatrade Organization, Seatrade House, 42-48 North Station Road, Colchester CO1 1RB, U.K.; tel: +44 206 45121; fax: +44 206 45190.

82nd Annual AAPA Convention: Sept. 27-Oct. 1, Halifax, Nova Scotia

The Prince George Hotel and Chateau Halifax. Contact: American Association of Port Authorities at (703) 684-5700.

45th Virginia Conference on World Trade: September 29-Oct. 1, Virginia Beach, Va.

The Cavalier Hotel. Contact: The Virginia Chamber of Commerce, 9 South Fifth St., Richmond, Va. 23219; tel: (804) 644-1607 or (800) 477-7682.

OCTOBER

International Offshore Contracting & Subsea Engineering:

October 13-16, Aberdeen, U.K.
Aberdeen Exhibition & Conference Center. Contact: Spearhead Exhibitions, Ltd., **Judith Patten**, Neville House, 55 Eden St., Kingston upon Thames, Surrey KT1 1BW; tel: +44 81 547 1566; fax: +44 81 547 1143.

West European Cooperation in Marine Technology (WEMT '93): October 20-22, Madrid

"Ship Production and Ship Procurement" conference. Contact: **Juan Pablo Merino**; tel: 34-1-448 4301; fax: 34-1-446 0198.

NOVEMBER

NSRP Ship Production Symposium: November 1-4, Williamsburg, Va.

Contact: NSRP Ship Production Symposium, UMTRI, Marine Systems Division, 2901 Baxter Road, Ann Arbor, Mich. 48109-2150; fax: (313) 936-1081.

Ship Repair & Conversion '93: November 9-10, London, England

Contact: **John Gwynn-Jones**, BML Business Meetings Ltd., 2 Station Road, Rickmansworth, Herts WD3 1QP, England; Tel: +44 923 776363; Fax: +44 923 777206.

26th Europort: November 16-20, Amsterdam

RAI International Exhibition Center. Gastech RAI, Ltd., tel: +44 71 436 9774; fax: +44 71 436 5694.

Maritime Technology 21st Century Exhibition & Conference: November 23-26, Melbourne, Australia

Contact: **Eileen M. Lavine**, Information Services, Inc., 4733 Bethesda Ave., #700, Bethesda, Md. 20814; tel: (301) 656-2942; fax: (301) 656-3179.

FEBRUARY 1994

Underwater Intervention '94: February 7-10, 1994, San Diego Calif.

APL Orders Six Container Ships From Two Yards

American President Lines finalized orders with Howaldtswerke Deutsche Werft of Germany and Daewoo Shipbuilding & Heavy Industries of Korea for six 4,800-teu post-panamax containerships. HDV is reportedly the lead yard in the program. Delivery of the ships, which are unlikely to be put under the U.S. flag, is scheduled for 1995.

Maritime Reporter/Engineering News

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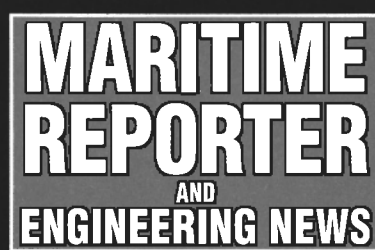
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Transport ◇ Esso International Shipping ◇ United Arab Shipping ◇ Eurasia Shipping ◇ Bristol
Channel Shiprepairers ◇ Sun Marine ◇ Aalborg Ciserv ◇ Papachristidis Ship Management ◇
Cedervall & Soner ◇ Sealink Stena Line ◇ Marine Marketing International ◇ Ethiopian Shipping Lines
◇ Keppel Group ◇ TurboNed ◇ Cory Towage ◇ P&O European Transport Services ◇ BT Shipping
◇ BethShip Sparrows Point Yard ◇ Mobil Shipping ◇ Neptunwerft ◇ Seahorse Ship Management
◇ Dorbyl Marine ◇ Nigerian National Shipping ◇ Mivan Marine ◇ Oceanic Marine ◇ Esso Petroleum
◇ Lloyd Werft Bremerhaven ◇ Shiprepairers & Shipbuilders ◇ ARNO ◇ P&O Ship Management ◇
Bay Shipbuilding Corporation ◇ Denholm Ship Management ◇ Öresundsvarvet ◇ Crescent Shipping
◇ Seacon ◇ Port of Toledo ◇ Constellation Ship Management ◇ Union Naval de Levante ◇ Concordia
Maritime ◇ Southwest Marine ◇ Uglund ◇ Asmar ◇ Bremer Vulkan ◇ Chevron ◇ P&O European
Ferries ◇ Mil Davie ◇ Misr Edco Shipping ◇ Chandris ◇ Basrec ◇ OMI Bulk Management ◇ Atlantic
Marine ◇ Bulk Oil Services ◇ Royal Fleet Auxiliary MOD (UK) ◇ Cameroon Shipyard ◇ Wilmot Marine
◇ P&O Cruises ◇ Astilleros Santander ◇ Brooklyn Marine & Oil Inc ◇ Harland & Wolff ◇ Transatlantic
Ship Management ◇ Christiania Bank ◇ Caldwell Marine ◇ BP Shipping ◇ General Shiprepair Corp
◇ Blohm + Voss ◇ Jotun Henry Clark ◇ Rowbotham Tankships ◇ Götaverken Cityvarvet ◇ Cascade
General ◇ Cenargo International ◇ Malta Drydocks ◇ Far East Maritime & Engineering Services ◇
P&O Containers ◇ Teknisk Isolering ◇ Thyssen Nordseewerke ◇ Ministry of Defence (UK) ◇
Deltamarin ◇ Renave ◇ Haugesund ◇ NORSHIPCO ◇ Calvey Marine ◇ Torvald Klaveness ◇
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P&O Bulk Shipping Ltd ◇ Deep Sea Seals ◇ Dubai Ports ◇ Anglo Caribbean Shipping ◇ Verolme
Botlek ◇ Bibby Line ◇ Metalock ◇ Cantiere Navale di Trapani ◇ Lyras Bros ◇ Viktor Lenac Shipyard
◇ Scamp ◇ The Maersk Company ◇ Shell Tankers ◇ Ulrik Ovale & Partners ◇ Agenzia Marittima
Cambiaso e Risso ◇ Swire Blyth ◇ MAN B&W Diesel ◇ Bain Clarkson ◇ Fibrecheck Marine ◇ Andrew
Weir Shipping ◇ Mitsui Zosen Europe ◇ D van de Wetering ◇ Cool Ship Management ◇ London
& Overseas Freighters ◇ Enavi S/A ◇ Framnæs ◇ Blue Star Ship Management ◇ Astilleros Canarios
◇ Shipdock Amsterdam ◇ CCI Cherbourg ◇ ABB Flakt Marine ◇ Total Automation Services ◇ Kuwait
Oil Tanker Co ◇ Gdanska Stocznia Remontowa ◇ BP Oil ◇ Elgin Brown & Hamer ◇ Leif Höegh ◇
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MR

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(CONTINUED) Directory Of Cruise Ship Suppliers

(continued from page 18)
Selby--8810 W. 100th Street South,
Sapulpa, Okla. 74066
Tel: (800) 523-0129; Fax: (918) 227-0603
(Flooring and decking)

Serck Como GmbH
Pankower Strasse 16, W-2054 Geeshacht,
Germany
Tel: 4152 805 0; Fax: 4152 805 105
(Heat exchangers, desalination plants, etc.)

Servoteknikk A/S
P.O. Box 6670, Rodelokka, 0502 Oslo, Norway
Tel: +47 22 38 14 85; Fax: +47 22 35 27 48
(Fire detection and alarm systems)

Siemens Nixdorf
Ueberseering 33, 2000 Hamburg 60, Germany
Tel: +49 40 6371 4350; Fax: +49 40 6371 1399
(Modular management systems)

Sims Pump Valve Co., Inc.
1314 Park Avenue, Hoboken, NJ 07030
Tel: (201) 792-0600; Fax: (201) 792-4803
(Graphite composite pumps & pump parts)

Tebul Oy
Itainen Rantakatu 58, SF-20810 Turku, Finland
Tel: +358 21 351 500; Fax: +358 21 351 687
(Steering gears, watertight bulkhead doors and valves)

Unitor Ships Service Inc.
6301 NW 37th Avenue, Miami, Fla. 33147
Tel: (305) 836-1557; Fax: (305) 836-1431
(Welding gases & equipment, air tools, H.P. cleaning equipment, corrosion products, refrigerants & services, etc.)

Viking Life-Saving Equipment
P.O. Box 3060, DK-6710 Esbjerg V, Denmark
Tel: +45 75 15 06 44; Fax: +45 75 15 80 55
(Inflatable rafts and other buoyant apparatus)

Walport USA
840 Bond Street, Elizabeth, N.J. 07201
Tel: (908) 527-1223; Fax: (908) 527-8772
(Entertainment)

Wartsila Diesel Group
P.O. Box 244, SF-65101 Vaasa, Finland
Tel: +358 61 3242 111; Fax: +358 61 171 906
(Diesel engines)

York International
Gardiners Lane South, Basildon, Essex SS14 3HE,
England
Tel: +44 268 287676; Fax: +44 268 281765
(Refrigeration equipment)

Builders & Repairers

Ateliers Et Chantiers Du Havre
30 rue Jean-Jacques Rousseau, B.P.-1390 76066
Le Havre Cedex, France
Tel: +33 35 26 81 77; Fax: +33 35 25 09 70

Atlantic Marine, Inc.
8500 Heckscher Drive, Jacksonville, Fla. 32226
Tel: (205) 690-7886; Fax: (205) 690-7107

Austal Ships
126 Egmont Road, Henderson, WA 6166,
Australia
Tel: +61 9 410 1111; Fax: +61 9 410 2564

Bazon
Castellana 55, E-28046 Madrid, Spain

Tel: +34 1 441 5100; Fax: +34 1 441 5090

Blohm & Voss AG
P.O. Box 10 07 20, D-2000 Hamburg 1,
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Bremer Vulkan Verbund AG
Lindenstrabe 110, P.O. Box 75 02 61, D-2820
Bremen 70, Germany
Tel: +49 421 668 2569; Fax: +49 421 668 2296
Cascade General, Inc.
5555 N. Channel Avenue, Building #71, Port-
land, Ore. 97217
Tel: (503) 285-1111; Fax: (503) 289-7179

Chantiers de L'Atlantique
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Dellamarin Ltd.
Kaislatie 2, SF-21200 Raisio, Finland
Tel: +358 21 817311; Fax: +358 21 810378

Fincantieri-Cantieri Navali Italiani
Via Genova 1, I-34121 Trieste, Italy
Tel: +39 40 3193111; Fax: +39 40 3192305

Finnyards Ltd.
P.O. Box 139, SF-26101 Rauma, Finland
Tel: +358 38 83611; Fax: +358 38 836 2366

Jos. L. Meyer GmbH & Co.
Industriegebiet Sud, P.O. Box 15 55, 2990
Papenburg, Germany
Tel: +49 4961 810; Fax: +49 4961 81300

Kvaerner Fjellstrand A.S.
N-5632 Omastrand, Norway

Tel: +47 5 55 41 00; Fax: +47 5 55 42 44

Kvaerner Masa-Yards Inc.
P.O. Box 132, SF-00151 Helsinki, Finland
Tel: +358 0 194 2409; Fax: +358 0 650 051

Lloyd Werft Bremerhaven GmbH
Bruchenstrabe 25, P.O. Box 12 02 54, D-2850
Bremerhaven 12, Germany

T. Mariotti S.P.A.
Via Des Pescatori-Malo Cagni, Genoa, Italy
Tel: +10 24081; Fax: +10 240824

Mitsubishi Heavy Industries Ltd.
5-1 Marunouchi 2-chome, Chiyoda-ku, Tokyo
100, Japan
Tel: +81 3 3212 3111; Fax: +81 3 3212 9822

Newport News Shipbuilding
4101 Washington Ave.
Newport News, Va. 23607
Tel: (804) 380-2501; Fax: (804) 688-9604

Portland Ship Yard
5555 N. Channel Avenue, Building 50, Portland,
OR 97217
Tel: (503) 240-3000; Fax: (503) 240-3080

Schichau Seebeck Werft AG
Riedemannstrabe 1, P.O. Box 10 12 40, D-2850
Bremerhaven 1, Germany

Sembawang Shipyard Limited
Admiralty Road East, Singapore 2775,
Tel: +65 752 2222; Fax: +65 758 1025

West State, Inc., 5555 N. Channel Avenue, Bldg.
72, Portland, Ore. 97217
Tel: (503) 285-9706; Fax: (503) 285-1305

MSC Awards \$16 Million Contract For U.S. Flag Ship

Military Sealift Command Central Technical Activity has awarded a firm-fixed-price contract for \$16,420,330 to Edison Choest Offshore, Inc., of Galliana, La., for the charter of a submarine support vessel. The U.S.-flag, new-construction ship, is scheduled to be delivered to MSC by April 30, 1994. The vessel will be built, owned and operated by Edison Choest Offshore, and will provide research, submarine towing and rescue services primarily in the North Atlantic.

Ausmarine '94 Conference & Exhibition Set

To be held in Fremantle on November 22-24, 1994, Ausmarine '94 will feature an exhibition which aims at promoting Australian marine products to international owners and overseas-sourced products to Australian owners and builders. For more information on the exhibition and conference, contact Baird Publications, P.O. Box 460, South Yarra 3141, Australia; Tel: (613) 826-8741; Fax: (613) 827-0704.

Fenders, Barges Bought For OPA 90 Compliance

Marine Pollution Control (MPC) has ordered 14 marine fenders and 10 fire monitors for placement at current high-capacity off-loading system locations on the East, West and Gulf Coasts. MPC anticipates that its marine fenders will be used primarily during vessel off-loading or ship-to-ship transfers.

Also, Marine Spill Response Corporation (MSRC) reportedly plans to purchase 68 shallow water barges to be located at 17 pre-positioned sites around the U.S. It is planned for each site to have four barges.

Hyde Appointed As VIKOMA Distributor

Vikoma International, Ltd. has appointed Hyde Products, Inc., of Cleveland, Ohio, its exclusive distributor for the U.S. East and Gulf Coasts, the Great Lakes and the Inland Rivers. Hyde will also distribute Vikoma equipment to the industrial market. Vikoma is a worldwide supplier of a full line of oil containment booms and oil skimming equipment. The product line also includes the Hoyle Marine range of polyure-

thane booms and skimmers. For more than 125 years, Hyde has been active as a designer and manufacturer of shipboard deck machinery and steering systems. For more information on Vikoma and Hyde's oil spill recovery products,

Circle 126 on Reader Service Card

Nautronix Awarded USCG Contract

Nautronix was recently awarded a contract to supply an automatic station keeping system for a new 225-foot Sea Going Buoy Tender for the U.S. Coast Guard. The vessel will be built by Marinette Marine Corp. of Marinette, Wis. The Nautronix ASK 4000 system will enable the Juniper Class Cutter to maintain position over a fixed point on the earth alongside floating aids to navigation. For more information on Nautronix,

Circle 128 on Reader Service Card

ILS Elects Anderson As Its New President

Eric E. Anderson has been elected president of Inventory Loca-

tor Service, Inc. (ILS), effective July 1, 1993. As president, Mr. Anderson will have full responsibility for ILS's management and development. Mr. Anderson joined ILS in 1988 as director, marketing.

For more information on ILS,

Circle 129 on Reader Service Card

Romania Sells Part Of Its Shipping Company; New Ships To Come

Romanian government officials confirmed the sale of approximately 51 percent of the state-owned shipping company to a Greek firm, an event which reportedly marks one of the largest privatization deals to date in Eastern Europe. Forum Maritime S.A. of Piraeus, Greece has reportedly agreed to pay \$335 million for the percentage stake in the Petromin shipping concern. This figure represents a minimum and it may increase based on independent assessments. Petromin has 89 ships, most of which are oil tankers. The agreement also calls for the modernization of the fleet, including a reported construction of 10 new ships to give work to struggling Romanian shipyards.