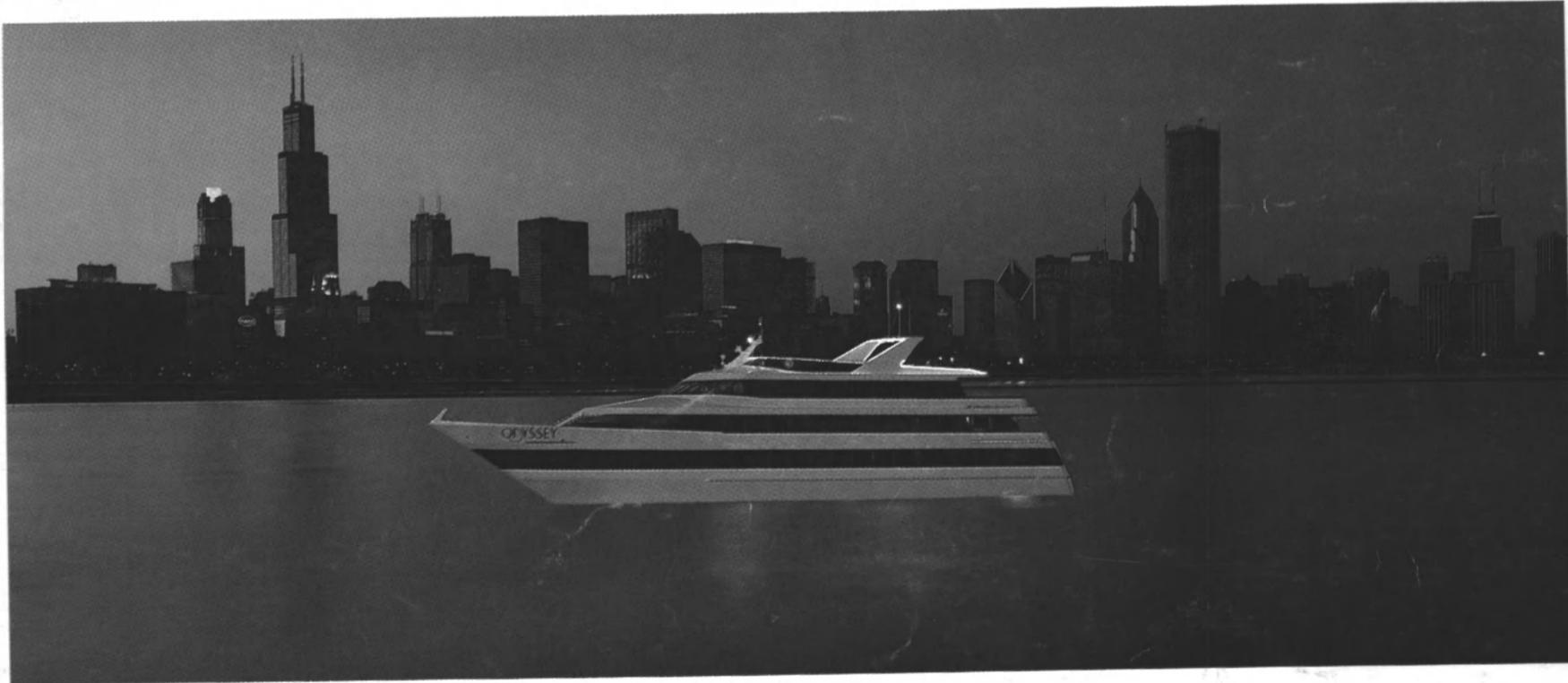


MARITIME REPORTER AND ENGINEERING NEWS



SUPERFERRY 92
STOCKHOLM, SWEDEN

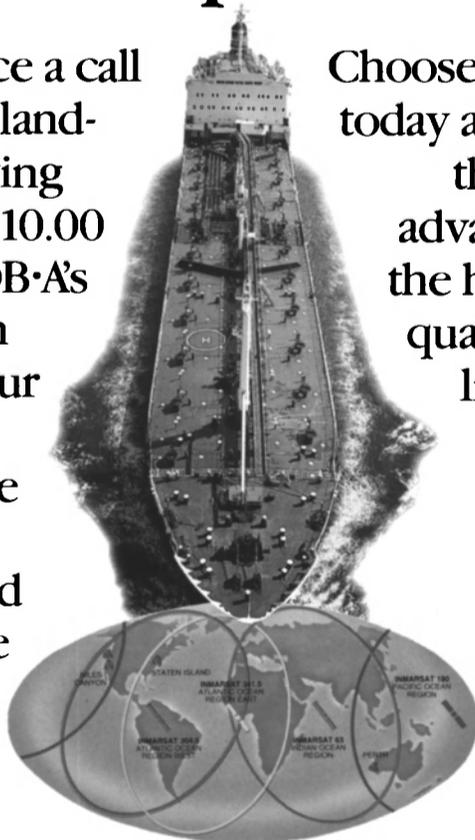
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& FERRIES OF 1991**

JANUARY 1992 ISSUE

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- KVAERNER MASA - YARDS - Passenger shipbuilding
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- COMSAT - Satellite Communications
- BRITISH CONTRACT FURNISHING ASSOCIATION
- FINNYARDS - Shipbuilding/marine electronics

Contact the Secretariat for exhibition reservations

PROGRAMME OF EVENTS

FEBRUARY 4th

12.00-17.00
Delegates board ship and register

14.00
Exhibition opens

17.00
Conference commences

Welcome Address from
*Hans H. Christner,
President, EffJohn International*

SESSION 1
17.15
Forward thinking on the Cruise Ferry Product.
*M. Saarikangas, Chief Executive,
Kvaerner Masa-Yards Inc, Helsinki*

SuperFerries on the North Sea - different to the Baltic? How & Why
*J. Charlier,
Institute of Geography, UCL, Belgium*

Tampa to Mexico - an ideal SuperFerry Route?
J. Valenti, Port Director, Tampa Port Authority, Florida

Panel Session: The opening speakers will be joined by *T. Lepisto, President, EUROWAY, C. Michielini, Managing Director, Brittany Ferries, France and H. Kulovaara, Operations Vice President, Silja Line*

19.00-20.30
Welcome Cocktail hosted by Wartsila Diesel

FEBRUARY 5th

08.00
Breakfast

SESSION 2
08.30
Reservation Systems for SuperFerry Operations
*A. Hammarskjöld, President,
Stena Data AB, Gothenburg*

FEBRUARY 5th continued

Business Communications for the SuperFerry - new systems
L.G. Brodje, Maritime Adviser, Inmarsat, London.
(A Inmarsat Business Centre will provide immediate communication to and from the "Silja Serenade" during SuperFerry 92)

SESSION 3
10.30
Taking on the Channel Challenge with a new generation of SuperFerry
C. Michielini, Managing Director, Brittany Ferries, France

Upgrading to SuperFerry?
G. Strintzis, Managing Director, Strintzis Lines, Piraeus

Cruise or Ferry?
N. Costa, President, Costa Crociere, Genoa

12.00
Aperitif in Exhibition Area

13.00
Lunch

SESSION 4
14.00
Conference Restarts
Refitting and refurbishing - the key to maintaining a SuperFerry
B. Mickwitz, Export Manager, Finnish Shipbuilders Suppliers Association, Helsinki

Complex superferry newbuilding and conversion - recent experiences are to the benefit of both owners and shipyards
A. Bjorkman, Managing Director, Deltamarin Ltd, Raisio

Environmental considerations for machinery in Cruise Ferries
G. Hellen, Emission Control, Wartsila Diesel International, Vaasa

FEBRUARY 5th continued

SESSION 5
16.30
Panel Session on the Cruise Ferry Shipboard Environment
Swimming & Saunas - *Arkitektbyran AB, Gothenburg*

Conference/Exhibition Areas - *Virkkunen & Co., Helsinki*

Shopping Malls - *FFNS, Stockholm*

Entertainment - *IES, Helsinki*

Gambling - *Cherryforetagen, Solna*

Passenger Information - *Cainby AB, Mariehamn*

Exterior Design - *Windell & Riikonen, Helsinki*

18.00
Conference ends
Delegates free until 20.00

20.00
Cocktails

21.00
Gala Dinner with address from *The Marine Technology Group of the Finnish Foreign Trade Association*

23.00
SuperFerry 92 Cabaret
provided by *IES, Helsinki*

FEBRUARY 6th

08.00
Farewell Champagne Breakfast

09.00
Ship arrives Stockholm

Delegates Disembark

09.15
Optional tours of non-public ship areas i.e. Galleys/Bridge/Engine-room, etc

MR

SUPERFERRY 92 REGISTRATION

I/We wish to make Conference Registration(s) for _____ delegate(s) (£395.00 per person) & enclose a cheque for £ _____ made payable to: BML Business Meetings Ltd. Cabins to be reserved separately, see details below.

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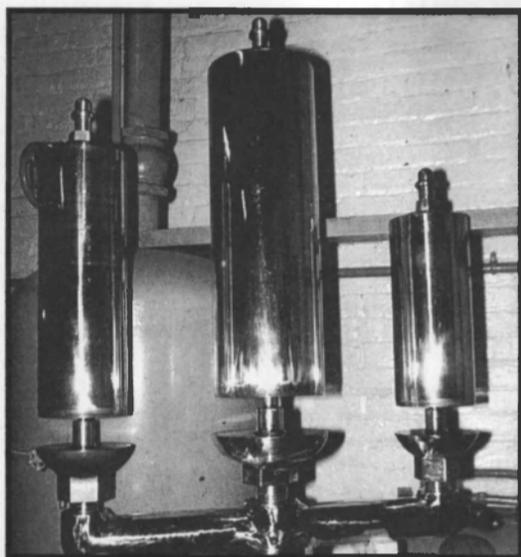
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ENGINEERING NEWS

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ESTABLISHED 1939

ON THE COVER

Clockwise, from logo: The Mississippi Belle II, recently converted by Patti Shipyards for Roberts River Rides; Chicago's First Lady, an outstanding dinner boat from Steiner Shipyard for Mercury Skyline Cruise Lines; artist's conception of the outstanding excursion/dinner boat Odyssey, from Service Marine Industries for Odyssey Cruises; and artist's conception of the Swath Ocean Systems' 2000 Class pilot boat for the Houston Pilots. She will be the first SWATH pilot boat.

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Quick Reference Guide to
Marine Diesel Engines—
Manufacturers, Spare Parts
& Repair Services 50

Legalized Riverboat Gambling
Keeps Casino Boat
Orders Rolling 55

IBM Corp. Awarded \$75.5 Million Contract

The Federal Sector Division of the IBM Corp., Manassas, Va., was recently awarded a \$75.5 million contract for support services for the AN/BSY-1(V) program. The contract (N00024-89-C-6109) was awarded by the Naval Sea Systems Command.

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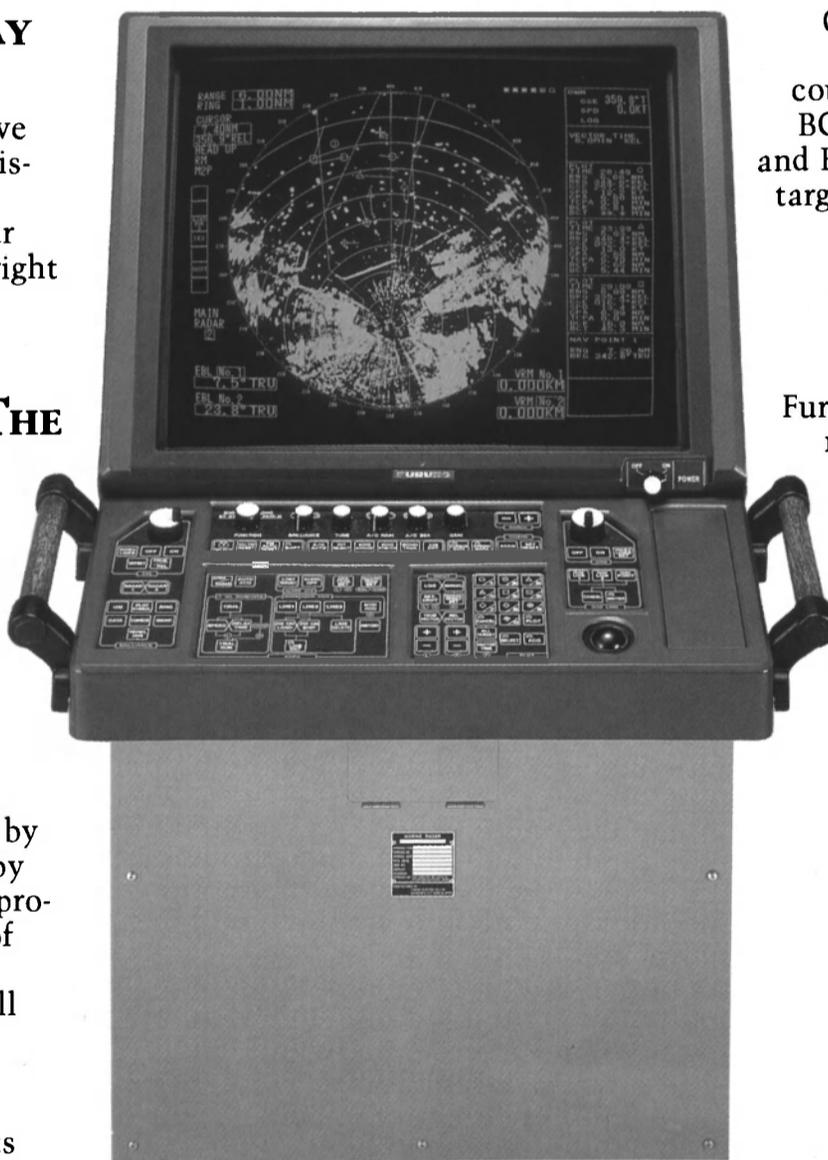
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MACOR-Equipped RO/ROs Play Key Role In Cargo Delivery During Operation Desert Storm

Roll-on/Roll-Off vessels played a key role in the delivery of equipment and supplies during Operation Desert Shield and Desert Storm. Inherent in the design of these type vessels are specially developed bow and stern ramps. One of the leading designers and developers of systems of this type is MACOR Marine Systems International GmbH, an independent manufacturer headquartered in Bremen, Germany.

The company was formerly called Deutsche MacGregor GmbH and was part of the International MacGregor Organization. After the International MacGregor Organization was acquired by Navire Oy in 1983, Deutsche MacGregor GmbH became independent and was renamed MACOR Marine Systems International GmbH in 1986.

The company's product range includes all types of hatch covers and cargo access equipment for Roll-On/Roll-Off (RO/RO) vessels, ferries, containerships, cruise vessels and other special-purpose ships. In all, more than 4,000 ships have already been equipped with advanced MACOR equipment.

Besides MACOR Marine Systems International GmbH in Bremen, the International MACOR Group in-

cludes: MACOR Marine Systems International, Inc., in the U.S.; MACOR Marine Systems International A/S in Denmark; MACOR Marine Systems International BV in the Netherlands; and MACOR Marine Systems International SARL in France. Representatives and agents are also located in Europe and Asia.

Several of the RO/ROs used during Desert Shield/Desert Storm—the Canadian Forest, Pfc. William B. Baugh, Pvt. Harry Fischer, Cpl. Louis J. Hauge Jr., First Lt. Alex Bonnyman Jr., and the Pfc. James Anderson—were fitted with Deutsche MacGregor-designed equipment.

"They (RO/ROs) are extremely useful in these type military operations," said Arij de Ligt, president of MACOR Marine Systems International Inc., Greensboro, N.C. "The stern ramps have the capability to launch amphibious vehicles right into the water. In addition, the ships can use their own deck cranes and stern ramp causeways to unload."

Mr. de Ligt, who, prior to his present position, worked for Navire Cargo Gear for over 15 years, said MACOR is developing a number of

special Sealift product designs. These designs include: a slewing stern ramp, stern door, removable deck, watertight bulkhead door, side port door, side port ramp, and hatch covers.

Furthermore, the company, which was formed in July 1991, is setting up a number of service centers near major U.S. ports to repair MACOR and MacGregor-equipped vessels.

Bow and stern ramps are among the facilities which permit the cargo to be loaded/unloaded horizontally from the pier to the ship. The ramps also double as watertight doors for the entry ports when the vessel is at sea.

The bow and stern ramps are raised and lowered by direct-action hydraulic cylinders or by hydraulically operated block and pulley systems.

In most cases, a bulkhead door is installed at the bow or hinged door is added at the stern to ensure the watertight properties of the ship's hull.

Additionally, MACOR has developed suspended extra car decks which provide additional storage space for cars above the main car deck. When not in use, these decks are simply raised to a position directly underneath the deck above by hydraulic rope drive systems.

Rolling cargo can be transferred to the upper and lower decks via built-in internal hinged ramps. These ramps also often serve to seal off openings in the deck during the voyage.

Cargo is often also moved vertically by cargo lifts connecting two or more decks. These are usually raised and lowered by vertical hydraulic rams.

Hydraulically operated bulkhead doors, side doors and side ramps round off the program. In addition, MACOR also designs complete hydraulic drive systems for bow visors and bow doors.

For free color brochures detailing the full line of MACOR products and services,

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The MACOR-designed stern ramp of the 14,874-dwt RO/RO Richtenfels (now the Lyra, owned by Lykes Bros. Steamship Co.). The Lyra served the Military Sealift Command during the Persian Gulf conflict.



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Bethlehem Steel Awarded \$25 Million Navy Contract To Overhaul Drydock

Bethlehem Steel Corporation's BethShip, Sparrows Point Yard was awarded a contract by the U.S. Navy to overhaul the Sustain floating drydock, president of the shipyard **David Watson**, recently announced.

The contract for work on the drydock is in excess of \$25 million and is expected to employ an average of more than 650 people during the five-month contract period.

The Sustain, a 552-foot-long by 124-foot-wide multisection drydock, is normally in service at the Norfolk Naval Base.

The contract work includes steel repair and replacement, piping renewal and tank blasting and coating.

\$20.1 Million Contract Won By Bath Iron Works

Bath Iron Works Corp., Bath, Maine, was recently awarded a \$20.1 million contract for lead yard services of the Arleigh Burke Class (DDG-51) Aegis destroyers. The contract (N00024-91-C-2800) was awarded by the Naval Sea Systems Command.

Carnival, Seabourn Agree To Form Joint Venture

An agreement in principle to form a joint venture with Seabourn Cruise Line has been announced by Carnival Cruise Lines Inc.

Carnival said in September that it was in talks to make an investment in Seabourn, which is based in Oslo, Norway, and is owned by its founder, **Atle Brynestad**. Two luxury liners are operated by Seabourn, which charge about \$600 a day, compared with the typical \$180-a-day cost for a Carnival cruise.

Financial terms of the agreement were not disclosed, but Carnival said it could eventually own as much as 50 percent of Seabourn.

Alaska Diesel Introduces New Big Boat Engine For Larger Commercial Vessels

Alaska Diesel Electric, Seattle, Wash., manufacturer of Luger marine diesels and Northern Lights generator sets, has introduced a new big boat engine for larger commercial vessels.

The Luger 6170A is an in-line six-cylinder, 23 liter, 170-mm bore, turbocharged-after-cooled diesel. It is rated 640 bhp at 1,800 rpm for

continuous duty, 730-bhp at 2,000 rpm medium duty, and 825 bhp at 2,100 for pleasure craft applications.

Advanced design features of the engine include individual four-valve cylinder heads, a freshwater-cooled turbocharger and after-cooler, one-piece nodular iron pistons, and replaceable wet cylinder liners.

For more information on L6170A and other Luggers from 61 to 1,300 hp,

Circle 24 on Reader Service Card

Gibrepair To Reopen Following Kvaerner Deal

Norway's Kvaerner Group has finalized the takeover of Gibrepair shipyard of Gibraltar. The yard should reopen in March 1992.

Initial plans call for Kvaerner to spend \$4.7 million in investment and operating costs. Under the terms of the 20-year lease agreement reached with the Gibraltar government, Kvaerner will virtu-

ally pay no rent for the first three years, after which it will pay according to its profits anywhere from a minimum of \$179,000 to a maximum of \$1.79 million per year.

The facility, which has three drydocks and is able to handle ships up to 80,000 dwt.

Kvaerner has been interested in the yard for quite some time because of its key location. More than 70,000 ships transit the Strait of Gibraltar every year.

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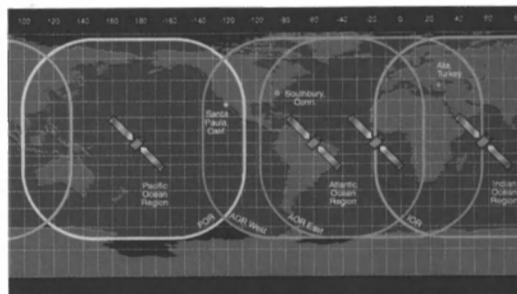
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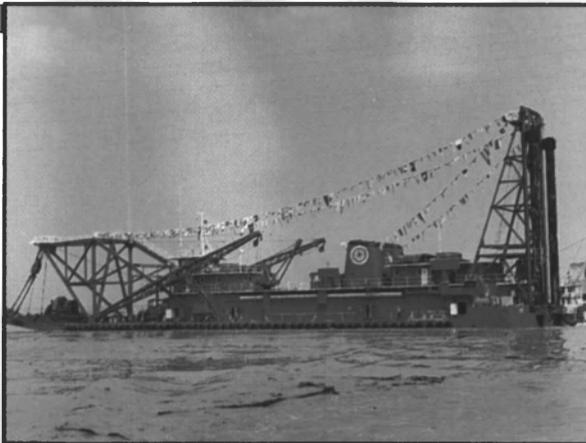
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Second Epoch Mark II-Type Product Carrier Delivered By Hitachi Zosen



The HZ/MAN B&W-powered product carrier Kastelorizo, built by Hitachi Zosen, has no projections within the tank, thereby shortening cargo-loading time and facilitating tank cleaning.

Hitachi Zosen Corp., Tokyo, Japan, recently completed construction of and delivered the 45,400-mt product carrier Kastelorizo for Kastelorizo Shipping Corporation of Liberia. It is the second ship of the Epoch Mark II type, developed by Hitachi Zosen exclusively to transport oil products.

Epoch Mark II product carriers have a total double-hull structure based on a completely new concept developed by Hitachi Zosen. They have a bamboo-like structure consisting of thick outer shells (the double-hull structure) and nodes (transverse bulkheads). Unlike conventional carriers that use both longitudinal and lateral members to ensure strength, the Kastelorizo employs only longitudinal members to serve as both stiffening members and deep girders. Thus, transverse members other than bulkheads can be eliminated. This design is called the unidirectional girder system.

The cargo oil tank on the Kastelorizo has a complete double structure, including the transverse bulkheads, so there is less danger of an oil spill in the event of a collision or grounding. And there is no danger of cargoes mixing when the ship is carrying two different kinds of oil, so the maintenance of cargo quality is assured. Thus, there are many advantages from the viewpoint of both safety and economy.

The product carrier has an approximate length of 600.4 feet, breadth of 105.6 feet and depth (molded) of 62.3 feet. The main engine is a Hitachi Zosen/MAN B&W 6S50MC type diesel with a maximum continuous output of 9,200 hp at 106 rpm, producing a trial speed of 14.9 knots. The vessel, which carries LRS classification, has a complement of 30 persons.

For free literature detailing the facilities and capabilities of Hitachi Zosen,

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Dutch Yard Wins Order Worth Over \$32 Million For 7,500-Dwt Chemtanker

Conoship International of Groningen, the Netherlands, has been awarded a contract for a 7,500-dwt fully stainless steel chemtanker

for operation by an Anglo-Australian venture.

The vessel is scheduled to be handed over to the Botany Bay Parcel Tankers pool before the end of 1992.

A joint undertaking of the New South Wales company Botany Bay Shipping and Liverpool-based Bibby Line, the prospective operator intends to trade the vessel on the North American Atlantic seaboard.

The contract, worth over \$32 million, has been assigned to the independently owned Welgelegen yard in Harlingen, the Netherlands, a member of the Conoship association.

Welgelegen is more widely identified with the fishing vessel market, and the IMO Type II chemical carrier will be the largest newbuilding yet from that yard.

The chemtanker will be used be-

tween Canadian and U.S. East Coast ports to carry slurried clay for the paper industry, as well as chemicals such as sulphuric acid. The vessel will be traded in the Botany Bay Parcel Tankers pool under a long-term contract with a Canadian company. Of her 12 cargo tanks, six will be designated for clay slurry.

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- Fully enclosed antenna prevents damage during or after release.
- High flotation design provides maximum visibility and performance in rough seas.
- Strobe is mounted on top of the EPIRB for easy detection by rescue forces.
- No on-board maintenance required.
- Unique release mechanism insures reliable, automatic release of Category 1 EPIRB.

Long Life And Reliability

Alden's EPIRB has a five year battery to give you an extra margin of safety, with the power to transmit for 48 hours in -4°F (-20°C) conditions. The SATFIND-406 EPIRB meets Canadian, U.S. Coast Guard and COSPAS-SARSAT specifications and is approved for use on commercial and recreational vessels. The Category 1 EPIRB is designed for both automatic and manual release; the Category 2 EPIRB for manual release.

Free Brochure Has All The Facts

For the name of your local Alden Marine Electronics dealer and a free brochure, call 1-508-366-8851 or send the coupon to Alden Electronics, 53A Washington St., Westborough, MA 01581.

The SATFIND-406 EPIRB allows horizontal, vertical or slanted mounting.

ALDENELECTRONICS

SATFIND -406 EPIRB

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Boat type _____

Circle 202 on Reader Service Card

Service Company Awarded Three New Contracts Worth \$1.28 Million

The Service Company of Louis Rogers, Inc. (SCLR), located in Port Canaveral, Fla., has been awarded several new contracts.

The U.S. Coast Guard awarded Service Company a \$244,284 contract, including options, to accom-

plish dockside repairs to the USCGC Confidence (WMEC-619). The work, being done in Port Canaveral, commenced on December 4, 1991, and will run for 49 days.

A contract was awarded by the Military Sealift Command to accomplish dockside repairs to the USNS Range Sentinel (T-AGM 22). Valued at \$644,235, the contract commenced this month and will run for 30 days, with work being accomplished in Port Canaveral.

The third contract, to accomplish replacement and upgrades to 24-mm gun systems on USCG 210-foot Cutters, is valued at over \$394,000 including options. The contract will commence in late July and be completed in August of 1992. Work will occur in Florida, Texas, New Jersey, and North Carolina and will be accomplished by SCLR's Port Canaveral personnel.

These contract awards ensure continued employment for SCLR's

work force and sustains growth plans into larger and more complicated projects.

For additional information,

Circle 34 on Reader Service Card

Coast Guard Proposes New Maritime Radio Rules To Fight Oil Spills

In an effort to reduce marine accidents and subsequent oil pollution, the Coast Guard wants all vessels plying U.S. waters to be equipped with radios that can communicate with and receive safety warnings from Coast Guard shore stations and other vessels.

The proposed requirement, mandated by the Oil Pollution Act of 1990, calls for all vessels in U.S. waters to have radios that can operate on VHF-FM Channel 22A. Vessels operating in the lower Mississippi River must also be equipped with VHF-FM Channel 67.

Most U.S. vessels have these radios, which sell for about \$200, but about half of the 6,000 foreign vessels visiting U.S. waters each year do not.

A notice published in the November 18, 1991, edition of the Federal Register explains the details of the proposed rule. Copies of the rule may be obtained by calling (202) 267-6740, or by faxing a written request to (202) 267-4624.

For further information write to Commandant G-MS-1, U.S. Coast Guard Headquarters, 2100 Second Street, SW, Washington, DC 20593.

MarineSafety Brochure Describes 18 Training Courses For 1992

For managers preparing manpower and training plans for next year, MarineSafety International (MSI) has published a brochure describing 18 training courses for deck and engineering officers.

The Marine Safety courses fall into five categories: Bridge Resource Management, Ship and Tug-Barge Handling, Radar/ARPA, LNG Cargo-handling and Steam/Diesel Engineering. Each course is planned to be a balanced mix of theory, practice and reinforcement of learning.

Dr. Eugene Guest, MSI's director, said: "This year, as usual, the emphasis in our courses is professional-level quality. We believe that in today's liability-laden environment companies must rely on training to reduce the risk of human error and resulting catastrophic losses. Our clients are professionals—they demand the best training available, and we have met this requirement for the past 14 years."

For a copy of the brochure describing the 1992 MSI courses, or for more information on MSI training programs,

Circle 28 on Reader Service Card

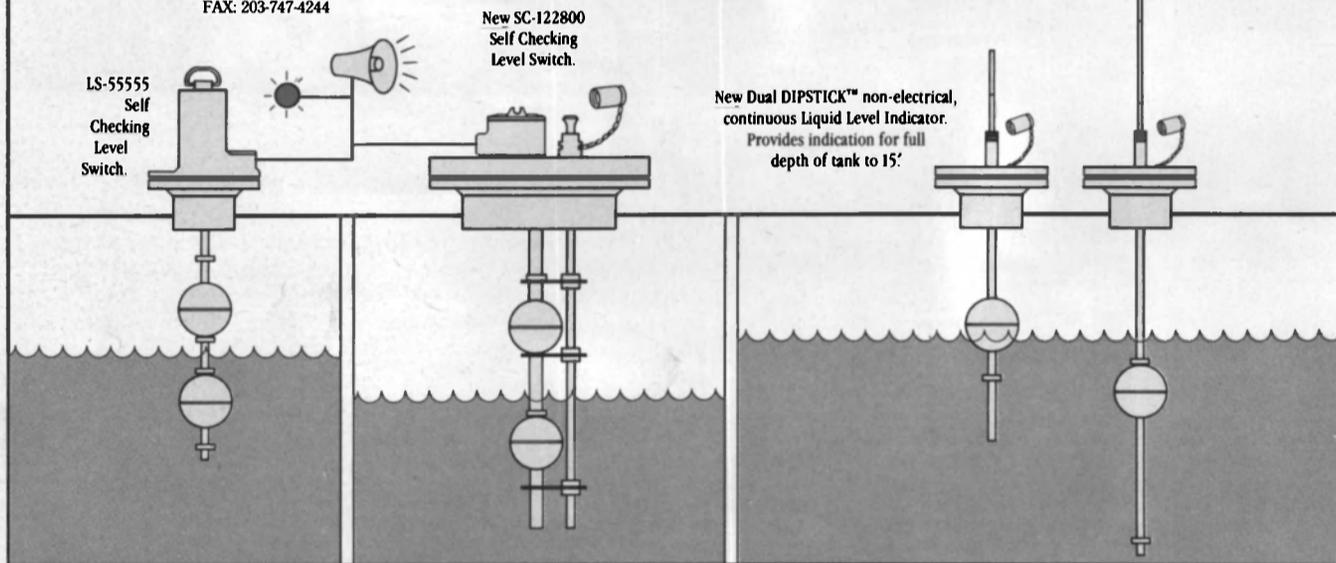
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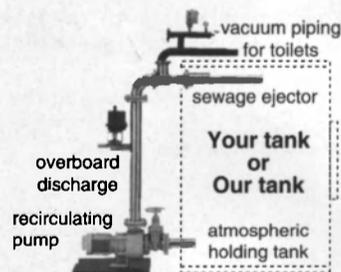
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Circle 228 on Reader Service Card

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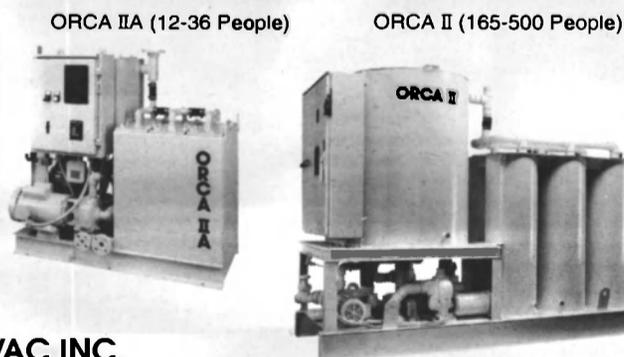
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Artist's conception of the new SWATH Ocean-built Houston pilot boat.

Swath Ocean To Build Twin-Hull Pilot Boat For Houston Pilots

Reportedly World's First SWATH Pilot Boat

The Chula Vista, Calif., yard of Swath Ocean Systems has been contracted by the Houston Pilots to build a 66-foot aluminum SWATH pilot boat, said to be the world's first such vessel. The vessel will be a Swath Ocean Systems 2000 Class pilot boat, with delivery scheduled for October 1992.

In commenting on the decision to select the Swath Ocean Systems vessel, Capt. **Harry Lydick**, president of Houston Pilots, said: "While we were impressed with the large amount of space available on a vessel only 66 feet, the overriding factor was the extremely stable ride attainable under adverse sea condi-

tions. When we first saw the company video on how these vessels perform, we were very impressed, but highly skeptical. After members of our selection committee rode Swath Ocean Systems vessels on different occasions and under stormy conditions, we were convinced."

One selection committee member stated, after a trip on board a Swath Ocean vessel, "I feel certain it (a Swath Ocean vessel) will revolutionize pilot boats of the future."

The Houston Pilots service the third largest commercial port in the U.S. and sixth largest in the world, with vessels up to 950 feet in length, transporting over 125 million tons of cargo annually. The pilots board and disembark vessels at the offshore end of Galveston Bay entrance channel. Since sea conditions in this exposed transfer area can be rough during most of the year, the monohulls now used by the Houston Pilots experience considerable motion while laying to on station or during transfer operations. This motion can tire pilots waiting for vessels and increase danger during transfer operations.

Both the pilots and Swath Ocean anticipate, apart from the greatly reduced motions inherent in the Swath Ocean hull form, that the exceptional directional stability of a swath will allow transfer operations at higher speeds than with the present monohulls. This capability, which has been confirmed in trials run off the San Francisco bar, should reduce roll motion on both the pilot vessel and the target vessel, reduc-

ing the danger to the pilot during transfer.

For free literature detailing the Swath Ocean Systems 2000 Class pilot boat,

Circle 56 on Reader Service Card

Engineering Visions Awarded \$15.6 Million U.S. Navy Contract

Engineering Visions, Inc. (ENVISIONS), a San Diego engineering and technical services firm, was awarded a \$15.6 million contract to develop and update Operational Sequencing System (OSS) documents for Navy ships.

The OSS documents provide detailed procedures for operating the engineering plants, the cargo and aviation fuel systems, and the sewage disposal systems onboard Navy surface ships of the Pacific Fleet.

In making the announcement, **Robert A. Waller**, president of ENVISIONS, said: "Award of this contract to ENVISIONS enhances our position as a leading supplier of engineering and technical services to the U.S. Navy. It will also provide continued employment of some 80 people at our San Diego facility," he added.

ENVISIONS has over 350 employees located at major operational sites in San Francisco, Calif., Bremerton, Wash., Norfolk, Va., and Charleston, S.C., in addition to the San Diego site.

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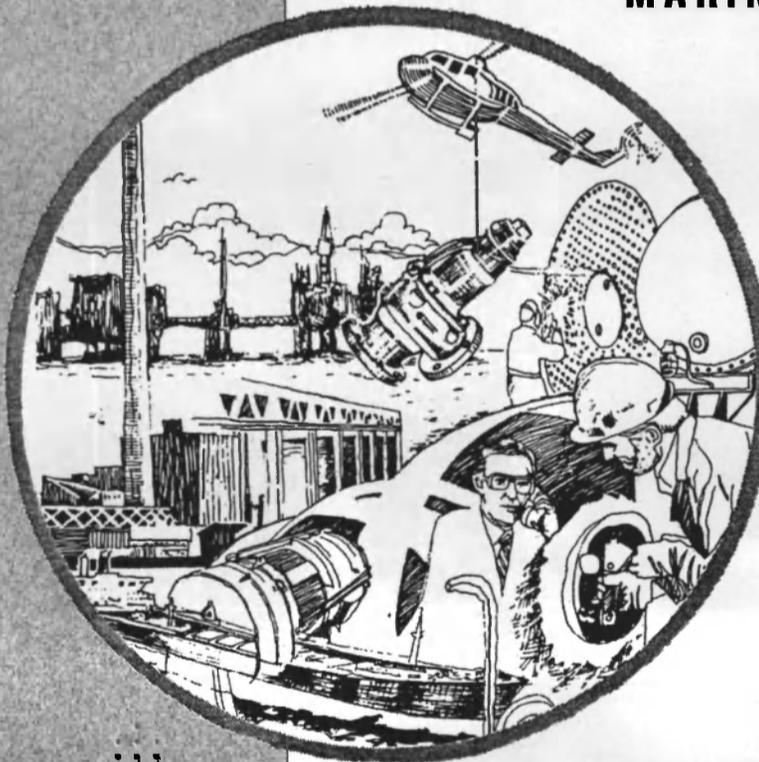
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Circle 201 on Reader Service Card

Electric Boat To Refit SSBN Class Submarine Under \$8.1 Million Pact

The Electric Boat Division of General Dynamics, Groton, Conn., was recently awarded a contract option worth \$8.1 million for the extended refit period of the USS Mariano G. Vallejo (SSBN-658). The Naval Sea Systems Command awarded the contract (N00024-91-C-2102).

Gladding-Hearn Reports Increase In Orders For New Vessels

Gladding-Hearn Shipbuilding, The Duclos Corp., is reported to have lined up enough business to keep its workforce busy well into next year.

The shipyard has begun construction of the M/V Jet Express II, a passenger ferry, for Put-In-Bay Transportation Co. located on Lake Erie's Put-In-Bay Island. The company's second high-speed catamaran, built by Gladding-Hearn, is the yard's eighth fast ferry contract since it began building the Australian-designed International Catamarans (Incats) in 1987.

The 98-foot, 400-passenger all-aluminum vessel will begin service between Port Clinton, Ohio, and Bass Island on Lake Erie next spring.

Powered by twin Deutz-MWM TBD 604 BV12 diesel engines rated at 1,740 shp each turning at 1,800 rpm and propelled by two KaMeWa water jets, the new ferry reaches speeds of 33 knots (38 mph) fully loaded.

For more information on Gladding-Hearn Shipbuilding,

Circle 68 on Reader Service Card

German & Milne Offer Free Color Literature Detailing Design Services

German & Milne Division, ECS-Power Systems, Inc., Ottawa, Ontario, Canada, is offering a free color literature package detailing their complete line of ship design and marine transportation consultation services.

The literature package being offered by German & Milne, which was established in 1922 and has designed over 700 ships, includes an extensive, detailed color brochure detailing CARMA—Computer Assisted Reciprocating Machinery Analyzer, which is used for predictive maintenance and trouble shooting. The brochure and associated literature provides full specifications on CARMA, as well as case histories and general applications of the system.

According to the brochure, CARMA is connected to each of the machine's cylinders in turn. Sensor signals such as vibration, ultrasonic, cylinder pressure and crankshaft

position are graphically displayed on CARMA's computer screen in real time. Faults generate tell-tale signals that are clearly visible and quickly diagnosed.

Also included in German & Milne's literature package are details on the firm's Saysar Maintenance Management System and the company's design services.

To obtain the free package of color literature from German & Milne,

Circle 169 on Reader Service Card

Teledyne Hastings-Raydist Offers Plotting Software

The HYCHRT V2.0 program for DM/PL plotters produces precision geodetic and projection grid plots suitable for overlays with Department of Commerce (NOAA) charts and maps.

Analysis/pre-plot features allow addition of hyperbolic (Raydist, Racal, etc.) Lines of Position, ground stations, and operations areas (with

track lines) along with text and special symbols. Built-in file utility for ground station, operations area, and overall plot setup permits fast, accurate and repeatable plots. Setup files for standard charts are available.

Operates in the LSI-11/PDP-11 RT-11 environment.

For further information and free literature from Teledyne Hastings-Raydist,

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Circle 230 on Reader Service Card

Halter International, Trinity Marine Sign Combo Building Agreement



Halter International, Inc., New Orleans, recently signed an agreement with the Trinity Marine Group, Gulfport, Miss., for the construction of Halter Combo Series of multipurpose emergency response vessels. Sitting, left to right, are: **John Dane III**, president of the Trinity Marine Group, and **John Glas**, chairman and CEO of Halter International, Inc. Standing, left to right, are: **Harvey Walpert**, vice president, Trinity Marine Group, and **Harold P. Halter**, president, Halter International, Inc.

Halter International, Inc., New Orleans, recently signed an agreement with the Trinity Marine Group, Gulfport, Miss., for the construction of Halter Combo Series of multipurpose emergency response vessels designed by **Harold P. Halter**. Halter International's chairman and CEO, **John R. Glas**, and **John Dane III**, president of the Trinity Marine Group, completed the agreement at Halter corporate headquarters designating Trinity as the official contractor of the Combo Series.

The Combo vessels, constructed of aluminum in designs from 30 to 220 feet, are part of an emerging industry developing as a result of the Oil Pollution Act of 1990. This legislation provides the guidelines for state and local governments, as well as oil and shipping companies, to maintain a state of readiness in the event of an oil spill. Halter International responded to the OPA 90 by producing a series of vessels whose multitude of uses make them efficient and effective in both oil recovery and fire fighting, as well as economical to operate.

"We've combined the most technologically advanced and effective equipment known today with one of the most powerful designs ever integrated into a multipurpose vessel," said Mr. **Halter**, president of Halter International.

The Trinity Marine Group, owned by Trinity Industries, Inc., Dallas, Texas, operates yards in Louisiana, Mississippi, Texas and Pennsylvania.

For free literature detailing the new Combo Series,

Circle 74 on Reader Service Card

Sperry Marine's Training Department Entering 70th Year

Organized in 1922, just 12 years after the company was founded, Sperry Marine's Training Department is about to complete 70 years of conducting classes for the maritime industry. Over the past 70 years, literally thousands of students from almost every maritime country in the world have taken Sperry courses.

Classes include the entire range of Sperry Marine products from basic hydraulics and radar operations to complete integrated bridge systems.

The company conducts courses in a wide vari-

ety of subjects in worldwide locations. While most are conducted in company headquarters in Charlottesville, Va., in recent months Sperry training engineers have taught classes in Malaysia, Brazil, the Netherlands, South Korea, Italy, Japan, South Africa and the Near East.

Sperry Marine Inc., a major developer and manufacturer of advanced commercial and defense marine electronic equipment, is a subsidiary of Newport News Shipbuilding, a Tenneco company.

For free literature giving more information,
Circle 32 on Reader Service Card

Miller Introduces Millermatic Mig Welders



The four new Millermatic welding machines from Miller Electric Mfg.

Four all-in-one Millermatic MIG (GMAW) welding machines were recently introduced by from Miller Electric Mfg. Co., Appleton, Wis. The welding machines range from 250 amp industrial models to units designed for repair and maintenance welding.

The Millermatic 250 and 250MP are single-phase, industrial class models and offer 250 amps of DC weld output at 40 percent duty cycle, 200 amps at 60 percent duty cycle. Both feature infinite voltage, exact wire speed and easily adjustable panel controls.

The Millermatic 120 provides 120 amps at 30 percent duty cycle. Excellent performance on thinner metals and good arc characteristics throughout the amperage range make it well-suited for shop work, boat yards, and light fabrication. The MM 120 handles both gasless and solid welding wire in a variety of sizes.

The 115-volt Millermatic 90 also runs several wire sizes. This model supplies 90 amps at 20 percent duty cycle and is a good choice for repair shops, boat yards, and light maintenance duty.

For free literature detailing the four new Millermatic welding machines,

Circle 172 on Reader Service Card

Electric Boat Receives \$46.5 Million Contract

The Electric Boat Division of General Dynamics, Groton, Conn., recently received \$46.5 million following the exercise of contract options for omnibus engineering and technical services for Ohio Class submarines. The Naval Sea Systems Command awarded the contract (N00024-91-C-2115).

API Elects Silas Chairman Of The Board

C.J. (Pete) Silas, chairman and chief executive officer of Phillips Petroleum Company, has been elected chairman of the board of the American Petroleum Institute.

Mr. **Silas** succeeds **Allen E. Murray**, chairman of the board, president and chief executive officer, Mobil Corporation, in the API post.

Mr. **Silas** has been Phillips's chairman and chief executive officer since 1985. Previously, he served for three years as the company's president and chief operating officer.

Maritime Reporter/Engineering News

COMSAT Land Earth Stations Begin Inmarsat-C Service Called 'C-Link'

COMSAT Mobile Communications recently announced that its Southbury, Conn., land earth stations have begun providing Inmarsat-C mobile satellite communications services to customers located in the Atlantic Ocean Region-West (AOR-W) and the Pacific Ocean Region (POR).

The COMSAT service, marketed under the trade name, C-Link, is a two-way, messaging service that uses compact and inexpensive Inmarsat-C satellite terminals for text and data messaging. Coverage provided by COMSAT's two land earth stations stretches from China and the Pacific Rim countries, across both the Pacific and Atlantic Oceans,

and reaches to North and South America, western Africa and western Europe.

According to **Ronald Mario**, president of COMSAT Mobile Communications, the Inmarsat-C service is invaluable to commercial and private sailors who venture into international waters and to businesses that operate in remote locations, who need reliable communications regardless of weather or geographic location. He said that the service, which meets the International Maritime Organization's (IMO) requirements for the Global Distress and Safety System (GMDSS), is targeted to smaller vessels that could not otherwise take advantage of satel-

lite communications and as a backup system on larger vessels.

COMSAT's initial C-Link service allows connection through the global Inmarsat system to the international telex network from a personal computer, navigation device or a simple keyboard. Customers can send or receive written messages, which are processed through the system in a short period of time—typically less than five minutes—and then forwarded to their destination without requiring the receiving party to be present.

Within a few months, COMSAT's C-Link service will also allow access by dialing into local telephone numbers and through X.25 packet networks and electronic mail systems. The future COMSAT service will also allow for ship-to-shore fax delivery of text messages. COMSAT users can call a toll-free number for dictating the message to a COMSAT operator or actual mailing of a message for delivery to individuals not equipped for the service.

Other important COMSAT C-Link services under development include vessel-tracking and position-

reporting (COMSAT's C-Track), remote monitoring and control, and a workstation package that supports all the various C-Link services.

To obtain service, a customer needs to first purchase and install the appropriate Inmarsat-C equipment, then commission it with the Inmarsat system. COMSAT, as the U.S. Signatory to Inmarsat, processes the commissioning applications for all U.S.-registered vessels and mobile terminals. Once operating in the system, a user can route communications traffic through COMSAT's Southbury AOR-W earth station by using the following log-on codes: NCS ID-044; TDM-11080; and LES ID-001. To log onto COMSAT's Santa Paula station in the POR, use: NCS ID-244; TDM-12580; and LES ID-201.

If you are currently a user of COMSAT's C-Link User's Guide, write to COMSAT Mobile Communications at 950 L'Enfant Plaza, SW, Washington, DC 20004, Attn: C-Link Customer Service, or call (in the U.S.) 1-800-685-7898, or

Circle 62 on Reader Service Card

New gas-tight gauging tape now ready for worldwide use.

Keeping hazardous benzene vapors safely away from employees, and preventing any escape into the atmosphere, are rapidly becoming pressing issues for shipowners and operators at U.S.A. and all worldwide ports.

That's why MMC has developed this new closed Trimode™ gauging/sampling system for marine applications. It's a gas-tight version of its Flexi-Dip™ Trimode™ triple-function tape that has been widely used in the maritime industry for over 15 years.

MMC currently makes a stainless steel version of this closed tape for handling toxic and corrosive liquids in the chemical processing industry.

This new lightweight version meets all USCG regulations and has FM, BASEEFA, CSA and SAA approvals.

Orders are now being taken for delivery by the end of the year.



Keeping You in Control

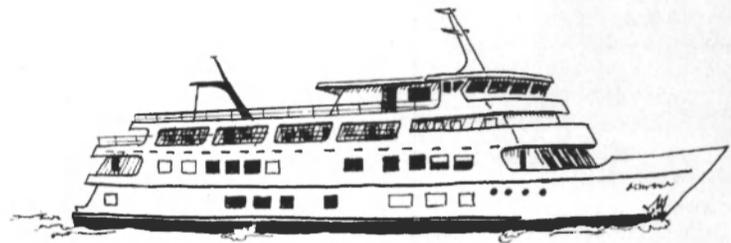
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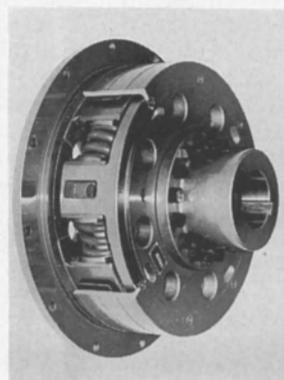
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Circle 203 on Reader Service Card

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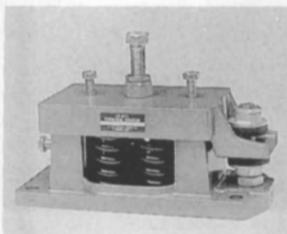
HF (HUB-FLANGE) ARRANGEMENT

LO-REZ was one of the first coupling manufacturers in the early fifties, to recognize the importance of torsionally-soft coupling in power transmission systems, particularly in reciprocating, variable speed systems and those involving gearing.

Circle 232 on Reader Service Card

STEEL SPRING VIBRATION ISOLATORS

LO-REZ manufactures both the conventional untuned viscous dampers and its new mechanically-tuned viscous dampers. Extensive research has shown that the single and compound tuning methods, as developed, reduce resonant amplitudes by at least 40% and 60%, respectively, of the untuned values.



BR4-LS SERIES

Circle 271 on Reader Service Card

UNTUNED & MECHANICALLY-TUNED VISCOUS TORSIONAL VIBRATION DAMPERS

LO-REZ manufactures a broad line of steel-spring and rubber vibration Isolators. The BR series steel-spring isolators (shown here) with their ample thrust capacity and rubber-cushioned, adjustable stop (to limit excess vertical excursion) are widely used for marine auxiliary and other mobile applications. No external chocks are required. BR series isolators. They are ideal isolation supports, also, for machinery rafts in ships.



VISCOUS DAMPER TYPE DT

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Contamination Of Diesel Fuel: Impact, Causes & Prevention*

There is an interesting paradox regarding the microbial contamination of diesel fuels. Although the adverse impact of microbial contamination in diesel fuels has been thoroughly documented, and a variety of products and procedures are available for minimizing this impact, of the nearly 12 billion gallons of diesel fuel consumed annually in the U.S., less than one percent is treated with an antimicrobial agent. One explanation for this paradox is that few marine, railroad and truck fleet operators recognize the economic impact of uncontrolled microbial contamination. The effects of microbial contamination are often subtle, and rarely identified by system operators as the cause of defined fuel performance stability problems.

Impact Of Microbial Contamination

Problems arise from both the direct and indirect effects of microbial growth in diesel tanks. For example, the biodegradation of fuel, in support of microbial growth, is a direct impact of contamination. Color, heat of combustion, pour point, cloud point, detergent and anti-corrosive properties change as microbes selectively attack fuel components.

Some of the indirect effects of microbial contamination of diesel fuels include: (1) Microbially influenced corrosion; (2) Biofilms; (3) Corrosive acids; (4) Hydrogenase-caused depolarization of metallic surfaces; (5) Transfer-line flow restrictions; (6) Filter plugging; (7) Engine wear; (8) Corrosive deposits on engine parts—injectors, cylinder linings, etc.; (9) Reduced heat of combustion; (10) Fuel property changes—color, pour point, cloud point, thermal stability, etc.; and (11) Loss of additive performance.

Filter clogging, increased engine, piston and cylinder wear rates and increased torque on camshafts translate into increased maintenance costs and engine failure.

If engine failure occurs to a marine diesel during operations in restricted waters or heavy seas, the impact can be catastrophic. As anti-corrosive additives are biodegraded, and organic acids accumulate in fuel, the probability of corrosion deposits on pistons, cylinders and injectors increases.

Contamination Prevention & Control

There are four primary aspects of contamination prevention and control. They are: (1) Engineering; (2) Monitoring; (3) Maintenance; and (4) Treatment.

Each aspect contributes to successful minimization of microbial contamination problems, and consequently to reduction of operating costs attributed to these problems.

Engineering

Fuel systems can be divided into storage, transfer, purification and delivery/combustion components. Storage takes place in tanks. The opportunity for contamination and the facility with which contaminants are removed are, in large part, a function of tank design. Small service tanks should be equipped with a drain at their lowest point. Service tanks should be mounted so that water and sediment bottoms can be drained off easily. Tank vents should be equipped with filters to prevent particles from being drawn in as fuel is removed.

Large tank design should follow the same principles as those recommended for service tanks. In larger tanks it is even more critical to provide a means for removing water and sludge from the bottoms at regular intervals. Drain systems must be designed to minimize the risk of

accidental release of contaminated bottoms into the environment. Tanks also need access for periodic inspection and maintenance.

Monitoring

There are four objectives of fuel monitoring programs: (1) To indicate whether fuel systems are contaminated; (2) To provide information to facilitate trouble-shooting, when necessary; (3) To determine whether stored fuel has deteriorated beyond acceptable limits; and (4) To provide criteria for scheduling preventive maintenance on fuel and fuel systems, thereby avoiding unexpected failures during operations.

During monitoring, sampling procedures must ensure that representative proportions of fuel/bottoms-water are collected. The data collected during analyses must provide an indication of the suitability of the fuel for its intended use, the storage conditions or some other relevant performance criterion.

Maintenance

Perhaps the single most effective maintenance practice is to minimize the exposure of distillate fuel to water. Tank insulation, recycling through water separators and routine discharge water bottoms all minimize water accumulation in fuel-storage tanks. Systems designed for water removal can also be equipped to remove particulates—including biomass—from fuel. Sludge should also be removed from tanks regularly.

In addition to processing stored fuel, and purging bottoms water and sludge, periodic tank inspection and cleaning should be scheduled. Periodic treatment with preventive doses of approved fuel preservatives should prolong the interval between most of these labor-intensive maintenance activities.

Treatment

Treatment refers to both chemical addition and mechanical processing of the contaminated fuel and associated water bottoms and sludge. The mechanical phase of the treatment process is similar to that described under "Maintenance." To be effective, biocide is metered into the fuel as the fuel is pumped into a clean storage tank. Before being used again, heavily contaminated tanks should be cleaned thoroughly.

A number of factors should be considered in evaluating biocides to be used as fuel disinfectants and preservatives. Key considerations include water/fuel solubility, speed of kill, persistence of effect, compatibility with fuel and other additives, compatibility with other system components, handling and disposal safety considerations, and industry and regulatory approvals.

Biocide manufacturers provide instruction for the safe handling and disposal of their products. As antimicrobials, these products are, by definition, toxic. So, however, are a variety of regularly used household products such as chlorine bleach, ammonia, etc. When used as instructed, biocides represent no more risk than do these household products.

Fuel performance, system integrity, filter life and engine life can be degraded significantly by the direct and indirect effects of microbial activity. Consequently, treatment with a fuel preservative can have a positive economic impact on bottom-line operational costs.

For more information on biocides for fuel preservation,

Circle 54 on Reader Service Card

*Editor's Note: This article is excerpted from a report by Frederick J. Passman, Angus Chemical Company, Northbrook, Ill., and Stephen R. Burak, Ferrous Corporation, Bellevue, Wash.

Textron Marine Awarded Five-Boat Contract By U.S. Coast Guard



The U.S. Coast Guard's 47-foot motor lifeboat has a maximum operating speed of 28 knots and an associated range of 220 nautical miles. The hull is lightweight yet strong enough to withstand hurricane force winds and 20-foot breaking waves. The boat has the capability of a complete rollover and can self-right in 30 seconds or less.

Textron Marine Systems recently announced that it was awarded a \$5.2 million contract by the U.S. Coast Guard for construction of five preproduction motor lifeboats. These motor lifeboats are 47 feet in length and have self-righting characteristics that enable rescue operations in extremely heavy sea states. During the recently completed successful testing of the prototype craft, which was designed and constructed at Textron Marine Systems, the full capabilities of the craft were demonstrated on two separate occasions when survivors were rescued under extreme weather conditions. With an average of over 20 rescue missions a day to the U.S. Coast Guard's credit, the addition of this craft will be comforting for those at sea.

Following construction of the five craft, the U.S. Coast Guard will enter into full production of 70 to 100 boats with associated revenues exceeding \$100 million over the life of the program. **John J. Kelly**, president of Textron Marine Systems, stated that this award and subsequent production awards provide further stability for the company and added diversity to the product line.

Textron Marine Systems is an industry leader in ship design and construction and the U.S. Navy's developer for the Landing Craft, Air Cushion (LCAC).

For further information and free literature on Textron Marine,

Circle 176 on Reader Service Card

G.E. Aircraft Awarded \$6.8 Million Contract

G.E. Aircraft Engines, Marine & Industrial Engine Div., Cincinnati, Ohio, has been awarded a \$6.8 million contract for two gas generators and associated equipment, and two power turbines and associated equipment as spares for Spanish and Portuguese frigates. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-92-C-4070).

January, 1992

New Kvaerner Fjellstrand Yard Opens In Singapore

The new Singapore yard of Kvaerner Fjellstrand, established by Norway's Kvaerner group to build high-speed catamarans, was recently inaugurated.

Built at a cost of \$16.1 million, the yard will produce some of the first-class fast craft designed by Kvaerner Fjellstrand of Norway, one of the world's leading producers of

high-speed vessels.

Models include the 40-meter (about 131 feet) Fast Cat—a modified version of the highly successful 38.3-meter (about 127 feet) Advanced Slender Catamaran—and the newer 40-meter Flying Cat, which recently won a Norwegian design award.

The new 15,000-square-meter yard will have a capacity of six vessels a year, which could be increased to 10.

Kvaerner Fjellstrand Singapore

has already secured two orders, from Malaysia and Indonesia, which according to the president of the yard would have been difficult to obtain without a presence in the region.

The new yard has been established in just over a year. A number of the 180 people who make up the work force have already completed long training programs at Kvaerner Fjellstrand's Omastrand yard in western Norway.

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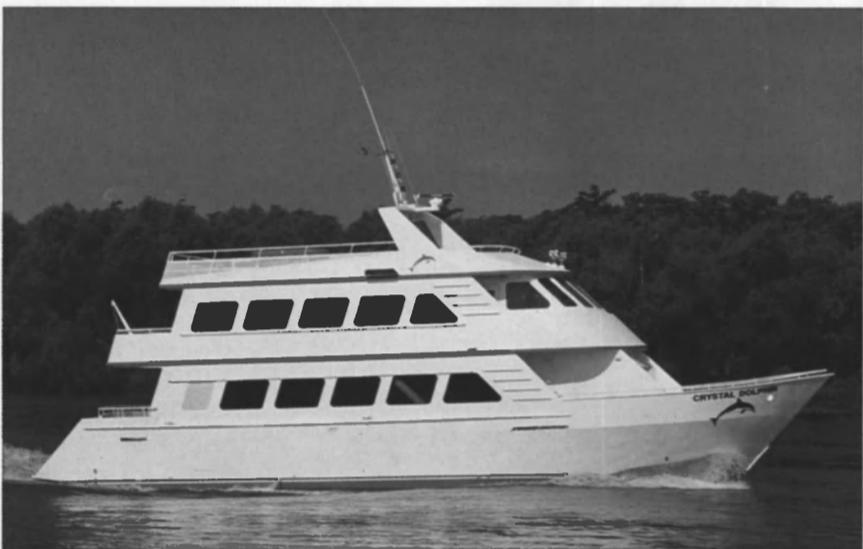
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OUTSTANDING PA & FERRIES



High-speed catamaran Jet Cat Express, from Gladding-Hearn.



Luxury charter yacht Crystal Dolphin, built by Trinity.



Singapore Shipbuilding's catamaran Tai Ping.



Leevac-built excursion boat Goodtime III.

Over 45 million passengers are transported annually on American waterways. Dinner cruises, excursion tours, ferry commuter operations, and a new sector of the passenger vessel market—riverboat gambling—remain popular choices for many Americans. Interest in the use of ferry services to reduce heavy urban commuter road traffic congestion remains high, while new gambling laws in Illinois, Iowa, Louisiana, and Mississippi have spurred a great deal of multimillion-dollar vessel construction and conversion projects.

Additionally, in the U.S., as well as other regions around the world, the role of the fast ferry continues to expand, drastically reducing traveling times on many coastal routes.

The following portfolio commemorates some of the most notable and distinctive new vessels in the shallow-draft market as selected by the editors of MARITIME REPORTER.

FOR MORE INFORMATION

To obtain free literature on any of the shipyards detailed in this feature article, circle the appropriate Reader Service number on the post-paid card bound into the back of this issue.

ALTON CASINO BELLE Bender Shipbuilding

Circle 37 on Reader Service Card

In the past year, Bender Shipbuilding & Repair Co., Inc., Mobile, Ala., delivered the first gambling vessel for Illinois, the 156-foot M/V Alton Belle Casino, converted from the dinner cruise boat Empress of Palm Beach, to owners Alton Riverboat Gambling Partnership of Alton, Ill.

By converting an existing vessel, the owners were able to get an early

start on the race to place casino riverboats on the Mississippi River. Bender completed the conversion in only 90 days. The shipyard cut the dinner cruise boat at mid-section and inserted a 50-foot midbody. The vessel was gutted and refitted to accommodate gaming tables and slot machines. The vessel was made handicap accessible and all stairways were widened to accommodate

ALTON CASINO BELLE Equipment List

Main engines	Cummins
Generator engines	Caterpillar
Reduction gears	Twin Disc
Engine controls	Schrader Bellows
VHF radio	Cybernet
Radar	Furuno
HVAC	Trane

larger crowds. A new electrical system and a massive Trane heating and air conditioning system were added to meet casino standards. Two 290-kw Caterpillar 3406 B-driven generators were added to the existing two 80-kw Cummins generators to power the new HVAC equipment.

The Alton Belle accommodates 600 passengers and 60 crew members and is equipped with approximately 400 gaming positions.

The vessel was designed by Maritime Design, Inc., of Jacksonville, Fla. Interior design was by Kuhlmann Design Group, Inc., St. Louis, Mo. Gaming equipment was supplied by International Game Technology, Reno, Nev., and surveillance equipment was supplied by Electronics Specialists, Inc., of Las Vegas.

CHICAGO'S FIRST LADY Steiner Shipyard

Circle 38 on Reader Service Card

Steiner Shipyard, Bayou La



Kvaerner Fjellstrand 40-meter Foilcat.

Maritime Reporter/Engineering News

SENGER VESSELS OF 1991

Batre, Ala., delivered the elegant 96-foot charter vessel Chicago's First Lady for operation on Lake Michigan and the Chicago River. Owners **Bob and Holly Agra** of Mercury Skyline Cruise Lines offer luxury dining and sightseeing on the vessel.

"Because of the quality of our boats, Bayou La Batre quickly became known as the fishing boat capital of the world," noted **Russell Steiner**, president of Steiner Shipyard. "We intend to broaden our reputation for quality by building outstanding passenger vessels of all types."

Chicago's First Lady is a recreation of a 1920s steam-powered yacht and bears a striking resemblance to the Presidential yacht Sequoia.

Designed by Florida naval architect **Bill Preston**, the \$1.2 million vessel has a pair of Caterpillar 3306s, each producing 220 hp, for main propulsion, and twin Caterpillar 3304s driving 165-kw Cat SR-4 generators for auxiliary power.

Chicago's First Lady features brass-framed windows on the forward section of the first deck superstructure and a cosmetic stack just behind the pilothouse on the second deck. This stack is of two-piece construction so it can be raised and lowered to fit under low bridges on the Chicago River. The top section of the stack is plastic to accommo-

CHICAGO'S FIRST LADY Equipment List

Main engines Caterpillar
 Propellers Rice
 Reduction gears Twin Disc
 Engine controls MMC
 Steering controls Coast Air
 Shafting Aquamet
 Radar Furuno
 Coatings Devoe
 Compass Ritchie
 A/C Cruise Air
 Bilge & fire pumps Crown Pumps

date a radar dome inside.

Her enclosed, air-conditioned main deck salon features a skylight and a bandstand with a piano in the stern and a U-shaped bar forward. There is seating for 104 passengers, but in a reception/cocktail party setup, as many as 250 passengers can be entertained.

The second deck is open aft of the pilothouse.

CRYSTAL DOLPHIN Trinity Marine Group

Circle 39 on Reader Service Card

Aluminum Boats, Inc., Crown Point, La., a member of the Trinity Marine Group, has delivered the Crystal Dolphin, an 85-foot executive dinner cruise/excursion vessel to Tidewater Barge Lines, Inc., Vancouver, Wash.

The all-aluminum craft boasts a luxurious "modular" interior which permits the boat to be quickly configured for executive meetings, cocktail parties, dinners, or sightseeing

CRYSTAL DOLPHIN Equipment List

Main engines Caterpillar
 Reduction gears Twin Disc
 Propellers Federal
 Generators Isuzu
 Engine controls MMC
 VHF radio Standard
 Radar Furuno
 Fathometer Datamarine
 Bearings BFGoodrich
 Bilge pump Jabsco
 Fire pump Crown
 Horn Kahlenberg
 Blowers Hartzell
 Compass Ritchie
 Life jackets Stearns
 Ancho Danforth
 Searchlight Perko
 Navigation lights Aqua Signal
 Engine room lighting Pauluhn



The gambling boat Alton Casino Belle, from Bender Shipbuilding.



Excursion boat Monte Carlo, built by Nichols Brothers.



Casino boat Par-A-Dice, built by Atlantic Marine.

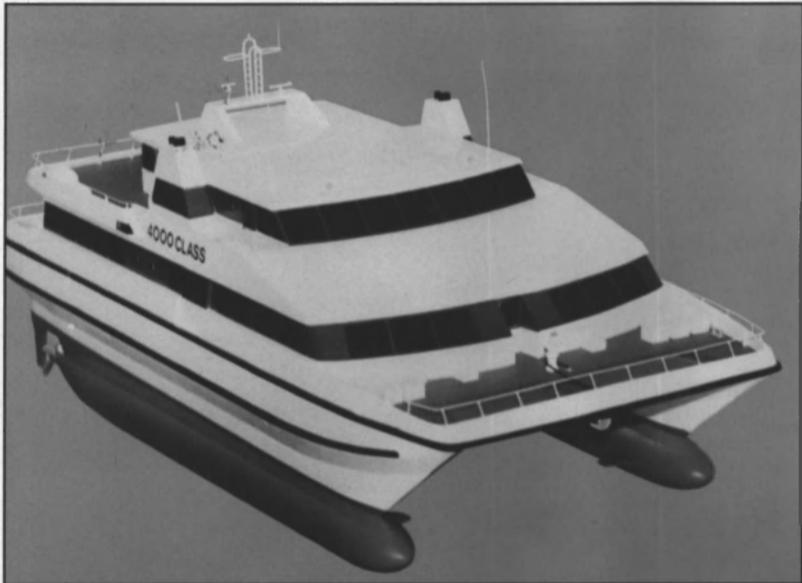


Gambling boat Dubuque Casino Belle, from Patti Shipyard.



Voyager II, whale-watch boat built by Gulf Craft.

YOUR PASSENGERS REQUIRE ACCEPTABLE RIDE QUALITY

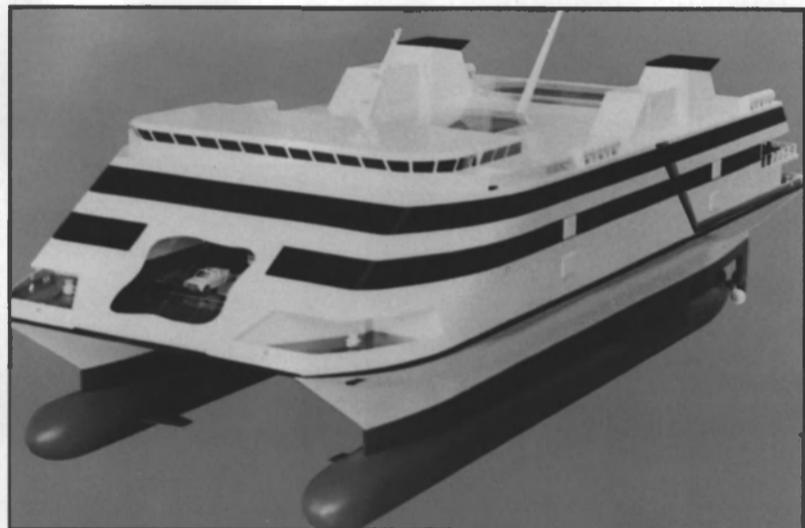


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Except for a few sheltered areas, calm water conditions do not prevail in the seas and oceans. Vessels must be judged in the real environment in which they work.

High speed ferries which are not swaths rapidly lose speed in seaways and expose passengers to a poor ride quality. It can be very risky economics just to assume acceptable ride quality will be there or to build a schedule around speeds not sustainable in real world conditions.



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Outstanding Passenger Vessels & Ferries

(continued)

cruises. The boat is available for charter in the Portland-Seattle-Vancouver area.

A unique feature of the main salon is a custom-made sectional which is placed in the center allowing full viewing at all times. The sectional can also be separated and it pieces placed against the bulkheads to form individual seats, creating more space in the center of the salon.

The below deck includes a spacious galley for meal preparation.

Overall the Crystal Dolphin is 85 feet in length, with a 24-foot beam, and a 3.5-foot draft. The boat also includes a five-foot swim platform at the stern.

Propulsion is provided by two Caterpillar 3408TA diesel engines driving through Twin Disc reverse/reduction gears.

DESERT PRINCESS Skipperliner Shipyards

Circle 40 on Reader Service Card

Skipperliner Shipyards, Inc., La Crosse, Wis., has delivered a 117-foot dinner/dancing/sightseeing sternwheeler for Lake Mead Cruises, Boulder City, Nev., a wholly owned subsidiary of Travel Systems, Inc., Lake Tahoe, Nev.

Called the Desert Princess, the boat operates on Lake Mead and has two propulsion systems which can either be used separately or in tandem. For twin-screw propulsion, the 150-ton-displacement Desert Princess is propelled by twin Caterpillar 3306 diesel engines and 36- by 30-inch pitch, four-blade Michigan Wheel Workhorse propellers, while for hydraulic sternwheel propulsion, she is powered by a single Caterpillar 3306 engine. Her service speed is 10 knots.

Electrical power is supplied by a 165-kw generator driven by a Caterpillar 3306 diesel. She is also fitted with a hydraulically operated 16-inch, 55-hp thruster supplied by American.

Owner **Bob Kimble's** Desert Princess has an exclusive contract with the Parks Service to operate in the Black Canyon, which provides her passengers with the unique experience of being at the top of Hoover Dam on Lake Mead.

According to **Robert E. McMahon Jr.**, vice president, sales and marketing, Skipperliner Shipyards, the three-deck Desert Princess accommodates about 300 passengers. About 220 passengers can be accommodated for dinner seating on her enclosed main and boiler decks. The interior of the sternwheeler has a "Southwestern flair," with Indian type colors throughout.

For the passengers' comfort and enjoyment, the Desert Princess is equipped with 40 tons of Cruisair air conditioning, the latest noise and vibration dampening systems from

Circle 219 on Reader Service Card →

Lo-Rez, and full galley facilities including a char-broiler.

The naval architect for the vessel was Timothy Graul, Marine Design, Sturgeon Bay, Wis.

DUBUQUE CASINO BELLE Patti Shipyards

Circle 41 on Reader Service Card

Delivered by Patti Shipyards,

Pensacola, Fla., the Victorian-style riverboat Dubuque Casino Belle is reportedly the largest passenger vessel and gambling boat operating on the Mississippi. Owned by Roberts River Rides and operating out of Dubuque, Iowa, the 387-foot four-deck floating casino, fully outfitted with its gaming equipment, was built at a cost of about \$12 million. U.S. Coast Guard-certified to carry 2,000 passengers, the Dubuque Casino Belle was reportedly the first American-flagged vessel to receive a li-

DUBUQUE CASINO BELLE Equipment List

Main engines	Cummins
Propellers	Michigan
Thrusters	Thrustmaster
Generator engine	Cummins
Reduction gears	ZF
Engine controls	Schrader-Bellows
Steering controls	Custom Hydraulics
Shafting	Aquamet
Radar	Furuno
Fire pump	MCM
Bilge pumps	M.P. Pump



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Outstanding Passenger Vessels & Ferries

(continued)

cense for casino gambling.

Although designed to resemble a 19th century sidewheeler, the Dubuque Casino Belle is fitted with a modern screw propulsion. Three Cummins model KTA38-M diesel engines, supplied by Northern Iowa Diesel of Dubuque, produce a total

horsepower of 2,400 hp at 1,800 rpm. Power is transmitted to her three Michigan Work Horse 64-inch-diameter propellers via Aquamet shafting and three ZFBW-251 transmissions. The Dubuque Casino Belle, with a beam of 58 feet, draft of 5 feet, is actually an integrated combination vessel, consisting of a 100-foot power module and 250-foot passenger barge connected by a winch cable system.

She has three casinos, with a 272-seat theater lounge and bar, and

two dining areas, as well as the children's play area, and souvenir gift shop.

FLYING CAT I Kvaerner Fjellstrand

Circle 42 on Reader Service Card

The first foreign delivery of the new Flying Cat high-speed catamarans from Kvaerner Fjellstrand, a member of Norway's Kvaerner

group, has been made to Greek shipowner Ceres Hellenic Shipping & Co.

The second Flying Cat to be built by Fjellstrand's Omastrand yard south of Bergen, the 134-foot Flying Cat I entered service with the Ceres Flying Dolphins fleet, calling at the Saronic islands of Poros, Hydra and Spetses, as well as the mainland port of Porto Heli.

The catamaran supplied to Ceres joins a fleet of 25 hydrofoil craft which mainly provide ferry services between Athens and Greek islands in the Aegean.

Equipped with two MTU 16V 396 diesel engines and water jets developing a combined 5,400 bhp, the catamaran has a top speed of 38 knots and a service speed of 35 knots.

Kvaerner's 40M Flying Cat will sail in the Sea-Spetsai service in Greece, and has a capacity of 352 passengers, including 96 on the top deck in Club Class.

The Flying Cat I features an Anschuetz Standard 14 Gyrocompass for ship navigation.

GOODTIME III Leevac Shipyards

Circle 49 on Reader Service Card

Leevac Shipyards, Jennings, La., delivered the 1,000-passenger Goodtime III to owner Goodtime Cruise Lines, Cleveland, Ohio.

Operating out of East 9th Street Pier in downtown Cleveland seven days a week from May to the end of September, the Goodtime III offers sightseeing, dinner/dancing and charter cruises. She seats 222 in the glass-enclosed fully air conditioned/heated main deck cabin, as well as ample mixed seating on her open second and third decks. In all, she seats about 832 passengers.

Owner **Jim Fryan**, whose company has been in business since 1958, said he is extremely pleased with the Goodtime III. "She's extremely versatile," said Mr. Fryan. "We are able to operate her on sightseeing trips in the day, dinner cruises in the evening, or charter trips at night."

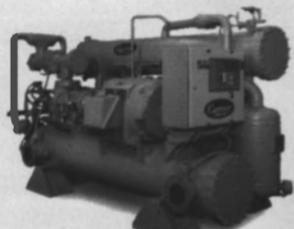
Built and outfitted at a total cost of \$2 million, the Goodtime III has a stage for a live band and large dance floor on her main deck, as well as

GOODTIME III Equipment List

Main engines	Cummins
Generator engines	Cummins
Bow thruster engine	Cummins
Bow thruster	Schottel
Engine controls	MMC

two large 200-square-foot rest rooms. Bars are located on all three decks, and a dumb waiter operates from the below deck storage room to the third deck.

The Goodtime III is powered by a pair of Cummins KT19-M diesel engines. Auxiliary power is supplied by two Cummins 6BTA5.9-GC(M) diesels connected to two 100-kw generators. A fifth Cummins engine, another model 6BTA5.9-M, drives a



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Circle 213 on Reader Service Card

Outstanding Passenger Vessels & Ferries

(continued)

150-hp Schottel bow thruster.

Mr. Fryan said he has been pleased with the performance of the propulsion system, especially the Schottel bow thruster which has been extremely useful in tight docking operations.

JET CAT EXPRESS Gladding-Hearn Shipbuilding

Circle 43 on Reader Service Card

Somerset, Massachusetts, builder Gladding-Hearn Shipbuilding, The Duclos Corporation, delivered the 102-foot, I-cat licensed design all-aluminum Jet Cat Express.

JET CAT EXPRESS Equipment List

Main engines	Detroit Diesel
Gear	ZF
Propellers	KaMeWa
Engine controls	KaMeWa
Gensets	Northern Lights
Generator control panel	Industrial Power Systems
Steering system	KaMeWa
Radar	Furuno
VHF	ICOM
Loran	Micrologic
Depth sounder	Datamarine
Compass	Ritchie
Loud hailer	Raytheon
A/C	Trane

Since last spring, Southern California operator Catalina Channel Express has been providing year-round excursion and commuter service aboard the 28-knot catamaran from its homeport of San Pedro, Calif., to Avalon City on Catalina Island. According to company officials, the 368-passenger, all-aluminum catamaran is making the 26-nautical mile run in a fast-running time of about 52 minutes.

She joined a fleet of five monohulls operated by Catalina Channel Express that run daily from Long Beach, Redondo Beach and San Pedro to the island resort.

The largest cat built to date by Gladding-Hearn, the triple-deck 102-by-28-1/2-by-3-1/2-foot vessel is powered by a pair of Detroit Diesel 16V149TAs rated at 1,740 hp, each turning at 1,800 rpm, and driven by twin KaMeWa waterjets. By using waterjets instead of conventional propellers, draft was kept to only three feet, and a minimal wake is produced at all speeds. Hydraulically actuated, adjustable trim tabs, designed by the yard, further reduce the wake by adjusting for load at lower speeds.

MAUI-E-TICKET San Diego Shipbuilding

Circle 69 on Reader Service Card

San Diego Shipbuilding & Repair, Inc., Chula Vista, Calif., deliv-

ered the unique sightseeing vessel the Maui-E-Ticket for operation by owner Corporate E-Ticket, Inc., in the coastal waters off the Island of Maui in the Hawaiian Islands.

Conceived by **Curtis Jackson Jr.**, the 56-foot-long by 25-foot-wide Maui-E-Ticket is a catamaran type vessel, carrying 22 passengers in each hull. Each passenger is seated before large polycarbonate viewing windows for the observation of sea life. In addition, each passenger wears a personal headset to monitor

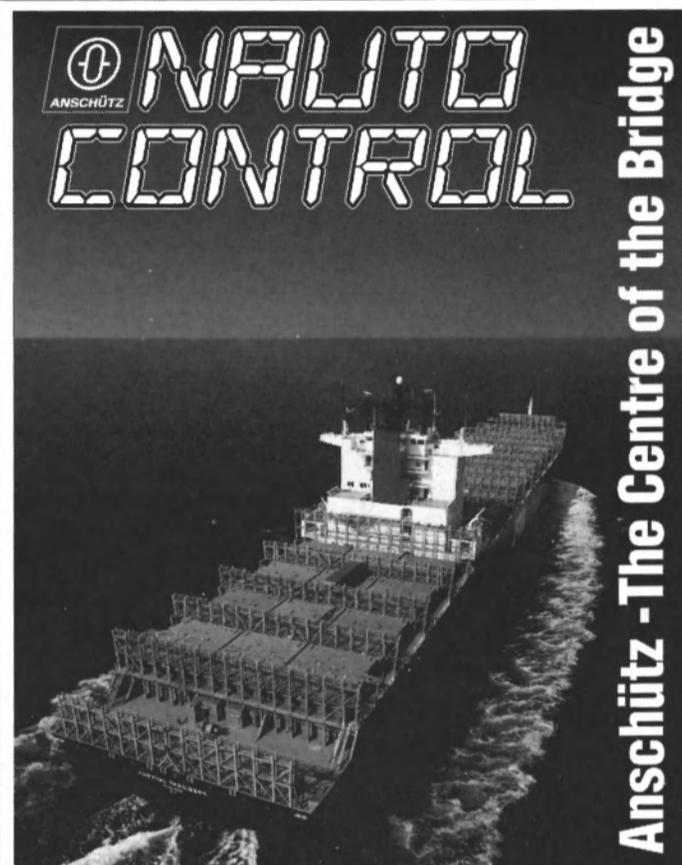
a running account of the sights passing outside the viewing compartments.

In actuality, the Maui-E-Ticket is a semisubmersible displacing 115 tons that can be ballasted low in the water for stability and better viewing from the passenger compartments.

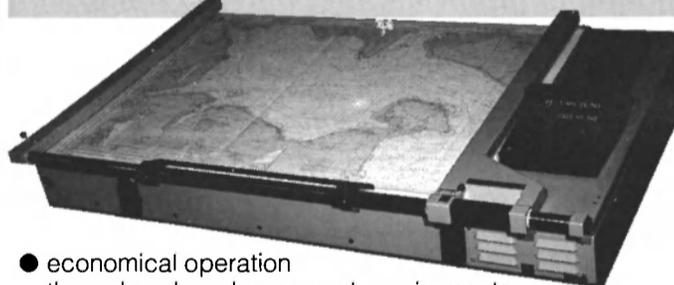
She is powered by three Cummins 4BT3s coupled through Borg Warner 72C direct drives to Stern Power 113E outdrives. The engines are controlled by Mathers Micro

Commander electronic controls from port and starboard steering positions.

In addition to six passenger viewing compartments in the hulls, passengers can purchase refreshments in the midships lounge and bar. The evening underwater view is enhanced by high intensity lights. To enable the pilot to show his passengers particularly interesting scenes, from the pilothouse he monitors forward port- and starboard-looking color video cameras.



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Outstanding Passenger Vessels & Ferries

(continued)

MISS ELLIS ISLAND Blount Marine

Circle 44 on Reader Service Card

Blount Marine Corporation, Warren, R.I., has delivered the passen-

ger vessel Miss Ellis Island to Circle Line Statue of Liberty Ferry, Inc. Designed by naval architect **Robert A. Simons** and certified to carry 775 passengers on excursion trips to Ellis Island, the Miss Ellis Island, like her sister, the Miss New Jersey, is powered by Cummins main diesel engines. Other propulsion equipment includes Bird-Johnson propellers and Twin Disc reduction gears.

Auxiliary power will be supplied by Cummins gensets. The Miss Ellis Island is also fitted with a Schottel

bow thruster to provide her with an extra measure of maneuverability.

The Immigration Center on the island has recently been refurbished. Ellis Island itself has been made part of the National Park System.

The vessel contains several unusual features due to its dockage and route. One of these features is the watertight bumper pipe with a solidly welded insert plate. The bumper is built for protection from the heavy surge at the Battery pier in lower Manhattan. Also unusual

MISS ELLIS ISLAND Equipment List

Main engines	Cummins
Generators	Cummins
Propellers	Bird-Johnson
Gears	Twin Disc
Engine Controls	Mathers
Bow thruster	Schottel
Electronics	Furuno-Icom
Wire	L.F. Gaubert
Signal system	Hose-McCann
Decking	Products Research
Shaft oilsealed bearing	Golten Group
Deck/manholes	L.S. Baird
Ventilation	Aerovent
Paint	Devoe
Cutlass bearings	BFGoodrich
Doors	Jamestown Metal
Rescue boat	Schat Marine
Main shaft stuffing boxes	Duramax
Alarms	FW Murphy
Packings	AW Chesterton

is the oil-lubricated shaft bearing, made by the Golten Group of Norway, which lubricates and protects the shafts. The design also features a profile with rounded stern and capped pilothouse in keeping with the look of the famous Circle Line fleet.

The Miss Ellis Island brings the total of Blount-built vessels in the Circle Line Statue of Liberty Ferry fleet to five.

MONTE CARLO Nichols Brothers

Circle 45 on Reader Service Card

Nichols Brothers Boat Builders' latest dinner/excursion boat, the 205-foot, 1,600-passenger Monte Carlo, was recently delivered, following the completion of her outfitting work at Nichols Marine Ways, Inc., in Portland.

The boat will be operated by Monte Carlo Cruises, according to **Terry McRae**, vice president of Hornblower Yachts, Inc. Monte Carlo Cruises is a new division of Hornblower Yachts, Inc., which is headquartered in San Francisco.

According to Mr. **McRae**, the Monte Carlo is the largest harbor cruiser of its kind on the West Coast of the U.S. The Monte Carlo offers four decks in addition to the utility hold level; two marble dance floors; a multi-level aft solarium; a main salon with full balcony; multiple bars; several lounges; a "casino" deck; computerized entertainment

MONTE CARLO Equipment List

Main engines	Caterpillar
Reduction gear	ZF
Bow thruster	Schottel-Werft
Propulsion controls	MMC
Propeller	Sound Propeller
Generating plants	Caterpillar
Electrical wires, breakers, lights	Hardware Specialties
Interior design	Directions In Design
Painting system	Hempel
Radar	Furuno
Flux gate compass	Furuno
Loudhailer	Raytheon
Loran	Furuno
VHF transceivers	Standard

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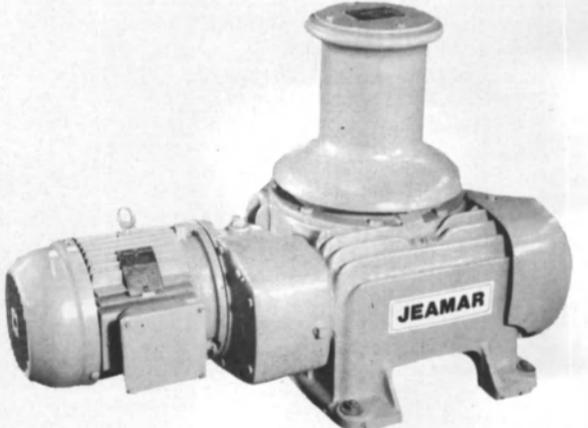
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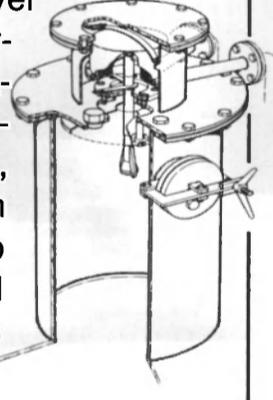
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Circle 247 on Reader Service Card

Outstanding Passenger Vessels & Ferries

(continued)

system; sweeping views; and an interior design that, in the words of Mr. **McRae**, gives patrons an open feeling unlike other compartmentalized vessels.

The overall vessel was designed by Nichols Brothers engineers under direction of **Archie Nichols**, VP of engineering, working with **Will Nickum**, Seattle naval architect, and **Gordon Plancich**, Phase II design, Federal Way, Wash.

The interior design of the Monte Carlo was supervised by Directions In Design of St. Louis.

The 205-by-45-foot vessel is propelled by a pair of 680-hp 3412 Caterpillar diesel engines coupled to ZF BW-191 4.05:1 reduction gears. Engines drive 50-by-52-inch propellers on 5-inch shafts. The Schottel bow thruster is hydraulically driven by pumps driven off one generator. Generators consist of two 240-kw Caterpillar 3406 sets.

Monte Carlo Cruises marketing director **Ben Erickson** said the company plans to sail the vessel on San Francisco Bay, offering scheduled dining and excursion service.

Hornblower Yachts, Inc., which operates the Nichols-built City of San Francisco, is one of the largest managers of luxury dinner boats in the U.S., with bases in Berkeley, Los Angeles, Newport Beach, and San Diego.

ODYSSEY Service Marine

Circle 46 on Reader Service Card

The 800-passenger Odyssey, was delivered by Service Marine Industries, Morgan City, La.

Tom Hensley, president of Service Marine, said that the Odyssey is by far the most glamorous of the megayacht-style dinner boats designed by the company. The 175-foot long by 37-foot wide boat will carry her 800 passengers on three "whisper" quiet decks.

Odyssey Cruises operates the M/V Odyssey year-round from the Navy Pier in Chicago, which is undergoing a \$250 million renovation. The managing partners, **Mike Higgins** and **Roy Sanders**, offer a true yachting experience with specially prepared food served at the guests' tables, so that the Odyssey is more like a "fine restaurant on the water."

For the passengers' comfort, the engine room has been made as quiet and vibration free as possible by use of special engine mounts and sound isolation panels. Lo-Rez supplied flexible couplings, which connect the gears to the shaft, and flexible engine mounts. According to Mr. **Hensley**, the Lo-Rez system has been very effective in reducing sound and vibration.

The boat is powered by two Caterpillar 3408 DITA engines, rated at 470 bhp each at 1,800 rpm. The two generators are Caterpillar

3406T marine gensets with 250 kw generators.

FAR-A-DICE Atlantic Marine

Circle 70 on Reader Service

Atlantic Marine, Inc., Jacksonville, Fla., recently delivered its third sternwheel-driven, twin-screw gambling riverboat, the 1,000-passen-

ger Par-A-Dice, to owners Greater Peoria Riverboat Corp.

Homeported in East Peoria, Ill., the Par-A-Dice was designed by John W. Gilbert Associates, Inc., Boston naval architects and marine engineers, and built by Atlantic Marine in Jacksonville, Fla., which also designed and built the two Iowa riverboats, the Diamond Lady and Emerald Lady. The Par-A-Dice resembles its Iowa cousins in that it is a sternwheeler with a working

paddlewheel and is patterned after the leading sternwheelers of the 1890s, but the Par-A-Dice is a larger boat, measuring 228 feet in length and 46 feet in width, 27 feet longer than the Iowa boats. The total cost of constructing the vessel, as well as outfitting her with gaming equipment was \$15 million.

Interior Design International, Inc., Seattle, Wash., provided interior design services for the project.

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Outstanding Passenger Vessels & Ferries

(continued)

especially for high stakes riverboat gambling in Illinois, the 1,000-passenger Par-A-Dice features four decks. The hull holds the galley, engine rooms, crew locker rooms, ballast tank, and bowthruster room tanks. The vessel's two casinos are located on the Main and Boiler

Decks. Service bars and restrooms are also located on these decks. The Texas Deck includes a forward lounge, service bar, an open deck with passenger seating, and the Speakeasy, a 175-seat dining room featuring a la carte service.

Propulsion power is provided by three 670-hp Caterpillar diesel engines, with a total output of 2,010 hp. Auxiliary power is provided by two 800-kw generators, powering the Par-A-Dice to a service speed of about 11 knots.

TAI PING Singapore Shipbuilding

Circle 48 on Reader Service Card

The 113-1/2-foot fast catamaran ferry Tai Ping was the first vessel delivered by Singapore Shipbuilding & Engineering Ltd. (SSE) in 1991. Designed by SSE and completed four months ahead of schedule, the Tai Ping is operated by the Dong Guan County Humen Hong

Kong/Macau Passenger Ferry Company. She carries 282 passengers, 272 of which are seated in the enclosed cabin on her main deck and the remaining 10 on the upper deck in the VIP lounge.

Classified by both Det norske Veritas and the China Classification Society (ZC), the Tai Ping has a molded breadth of 34 feet, molded draft of 5-1/2 feet and maximum draft of almost 7 feet.

She is powered by twin MTU 12V 396 TE74L diesel engines coupled to

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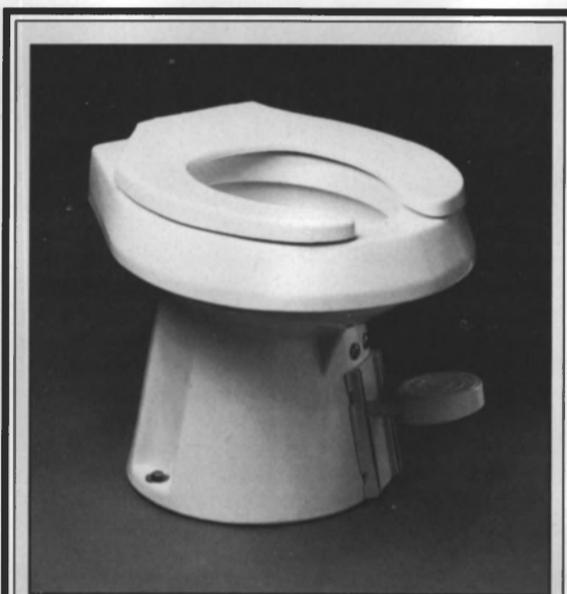
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- Rear exit discharge

TAI PING Equipment List

Main engines	MTU
Gears	ZF
Radar	Furuno
Echo sounder	JRC
VHF radio	Sailor
Speed log	Yokogawa
HF radio	Raytheon
Generator engines	MTU
Coatings	International Paint
Generator	Leroy Somer
Engine controls	MTU
Shafting	Aquamet
SSB radio	Raytheon

ZF model BW165 gears driving fixed-pitch propellers. Her engines have a maximum continuous rating of 1,893 hp at 2,000 rpm, propelling the aluminum catamaran to speeds of over 28 knots at full load.

Each hull is divided into seven water-tight compartments. The main cabin above the main deck and the passengers are accommodated in aircraft-type seating with fold-down tables in the air conditioned cabin. Head facilities are arranged aft, with a bar and kiosk arranged in the center of the enclosed cabin.

The VIP cabin and crew accommodation are situated aft of the wheelhouse on the deck above.

Navigation electronics onboard includes two Furuno radars, JRC echo sounder, and Yokogawa speed log. As for communications, the Tai Ping is supplied with a Sailor VHF/FM radio and Raytheon HF radio with Vingtor supplying the intercom and the public address and entertainment system. A closed circuit TV supplied by VICON is also on board.

VOYAGER II Gulf Craft

Circle 47 on Reader Service Card

Gulf Craft, Inc., of Patterson, La., has delivered a 95-foot all-aluminum whale watch vessel, the M/V Voyager II, to the New England Aquarium in Boston, Mass. She is used to carry passengers on whale watching trips from the aquarium.

The 95-foot Voyager II, which has a 25-foot beam and 4-foot draft, is powered by four Detroit Diesel 12V7TI diesel engines developing 610 shp at 2,100 rpm. The engines turn 34-inch Federal propellers via

Outstanding Passenger Vessels & Ferries

(continued)

VOYAGER II Equipment List

Main engines	Detroit Diesel
Propeller	Federal
Bilge pump	Jabco
Generator engines	GM
Generators	Kato
Reduction gears	Twin Disc
Loran c, VHF radios, radar, GPS navigator, video sounder, color plotter, loud hailer, and radar scanner	Raytheon
Compass	Danforth
Search light	Carlisle & Finch
Sewage pump	Peabody Barnes
Engine controls	Mathers

Twin Disc 514 marine reverse and reduction gears, with a ratio of 2:1.

Two 30-kw GM-Kato diesel generators provide the electrical power, for the Gulf Craft-supplied hydraulic steering, bilge and fire pump, vessel's lighting, and snack bar.

The 79-ton Voyager II is U.S. Coast Guard-approved for 300 passengers in coastwise service, and is arranged so the passengers can view the whales from the perimeter of both decks while the captain steers the vessel from the control station located on top of the pilothouse.

There is inside seating for 120 passengers on the main deck, with additional seating outside for 61 passengers. On the sun deck or pilothouse deck, there is outside seating for 93 passengers and seating for additional 16 passengers in the VIP lounge.

Coast Guard Stops Work On Heritage Class Vessel Construction Program

The U.S. Coast Guard recently stopped work on its 120-foot Heritage Class patrol boat construction program. The prototype has been under construction at the Coast Guard Shipyard near Baltimore since June 1990.

Changing requirements have called into question the need for a vessel of this type. A final decision on the matter will be made following completion of a review being conducted by the Office of the Secretary of Transportation.

The move was prompted by a re-evaluation of mission requirements, increased numbers of Coast Guard and Navy ships available for surface drug interdiction, and the easing of international tensions.

The Coast Guard feels it can meet

its current and future needs with the recently built 110-foot Island Class patrol boats. It is also considering a smaller coastal patrol boat which would cost less to operate and require fewer people. The Coast Guard currently has 49 Island Class patrol boats.

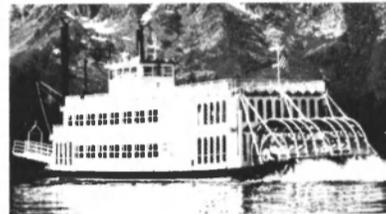
The decision to stop work on the program will not cause the loss of any jobs at the Coast Guard Ship Yard due to several other construction and repair projects.

Ship Production Symposium Set For New Orleans, September 1992

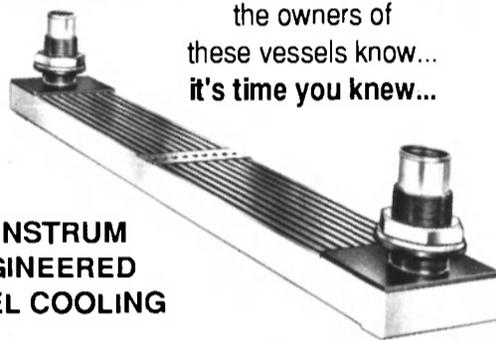
The 1992 Ship Production Symposium, hosted by the Gulf Section of The Society of Naval Architects and Marine Engineers and sponsored by its Ship Production Committee and the National Shipbuilding Research Program, has tentatively been set for New Orleans, La., September 2-4, 1992.

The theme of the meeting is "Implementing Innovation: The Challenge of Change."

For more information on the Ship Production Symposium contact: NSRP 1992 Ship Production Symposium Coordinator, UMTRI, Marine Systems Division, 2901 Baxter Road, Ann Arbor, Mich. 48109-2150, fax (313) 936-1081.



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SuperFerry 92

Conference & Exhibition Set For February 4-5, 1992

Event Will Be Aboard Huge Cruise Ferry 'Silja Serenade'

SuperFerry 92, the first major marine conference and exhibition ever to be held aboard a ship while operating her normal route, will take place on February 4-5, 1992.

Delegates attending the event will be able to experience the "cruise ferry concept" for two days on the Silja Serenade, the world's largest cruise ferry sailing from Stockholm, Sweden, to Helsinki, Finland, and back.

The 56,000-ton Silja Serenade is in many respects one of the most extraordinary new passenger ships in years. She carries more passengers than the QE2—2,500 compared to 1,880—and has a cruising speed of 23 knots, 952 cabins, 22 restaurants and bars, eight shops, one night club, one disco, a 650-person conference area, one casino, two health centers and 17 saunas and pools.

Her most important design feature is the Promenade/Shopping Mall, which is the largest internal

space ever devoted to passenger spending, with its gallery style shopping mall and more than 20 restaurants—all on a ship serving a regular dedicated route. The majority of the recreational areas and restaurants are located along the Promenade which is 459 feet long, 26 feet wide, and 5 decks high. Built at a

cost of \$225 million, the 2,500-passenger vessel is one of the largest passenger ships in the world and largest luxury cruise ferry.

Focusing on the cruise ferry marketing strategy for the travel, recreation and business sectors of the ferry market, the onboard program of SuperFerry 92 will ensure that

delegates and exhibiting companies will have every opportunity to discuss the development of this type of ship. SuperFerry 92 will be a unique occasion to experience state-of-the-art cruise ferry operations and, during the voyage, the exhibiting companies will have the chance to demonstrate at first hand their systems installed on the ship.

The cruise ferry concept is more than just luxury ferry operation—it is new thinking on ways to increase revenue and profit from passenger shipping. The progress and innovation represented by the Silja Serenade and her sister ship, the Silja Symphony, are not only being applied to Baltic routes, where 16 million passengers are carried annually, but also on cross-Channel operations, the North Sea, Mediterranean and in North America and the Far East, where there is considerable potential for superferries and their derivatives.

For further information on SuperFerry, contact: SuperFerry Secretariat, BML Meetings Limited, (continued page xx)

SuperFerry 92 Exhibitors

ABB Stromberg Drives	France Group Stand	MacGregor Navire
Amtico Company Limited	GEC Marconi	Metos Marine
APS Sales	Communications	Oy Lautex
British Contract	Halkama	P-J Diedrichs
Furnishing Association	Hartek Beverage	Rautaruki Steel
CIL Shopfitters	Handling	Division
Comsat	IMAC	SBA Interior
Deerberg-Systems	Inmarsat	Svanta Bruk
Deltamarin	International	Schaumann Wood
Elomatic Oy	Entertainment	SeaKing
Finnish Shipbuilding	Services	Travelers
Suppliers Association	J. Saajos	Communication
Finnyards	Kure Shipping	Wartsila Diesel
	Kvaerner Masa-Yards	

The Silja Serenade, built by Kvaerner Masa-Yards, will host SuperFerry 92.



The huge promenade of the Silja Serenade is the largest internal space ever devoted to passenger spending, with galleria shops and restaurants.

SuperFerry 92

(continued from page 28)

2 Station Road, Rickmansworth, Herts WD3 1QP England; telephone: (+44)(923) 776363; or fax: (+44)(923) 777206.

SuperFerry 92 Technical Program

Welcome address by **Hans H. Christner**, president of Effjohn International.

Session 1 5:15 p.m. February 4

"Forward Thinking on the Cruise Ferry Product," by **M. Saarikangas**, chief executive, Kvaerner Masa-Yards, Inc., Helsinki.

"SuperFerries on the North Sea—Different to the Baltic? How and Why," by **J. Charlier**, Institute of Geography, UCL, Belgium.

"Tampa to Mexico—An Ideal SuperFerry Route?" by **J. Valenti**, Port Director, Tampa Port Authority.

Panel Session: The opening speakers will be joined by **T. Lepisto**, president, Euroway; **C. Michielini**, managing director, Brittany Ferries, France; and **H. Kulovaara**, operations vice president, Silja Line.

Session 2 8:30 a.m. February 5

"Reservation Systems for Super-Ferry Operations," by **A. Hammar-skjold**, president, Stena Data AB, Gothenburg.

"Business Communications for the SuperFerry—New Systems," by **L.G. Brodje**, maritime adviser, Inmarsat, London. An Inmarsat service center will provide immediate communication to and from the Silja Serenade during SuperFerry 92.

Session 3 11 a.m. February 5

"Taking on the Channel Challenge with a New Generation of Super-Ferry," by **C. Michielini**, managing director, Brittany Ferries, France.

"Upgrading to SuperFerry?" by **G. Strintzis**, managing director, Strintzis Lines, Piraeus.

"Cruise or Ferry?" by **N. Costa**, president, Costa Crociere, Genoa.

Session 4 2 p.m. February 5

"Refitting and Refurbishing—the Key to Maintaining a SuperFerry," by **B. Mickwitz**, export manager, Finnish Shipbuilders Suppliers Association, Helsinki.

"Complex SuperFerry New-building and Conversion—Recent Experiences are to the Benefit of Both Owners and Shipyards," by **A. Bjorkman**, managing director,

Deltamarin Ltd., Raisio.

"Environmental Considerations for Machinery in Cruise Ferries," by **G. Hellen**, Emission Control, Wartsila Diesel International, Vaasa.

Session 5 4:30 p.m. February 5

Panel Session on the Cruise Ferry Shipboard Environment.

• Swimming and Saunas, Arki-

tektbyran AB.

- Conference/Exhibition Areas, Virkkunen & Co.
- Gambling, Cherryforetagen.
- Passenger Information, Cainby AB.
- Entertainment, IES.

Gala dinner with address from the Marine Technology Group of the Finnish Foreign Trade Association.

Delegates will also be able to inspect non-public areas of the ship, such as galleys, bridge and engine room.



SKUM MK-250 EL Fi-Fi monitors helping to control massive tanker fire in the Gulf of Mexico. SKUM monitors shown on the M/V Carolyn Chouest owned by Edison Chouest Offshore, Galliano, Louisiana.

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Aerial view of New York Shipyard showing the cruise ship Bermuda Star in drydock in 1990. The yard completed extensive hull repairs in just 45 days.

New York Shipyard Overhauling Navy Ammunition Ship

Brooklyn Facility Looks To Attract More Cruise Ships

Well within view of the towering Manhattan skyline is the largest privately owned ship repair facility in the metropolitan area—New York Shipyard Corporation.

Located at the former Todd Shipyard site in Brooklyn, New York Shipyard Corporation draws a large percentage of its work from the tug and barge industry in the metropolitan area. In addition, the company performs a wide range of repairs, alterations and drydockings

for a variety of domestic and foreign-flag ships ranging from cargo ships and cruise liners to containerships and tankers.

The firm was recently awarded two multimillion-dollar contracts which created over 600 jobs.

Under the first contract, valued at \$5.2 million, the Brooklyn yard completed a three-month overhaul and repair of the 455-foot Oliver Hazard Perry Class frigate USS Clifton Sprague (FFG-16). The in-

terior compartments of the vessel were sandblasted and coated, repairs were performed on the electronic, sonar and propeller systems, the upper structure was repainted, and sea valves were overhauled.

The second contract, worth \$8.1 million, is the largest Navy award received to date by the yard, and involves the overhaul of the ammunition ship USS Nitro (AE-23), which served in Desert Storm.

Taken over from Todd Shipyards in 1985, New York Shipyard is a family owned and operated facility, managed by **James F. Murphy III**, president; **John J. Murphy**, vice president and chief financial officer; and **Michael J. Gallagher**, executive vice president. Other key executives include **Steve DiLeo**, general manager, and **Tim Gallagher**, marketing manager.

In a recent interview, **Michael Gallagher** said business has expanded since 1985, through a commitment of new resources and investment in refurbishing the facilities, local political support, the inception of the Navy's homeport, and a dedicated workforce.

"To be successful, you have to have a dedicated work force," said **Mr. Gallagher**. "We have a skilled, dedicated work force—one which offers interchangeability of trades, enabling us to be more efficient and competitive."

New York Shipyard recently invested more than a million dollars in modular accommodation quarters to house Navy personnel while their vessel is in drydock. The quarters can accommodate about 350 personnel. **Mr. Gallagher** hopes the accommodation facility will also be an additional enticement to cruise ship operators to house crew while their liner is in drydock.



The \$8.1 million overhaul of the USS Nitro (AE-23) is the largest Navy contract received by New York Shipyard Corporation to date. The Nitro is shown in the Brooklyn facility's 32,000-ton graving dock.

One of the most challenging jobs performed by New York Shipyard, was the repair of a cruise liner, Bermuda Star, following her grounding near the entrance to the Cape Cod Canal in the spring of 1990. Over 200 tons of bottom plate and internal renewal was needed to repair extensive hull damage. About 280 feet combined on both port and starboard sides were repaired. Additionally, her two main turbines were repaired. The Bermuda Star was back at sea only 45 days after the repair was contracted.

For free literature detailing the ship repair services of New York Shipyard,

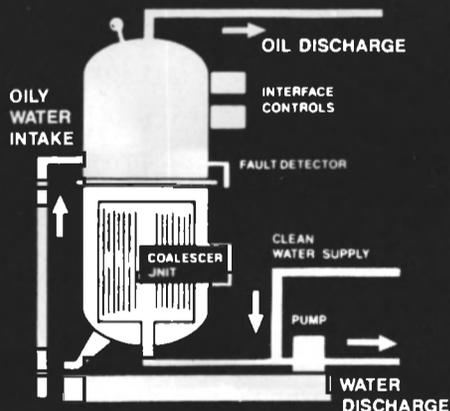
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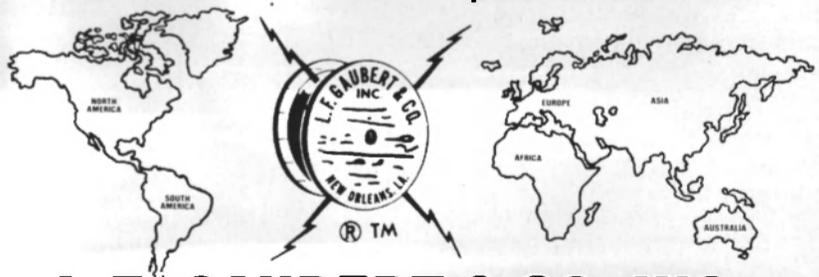
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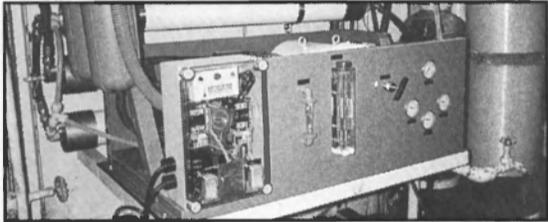


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Woods Hole Plans New Passenger Ferry —Bids Invited

The Steamship Authority, which runs year-round between mainland Cape Cod, Mass., and the Islands of Nantucket and Martha's Vineyard, is well along in its planning for a new passenger/vehicle ferry to join its six-vessel fleet by the summer of 1993.

A 21-page "Invitation to Participate in Pre-Qualification" for bidding, along with other data, is available to the nation's shipyards by contacting **James P. Swindler**, assistant engineering and procurement manager at the Steamship Authority, P.O. Box 284, Woods Hole, Mass. 02543, (508) 548-5011, Extension 286.

Deadline for accepting responses to the pre-qualification procedure is 12:00 noon, January 31, 1992.

In March or April 1992, the Steamship Authority intends to invite sealed bids from pre-qualified shipyards for construction to begin in the May/June 1992 period—with completion date of June or July 1993.

Shipyards that fail to comply with the pre-qualification process will not be considered eligible to bid.

The present Steamship Authority was created by an Act of Legislature of the Commonwealth of Massachusetts in 1960. For the past 28 consecutive years, the Steamship Authority has expanded to meet rising service demand without benefit of federal, state or local tax subsidies. It services the Island of Martha's vineyard from the port of Woods Hole and the Island of Nantucket from the port of Hyannis.

German Shipyard Subsidy Cuts To Be Reinstated

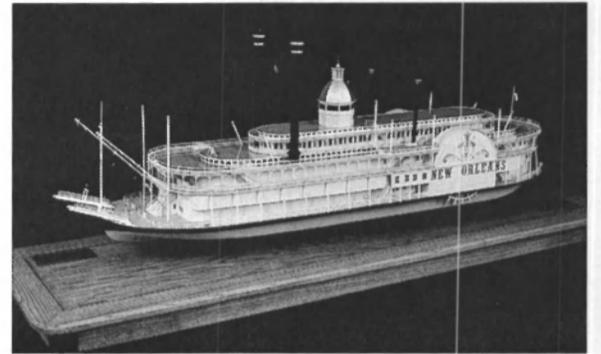
According to a spokesman for the budget group in the German coalition government, planned cuts of \$79.3 million from the aid package to German shipbuilding are to be "corrected" and the full amount reinstated.

Economics minister **Jurgen Moellemann** announced earlier this year that as part of an overall reduction of German subsidies, about \$79.3 million was to be cut from the shipbuilding aid program.

Larger than expected financial needs to cope with German unification dictated the subsidy cuts amid massive protests from the shipbuilding industry.

The industry, with the "correction" in Bonn, can draw on about \$43,000,000 in 1992 and 1993, and \$60,000,000 in 1994. The coastal states, in addition, will provide funds to subsidize prices for orders worth a total of about \$1.8 billion.

McDermott Shipyards Unveils Casino Sidewheeler Design



Model of the Sidewheel Packet Casino Boat design from McDermott Shipyards.

McDermott Shipyards, a division of McDermott Marine Construction, recently unveiled a new Sidewheel Packet Casino Boat design.

The shipyard plans to market the vessel for the national riverboat casino trade and for excursions.

The sidewheeler has an overall length of 350 feet and a beam of 80 feet. With a full complement of passengers and provisions, she will draw less than 8 feet of water. The vessel features 30,000 square feet of casino area as well as dining and entertainment areas. She is designed to accommodate 3,000 passengers.

McDermott Marine Construction is a major operating unit of McDermott International, a leading worldwide energy services company. The company and its subsidiaries provide engineering and construction services to the oil and gas industry offshore and for industrial and utility facilities onshore.

For free literature detailing the new sidewheel casino boat design,

Circle 77 on Reader Service Card

HHI Receives Option For Third Anangel Bulker

South Korean shipbuilder Hyundai Heavy Industries Ltd. Co. (HHI) recently received the option to build a third Cape-size bulk carrier for Anangel Shipping Group. Although not confirmed, the price is believed to be in excess of \$50 million per ship.

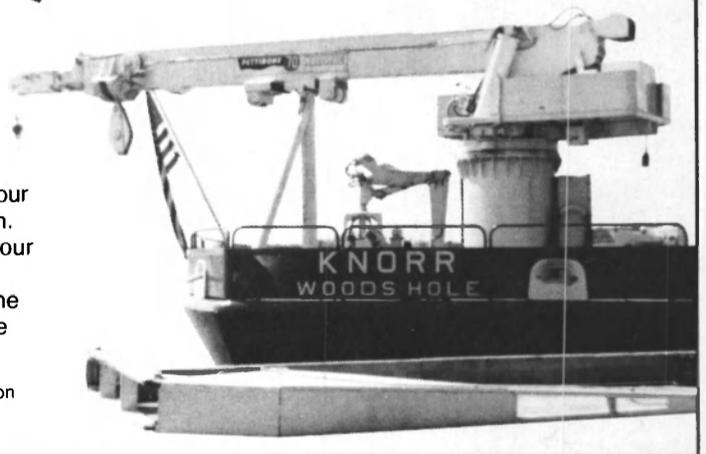
The third 159,000-dwt bulker is expected to be delivered in April 1994, while the first and second are scheduled for spring and fall of 1993 deliveries, respectively.

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\$13.5 Million Contract To Operate USCG Computer Center Won By Battelle

Battelle has won a four-year, \$13.5 million contract to operate and maintain the U.S. Coast Guard's new computer facility near Martinsburg, W. Va.

The Operations Systems Center will support Coast Guard missions of search and rescue, marine safety, environmental protection, and law enforcement.

Battelle and its subcontractors will employ about 60 people at the center, which will add \$2 million annually to the Martinsburg-area economy.

The largest of three main computer systems being operated at the center, the Marine Safety Information System, was developed by Battelle.

The 36,000-square-foot facility was dedicated this past November.

Nichols Bros. To Build 1,600-Passenger Boat For Hawaiian Service

Paradise Cruise, Ltd., which has offered Hawaiian cruise and excursion services out of Honolulu for 35 years, will initiate service with the 1,600-passenger Star of Honolulu in the spring. The 232-by-45-foot vessel is being built by Nichols Brothers Boat Builders, Inc., at its Whidbey Island yard in Freeland, Wash.

The vessel will be powered by two 1,125-hp Caterpillar engines. Electrical power will be provided by three 180-kw Caterpillar diesel generators.

Nichols Brothers expects to deliver the Star of Honolulu in the latter part of February, according to Matt Nichols, president of the yard.

For free literature on the boat-building services of Nichols Brothers,

Circle 72 on Reader Service Card

Marine Accommodations Supplies Joiner Packages For Cruise Ship, Ferry

Marine Accommodations, Inc., Jacksonville, Fla., was recently awarded two separate contracts to supply diversified joiner packages for a cruise ship and a passenger/auto ferry.

Marine Accommodations, which offers pre-insulated joiner bulkheads, joiner ceilings, floating floors, and doors which meet SOLAS and Coast Guard requirements, supplied the joiner package for cruise ship S/V Fantome, recently delivered by the Island of Trinidad and Tobago shipyard, and has also been contracted to supply ship interior systems for the State of Maine ferry under construction at Washburn &

Doughty Shipyard, East Boothbay, Maine.

Marine Accommodations offers an extensive line of ship interior products for all types of passenger vessels, including ferries, dinner/excursion boats, and gambling riverboats.

For free literature detailing the Marine Accommodation product line,

Circle 179 on Reader Service Card

ZF Consolidation Improves Responsiveness To Markets, Customers

ZF AG has consolidated three of its North American operations into a separate division of the parent company, ZF Corporation. Werner Arnold, president of the new corporation, said the consolidation will allow ZF to better serve its North American customers. The changes became effective January 1, 1992.

ZF Corp. will be comprised of three ZF AG subsidiary companies—ZF of North America (ZF NA), ZF Industries, and ZF transmissions. ZF NA, which is headquartered in Lincolnshire, was created in 1979 as ZF AG's North American sales and service organization. ZF Industries, headquartered in McLean, Va., was founded in 1986 to service the military market. ZF Transmissions, located in Gainesville, Ga., was organized in 1986 to manufacture light-duty truck transmissions.

Mr. Arnold said ZF Corp. will be organized along market lines, rather than product lines.

Headquartered in Friedrichshafen, Germany, ZF AG is a leading manufacturer of gears, transmissions,

pumps, axles and other driveline components.

For further information,

Circle 36 on Reader Service Card

Norfolk Shipbuilding Wins \$5.7 Million Contract

Norfolk Shipbuilding and Drydocking Corp., Norfolk, Va., has been awarded a \$5.7 million contract for the drydocking phased maintenance availability of the USS Puget Sound (AD 38). The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-85-H-8195).

Hitachi Zosen Completes HZ MAN B&W-Powered 6,000-Unit PCTC 'Aida'

Tokyo-based Hitachi Zosen Corporation recently completed the M/S Aida, a 6,000-unit pure car/truck carrier, at its Maizuru Works. The 623-foot-long by 106-foot-beam vessel was delivered to Rederi AB Wallship of Sweden.

The M/S Aida's main engine is an HZ MAN B&W 8L60MC-type diesel with a maximum continuous output of 17,020 hp at 105.5 rpm, producing a maximum trial speed of 20.57 knots.

The vessel can carry 6,118 automobiles and is equipped with four liftable decks to accommodate many other kinds of vehicles such as trucks, minibuses, large buses and forklifts.

Two shore ramps are installed,



The car/truck carrier M/S Aida, built by Hitachi Zosen at its Maizuru Works.

one at the starboard side in midship and another at the stern (starboard side) on the fifth car deck level, are designed to enable the loading of heavy vehicles such as 125-ton trailers.

The ship is provided with a "shilling rudder" for wider-angle steering, which allows outstanding maneuverability, especially in port, in combination with her bow thruster.

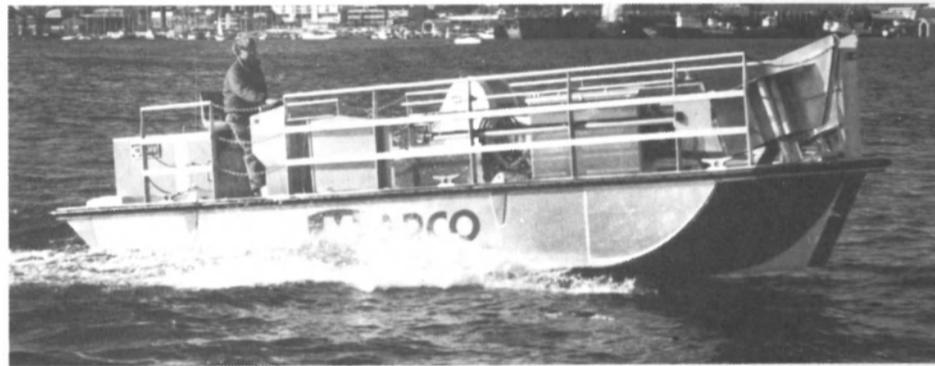
For free literature detailing the facilities and capabilities of Hitachi Zosen,

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Port Everglades Awards Contract For Oil Spill Contingency Plan

The Port Everglades Spillage Committee recently awarded a contract to the Florida Oil Spill Response Group, Inc., to develop an oil spill contingency plan which will range from a 10,000 gallon petroleum spill to a 150,000 barrel spill. This plan is to be Port Everglades specific.

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Boats & Barges



La Santa Maria is classed by Det norske Veritas, and is licensed to carry 300 passengers on a partially protected waters route. Her mission is to provide ferry service between the cruise ship and shore at remote island harbors where adequate docking facilities for the big cruise ships are not available.

Palatka Delivers GM-Powered, Dejong & Lebet-Designed Tender To Royal Caribbean Cruise Line

Royal Caribbean Cruise Line (RCCL) has taken delivery of the 87-foot cruise ship tender La Santa Maria.

The two-deck vessel was designed by naval architects Dejong & Lebet, Inc. of Jacksonville, Fla., and was built by Palatka Shipbuilding Inc. of Palatka, Fla. She is the fifth tender for RCCL designed by Dejong & Lebet, Inc., and the fourth one built by Palatka Shipbuilding Inc. Although Dejong & Lebet is widely known for designing large dinner cruise and river gaming vessels, La Santa Maria is the sixth small vessel designed during the past 12 months.

The tender is powered by a pair of General Motors 12V-71N diesels coupled to Twin Disc MG-514 gears, developing 340 hp at 1,800 engine rpm. Electrical power is provided by twin 15-kw John Deere generators. The tender features a large potable water transfer pump and large potable water storage tanks for transferring fresh water to the remote islands she services.

La Santa Maria has several special features designed by Dejong & Lebet to improve seakeeping when

tendering cruise ships anchored outside protected harbors. These include bilge keels, a fo'c'sle deck, and draft and beam considerations.

The La Santa Maria will begin tendering operations in St. Maarten in the Netherlands Antilles.

For free literature detailing the facilities and services of Palatka Shipbuilding,

Circle 15 on Reader Service Card

LA SANTA MARIA List of Suppliers

Main engines	General Motors
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Water pumps	Peabody - Barnes
Bilge/Fire Pumps	MP - Flomax
Level gages	Metri-Tape
Mufflers	Cowl
Windows	Wynne Enterprises
Shafting	Western Branch/Aquamet

Repair Favored Over Scrapping In New Supertanker Study

According to a quality survey carried out by Clarkson Research Studies Ltd., one of the top U.K. shipbroking and research firms, supertanker designs of the 1970s are not technically obsolete and a well-maintained vessel built 20 years ago

could continue to trade safely at least until the end of the century.

Owners of the lower-grade vessels, however, will have to spend more than \$10 million at the third and fourth special surveys, or inspections, in order to bring their ships up to acceptable standards, the study pointed out.

To maintain or upgrade the existing fleet of very-large crude carriers and combined carriers in service, a total of \$1 billion or more may be

needed. This compares with a \$200 billion new ship construction program that some experts calculate is necessary to replace the aging world fleet. Of this, tanker replacement is put at some \$70 billion.

VLCCs (very-large crude carriers) of over 200,000 dwt account for almost half of the seaborne oil transport capacity, and oil shippers have little choice but to rely on them over the next five years at least.

A Clarkson team studied the world VLCC fleet, documenting the history of each vessel and undertaking a technical survey of 118 ships. Clarkson concluded that any decision by policymakers to set an age limit on ships could condemn very good vessels to the breakers' yard.

The managing director of Clarkson Research, **Martin Stopford**, said older ships should be repaired, not scrapped. He disagrees with some shipping experts who are calling for subsidies to encourage countries such as China to

expand ship demolition facilities.

The Clarkson study said older ships are technically out of date only in terms of fuel consumption and segregated ballast tank arrangements. The welded steel construction offers great potential for continued maintenance, and Clarkson could find no good reason why most ships built in the 1970s should not continue to trade provided they are properly maintained.

As a result of its study, Clarkson argues that there is no reason why older supertankers should not provide safe and adequate service.

The quality of the VLCCs surveyed was very diverse, Clarkson said, with about a third of the fleet consisting of relatively low-grade vessels.

Mr. **Stopford** said the problem for the regulators and the industry is how to distinguish between good and bad ships when drawing up new ship safety laws.

Hovermarine Secures Major Technology Transfer Deal With Textron Marine

Hovermarine International Limited (HIL), the Southampton-based company that specializes in the design and manufacture of surface effect ships, has secured a major technology transfer deal with Textron Marine Systems Inc. of New Orleans, La.

The contract enables Textron Inc., a \$7.5 billion turnover group which includes shipbuilding, to market the HM221 SES fireboats throughout the USA.

HIL produced their first highly automated 69-foot-long craft to meet the needs of the city of Tacoma. Two craft were purchased and they quickly proved themselves in action. An engine room fire on the 50,000-ton Oakland Maersk was quickly contained through the rapid response of the U.K.-built hovercraft. This effectively confined the loss to 7 percent of the value of the \$90 million ship.

Success from nine years of operations in Tacoma led the New York City Fire Department to specify two HM221s for their needs. The \$6.5 million package brought HIL and Textron into collaboration, the Southampton company providing all the technical data, the completed hulls and the parts which are currently being fitted out by Textron Inc. These vessels will enter service in 1992.

As a result of the introduction of the HM221 SES fireboats, the insurance rates of waterside properties in Tacoma were substantially reduced—by 8 percent.

Textron Inc. is planning a major sales drive targeted at the fire departments of many U.S. cities and they are confident that this will bring more sales. Hovermarine is pursuing similar opportunities in other parts of the world. Hovermarine International Limited is a market leader in the design and manufacture of surface effect ships, having delivered over 100 vessels worldwide.

For further details,
Circle 20 on Reader Service Card

U.S. Trade Commission To Examine Impact Of Yard Subsidy Bill

At the request of the House Ways and Means Committee, the U.S. International Trade Commission has begun an investigation into the likely economic effects of the enactment of the Shipbuilding Trade Reform Act of 1991 (HR 2056). The report will be watched closely by Congress as it considers trade legislation and any final agreement reached in the OECD trade talks.

The report will seek to provide an overview of: (1) OECD shipbuilding

negotiations; (2) Conditions in the U.S. shipbuilding and repair industry; (3) Conditions in the U.S. carrier industry; and (4) Likely economic effects of the act as compared to the likely effects of an international agreement to end shipyard subsidies.

A public hearing relating to this investigation will be held by the ITC on January 24, 1992. The submission of written statements must be made by no later than February 4. The ITC will issue its report no later than April 27, 1992. For more information, contact **Bob O'Neill** of the American Waterways Shipyard Conference (AWSC) at (703) 841-9300.

FELS To Install Sea Plow System On 'Global Sentinel'

Far East Levingston Shipbuilding Ltd. of Singapore recently announced that it has won an international bid from Transoceanic Cable Ship Co., Inc., a subsidiary of AT&T, for the installation of a sea plow system on the Global Sentinel. This

sea plow system will enable the ship to bury cables in the coastal areas. Such an installation will enhance the capability of the cable ship.

Upon completion of this installation work, the vessel will be deployed for operation within the Pacific region.

For free literature detailing the facilities and capabilities of FELS,

Circle 17 on Reader Service Card

Samsung To Start Building VLCCs Up To 280,000 Dwt

Samsung Shipbuilding & Heavy Industries of South Korea recently confirmed that it is to start building VLCCs shortly. The shipyard will utilize its large No. 2 dock facility at Koje Island for the construction of tankers up to 280,000 dwt.

This endeavor by Samsung, which is the first time the yard has made a

firm commitment to such a program, follows several years of close examination of the shipbuilding industry and feasibility studies on such a building undertaking.

Currently, Samsung is involved in an extensive marketing exercise aimed at securing its first VLCC orders. If successful, it will join Hyundai and Daewoo as the only South Korean shipbuilders capable of constructing VLCC tonnage.

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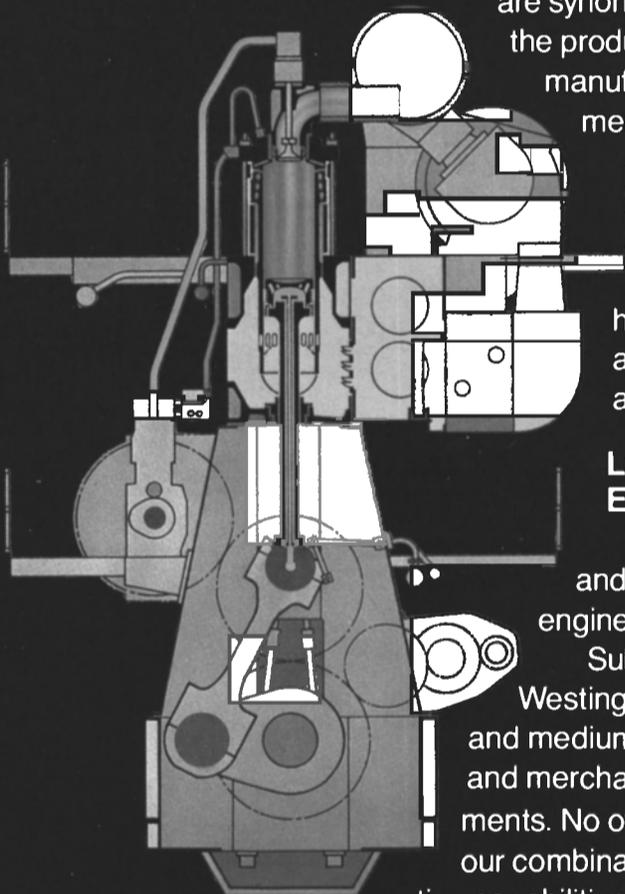
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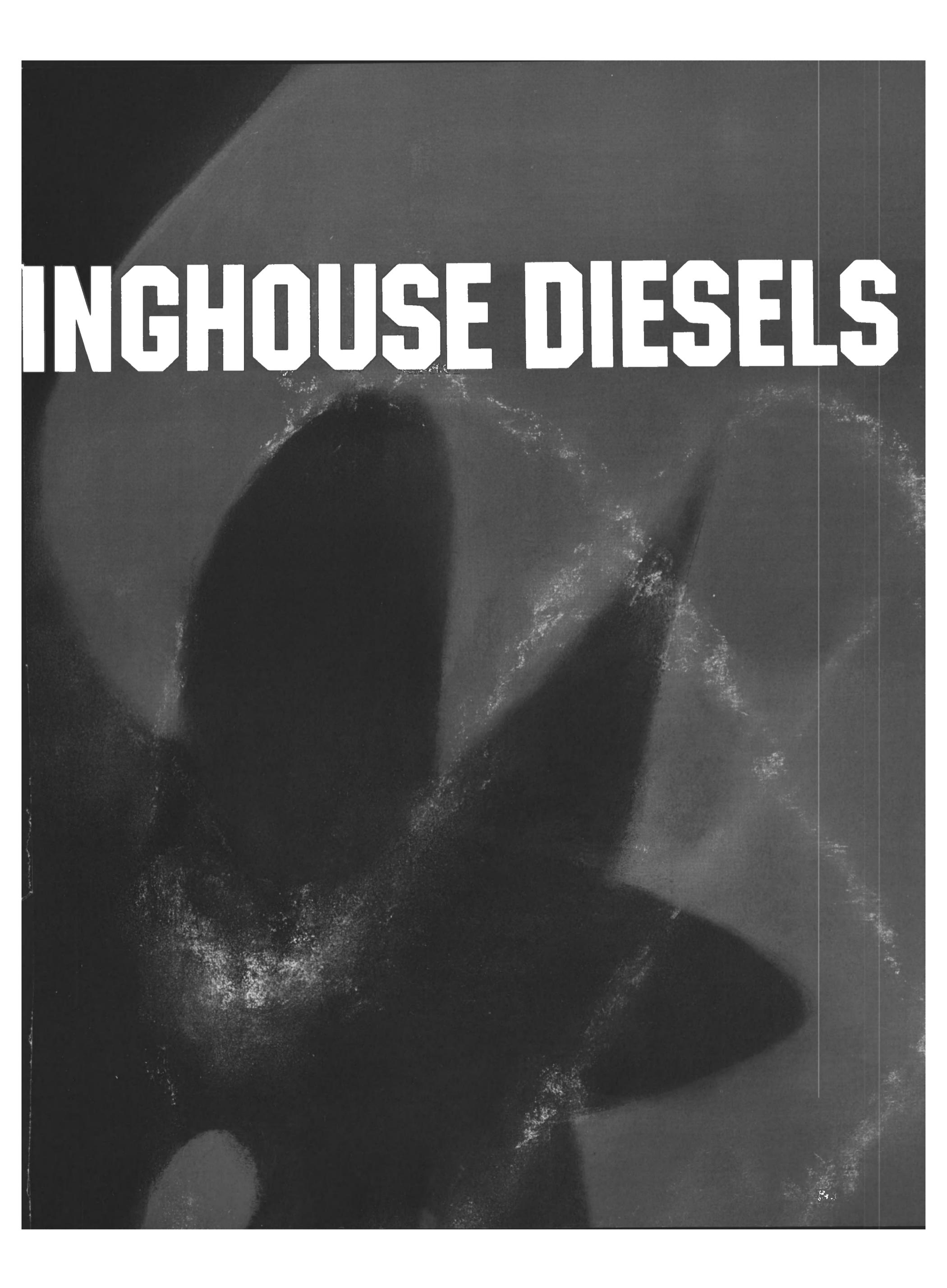
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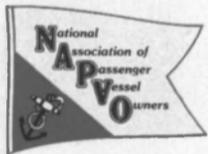
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NAPVO 1992 Annual Convention & Exhibition

January 11-14, 1992, New Orleans, La.

The Annual Convention & Exhibition of the National Association of Passenger Vessel Owners (NAPVO) will be held at the Sheraton New Orleans Hotel in New Orleans, La., from January 11-14, 1992. The yearly event represents a gathering of some of the top leadership in the small passenger vessel industry, one of the fastest growing sectors of the marine transportation industry in the U.S.

The program of the convention will offer attendees the opportunity to hear some of the latest developments impacting the passenger vessel industry during plenary sessions and seminars, while the exhibition will display some of the latest products and services available to the marine market. Boatbuilders and vessel repairers, diesel engine manufacturers, and suppliers of marine machinery, lifesaving equipment, safety products, and design services will be among the exhibitors at the show.

Some of the important industry topics that will be covered at the show presentations include developments in the fast-growing gambling vessel sector, the implications of the Oil Pollution Act of 1990,

marine safety, and passenger vessel construction trends, as well as tour and dinner cruise marketing ideas. One of the plenary sessions, for example, on January 12, will focus on how new gaming laws are affecting vessel operations in American waterways. Dr. William Eadington, director, Institute for the Study of Gambling & Commercial Gaming in Reno, Nev., will present the plenary session "Gaming Developments on the Rivers and Coasts" from 9:30 a.m. to 10:30 a.m. Furthermore, that same day, Dr. Eadington will moderate an afternoon seminar, "A Closer

Look at the Gaming Industry: An Expert Panel Provides Insight." The seminar will be an in-depth discussion of gaming on passenger vessels, together with developments in the casino industry. This session will review legal aspects, casino operations and economics, financing of gambling entities and review the current status of riverboat offshore gambling activities.

On Monday, January 13, Adm. Eugene A. Henn, Chief, Office of Marine Safety, Environmental Protection, and Port Security, U.S. Coast Guard, will provide an update on

marine safety at a one-hour plenary session beginning at 9 a.m.

Following the session by Admiral Henn, a report will be provided by the Public Policy Committee, with invited guests including: Sen. John Breaux, Louisiana, Chair, Senate Subcommittee on Merchant Marine; Con. Billy Tauzin, Louisiana, Chair, House of Representatives; and Con. Gene Taylor, Mississippi, Member, House Committee on Merchant Marine & Fisheries.

The National Association of Passenger Vessel Owners is a 20-year-old trade association consisting of more than 400 members, who represent a \$500 million industry that carries over 45 million passengers each year. NAPVO members, who operate 1,200 vessels throughout the U.S., are key leaders in providing dinner cruises, tour and excursion services, car and passenger ferry operations, overnight cruises, gambling, entertainment, private luxury charters and other passenger vessel services. NAPVO members placed orders for about 20 new major vessels in 1990, with a total cost of more than \$30 million.

For further information on the National Association of Passenger Vessel Owners, write: NAPVO, 808 17th Street, NW, Suite 200, Washington, D.C. 20006; or telephone: (202) 785-0510. . .

NAPVO '92 Exhibitors

Avondale Shipyard	Leevac Shipyard
Atlantic Marine	Loomis & Lapann
Bender Shipyard	Maritime Reporter
Bidco	NAVATEK
Caterpillar Engines	Nichols Bros. Boat Builders
Cummins Engine	Rodney Lay & Associates
Custom Ship Interiors	Service Marine
DeJong & Lebet	Skipperliner Shipyard
Direction in Design	Sysco
Eckland & Associates	Taylor Tec
Envirovac	Twin Disc
Freeport Shipyard	Ultra Poly
Guido Perla & Associates	Viking Life-Saving
Gulf Craft	Equipment
Interior Design International	Walport
Johnson & Higgins	Whirley Industries
L.F. Gaubert	Wooster Products

Belle of St. Louis, built by Leevac Shipyards for NAPVO member Gateway Riverboat Cruises.

State-Of-The-Art Switchgear Supplied By SPD Technologies For Seawolf Class Subs

It has been two years since SPD Technologies received its first contract for the design, development, manufacture and first qualification testing of distribution switchgear and control panels for the next generation of submarines, the SSN-21 Seawolf Class.

Following that initial contract award for the Electric Plant Control Panel (EPCP), the auxiliary EPCP and associated support panels, SPD was subsequently awarded two additional contracts on the AC and DC distribution switchgear and the diesel generator switchboard.

The switchgear equipment for the SSN-21 program, while similar in function, is considerably different in design and manufacturing from that supplied by SPD to the 688 Class and Trident Class submarines.

One of the criteria for the SSN-21 required a design which packed more power distribution circuits into a smaller volume than that of the 688 and Trident, while at the same time lowering the allowable temperature rise inside the cabinet by 38 percent. The design also required a two foot square bevel to be removed from the rear of the unit to allow the hull to curve around the gear.

All of this was to be accomplished without forced ventilation or ventilation openings in the rear of the enclosure.

Additionally, a new, more stringent shock test criteria was established along with increased accessibility for installation and maintenance.

Finally, the switchboards were the first equipment designed with the Navy's new arc fault detection system installed from the outset, and the first 500V class equipment to include fully insulated bus as an arc fault prevention means.

To successfully tackle these varied tasks, SPD development engineering teams at the Neshaminy, Pa., facility, designed the new enclosures, bus work and ventilation schemes needed to meet the specifications.

Another challenge was presented by the panels' "unitized lineup," where the individual frames associated with the turbine generator switchboard are now single welded structure, reducing parts and weight.

The development of the unitized lineup, which posed both design and manufacturing challenges, illustrates the coordination between the two SPD departments. Even while SPD's design process was ongoing

at Neshaminy, and the full design detail of the SSN-21 submarine itself was evolving, SPD operations in Montgomeryville, Pa., began to build the equipment.

The EPCP program marks several firsts for SPD and the Navy.

While SPD designed and built the EPCP for the Nimitz Class aircraft carriers, Seawolf marks the first submarine EPCP for SPD.

This effort also marks the first use of: an auxiliary electric plant control panel (plus necessary transfer equipment), digital readout meters in lieu of analog scales, battery monitoring components built



The ACB-904 circuit breaker, the first 900 amp circuit breaker with electronic overcurrent protection.

into the EPCP, and significant use of pushbuttons in lieu of rotary switches.

The panels have also undergone special shock testing at a 90-degree orientation to their normal position, a first-time requirement that greatly affected their structural design.

Further complicating the structural design problems were the sheer magnitude of the components being packed and wired into the limited space allowable on a submarine.

It also marks the first use of SPD's new ACB 904 circuit breaker with electronic overcurrent protection. The 904 also incorporates digital state monitoring and increased interruption capability.

For free literature detailing SPD Technologies' switchgear and control panels,

Circle 175 on Reader Service Card

Secondhand VLCC Sold At Record Price

A.P. Moller, the Danish shipping giant, recently completed the sale of the 1989-built VLCC Niels Maersk for a record price of between \$80

million-\$82 million to South Korean owners. Sold to Honam Oil of South Korea, the 255,312-dwt Niels Maersk has been chartered back by A.P. Moller for two years at a cost of \$35,000 per day. The finalization of the deal ended months of speculation.

GE Awarded \$68.3 Million Pact For Aegis System

General Electric Co., Government Electronics Systems Division, Moorestown, N.J., was recently awarded a \$68.1 million contract for the production of a single Aegis weapon system for Japan under the Foreign Military Sales program. The contract (N00024-91-C-5101) was awarded by the Naval Sea Systems Command.

A/S Vesta Acquired By Aalborg Ciserv

Aalborg Ciserv International A/S recently acquired all assets in A/S Vesta, Copenhagen, Denmark, for the company's production of heat exchangers/oil preheaters and incinerators.

A/S Vesta was previously a member of the Paul Klinge Group, and its products are recognized worldwide for high quality and environmental concern. The products and the Vesta incineration technology will now also be marketed by the 26 companies in the Aalborg Ciserv International Group, consequently increasing the business opportunities for A/S Vesta.

Flemming Tyrrestrup Nielsen, previously employed by Aalborg Ciserv International A/S, has been named as the managing director of A/S Vesta. The new general sales manager is Jorgen K. Iversen, previously the executive manager of Aalborg Ciserv Korea.

Furthermore, A/S Vesta has relocated to Aalborg. The firm's new address is A/S Vesta, P.O. Box 548, 7 Gasvaerksvej DK-9100 Aalborg, Denmark; telephone: (+45) 98 114000; fax: (+45) 98 103001; and telex: 61730 vesta dk.

Through the acquisition of the Vesta, the Aalborg Ciserv International Group has added a closely related product to its activities within design and production of boilers and combustion equipment and to its service activities related to diesel engines and auxiliaries.

Aalborg Ciserv International A/S is a member of the Danish Lauritsen Group, and the company employs about 2,000 people in 26 companies around the world.

For free literature detailing the products offered by A/S Vesta,

Circle 57 on Reader Service Card

Nelson 'Bilge Boy' Oil/Water Separator Meets USCG/IMO Standards

Nelson Division Environmental Systems offers the 'Bilge Boy' oil/water separator to help meet bilge water discharge regulations. The Nelson Bilge Boy is economical, compact, easily installed, easy to use, and performance proven. The unique two-stage design uses a com-

bination of suction side gravity separator, and single oil-coalescing filter cartridge to remove oil from bilge water.

The Bilge Boy meets standards set by both the U.S. Coast Guard and the International Maritime Organization (IMO). In fact, the USCG approval testing demonstrated that the Bilge Boy is extremely efficient in removing oil—well below the 15 part per million limit needed for approval.

The Nelson Bilge Boy is available in two sizes: 96504-A @ 1-1/2 gpm (0.5 m³/hr) and 96609-A @ 7-1/2 gpm (2.0 m³/hr).

The Bilge Boy separators are very compact. They are easy to install, requiring only three standard plumbing connections and one three-wire electrical connection.

In addition to manual operation, the control panel has the capability of being operated remotely by a bilge level switch, allowing automatic operation.

A differential pressure gauge is mounted directly above the control panel, and is marked with a red line to indicate when the element needs to be replaced.

For more information, Circle 33 on Reader Service Card

Hammonds Offers Literature On Fuel Microbe Detection Kit

Hammonds Fuel Additives, Inc., is offering free literature on its HUM-Bug Detector Kit, which is designed to provide early detection of Hydrocarbon Utilizing Microorganisms, or "HUM-Bugs."

These HUM-Bugs grow rapidly and reproduce in diesel fuel. If left undetected and untreated, the bugs and their waste will attack fuel lines, filters, pumps, hoses and tanks. Eventually, the problem can lead to serious and costly problems in marine engines such as unscheduled downtime, fuel starvation, engine repair, or parts replacement.

"Only recently has concern for the problem generated increased exposure, and the industry needs an efficient method of detection," said Walter P. Chartrand, director of marketing. "The HUM-Bug Detector Kit does just that."

Corrosion in a vessel's fuel system is so critical and costly that even the slightest infestation is a threat, according to Mr. Chartrand. The simple positive/negative reading from the HUM-Bug Detector Kit identifies even a trace infestation of harmful growth.

According to Mr. Chartrand, the earlier the contamination is detected, the easier it is to treat. Hammonds officials recommend regular treatment with a fuel biocide, such as Biobor JF, a liquid fuel additive also manufactured by Hammonds Fuel Additives, Inc., which is specified in many marine engine maintenance manuals.

For free literature detailing the HUM-Bug Detector Kit, or Biobor JF,

Circle 78 on Reader Service Card

Second Detroit Diesel-Powered Patrol Boat Delivered By Trinity To Ecuadorean Coast Guard

Trinity Industries, Inc. subsidiary Moss Point Marine Inc., Escatawpa, Miss., has completed a two-vessel contract with the Ecuadorean Coast Guard with the delivery of the second 112-foot off-shore patrol vessel (OPV).

The new vessels are 112 feet in length, with a 22.5-foot beam and a 12-foot molded depth. Loaded draft is 7 feet. The hulls are constructed of high-tensile, lightweight steel, and the superstructure is made of marine aluminum.

Each boat is powered by two Detroit Diesel 16V149MTI engines and one Detroit Diesel 16V92TAB engine. The boats reached speeds in excess of 27 knots during sea trials, exceeding contract speed requirements by two knots.

The same design is also available in all-aluminum construction with an expected top speed of approximately 30 knots.

The new boats are equipped with the usual complement of navigation and communications equipment and have air-conditioned accommodations for a captain, four officers and crew of 14.

Each boat has two steering stations, a 10-man rigid inflatable boat and a deck crane for handling the

motorized inflatable.

Halter Marine, a sister company to Moss Point Marine in the Trinity Marine Group, completed a six-boat contract with the Navy of Ecuador in 1988. The company built two 44-foot aluminum patrol boats for the



The two new patrol boats built by Moss Point Marine for the Ecuadorean Coast Guard are equipped with armament foundations for one 40-mm cannon and two 50-caliber machine guns. The new "Espada" class Trinity design can accommodate a variety of weapons suites, depending on the mission of the boat.

Coast Guard, and four identical boats in kit form. The kitting program consisted of computerized cutting of all aluminum plates, sub-assembly of some components, coding of all pieces, and shipment of all machinery and equipment to com-

plete the boats at the Astinave shipyard in Guayaquil.

For free literature detailing the shipbuilding facilities and services offered by Trinity Industries,

Circle 66 on Reader Service Card

Racal Launches New Generation Of Marine Radars

A significant new generation of color and monochrome radars has been launched by Racal Marine Electronics following an intensive development program. The new Racal-Decca BridgeMaster Series follows the company's long tradition of technical innovation and uses a highly advanced processing system to offer clear screen images in all weather conditions. The new radars are also notable for the extensive range of features included as standard rather than as add-on options.

The processing system in the BridgeMaster radars simulates, on the raster scan display, the image persistence which typified traditional phosphor cathode ray tubes. This enables the eye to discriminate in favor of genuine targets which remain on the screen as the radar continues its scan, while sea and rain clutter fade quickly from view. A high resolution screen and a video

signal digitized to 16 levels combine to create excellent clarity for "at a glance" assessment of potential dangers.

The BridgeMaster Series includes a choice of IMO compliant color and monochrome displays which make it suitable for a wide variety of vessels and budgets. The two basic radars consist of the BridgeMaster 180 with 15-inch color or mono displays and the 250 with 20-inch color or mono displays. The 180 range may be used as a primary radar for vessels up to 1,600 tons, while the 250 Series is suitable as a primary radar for ships up to 10,000 tons and as a secondary radar for larger vessels. The introduction of these two ranges now means that craft ranging from fishing and work boats to the largest oceangoing ships will be able to benefit from the BridgeMaster's advanced technology.

For free literature detailing the new BridgeMaster Series from Racal Marine Electronics,

Circle 50 on Reader Service Card

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BAIER HATCHES
tested and guaranteed watertight



OVER THE YEARS, WE HAVE
LEARNED THAT PRODUCING
A GOOD PRODUCT AND
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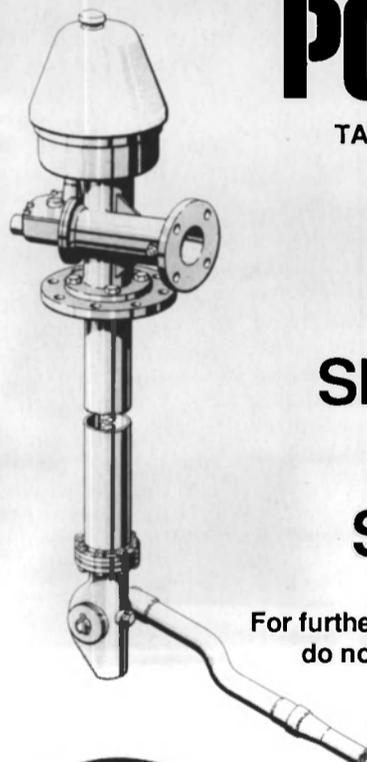
- Material: aluminum, bronze, galvanized steel
- SAFETY: never iced in as the wrench is removable
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Circle 242 on Reader Service Card



Photo shows Marine Industries Northwest Inc.'s new drydock, MINI I, with Western Pioneer freighter Yellowfin docked for a scheduled underwater inspection, tailshafting repairs, and painting.

Marine Industries Northwest's Newly Acquired Drydock 'MINI I' Now Fully Operational

Marine Industries Northwest Incorporated (MINI) now has its recently acquired 2,800-ton-capacity drydock, MINI I, fully operational at the Tacoma, Wash., shipyard.

The reinforced concrete MINI I drydock measures 389 feet long and has a clear width of 57 feet between wingwalls. It features eight high-capacity pumps arranged in four pump rooms, 12 watertight compartments for operational flexibility, a pair of traveling wing wall cranes, modern waste collection system, and a control room.

The new drydock allows MINI I

to accommodate expanded markets such as oil rig vessels, spill response vessels, catcher processors, large tugs, mud boat conversions, and coastwise freighters.

Marine Industries Northwest is a full service shipyard serving the Pacific Northwest more than 15 years, specializing in the conversion/repair work of barges, tugs, and coastal freighters to ABS and USCG standards.

For free literature detailing the facilities and capabilities of MINI,

Circle 11 on Reader Service Card

South Korean Yards Record Order Book Upturn During Third Quarter Of Year

A 12.8 percent increase in its order book during the third quarter of the year was recorded by the South Korean shipbuilding industry, consolidating its position in the second slot worldwide.

The number of contracts awarded in the three months to September 30 outweighed vessel deliveries by 890,000 gt, taking the Korean yards' overall workload to 7.85 million gt.

The South Korea upturn in business corresponds closely to the global increase in newbuilding construction. New orders reported to have been received during the quarter totaled 5.0 million gt, almost 1.1 million gt in excess of commissionings in the corresponding period.

Of the total contractual activity, Japan accounted for 15.1 million gt or 37.2 percent, representing a slight reduction in both percentage and

tonnage terms. The industry in Japan, which continues to invest heavily in its production facilities with an eye to the requirements of double-hull crude carriers and other types, dominates the tanker sector.

In this category, Japanese builders hold contracts for 9.6 million gt of the 20.7 million gt worldwide. South Korea's increased competitiveness, however, is reflected in the uplift in its oil tanker workload to 4.5 million gt.

By far the single largest field of new construction activity is tanker tonnage, representing 51 percent of orders in hand throughout the world.

The higher level of bulk ship orders was one of the main contributors to the third quarter's increase in business. The aggregate bulker order book grew by 1.1 million gt to 6.6 million gt, or 16.3 percent of the total at the close of September. Its proportional standing three months earlier had been 13.9 percent.

The relatively few advances achieved elsewhere were overshadowed by the surge in South Korea's workload.

Trinity Marine To Build Third LPG Barge For Hollywood Marine

Trinity Industries, Inc., subsidiary, Trinity-Beaumont has been awarded a contract to build a 15,000-barrel-capacity liquid propane gas (LPG) barge for Hollywood Marine, Inc., Houston, Texas.

The new barge will be 260 feet long, with a 52.5-foot beam, and 12-foot depth. Construction has begun and delivery is expected in the spring of 1992.

The barge's two 7,500-barrel LPG tanks will be provided by Hollywood Marine, which will also perform the final outfitting on the vessel.

John Dane III, president of the Trinity Marine Group, which includes Trinity-Beaumont, said this new contract will create a need for about 50 additional shipbuilders at the Beaumont, Texas, shipyard. He added that a recent contract for four 208-foot oil spill recovery ships and

soon-to-be refurbished drydock at the Beaumont facility will bring total employment there to about 500.

Trinity acquired the closed shipyard from Bethlehem Steel in June 1989, and reopened it in 1990.

Trinity-Beaumont delivered two 15,000-barrel liquid flammable gas barges to Hollywood Marine in September and October of 1991. Those barges are 260 feet long, with a 45-foot beam, and 12-foot depth. All six high pressure tanks for the vessels will be provided by Beard Industries, Inc., Shreveport, La., another Trinity company.

The Trinity Marine Group, Gulfport, Miss., is owned by Trinity Industries, Inc., Dallas, Texas.

In addition to Trinity-Beaumont, the group includes Gretna Machine & Iron Works, Inc.; Halter Marine, Inc.; Moss Point Marine, Inc.; Equitable Shipyards, Inc.; Aluminum Boats, Inc.; and HBC Barge, Inc.

For free literature detailing the ship construction and repair services of the Trinity Marine Group,

Circle 73 on Reader Service Card

Rauma Yards, Hollming To Combine Operations Under New Company Name

It was recently disclosed that Finland's Rauma Yards and Hollming have agreed to combine their shipyard operations based in Rauma under a new company name.

To win bigger projects through better delivery times and lower costs, the two shipyards will be kept open and will work together.

The Finnish Government has agreed to take a 13 percent stake in the company, while Rauma Ltd. will take 47.9 percent and Hollming 39.1 percent.

The joint order books of the two

yards, worth about \$481.9 million, will be transferred to the new company, and net sales are forecast at around \$342.5 million for 1992.

Included in the current order book are two cruise ships, a multipurpose icebreaker, a missile boat, an inland waterway ferry and various hull and other ship sections.

The managing director of Hollming, Aamo Mannonen, said the combining of the two yards would have a positive effect on the new company's ability to compete on price and delivery.

The new company, as yet unnamed, will also acquire Aquamaster-Rauma Oy and Pipemasters Oy, two subsidiaries owned equally by Rauma and Hollming.

Durable Thermoplastic Key Component Of Offshore Umbilicals

Long considered "lifelines" in the oil and gas exploration industry, umbilicals are the conduits between offshore platforms and the subsea wellheads. These conduits transport hydraulics to subsea destinations, thus monitoring the control of wellhead valves. Because of this operations function, umbilicals are designed to meet exacting requirements which must withstand tough subsea conditions. For Multiflex, Inc., Magnolia, Texas, a leading manufacturer of hose bundles and umbilicals worldwide, the only material that satisfies particular application requirements for umbilical core tubes is Rilsan Polyamide 11.

Safety, durability and corrosion resistance are perhaps the most important factors in the manufacture of umbilicals. With an eye toward using superior materials for all applications, Multiflex has earned a dominant position in the

offshore umbilical industry. Using only the highest quality materials are part of the reason for Multiflex's long list of satisfied customers, said Brad Jeter, project manager for Multiflex. "Whatever the application, we specify the highest quality materials available for our customers. Polyamide 11 is an important part of our products, and we don't compromise safety or durability with a lesser thermoplastic."

Rilsan Polyamide 11 is produced by ATOCHEM North America, Inc., a \$1.5 billion diversified chemicals manufacturer headquartered in Philadelphia, Pa. The company was formed December 31, 1989, as result of a merger between ATOCHEM, Inc., M&T Chemicals Inc. and Pennwalt Corporation. ATOCHEM North America is an affiliate of ATOCHEM S.A., a \$10 billion chemicals manufacturer, which is part of the ELF Group, headquartered in Paris, France.

For detailed information on Rilsan Polyamide 11 uses in subsea applications,

Circle 51 on Reader Service Card

Propulsion Update

Dual Mode Fluid Controlled Injector System From AMPS Saves Maintenance, Fuel Costs

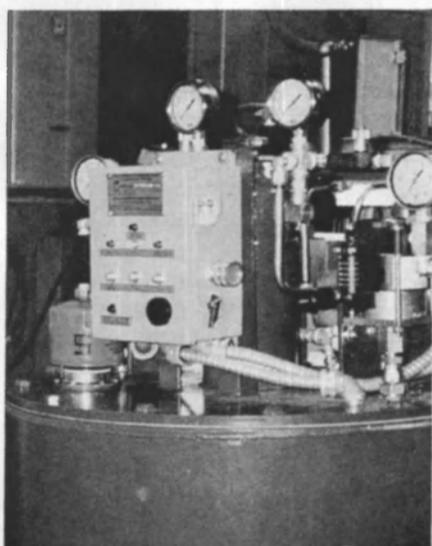
Automated Marine Propulsion Systems, Inc. (AMPS) offers Dual Mode Fluid Controlled Injection Systems (FCIS) which have been operating for over 200,000 combined hours on more than 50 slow- and medium-speed diesel engines worldwide. The FCIS can operate on heavy fuels or conventional diesels.

According to AMPS, Inc., the FCIS saves from 3 to 7 percent in fuel and decreases maintenance and spare parts costs. The FCIS fuel injectors operate 25,000-35,000 hours. AMPS guarantees its injectors will operate on the fluid controlled injection mode for two years or 12,000 hours and on any fuel without removing the injectors for overhauls.

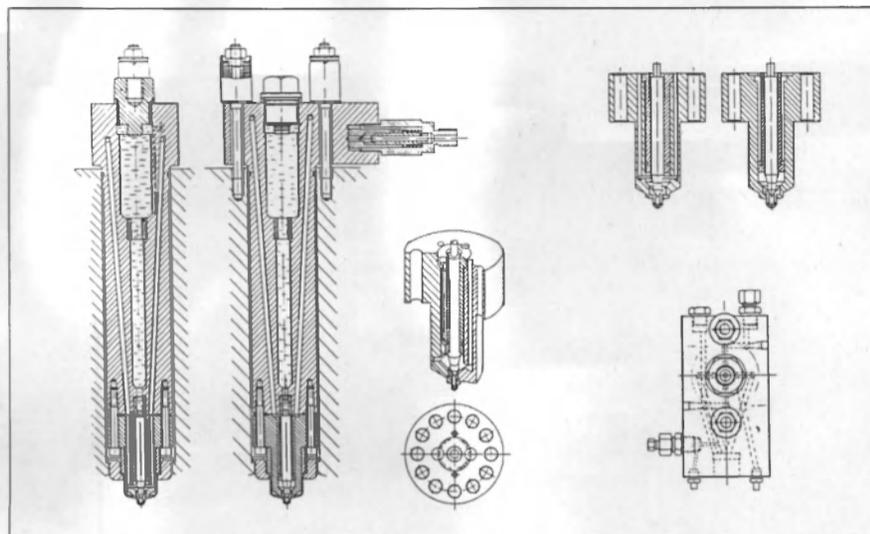
Fuel injector failures cause seizures in pistons and piston crown cracks. The atomization pattern from improperly designed and functioning mechanical fuel injectors creates thermal stress on the cylinder cover flame deck and liner wall. This causes "cold corrosion" and thermal stress cracks which result in excessive wear and premature failure of these major engine components. Malfunction of fuel injectors

disintegrates and contaminates lube oil and as a result, a crankcase explosion can occur severely damaging the engine.

The AMPS fuel injector is simple and reliable, according to the company. It has two separate independent modes of operation. The FCIS



AMPS's Dual Mode Fluid Controlled Inspection System installed.



Schematic drawing of AMP's Fluid Controlled Fuel Injector.

injectors have constant flow features to prevent solidification of the heavy fuel into fuel lines and related elements of the fuel system. This allows marine engines to operate with heavy fuel, cool fuel valves and prevents corrosion usually caused by cooling water.

The fluid surface tension effect centers the needle valve, acts as force lubrication and prevents penetration of heavy contaminated fuel between needle and valve guideway. FCIS fuel injectors have very few mechanical internal parts, preventing impact wear of the precision parts of the fuel injector atomizer and significantly increasing operating life of the injector valves. FCIS offers precise needle valve lifting

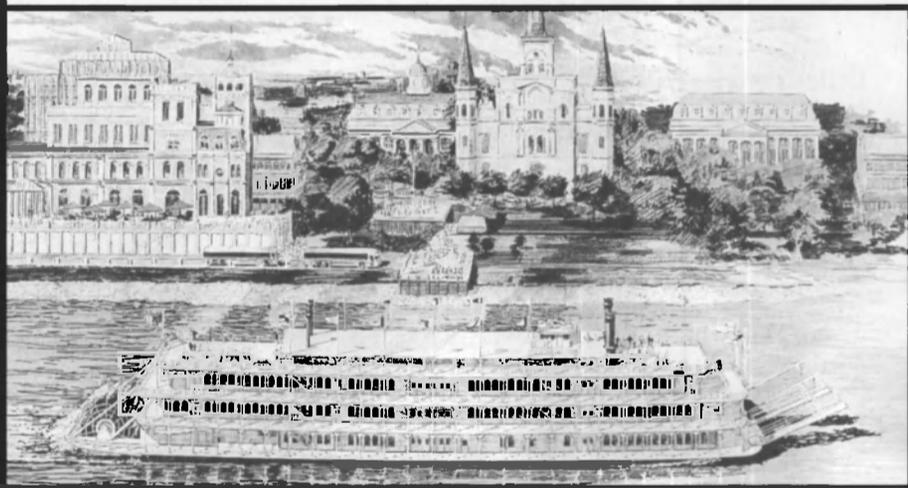
and opening times, resulting in better combustion.

An important reliability feature of the FCIS is, in event of a decrease in fluid control pressure of the primary fluid control line, an independent secondary mode of operation takes effect automatically, as a backup system. If the individual fuel injector loses control pressure then the fuel pump and injector are automatically switched off from the fluid control line but the engine continues to operate without interruption.

For a free color brochure detailing AMPS's Dual Mode Fluid Controlled Injection System,

Circle 79 on Reader Service Card

STEAMBOAT'S A' COMIN RIVERBOAT GAMBLER'S IN TOWN



Sounds from the past?

Not if you have an authentically-styled Victorian era sternwheeler casino boat from SERVICE MARINE INDUSTRIES, INC.

These boats vary in size from 194' to 350' for 1200 passengers to 3000 passengers. The largest carries over 1600 gaming positions in deckhouses that are high, wide, and handsome.

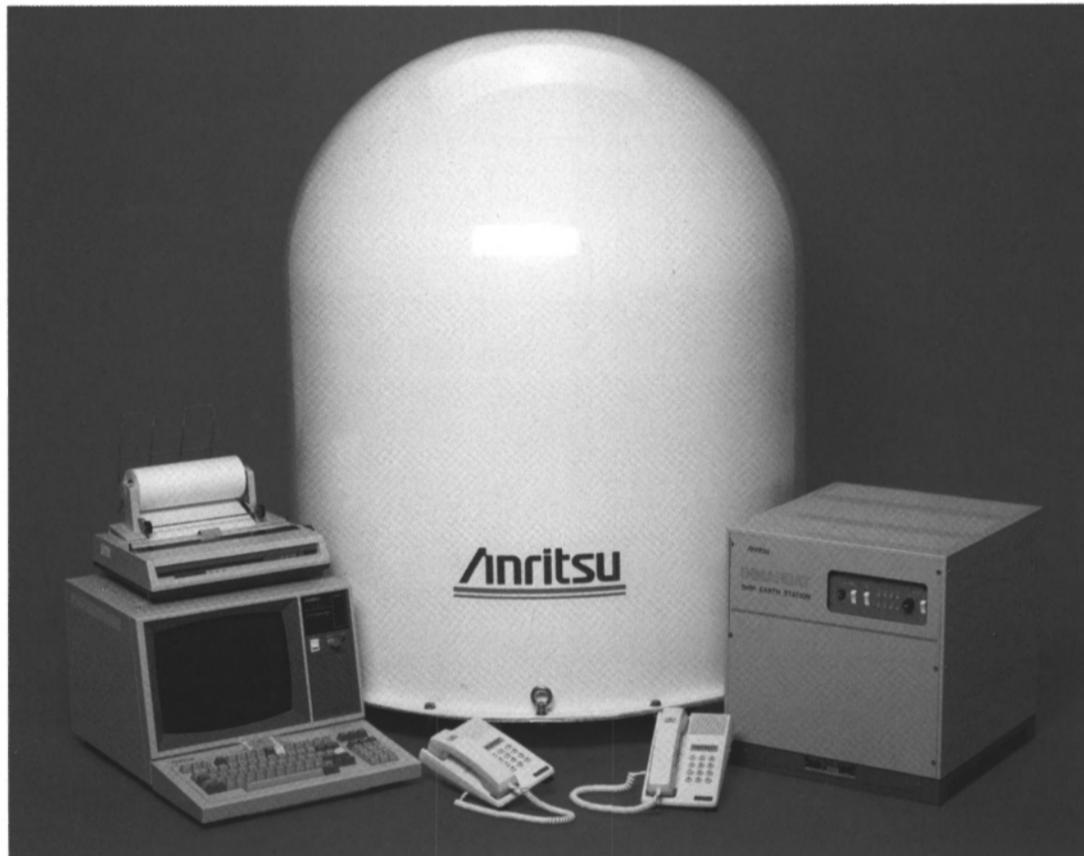
These boats have three deckhouses designed for pure pleasure. Enter the glamorous main deck amidship to capture the thrill of casino sights and sounds. Wide curving sairs invite you to the balcony for more games and the excitement of the gaming floor below.

Move to the Hurricane Deck to enjoy a "N Awlins style" riverboat dinner, and then enjoy the raved-about show. After the show, try your luck in the casino located on this deck. All decks provide for good passenger circulation. Passengers may use stairways or elevators for access to all decks on the boat. All casino boats by Service Marine have high ceilings and lots of cool fresh air for passenger comfort. The special sound suppression and anti-vibration systems used by Service Marine provide for whisper-quiet and vibration-free operation. Our fast track design and construction method deliver your boat to meet the most demanding schedule. All our designs meet the newest U.S. coast Guard regulations. If your business plans include a new mid-nineteenth century period casino boat, call the specialistists in casino boat design and construction, SERVICE MARINE INDUSTRIES, INC.

Circle 248 on Reader Service Card

SIMRAD/Anritsu SatCom (INMARSAT A)

The only 3-year warranty in the industry



Why don't our competitors offer this kind of warranty on their SatCom systems? And why is our antenna so much smaller and lighter than theirs? Tells you something about how we build equipment, doesn't it!

Our system has all the bells and whistles, all the features, all the performance, and all the worldwide support you could ever want or need. You have voice, fax, data, and telex

in a system that will serve you long into the future and is designed to be exceptionally reliable, easy to operate and loaded with options. For the ultimate in critical two-way communications at sea and on shore, there's nothing like the SIMRAD/Anritsu RSS401A Series satellite communications system. Send for complete specifications today. **Simrad. A name you can trust.**

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Toll-free: (800) 426-5565
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SIMRAD

Zapata Gulf To Supply Tug Services Under \$7.4 Million Contract

Zapata Gulf Pacific Inc., Harvey, La., was recently awarded a \$7.4 million contract to provide harbor tug services to Naval Station San Diego for the movement of all classes of naval assets, including submarines. The contract (N00033-92-C-1301) was awarded by the Military Sealift Command Central Technical Activity.

Matrix Expands 'Silver' Line Of Desalination Equipment

Matrix Desalination, Inc., Ft. Lauderdale, Fla., recently announced an expansion of its Silver Series standard line of desalination equipment to include systems producing up to 8,200 gallons per day of potable water. These systems are complete packaged systems, designed for either shipboard or land-based applications.

The Silver "B" Series is available in 2,600-, 3,600-, and 4,600 gpd capacities. All equipment, including prefiltration and feed pump, is contained in a 58- by 29- by 22.5-inch unit. The Silver "B" Series is available in 5,300-, 6,800-, and 8,200-gpd capacities. This cabinet measures

58 inches by 43 inches by 30 inches.

The Silver "B" and "C" Series were designed for heavy-use applications, such as commercial fishing, charter vessels, research vessels, and salvage and transport operations. All systems are shipped complete with cartridge filtration, automatic conductivity controller, fiberglass pressure vessels, and stainless steel high pressure fittings and valves.

For free literature detailing Matrix Desalination equipment,

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New Study Predicts Growth In World Tanker Fleet

A new study expects the size of the world tanker fleet to increase by 40 million deadweight tons, or 16 percent by 1995.

According to the study, "Tankers: The Outlook to 2005," published by Ocean Shipping Consultants, the expansion should bring the fleet to around 285 million dwt by 1995. In the face of extensive scrapping, the study states, fleet expansion will be less marked after 1995, amounting to around 10 percent a year until 2005. By 2005, the total fleet will be 315 million dwt.

The overall net fleet growth will be accounted for by crude carriers and product tankers, with a greater

rate of expansion in the products sector.

During the period from 1991-2005, the study predicts tanker construction to total 187 million dwt—a rate of about 12.5 million dwt annually.

While increased demand for tanker tonnage is expected to play a key role, the urgent need for fleet replacements in the crude carrier sector will dominate newbuilding activity.

Bender Awarded Contract For Repair Work On USNS Albert J. Myer

Senator Richard Shelby of Alabama recently announced that Bender Shipbuilding & Repair Co., Inc., Mobile, Ala., was awarded a \$2,040,272 contract for the drydocking, topside repair and sponsor modification of the USNS Albert J. Myer (T-ARC 6). The Myer is a 370-foot-long cable repair ship operated by the Military Sealift Command, Oakland, Calif., for the U.S. Navy.

The vessel is scheduled to arrive in Mobile this month, with a crew of 93, including six Navy personnel and 18 technicians. Bender will complete the repair in 45 days, employing 65 workers.

Bender is a full-service shipyard that has built, converted and repaired vessels for commercial and

governmental owners and operators for over 70 years.

For free literature giving further information on Bender Shipbuilding,

Circle 18 on Reader Service Card

GMG Systems Named Agency For Smit Ovens Inert Gas Generators

GMG Systems, Inc., recently announced it was named a new agency for Smit Ovens Company (Holland) inert gas (CO₂ and nitrogen) generators and flue gas systems.

The New Hyde Park, N.Y., company also represents Ansell Jones, W.T. Seymour/Fife Forge, Sunflame Incinerators, Henri Alarms, Dietrich System Controls, and Parmatic/Sigma Pollution Controls.

Aside from its retrofit business, GMG Systems is able to supply marine equipment such as vapor recovery systems, deck fittings, steering engines/tail shafts/rudders, incinerators, inert gas generators, and oil water/sewage treatment systems for new construction projects in the U.S.

For free literature detailing the complete line of marine products represented by GMG Systems,

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Damen Delivers Cummins-Powered Tug And Tender



The tender Cambois and tug Blyth Endeavour, both Cummins powered and built by Damen Shipyards in the Netherlands, will replace four existing vessels operating in Northumberland's Port of Blyth.

Damen Shipyards, the Netherlands, has completed delivery of the Damen Stan Tug 1605 and a Damen Stan Tender 1350 to the Port of Blyth, Northumberland's most significant port.

The 55.4-foot-long by 17.3-foot-beam Damen Stan Tug 1605, named Blyth Endeavour, will be used for maintenance dredging by means of a plough. The vessel will also be used as a work vessel by the engineering department and as a harbor tug.

A flying bridge is arranged on the wheelhouse of the tug, giving an unobstructed view of the aft deck which is necessary while ploughing. The vessel's layout provides a wheelhouse with a table, bench seating

and cooking facilities and the forward accommodation includes a shower and toilet.

Propulsion consists of twin Cummins main engines, type NT 855-M, with a total output of 448 bhp at 1,800 rpm, driving open propellers with a diameter of 1,200 mm.

These engines give the vessel a bollard pull of approximately 6.4 tons and a speed of 9.7 knots. Auxiliary power comes from a Lister generator set provided with a 14 KVA, 220/380 VAC Stamford generator.

The vessel is also equipped with a Hiab Sea Crane 61 and an electric anchor winch, as well as a towing hook on the towing bitt at the aft deck (tire fendering as well as a push-bow are provided).

The 45.8-foot-long by 14.4-foot-beam Damen Stan Tender 1350, named Cambois, will be used as a pilot boat, harbormaster's launch and survey vessel.

The single chine deep V-hull of the Cambois is of an all-welded steel construction, and the aluminum wheelhouse is welded to the steel deck by means of a Triclad weld joint.

The vessel is propelled with twin Cummins engines, type 6BTA 5.9 M, having a total output of 440 bhp at 2,500 rpm, giving the vessel a speed of approximately 13.5 knots, fully loaded. To keep noise and vibration levels low, the engines are resiliently mounted.

Electronic equipment includes Furuno radar type 1820, Atlas Krupp

type Deso 20 echo sounder, and Sailor VHF type RT 2048.

For free literature detailing the facilities and capabilities of Damen Shipyards

Circle 12 on Reader Service Card

Rexroth Offers Six-Page Four-Color Brochure On Hydraulic Cylinders

A new, six-page, four-color brochure titled "Hydraulic Cylinders Program Information" is available from The Rexroth Corporation, Bethlehem, Pa.

The centerfold features a complete specifications rundown on categories such as stroke length, piston diameter, end position cushioning, venting, standards and a host of other specs. The new literature covers tie rod, mill type, servo system and special cylinders.

Applications are emphasized through the use of four-color photos, covering such examples as plastics machinery, hydraulic steel structures, foundries, on- and offshore for the oil drilling industry, machine tools, sheet rolling mills, presses and in equipment testing technology and simulation systems used by auto workers.

Rexroth has over 40 years of experience in the field of cylinder manufacturing. It has cylinder manufacturing plants in Lohr, Ger-

many, Lexington, Ky., and in Bortel, the Netherlands, to completely service customer needs.

The Rexroth Corporation is a major manufacturer of hydraulic components, systems and electronic controls.

For a free copy of the new literature on hydraulic cylinders from Rexroth,

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Container Growth Expected To Continue For Pacific Northwest

Container traffic is expected to continue to increase at the Ports of the Pacific Northwest, according to a recent study by a consulting firm. Because of the container growth, acres of new container terminals will have to be built.

According to a spokesman for BST Associates, a Seattle consulting firm hired by the Washington Public Port Association, which represents most of the approximately 70 port districts on Puget Sound, the Washington coast, the Columbia River and at inland sites, container traffic during the 1980s grew at over twice the 5 percent annual rate the ports association had forecast. Imports increased by 10.5 percent and exports grew 12.9 percent a year, driving total volume up from 3.6 million tons to 11.1 million tons.

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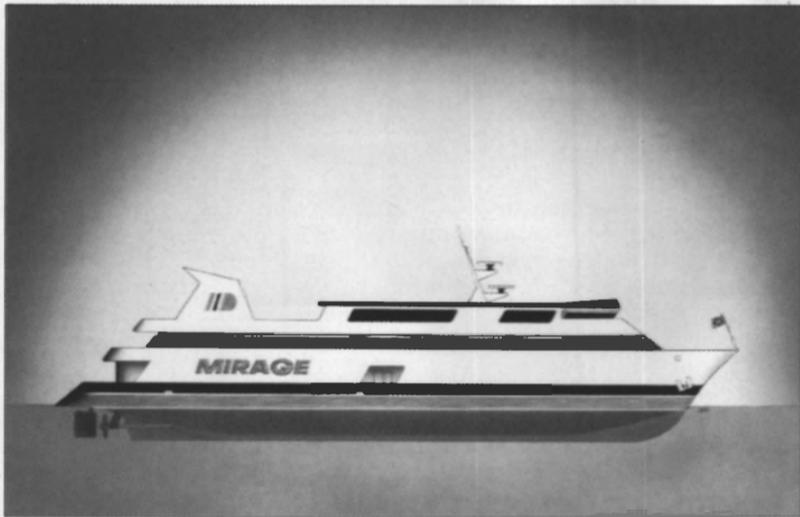
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Built to transport 349 passengers for a construction project in Boston, the 104-foot "Laura" is a 23-knot, all-aluminum passenger ferry. Other versions of this hull configuration, with different superstructures, are available for the dinner and cruise sightseeing markets.

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"Chicago's First Lady" owned and operated by Holly and Bob Agra of Mercury Yacht Charters, Inc., offers the ultimate experience in elegant lake and river cruise dining. Although reminiscent of the 1920s steam-powered Presidential yacht "Sequoia," the 96-foot, \$1.2 million luxury charter boat is a truly modern lady, providing all the amenities passengers have come to expect in the 1990s. Her climate-controlled main cabin, furnished with a piano and U-shaped bar, offers formal dining for 104, or casual dining or 250, while providing charming, natural light through its skylight. So wherever you move your passengers, move them the right way. Move your passengers...Steiner Style!



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Boats & Barges



At 132 feet by 35 feet by 14.6 feet, the Miss New Jersey is a sister ship to the recently delivered Miss Ellis Island, and will be used for excursion trips to the National Park System's Ellis Island and the Statue of Liberty in New York Harbor.

Blount Delivers Cummins-Powered Ferry 'Miss New Jersey' To Circle Line In New York City

Blount Marine Corporation, Warren, R.I., recently announced the delivery of the ferry boat Miss New Jersey to Circle Line Statue of Liberty Ferry, Inc. The vessel was designed by naval architect **Robert A. Simons**, and is certified to carry 799 passengers.

One of the special features of this vessel is the Schottel bow thruster that is powered by a Cummins engine through a drive system incorporating an aqua drive unit and torque tube design. In keeping with the profile of the famous Circle Line fleet, the design features a rounded stern and capped pilothouse.

Circle Line Statue of Liberty Ferry, Inc. ordered its first vessel from Blount Marine in 1953. This vessel, Miss Liberty, was launched in April 1954 and went into service in June of that year. Since then, the vessel has operated continuously for 36 years between New York City's Battery Park and the Statue of Liberty. During that time she is reputed to have carried almost 200,000,000 passengers. Since 1954, Circle Line has periodically contracted with Blount to construct sev-

eral additional vessels, and the Miss New Jersey brings the total to six Blount boats in the fleet.

For free literature on the facilities and capabilities of Blount Marine,

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MISS NEW JERSEY List of Suppliers

Main engines	Cummins
Generators	Cummins
Bow thruster	Schottel
Propellers	Bird-Johnson
Shaft bearings	SKF Bearing Co.
Engine controls	Mathers Controls
Gears - couplings	Twin Disc
Fittings & hose	Aeroquip
Signal system	Hose-McCann
Lifesaving	Cal-June, Inc.
Anchors	Rule Group
Paint	Devoe
Decking	Products Research
Doors	Jamestown Metal
Windows	GEC - Marconi
Electronics	Furuno - Icom
Cutlass bearings	B.F. Goodrich

House Passes Cruise Ship Gambling Bill

The U.S. House of Representatives recently passed the U.S.-Flagged Cruise Ship Competitive Act of 1991 (HR 3282), which, as approved by the House Merchant Marine and Fisheries Committee, would legalize the repair, use, possession and transportation of gambling devices on U.S.-flag cruise ships.

These so-called "voyages to nowhere" could occur only if the gambling activities have not been prohibited under the laws of the state from which the vessel is operated. The bill allows gambling on U.S.-flagged cruise vessels in international waters as one of the forms of entertainment for passengers, and changes current laws so that U.S.

and foreign-flagged cruise ships will operate under the same rules regarding gambling devices on board.

In 1991, between \$8 billion and \$10 billion was spent on cruise ships worldwide, and 80 percent of all passengers on cruise ships were American. About 98 percent of that money was spent on ships built in foreign shipyards, crewed by foreign workers, and owned and operated by foreign interests.

Allowing U.S.-flagged vessels to have gambling devices on board is intended to provide a major financial incentive to expand the U.S.-flagged fleet, resulting in the design and construction of cruise ships in U.S. shipyards. Final Congressional action on this bill is expected shortly. For more information, contact **Bob O'Neill** of the American Waterways Shipyard Conference (AWSC) at (703) 841-9300.

Torin Markets Knight & Carver Hull Preservation Process

Torin Inc., Waldwick, N.J., has been appointed to represent Knight & Carver Yacht Center in marketing their contracting services to preserve and clad steel, aluminum or wooden vessels. Knight & Carver Yacht Center are the contractors for the Medea Preservation Process, which involves the bonding of a layer of rigid foam and a fiberglass skin to the hull surface.

Torin Inc., as suppliers of specialty foams, have over 20 years' experience with foam-cored composites, primarily for new construction of larger motoryachts and commercial vessels.

Knight & Carver performed extensive testing prior to selecting the coatings and adhesives used in this process, according to **Brent Gor-**

don of Knight & Carver Yacht Center.

The process was used to preserve the 140-foot steel steam yacht Medea, owned by the Maritime Museum of San Diego. The 1904-built yacht, the oldest steam-powered vessel still in service, was declared unseaworthy in 1988 by the Coast Guard because of considerable deterioration of her steel plating. Estimates for replating were put at \$1.7 million.

However, using the foam-cored composite process, repairs were effected for \$250,000.

Knight & Carver Yacht Center, apart from performing such projects at its own yard in San Diego, is also equipped to direct preservation processes at other shipyards with local labor, and can supply materials and supervisory services.

For free literature detailing the Medea Preservation Process,

Circle 53 on Reader Service Card

EMS Acquires Tracor Marcon

Tracor Marcon, a division of Tracor Applied Sciences of Rockville, Md., was recently acquired by Electronic Marine Systems, Inc. (EMS) of Rahway, N.J. EMS reports it will continue to manufacture, support,

and expand the current product line.

A 15-year-old marine electronics company, EMS produces shipboard monitoring and control systems to ABS/ACCU requirements.

For free literature detailing the EMS product line,

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First Thermal Systems To Supply Fluid Heaters For MSRC Spill Vessel

First Thermal Systems, Inc., Chattanooga, Tenn., has been awarded contracts from Trinity Marine Group (12 heaters) and Bender Shipbuilding (4 heaters) for all 16 thermal fluid heaters recently specified for the MSRC oil spill recovery vessel project.

Fred Krosner, CEO of First Thermal Systems, Inc., said the contracts represented the single largest order for thermal fluid heaters in the company's history. All the heaters will be delivered to the ship-

yards for fitting by July 1992.

The Villam Series Marine High Efficiency Helical Coil Heaters from FTS are used in conjunction with other heat transfer devices to heat reclaimed oil. Located on the second deck forward, the heaters produce heated fluid for oil storage in the lower decks. The Villam Series heaters, while compact in design and low in maintenance, provide state-of-the-art efficiencies, safe guard and controls.

For more information on the high efficiency Villam Series Marine Heaters,

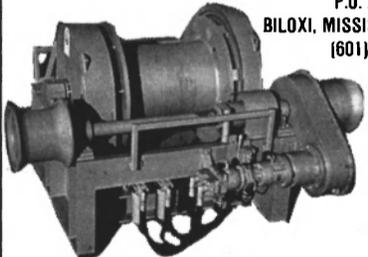
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One-touch channel selection as well as direct access to channel 16 and the weather channels is so easy it can be done in heavy

gloves. The LCD display is oversized and backlit. And options like the external speaker/microphone which allows hands-free operation make it ideal for tankers, tenders and oil rigs.

The HX220AS is a lot of radio in a remarkably small and lightweight package. To find out more about it, or about Standard's intrinsically-safe eight-channel HX340 UHF and VHF handhelds, call or write today.

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Propulsion Update

WESMAR's New DualProp Bow Thruster Offers Increased Thrust

WESMAR, a bow thruster leader for the past decade, has developed a counter-rotating DualProp bow thruster to expand its line for the 50-foot and above commercial and pleasure vessels.

WESMAR's new counter-rotating DualProp, available in 12-inch and 16-inch models, boasts 25-to-40 percent more thrust than single propeller models.

"We produce more thrust, with the same input horsepower," says company president **Bruce Blakey**. "But more importantly, we can do it with the same input power in the same 12- or 16-inch hole as before."

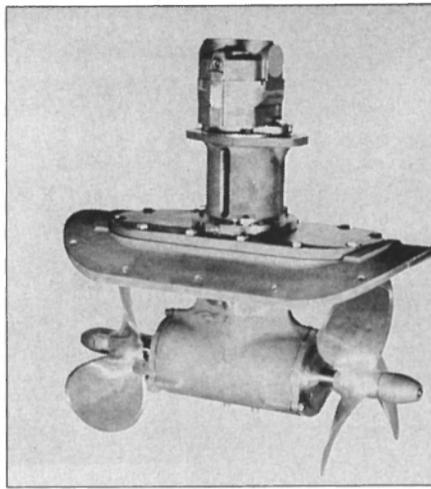
The secret behind WESMAR's unique development is not a new

technology. Popular Science magazine in the December 1991 issue, "Looking Back 50 Years" section, featured counter-rotating propellers as the existing new technology for pushing 1940 propeller-driven planes beyond 400 mph.

How does it work?

Propellers move objects by increasing the velocity of the medium passing through the propeller. Two kinds of energy are created: thrust (axial energy) and swirl (lost energy). The second counter-rotating propeller changes the swirl back into thrust, increasing axial energy to its utmost.

WESMAR achieves counter rotation by adding only a single addi-



WESMAR's DualProp bow thruster.

tional gear; the second prop actually adds balance to the unit. The simplicity of WESMAR's design is verified by a price tag of only about 20 percent more than the single prop versions. Notably, the added thrust is without additional horsepower.

For free literature giving more information on the new DualProp bow thruster from WESMAR, **Circle 61 on Reader Service Card**

McNab Monitoring System Ends Common Problems

A pH system for continuous on-line monitoring of waters, effluents, other fluids, developed by McNab, Inc., incorporates a unique patented design for signal transmission between probe and monitor, which allows up to 500 feet separation between the two, without probe site signal boosters.

For use with McNab's Aqua-Purometer I (H) and II (pH) monitor/controllers, the "Precision Driven Shield" design ends common problems such as the need for long bypass sample feed lines, daily restandardization and the requirement of locating the probe and the monitor in close proximity.

Instead of grounding the shield of the cable between the probe and monitor, McNab utilizes precision buffer circuitry, which drives the shield at the same voltage level as the pH signal.

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MARINE DIESEL ENGINES

Manufacturers – Spare Parts – Repair Services

For further information on any of the products, equipment, or services of the companies listed in this guide, circle the appropriate Reader Service number on the postpaid card bound into the back of this issue.

Marine Diesel Engine Manufacturers & Suppliers

In addition to complete engines, these manufacturers and distributors also supply spare parts and special services.

**Alaska Diesel Electric
Lugger/Northern Lights**
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P.O. Box 70543
Seattle, Wash. 98107
Phone: (206) 789-3880

Atlantic Detroit Diesel Allison
Circle 81 on Reader Service Card
3025 Veterans Memorial Highway
Ronkonkoma, N.Y. 11779
Phone: (516) 981-5800

Bergen Diesel A.S.
Circle 82 on Reader Service Card
Postboks 924
N-5002 Bergen, Norway
Phone: (+47) 5 19 00 00

Caterpillar, Inc., Engine Division
Circle 83 on Reader Service Card
P.O. Box 610
Mossville, Ill. 61552-0610
Phone: (309) 675-1000

**Coltec Industries
Fairbanks Morse Engine Division**
Circle 118 on Reader Service Card
701 Lawton Avenue
Beloit, Wis. 53511
Phone: (608) 364-4411

Cummins Engine Company
Circle 84 on Reader Service Card
Mail Code 60011
Box 3005
Columbus, Ind. 47202-3005
Phone: (812) 377-5000

Daihatsu Diesel (USA), Inc.
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180 Adams Avenue
Hauppauge, N.Y. 11788
Phone: (516) 434-8787

Deere & Company
Circle 86 on Reader Service Card
John Deere Road
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Phone: (319) 292-6060

Detroit Diesel Corporation
Circle 87 on Reader Service Card
13400 Outer Drive, West
Detroit, Mich. 48239-4001
Phone: (313) 592-5000

**Deutz MWM
Motoren-Werke Mannheim AG**
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P.O. Box 102263
D-6800 Mannheim 1, Germany
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Diesel United, Ltd.
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2-1 Ohtemachi 2-Chome
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Dorman Diesels Ltd.
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Kelvin Diesels Limited
Circle 92 on Reader Service Card
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Electro-Motive Division of GM
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Hedemora Diesel AB
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MAN B&W A/S Holeby Diesel
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MAN B&W Diesel GmbH
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Stadtbachstrasse 1
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Phone: (+49) 07541 29-1

MTU of North America
Circle 9 on Reader Service Card
10450 Corporate Drive
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Phone: (713) 240-4100

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P.O. Box 414
CH-8401 Winterthur, Switzerland
Phone: (+41) 052 262 49 22

New Sulzer Diesel US Inc.
Circle 101 on Reader Service Card
200 Park Avenue
New York, N.Y. 10166-0068
Phone: (212) 949-0999

Paxman Diesels
Circle 102 on Reader Service Card
P.O. Box 8
Paxman Works
Colchester, Essex C01 2HW, England
Phone: (+44) 0206-575151

Paxman Diesels USA
Circle 103 on Reader Service Card
(a division of Ruston Gas Turbines, Inc.)
15950 Park Row
Houston, Texas 77084
Phone: (713) 492-0222

Perkins Engines Group Ltd.
Circle 104 on Reader Service Card
Eastfield
Peterborough PE1 5NA
England
Phone: (+44) 0733 67474

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Morrison-Knudsen Company, Inc.**
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P.O. Box 1928
Rocky Mount, N.C. 27801
Phone: (919) 977-2720

SACM Diesel
Circle 106 on Reader Service Card

1 Rue De La Fonderie
B.P. 1210
68054 Mulhouse (Cedex)
France
Phone: (+33) 89 46 01 08

SEMT Pielstick
Circle 107 on Reader Service Card
2 Quaide Seine
Saint Denis, Paris, France 93203
Phone: (+33) 14809-7600

Stewart & Stevenson Services
Circle 108 on Reader Service Card
1400 Destrehan
P.O. Box 8
Harvey, La. 70059-0008
Phone: (504) 347-4326

**Stork-Wartsila Diesel
Marine Sales**
Circle 109 on Reader Service Card
P.O. Box 10608
8000 GB Zwolle, The Netherlands
Phone: (+31) 38-253-253

Ulstein Bergen Inc.
Circle 110 on Reader Service Card
2701 Delaware Avenue
Kenner, La. 70062
Phone: (504) 464-4561

Valley Detroit Diesel Allison
Circle 111 on Reader Service Card
13644 East Nelson Avenue
City of Industry, Calif. 91744
Phone: (818) 333-1243

Volvo Penta of America
Circle 112 on Reader Service Card
Volvo Drive Building G
Rockleigh, N.J. 07647
Phone: (201) 768-7300

Wartsila Diesel Oy
Circle 114 on Reader Service Card
P.O. Box 244
SF-65101 Vaasa, Finland
Phone: (+358) 61 242 11

**Western Engine Co.
Energy Systems Corporation**
Circle 115 on Reader Service Card
500 South Lombard Road
Addison, Ill. 60101
Phone: (312) 620-2000

**Westinghouse Propulsion
Marine Division**
Circle 116 on Reader Service Card
401 E. Hendy Avenue
Sunnyvale, Calif. 94088
Phone: (408) 735-2087

Williams Detroit Diesel-Allison
Circle 117 on Reader Service Card
1176 Industrial Parkway, N.
Brunswick, Ohio 44212
Phone: (216) 225-7751

Yanmar Diesel Engine (USA) Inc.
Circle 119 on Reader Service Card
1031 Segovia Circle
Placentia, Calif. 92670
Phone: (714) 630-9415

**Yanmar Diesel Engine Co. Ltd.
Overseas Operation Division**
Circle 120 on Reader Service Card
1-1 2-chome
Yaesu, Chuo-ku, Tokyo 104, Japan
Phone: (+81) 03-275-4933

Continued on page 51

Marine Diesel Engines

(continued from page 50)

Diesel Engine Spare Parts & Repair

Most shipyards offer complete diesel repair services. Because of space constraints, shipyards are not included in this listing.

Aalborg Ciserv Houston, Inc.
Circle 121 on Reader Service Card
P.O. Box 906
4003 S. Hwy. 288 B
Angleton, Texas 77515
Phone: (409) 849-2010/(713) 393-2607

**Aalborg Ciserv
Los Angeles Division**
Circle 122 on Reader Service Card
300 North Quay Avenue
Wilmington, Calif. 90744
Phone: (310) 513-1581

Aalborg Ciserv Miami Inc.
Circle 123 on Reader Service Card
2449 Northeast 13th Avenue
Ft. Lauderdale, Fla. 33305
Phone: (305) 568-3300

Aalborg Ciserv Norfolk, Inc.
Circle 124 on Reader Service Card
P.O. Box 1066
Chesapeake, Va. 23327
Phone: (804) 545-7156

Aalborg Ciserv San Francisco, Inc.
Circle 125 on Reader Service Card
1315 67th Street
Emeryville, Calif. 94608
Phone: (510) 655-7377

Aalborg Ciserv Seattle Division
Circle 126 on Reader Service Card
2328 East 11th Street
Tacoma, Wash. 98421
Phone: (206) 383-4449

ABB Turbo Systems Ltd.
Circle 127 on Reader Service Card
CH-5401 Baden, Switzerland
Phone: (+41) (0) 56 75 69 03

ASEA Brown Boveri
Circle 128 on Reader Service Card
1460 Livingston Avenue
North Brunswick, N.J. 08902
Phone: (908) 932-6000

**Automated Marine Propulsion
Systems, Inc.**
Circle 129 on Reader Service Card
240 E. Barbours Cut
P.O. Box 1322, Texas 77571
Phone: (713) 471-9110

Berrick Industries, Inc.
Circle 130 on Reader Service Card
5412 McFadden Avenue
Huntington Beach, Calif. 92649
Phone: (714) 898-9955

Caltrax Marine Diesel B.V.
Circle 131 on Reader Service Card
Frankrijkweg 11
4455 TR Nieuwdorp (Vlissingen Oost),
The Netherlands
Phone: (+31) (0) 1196-13551

Chris-Marine USA, Inc.
Circle 132 on Reader Service Card
732 Parker Street
Jacksonville, Fla. 32202
Phone: (904) 354-6566

**Coltec Industries,
Parts & Service Division**
Circle 133 on Reader Service Card
701 Lawton Avenue
Beloit, Wis. 53511
Phone: (608) 364-4411

**Cooper Industries,
Energy Services Group**
Circle 134 on Reader Service Card
North Sandusky Street

Mount Vernon, Ohio 43050
Phone: (415) 577-7400

Diesel Parts of California
Circle 135 on Reader Service Card
1900 East 12th Street
Oakland, Calif. 94606
Phone: (415) 534-9716

Duap AG
Circle 136 on Reader Service Card
Waldgasse 19
CH-3360 Herzogenbuchsee,
Switzerland
Phone: (+41) 063 60 12 72

Global Maritime Services
Circle 137 on Reader Service Card
247 SW 33 Court
Ft. Lauderdale, Fla. 33315
Phone: (305) 522-1489

Golten Marine Company Inc.
Circle 138 on Reader Service Card
160 Van Brunt Street
Brooklyn, N.Y. 11231
Phone: (718) 855-7200

Hatch & Kirk
Circle 139 on Reader Service Card
5111 Leary Avenue NW

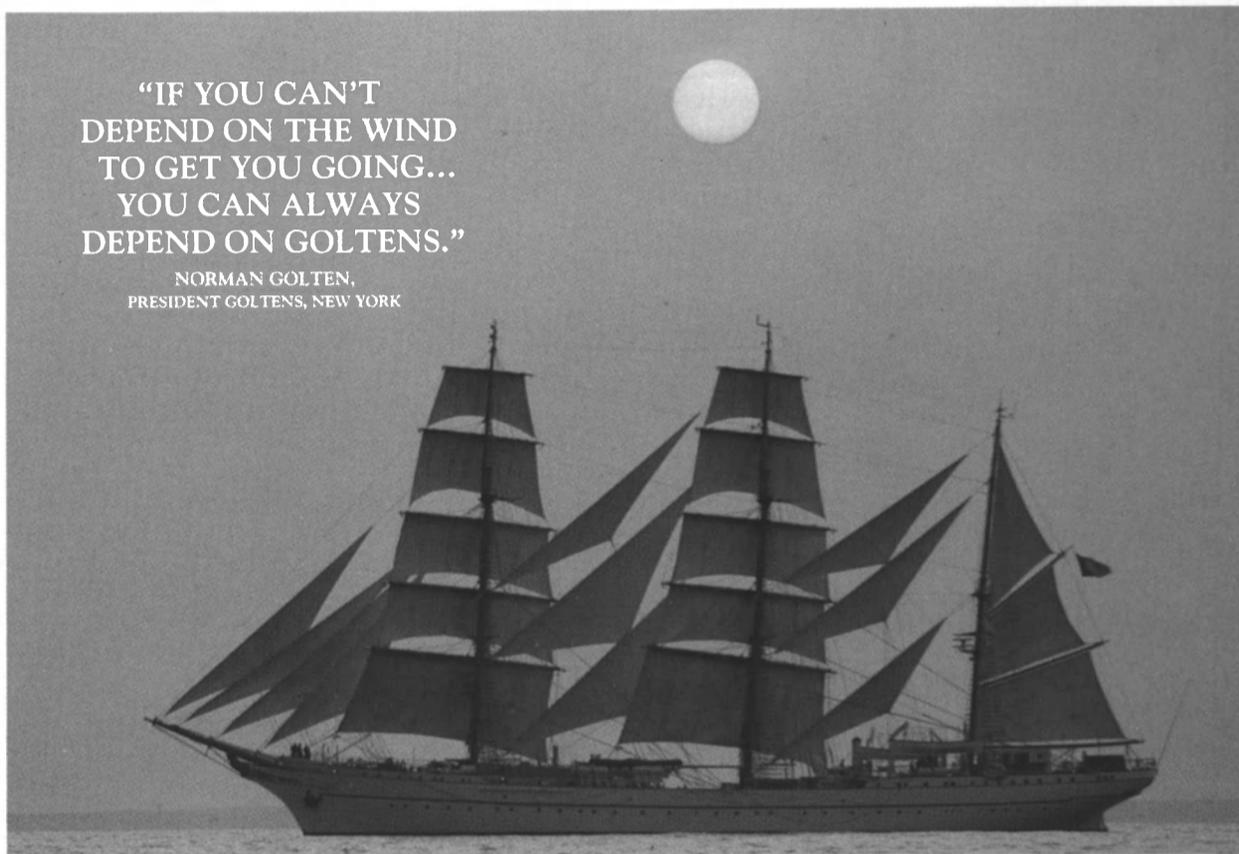
Seattle, Wash. 98107
Phone: (800) 426-2818

Industrial Parts Depot
Circle 140 on Reader Service Card
23231 S. Normandie Avenue
Torrance, Calif. 90501
Phone: (213) 530-1900

Infinitive Inc.
Circle 141 on Reader Service Card
N112 W18518 Mequon Road
Germantown, Wis. 53022
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Marine Diesel Engines

(continued from page 51)

Interstate-McBee, Inc.

Circle 142 on Reader Service Card
4901 Lakeside Avenue
Cleveland, Ohio 44114
Phone: (800) 321-4234

Kim Hotstart Mfg. Co.

Circle 143 on Reader Service Card
E 5724 Broadway Avenue
P.O. Box 42
Spokane, Wash. 99210
Phone: (509) 534-6171

Korody-Colyer

Circle 144 on Reader Service Card
700 West Artesia
Compton, Calif. 90220
Phone: (800) 248-4321

L'Orange GmbH

Circle 145 on Reader Service Card
P.O. Box 400540
D-7000 Stuttgart 40, Germany
Phone: (+49) 0711/826 09 0

Marine Systems, Inc.

Circle 146 on Reader Service Card
2032 Atlantic Avenue

Chesapeake, Va. 23324

Phone: (804) 543-3000

Markisches Werk GmbH

Circle 147 on Reader Service Card
P.O. Box 1442
D-5884 Halver 1, Germany
Phone: (+49) 2353 722 74

MKW Power Systems, Inc.

Circle 148 on Reader Service Card
P.O. Box 1928
Rocky Mount, N.C. 27802
Phone: (919) 977-2720

Norconsult Engineering Co., Inc.

Circle 149 on Reader Service Card
P.O. Box 529
5785 Plantation Road
Theodore, Ala. 36582
Phone: (205) 653-1933

Northwest Marine Services Corporation

Circle 150 on Reader Service Card
6452 So. 144th Street
Tukwila, Wash. 98168
Phone: (206) 246-4204

Nylands Marine Service A/S

Circle 151 on Reader Service Card
P.O. Box 130
N-4818 Faervik, Norway
Phone: (+47) 41 87 200

Pacific Rim Diesel

Circle 152 on Reader Service Card
3842 W. Marginal Way SW
Seattle, Wash. 98106
Phone: (206) 932-1295

Pacific Rim Diesel Anchorage

Circle 153 on Reader Service Card
710 Bananza
Anchorage, Alaska 99801
Phone: (907) 563-8119

Pacific Rim Diesel Dutch Harbor

Circle 154 on Reader Service Card
Captain's Bay
OSI Complex
Dutch Harbor, Alaska 99649
Phone: (907) 581-2340

Protecno, Ltd.

Circle 161 on Reader Service Card
Rua Eugenio Castro 13A-r/c
2800 Alameda, Portugal
Phone: (+351) 1-275-2465

Diesel Accessories

Diesel America Inc.

Circle 162 on Reader Service Card
5217 River Road
New Orleans, La. 70123
Phone: (504) 733-6944

Gearhardt's Inc.

Circle 163 on Reader Service Card
P.O. Box 10161
Jefferson, La. 70181
Phone: (504) 733-2500

General Thermodynamics Corporation

Circle 164 on Reader Service Card
210 South Meadow Road
P.O. Box 1105
Plymouth, Mass. 02360
Phone: (508) 746-0200

Giro-Engineering Ltd.

Circle 165 on Reader Service Card
370 Brook Lane
Salisbury Hampshire, England S03 6ZA
Phone: (+44) 48 988 5288

Kiene Diesel Accessories

Circle 166 on Reader Service Card
325 S. Fairbanks St.
P.O. Box 386
Addison, Ill.
Phone: (708) 543-5951

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Circle 167 on Reader Service Card
5518 Mitchelldale
Houston, Texas 77092
Phone: (713) 682-0077

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Eik Coast Earth Station has now doubled its area of service by including the Atlantic Ocean Region East, via the INMARSAT satellite at 15 degrees West, to its existing coverage of the Indian Ocean Region.

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LO-REZ

Shown are six 38RT/HLF flexible coupling assemblies as used on naval propulsion systems.

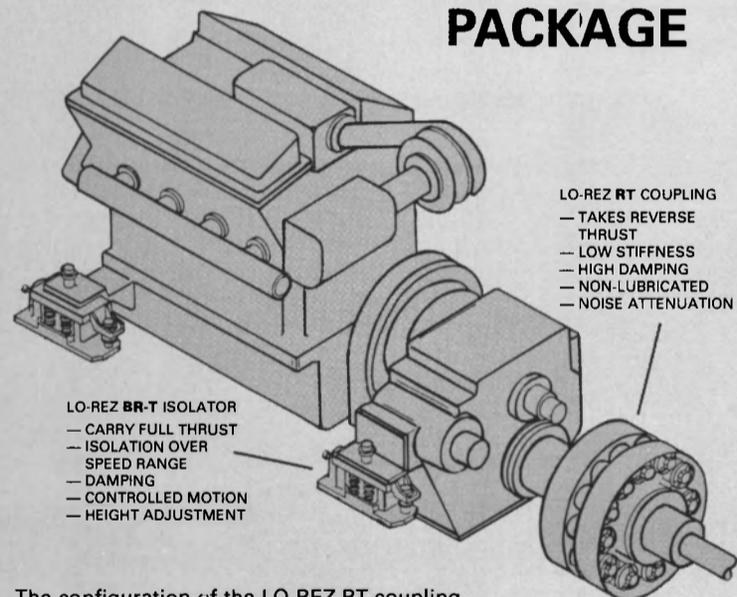
The 38RT couplings, which utilize elastomer cylinders pre-loaded in compression, have three dimensional lateral and torsional flexibility. They provide a high degree of noise attenuation, there being no metal-to-metal contact.

The HLF multiple-lamination coupling components have high Lateral Flexibility and allow the ship propulsion systems to accommodate very high lateral (and associated) excursions.

The particular assemblies shown here have been qualified for accelerations in excess of 35.0 G.



THE LO-REZ 'SOFT MOUNT' PACKAGE



The configuration of the LO-REZ RT coupling provides many important characteristics such as two directional thrust and torque capability, shock absorption, **excellent noise attenuation**, high misalignment capability, etc.

The LO-REZ BR-T isolators have special thrust carrying devices which permit them to carry full thrust load without 'locking up' so that they are capable of **providing effective isolation of the engine-generated vibration over the entire speed range.**

With the installation of the LO-REZ soft mount package there is no requirement for a thrust bearing in the low-speed shafting so that the full thrust is transmitted through the RT coupling into the gearbox thrust bearing, and out to the gearbox/engine or raft brackets, to the LO-REZ isolators.

Our goal and commitment is to provide the highest possible quality of vibration control products and services to the Marine Industry.

T.W. Spaetgens
T.W. Spaetgens, P.Eng., Pres.



1. 'MISS VIRGINIA BELLE'

Your vibration-control products are the best on the market. I would not build another single-hulled passenger vessel without your Soft Mount System. LO-REZ has gained a lot of prominence.

Frank Patti, Owner, Patti Shipyard, Inc.

2. 'ISLAND QUEEN V'

Passengers are constantly remarking on the quiet and vibration-free performance. I will often take them down to the engine room and point to the LO-REZ Twin Isolation Systems.

Ron Anderson, Owner, 30,000 Island Cruise Lines, Inc.

3. 'TSRV' VESSELS

These Torpedo and Ship-ranging vessels operate in an acoustically-sensitive area. The sophisticated LO-REZ systems make a significant contribution towards the quietness and smoothness, meeting various noise criteria neatly.

Malcolm Wall, P.Eng., TSRV Project Manager, National Defence Hdqrs., Ottawa

4. 'ODYSSEY'

I found the LO-REZ system to more than meet my expectations, (it is) uncanny, like a sailboat or being towed. When standing on the bridge, I have to look at my instruments to see if the engines are running, so quiet and vibrationless is the machinery.

Capt. John B. Buwen, Master, M/V Odyssey



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Coast Guard Plans Eight Tanker Studies For OPA Research

The U.S. Coast Guard, which is mandated by the Oil Pollution Act of 1990 (OPA 90) to implement structural and operational measures for tankers without double hulls between 1995 and 2015, said it plans to undertake eight different studies to generate input needed to draft the rules. The USCG said it would undertake the studies because it lacked pertinent research to formulate the regulations.

In addition, the USCG also requested industry comments as to whether the OPA requirements for double hulls by 2015 should be moved to an earlier implementation date as had been proposed at the last IMO Marine Environment Protection Committee meeting. The proposal is to be circulated and discussed at the next MEPC session in March.

The Coast Guard said one of the studies would focus on tanker casualties and include a review of worldwide tanker casualty reports to com-

pare the actual bottom and side damage to the MARPOL regulations to determine the adequacy of those regulations.

Pertamina Orders 17 Fuel Tankers

Contracts have been placed with nine shipping companies by Indonesia's state oil and gas firm for the construction and time-charter of 17 interisland fuel tankers.

Pertamina will charter the tankers, eight with tonnage up to 6,500 dwt, two of 17,500 dwt, and seven of 35,000 dwt, for 12 years after construction.

PT Humpuss and PT Samudra Petindo Asia will each build two of the 35,000-dwt tankers.

Four tankers, two of 1,500 dwt, one of 3,500 dwt and one of 6,500 dwt—will be built in Indonesia, the others in Japan, Malaysia and Singapore.

To encourage domestic construction, the ships built domestically would be given charter rates 15 percent higher than those built abroad.



TAKING SHAPE—The new 187- by 40-foot Spirit of Norfolk being built by Service Marine Industries, Inc., for Spirit Cruises, Inc., is progressing ahead of schedule for an early March 1992 delivery. The Subchapter T boat is the fourth built by Service Marine for Spirit Cruises and will have a carrying capacity of 600 passengers.



SEAHORSE CONVERSION—Besides building the Spirit of Norfolk, Service Marine also has three 176-foot supply oilfield vessels under repair and conversion. The ex-Tahiti Seahorse, soon to be the F/V Arctic Quest, will be converted for Arctic Quest, Inc., Homer, Alaska, and will join the crab fishing fleet near Dutch Harbor. The vessel will feature complete equipment renovation and a new Caterpillar engine and generator package furnished by N.C. Power Systems of Seattle.

For free literature detailing the boatbuilding services of Service Marine Industries,

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Tornado Pro-Am Dry Suit Available Exclusively From Parkway In U.S.

Parkway's world-famous line of neoprene exposure suits and diving equipment has been expanded to include the Tornado Pro-Am Dry Suit, manufactured by Gates Rubber Company in the United Kingdom. The Tornado Pro-Am Dry Suit is available exclusively from Parkway in the U.S.

The result of three years of extensive testing and development, the Tornado Pro-Am is built of heavy-weight (1100 gm/m²) Malayan/EPDM rubber which has been specially formulated to withstand damage from sunlight, ozone and chemicals. This vulcanized blend is bonded to a two-way stretch nylon lining. Boot soles and crotch are reinforced with carbon black rubber; wrists, built-in neck seal, shoulder, waist and knees have extra reinforcement.

Seams are guaranteed for the life of the garment. These and other features make the Tornado Pro-Am an ideal suit for rescue, police, military, commercial and sport diving where extra warmth and protection are required.

For free literature giving more information on exposure suits and diving equipment available from Parkway,

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Westinghouse Awarded \$57.6 Million Contract

Westinghouse Electric Co., Marine Div., Sunnyvale, Calif., has been awarded a \$57.6 million contract for materials and production of one main propulsion unit and related equipment for the SSN 21-Class submarine. Naval Sea Systems Command, Washington, D.C., awarded the contract (N00024-90-C-4228).

Legalized Riverboat Gambling Keeps Casino Boat Orders Rolling

New Laws Create Multimillion-Dollar Annual Market For Yards

Maritime Reporter Staff

Legalized riverboat gaming in several Midwestern states has led to a multimillion-dollar construction boom at second-tier shipyards which should be sustained for several years to come. Floating casinos began operating in Iowa and Illinois this year, and similar operations will be launched in Mississippi and Louisiana in 1992 and 1993. And despite its recent defeat in Pennsylvania, other states, such as New York, Missouri and Massachusetts, are closely examining legalizing riverboat gambling as a means of generating much-needed revenue.

High-Stakes Gaming In Illinois

Illinois law legalizing high stakes gambling along Illinois rivers aboard riverboats with a maximum cruise time of four hours became effective January 1991. High stakes gambling means unlimited or unrestricted betting. This differs from the Iowa riverboat gambling law that limits bets to \$5 and total wagers per excursion to \$200.

The first to enter Illinois high-stakes gaming service was the Alton Casino Belle, a dinner boat converted by Bender Shipbuilding into a 600-passenger gambling boat. Her arrival was followed by the 1,068-passenger riverboat casino Par-A-Dice, this past November. In the spring, two 900-passenger vessels, the Leevac-built Casino Rock Island and the Atlantic Marine-constructed Empress, should also enter service.

With the major metropolitan areas of St. Louis, Indianapolis, and Chicago within three hours' driving time and hundreds of thousands of Midwesterners within a 200-mile radius, the Greater Peoria Riverboat Corporation, a company comprised of 24 midwestern investors who own the Par-A-Dice, project to carry 800,000 passengers a year and collect total gaming revenues of up to \$32 million. Projected revenues for the state of Illinois would be \$6.4 million and \$1.6 million split between Peoria and East Peoria and a joint riverfront development fund.

The company is developing a 27-acre, \$33 million two-story office, restaurant, and hotel complex in East Peoria, on the East Bank of the Illinois River, as the future homeport of the Par-A-Dice casino riverboat. Completion of the project is expected in the spring of this year.

The revenue projections of the Greater Peoria Riverboat Corporation seem to be realistic based on the recent testimony of Terry Wirginis, whose company operates the President Riverboat Casino out of Daven-



Artist's conception of the 190-foot Casino Rock Island, built by Leevac Shipyards, Jennings, La. She is currently being outfitted and will make her debut out of Rock Island, Ill. this spring.

port, Iowa, one of five operating out of the state. Mr. Wirginis said at a recent hearing before the House Subcommittee on Merchant Marine, the economic benefits of riverboat gaming in Iowa has far surpassed expectations. In a six-month period alone, for example, the President contributed \$5 million in state and local tax revenues, drew nearly 1 million tourists to the area and generated more than 1,100 jobs.

By mid-November, the President Riverboat Casino had passed the \$25 million mark in revenues since she began operating April 1, 1991.

Atlantic Marine To Build Fourth Casino Boat

Atlantic Marine, Inc., Jacksonville, Fla., has signed a contract with Des Plaines River Entertainment Corporation, Joliet, Ill., to build a twin-deck casino vessel, the shipbuilder's fourth boat for the gambling sector. The 222-by-66-foot vessel is scheduled for delivery in May

1992.

Designed by Rodney E. Lay & Associates, Inc., Jacksonville, Fla., the vessel, which will be named the Empress, will be powered by two Caterpillar 3412TA marine diesel engines turning ZF BW251 reduction gears with a ratio of 4.13:1. Caterpillar also supplied two 715-kw model 3508 diesel gensets to provide shipboard electrical service; a 113-kw model 3304NA genset to furnish emergency power; and a model 3208TA engine to power a 48-inch Schottel SST170 bow thruster.

Interior design of the two casino decks will be by Directions in Design, Inc., St. Louis, Mo.

Electronic equipment on the vessel will include a Furuno 1730 radar, a Datamarine Dart-42490 depth sounder, Si-Tex 880 VHF radio and an ICOM M120 VHF radio.

The 900-passenger, 100-crew casino vessel will be berthed in Joliet, Ill., and will cruise the Des Plaines River for gambling excursions.

Leevac-Built Boat To Debut In Spring

The construction of the 190-foot Casino Rock Island has been completed by Leevac Shipyards, Jennings, La. The gambling riverboat, an authentic replica of an 1870s paddlewheeler is in Peoria, where her interior is being outfitted by her owner D.J. Jumer. Designed by Rodney Lay & Associates, the Casino Rock Island will carry about 900 passengers and 100 crew. Her propulsion is diesel-electric, consisting of Caterpillar gensets, and she will be able to make a service speed of between 12-13 knots. With 550 gaming positions, she will be making her debut in the spring of this year, and will operate out of Rock Island, Ill.

Patti Constructing Another Gambling Boat For Kehls

Bob and Ruth Kehl of Roberts River Rides, owners and operators of the Iowa gambling boats Dubuque Casino Belle and Mississippi Belle II, recently announced the construction of another casino gambling boat. The new boat is being built by Patti Shipyards, Pensacola, Fla., which also built the Dubuque Casino Belle and recently converted the Mississippi Belle II, which operates out of the Showboat Landing, Riverview Park, Clinton, Iowa. The as-yet-unnamed casino boat will be similar in design to the Dubuque, incorporating a barge and a power unit. The total length of the two-in-one vessel is an immense 447 feet, with a beam of 68 feet. She will have four decks, measuring 56 feet tall.

The casino boat will be outfitted with approximately 1,000 slot machines and 50 gaming tables, and be crewed by 250 to 300. The total cost of outfitting, including the installation of gaming equipment, and construction is estimated to be between \$12 million and \$15 million.

According to Jim Kurtz of Roberts River Rides, the place of operation for the vessel has not yet been decided. He also indicated that there might be the possibility of selling the vessel to another operator.

This vessel is the sixth boat built by the Kehls, five of which have been constructed by Patti Shipyards.

License For Mississippi

Steamboat Development Corporation, which already owns two Iowa casinoriverboats, the Diamond Lady and Emerald Lady, was recently granted a license to operate a gambling vessel from Mississippi. The company has no vessel under construction at this time.

Major Midwest Riverboat Casinos

Built Or On Order

Vessel	Capacity	Operator	Port	Construction Cost
Alton Casino Belle	600	Alton Riverboat Gambling Partnership	Rockford, Ill.	N/A
Casino Rock Island	900	Rock Island Boat Works	Rock Island, Ill.	N/A
Diamond Lady	1,200	Steamboat Development Corp.	Davenport, Iowa	\$8 million
Dubuque Casino Belle	2,000	Roberts River Rides	Dubuque, Iowa	\$12 million
Emerald Lady	1,200	Steamboat Development Corp.	Davenport, Iowa	\$8 million
Empress	900	Des Plaines River Entertainment Corp.	Joliet, Ill.	N/A
Mississippi Belle II	500	Roberts River Rides	Clinton, Iowa	\$3.5 million
Par-A-Dice	1,068	Greater Peoria Riverboat Corp.	Peoria, Ill.	\$15 million
President Riverboat Casino	3,000	Gateway Riverboat Cruises	Davenport, Iowa	\$11 million
Unnamed	2,000-3,000	Roberts River Rides	Undecided	\$12-\$15 million

Source: Maritime Reporter/Engineering News

If you've got the hull and the machinery, we've got the rest.

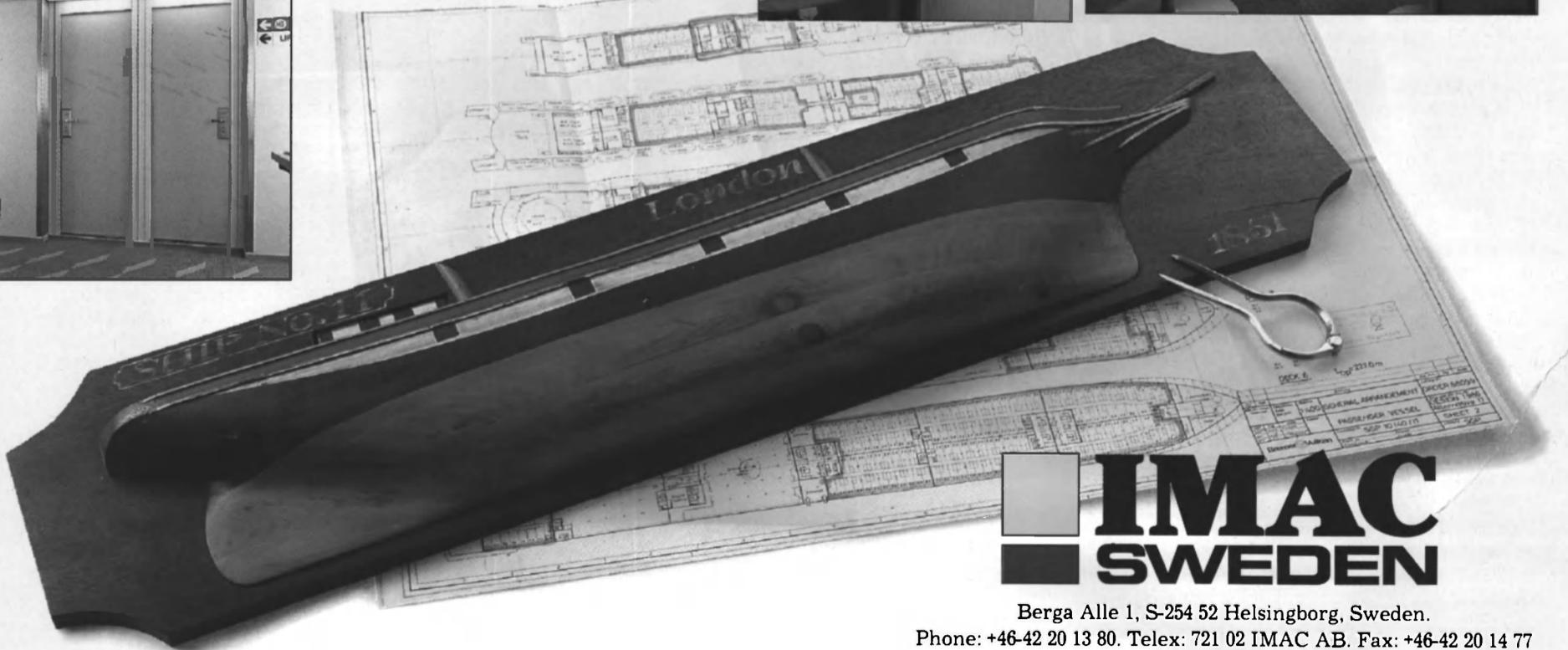
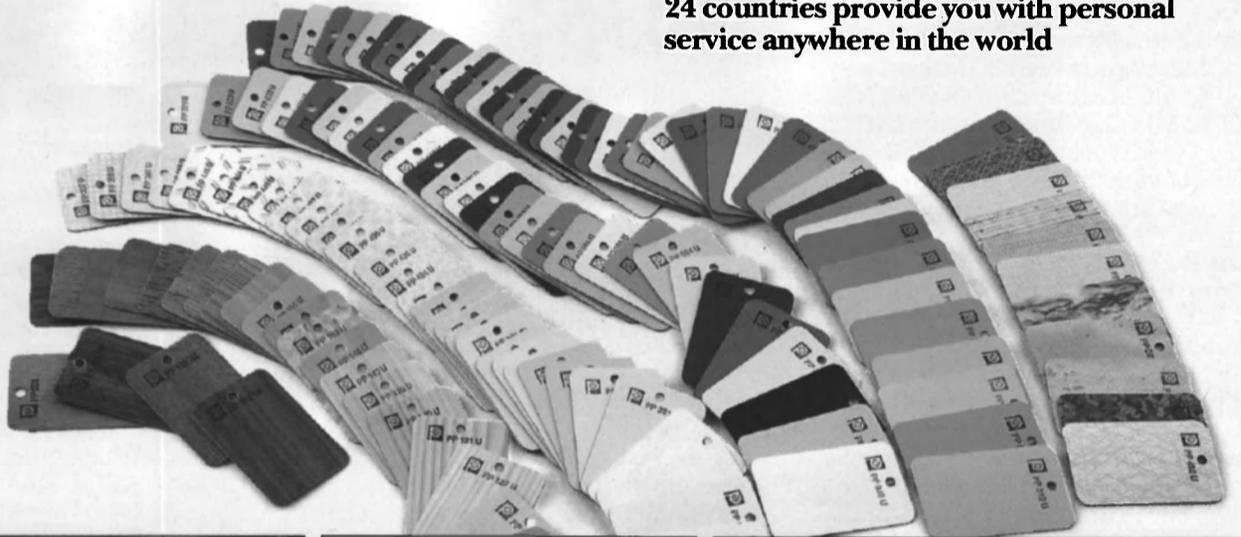
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Boats & Barges



The Caterpillar-powered tug Robinson Bay, which underwent major reconstruction and repowering by the Shipyard Division of The Great Lakes Towing Company in Cleveland, will be used by the Saint Lawrence Seaway Development Corporation for buoy maintenance, docking assistance, salvage operations, and emergency replacement of lock gates.

Great Lakes Towing Delivers Reconstructed, Repowered Tug To Saint Lawrence Seaway

Upon completion of a seven-month, approximately \$2,000,000 major reconstruction and repowering project by the Shipyard Division of The Great Lakes Towing Company of Cleveland, Ohio, the 103-foot by 27-foot by 12-1/2-foot tug Robinson Bay was recently delivered to the Saint Lawrence Seaway Development Corporation in Massena, N.Y. Work was completed and delivery effected ahead of schedule.

The main engine repowering consisted of installing a new Caterpillar 3606 engine-generator rated at 1,500 kw at 900 rpm controlled by a Woodward 2301A electronic governor system. The Caterpillar engine supplied by Ransome Engine Power replaced the original 1,400-hp diesel engine installed when the tug was built in 1956.

A new electric drive system supplied by Gulf Power Systems, Inc., utilizing Silicon Controlled Rectifier banks to convert the AC generator output to DC for the main propulsion motor rated at 1,750 hp at 900 rpm, was installed. This state-of-the-art Silicone Controlled Rectifier drive system replaced the original DC diesel electric drive system equipment.

J.D. Neuhaus Introduces New Series Of Hoists Up To 2 Tons Lifting Capacity

J.D. Neuhaus, one of the leading German manufacturers of pneumatically operated chain hoists, is introducing this month a new series of hoists with capacities of up to 2 tons.

With the new TS-Series, the ex-

In addition to the new main propulsion engine with Kim Hotstart electric heaters, also installed were a generator and motor, a new reduction gear, tail shaft, rudder, steering gear, remote control fire monitor, and a Kort nozzle with a Kaplan propeller supplied by Sound Propeller Services, Inc. All motors were changed from DC to AC. Further, a new engine room control room, upper pilothouse and a newly designed stack were constructed and installed.

The Great Lakes Towing Company specializes in all types of marine repair service tugboats, supply boats, ferries, barges, excursion vessels, large yachts and many other types of vessels, including topside repair of larger domestic and foreign vessels. Underwater hull repair work is performed in its 250-ton-capacity floating drydock located at its Cleveland Shipyard. Originally established for the construction and maintenance of the company's own fleet of over 50 tugboats, the Shipyard Division now operates as a commercial shipyard.

For more information and free literature on Great Lakes Towing Towing Shipyard Division,

Circle 63 on Reader Service Card

haust air is carried over the center section to the rear side of the gearbox. Because of the distance the exhaust air has to travel and a sintered metal plate fitted at the rear of the gearbox, through which the exhaust air escapes, a noise level has been achieved which is on an average almost half of that for the old series.

For free literature on the new series of hoists from J.D. Neuhaus,

Circle 27 on Reader Service Card

Sembawang Bethlehem To Build Product Carrier For French Owner

Soflumar Van Ommeren France, the tanker operator, has ordered an 11,500-dwt product carrier from Sembawang Bethlehem PTE, the shipbuilding arm of Singapore's Sembawang group.

To cost around \$21 million, the vessel is due for delivery in 1993.

It will be fully automated with IMO 2 classification and a double hull. The double hull would enable the ship to comply with future national and international antipollution regulations, Soflumar—the tank shipping subsidiary of the Van Ommeren Ceteco group—stated.

The order was said to represent a first stage in the renewal of Soflumar's small tanker fleet and a demonstration of its faith in the future of the oil cabotage sector.

Because of the relatively high price for secondhand vessels in its category which did not offer the same high quality specifications as a new one, the company opted to buy new rather than recent secondhand.

Soflumar has a fleet of 11 vessels, not including one heavy-lift ship, ranging in size from small coastal tankers of a few thousand tons to vessels of more than 40,000 dwt. It is active in the national and European coastal tanker trades, international tramp and bitumen transport.

Barring major changes in market conditions, the company says the new vessel will sail under French flag.

Exxon Brochure Describes Viscosity-Temperature Of Exxon Hydraulic Fluids

Exxon Company, USA, has introduced a new six-color, 24-page brochure titled, "Viscosity-Temperature Relationships of Exxon Hydraulic Fluids." The brochure discusses the viscosity change of each product in Exxon's comprehensive line of hydraulic fluids versus changes in temperature.

Using data from testing done by Exxon scientists and application engineers, the brochure highlights applications and typical inspections for Exxon's full line of hydraulic fluids including anti-wear hydraulic fluids; high-viscosity index, anti-wear hydraulic fluids; anti-stain hydraulic fluids; rust- and oxidation-inhibited hydraulic fluids; and synthetic hydraulic fluids. In addition, the brochure provides detailed charts which plot the viscosities of Exxon hydraulic fluids on standard ASTM viscosity-temperature charts.

For a free copy of Exxon's new brochure, "Viscosity-Temperature Relations of Exxon Hydraulic Fluids,"

Circle 30 on Reader Service Card

Rate Hikes Imposed On Hull Coverage

Marine insurers will impose rate hikes on shipowners for hull coverage, with increases of as much as 20 percent for owners with good records and substantially higher for some others.

The rate hikes are being instituted because of the lack of reinsurance available, especially in London.

Despite the rate hikes, most U.S. marine insurers are still pessimistic. Many insurers assert that cargo insurance rates and hull rates for inland waterway vessels are not rising, and most feel the hikes are still not enough to turn that insurance line into a money-making business.

Many insurers hope that there will be hikes again next year, and they are scrutinizing the present round of reinsurance renewals for signs of what the future might hold.

James A. Zrebiec, chairman of the International Marine Underwriters in New York, said, "Just as the [marine insurance] market slipped over a period of time, the market is going to have to recover over a period of time."

MMS And COMSAT Release New System For Centralized Ship/Shore Data Transfer

Marine Management Systems, Inc. (MMS) of Stamford, Conn., and COMSAT Corporation of Washington, D.C., have announced the release of the Maritime Workstation Manager, the first product developed under the MMS/COMSAT affiliation targeted at developing the next generation of satellite-supported ship management systems.

The Maritime Workstation Manager is an affordable, easy-to-use system that can act as the control center for all ship/shore data communications and vessel operations systems. Boasting a multifaceted design, the Maritime Workstation Manager is an incredibly versatile system that offers ship/shore data transfer, electronic mail, the power to create and transmit customized forms and the ability to manage menu access to any software application.

For further information on the Maritime Workstation Manager, Circle 174 on Reader Service Card

Johnson & Higgins Appointed Insurance Broker For NAPVO

Johnson & Higgins of Ohio, Inc., Cincinnati, recently announced its appointment as the officially endorsed insurance broker for the National Association of Passenger Vessel Owners (NAPVO).

The Fireman's Fund is the principal underwriter for the program.

Johnson & Higgins will utilize the services of their 52 U.S. branches to service NAPVO members.



The LPG tanker Norgas Energy which was fitted with a new Wartsila Vasa 7R46 main engine.

New Wartsila Vasa 46 Main Engine Fitted On LPG Tanker Norgas Energy By Lloyd Werft Bremerhaven

The LPG tanker Norgas Energy, owned by the Norwegian I.M. Skaugen AS, has been fitted with a new Wartsila Vasa 6R46 main engine. The re-engining, carried out

by Lloyd Werft Bremerhaven of Germany, was made necessary by the total breakdown off the coast of Florida of the vessel's old main engine.

The project was carried out within the extremely short time of six weeks. The basic engineering and conversion plan was made jointly by the shipowner and Wartsila Diesel. Dismantling of the old engine was started by Wartsila Diesel engineers when the vessel was still being towed across the Atlantic to the shipyard. Production at Wartsila Diesel's Turku factory was rescheduled to enable the six-cylinder engine to be taken from the production line and delivered only two weeks after the contract was signed. Other deliveries were not affected. A Wartsila Diesel supervisor participated in the re-engining work at the shipyard. The project was completed on schedule.

Wartsila Diesel's delivery included not only the engine but also all the new auxiliary equipment for the engine room.

The Norgas Energy is an LPG/Ethylene/Chemical tanker built in 1979. The 9,095-dwt vessel is used for worldwide operation.

For free literature on Wartsila Diesel engines,

Circle 64 on Reader Service Card

For free literature on the facilities and capabilities of Lloyd Werft Bremerhaven,

Circle 65 on Reader Service Card

Lexmar Bids To Reopen French Shipyard

U.S. company Lexmar Corporation recently launched a bid to reopen the La Ciotat Shipyard on the French Mediterranean Coast.

The goal of the former shipyard, formerly operated by Normed, is to build large tankers valued at a cost of \$80 million each.

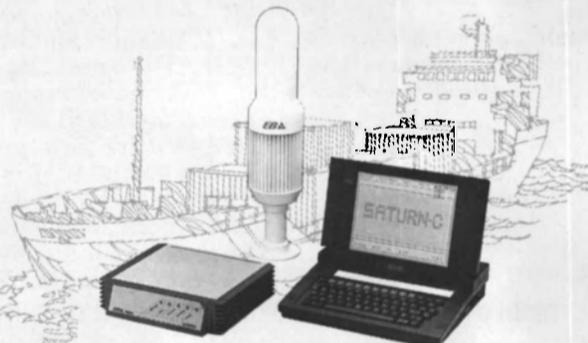
It is reportedly seeking permission from the French Government to open the yard for a limited period, subject to its receiving orders for at least four tankers.

Lexmar is basing its plans for the La Ciotat yard on the reduced worldwide shipbuilding capacity and the projected increase in demand for large tankers in the second half of this decade, combined with new environmental requirements.



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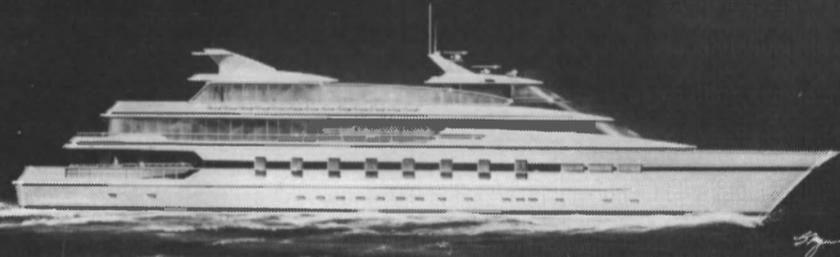
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A GUIDE TO U.S. MARINE SALES IN THE NEXT FIVE YEARS

NEW 1992 EDITION

FIVE YEAR OUTLOOK FOR THE U.S. MARINE INDUSTRY

An Assessment of Ship Construction and Major Modification Prospects Available to Shipbuilders, Equipment Manufacturers and Other Suppliers

Report No. 7119 - \$575.00 per copy

The totally new, 1992 edition of IMA's marine industry outlook has just been published. Under one cover is a totally objective, in-depth assessment of the business outlook for the entire U.S. marine sector. The report documents the size and composition of 24 individual market segments, analyzes underlying market drivers, forecasts construction and modification activity over the next five years, identifies regulatory and legislative actions likely to affect future suppliers.

REPORT OUTLINE

1. EXECUTIVE SUMMARY
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 - Prison and Accommodation Barges
 - Production and Power Platforms
 - Sunken Tube Tunnel Sections

Subscribers will receive the 190 page report immediately -- plus a market update in April 1992.

The report is available for \$575.00 per copy. To order please contact: IMA Associates - 600 New Hampshire Ave., NW - Suite 140 - Washington, DC 20037 USA - Telephone: 202-333-8501 - Fax: 202-333-8504. An order form is enclosed for your convenience. Telephone or fax orders will be accepted. The report will be sent the day your order is received.

Circle 251 on Reader Service Card

Order For Two Azimuthing Thrusters Received By Aquamaster-Rauma

Aquamaster-Rauma has received an order for two Aquamaster azimuthing thrusters of type ARC 1 built by the consortium created by Hollming Shipyard and Rauma Yards and to be installed in a multipurpose icebreaker for the Finnish

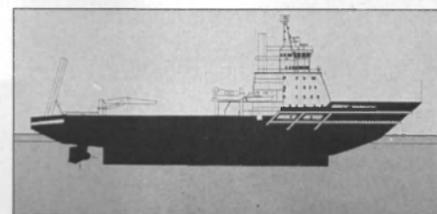
Board of Navigation. The vessel will be delivered in March 1993 and the contract also includes a second vessel as an option.

The thrusters and the vessel are to have the ice class notation DnV Icebreaker Polar 10 and, in addition, the capability of operating in Arctic ice of 1.8 meters in thickness.

Each Aquamaster Azimuthing thruster is rated for 7,500 kw electric drive and they will thus be among the strongest and most powerful

thrusters ever built.

The propulsion concept of the new icebreaker design is based on propulsion with Aquamaster azimuthing thrusters. The steerable propulsion system gives the vessel excellent maneuverability and makes it possible to use the steerable thrust force and the propeller flow not only for accelerating the vessel forward or astern, but also sideways for icebreaking with the steerable flow, for rolling the vessel or for



This multipurpose icebreaker will have two Aquamaster-Rauma azimuthing thrusters.

cleaning and widening the channel. The 337-foot-long by 85-foot-wide icebreaker is the first of its kind designed for multipurpose use. When not icebreaking, it is to be operated by the Norwegian Uglund Offshore A/S in the North Sea fields under a charter agreement with the Finnish Board of Navigation.

Aquamaster-Rauma has invested heavily in the development of steerable propulsion units to improve reliability, performance, and versatility. The Aquamaster contrarotating propellers (CRP) philosophy renders excellent efficiency in addition to outstanding maneuverability and supple general arrangement.

Aquamaster-Rauma is a trendsetter in the development of fixed-pitch azimuthing propulsion technology.

For further information and free literature on Aquamaster-Rauma, Circle 178 on Reader Service Card

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Circle 245 on Reader Service Card

General Dynamics Wins \$9.4 Million Contract

General Dynamics Corp., Electric Boat Div., Groton, Conn., has been awarded a \$9.4 million contract for command and control system engineering and technical services for Ohio-class submarines. Naval Sea Systems Command, Washington, D.C., awarded the contract. (N00024-90-C-2109).

Watercom Names Gerard D. O'Connell Director Of Sales

Officials at Watercom recently announced the promotion of Gerard D. O'Connell from regional sales manager to director of sales.

As director of sales, Mr. O'Connell is responsible for direct sales planning and strategy. His expanded duties include coordinating with Watercom dealers to bring Watercom customers the best service possible and supervising all daily sales activities for the company.

Watercom is a leader in the field of communications for vessels navigating more than 4,000 miles of American inland waterways. The company's direct dial telephone system—the only such system available anywhere—offers facsimile and data transmission capabilities, credit card calling for crew members, low night and weekend rates, and many other services.

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The listing above is an editorial service provided for the convenience of our readers.

Mid-Coast Completes Cummins-Powered Crabber/Longliner

Mid-Coast Marine recently announced that work has been completed on the 137-foot crabber/longliner F/V Siberian Sea. Built for four fishing partners, the vessel has a schooner configuration with shelter wings protecting about 80

percent of the working deck.

The principal dimensions of the new fishing vessel are 137 feet long with a beam of 34 feet, and molded depth of 14 feet. It will have a draft of some 12.5 feet, loaded with about 400 king crab pots and a full load of fuel.

Propulsion power is provided by two Cummins VTA 28M main engines, providing 675 hp each at 1,800 rpms. Power transmission is through Twin Disc MG 520 reverse

reduction gears at 6.11:1 ratio. Mathers air over hydraulic disc type shaft brakes are installed on 5-inch Aquamet 17 stainless steel shafting. Rounding out the power train are the Johnson bronze stuffing boxes, the flanged Johnson cutlass bearings and 72-inch five-blade stainless-steel propellers.

The list of auxiliary equipment is headed by two Cummins NTA 855 generator sets 200 kw with remotely controlled Bevis power takeoffs.



The accommodations on the F/V Siberian Sea are arranged to handle as many as 14 crew in four staterooms. The pilothouse is spacious, bright and well laid out, providing maximum visibility and the ergonomic arrangement of electronics and vessel controls.



Leevac-built Belle of St. Louis

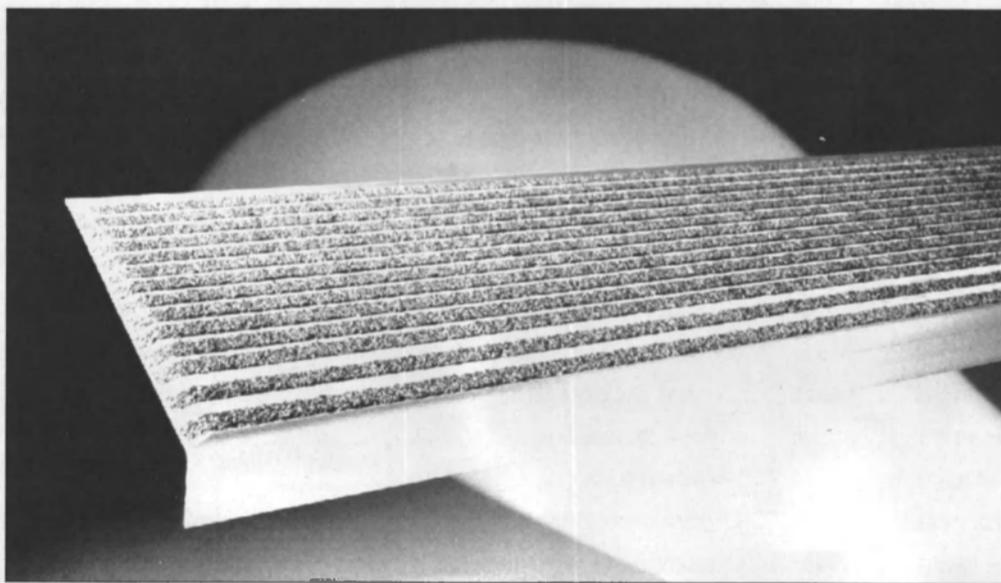


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Circle 259 on Reader Service Card

Each PTO drives two Denison T6 hydraulic pumps producing five streams of oil to power all the deck equipment, including the Slattery 50-foot knuckle crane.

Other deck gear includes a Yaquina double-acting pot launcher, an articulated crab davit with Yaquina king hauler, an 8-ton 30-foot Slattery crane for picking, Yaquina bait chopper, and Yaquina anchor wildcat for 100 fathoms of 1-1/4-inch stud link chain and two 2,000-pound Danforth anchors.

Back in the engine room, a third 60-kw light plant has been provided to maintain the dockside or at-anchor hotel loads. All three generators will provide 480 VAC to the Mid-Coast Marine generator control panel. To operate all major motor loads, 480-VAC three-phase power will be distributed throughout the engine room and pump room to operate all major motor loads, and 120/208 VAC power will be supplied to the balance of the vessel's electrical loads through a 112-KVA three-phase transformer.

All five engines are outfitted with Fernstrum grid coolers, Harco residential grade mufflers, Racor filter separators, and a full package of system alarms. The engine room is protected by a Kidde manually operated Halon fire suppression system with automatic engine, and vent fan shutdowns.

Pumping functions aboard begin with four 25-hp Crane Demming 6-inch seawater circulation pumps. Two 7.5-hp Flomax 15-bilge ballast pumps are provided, along with a 50-gpm Roper fuel oil transfer pump, a Westfalia F.O. centrifuge and a 3/4-hp freshwater pressure set.

For more information about this new design or other Mid-Coast Marine designs,

Circle 71 on Reader Service Card

Odense Wins Contract For Three VLCCs

The contract for three of a second batch of six Saudi VLCCs has been won by Odense Shipyard in Denmark. The other three will go to Hyundai.

These will be the first independent VLCC orders awarded European yards since the 1970s.

BUYERS DIRECTORY

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

ABRASIVES

Barton Mines Corp., 1658 Cole Blvd., Golden, CO 89401
Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219
Ervin Industries, Inc., 3893 Research Park Drive, P.O. Box 1168, Ann Arbor, MI 48106-1668

Stan-Blast Abrasives, P.O. Box 968, 3300 River Road, Hawey, LA 70059

AIR CONDITIONING AND REFRIGERATION—Repair & Installation

Adrick Marine Corp., 320 Cantor Ave., Linden NJ 07036
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001
Carrier Transicold, P.O. Box 4805, Syracuse, NY 13221
Stal Refrigeration AB, Butangsgatan 16, S-601 87 Norrköping, SWEDEN
York Int'l, P.O. Box 1592-083G, York, PA 17405

BALLAST

Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219
Genstar Stone Products, Executive Plaza IV, Hunt Valley, MD 21031
Mineral Research & Recovery Inc., P.O. Box 986, Sonoita, AZ 85637
Queen City Iron & Steel, P.O. Box 7205, Charlotte, NC 28241-7205

BARGE BUILDING

Conrad Industries, P.O. Box 790, Morgan City LA 70381
Maxon, South Boundary Street, P.O. Box 69, Tell City, IN 47586

BARGE—Leasing

McDonough Marine Service, 2300 Surekote Road, New Orleans, LA 70117
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

BASKET STRAINERS

Beaird Industries, P.O. Box 31115, Shreveport, LA 71130

BEARING—Rubber, Metallic, Non-Metallic

B.F. Goodrich, Engineered Polymer Products, 150 Division Dr., Wilmington, NC 28401
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Thomson Gordon Ltd., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6
Waukesha Bearings, P. O. Box 1616, Waukesha, WI 53187-1616

BOILER—Manufacturers

Aalborg Ciseriv (Miami) Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312

BROKERS

Captain Astad Company, Inc., P.O. Box 350486, Ft. Lauderdale, FL 33335,
2900 Energy Centre, 1100 Poydras Street, New Orleans, LA 70163-2900
Diversified Marine Brokerage, 1201 Northern Blvd., Manhasset, NY 11030
Jack Faulkner, 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422
Mowbray's Tug & Barge Sales Corp., 35 De Hart St., Morristown NJ 07960

BUNKERING

Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

CABLE ASSEMBLIES

Revere Aerospace, 845 N. Colony Rd. Wallingford, CT 06492

CARGO ACCESSORIES

Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705

CHAIN

Baldt, Inc., 6 M. Butler St., Chester, PA 19013
Crandall Dry Dock Engineers Inc./Marit Chain, 21 Pottery Lane, Dedham MA 02026
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020
G.J. Wortelboer Jr. B.V., Postbus 5003, 3008 AA Rotterdam, NETHERLANDS

CHOCKING COMPOUNDS

ITW Philadelphia Resins, 130 Commerce Drive, Montgomeryville, PA 18936

CLAMPING—Pipe, Tubes, Hose

ZSI, 32497 Schoolcraft Road, Livonia, MI 48150

COMPACTORS

International Compactor, Inc., P.O. Box 5918, Hilton Head, SC 29938
A/S Vesta, Skudehavnsvej 27, DK-2100 Copenhagen, DENMARK;
Sales Agents: American United Marine Corp., 5 Broadway, Rt 1,
Saugus, MA 01906, USA

COMPUTERIZED INFORMATION SYSTEMS

TIMSCO, P. O. Box 91360, Mobile AL 36691
Coastdesign, Inc., Unit 201, 12837 76th Avenue, Surrey, BC CANADA V3W 2V3

CONDENSERS/SEPARATORS

Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130
Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160
Wright Austin Co., 3250 Franklin St., Detroit MI 48207

CONTROL SYSTEM—Monitoring

Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062
Lyngso-Valmet Marine A/S, P.O. Box 130, N-3430 Spikkestad, NORWAY
MMC International, 60 Inip Dr., Inwood NY 11696
Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135
Norcontrol A/S, P.O. Box 1024, N-3191 Horten, NORWAY
Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006
Robertson-Shipmate, 400 Oser Avenue, Hauppauge, NY 11788
Teleflex Inc., 771 First Ave., King of Prussia, PA 19406

COUPLINGS

Lo-Rez Vibration Control Ltd., 156 West 8th Avenue, Vancouver, BC CANADA, V5Y 1N2

CRANE—HOIST—DERRICK—WHIRLEYS

The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705
J.D. Neuhaus Hebezeugue GmbH, D-5810 Witten, GERMANY
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Pettibone-Tiffin Corp., 235 Miami St., Tiffin, OH 44883
Reco Crane Co., 5734 Jefferson Highway, New Orleans LA 70181
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

DECK MACHINERY—Cargo Handling Equipment

All Set Marine Lashing AB, P.O. Box 14112, S-161 14 Bromma, SWEDEN
Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Markey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788
Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454
Seattle Crane & Equipment Co., Inc., 4403 20th Street East, Fife, WA 98424

Skookum/Rope Master, P.O. Box 280, Hubbard, OR 97032

Willem Pot b.v., P. O. Box 29102, 3001 GC Rotterdam, The Netherlands

DECK MACHINERY

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

DIESEL ACCESSORIES

Coltec Industries Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511
Diesel America Inc., 5217 River Rd., New Orleans LA 70123
Gearhardt's Inc., P.O. Box 10161, Jefferson, LA 70181
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360
Giro-Engineering Ltd., 370 Brook Lane, Sarisbury Hampshire, ENGLAND SO3 6ZA
Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison IL 60101
Pow-R-Quik, 5518 Mitchelldale, Houston, TX 77092

DIESEL ENGINE—Spare Parts & Repair

Aalborg Ciseriv (Miami) Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312
Caltax Marine Diesel B.V., Frankrijkweg 11, 4455 TR Nieuwddorp (Vlissingen Oost), THE NETHERLANDS
Caterpillar, Inc., Engine Div., P.O. Box 610, Mossville, IL 61552-0610
Coltec Industries, Parts & Service Div., 701 Lawton Ave., Beloit, WI 53511
Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005
John Deere, John Deere Road, Moline, IL 61265
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
Hatch & Kirk, 5111 Leary Avenue NW, Seattle, WA 98107
Kim Hotstart Mfg Co., E 5724 Broadway Ave, P.O. Box 42, Spokane WA 99210
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1, GERMANY
MAN B&W Diesel, 17 State Street, New York, NY 10004
MTU of North America, 10450 Corporate Drive, Houston, TX 77478
Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, GERMANY
Pacific Rim Diesel, 3842 W. Marginal Way SW, Seattle, WA 98106
Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, CO1 2HW, ENGLAND;
Paxman Diesels USA, (A Div. of Ruston Gas Turbines, Inc.), 15950 Park Row, Houston, TX 77084
Suizer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

DIVING & SALVAGE

H.J. Merrihue, P.O. Box 23123, New Orleans LA 70183
Muldoon Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731
Sea-Side Diving, 28612 Harper Ave., St. Clair Shores, MI 48081

DRY DOCKS—Design

Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Ferrosaal AG, D-4300 Essen, Hohenzollernstrasse 24, GERMANY
Marine Design Services, P.O. Box 928, Bonita CA 92002

ELECTRICAL EQUIPMENT

L. F. Gaubert & Co., Inc., P. O. Box 50500, New Orleans LA 70150
MMC International, 60 Inip Dr., Inwood NY 11696
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116
Universal Marine Electric Co., Inc., P.O. Box 266-923, Houston, TX 77027-6923

ELECTRONIC DISPLAY

Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolbotn, NORWAY

ELECTRONIC ENCLOSURES

A&J Manufacturing, 14131 Franklin Ave., Tustin CA 92680

ELECTRONIC INFORMATION SUPPORT

Inventory Locator Service, 3965 Mendenhall Rd. South, Suite 10, Memphis, TN 38115

ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360
Instruments, Computers, & Controls, Inc., 6942 Haven Creek Dr., Katy, TX 77449

EPIRBs

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale FL 33310-5247

Alden Electronics, 40 Washington St., Westborough, MA 01581

Litton Special Devices, 750 W. Sprout Road, Springfield, PA 19064

Koden International, 77 Accord Park Drive, Norwell, MA 02061

EQUIPMENT—Marine

Byrne, Rice & Turner, Inc., 1172 Camp St., New Orleans, LA 70130
Gladys Marine, Garvies Point Rd., Glen Cove, NY 11542
Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

EVAPORATORS

Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974
Alfa-Laval, Desalt A/S, Starnholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK
Aqua-Chem, Water Technologies Div., P.O. Box 421, Milwaukee, WI 53201
Beaird Industries Inc., P.O. Box 31115, Shreveport, LA 71130

FANS-VENTILATORS-BLOWERS

Carling Turbine Blower Co., 10 Nebraska St., P.O. Box 88, Worcester, MA 01613
Jon M. Liss Associates, Inc., 411 Borel Ave., San Mateo, CA 94402

FASTENERS

Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02635
Non-Ferrous Bolt & Mfg. Co., 4085 Nevso St., Suite C, Las Vegas, NV 98103

FENDERING SYSTEMS/BUOYS—Dock & Vessel

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston, TX 77020
Rowe Bumpers, Conveyors & Caster Corp., 3501 Detroit Ave., Cleveland, OH 44113
Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Solidur Plastics Co., 200 Industrial Dr., Delmont, PA 15626
Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160
Ultra Poly Inc., 2926 South Steele, Tacoma, WA 98409
Viking Fender Co., 50 Church Street, Sea Bright, NJ 07760

FIBER OPTIC SYSTEMS

AT & T, Cables System/Fiber Optic Div., 111 Madison Avenue, Morristown, NJ 07962

FUEL ADDITIVES, CONDITIONING

U.S. Borax/Industrial Chemicals, 3075 Wilshire Boulevard, Los Angeles, CA 90010

GALLEY EQUIPMENT

Cospolich Refrigerator Co., 949 Industry Rd., Kenner LA 70062
Gaylord Industries, 10900 S W Avery St, P.O. Box 1149, Tualatin, OR 97062
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi MS 39535-4454

GANGWAYS, LADDERS

Coast Marine & Industrial Supply Inc., 398 Jefferson St., San Francisco, CA 94133
Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32966
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, CA 90670
Wooster Products Inc., 1000 Spruce St., P.O. Box 896, Wooster, OH 44691

HEAT EXCHANGERS

Alfa-Laval, Desalt A/S, Starnholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK
Alfa-Laval Separation Inc., 955 Mearns Rd., Warminster, PA 18974
Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130

HORN/WHISTLES

Kahlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

HYDRAULICS

Aeroquip Corporation, 3000 Strayer, P.O. Box 631, Maumee, OH 43537-0631
Cunningham Marine Hydraulics Co., 201 Harrison St., Hoboken NJ 07030
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072

INCINERATORS

Teamtec A/S, P.O. Box 100, N-4912 Gjeving, NORWAY
A/S Vesta, 27 Skudehavnsvej, DK-2100 Copenhagen DENMARK. US Agent: American United Marine, 5 Broadway, Rte 1, Saugus, MA 01906

INSULATION

Soundcoat Company, 1 Burt Drive, Deer Park, NY 11729

JOINER—Watertight Door—Paneling—Ceiling System—Decking

Cupples Products, 2650 S. Hanley Rd., St. Louis, MO 63144
GEC-Marconi Electronic Systems Corp., 550 S. Fulton Ave., Mt. Vernon, NJ 10550
IMAC AB, Berga Alle 1, S-252 55 Helsingborg, SWEDEN
U.S. Rep: Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431
Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256

Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

Walz & Krenzer Inc., 1390 Mt. Read Blvd., Rochester NY 14606

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

The Walter Machine Co., Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

LEGAL SERVICES

John Jozwick, c/o Bryan, Schiffrin & McMonagle, First & Cedar Bldg., Ste 350, 2701 First Ave., Seattle, WA 98121

LIFEBOATS/RAFTS

Zodiac of North America, P.O. Box 400, Stevensville, MD 21666

Willard Marine Co., Inc., 1250 N. Grove St., Anaheim, CA 92806

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale, FL 33310-5247

Archway Marine Lighting, 4501 Swan Ave., St. Louis, MO 63110

Carlisle & Finch, 4562 W. Mitchell Ave., Cincinnati OH 45232

The L.C. Doane Co., P.O. Box 975, Essex, CT 06426

Nautilus Equipment Ltd., P.O. Box 66, Station M, Halifax, Nova Scotia B3J 2L4, CANADA

Phoenix Products, 6161 N 64th St., Milwaukee WI 53218

LINE BLINDS

Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474

LOGISTICS

VL Logistics Consultants, Inc., 3420 Bienville Blvd., Ocean Springs MS 39564
QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

Del Gavio, 619 Industrial Rd., Carlstadt, NJ 07072

Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231

New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

MACHINING—On Site Repair

Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

MARINE ACCOMMODATIONS

Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22980

Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431

Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256

Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

MARINE FURNITURE

Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431

Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256

Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

METAL PRODUCTS

Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave., Boca Raton, FL 33431
Harrington Metal Fabrication, P.O. Box 410, 6720 M 89, Fennville, MI 49408

Williams & Co., 901 Pennsylvania Ave., Pittsburgh, PA 15233-1495

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202
Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356

Artec Offshore Corp., 578 Enterprise St., Escondido, CA 92025

CDI Marine Co., 9487 Regency Square Blvd., Suite 500, Jacksonville, FL 32225

CT Marine, 18 Church Street, Georgetown, CT 06829

Childs Engineering Corp., Box 333, Medfield, MA 02052

Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, MA 02026

Crane Consultants, 15301 First Ave S., Seattle WA 98148

C.R. Cushing, 18 Vesey St., New York, NY 10007

Arthur D. Darden, 3200 Ridgeway Dr., Suite 403, Metairie LA 70002

Design Associates Inc., 14360 Chef Mentour Highway, New Orleans, LA 70129

Designers & Planners, 2611 Jefferson-Davis Hwy, Ste. 3000, Arlington, VA 22202

Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320

Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706

GHM Inc. (Industrial Measurement Consultants), P.O. Box 1836, Newport News, VA 23601

Gibbs & Cox, Inc., 50 West 23rd Street, New York, NY 10010

The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle,

- WA 98104
Morris Guralnick Associates, Inc., 130 Sutter Street, Suite 400, San Francisco, CA 94104
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824
JH Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John V. McCollum, Inc., 1199 Long Point Road, Mt. Pleasant, SC 29464
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
John J. McMullen Associates, Inc., 1 World Trade Center, Suite 3000, New York, NY 10048
MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 226 Chestnut St., Roselle Park, NJ 07204
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109
Maritech, Seaciff, Bay Road, Newmarket, NH 03857
Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257
R.J. Mellusi & Co., 71 Hudson St, New York, NY 10013
Nautical Designs, Inc., 2101 S Andrews Ave., Suite 202, Ft Lauderdale FL 33316
Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
Northern Marine, P.O. Box 1169, Traverse City, MI 49685
Ocean Oil International Engineering Corp., 3019 Mercedes Blvd, New Orleans LA 70114
Olsen Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777
Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100, Houston TX 77079
QED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
Donald J. Quigley, Inc., P.O. Box 515 Richboro, PA 18954
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112
Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702
Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2 Skyline Pl., 5203 Leesburg Pike, Suite 700, Falls Church, VA 22041; 1305 Franklin St., Suite 210, Oakland, CA 94612.
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004
George G. Sharp, Inc., 100 Church St., New York, NY 10007
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Systems Engineering Associates (SEACOR), 200 East Park Dr., Suite 600, Mt Laurel NJ 08054
TIMSCO, P. O. Box 91360, Mobile AL 36691
- NAVIGATION & COMMUNICATIONS EQUIPMENT**
Anschutz & Company, One Madison St., East Rutherford, NJ 07073
AT&T, High Seas Dept., 412 Kemble Ave., Room C380, Morristown, NJ 07960
Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IDB Aero-Nautical Communications, 15245 Shady Grove Road, Rockville, MD 20850
Kelvin Hughes Ltd., New North Rd., Hainault, Ilford, Essex 1G6 2UR ENGLAND
Kenwood USA Corp., Marine Products Div., 2201 E. Dominquez St., Long Beach, CA 90810
Mackay Communications, 441 US Highway #1, P.O. Box 331, Elizabeth NJ 07207
Marine Electric RPD, Inc., 50 Carol St., P.O. Box 1135, Clifton, NJ 07014-1135
Megapulse, Inc., 8 Preston Court, Bedford MA 01730-2380
Mobile Telesystems, Inc., 300 Professional Drive, Gaithersburg, MD 20879
Naval Electronics, 5417 Jetview Circle, Tampa FL 33634
Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY
Novatech, 820 Cormorant St., Victoria, BC V8W 1R1, CANADA
Robertson Marine Systems, 3000 Kingman Street, Suite 207, Metairie, LA 70006
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia, PA 19116
Simrad, 19210 33rd Avenue West, Lynnwood, WA 98036
Singapore Telecom, Orchard Point Post Office, P.O. Box 38, SINGAPORE 9123
Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA 22901
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
Summer Equipment Ltd., 24 West 4th Ave., Vancouver V5Y 1G3, CANADA
Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086
Waterway Communications System, Inc. 453 E. Park Pl., Jeffersonville, IN 47130
- NOZZLES**
Harrington Metal Fabrication, P. O. Box 410, 6720 M 89, Fennville, MI 49408
- OIL—Marine—Additives**
Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
Shell Oil, P.O. Box 2463, Houston, TX 77252
Texaco, International, 2000 Westchester Avenue, White Plains NY 10650
- OIL/WATER SEPARATORS**
Alfa-Laval Separation, Inc., 955 Mearns Rd., Warminster, PA 18974-0556
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale NJ 07647
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
MMC International, 60 Inip Dr, Inwood NY 11696
- PAINT—COATING—CORROSION CONTROL**
Ameron, 201 N. Berry St., Brea, CA 92622
The Arnssen Corp., Corrosion Dynamics Division, 1100 Walnut Street, Rosell, NJ 07203
Enviro Coatings, Inc., 4560 Belt Line Rd., Suite 300, Dallas, TX 75244
Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502
GlobalTech, 9801 Westheimer St., Ste. 202, Houston, TX 77042
Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 02635
Hempel Coatings, Foot of Curie Avenue, Wallington, NJ 07057
Melvin Pierce Marine Coating, Inc., P.O. Box 93, Semmes, AL 36575
Microphor, Inc., Marine Division, 452 E. Hill Rd., P.O. Box 1460, Willits, CA 95490
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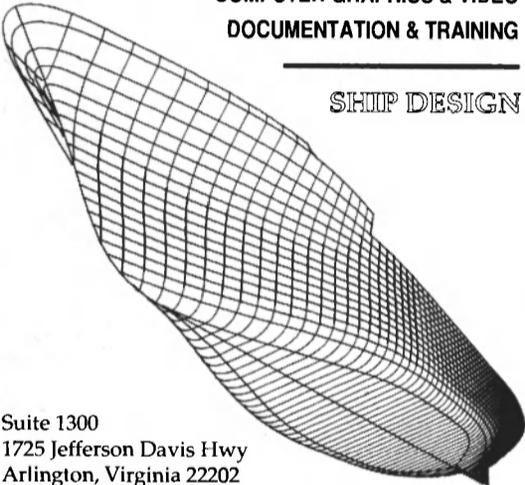
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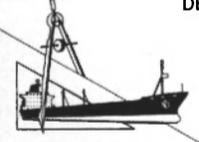
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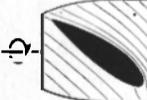
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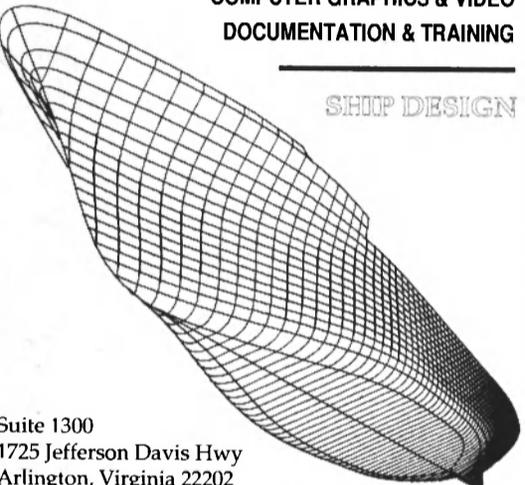
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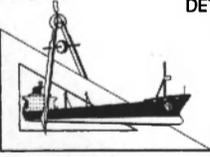
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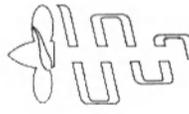
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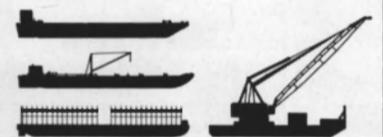
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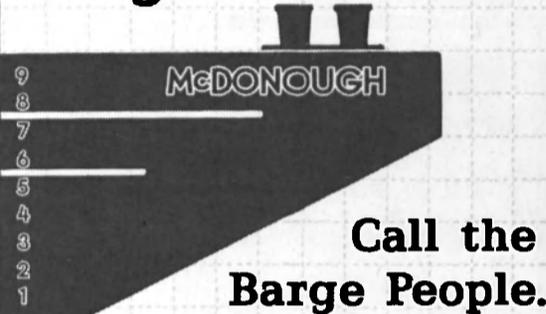
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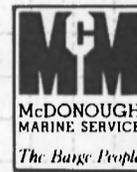
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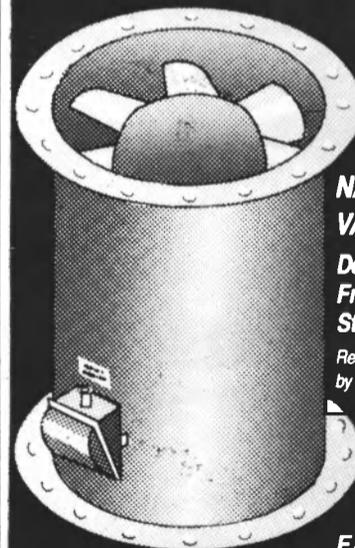
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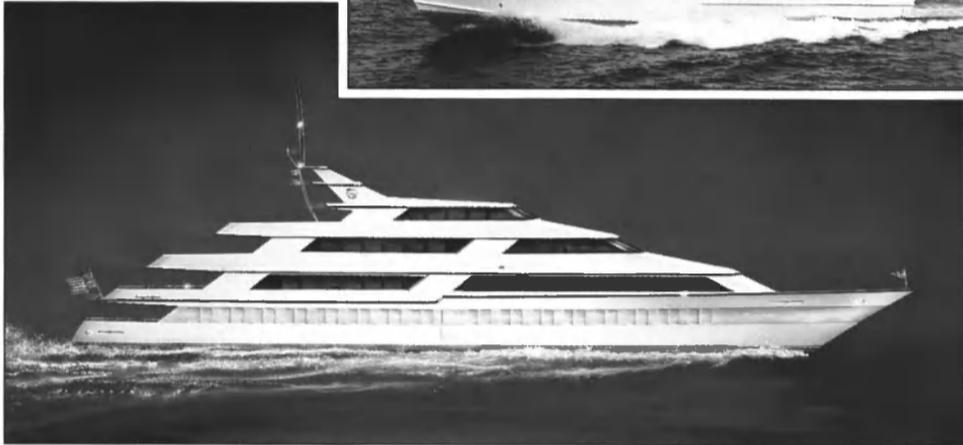
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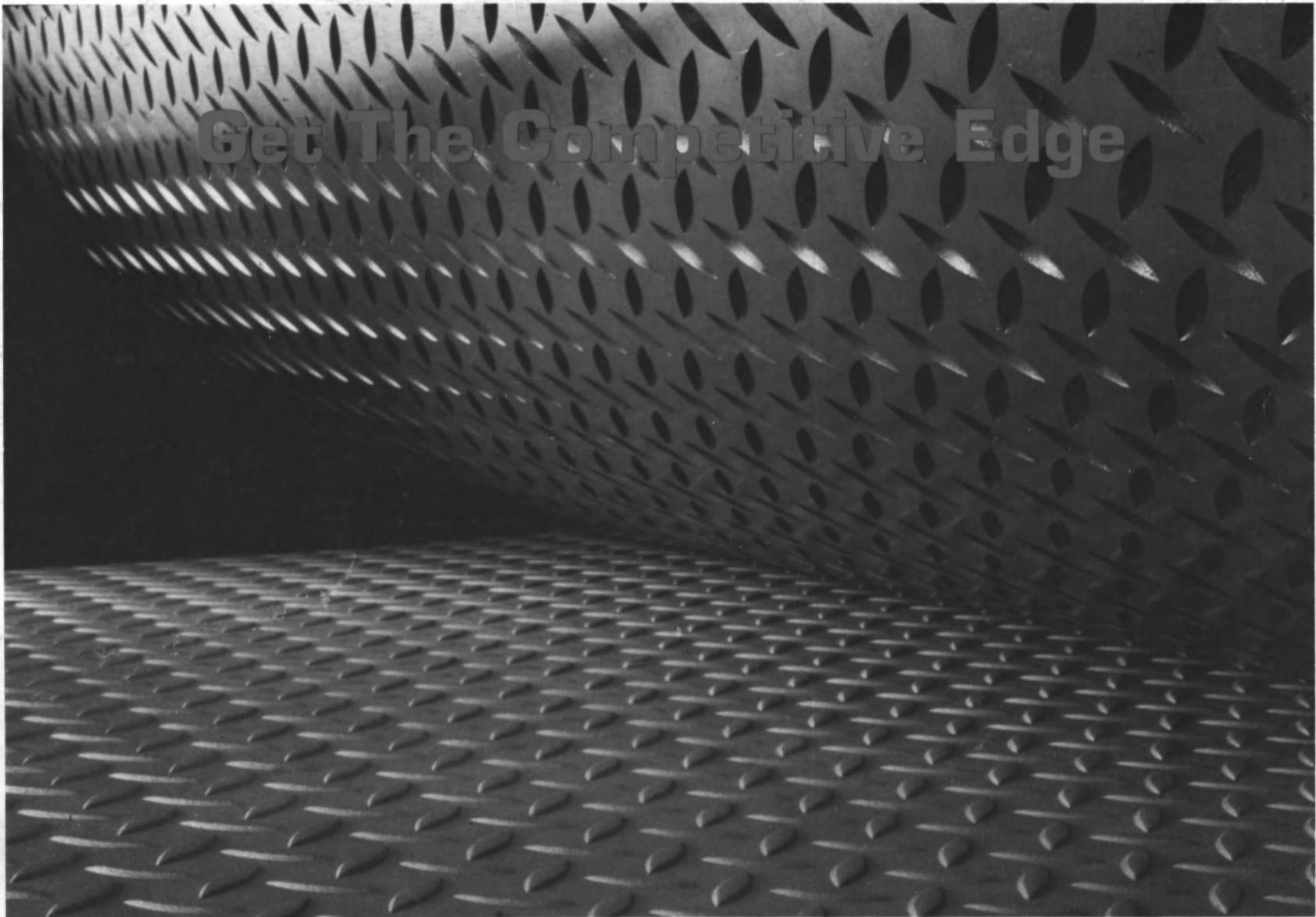
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