MARITIME REPORTER
AND ENGINEERING NEWS

10/14/86

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OCTOBER 1986 ISSUE

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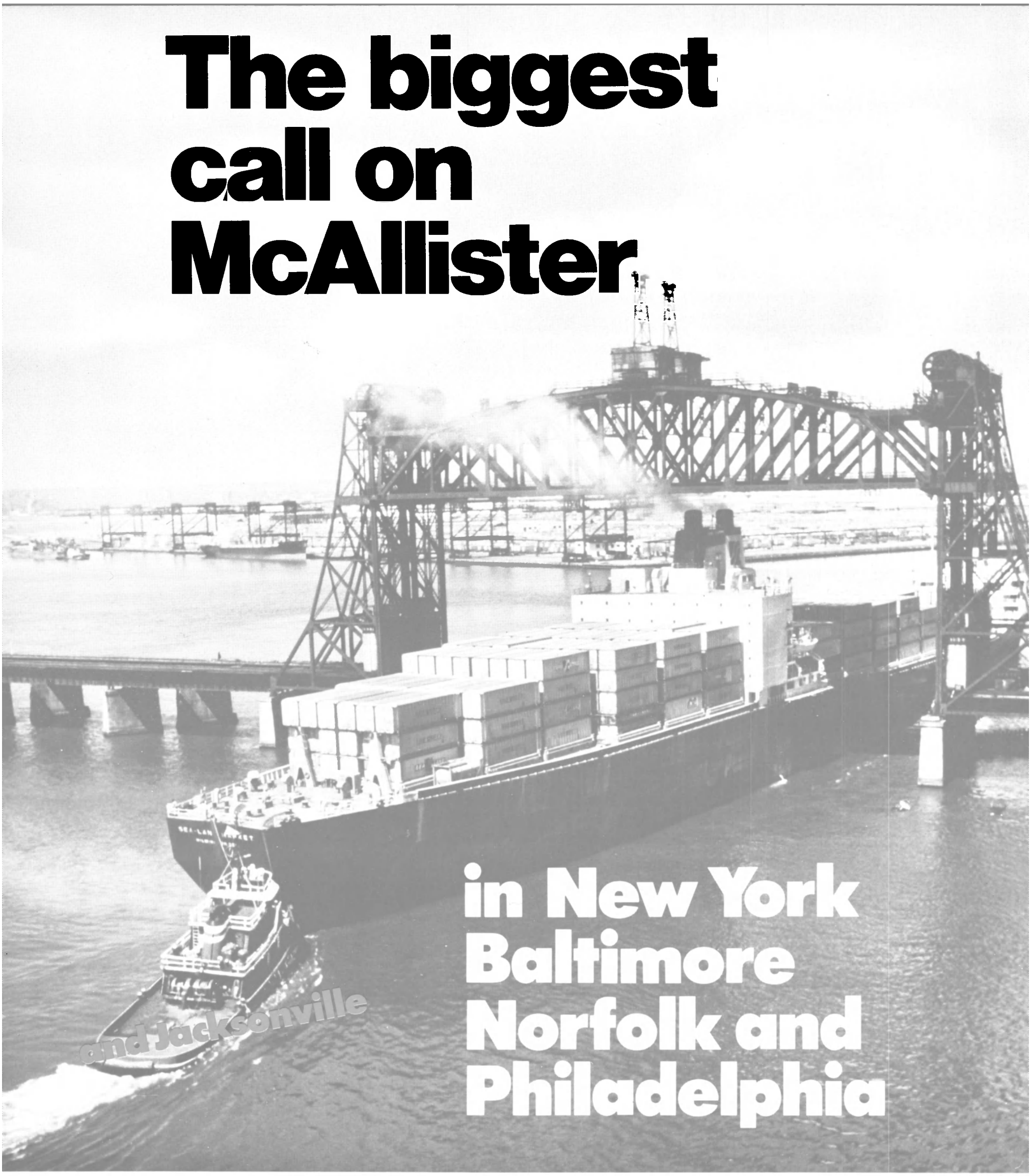

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ON THE COVER

Cover photo and photos pages 12 and 48 courtesy **Lew VanDeMark.**

Ingalls Gets $402.5-Million Navy Contract To Build Amphibious Assault Ship

Ingalls Shipbuilding in Pascagoula, Miss., a division of Litton Industries, has been awarded a $402.5-million contract by the Naval Sea Systems Command for construction of the amphibious assault ship LHD-2. This award is in addition to a $38,877,000 Navy contract for the design phase, bringing the total cost of the LHD-2 to $441,377,000.

The first ship of this new class, the Wasp (LHD-1), is now under construction at the Ingalls yard. With a displacement of approximately 40,500 tons, the LHDs will have an overall length of 844 feet and beam of 106 feet. Propulsion will be by twin steam turbine plants with a total output of 70,000 shp, giving a service speed of 20 knots. The primary mission of these ships will be embarking, deploying, and supporting elements of a Marine Corps landing force.

$13.8-Million Contract To Metro Machine For Destroyer Overhaul

Metro Machine Corporation, Norfolk, Va., is being awarded a $13,792,872 firm-fixed-price contract for regular overhaul of USS Mahan (DDG-42). Work will be performed in Norfolk, and is expected to be completed July 29, 1987. Twenty bids were solicited and eight were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8187).

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ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

Wärtsilä Diesel Acquires Lindholmen Motor

Wartsila Diesel of Finland and the Nordstjernan Group of Sweden have agreed on the sale of Lindholmen Motor AB and its subsidiary, Scandinavian Governor Services AB, to Wartsila. The agreement, which covers Lindholmen's complete production and after-sales operations, is subject to the approval of the authorities of Finland and Sweden.

Gothenburg-based Lindholmen Motor is one of the last units in the Nordstjernan Group manufacturing marine equipment. Its turnover in 1985 was FIM 58 million (about $11.8 million), and it employs a staff of about 100. Over the past years the factory in Gothenburg has concentrated on the manufacture of Pielstick diesel engines for ships. However, the percentage of turnover accounted for by service and spare parts has grown rapidly in recent years.

Wartsila is one of the world's leading manufacturers of diesel engines. Its production range includes Wartsila Vasa and Wartsila Nohab engines of the company's own design, and Sulzer, Pielstick, and MAN B&W engines under license.

For full information on Wartsila Diesel's facilities and product lines,

Circle 98 on Reader Service Card

Voyager Management Asks For Title XI From MarAd To Build Passenger Ship

The Maritime Administration has received an application from Voyager Management, Inc., a subsidiary of Voyager Cruise Lines, Washington, D.C., for a Title XI guarantee to aid in financing the construction of a coastal cruise vessel.

The diesel-powered vessel will have an approximate length of 220 feet, a molded beam of 44 feet and will be able to accommodate 132 passengers. It is expected to operate on the East Coast and in the Caribbean.

Moss Point Marine of Escatawpa, Miss., is the proposed builder of the vessel which is scheduled for delivery next July.

If approved, the Title XI guarantee would cover $10,342,500 or about 75 percent of the estimated actual cost of $13,515,000 to build the cruise vessel.

Long Beach Yard Awarded $22.7-Million Navy Contract To Overhaul Destroyer

The Long Beach Naval Shipyard in California has won a contract for a $22.7-million overhaul of the destroyer USS Fletcher (DD-992), saving the jobs of some 1,000 employees that were to have been laid off. Commissioned in 1980, the Fletcher is a ship of the Spruance Class built by Ingalls that carries a crew of about 320. The overhaul work has commenced and is scheduled for completion in September 1987.

Bethlehem Yard Receives $1.9-Million Contract To Repair RRF Reefer

David Watson, general manager of Bethlehem Steel Corporation's Sparrows Point yard, recently announced the receipt of a $1.9-million contract for work on the S.S. Cape Alava, a ship assigned to the Ready Reserve Force (RRF).

Mr. **Watson** stated that the award was made by the American Foreign Shipping Co., Inc., acting as agent for the U.S. Department of Transportation, Maritime Administration.

The ship is due for general maintenance, repairs, preservation and modifications. It is expected to be completed in mid-November.

The Cape Alava, stationed in the James River at Fort Eustis, Va., is a general and refrigerated cargo carrier with a length of 572 feet, breadth of 75 feet and full load displacement of about 21,000 tons. It was built in 1962 for Farrell Lines as the S.S. African Comet.

Petrobras Will Order 21 New Tankers At Total Cost Of $840 Million

Brazil's state-owned oil company, Petrobras, is reported set to order 21 tankers this year at a total cost of $840 million. With a total capacity of more than 800,000 dwt, they would comprise five supertankers of more than 100,000 dwt each, and 16 small products carriers for coastal service. According to Petrobras president **Ozires Silva**, all of the orders will be placed with Brazilian shipyards. The first contracts to be placed, for five of the smaller tankers, will go to the Caneco, Maua, and Verolme yards.

'World Series Contactors And Overload Relays' Brochure Available

A new eight-page color brochure, "World Series Contactors And Overload Relays," has been published by the Control Divisions of Siemens Energy & Automation, Inc. The brochure describes Siemen's World Series line of 14 contactors and 7 overload relays designed especially for Original Equipment Manufacturers (OEM) serving the domestic and international markets. Siemens contactors and overload relays comply to all major national and international standards such as NEMA, UL, IEC, VDE, CSA, and EEMAC, and are approved for use in many foreign countries.

Siemens contactors and overload relays feature compact size, cost-saving installation and wiring, and low maintenance requirements. Its touch-safe design complies with the latest safety regulations.

Triple-rated with NEMA, IEC, and horsepower ratings, World Series rated contactors offer snap-on rail or panel mounting, auxiliary interlocks up to 2 NO and 2 NC, dual frequency coils, and low contact bounce.

Close coupled overload relays provide Class 10 protection as standard, single-phase and phase unbalance protection, and an adjustable setting range of 1 to 1.6 ratio. Standard features of the close-coupled overload relays include ambient temperature compensation, a manual test button, and a trip indicator. The manual reset field is convertible to automatic reset.

Illustrations and charts in the brochure present dimension details, technical data and ordering information.

For a free copy of the new eight-page color brochure from Siemens,

Circle 126 on Reader Service Card

Bakke New President Of Hempel Coatings (USA)

Thor Bakke

Thor Bakke has been appointed president of Hempel Coatings (USA), Inc., as part of Hempel's ongoing program to consolidate and strengthen their U.S. and Canadian operations.

Mr. **Bakke** is a native of Norway, receiving his degree in mechanical engineering from Gothenburg Technical Institute and his business management degree in Copenhagen, Denmark.

As former president of Danfoss System Hydraulik A/S, Denmark, Mr. **Bakke** has had worldwide experience in the offshore and marine industry.

For several years, Mr. **Bakke** has been chairman of the Danish Offshore and Marine Equipment Council and a member of the board of directors of the Danish Export Group Association.

Home Lines Appoints New Vice President

Andrea Puccio has been appointed vice president, technical department, it was announced by **F.G. Stafilopatis,** president of Home Cruises Inc., New York, N.Y.

Thirty-nine years with Home Lines, Mr. **Puccio** has been chief engineer of the company since 1960. A graduate of the Nautical Institute of Genoa, he has served aboard the Oceanic and, before that, the first Homeric of Home Lines. Since being chief engineer of these vessels he has been port engineer and then superintending engineer, in which capacity he supervised the design and construction of Home Lines' two new vessels, the Atlantic, completed in 1982, and most recently, the new Homeric, which has just entered service.

Navy Awards SRA Contract Worth $2.7 Million To Norfolk Naval Yard

Norfolk Naval Shipyard, Norfolk, Va., is the successful offeror in a competitive test program between public and private sector shipyards for the Selected Restricted Availability (SRA) of USS Lapon (SSN-661). Norfolk Naval Shipyard is being assigned the selected restricted availability on a firm-fixed-price basis. The target price for this effort is $2,676,557. Work will be performed in Norfolk, and is expected to be completed August 15, 1987. Five offers were solicited and three were received. The Naval Sea System Command, Washington, D.C., is the requiring activity.

Charles W. Mann Named President, MonArk Boat

Charles W. Mann

Charles W. Mann has been named president of MonArk Boat Company in Monticello, Ark. Prior to his promotion, he had been serving as corporate vice president for sales and marketing.

Zach McClendon Jr., chairman of MonArk Industries, the parent company for MonArk Boats and several other Arkansas-based industries, said the promotion of Mr. **Mann** reflected his contribution to the continued growth of the company in both the workboat and recreational boat divisions.

Mr. **Mann** joined MonArk in September 1983 as director of marketing for the Workboat Division. Last year, he took on the added responsibility for the Recreational Boat Division. Prior to joining MonArk, he served as president of Kirby International, a construction firm based in Houston, Texas.

Mr. **Mann** is a graduate of the University of Colorado where he earned a business administration degree.

Mr. **Mann** said he was very pleased to be able to serve as president of MonArk. "I am looking forward to even greater growth of the company and to the increase of our market share in both the recreational and workboat areas," he said.

The Workboat Division manufactures aluminum and fiberglass workboats, custom-designed for industrial, governmental, and defense needs.

The U.S. Air Force recently accepted the first of nine 41-foot Parasail Training craft being constructed in a $2.2-million contract with the Naval Sea Systems Command.

In addition to the NSSC contract, Mr. **Mann** said the Workboat Division is currently working on five other Navy contracts and various commercial workboats projects.

For a free color brochure on MonArk Boat Company,

Circle 2 on Reader Service Card

Bath Iron Works Sold To New York Investor Group

Bath Iron Works Corporation (BIW) of Bath, Maine, one of the country's leading shipbuilders, has been purchased by private investors led by Gibbons, Green, van Amerongen, Ltd., a diversified investment banking firm based in New York. BIW was formerly owned by Congoleum Corporation, headquartered in Portsmouth, N.H. Gibbons, Green is a well-established and active investment banking firm, which since 1969 has invested in 20 companies that continue to operate independently. The purchase price was not disclosed, but estimates put it at about $500 million.

BIW, recognized as an unusually capable and growing shipyard, is currently completing construction of the last of 24 guided missile frigates of the FFG-7 class. The yard now has under contract six Aegis cruisers, and last year won a $321.9-million contract as lead shipyard for the design and construction of the Navy's new Aegis destroyer, the Arleigh Burke (DDG-51). The company's present shipbuilding backlog is well in excess of $1 billion. In addition, BIW is actively involved in Navy overhaul and repair work. In addition to the yard at Bath, it operates a repair facility in Portland, Maine.

Edward W. Gibbons of Gibbons, Green stated: "We made an investment in Bath Iron Works because for decades it has demonstrated real leadership as a surface combatant shipbuilder for the U.S. Navy. In addition, it has proven very competitive in the ship overhaul market and has built a wide variety of merchant ships in the past. BIW has been a world leader in shipbuilding technology, and we are committed to supporting the shipyard with new systems and capital investments to assure that it remains at the head of the state of the art."

William E. Haggett, president and chief executive officer of BIW, said: "We expect that business within the shipyard will continue under the same management organization. Moreover, BIW is presently increasing employment by adding technical staff and mechanics and no change is anticipated in that pattern, nor will there be any changes to labor contracts or ongoing relationships with the U.S. Navy.

"If anything, BIW as a company will have more autonomy than in the past. While Gibbons, Green and other investors will own the shipyard, they understand that the shipbuilding expertise resides here and plan to give BIW the support and flexibility required to achieve the company's overall objective, which is to retain its position as a recognized leader in its markets," Mr. **Haggett** concluded.

SPT Ltd. Offers Free 14-Page Color Brochure On Sound Powered Phones

SPT Ltd., with full sales and services facilities in Houston, Texas, is offering a free full-color, 14-page brochure on their line of sound powered telephones and accessories for offshore, marine and land-based use.

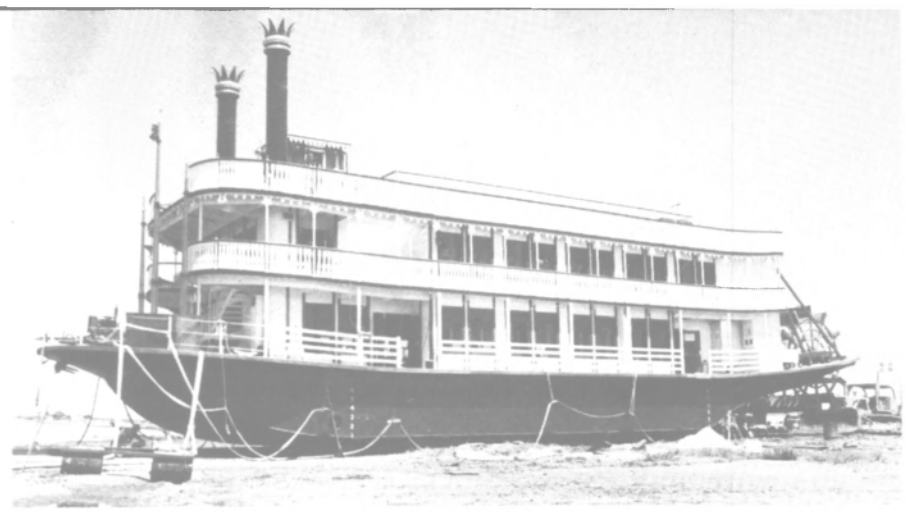
The color publication provides a complete technical description of SPT sound powered telephones, which operate independently of power supply or batteries. The units are in fact, powered by the user's voice, making communication simple, low cost and maintenance free. The sound powered telephones meet fail-safe communications requirements, as well as isolated site, intrinsically safe and portable communications requirements.

Besides the section on the technical description of sound powered systems, the brochure contains sections on "Powerphone—the Amplified Sound Powered Telephone System," "Choice of System/Instrument," "Intrinsically Safe Systems," "Admiralty Patt. Sound Powered Telephone Systems," "Telephone Types," and "Accessories." Each section is filled with drawings and photographs, fully illustrating the SPT line of sound powered telephones and accessories.

As a special feature, the SPT Ltd. publication includes a colorful chart called, "Product Classifications and Specifications Guide."

For a free copy of this brochure,

Circle 131 on Reader Service Card



New dinner cruise/excursion vessel William D. Evans has sternwheel for nostalgia but is powered by two Caterpillar diesel engines, each rated 322 bhp at 1,800 rpm.

San Diego Shipbuilding Delivers Dinner Cruise Vessel To Bahia Resort

San Diego Shipbuilding & Repair, Inc. of Chula Vista, Calif., recently completed the dinner cruise/excursion vessel William D. Evans for the Bahia Resort Hotel on Mission Bay, San Diego. Built to look like a 19th century riverboat, the 600-passenger vessel, with an overall length of 127 feet, beam of 39 feet, and depth of 8 feet 6 inches, is classed by the American Bureau of Shipping and certified by the U.S. Coast Guard for operation on lakes, bays, and sounds.

Although the vessel is outfitted with an 18-foot-diameter wooden paddlewheel at the stern the propulsion is conventional, with power supplied by two Caterpillar 3406 BDITA diesel engines, each rated 322 bhp at 1,800 rpm. Electric power is supplied by 250-kw and 90-kw Caterpillar generators. She is equipped with a Wagner hydraulic steering system and Kobelt air engine control system operable from three stations, one in the pilothouse and one on each bridge wing. Bow thruster units, Omnithruster model OJM 450, have been installed for ease in maneuvering, especially during docking and undocking operations.

The electronics package includes a Raytheon 1200 radar, ICOM IC-M80 VHF radiotelephone, Furuno FMV-601 depth recorder, RCA forward- and aft-looking video camera and monitors with pan and tele control, and a 16-station Comdial intercom system.

The Evans has been designed and built as a multipurpose platform capable of providing all forms of live and recorded entertainment, full-service dinner parties, exhibit hall facilities, plus multiple meeting room and banquet arrangements.

Major Suppliers

Main engines (2)	Caterpillar
Reduction gears	Twin Disc
Propellers	Coolidge
Bow thrusters	Omnithruster
Engine exhaust system	Kay Industries
Engine controls	Kobelt
Generators	Caterpillar
Main switchboard	Lloyd Controls
Steering gear	Wagner
Air conditioning	Cruisair
Radar	Raytheon
Depth sounder	Furuno
Intercom	Comdial

Food will be served from a fully equipped galley below the main deck to each passenger level via a service elevator. There are two bars, stages, and wood dance floors. Stage areas are fitted with built-in amplifiers, sound mixers, enhancers, special effects controls, lighting controls, and speaker combinations for a band, disco, "canned" background music, and a stage revue.

As a meeting and banquet facility, the William D. Evans offers seating for more than 200 people on each of her enclosed air conditioned decks. The deck areas are fitted with complete built-in audio/visual convention services including the capability for teleconference equipment, closed-circuit video, dual-screen slide projection, and remote control presentation display boards. The sun deck offers the attractive alternative for open-air meetings and banquets.

For further information and free literature on the services and facilities offered by San Diego Shipbuilding & Repair,

Circle 88 on Reader Service Card

Keel-Laying Ceremony Held At Bethlehem-Sparrows Point Yard For First of Two Navy Survey Vessels

The first of two Navy oceanographic survey vessels, the USNS Maury (T-AGS-39), was recently dedicated by Rear Adm. **John R. Seesholtz,** USN, Oceanographer of the Navy, at keel-laying ceremonies at Bethlehem Steel's Sparrows Point, Md., yard.

According to **David Watson,** Sparrows Point general manager, the $130-million, two-ship Navy contract would be employing approximately 1,100 workers when the construction reaches its peak in the next few months. The Maury is scheduled to be delivered to the Navy in December 1987.

Joining Admiral **Seesholtz** at the keel-laying ceremony were Rep. **Helen Delich Bentley** (R-Md.); Rear Adm. **Harry K. Fiske,** Deputy Commander, Amphibious Auxiliary, Mine and Sealift Directorate, NAVSEA; Rear Adm. Richard F. Donnelly, Vice Commander, MSC; Rear Adm. **Henry G. Chiles Jr.,** Director, Strategic Submarine Division, Office of the Chief of Naval Operations; Capt. **Martin Staiger,** Supervisor, Shipbuilding, Conversion and Repair, USN, Portsmouth, Va.; and Capt. **William C. Pfister,** Program Manager, Auxiliary/Special Mission, Ship Acquisition Program, NAVSEA.

Representing Bethlehem Steel, in addition to Mr. **Watson,** were **James H. Leonard,** vice president of the steel-related group, and **David H. Klinges,** president of the marine construction division.

The yard began construction of the vessels in February of this year. The sister ship, named the USNS Tanner (T-AGS-40), is scheduled for completion in April 1988.

The ships were designed by the Sparrows Point yard's engineering department and M. Rosenblatt & Sons, Inc. of New York. Each ship has a 499-foot length overall, 72-foot beam and a 51-foot depth. Once delivered, they will be operated by civilian crews under the direction of the Military Sealift Command, and will be primarily used to conduct ocean surveys and provide scientific data.

For free color literature on the shipbuilding services and facilities offered by Bethlehem Steel's Sparrows Point yard,

Circle 91 on Reader Service Card

KEEL-LAYING CEREMONY for oceanographic survey ship USNS Maury (T-AGS-39) was held recently at Bethlehem Steel Corporation's Sparrows Point shipyard near Baltimore. On hand for the event were (front row, L to R): **Mrs. Johnny Sears**; Rear Adm. **Richard F. Donnelly**, USN; Rep. **Helen Delich Bentley** (R-MD); Rear Adm. **Harry K. Fiske**, USN: **Mrs. Marylee Seesholtz**; Capt. **William C. Pfister**, USN; and Capt. **Martin Staiger**, USN. In back row are (L to R): Capt. **Johnny Sears**, USN; **David H. Klinges**, president of Bethlehem Steel's marine construction division; Rear Adm. **John R. Seesholtz**, USN; and **David Watson**, general manager of the Sparrows Point yard. The Maury is the first of two survey ships the shipyard will build for the U.S. Navy's Military Sealift Command.

Bethlehem-Sparrows Point Receives Navy Contracts Worth $5.1 Million

Bethlehem Steel Corporation's Sparrows Point, Md., shipyard recently received two Navy contracts totaling $5.1 million for the drydocking and routine repair of a destroyer tender and a landing ship dock.

David Watson, yard general manager, confirmed Bethlehem's receipt of a $3.4-million contract to drydock and make routine repairs to the 643-foot-long destroyer tender USS Shenandoah (AD-44).

The Shenandoah serves as a floating repair facility to service other ships at sea. The ship will have boiler, auxiliary machinery, shaft and electronics work performed in addition to routine drydocking and hull painting. Some crew compartments will be modified.

The second U.S. Navy contract received by the yard was for $1.7 million for the routine drydocking and repair of the USS Herimatage, a landing ship dock.

Hempel Begins New Campaign

—12-Page Coatings Brochure Available—

Hempel, the worldwide supplier of specialist coatings to the marine, offshore, container and general industries, has launched a major campaign to emphasize its reputation for quality and service. Using the slogan "Hempel's Service: That's the Spirit," the campaign is aimed at drawing attention to the steps the company has taken internally over the last six months to improve still further its back-up services to customers—particularly on the technical side.

With the help of specially appointed management consultants, Hempel identified a total of 86 individual service areas of significance. These were formulated into an overall "service campaign" during a number of special internal service seminars held by the company at which a service coordinator was appointed for each of Hempel's 29 associate companies worldwide and given the responsibility for implementing the new service concept into his own associate company.

These special service seminars were followed by a number of internal service courses that were attended by all Hempel employees—3,000 of them worldwide.

Each Hempel company selected a number of service areas that are now being independently monitored and graded to assess performance. If a particular service area has a problem, steps are taken immediately to correct it. A different set of service areas is selected for monitoring and analyzing every quarter.

The service concept is backed by an extensive advertising campaign and distribution of literature.

For further information on Hempel's products and services and for a free copy of the 12-page color brochure,

Circle 82 on Reader Service Card

Sperry Appoints New Program Manager

Sperry Corporation, Charlottesville, Va., has appointed **George Tsirimokos** to the position of program manager of its satellite communication program in the marine systems unit in Charlottesville.

Mr. **Tsirimokos** will oversee Sperry's introduction of advanced computer and communications products into the maritime industry.

In addition to the new MCS2 series ship earth stations and the integral ruggedized 300 MC marine computer, Sperry offers a complete line of software programs for personnel administration, payroll, planned ship maintenance, cargo loading and spares inventory control.

For free literature containing complete information on Sperry products,

Circle 8 on Reader Service Card

PROPULSION UPDATE

Volvo Penta's New 61 And 71 Series For Workboats Developed Using Advanced Computer Techniques

Volvo Penta's new 61 and 71 Series are two new designs developed with the aid of advanced computer techniques. These in-line six-cylinder marine diesels are direct injected, turbocharged and aftercooled and are said to give the boat operator outstanding performance, increased operational reliability, reduced exhaust emissions, and improved overall economy.

In order to give the engine block maximum rigidity without increasing the total weight, Volvo Penta has exploited the latest computer techniques (Finite Element Analysis), making it possible to significantly increase power outputs compared to previous 6- and 7-liter diesel engines.

The TAMD 61A and 71A have the following advanced features: new cylinder head with flame barrier that increases gasket life; new method for tightening the cylinder head bolts, each bolt having exactly the same torque for improved sealing; new cylinder head intake and exhaust channel design giving an identical swirl characteristic for each cylinder, reducing smoke and increasing fuel efficiency; front end mounted junction box for all electrical connections and relays, simplifying installation and service, particularly twin installations; new gear-driven fresh-water circulation pump for higher efficiency and reduced noise and vibration; plate type oil cooler provides more effective cooling of the engine oil; adjustable rear engine brackets for easier installation; new adjustable anti-vibration mounts reduce vibrations transmitted to the hull and thereby reduce noise and increase comfort.

New technical developments have made it possible to achieve an extremely low weight/power ratio—2.2 kg/hp for the TAMD 61A and 2.3 kg/hp for the TAMD 71A with the output set for light duty operation. Increased power outputs have been possible through further developments of direct injection, turbocharging and aftercooling technology.

The engines are fitted with oil-cooled pistons that reduce the buildup of carbon deposits. In addition, there is a new type of thermostat and gear-driven fresh-water pump. These are some of the detailed improvements that contribute toward high operational reliability and long service life.

Air pre-heating means easier starting in extreme weather conditions and reduced exhaust smoke during the start-up phase. Furthermore there is a pressure regulator that allows the heated air from the turbocharger, at pressures below 0.3 bar, to bypass the aftercooler and pass directly into the intake manifold. This leads to a cleaner exhaust at idle speed and low load operation. The engines are also equipped with fuel injection pumps fitted with smoke limiters for reduction of black exhaust emissions during acceleration.

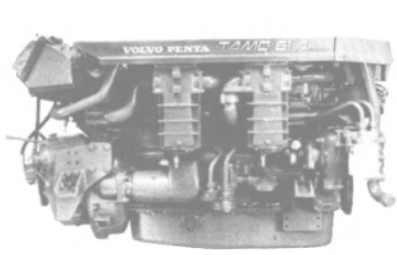
Simple installation and simple service are of utmost significance for overall economy and special emphasis has been placed on these aspects during the design phase of the new 61 and 71 Series. Some examples reflecting this are the cable harness from the instrument panel can be directly coupled to the engine's electrical components through the use of plug-in connectors; the seawater pump, oil filter and oil filler are placed for ease of accessibility at the front end of the engine.

Engine specifications are easily adapted for different boat types and applications thanks to the wide range of optional equipment such as heat exchanger or keel cooling systems, extra alternators, 12V or 24V electrical systems, extra power take-offs, bilge and deckwash pumps, front end mounted oil filter and adjustable anti-vibration mounts.

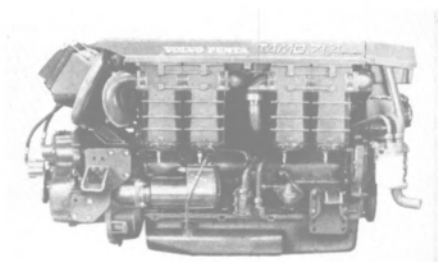
The transmission program has been selected to suit varying boat types, from heavy displacement boats to light planing craft. The program ranges from the MG506 to the MG509 and also includes the new MG506A with a 10° down angle output shaft. A choice of reduction ratios are available from 1:1 to 4.95:1.

For free detailed literature fully describing the new 61 and 71 Series from Volvo Penta,

Circle 69 on Reader Service Card



Volvo Penta's new TAMD 61A.



Volvo Penta's new TAMD 71A.

The Spirit, shown above, was converted from a 96-foot aluminum crewboat to a 149-passenger whale watch/excursion vessel.

Master Marine Responds To Change In The Shipbuilding Market With Vessel Conversions

Master Marine, Inc. of Bayou La Batre, Ala., recently converted a 96-foot aluminum crewboat to a 149-passenger whale watch/excursion vessel for Barnstable Whale Watch Tours Inc., Barnstable, Mass.

The vessel, named Spirit, was converted in just under eight weeks. Work consisted of installation of three main engines and one generator, with special spiral design Cowl mufflers from Canada, chosen because of their compact size and ease of installation in the engine room.

Conversion work entailed fabrication of a 35-foot extended deckhouse with two bathrooms in the stern, full service snack bar, cushioned benches and tables. Interior finishing incorporated the use of fiberglass reinforced plastic paneling on the walls, which is very durable and will not rot and fade like wood paneling. Four sliding doors make way for easy passenger access. Handrails with safety screens on the main deck and the topdeck make it safe for families to view the beauty of the ocean. A bow pulpit was constructed for sighting of marine life.

Additional work consisted of the hookup of all piping systems and electrical lighting throughout, installation of a public address system, and sandblasting and the painting of the vessel.

Master Marine recently extended the University of Texas's research vessel Longhorn with a 20-foot midbody section. This addition provided a new equipment room, increased the living accommodations, lengthened two laboratories and allowed the building of a spacious new pilothouse complete with crew quarters.

Included in the work was the construction of two new bottom tanks for fresh water and the installation of a central A.C. unit servicing three separate levels simultaneously. With the move of the main deck crane to the fo'c'sle deck, a new working area along with space for two deck boats was accomplished. Finally, to insure safety and improve working conditions, the generators were mounted on isolators with exhaust and hydraulic equipment, all sound engineered.

Exhaust and engine noise was a major concern on the Longhorn. To solve this problem Maxim M31 exhaust silencers with MSA1 spark arresting mufflers from Riley Beaird were installed to the main engines and generators exhaust system. In the engine room, Soundown 2 LB lead and foam sound absorption was installed. Other items included aluminum framed windows from Wynne Enterprises, Red Fox MSD, and Village Marine fresh water maker. Air conditioning units are Lennox Evaporators with heat coils.

The University vessel can now provide extended trips for research teams numbering 14. With complete navigation facilities and experienced crew, the Longhorn is ready for oceanographic research.

The Comanche, a 16-year-old shrimp trawler was converted to a Hondurian lobster vessel. The work entailed installation of a plate freezer system in the fishhold, and new hydraulics. A pot hauler and capstan were added and the rigging was changed to accommodate lobster pots. There was miscellaneous steel renewal throughout and the pilothouse and galley were refurbished.

Other work recently completed were two Coast Guard contracts for drydock and repairs to the cutter White Holly and the Axe & Barge.

With conversion of steel and aluminum vessels, drydocking and repairs, and new construction, Master Marine proves once again that it can respond to the changing markets in the shipbuilding industry.

For free brochures detailing the conversion services offered by Master Marine,

Circle 83 on Reader Service Card

Newport News Yard Lays Keel For Carrier 'George Washington'

The recent keel laying for the George Washington (CVN-73), which will be the Navy's sixth Nimitz Class nuclear-powered aircraft carrier, marked two firsts in Newport News Shipbuilding's 100-year history.

The placement of the Washington's 730-ton keel section in Shipway #12 represents the first time two aircraft carriers will be assembled simultaneously in a single shipway. Shipway #12 is the largest of its kind in the Western Hemisphere. The Abraham Lincoln (CVN-72) is currently under construction in the inboard section and is scheduled for delivery to the Navy in 1990.

NNS vice president **John Graham** said that prior to the launching of the Lincoln, the partially completed Washington will be watertight and able to be floated out of the outboard end of the shipway. After the Lincoln is floated out of the shipway, the Washington will be brought back into the shipway for completion, and repositioned on the same keel blocks that supported the Lincoln. This procedure will mark another first for us, he said.

The Washington's keel laying represents a continuation of the modular construction techniques Newport News uses to build aircraft carriers. "We've learned many lessons from building the Theodore Roosevelt," Mr. **Graham** said, "and we will continue to improve on efficiencies as we progress on both the Lincoln and the Washington."

Extensive use of computer-aided design and manufacturing (CAD/CAM) are credited for building current aircraft carriers faster than previous carriers. Modular construction techniques and the greater super lift capability of the shipyard's 900-ton-capacity gantry crane that spans the shipway, are also responsible for the anticipated earlier deliveries.

Nimitz Class carriers are 1,092 feet long and carry a 6,000-man crew and about 100 aircraft. They have a 4½-acre flight deck and are approximately 24 stories high from keel to mast top. Newport News Shipbuilding constructed all three of the Nimitz Class carriers currently in the Fleet. A fourth ship of the class, the Theodore Roosevelt (CVN-71), is scheduled for delivery to the Navy later this year.

For free color literature from Newport News Shipbuilding on their shipbuilding and ship repairing services and facilities,

Circle 63 on Reader Service Card

Falmouth Shiprepair Offers Free Color Brochure On Facilities And Services

Falmouth Shiprepair, Ltd., a joint venture of Bellway plc. and A&P Appledore Group plc., is offering a free color brochure on its yard services and facilities located at Falmouth, England.

According to the brochure, Falmouth shipyard has a tradition of first class service to shipowners that stretches back to 1894. Located in the world's third largest natural harbor adjoining the shipping lanes to Northern Europe, the yard is said to offer ideal climatic conditions and exceptional deepwater facilities at a convenient location to shipowners.

The color publication, which is divided into six brief comprehensive sections, details the dimensions of the yard's four large drydocks, 2½ kilometers of berths, engineering and auxiliary shops, along with tank cleaning, painting and towing services. Falmouth's free enterprise port, oil base and fisheries are also touched upon.

Accompanying color photographs and drawings of the yard and its surroundings supplement the text.

For your free copy of this Falmouth brochure,

Circle 103 on Reader Service Card

FISH EXPO '86
20th Anniversary Preview

October 15-18
Bayside Exposition Center, Boston

When this year's Fish Expo opens its doors in Boston, October 15-18, it will be celebrating its 20th anniversary as the world's largest commercial fishing exposition. On hand for the event will be more than 500 exhibitors, whose displays will be conveniently assembled on one floor at Boston's Bayside Exposition Center, a new location for the Boston edition of the show, which on alternate years is held in Seattle.

At the show, visitors will be able to inspect the latest in commercial fishing gear, boats, supplies, equipment, and services offered by companies throughout the U.S. as well as worldwide. The international presence will be stronger than ever this year, with firms from Canada, Denmark, France, Germany, Great Britain, Iceland, Ireland, Norway, Portugal, and Sweden represented.

While there will be much to learn about the latest developments in the fishing industry by viewing the many exhibits, additional information on activities that affect a fisherman's livelihood will be offered through the Fish Expo Seminar Program.

Seminar Agenda
Wednesday, October 15

Tracking the Catch: The Women's Fisheries Network will present a program stressing the importance of quality control in handling the catch as it moves from the boat through the processing and marketing channels to the consumer.

Highliner Awards: National Fisherman will announce the winners of its annual Highliner Awards, which go to three outstanding East Coast fishermen. This year, an additional award will recognize the efforts of an East Coast professor as well.

Insurance Update: Panelists will discuss what is being done to ease the insurance bite, as well as alternatives to obtaining coverage.

The Trouble with Gurry: Professors have yet to permanently solve the problem of how to dispose of New England's gurry. Speakers will discuss the problem and possible solutions.

Thursday, October 16

Trawling Tips: Massachusetts Institute of Technology trawl course director **Cliff Goudey** will give some tips for improving the performance of drag gear.

Display Auction: Can display seafood auctions such as the one in Portland, Maine, help fishermen increase their profits? A fisherman and a buyer will discuss the pros and cons.

Fighting for the Waterfront: A few of the people who have fought to protect the working waterfront from developers will share their strategies.

Friday, October 17

Lobster Gauge: Will the minimum legal size of lobsters be increased, as a Maine law seeks to do, or will the proposal be shot down by other states? Panelists will try to pin down the future of the gauge.

Changes in Fishery Management: Fundamental changes in the way we manage fisheries are necessary, according to many fishermen and managers alike. Speakers will examine the changes that are likely over both short and long terms.

Troubleshooting Diesels: Experts will offer some tips for preventing and repairing some of the diesel engine problems that could mean being towed back to port.

Saturday, October 18

Working Skiffs: Marine specialists **Sherrill Smith** and **Tim Visel** will discuss drags, dredges, and trawl gear for skiffs.

The exhibit hall will be open from 10:00 am to 6:00 pm daily, with the seminars beginning at 10:30 am each day. At the first day's closing on October 15, the Fish Expo Reception will get under way in the Bayside Exposition Center Ballroom, ending at 8:00 pm. Tickets to the two-hour reception are limited and should be ordered in advance, at $20 each.

It is also a good idea for Fish Expo visitors to register for the show in advance, eliminating a wait in line and the $5 registration fee that is charged at the door. For pre-registration forms and reception tickets, contact National Fisherman Expositions at (207) 772-3005.

Bayside Exposition Center should prove advantageous to exhibitors and visitors alike, especially those driving to the show from other parts of New England. The center is just off the Southeast Expressway south of downtown Boston, and has parking facilities for 2,000 cars. For those who will be staying in Boston but not driving to the show, shuttle buses will be making regular daily runs to the Bayside Center from major hotels in the city.

FISH EXPO EXHIBITORS

Company	Booth No.
AGB HEIGHWAY LTD.	C619
AT&T	B412, B414, B416
AT&T COMMUNICATIONS	B410
ALASKA DIESEL ELECTRIC	A235,237,336,338
ALASKA FISHERMANS JOURNAL	A625
ALDEN ELECTRONICS	C325
ALLIBERT INDUSTRIES	B323
AMERICAN CYANAMID	C134
AMERICAN FISHERIES SOCIETY	B124
AMERICAN PIONEER	A751
ANCHOR ELECTRONICS	C637,639
AQUA SIGNAL CORPORATION	B420
ARNESON MARINE ENGINEERING	C502, C504
ATHEARN MARINE AGENCY	B221
ALTANTIC & GULF FISHING SUPPLY	A321,323,325
ALTANTIC MARINE	B223
ATLANTIC OFFSHORE FISHERMENS ASSN.	C243
ATLANTIC SURVIVAL	B101, B202
ATLAS-DANMARK	B306
AUTOHELM AMERICA	A829
AVON INFLATABLES	A926
BAADER NORTH AMERICA	A429-437,530-538
BALTEK CORPORATION	A342, A344
BARCO CORPORATION	A328
BAY SIDE EQUIPMENT	C345
BAYBANKS, INC.	C519,521,523
BENDER SHIPBUILDING & REPAIR	A748, A750
BERG CHILLING SYSTEMS	C336, C338
BIG JON, INC.	A714
BLANCKE MARINE SERVICES	C439
BOCK MARINE BUILDERS	A936
BOMAR, INC.	A515,517
BONAR ROSEDALE PLASTICS	C429, C431
BORG-WARNER AUTOMOTIVE	A341, A343
BOSS MANUFACTURING	A652, A654
BOSTON MARKET EQUIPMENT	C435, C437
BRITISH CONSULATE GENERAL	C609-627
BRITISH SPECIAL SHIPS EQUIP. ASSOC.	C617
BROOKLINE MACHINE	C525
BROWNELL & COMPANY	A332, A334
BUCKHORN MATERIAL HANDLING	A922, A924
BURGESS MANAGEMENT ASSOCIATES	C506
C-TECH LIMITED	A542, A544
CALVERT ELECTRONICS	A327
CAMPBELL CHAIN	A851
CAPITOL GEARS	A120
CATERPILLAR ENGINE DIVISION	C201-205, C302-306
CETEC BENMAR	A407, A409, A411
CETREK DIVISION OF MARINEX	C428
CHAIN GEAR	91W
CHANNEL TRAP	A944
CITY OF NEW BEDFORD	B509

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COASTAL HYDRAULICS	A843
COFISH INTERNATIONAL	A350, A352
COLUMBIAN BRONZE	A621, A623
COMMAR INC.	A412, A414
COMMERCIAL FISHERIES NEWS	A527
COMMERCIAL TRAP SUPPLIES	C648
CORNELL-CARR	C132
COSALT PLC.	C615
CROSBY GROUP	B119
CROWE ROPE	A634
CUMMINS ENGINE	C309-315, C410-416
CUTTYHUNK BOATS	C618
CYCOMM CORPORATION	C528
DAHL MANUFACTURING	A633
DANISH EXPORT GROUP ASSOCIATION	B201-209, B302-310
DATAMARINE INTERNATIONAL	C232
DEPT. OF COMMERCE & TECHNOLOGY	B220-B222
DETROIT DIESEL ALLISON	A301-307, A402-408
DIAMOND MACHINING TECHNOLOGY	A647
DICKINSON MANUFACTURING	A509
DIGITAL MARINE ELECTRONIC	B319, B321
DOLE REFRIGERATING	A835
DOLINSKY, M., MARINE LEASING	B511
DOWN EAST MACHINE & ENGINEERING	A447
DUFFY & DUFFY FIBERGLASS BOATS	A716, A718
DYE PLASTICS	A848
DYNO NORPLAST	C520
DYTEK LABORATORIES	C425, C427
EEV INC.	C327
EASTERN MARINE	A741, A743
ECHOTEC INC.	A837
EDWARDS, C.G. & COMPANY	B121,B123
EDWIN ASHWORTH MARINE	C623
EK'S MACHINERY	B226
ELCO MARINE ELECTRONICS	B211,213,215
ESTES, CLIFFORD W. CO.	A513
ETS GUY COTTEN	C245
ETS LE DREZEN	A727
EURONETE/CERFIL/ OLIVEIRA	A345, A347
EXPORT BOARD OF ICELAND	B403-416,504,516
EXPORTRADET	B226
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FPPF CHEMICAL	A550
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FARM CREDIT BANKS OF SPRINGFIELD	A330
FATHOMS PLUS TRAPS	C628
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FLEXABAR CORPORATION	B116
FLYE POINT MARINE	C647-C651
FREEMAN MARINE EQUIPMENT	A227, A229
FRIENDSHIP TRAP	A614
FUJI ICE OF NORTH AMERICA	B520
FURUNO USA	C101-105, C202-206
GARLOCK MECHANICAL PACKING	C537, 539
GENERAL MARINE	C641, C643, C645
GENETRON MARINE	C515, C517
GENPAK CANADA	C341
GLADDING CORDAGE	A434
GUIMONDS BOATS	C557,559,561,563
H & H PROPELLER	A231, A233
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HALL, R.E. COMPANY	A823
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HANSEN MARINE ENGINEERING	A953, A955
HELLY HANSEN	A635, A637
HI-SEAS INDUSTRIES	C418, C420
HINRIKSSON, J., LTD.	B405
HOWE CORPORATION	B118, B120
HULL ELECTRONICS	A738
HUNDESTED MOTOR-OG PROPELLER FABRIK	B209
HYANNIS SHEET METAL	A930,932,934
HYNAUTIC, INC.	B305
ICOM AMERICA	A413, A415, A417
IMP FISHING GEAR	A710, A712
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ITT JABSCO PRODUCTS	A449
ICEVENDOR ASSOCIATION	B330, B332
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ISLAND METAL FABRICATORS	C424
JARVIS NEWMAN	B219
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KAHLENEBERG BROTHERS	A826
KELLAR MARINE	C355-361-C456-462
KELLER, MIKE LTD.	A628
KELLEY, D.N. & SON	A445
KING MARINE RADIO	A923, A925, A927
KOBELT MANUFACTURING	A853, A855
KODEN INTERNATIONAL	C209-211,310-312
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MARCO SEATTLE	A102-104,105-107
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MASS. DIV. OF MARINE FISHERIES	C449
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MASS. MARITIME ACADEMY	C541
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MICHIGAN WHEEL	A245, A247
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MILWARD FISHING HOOKS	C625
MINERALS MANAGEMENT SERVICE	C543
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MORAD ELECTRONICS	C422
MORRIS AND ASSOCIATES	A951
MORROW, II, INC.	C636
MORTY THE KNIFE MAN	A441
MOTOROLA COMMUNICATIONS	A443
MURPHY, FRANK W. MANUFACTURING	A335, A337
MUSTAD, O. & SON (USA)	C421, C423
MUSTANG MFG.	B402,404
NOAA, NATIONAL OCEAN SERVICE	C536, C538
NOAA-OCEANIC & ATMOSPHERIC RESEARCH	C544
NOAA/NESDIS/SARSAT	C546
NPFVOA VESSEL SAFETY PROGRAM	A729
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NAT'L. FEDERATION OF FISHERMEN	C620
NAT'L. MARINE FISHERIES SERVICE	C550, C552
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NATIONAL MARINE FISHERIES SERVICE	C548
NATIONAL OCEAN IND ASSOC.	A432
NATIONAL OCEANIC & ATMOSHPERIC ADMN.	C540
NATIONAL WEATHER SERVICE	C542
NAUSET MARINE	C638
NEPTUNE MACHINERY	A545, A547
NEW ENGLAND FISHING GEAR	A832,834,836
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NEWAGE TRANSMISSION	A348
NEWMAR	C317, C319
NICK'S HYDRAULICS	A822, A824
NOKIA	C451
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NORLAND RCV SYSTEMS	C621
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PEACE, H.L. PUBLICATIONS	A847
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POWERWINCH	B309
PYRAMID TRAP & ACCESSORIES	B224
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RENA EMBALLASJE	C520
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SCALE REPRODUCTIONS	C616
SCAN AMERICAN CORPORATION	C135-C139, C236-240
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SEMCO MFG.	A949
SHEPHERD, C.E.	A642, A644
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SHUSTER CORPORATION	A241, A243
SIGNODE CORPORATION	B115, B216
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SISU BOATS	C656, C658, C660
SMITH BARNEY, INC./ SCOTT BUNDY	A952
SONARTEC (NORTH AMERICA)	A530
SORTAWEIGH LIMITED	C609, C611
SPERRY CORPORATION	A722, A724
SPURS MARINE MANUFACTURING	C513
STANDARD COMMUNICATIONS	A535, A537
STEARNS	

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For more information call Bob Eichberg, Vice President, at 1-800-424-9152, or write:

COMSAT
Maritime Services

22250 COMSAT Drive Clarksburg, MD 20871.

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Fish Expo '86

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STEPHENS ENGINEERING ASSOCIATES	C228, C230
STROUDSBURG ENGINE WORKS	A732
SUMMER EQUIPMENT	C630
SUN PROPELLERS	A448
SUNWELL ENGINEERING	A333
SURRETTE STORAGE BATTERY	A510
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WIRE ROPE INDUSTRIES, GOUROCK DIV.	A430
WOLF CONDENSER WORKS	A110,112,113,115
WOMEN'S FISHERIES NETWORK	A827
WOMEN'S MARITIME ASSN.	A630
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XACTICS LIMITED	A838
YKK (USA)	C441
YOUNG BROTHERS' BOATS	C629, C631, C633
ZF OF NORTH AMERICA	C301, C303, C305
ZIEGRA EISMASCHINEN	C601, C603

Avondale's 81,000-ton floating drydocking (above) used to reactivate the Iowa (BB 61) will also be used for work on the Wisconsin (BB 64).

Avondale To Perform Major Work On The Wisconsin (BB 64)

Avondale Shipyards Division of New Orleans, under subcontract from Ingalls Shipbuilding Division, will perform the major work that is required in the drydocking of the battleship Wisconsin (BB 64), including the pumping out, gas freezing, repairing, and all of the coating of the ship's fuel and water tanks, replacement of propellers, inspection and repair of the shafts and rudders, and the inspection and repair of the sea chests and sea valves. In addition, the entire exterior of the ship's hull will be recoated.

The Wisconsin will be docked in Avondale's 81,000-ton floating drydock using the techniques that were previously used to dock the battleship Iowa, which safeguard the vessel from fire and other dangers involved in this type of work.

At its peak, the work will provide employment for about 1,150 workers. When Avondale completes its work at the end of this year, the Wisconsin will then be towed to Ingalls in Pascagoula, Miss., for the remainder of its reactivation work.

Avondale's reactivation work adds to its backlog of six T-AO 187 Class Fleet Oilers and five LSD-41 Class Landing Ship Docks.

For free literature on Avondale's facilities and capabilities,

Circle 148 on Reader Service Card

New MAN B&W Diesel Engine Extends Two-Stroke Output To Lower Range

—Literature Available—

The latest addition to MAN B&W Diesel's low-speed engine program, the mini-bore S26MC, extends the superior economic and technical merits of the two-stroke crosshead design to a ship's propulsion segment that, traditionally, has not been dominated by the two-stroke engines.

With a bore of 260 mm and stroke of 980 mm, the new model in the ultra-long-stroke S-MC Series will offer outputs of 950 to 3,970 bhp from 4- to 8-cylinder in-line units capable of burning poor quality heavy fuel having a viscosity of up to 700 cSt at 50° C.

During the design stage, special attention was paid to all details, dimensions, and weight. This has resulted in an extremely compact installation offering a highly attractive, easy to maintain alternative to traditional four-stroke engine propulsion plants.

Like other models in the MC program, the S26MC will be available in power-optimized MC or fuel-optimized MCE versions with exactly the same dimensions. The S26MC will deliver an output per cylinder up to 495 bhp at 250 rpm on a mean effective pressure of 16.8 bar. The S26MCE has a rating of up to 395 bhp per cylinder at the same speed, but on a mep of 13.4 bar.

The large layout area offers flexibility with ratings down to 237 bhp per cylinder at 188 rpm. Specific fuel consumption at maximum continuous rating ranges from 124 to 126 grams per bhp hour for the MCE versions and 126 to 130 g/bhph for the MC version, with minimum part-load returns of 123-125 g/bhph and 125-129 g/bhph, respectively.

The S26MC is introduced as a logical development of MAN B&W Diesel's successful L35MC Series, until now the smallest-bore model of its kind in the low-speed, uniflow-scavenged, two-stroke engine sector. The 350-mm bore design made a swift and enduring impact from its introduction in 1981, winning numerous references within the propulsion market traditionally confined to geared medium, four-stroke engines and Japanese low-speed, trunk piston machinery.

Excellent service experience is reported from L35MC installations in small general cargo ships, tankers, reefers, chemical carriers, colliers, feeder containerships, and large trawlers. Operational benefits attracted the specification of a twin 9-cylinder L35MC propulsion plant for the Moroccan car/passenger ferry Marrakech recently delivered by Alsthom's St. Nazaire yard, and 7-cylinder engines for small LPG carriers being built in West Germany for Brazilian owners.

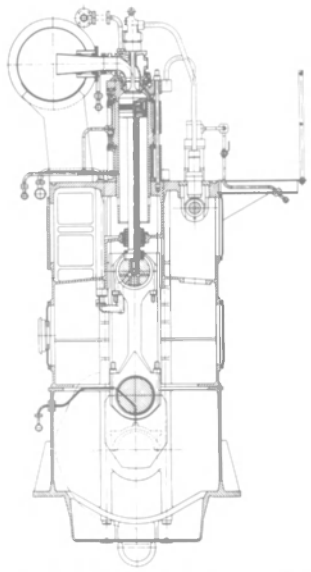
The S26MC aims to strengthen MAN B&W Diesel's hold on this important sector of the international market and allow operators of medium and small ship types—oceangoing, coastal, and inland—to exploit the commercial and technical benefits of the low-speed crosshead engine.

Full support from design engineers with vast experience in designing engine room layouts and complete propulsion systems is available to operators and shipyards from the MAN B&W Diesel organization, and may assist in layouts, specifying and/or supplying related equipment packages, and smoothing installation procedures. The package can be tailored to the individual project and embrace pumping, cooling, and fuel treatment modules, propellers, shafting stern tubes, alarm systems, and instrumentation. Electrical power may be supplied via a power takeoff for a standard engine-driven generator.

As an example of compactness, the 4-cylinder model will have an overall length of just over 3 meters, a height from the crankshaft center line of 4 meters, a minimum overhaul height requirement of only 4.4 meters, and a dry weight of 27 tons.

Features that make the S26MC an attractive alternative are: low fig-

S26MC CROSS SECTION



ures for specific fuel oil consumption; low figures for specific lube oil consumption; secure operation on heavy fuel oil; high reliability; low maintenance costs; and low noise level. Tests on a prototype 6S26MC engine are scheduled to start in Copenhagen in October this year.

Said to be the smallest two-stroke uniflow diesel engine of its kind, the S26MC is based on more than 50 years of experience in uniflow design, and is backed by a worldwide service organization.

The new 260-mm-bore engine shares the basic design philosophy of other models in MAN B&W Diesel's market-leading MC Series, which now embraces eight bore sizes up to 900 mm. The overall range can now meet single engine output applications from 950 to 64,320 bhp.

For additional information and free literature on the new S26MC engine series,

Circle 85 on Reader Service Card

Ulstein Introduces New High-Lift Type Rudder

Ulstein in Norway recently unveiled a new high-lift rudder that combines the best features of various known rudder types and provides higher lift at large rudder angles compared with conventional flap type rudders. The new rudder is said to provide an exceptionally good effect for vessels that require high rudder forces at low speeds such as tugboats, trawlers, anchor-handling vessels, etc.

An important advantage compared with other high-lift rudders is that the Ulstein unit requires only the conventional 2 by 45-degree steering gear. The rudder gives improved rudder effect with low energy losses, in particular during trawling and at low speeds. At the same time, the transverse forces are reduced for small rudder angles, thereby reducing the chasing at cruising speeds.

The new Ulstein high-lift rudder is being marketed by Ulstein Trading Ltd. A/S, with sales offices and agents worldwide. The Norwegian firm is represented in the U.S. by Ulstein Inc. of Kenner, La., and in Canada by Ulstein Maritime Ltd. of Burnaby, B.C.

With this new high-lift rudder added to its product line, Ulstein is in the position to provide all the major equipment for the propulsion and maneuvering of a wide range of vessels.

For further information on the new high-lift rudder,

Circle 142 on Reader Service Card

Navy Awards Sub Contract Worth $6.4-Million To Portsmouth Naval Yard

Portsmouth Naval Shipyard, Portsmouth, N.H., is the successful offeror in a competitive test program between public and private sector shipyards for the Selected Restricted Availability (SRA) of USS City of Corpus Christi (SSN-705). Portsmouth Naval Shipyard is being assigned the selected restricted availability on a firm-fixed-price basis. The target price for this effort is $6,382,087. Work will be performed in Portsmouth, and is expected to be completed September 30, 1987. The Naval Sea Systems Command, Washington, D.C., is the requiring activity.

Marinette Marine Awarded $51.8-Million Navy Contract To Build Another MCM

Marinette Marine Corporation of Marinette, Wisc., has been awarded a $51.8-million contract by the Naval Sea Systems Command for construction of one additional mine countermeasures ship, the MCM-7. Marinette previously was awarded Navy contracts totaling $88 million for construction of two other ships of this class, the Defender (MCM-2) and the Champion (MCM-4). Both of these vessels are currently well advanced in their construction, with the Defender scheduled for delivery in 1987 and the Champion in 1988. The MCM-7 is scheduled for the fall of 1989 delivery.

This Avenger Class is the first new mine countermeasures ship developed by the Navy in nearly 30 years. It represents one of the most sophisticated and capable ships of its type ever built in the world. The ability of the MCM ships to hunt, neutralize, and sweep mines in U.S. waters and overseas areas, including all potential sea lane choke points, will provide U.S. naval forces with a formidable defensive platform.

The MCM ship is 224 feet long with a beam of 39 feet, and displaces approximately 1,200 long tons. The ship is constructed entirely of wood. This wood structure is a combination of laminated oak framing, Douglas fir planking, and Douglas fir deck sheathing. The superstructure is a combination of laminated and solid woods. The entire ship is covered with GRP fiberglass for environmental protection.

Marinette will build the newly contracted MCM in its $7.1-million Ship Erection Facility that was designed and built specifically to accommodate the MCM ship construction program. Utilizing the expansive twin fabrication bays, two MCMs can be completed prior to being moved to the waterfront for launching.

The new MCM ship contract award will provide a continuation of employment for the Marinette personnel currently working on the program.

Dennis Hall Joins Carrier Transicold As Senior Vice President

Carrier Transicold recently announced the appointment of **Dennis J. Hall** as senior vice president. Mr. **Hall** will be responsible for operations, quality assurance, purchasing, and sales and marketing of container and truck/trailer products. He will report directly to Carrier Transicold president **Stephen Munn.**

Carrier Corporation is a subsidiary of United Technologies, a broad-based designer and manufacturer of high technology products.

Raytheon Signs Sales Agreement With YEW —Literature Available

Raytheon Marine Company's marketing manager, **Carsten Peters,** has announced that Raytheon has signed a comprehensive distribution agreement with Yokogawa Hokushin Electric Corporation (YEW) of Japan.

YEW is one of the world's leading manufacturers of gyrocompasses, electromagnetic speed logs, adaptive autopilots, and main steering stands for merchant shipping vessels. Raytheon has exclusive distribution rights for these products in the U.S., Canada, Western Europe, Central and South America, and the Middle East.

The agreement with YEW enhances Raytheon's capability to offer complete bridge systems which interface with Raytheon navigation and communication equipment. Marine electronics produced and distributed by Raytheon Marine Company include: radar, VHF and SSB radiotelephones, Loran-C, Satnav, SatCom, echo-sounding depth indicators, chart recorders, color fishfinders, net sounders, weather facsimile receiver/recorders, autopilots, Doppler speed logs, loudhailers, and GPS.

Larry DeGraff, product line manager, Raytheon Seattle office, will coordinate distribution of the YEW line.

For free literature on the marine electronics produced and distributed by Raytheon,

Circle 129 on Reader Service Card

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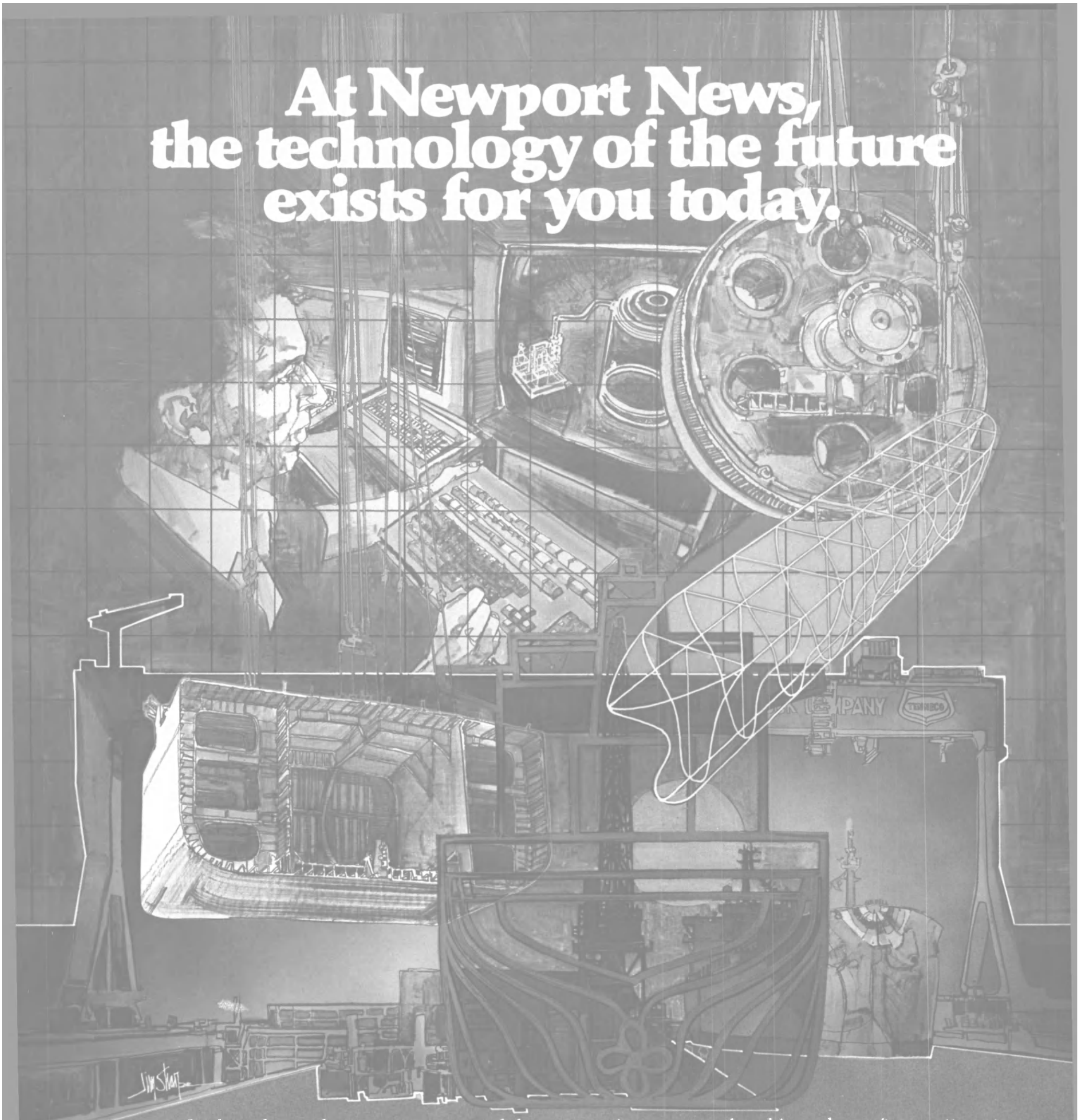

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Circle 166 on Reader Service Card

Deck Machinery And Cargo-Handling Equipment —A Review—

With current daily operating costs totaling many thousands of dollars, ships must keep port time to a minimum for cost-efficient operations. Therefore, reliable and efficient cargo-handling gear, deck machinery, access equipment, and stowage systems are essential for a fast turnaround.

MR/EN asked the manufacturers and distributors of this type of shipboard and shoreside equipment to tell us about their latest developments. The review that follows is based upon the responses we had received at press time.

Free literature describing all of the equipment featured in this review is available from the manufacturers.

FOR MORE INFORMATION

If you wish to receive more information and brochures on any of the products described, circle the appropriate number(s) on the postage-paid Reader Service Cards that are bound into the back of this issue.

APPLETON MARINE

Circle 10 on Reader Service Card

Appleton Marine cranes have been specified for use on 16 high-speed patrol boats for the U.S. Coast Guard currently under construction at Bollinger Shipyard in Lockport, La. These telescoping-boom units have a capacity of 1,750 pounds at a maximum working radius of 18 feet, and feature a 7-foot boom extension.

These cranes also feature an operational capability with full load at 15-degree list while maintaining a 6:1 structural safety factor. Other features include dual electrohydraulic controls (local and remote), stainless steel cylinder rods, 50-fpm winch line speed, combination steel/aluminum construction for maximum weight savings, and an electrohydraulic power unit with an axial piston pump for low heat build-up.

An articulated-boom crane rated 4,900 pounds capacity at 25-foot working radius is being installed on all 10 Torpedo Weapons Retrievers being built for the U.S. Navy at Marinette Marine in Marinette, Wisc.

A full line of API/ABS rated cranes in telescoping or box boom configurations ranging from 4 to 100 tons capacity is available. All Appleton cranes feature 360-degree continuous-swing rotation, stainless steel fasteners, exposed valve spools of stainless steel, and a four-step inorganic zinc based marine coating system. A wide variety of options is also offered.

Appleton's towing and anchor-handling winch line features 10 models ranging in capacity from 50,000 to 660,000 pounds line pull. These diesel-driven units are available in waterfall or side-by-side double-drum configuration.

Special-application cranes and winches are also available to meet the requirements where off-the-shelf equipment will not do the job.

Appleton Marine is a division of Wartsila-Appleton, Inc. located in Appleton, Wisc.

ASEA

Circle 11 on Reader Service Card

ASEA, Inc. of White Plains, N.Y., markets it Optitrim system that is designed to help plan cargo loading, fuel oil and freshwater bunkering, and the correct positioning of ballast in order to obtain maximum fuel savings. The company reports that this system will increase operating efficiency substantially, reduce costs, and pay for itself in less than a year.

The Optitrim indicates the most efficient mode of operation at every speed and load condition, showing basic optimum and actual figures. It can calculate cargo in each hold in percent, volume, or weight. The unit provides optimum trim calculations when the estimated average speed is used as input. It then calculates the optimum trim for the mean draft and presents the optimum fuel savings in tons per day when the ship is retrimmed to its optimum.

The operator can shift cargo from one hold to another and immediately read off the differences in fuel savings by doing so. Every factor that affects the trim is taken into consideration.

BEEBE

Circle 12 on Reader Service Card

Beebe International, Inc. of Seattle recently introduced three new capacities to its Force-5® Series of air winches that were originally introduced in 1985. The new ½-, 1-, and 10-ton winches, along with the original FA2, 5, and 7, now bring a full range of capacities to the industry.

Said to be the only all-steel winches suitable for worldwide use in temperatures as low as -30° C without modification, these new Beebe units are rated full drum with a 5:1 safety factor that provides assurance of continuous duty and power regardless of layer.

The Force-5 Series air winches are capable of precise load spotting through an optional oil bath disc brake that lasts virtually the life of the winch. All models are either fully type-approved or currently under review by the American Bureau of Shipping, Det norske Veritas, and Lloyd's Register of Shipping for general utility and Man-Rider® service.

Beebe sales and service are available worldwide.

BLUE STREAK

Circle 14 on Reader Service Card

A line of lightweight marine cranes said to offer heavier lift capacity, increased reliability, reduced maintenance, greater safety, longer component life, and smoother operation is available from Blue Streak Industries of Pearlington, Miss. These pedestal-mounted, lattice-boom cranes are designed for use on offshore rigs and platforms, workboats, and ships. The series includes units with lift capacities from 25 to 100 tons.

The improved capabilities are attributed to the use of computer-aided design, a closed-loop hydraulic system, and the use of the highest quality components and equipment. Closed-loop systems employ a continuous hydraulic loop from pump to motor to pump, which provides precise control similar to that provided by diesel-electric systems.

Prior to now, continuous-loop hydraulic systems were not in general use on cranes because of higher initial costs and purported greater maintenance expense. Blue Streak's experience in building and operating a large fleet of self-elevating liftboats utilizing both open- and closed-loop systems indicated that the latter could improve performance while reducing overall maintenance costs. The company's engineers overcame the higher costs by developing an improved oil filtration system that effectively removes contaminates from the lines, thus reducing maintenance and lost revenue due to vessel downtime.

After the closed-loop system had proven itself on self-elevating rigs weighing up to 325 tons, it was adapted for use on Blue Streak's latest cranes. The first production model, a 75-ton-capacity crane, has been working flawlessly on the Gulf Island V, one of the world's largest liftboats, since early last year.

While perfecting the closed-loop system, Blue Streak's engineers extended the service life of their cranes by using components not normally found on cranes of this type. Superior quality components such as Hagglunds high-torque, low-speed motors, Rexroth pumps, and EEM controls are used. All units are designed and built for the corrosive offshore environment. They are protected from salt water by the use of galvenized metals, waterproof fittings, and marine coatings.

Blue Streak provides 24-hour service by the same technicians who build the cranes.

BRADEN

Circle 15 on Reader Service Card

Braden Cargo Gearmatic, winch divisions of PACCAR, a major supplier of performance-proven winches to the offshore and marine crane industry, have introduced two winches in their PD (Power Drum) series of hydraulic planetary winches.

The PD7A and PD12C (7,500 and 12,000 pounds rated capacity, respectively) feature highly efficient, computer-aided designed gear sets supported on anti-friction bearings that run in oil to minimize frictional losses and reduce downtime. Load control, when lowering, is maintained by the patented Braden brake valve known for its smooth performance and easy adaption to almost any hydraulic system. This brake valve is backed up by an internal, automatic multi-disc spring applied/hydraulically released safety brake. An over-running brake clutch permits free rotation through the brake while hoisting, but immediately locks when the hoisting operation is complete. The load is held firm even if the engine dies or a hydraulic line breaks.

Maximized commonality of parts in the PD Series winches, along with the PR Series swing drives, results in lower parts inventories to support marine crane service.

JERED BROWN

Circle 16 on Reader Service Card

Jered Brown Brothers is a major supplier of deck machinery and other marine equipment worldwide. Products include anchor windlasses and capstans, non-magnetic minesweeper deck machinery, cranes, steering gears, elevator systems, main thrust bearings, and line shaft bearings. Jered equipment is specified on FFG 7, CG 47, LSD 41, LHD 1, MCM 1, T-AO 187, T-5, and CVN Class vessels and many other commercial ships.

In addition to providing equipment on new ship construction, Jered provides spare parts and maintenance on deck machinery in service. Jered has engineering drawings and parts for equipment manufactured by American Engineering.

C.H. Wheeler, Baldwin-Lima-Hamilton, and Jered Industries.

CATERPILLAR

Circle 17 on Reader Service Card

A new container-handler lift truck with a maximum capacity of 79,000 pounds at 48-inch load center has just been announced by Caterpillar Industrial Inc. of Mentor, Ohio, as subsidiary of Caterpillar Inc.

Like the Cat V800 and V925 container handlers, the new V900CH handles 20 to 40-foot boxes 8 to 9½ feet high, and stacks them up to four high. Like other Cat container handlers, the V900 incorporates components proven durable in Caterpillar earthmoving and mining equipment.

The V900CH is powered by the Caterpillar 3208T diesel, a 208-bhp turbocharged engine that has proven itself reliable in more than 300,000 applications worldwide. Its low-friction design provides economical fuel consumption, and its high torque rise provides power for quick acceleration and hydraulics.

Power train components used in their Cat equipment include the planetary power shift transmission and oil-cooled disc brakes. The four-speed forward and reverse transmission meets the varying load and travel conditions required in handling containers and other heavy, wide loads.

Oil-cooled disc brakes provide significantly more braking surface than standard show-type or dry caliper disc brakes. The brakes respond quickly and operate coolly.

Another Caterpillar exclusive is the integral steer axle/counterweight. The entire rear section of the lift truck oscillates about the main frame, providing a low rear profile, good stability, high visibility, and a smooth ride.

The spacious cab features pilot-operated hydraulic controls for easy operation and precise control. The operator has optimum all-around visibility for maximum production.

The expandable container-handler spreader is backed by Caterpillar's extensive worldwide parts and service support. Fifteen Cat lift truck parts distribution centers and more than 340 dealer locations in the U.S. and Canada provide support.

CLYDE

Circle 18 on Reader Service Card

A division of AMCA International of Milwaukee, Clyde manufactures equipment for handling heavy components, mooring and vessel positioning systems, and bulk-handling stevedoring cranes.

A new Clyde product is an improved linear winch available with intermittent or continuous motion. These hydraulically operated winches maintain a constant line pull and are very compact. Controls may be fully automated (programmable) or manual. They can accommodate wire rope sizes from 1 to 12 inches.

Offshore applications include: large mooring systems where the linear winch must withstand the breaking strength of the wire rope; pipe pulling and J tube completion; precision lowering of large loads such as drilling templates, especially at great depths where cranes cannot reach; permanent mooring installations using 8- to 12-inch wire rope; offshore construction jobs; and other sites where large, rigid modules must be repositioned, rotated, or moved without being lifted. Other applications include pre-tensioning of anchors and documentation of the operation with the help of strip recorders.

In underwater pipe pulling, a French company positioned a Clyde linear winch under water where it pulled both a trenching plow and the pipe, following a pre-laid cable offshore, to the beach. This operation eliminated the need for a lay barge, cutting costs greatly.

For fabrication yard use, a new

(continued)

Circle 152 on Reader Service Card ▶

(continued)

Gulf Coast project will utilize Clyde linear winch systems to facilitate the erection of large offshore jackets. Previously, conventional cranes were used to accomplish the roll-ups and joining of jacking components. The linear winches are said to provide a more economical method with precise control of all operations.

In Australia, Clyde linear winches will soon be used to guy an offshore structure. The winches will pull on 5-inch cable and generate a line pull of 1,700,000 pounds.

Clyde recently supplied a new concept, 5,000-ton-capacity shear-leg derreck that can be skid-mounted onto a barge and self-erects/de-erects. These features are said to make it ideal for shallow water operation and movement under bridges. It is a very economical lifting tool, and existing non-utilized barges can be employed.

For coal and grain handling, Clyde has cranes that are outfitted with high-speed hydraulic swing and a large diesel power package to produce extremely quick cycle times (approximately 50 seconds). The bucket gross loads vary from 40,000 to 120,000 pounds. They can be handled at a radius capable of reaching the center of a 125,000-dwt collier. This reach capability is assisted by the unit's raised boom heel (in some cases more than 23 feet above the rotating deck), which allows clearance over the ship's coaming. Operators are further assisted by the high elevation of the operator's cab, allowing good visibility of both barge and ship's hold. Though barge-mounted, these cranes have been sold as stationary (tub mounted) or traveling (gantry mounted) units.

CONMACO

Circle 19 on Reader Service Card

Amcon air-controlled hoists are an exclusive with Conmaco, Inc. of Kansas City, Kan. The flagship of the line is the Amcon 6250, which handles up to 12,000 feet of 3-inch wire rope.

Another member of the 7-hoist Amcon lineup is the Amcon 150. This versatile hoist will handle wire rope up to 1-inch and delivers up to 35,000 pounds of line pull. It has proved itself to be well-suited for anchor-handling applications on small vessels and supply boats, or for mooring small barges on inland waterways.

Conmaco also has introduced a line of deck-mounted fairleaders, each with the rugged construction to withstand the breaking strength of indicated wire rope. Bearings in the barrel and sheaves are engineered for long life and dependability, even under rapid or severe changes of lead.

New to the Amcon line of winches is the 20C hydraulic winch with a line pull of up to 40,000 pounds (1-inch wire rope) and spooling capacity of 1,434 feet. An important feature of this winch is that each drum is fitted with a friction clutch allowing the drums to "free wheel" independently.

In addition to a full line of air-controlled winches, fairleads, deck guide sheaves, and chain handling equipment, Conmaco also offers rental, sales, and service on hydraulic continuous pull machines with CPL as high as 1.5 million pounds.

CROSBY GROUP

Circle 20 on Reader Service Card

A 180-page, full-color catalog is available from The Crosby Group, a Division of Amhoist, which is comprised of Laughlin®, Lebus®, McKissick, National, and Western. The companies manufacture every conceivable kind of fitting and accessory for deck machinery, cargo handling and other applications, including forged fittings, hooks, blocks, sheaves, pulleys, load binders, chain, etc. The catalog describes all of the products of all divisions in full detail with photos, detailed drawings, all measurements, and full specification charts.

McKissick products, a division of the Crosby Group in Tulsa, Okla., now has new roll forged sheaves available in the most complete range of sizes from 12 through 72 inches. The sheaves are an ideal choice for original equipment in self-unloading systems and as replacements.

McKissick sheaves are forged from controlled quality 1035 carbon steel which provides excellent welding and flame hardening characteristics. All incoming steel is tested by chemical and spectrographic methods to insure consistently high quality.

Steel sheaves have excellent flexibility when choosing bearings and also provide better cold weather properties than nylon sheaves.

Crosby links and rings are manufactured in a complete line of sizes and types for almost any application, with working load limits from 1,600 to 232,500 pounds.

Lebus products include lever and ratchet type load binders, grab hooks and tail chains, snatch blocks, and hook latch kits. McKissick specializes in custom designed blocks to any specification, oil field blocks, crane and hook blocks, overhaul balls, swivel hooks, and snatch blocks, as well as many other products. Western manufactures sheaves and sleeves, wood and steel blocks, and cargo blocks and fittings, just part of its extensive product line. National's product line includes steel swaging sleeves, duplex sleeves, swage buttons and furrules, as well as swaging presses in capacities from 500 to 3,000 tons.

EMMI-PUSNES

Circle 21 on Reader Service Card

Pusnes was founded in 1875 as a shipyard and started deck machinery production in 1890.

Today, Pusnes is one of the few companies in the world concentrating on the development and manufacture of all types of deck machinery for mooring systems used on a broad range of floating equipment. When you board a 540,000-dwt ULCC you will find Pusnes steam deck machinery. Looking closer at the windlass on any of these large tankers you will notice up to 1,000-hp disc brakes used to drop the anchors under finger tip control. Visit a semisubmersible on a drilling station and you will find Pusnes mooring systems for chain, chain-wire combo, or all-wire and moored in depths up to 3,500 feet. Systems for greater depths and hostile environments are under development today.

Pusnes also manufactures mooring equipment for smaller coastal ships, barges, tugboats, off-shore supply boats, pipe-laying barges, and similar vessels.

Minimum crew and safety are Pusnes trademarks. The unique roto-bollard for mooring rope handling is a typical innovation.

Mooring systems for chain, cable, and rope employ steam, electric, or hydraulic drives. The equipment can be local or remotely controlled and, when necessary, the mooring forces constantly monitored.

Pusnes is part of "SUBTECH" Norway, a firm developing complete diving systems which employ diving bells, underwater vehicles, bell winch systems, divers gas recovery systems, external life support systems, and the "Hyperbaric" saturated divers lifeboat. Concern for offshore personnel resulted in the development of "Pudes," the controlled extendable protected gangway for dry evacuation.

Pusnes has a joint venture company in Japan, Nippon-Pusnes, and both are represented in the U.S. by EMMI Corporation of Flemington, N.J.

FMC/LINK BELT

Circle 22 on Reader Service Card

A 22-page full-color guide describing Link-Belt's crane and excavator line is being offered by FMC of Bannockburn, Ill.

The guide discusses FMC's crane operations, engineering and research programs, and the manufacturing and testing programs for structures and components. Within each of eight categories of Link-Belt cranes, such as pedestal mounted hydraulic offshore cranes, is a model number and specifications. The specifications include capacity stated in tons and metric tons; capacity at 50-foot radius; maximum crane boom; main drum line pull/line speed for three speeds; and overall length, width, and working weight.

FMC has added a 33-ton (29.93 mt) capacity API-65 to its Seahawk series of Link-Belt® hydraulic offshore cranes. The lightweight 25,000-pound API-65 is specially designed to perform all the material, equipment, and personnel lifting required on offshore oil production platforms and drilling rigs, and meets API-2C (1982) specifications.

The API-65 features pin-connected components that permit fast modular erection and easy maintenance. The heaviest component weighs just 7,200 pounds. The compact design features a 7-foot 7-inch tailswing with onboard engine and cab, and an overall height of 14 feet 7 inches reducible to 8 feet.

A maximum API rating of 34,200 pounds is achieved with a 50-foot boom at 30-degree radius, best in its class. Superior load handling speed is provided by a matched engine, 3-section pump and winch combination that develops 300-450-fpm

maximum line speed with 12,600-pounds maximum line pull on main or auxiliary drums. A horsepower limiter prevents engine stalling due to excessive loads.

FRITZ CULVER

Circle 23 on Reader Service Card

Fritz Culver, Inc. of Covington, La., manufactures a wide variety of deck machinery serving virtually every aspect of the marine market. Established in 1979, the company enjoyed immediate success in the Gulf Coast area for designing and producing rugged, dependable equipment.

Typical products include anchor windlasses, capstans, tugger winches, stern rollers, cable/chain stops, cable reels, and anchor-handling and towing winches. All equipment, except the low-pressure, anchor-handling/towing winches are completely designed in-house. Culver is the U.S. licensee of A/S Hydraulik Brattvaag, which has a complete line of low-pressure deck machinery for cargo ships, fishing vessels, and offshore structures.

Culver has introduced an upgraded deck machinery line to meet the requirements of larger vessels being built to service and handle the deepwater drilling rigs. Included in this line are stern rollers, anchor windlasses, hydraulic tuggers, capstans, tow pins, cable/chain stops, and cable reels. For the most part, the basic design was not changed but the size of the components increased to facilitate handling of larger size wire and chain and the loads imposed by them.

A specialty product that is typical of the Culver line is the Remotely Operated Vehicle (ROV) winch used by the diving companies. It is a completely self-contained system for deploying and retrieving the unmanned submarines used for inspection, maintenance and construction of underwater components. To date, Culver has delivered five "one-of-a-kind" units to the diving industry.

GEARMATIC

Circle 24 on Reader Service Card

With consolidation completed in 1985, Braden Cargo Gearmatic winch divisions of PACCAR continue to provide the marine industry with state-of-the-art, high-efficiency, hydraulic planetary winches.

The Gearmatic Model GH7 is an example of the new family of tested, proven, compact winches available as equal speed (pays in and hauls out at the same speed) and high-speed reverse (automatically pays out at three times the haul-in speed) models. Features such as the multiple-disc brake and the entire gear train supported by anti-friction bearings running in oil, are said to make this winch an excellent choice for all types of marine applications.

Other Gearmatic products for the marine industry include the 30 and 40 Series of planetary winches that offer a wide selection of cable drum configurations, gear ratios, and hydraulic motor sizes that adapt these winches to a wide range of applications.

Gearmatic hydraulic planetary winches are available with bare drum line pulls up to 44,000 pounds and line speeds up to 520 feet per minute. Ease of operation and maintenance will continue to be trademarks of Gearmatic, now with more than 40 years of quality winch manufacturing experience.

HAGGLUNDS

Circle 25 on Reader Service Card

AB Hagglund & Soner of Ornskoldsvik, Sweden, the world's biggest manufacturer of deck cranes, has together with its licensees delivered more than 5,000 cranes during the past 25 years. This market leadership was enhanced recently with the introduction of new cargo-handling aids that offer even better productivity.

Development of Hagglunds deck cranes has proceeded steadily from the small three-tonners first delivered in the early 1960s to today's advanced 50-ton cranes with outreach sufficient for the biggest ships, and automated cargo-handling aids. However, the accent is not solely on increased capacity. The range of the slimline L Type introduced about two years ago was recently extended to encompass fast single-wire units for SWLs down to eight tons.

The range offered by Hagglunds is the most extensive on the market, extending from eight to 50 tons SWL. Types for cargo handling are now as follows:

L-1 cranes, 8-30 tons, for very fast cargo handling (line speed in excess of 164 feet per minute), particularly suitable for smaller types of vessels.

L-2 cranes, 36-40 tons, specially suitable for container handling. Has compact installed dimensions for maximum container capacity onboard, yet all machinery is fully enclosed and access is internal.

G-2 cranes, 25-50 tons, are the world's most popular deck cranes, used for both bulk and unit cargoes.

K-4 cranes, SWL 25 tons, are bulk cargo cranes for use with grabs. Reinforced, high-output units are built for 24-hour operation.

Twin cranes—Types L-1, L-2, and G-2 can be installed in pairs for optional operation as a single crane with doubled capacity.

Hagglunds' technology is most appreciated where conditions are most severe. The cranes have been widely adopted for use in Arctic environments, a field in which the company has gained wide experience, with units now working in temperatures as low as −58° F. Dynamic load situations encountered in cargo handling in the open sea represent another area in which Hagglunds has special expertise. The development of a range of offshore cranes was a natural application of this experience.

Hagglunds Drives Division offers advanced concepts in hydraulic drive systems for deck machinery in the marine and offshore industries. Besides winch systems of all types, Hagglunds hydraulic motors of the low-speed, high-torque type are employed in platform jacking systems, pipelaying equipment, and vessel propulsion systems.

HARNISCHFEGER

Circle 26 on Reader Service Card

The Construction Equipment Division of the Harnischfeger Corporation in Cedar Rapids, Iowa, offers the Model 2080 planetary winch, with unique CAD/CAM optimized-design features. This winch is said to be suited for inland marine applications such as dredges, cargo winches, or lock mules, as well as standard marine uses such as offshore drilling platforms, commercial fishing rigs, and cargo handling.

The unit features high-strength castings, including a one-piece frame with dual tie-bar supports. This special Harnischfeger engineered design promotes precise component alignment and provides rigid, lightweight drum support. It also helps minimize deflection under load and prevents binding of the drive train.

The winch is designed primarily for use with ¾-inch wire rope with the following ratings: ¾-inch rope at 3.5 to 1 rope safety factor and 23+PD/d, with 1,154 feet of rope capacity on seven working layers; ⅞-inch rope at 5 to 1 rope safety factor and 20+PD/d, with 848 feet of rope capacity on six working layers. The maximum first layer line pull is rated at 24,000 pounds with first layer line speeds greater than 250 feet per minute.

The winch's brake is located on the drive shaft opposite the hydraulic motor where it is not subject to the fatigue cycles of lifting and lowering loads. This improves reliability of the braking system and allows easier brake servicing.

To verify brake reliability, the Model 2080 was cycle-tested through one million actuations at the Technical Center. Post-test evaluation of the unit showed no signs of slippage, leaks, fatigue cracks, heat discoloration or significant wear.

HATLAPA

Circle 27 on Reader Service Card

Established in 1919 at Uetersen, about 18 miles north of Hamburg, Hatlapa Uetersener Maschinenfabrik GmbH now manufactures products exclusively for the maritime industry. Exports account for about 60 percent of production, and Hatlapa has a worldwide network of service stations. The company is represented in the U.S. by Arnessen Corporation.

Technical development at Hatlapa has been directed into five major product categories: deck machinery, compressors, evaporators, steering gears, and transverse thrusters. The idea of five products from one source is said to allow shipyards to cut costs during the planning and installation phase.

A considerable share of Hatlapa's production comprises ship-moving and cargo-handling deck machinery, the greater part of which involves ship-moving deck machinery under the categories of anchoring and mooring equipment consisting of windlasses, capstans, automatic and non-automatic winches, combined windlasses and mooring winches, anchor capstans, towing winches, and anchor-handling/towing winches.

Recent developments include an 8-ton anchor/mooring winch mounted on a compact bedplate on

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which the hydraulic pump sets are installed. This eliminates extensive piping from hydraulic pump sets installed below deck to deck winches. All winch functions can be controlled remotely from the bridge as well as the winch. The windlass is combined with a roller chain stopper for 50-mm stud link chain. This unit allows an automatically controlled lowering of the anchor at a constant speed.

Also new in Hatlapa's production program are the freshwater evaporators of the Atlas Bremen type designed for freshwater production of 3.9 tons per day. The range of evaporators offered by Hatlapa provides a daily capacity of up to 100 tons.

The company's series of 4-cylinder, ram-type steering gears with built-in rudder carrier has been extended. The new type R4L 380 steering gear is designed for a rudder stock diameter of 160-380 mm having a split type rudder carrier, easily accessible for servicing.

To supplement its series of 3-stage, air-cooled compressors, Hatlapa has introduced the new type L75/L95 for capacities of 60-110 cubic meters per hour.

In the face of increasing competition in the shipbuilding industry, Hatlapa supports shipyards and owners by fast and detailed submitting of bids, using word processing for preparation of individual offers.

HIAB CRANES

Circle 28 on Reader Service Card

With its exceptional freedom of movement provided by the "knuckleboom" principle, the 110 Sea Crane from HIAB Cranes & Loaders, Inc. of New Castle, Del., has proven very successful on a number of documented cargo- and material-handling applications. These cranes are currently in worldwide use on many types of tugs, supply vessels, icebreakers, dredges, barges, research vessels, buoy- and light-tending boats, firefighting vessels, diving support craft, and oil pollution recovery boats.

When compared with stiff-boom cranes and derricks, the knuckleboom crane is said to offer a wide range of desirable features for shipboard use including precise load handling, extra capacity and reduced reach, total overload protection, minimal storage and mounting space, and an abundant work area coverage.

Because of the flexible elbow or "knuckle," the HIAB 110 crane has a low operating height. This feature prevents the crane from interfering or entangling with the vessel's rigging or other overhead obstructions. The simple but effective design, the sophisticated use of corrosion-resistant materials in its construction, and the high-pressure hydraulic system makes the 110 crane lighter in weight than conventional cargo-handling units; this weight difference also permits a bigger cargo payload.

Designed specifically for use in the saltwater environment, the HIAB 110 is constructed with galvanized components, waterproof fittings, nickel/chrome-plated boom cylinders, and is protected further with special marine coatings for maximum corrosion resistance. Compact in design and extremely maneuverable, the 110 can be operated by one man.

The crane also incorporates a proprietary one-piece control valve that provides smooth, responsive, and exact crane movements. Pilot-controlled check valves inside the control valve hold the boom and load dead still in position, even over extended time periods. The HIAB 110 also features built-in protection against overloading and line failure. Every valve function has pressure-relief valves that prevent lifting should the load be too heavy. Hose-failure valves on the inner and outer boom clyinders immediately arrest the lowering movements if any of the lines should fail.

A.C. HOYLE

Circle 29 on Reader Service Card

The A.C. Hoyle Company of Iron Mountain, Mich., has been a major supplier of deck machinery to the marine industry for about a quarter of a century. The company offers a complete line of deck equipment including anchor windlasses, constant-tension mooring winches, topping and vang winches, towing winches, fairleads, chocks, and bitts to both the naval and commercial marine markets.

Hoyle was awarded the 14-ship minesweeper contract to supply all of the sweep deck machinery, including the hydraulic power units, magnetic cable reels, minesweep acoustic cable reels, and the magnetic cable reels, along with two stern cranes for each of the MCM ships.

Though equipment can be built to numerous standard designs, the company specializes in custom building to customer specifications. Hoyle personnel are available to assist customers from preliminary design stages through final design, installation, and testing. Major considerations are given to providing the best equipment available to meet customer requirements at affordable and competitive prices.

Winches, windlasses, capstans, and cranes are available with all-electric, electrohydraulic, hydraulic, static DC, or diesel drives. All deck equipment, including fittings is available in conventional steel construction as well as in stainless steel and aluminum. The company offers new technology in weight-saving designs, materials, and performance.

Non-magnetic deck machinery has now been introduced to the Hoyle product line under the Navy's Mine Countermeasure (MCM) ship program. Also, a new design of haulage winch is scheduled for delivery to the Army Corps of Engineers for installation at nine locks on the Mississippi River.

HYDE PRODUCTS

Circle 30 on Reader Service Card

Hyde Products, Inc. is a leading supplier of ship's deck machinery and steering gears, serving the marine industry since 1865. Originally founded as the Hyde Windlass Company in Bath, Maine, Hyde today is headquartered in Cleveland.

Equipment offered by Hyde includes complete steering systems, vertical and horizontal anchor windlasses, constant-tension mooring winches, cargo winches, special-purpose winches, capstans, mooring chocks, special pump systems, oil/water separators, and oil spill recovery equipment. While Hyde has a standard product line, custom-designed machinery is its specialty. Hyde equipment is installed on hundreds of naval, commercial, and fishing vessels, as well as on workboats and barges operating in the U.S. and throughout the world.

In addition to equipment manufacturing, Hyde offers replacement parts and service capabilities, and maintains complete microfilm files of original equipment drawings to provide replacement parts that exactly match original specifications. Hyde also offers deck machinery overhaul and refurbishing services. Experienced service personnel perform installations, repair, and overhaul work worldwide.

Hyde now offers replacement parts, service, and upgrades for Pine Tree Engineering Company-manufactured equipment as well, including anchor windlasses, capstans, and constant-tension mooring winches. Pine Tree designed and built equipment for a variety of vessels, notably the LASH and Seabee ships.

Among Hyde's more recently completed contracts are several received from the Korean Navy and Korean shipyards for steering systems, anchor windlasses, and capstans for a total of 19 frigates, corvettes, and other naval vessels. The steering systems supplied for 12 ROK corvettes included an electronic control system, eliminating the conventional differential control system. Hyde is currently supplying 10 additional shipsets of corvette steering systems and deck machinery through a Korean licensee.

Hyde is manufacturing the anchor windlasses and several types of refueling-at-sea winches for the amphibious assault ship Wasp (LHD-1) being built at Ingalls Shipbuilding for the U.S. Navy, and is actively involved in many other U.S. Navy and commercial projects, including upgrading steering systems to meet the new IMO redundancy requirements.

HYSTER

Circle 31 on Reader Service Card

Hyster Company of Danville, Ill., recently expanded its electric truck line with the addition of two counterbalanced models featuring a stand-up, end control design—the E30AR and E40AR lift trucks offering 3,000- and 4,000-pound lifting capacities, respectively. Three-wheel design helps these rear stand-drive trucks maneuver where space is limited.

These new lift trucks are designed for a variety of applications, and are suitable for handling metal prod-

ucts, paper products, motor vehicle parts, and other loads within their lifting capacity.

Features of the new E30–40AR trucks include: hydraulically powered steering for easy maneuvering in limited space; front wheel drive for excellent traction and maneuvering in tight spaces; an electronic control system that provides responsive acceleration, smooth forward/reverse directional change and electronic backing by using a single control handle; a choice of a two-stage freelift, or three-stage upright with lift heights up to 225 inches—all three upright configurations are designed to provide optimum operator visibility; operator compartment positioned off-center for improved visibility; a park brake that automatically engages when the operator's foot is raised from the pedal or when the operator leaves the vehicle; and easy service access through rear and top panels.

Hyster Company's network of industrial truck dealers, with more than 200 locations across the U.S. and Canada, offers these trucks with a variety of flexible financing packages.

INTERCON

Circle 32 on Reader Service Card

Intercontinental Engineering-Manufacturing Corporation of Kansas City, Mo., (INTERCON) is a diverse engineering and manufacturing organization with established product lines in marine winches, hoists, custom drives and controls, marine cranes, and dredging machinery.

INTERCON winches are sold and serviced worldwide for towing, mooring, and anchor-handling applications. Ocean tugboat winches range in capacity from 50,000 to 500,000 pounds; single- or multiple-drum configurations are sized for wire ranging from 1-inch to 3-inch diameter. Tug/supply boat winch packages include controlled-drop chain handlers, single-lever anchor drum control, towing pins, and stern rollers.

The company's exclusive water-cooled brakes with solid-state control are proved in handling anchors in ocean depths of more than 2,500 feet. Workboat deck machinery also includes a full line of windlasses and capstans ranging from 10 to 50 hp.

During the past 25 years, INTERCON has outfitted many of the world's pipelay and derrick barges with mooring systems, A&R constant-tension winches, and powered hose reels. Single line-pull capacity exceeds 900,000 pounds on the heavier winches for semisubmersible mooring service. Electric DC drives of up to 3,000 hp, including power supplies, are a specialty.

Marine cranes for shipboard and dock service are produced in various configurations, with hook capacities ranging up to 200 tons. Current contracts include six 36-ton twin cranes for cargo handling on U.S. Navy Auxiliary Crane Ships (T-ACS).

Manufacturing facilities in Kansas City encompass 125,000 square feet dedicated to fabrication, heavy machining, and assembly. Modern CNC machine tools include new horizontal boring mills with 60-foot travel capacity, 20-foot vertical lathes, and 40-foot planer mills. Shop and dock cranes with 200-ton capacity allow rail or barge shipment of completely assembled products. New CAD/CAM systems complement INTERCON's design and manufacturing services for the offshore industry.

ALMON A. JOHNSON

Circle 33 on Reader Service Card

A family-owned business incorporated in 1942, Almon A. Johnson, Inc. of Elizabeth, N.J., is well known in the marine industry. The company specializes in the design and manufacture of automatic towing machines and mooring winches. Its towing machine is said to be the only one on the market with fully automatic features. The company's constant-tension mooring winch is recognized by the industry for its unsurpassed dependability.

Design drawings for these units, as well as for the full line of deck auxiliaries manufactured by the company over the years, are maintained for the benefit of Johnson customers. A service organization is readily available. The company recently serviced a steering gear manufactured in 1938 that is still in operation.

The U.S. Navy specified the Johnson Series 322 automatic towing machine and the Series 400 traction winch for the four ARS-50 Class vessels being built by Peterson Builders in Sturgeon Bay, Wisc. These Rescue and Salvage Ships will be deployed for a variety of missions, including towing, diving, heavy lift, rescue, and other assistance work.

LIEBHERR

Circle 34 on Reader Service Card

To insure compliance with modern handling and lifting equipment requirements, Liebherr-Werk Nenzing GesmbH in Austria has been working with cargo-handling companies, shipping lines, and shipbuilders in recent years to develop a series of cranes matched to the specific operating requirements of such companies.

During the design stages, particular attention was paid to the full range of applications, ease of maintenance, and economy and high reliability for operation aboard ship.

For river and seagoing ships with a limited, fixed-point height, the crane type BW-S was developed. Until now, the restricted installation height on such vessels had prohibited operation of on-board cranes. The Liebherr BW-S folding crane has an installed height of only 650 mm when folded (stowed). These cranes are available with lifting capacities of 3-15 metric tons, and a radius of up to 49 feet. They have their own drive assembly and can be installed on hatch covers, on side-mounted columns, and inside hatches.

For seagoing ships with a beam of up to about 60 feet, the crane type is designated BW-SM. These loading cranes are of slim, low-height design, and feature a boom that pivots above the cab so that the operator has an unobstructed view of the work area. They have load capacities of 5-35 tons and radii of up to 72 feet. Among the special features of these cranes are their small external dimensions, achieved despite installation of the access ladder inside the tower. Containers spotted around the bottom section of the crane can still be loaded and unloaded in any order.

Crane type B-SM is designed for seagoing ships of all sizes. These cranes feature a tried and tested hydraulic ram luffing system. One of the advantages of this system is positive boom guidance, even at minimum radii. Both standard width and SM versions are available; maximum installed width of the SM version is just under 8 feet.

The lifting capacity of these cranes, installed as single or twin deck cranes, is between 15 and 40 metric tons. Single cranes of SM design are available at up to 80-tons rating, and in the standard width, up to 120 tons. With reduced lifting capacity, these cranes can be operated at a radius of up to 111.5 feet.

An alternative to the B-SM cranes is Liebherr's B-HP versions. This crane is designed for operation on ships with restricted headroom; overall installed height has been reduced by altering the boom pivot design. A further advantage of this design is the crane's lower overall center of gravity at any height. Lifting capacities and outreach of the cranes in this series are the same as for the B-SM versions.

MacGREGOR-NAVIRE

Circle 35 on Reader Service Card

Formed following the acquisition of MacGregor International by Kone Oy, of Finland, which already owned Navire Cargo Gear International, this new company is a major force in the area of cargo access equipment and systems.

Both partners have developed numerous designs of specialized equipment including, in the area of deck machinery, all manner of hatch covers. The range of covers designed vary from units for the largest bulk, OBO, and ore/oil carriers down to the smallest inland waterway vessel.

Recent innovations for folding covers on medium-sized vessels have included the self-engaging auto cleat and the gravity cover. The self-engaging auto cleat system uses angular interlocks, or wedges, on the cover side/coaming and at the cross joints to form the cleats. It has been incorporated in the "Direct Pull," "Foldtite," and "Foldlink" cover designs.

The entry into service of Atlantic Container Line's container-roll-on/roll-off (CONRO) vessel Atlantic Companion also marked the introduction of the first full outfit of MacGregor-Navire's StackCell weather-deck cell guide system. The new ship was built by Kockums for the account of Transatlantic AB, one of the three Swedish partners in the ACL consortium.

MacGregor-Navire lists the advantages of the new StackCell system as follows:

- Increased number of fully loaded containers that can be loaded in one stack.
- Wide flexibility in container stowing distribution.
- No loose lashing, twist locks, or joining cones required.

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- Elimination of any manual lashing.
- Risk of accidents minimized.
- No need for checking or retightening of lashing during sea voyage.
- Quicker placing or "spotting" of containers.
- Handling operations can start without any preparation or unlashing work.
- No waiting for intermediate lashing or work after completion.
- Easy and safe access to reefer containers.

These considerable advantages have been achieved after much preliminary design work and prototype testing carried out by the efforts and expertise of ACL, TransConsultants, and MacGregor-Navire.

The most obvious vessel that would gain maximum advantage from weatherdeck cell guides is the fully cellular containership. Other applications envisaged by MacGregor-Navire include the feeder ship, the bulk/container carrier, the open bulk carrier, and the whole spectrum of CONRO, RO/RO, and RO/LO designs.

MANITEX

Circle 36 on Reader Service Card

Manitex Inc., a subsidiary of The Manitowoc Company, Inc., designs, manufactures, and markets pedestal-mounted box-boom and lattice-boom cranes at a modern, two-plant facility near McAllen, Texas.

Ideally suited for dockside, marine, land-based, or pedestal-mounted applications, Manitex SeaCranes are constructed of marine-quality components, with complete material traceability available upon request. In addition, each crane features a versatile modular design to permit fast servicing and easy changeability of components from model to model.

The present family of Manitex SeaCranes includes four box-boom models: the 15-ton-capacity MB-300; the 25-ton-capacity MB-600; the 40-ton-capacity MB-1200; and the 60-ton-capacity MB-2400.

Manitex complements its box-boom cranes by offering six lattice-boom models, all available with full weather enclosures to permit operation in harsh environments. Current lattice-boom models include: the 25-ton-capacity ML-600; 45-ton-capacity ML-1200; 55-ton-capacity ML-2400; 75-ton-capacity ML-4800; and the 150-ton-capacity ML-9600. In addition, Manitex recently developed its 200-ton-capacity ML-14400, which is scheduled for delivery to a major offshore drilling company in the near future.

SeaCranes exceed the stringent operating codes established by the API, Lloyd's, DnV, NMD, and ABS. Other advantages and features include all-modular designs, full 360-degree swing capability, auxiliary winch systems, single- and double-taper box booms, on-board and remote control systems, on-board and remote power units, anti-two-clock systems, and variable-height gantry arrangements. In addition, Manitex's worldwide distributor network provides complete parts and service availability 24 hours a day, seven days a week.

MARATHON

Circle 37 on Reader Service Card

Marathon LeTourneau Company's line of port handling equipment is in operation around the world. The line includes the rubber-tired Model 2582CH, a top-pick sideporter that lifts and carries 20- and 40-foot containers. The Model 2682SS (solid-state) sideporter handles both containers and trailers, and the SST-100 solid-state, single-beam straddle hoist handles both 20- and 40-foot containers.

This straddle hoist can span up to six rows of containers stacked three high, with room to pass another container over the top. All Marathon LeTourneau port equipment is powered by the company's dependable diesel-electric drive system.

MARCO

Circle 38 on Reader Service Card

In addition to improvements made to existing products, Marco of Seattle introduced three new pieces of fishing deck machinery recently. First was a new aluminum longline drum, used in a variety of longline fisheries on both coasts of the U.S. and Canada, as well as in other areas of the world. The hydraulically powered drum features gear drive that makes it powerful enough that no secondary hauler is required. The new unit also features a diamond-screw levelwind and a unique declutching motor and adjustable drag brake to control freewheeling speed.

Marco's San Diego-based subsidiary, Campbell Industries, recently introduced a long-needed product for the world's high-seas tuna purse seine fisheries. Its new purse block for large superseiners is larger and yet 50 percent lighter, as 210 pounds (95 kg), than any other block of its capacity (20T/18mt).

This new, stronger block features a spring-loaded grease reservoir to automatically maintain lubrication under load, eliminating the problem of bearing failure due to inadequate lubrication. The design also handles 1-inch (25-mm) connecting links through its throat, which are necessary to handle the heavier loads on ⅞-inch (22 mm) purse lines with 1-inch center piece.

The most recent introduction by Marco was its unique line of FoamFlo fish pumping systems. Designed to meet the particular needs of the salmon and herring fisheries, the FoamFlo was developed with its chief goal being fish quality. The challenge has been to develop a pump that could handle great quantities of product, and yet treat both small and large species without damage. With its unique combination of injected water and air creating flow, FoamFlo answers this important challenge.

MARKEY

Circle 39 on Reader Service Card

Markey Machinery Company's marine equipment production for 1985 reflected the generally limited activity of the entire industry. Development work on larger anchor-handling and towing winches anticipates the mooring in deeper waters that is coming.

Large catcher/processor fishing vessels are requiring heavier winch equipment than the standard U.S. and imported units. And oceanographers are seeking larger and more sophisticated winches with microprocessor-based instrumentation to increase data-gathering productivity and payload protection.

Although further adjustments appear likely, these areas as well as spot requirements for robust deck machinery with low life-cycle costs are helping to bridge the gap.

McELROY MACHINE

Circle 40 on Reader Service Card

McElroy Machine & Manufacturing Company of Gulfport, Miss., already actively manufacturing marine deck equipment for the commercial fishing and offshore support industries, is now venturing into government equipment manufacturing, as well as specialized commercial requirements. Presently, several contracts for the Department of Defense are being completed, which are for diesel-driven, double-drum winches of several sizes. Contracts with the Army Corps of Engineers and the Coast Guard have been completed recently, as well as an oceanographic winch for Johns Hopkins University.

The commercial fishing industry has seen McElroy supplying equipment for large catcher/processors, and an upswing in the standard Gulf of Mexico type trawlers. Also, a brisk overseas business for commercial fishing equipment has developed.

The trend in commercial workboats has shifted to specialized vessels requiring purpose-designed equipment. These vessels include dredges, diving support craft, line-handling tugs, landing craft, fireboats, as well as cruise ships and ferries. Each of these types has its own specific requirements, and McElroy has met each of the requirements in stride. Examples of this specialty equipment include a fiber optic cable-laying reel for AT&T and a refueling-at-sea hose reel for the Argentine Navy.

This diversity has allowed McElroy to continue to grow and remain successful in these changing times.

MORGAN CRANE

Circle 41 on Reader Service Card

Long established as a worldwide leader in the manufacture of articulating hydraulic cranes, HIAB-FOCO of Sweden now offers a full line of its Sea Cranes with American Bureau of Shipping certification. Available through HIAB Master Distributor Morgan Crane Company of Santa Ana, Calif., these cranes come equipped with any number of job-specified options. Fully equipped rental packages on selected models are also available from Morgan Crane.

Design criteria based upon the crane code DIN 15018/B3 has earned HIAB cranes several type approvals from Det norske Veritas and Lloyd's Register of Shipping. Now shipowners, naval architects, and other equipment specifiers can

take advantage of HIAB safety, performance, and durability in applications requiring ABS certification.

With five basic models, the Sea Crane is a hybrid of the more than 250,000 cranes delivered by HIAB during the past 35 years. Engineered for demanding offshore industries standards, features include stainless steel hose fittings, nickel/chrome plated cylinder rods, and special two-pack marine coatings.

The ultra-durable HIAB 30 Sea Crane has galvanized and painted boom sections, as well as stainless rods and pins. Compact and lightweight, with a low center of gravity, Sea Cranes display extremely smooth and precise operation without sacrificing speed. By manufacturing its own cylinders and valves, HIAB maintains strict quality control over its products.

Morgan Crane Company provides comprehensive service support including technical assistance at customer locations worldwide.

NABRICO

Circle 42 on Reader Service Card

An all-new hand winch specially designed for use on barges and towboats, and for other winch applications where significant holding capacity is required, is the latest innovation in deck fittings from Nashville Bridge Company (NABRICO) of Nashville, Tenn.

Of all-steel construction, the mini-profile design winch has a 40-ton holding capacity. In addition, both right- and left-hand models are available, promoting increased safety for the operator. A feature of the winch that should make it especially attractive to the marine industry is the accompanying "D" ring that allows the unit to be swivelled a full 180 degrees, providing a significant degree of maneuverability.

Gears, side plates, ratchet, and shaft are precision-machined to insure proper gear tooth engagement and minimize wear. Large bronze bushings with grease fittings on all shafts add to the useful life and dependable service of the winch.

The new hand winch utilizes many features of the original NABRICO hand winch, including a quick-release action, a handwheel for fast take-up, and a foot brake for run-out control. In addition, many parts for the new winch are interchangeable with parts for other NABRICO winches, making repair or replacement easier, and all parts are available from Nashville Bridge Company or many of its distributors.

Addition of this mini-profile hand winch is said to make NABRICO the only full-line manufacturer of deck fittings in the industry, and it is a complement to their existing line of hand, hydra-electric and electric winches, hatch covers, kevels, bitts, buttons, and other products.

NABRICO is a wholly owned subsidiary of The American Ship Building Company of Tampa, Fla. The company has been in the marine field for more than 70 years, and offers a complete line of deck hardware for towboats, barges, and terminals serving the marine industry.

With plants in Nashville and Ashland City, Tenn., NABRICO is a major supplier of marine deck hardware to the entire industry. The company pioneered in the design and construction of much of the modern equipment used on the inland waterways today.

NATIONAL CRANE

Circle 43 on Reader Service Card

For medium- to heavy-duty lifting jobs afloat or ashore, National Crane Corporation's Marine Lifting System provides a choice of pedestal-mounted, telescoping hydraulic cranes and accessories that will complete any task quickly and efficiently.

National marine cranes are a familiar sight on ships and fishing vessels, on docks and offshore platforms, at oil terminals, and in many other marine applications. The wide selection of boom lengths and lifting capacities, combined with the quality engineering features standard on all models, has made them suitable for any saltwater application.

The choices start with the economical Marine 200, and range upward through the 400A, 600A, and 800A series. The 200, with a rated capacity of 10,700 pounds and 28-foot hydraulic boom is suitable for use on smaller boats and barges, for general-purpose dockside and terminal work, and on offshore platforms.

For medium duty, there is the 400A, with 16,000 pounds rated capacity and 55-foot boom; its dependability has made it a workhorse of fishing fleets. The 600A fills the medium- to heavy-duty range with its 25,000-pound maximum lift and 66-foot boom.

With 35,000 pounds rated capacity and 75-foot, four-section hydraulic boom, the Marine 800B has become a favorite for heavy-duty lifting where long reaches are required. Its extra-solid construction means more time on the job and less downtime, even under extreme duty.

Regardless of size, all National marine cranes share design features to boost reliability and performance. Maximum strength and capacity are achieved through the use of computer-aided box section boom design. The boom sections are built of four high-strength, low-alloy members. Weight is cut without sacrificing strength by use of thicker top and bottom plates. The low-hydrogen welds on corner seams are ultrasonically tested for proper penetration. The boom extends sequentially, an advance National introduced to the industry. Mechanical, not hydraulic, locks provide greater reliability without wasting hydraulic power.

Full marine conditioning is standard on National telescoping cranes. External surfaces are sand blasted, coated with inorganic zinc primer, painted, and covered with a durable chlorinated rubber topcoat. Interior surfaces are primed and painted to help prevent corrosion. All lift cylinder rods and boom pivot pins are stainless steel to withstand saltwater and chemical environments. Continuous welds are used wherever possible to prevent corrosion in crevices.

These marine cranes, like all National telescoping cranes, are equipped with standard anti-two-blocking systems to prevent crane damage. Precision rack-and-pinion turret rotation is standard on the Marine 200, while the larger models use planetary rotation gearboxes.

NATIONAL SUPPLY

Circle 44 on Reader Service Card

A cargo-handling barge designed to accept a National Supply Company continuous lift jacking system enables the operator to readily convert the barge into a stable platform for loading and unloading. The barge uses a rack-and-pinion jacking system originally developed by National for offshore drilling and production platforms.

With the legs jacked up, the barge retains its mobility and can be easily towed between sites. Once in location, the barge is jacked up to create a stable platform at various deck levels. The jacking system, which has a smooth, continuous lifting movement, uses an arrangement of horizontally opposed pairs of pinions that provide positive engagement with a precision-cut, double-sided rack.

The National jacking system has been used in 18 different rig designs and is offered by more than 30 shipyards around the world. Literature available from National contains specifications for various unit arrangements, tensile properties for its components, and a description of other features, including pushbutton control operation and various safety features.

Individual leg control is accomplished at a central console, where the operator can operate all legs individually or simultaneously, with mixed hull-up and hull-down operations. Each climbing pinion has an individual gear motor and gear train drive, with each motor having an electromagnetic-released, springset, fail-safe multi-disc brake.

NAUTILUS CRANE

Circle 45 on Reader Service Card

Nautilus Crane & Equipment Corporation, headquartered in Reserve, La., has completed fabrication and testing of one of the most unique offshore cranes ever designed. This Model 380L lattice boom crane has an 80-ton capacity and is mounted on the Nautilus Model 300P rolling gantry platform.

The 380L can traverse the platform on two separate and perpendicular sets of longitudinal beams, and has the special capability to move from one set of beams to the other. This permits the single crane to accomplish tasks that would normally require two or more separate cranes.

The crane is capable of traveling with loads along the beams at the rate of 40 feet per minute. Positioning of the rolling gantry requires that the operator simply switch the hydraulic system from the propel to the hoisting operation. During a lifting operation, the rolling gantry cannot be moved (release of rolling gantry propel lever automatically slows travel and sets brakes). The primary and secondary retaining rollers are always engaged, and all crane functions are operative while the gantry is stopped.

The 380L is powered by an onboard Caterpillar diesel engine. A multi-pump drive is directly cou-

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pled to the engine and provides all hydraulic power requirements. In addition, the power unit is equipped with a 120-volt, 5-kw alternator and an air compressor to make the package completely self-contained.

NEUHAUS

Circle 46 on Reader Service Card

J.D. Neuhaus Hebezeuge GmbH & Company of Witten-Heven, West Germany, manufactures a full line of pneumatic hoists, trolleys, monorails, and mechancial hoists with lifting capacities of up to 100 tons. These hoists, which were developed in close cooperation with the users, are said to offer advantages that can solve lifting problems quickly and economically, particularly in the shipbuilding industry, above or below deck, and in the offshore sector.

JDN pneumatic hoists, the standard models, are suitable for application in areas where there is danger of explosion. Should increased explosion protection be required, such as on offshore platforms, the hoist can be provided with higher sparking protection. This includes galvanized chain, copper-coated load hook, and brass safety catch. In trolleys, wheels and gear wheel drive can be provided in bronze.

In comparison to their lifting capacity, JDN pneumatic hoists are light and easily transportable, robust; insensitive to steam, smoke, humidity, and extreme temperatures; need little maintenance, and are simple to operate. Lifting and lowering speeds can be regulated by rope controls. All these JDN hoist characteristics are valued by users in more than 90 countries.

PACECO

Circle 47 on Reader Service Card

The continued growth of containerization has resulted in the demand for container-stacking gantry cranes with increased speeds as well as higher stacking capabilities. To satisfy this need, Paceco, Inc. of Gulfport, Miss., a pioneer in the development of such cranes for more than 25 years, has introduced a Hi-Lift/High-Speed version of its standard rubber-tired Transtainer™ crane.

The new crane is capable of hoisting 20-foot and 40-foot containers weighing up to 30 long tons, 25 percent faster than previous designs. In addition, the 74-foot span crane's lifting height has been increased by 9 feet to accommodate a stack of 9½-foot tall containers five high and six wide. This is a full tier higher than the industry standard and effectively increases the size of the container yard storage area by 25 percent.

Other significant features include a 5-foot wider wheel span (or track) to improve stability, air conditioning in the cab, and a ground-to-cab intercom system. The diesel-powered generator system has also been improved with the addition of a turbocharger to the standard blower induction system.

The first two of the new cranes were delivered recently to Terminal Island, Berths 229 and 233, at the Port of Los Angeles. These cranes are owned by Overseas Shipping Company and Metropolitan Stevedoring Company, respectively.

Paceco manufactured the world's first high-speed, dockside, ship-to-shore container-handling crane in 1958. Today there are more than 300 Paceco-designed Portainer® cranes in operation throughout the world.

A new generation of Portainer cranes will be appearing during the next few years, just in time to service the latest generation of very large containerships. Outreach will increase to 155 from 135-145 feet; clearance under the spreader will jump from 80 to nearly 100 feet; and rail gauges of 100 feet will become standard to accommodate more traffic on the dock.

A world leader in the design and manufacture of container-handling equipment, Paceco is a subsidiary of the Fruehauf Corporation.

PETTIBONE

Circle 48 on Reader Service Card

Pettibone Corporation of Chicago manufactures a full line of pedestal-mounted Marine Kranes for use on docks and offshore platforms, as well as on shipboard. Capacities range from 5 to 100 tons. Hydraulically extendible knuckleboom and fixed booms, both box and lattice, are available. With special features such as inorganic paint to withstand salt-laden, corrosive environments, they are built to provide years of trouble-free service.

Pettibone has been building and improving cranes for the marine industry since 1964, so built-in features are the result of more than 20 years of design work. Today, as part of a continuing research and development program, the company has a list simulator for safety testing of cranes manufactured for shipboard applications.

The Solus vessel Tengar, one of a fleet that services Royal Dutch Shell offshore drilling platforms in the South China Sea off the coast of Borneo, is equipped with a model 40 PMp Pettibone Marine Krane. Mounted on the main deck forward of the hatch, the 40 PMp provides needed reach with a 110-foot boom and 360-degree rotation. Its remote power pack is installed below deck, and controls are within easy reach of the operator, whose cab provides full view of the work area. Like all Pettibone pedestal cranes, the PMp 40 is available with American Bureau of Shipping certification.

RAYTHEON OCEAN SYSTEMS

Circle 49 on Reader Service Card

Raytheon Ocean Systems Company of East Providence, R.I., manufactures the Loadmax® multi-point digital loading computer that is designed to aid ships' officers in planning safe, optimum vessel loading. The front panel display of the desktop unit is readily configured for any type ship. Information on draft, stability, and hull stresses for any loading condition can be calculated quickly and accurately.

Several models are available according to need. The Loadmax 100 computer performs draft, shear force, and bending moment calculations, and is intended for carriers where stability computations may not be required.

The model 200 unit performs stability calculations, as well as those for draft and hull strength. Special programs are available for LNG and LPG ships, integrated tug/barge units, and containerships.

The Loadmax 300 computer provides for cargo specific gravity entry, cargo volume entry with automatic conversion to weight, and automatic variable VCG and free surface corrections for carrying levels in cargo, ballast, and fuel oil tanks.

For integrated tug/barge systems, the Raytheon computer can provide calculations for tug alone, barge alone, and tug/barge joined.

RECO

Circle 50 on Reader Service Card

Reco Marine Crane, a division of Reco Crane Company of New Orleans, has added a "Low Profile" crane to its standard line of fixed and telescoping hydraulic box boom cranes. This new crane, which stands only 30 inches high and has up to 7.5 tons of lifting capacity, is designed to accommodate the height restrictions of cellar and heliport decks on offshore rigs and platforms.

Several major oil companies have already taken delivery of more than eight cranes each to replace existing mechanical cranes at a lower cost than could be achieved by retrofitting their old mechanical cranes to hydraulics.

REEL-O-MATIC

Circle 51 on Reader Service Card

Reel-O-Matic Systems Inc., of

Wrightsville, Pa., offers a variety of machinery to the marine industry. One of the most popular pieces of equipment is the series CPD or custom power drum. This unit is constructed of a fabricated steel drum mounted in bearings with various drive styles available. These machines are built to customer requirements for size and capacity.

The CPD is designed primarily for storage and winching of cables and lines in marine usage.

A special weather-proofing package for shipboard environment is also available. This package includes stainless steel shafting, totally enclosed motors and controls, sealed bearings, and galvanized undercoating with rubberized paint. These same corrosion-preventive measures can be applied to any of Reel-O-Matic's equipment that have applications throughout the marine industry.

Another frequently used piece of equipment is the RS/VS series of shafted stationary coiling and reeling machines. These units can be bolted or welded to the deck of a ship to pull any flexible material onto a reel or coil. The RS/VS is offered with various drive configurations to suit any particular need.

Reel-O-Matic's HJ/KVS series mobile reeling and coiling machine also is often used aboard ship because it has all of the outstanding features of the RS/VS and, in addition, it is mobile. A configuration of locking wheels and swivel casters allows this machine to be easily moved from job to job.

SALZGITTER/KOCKS

Circle 52 on Reader Service Card

Having established itself as a designer and constructor of container cranes for seaports, the Kocks Crane and Marine Company (KCM) of Pittsburgh, Pa., has concluded an agreement with one of the Salzgitter Group of companies for supplying all of its bulk materials handling products for the U.S. market. The new venture will be identified as Salzgitter-Kocks Bulk Systems and will operate as a division of KCM.

Market areas being looked at are seaports, inland terminals, utilities, and general bulk commodities terminals including cement and grain industries. The company's diverse product line includes every conceivable material handling and storage system . . . pneumatics, belt conveyors, mining, ship loading/unloading, indoor storage, and stacking and reclaiming.

Other equipment available from Salzgitter-Kocks includes a complete line of bulk handling equipment including stackers, stacker-reclaimers, scraper reclaimers, clamshell, pneumatic, continuous ship and barge unloaders, buckets, grabs, and coal blending systems. The company has expertise in the handling and processing of lignite, coal, potash, cement, alumina, silica, phosphate, and other commodities. Design, supply, and construction is available for equipment and facilities.

SCHOELLHORN-ALBRECHT

Circle 53 on Reader Service Card

The Schoellhorn-Albrecht Division of St. Louis Ship manufactures the 1824 family of deck capstans that have been in service for more than 40 years. These capstans have fully normalized and stress-relieved cast steel barrels and right-angle worm gear housing. They are driven through a structural-frame-mounted, spur-gear-reduced, right-angled worm gear drive. The worm drive operates in a continuous oil bath, and the bronze bushings have pressurized grease fittings.

Primary power is provided by a 30-hp marine electric motor fitted with a 120-percent torque capacity magnetic disc brake.

The 1824 capstan is designed to provide 10,000 pounds of pull at 55 feet per minute, and 20,000 pounds at 28 fpm. Ultimate pull is 55,000 pounds, with an ultimate static holding capacity of 100,000 pounds.

Other deck capstans with barrels of 14 to 24 inches, driven electrically, pneumatically, or hydraulically, are available. Also featured in a new brochure available from Schoellhorn is a smaller, totally redesigned capstan/carpuller. These surface-mounted units, designed for less severe marine and industrial applications, are available with operating capacity from 5,000 to 15,000 pounds at 30/50 feet per minute.

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SMATCO

Circle 54 on Reader Service Card

The SMATCO, Inc. Division of TBW Industries of Houma, La., supplied complete shipsets of Norwinch low-pressure hydraulic deck equipment for two anchor-handling/tug/supply vessels built by Halter Marine for Penrod Drilling of Dallas. The two 225-foot, 12,280-bhp vessels are being used primarily for long-distance towing of semisubmersible rigs, and other towing and anchor-handling tasks.

The Kodiak I and Kodiak II are each equipped with one 4S-250-2T 250-ton waterfall hydraulic anchor-handling/towing winch. This unit is powered by four Norwinch low-pressure hydraulic motors, and is arranged to enable either of the drums to provide full pulling power. Both drums can provide half pulling power simultaneously, and they can be operated independently of each other in either direction of rotation.

This system gives the advantage of allowing a controlled maximum load on the lines, preset by the operator. The winch is also equipped with a Norwinch high-power, hydraulic dynamic braking system, which provides control of speed and pull.

Also on board is a type S-50-1T 30-ton hydraulic anchor winch type bow windlass. This unit is powered by one Norwinch low-pressure hydraulic motor, and consists of a declutchable drum, a declutchable cable lifter for 38-mm chain, and two fixed warping heads. The vessels also have two hydraulic tugger winches, type MV-12. In addition, each vessel has two hydraulic capstans, type C-9.

SMITH BERGER

Circle 55 on Reader Service Card

Smith Berger Marine, Inc. of Seattle has been named the exclusive U.S. Master Distributor for a major line of hydraulic cranes designed for marine service. After careful analysis of the many hydraulic cranes available, the company has decided that only the Effer Crane has the level of quality workmanship necessary to be sold under the Berger name.

More than 35 models of Effer Cranes with a capacity range from 3 to 40 tons, and in knuckleboom, telescoping boom, or fixed boom configurations will be available from distributors throughout the U.S., with service, parts, and warranty backed by Smith Berger. Hydraulic winches, power packs, mountings, and other accessories will be supplied by SBM from its Seattle facility.

The cranes are a logical addition to the company's product line, which includes the well-known Berger fairleaders, roller chocks, bitts, bollards, guide sheaves, chain wheels, stoppers, and other quality parts for demanding marine service.

SBM is a major supplier of special underwater fairleaders for offshore service. Its engineers work directly with shipyards and naval architects in the design and development of large fairleaders for deepwater oil exploration. Recent developments include fairleaders for 5-inch anchor chain with pocketed sheaves more than 9 feet in diameter, and fairleaders with "sealed-for-life" antifriction bearings for service above or below water level.

A full line of stern rollers, towing pin assemblies, and pop-up pins rounds out the marine equipment. These units are especially adaptable to retrofitting or upgrading tugs and workboats.

Smith Berger Marine operates a fully approved, quality assurance manufacturing facility in Seattle, and is able to meet military standards on fairleads, chain wheels, scuttles, hatch covers, or other military requirements.

STANSPEC

Circle 56 on Reader Service Card

Stanspec Corporation of Cleveland recently announced the development of its Reliable line of cus-

tom-built, completely automated, no-operator, computer-controlled bulk material handling cranes for heavy industrial applications. This crane was designed for scale pit operations in steel mills, and for handling bulk chemicals, cryogenic waste materials, cement, and virtually any other heavy bulk material.

The crane can be controlled from ground level, or remotely from the mill's main process computer. A ground-level microprocessor is programmed for all on-board logic, and is also tied via modem to the main process computer.

The Reliable line of cranes offers these features:

Hoist bucket holding and hoist bucket closing lines are controlled by state-of-the-art, microprocessor-based, DC adjustable-voltage controller.

Dependable mill motors are employed for hoist drives.

Travel drives are standard, reversing-plugging, AC magnetics using resolvers to position crane bridge for digging and discharge.

Field programming capability to establish multiple location, digging and discharge points for material loading and unloading.

Scoreboard-type readout to pinpoint locations that have already been cleaned and those to go.

Built-in logic that prevents digging at previously emptied location.

SUPERIOR • LIDGERWOOD • MUNDY

Circle 57 on Reader Service Card

Lidgerwood Manufacturing Company of New York was established in 1873 as a continuation of the Speedwell Iron Works of Morristown, N.J. From its standard hoisting equipment, Lidgerwood evolved marine winches.

These were produced extensively for steam power and later were adapted to electric applications. Capstans, anchor windlasses, and marine winches still continue to be a source of pride to Lidgerwood, which has stood the test of time.

The company offers a full range of well-illustrated literature that details the capabilities, special features, and specifications of its line of marine equipment. Included are marine equipment such as integrated barge moving systems; car-pullers; capstans; steam hoists; trawling winches; towing winches; mooring bits and winches; cargo winches; gasoline, diesel, or electric hoists; anchor hoists; crane, dock, hatch-cover, and dredge hoists, and windlasses.

TIMBERLAND

Circle 58 on Reader Service Card

Timberland Equipment Limited of Woodstock, Ontario, now offers a Canadian-built choice in mooring and anchoring systems with a wide range of winches that will handle up to 2½-inch wire rope.

Timberland has designed and manufactured powered winches for more than 25 years for the construction, mining, and marine industries. Recently they have expanded the product line to serve a wider range of winch applications for mooring, anchoring, and positioning of service vessels.

Circle 217 on Reader Service Card ▶

UNIT CRANE

Circle 59 on Reader Service Card

Unit Crane & Shovel Corporation of New Berlin, Wisc., manufactures a series of hydraulic Unit Mariner pedestal-mounted marine cranes that meet 1983 American Petroleum Institute specifications covering offshore cranes.

The latest Mariner line offers lift capacities of 27,000, 36,000, and 55,000 pounds, with basic boom lengths at a 30-foot radius. Modular assembly is said to provide fast assembly and easily accessible servicing. A variety of hydraulic winches is available to meet specific load capacities and line speed requirements.

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Deck Machinery Review

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An exclusive Power Demand hydraulic system, powered by diesel or electric prime movers, automatically matches hydraulic working pressures and horsepower to load requirements. Deck configurations include remote or onboard power, walk-around control, or fully enclosed cab.

WASHINGTON CHAIN

Circle 60 on Reader Service Card

A new machine from Washington Chain & Supply Inc. of Seattle offers an easy, hydraulically powered method for wire rope socketing. Marketed under the name Cab-L-Mate, the machine provides a one-man process for positioning wire rope into a socket.

The machine is offered in two versions. Model 101 accommodates wire rope up to 2 inches thick and operates with dies in ¼-inch increments. The larger model 201 handles wire rope from 2 to 4¼ inches; dies for the 201 are made to special order only. Both machines are hydraulically operated with manual control valves.

WASHINGTON CRANES

Circle 61 on Reader Service Card

Washington Cranes of Seattle, a division of Ederer, Inc., offers a new generation of revolving cranes said to have increased reliability, lower maintenance, and more efficient operation due to the greatest possible capacity for a given size.

Typical of the line is the 150-ton revolver installed at Todd's Seattle yard. Advanced design concepts incorporated in that crane include Ederer DC adjustable voltage controls for all motions, all-electric operation, and a high-efficiency operator's cab. The crane has all independent hoists, each with its own solid-state control.

All gearing is in totally enclosed oil baths, and all hoist machinery is gear-driven. These new cranes have unique travel trucks, with each drive motor driving one wheel. This design allows increased load on existing tracks. The diesel generator house is located over the portal to isolate noise, lower the center of gravity, and improve accessibility.

The main hook lifting capacity of the Todd crane is 150 tons at a 55-foot radius, and 50 tons at 120 feet. The auxiliary hook lifts 15 tons at all radii from 61 to 210 feet. Main hook speed is 12 feet per minute, auxiliary is 100 fpm. The boom can be fully elevated from the lowered position in three minutes.

WILDEN PUMP

Circle 62 on Reader Service Card

Wilden Pump and Engineering Company of Colton, Calif., has announced the "Supersaver." Every new Wilden pump incorporates a redesigned, state-of-the-art air distribution system that provides up to 13 percent greater pumping capacity and reduced air consumption averaging more than 10 percent across the entire performance range. This redesigned system focuses on optimizing air flow, aerodynamically tuning ports and passageways to minimize turbulence and drag, reducing internal energy losses, and maximizing energy transfer to the fluid being pumped.

The operating principles and basic structure of the Wilden valve, which has provided the highest level of reliability for more than 25 years, remains unchanged. Wilden has simply made one of the best a little better by re-engineering components unrelated to the critical shifting functions that make the air valve superior to many other valve systems. The ability of the valve to deliver high reliability operating on typically "dirty" plant air or against a stall, or in intermittent service at minimum air supply pressures remains unchanged.

Free literature describing all of the equipment featured in this review is available from the manufacturers

FOR MORE INFORMATION

If you wish to receive more information and brochures on any of the products described, circle the appropriate number(s) on the postage-paid Reader Service Cards that are bound into the back of this issue.

Todd-Seattle Awarded $16.6-Million Contract To Overhaul Frigate

The Seattle Division of Todd Pacific Shipyards Corporation has been awarded a $16.6-million U.S. Navy contract for the regular overhaul of the frigate USS O'Callahan (FF-1051). The 12-month job is expected to be completed by the end of September 1987.

This contract is the 45th Navy overhaul job won by Todd's West Coast shipyards during the past five years.

Long Beach Naval Yard To Perform $22-Million Overhaul Of Destroyer

Long Beach Naval Shipyard, Long Beach, Calif., is the successful offeror in a competitive test program between public and private sector shipyards for the regular overhaul of USS Fletcher (DD-992). Long Beach Naval Shipyard is being assigned the overhaul on a fixed-price-incentive basis. The target price for this effort is $22,698,021. Work will be performed in Long Beach, and is expected to be completed September 18, 1987. The Naval Sea Systems Command, Washington, D.C., is the requiring activity.

MAN B&W Diesel A/S Changes Name And Logo

Previously referred to as M.A.N.-B&W Diesel A/S, the Copenhagen company has changed its name and logo to MAN B&W Diesel A/S. With this new logo, the company presents itself as a member of the new, larger MAN Group, which is the result of the merger of M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft and GHH, Gutehoffnungshutte Aktienverein into MAN Aktiengesellschaft.

Drewry Predicts Growing Demand For Larger Products Carriers

London-based Drewry Shipping Consultants Ltd. foresees a 40-percent increase in the refined oil products trade, from 250 million metric tons in 1985 to 350 million metric tons by 1990. This would raise demand for products tankers by 7 million dwt, the report states.

The principal growth in the trade will be between refiners in the Middle East and North Africa, and importers in Northern Europe and on the U.S. East Coast. This changing trade pattern will find larger products carriers sailing on these routes, as the bigger ships are more economical for the long- and medium-haul products trades. Tankers of about 80,000 dwt will become more common, Drewry said.

The most popular size for products tankers has been about 30,000 dwt; 50 percent of the total world products tanker fleet of 38,744,000 dwt are carriers in the 25,000 to 40,000 dwt range. At the end of June this year, vessels in the 65,000 to 90,000 dwt range accounted for 26 percent of the world orderbook. In 1982, only six percent of products tankers on order were in this range.

OMI Bulk Receives $32.2-Million Contract For Tanker Time Charter

OMI Bulk Transport Incorporated, New York, N.Y., is being awarded a $32,196,623 modification exercising an option under a previously awarded contract for the time charter of M/V Rover, a U.S.-flag tanker. The contract period is 17 months, with two additional 17-month option periods. Four hundred fifty bids were solicited, and ten offers were received. The Military Sealift Command, Washington, D.C., is the contracting activity (N00033-86-C-1704).

Kamatics Offers New Free 22-Page Catalog On KAron® Bearings

Kamatics Corporation, home officed in Bloomfield, Conn., is offering a free, full-color, 22-page catalog on their line of KAron® Bearings, including spherical, rod end and journal configurations.

The KAron bearing system is generated by swaging a metallic sleeve around a spherical ball creating a non-uniform cavity between the sleeve and ball. The KAron material, a homogenous composite matrix of a polyester resin base with polyetrafluorethytlene (PTFE) and other solid particles, is then injected into this cavity, conforming 100 percent to the ball while bonding itself to the sleeve. Through the use of a non-uniform cavity, a mechanical lock is created ensuring liner retention.

The Kamatics publication lists the features of the KAron bearing system as: minimal liner wear; self lubrication; 100 percent liner to ball conformity; zero backlash; low predictable torque; excellent corrosion resistance; and reduced liner deflection.

Configuration drawings and specification charts are included in the catalog.

For a free copy of this catalog from Kamatics,

Circle 141 on Reader Service Card

U.S. Naval Station Selects Megadoors —Literature Offered

Four Megadoors were selected for the U.S. Naval Station at Annapolis, Md., because of the performance and economy they provide for such large openings.

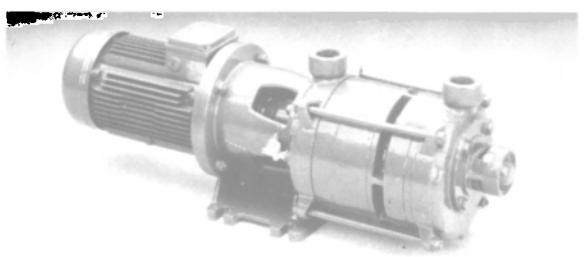
Earlier this year the Navy took over several new buildings to be used for ship maintenance, sand blasting and painting. Four Megadoors were selected for the facility because of the peformance and economy they provide for such large openings. The door sizes are two doors 30 feet high by 35 feet wide, and two doors 30 feet wide by 30 feet high.

Megadoor has doors at most major shipyards all over the world, varying in size from doors 100 feet wide by 100 feet high down to doors in sizes 20 by 20 feet.

For further information, including free color literature,

Circle 76 on Reader Service Card

Squire-Cogswell To Distribute Robuschi Liquid Ring Vacuum Pumps In U.S. And Canada



Squire-Cogswell/Robuschi two-stage compact liquid ring vacuum pump.

Squire-Cogswell Co., air and vacuum specialists since 1916, has announced exclusive distributorship in the U.S. and Canada of liquid ring vacuum pumps manufactured by Robuschi of Parma, Italy. Designed for industrial applications, the Robuschi line includes conventional base-mounted units as well as a stylized compact pump. The "compact" is characterized by a pedestal with motor lantern bracket as a single piece. This design requires less space and allows steadier alignment than pumping groups which use a common baseplate.

The compact pumps are available in motor ratings from 2 to 7.5 hp. The entire Robuschi line, both single and two-stage, is available in motor ratings frm 2 to 200 hp. Standard unit capacities range up to 2,200 CFM and vacuum to 25 TORR. (29" HG).

For free literature on the Robuschi line from Squire-Cogswell,

Circle 74 on Reader Service Card

12-Page, Full-Color Brochure From Bailey Highlights Marine Control Systems And Services

"Integrated Marine Control Systems" is the title of a new full-color, 12-page brochure from Bailey Controls of Wickliffe, Ohio, which presents control and instrumentation products, systems and support capabilities available to the maritime and offshore industries.

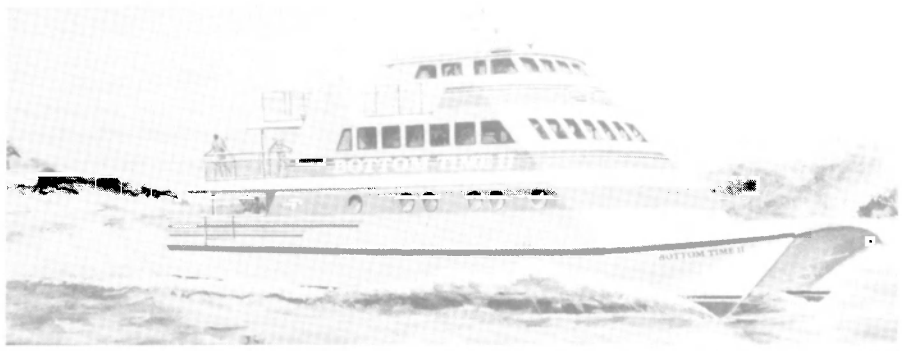
The publication features the Bailey microprocessor-based Network 90® distributed control system which addresses a wide range of marine applications, from single loop control to integrated, system-wide control aboard platforms and vessels. Color photographs, drawings, and diagrams of system architecture and applications are included.

Also discussed and illustrated are Network 90 process control modules, which include the digital slave, loop/bus interface, configuration and tuning, and multi-function controller modules.

To ensure rapid response, Bailey Marine Service offices are located on the Great Lakes, East, Gulf and West Coasts of the U.S., plus the Caribbean, South America, the Far East and Western Europe. A complete listing of international and U.S. sales-service offices is given on the back cover of the brochure.

For a complimentary copy of "Integrated Marine Control Systems" from Bailey,

Circle 73 on Reader Service Card



The 80-foot luxury catamaran is powered by twin Rolls-Royce designed, 12-cylinder marine diesels. The owner, Bottom Time Adventures of Ft. Lauderdale, Fla., uses the vessel to conduct diving expeditions throughout the Bahamas.

Rolls-Royce Designed Marine Diesels Make U.S. Debut In New Catamaran

The first U.S. installation of Perkins Engines' Rolls-Royce designed marine diesels is in an 80-foot-long and 30-foot-wide luxury catamaran built for Bottom Time Adventures of Ft. Lauderdale, Fla.

Bottom Time conducts diving expeditions throughout the Bahamas as well as island cruises and, therefore, requires a special and unique boat.

The three-deck catamaran, which stands 30 feet above the water line, is designed for comfort as well as performance. It is powered by twin Rolls-Royce designed CV 12 marine diesels that provide 800 horsepower each at 2,100 rpm. The boat has a cruising speed of 22 knots, with a top speed of 30 knots and a range of over 2,000 miles per tank of fuel.

Designed by International Catamaran of Australia, the boat was built by Atlantic and Gulf Boat Builders, Inc. of Ft. Lauderdale under the supervision of Bottom Time's **Ron Piccari,** the captain, and **A.J. Bland,** director. The engines were supplied by Perkins Power Corp. of Miami, the Perkins distributor in Florida.

Mr. **Bland** said the all-aluminum catamaran has many unique features, beginning with a high-speed displacement hull which makes it different because high speed is usually obtained with planing hulls.

In addition to the Rolls-Royce designed main propulsion engines, onboard engine requirements are furnished by two 5kw marine generator sets powered by Perkins 6.3544 (M) diesels. These generator sets provide power for a water desalinization unit and central air-conditioning, among other things.

Perkins Engines, Inc., of Wayne, Mich., is a leading supplier of marine diesels in North America offering engines ranging from 3½ to 800 horsepower. The company is part of the Perkins Worldwide Group, Peterborough, England, which acquired Rolls-Royce diesels in 1984. Last year, Perkins established a milestone in the diesel-manufacturing industry by producing its 10 millionth engine.

For further information and free color literature on Perkins and Rolls-Royce marine diesels,

Circle 84 on Reader Service Card

Bollinger Machine Awarded $5.6-Million Contract

Bollinger Machine Shop and Shipyards Incorporated, Lockport, La., is being awarded a $5,575,000 fixed-price contract for the license, licensed material, spare parts identification list and material list for the Island class patrol boat for the U.S. Coast Guard. Work will be performed in Lockport, and is expected to be completed December 1, 1986. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-2226).

The River Queen plies the inland waters of America much like the sidewheelers of yesteryear, except that it is powered by modern-day Cummins diesel engines.

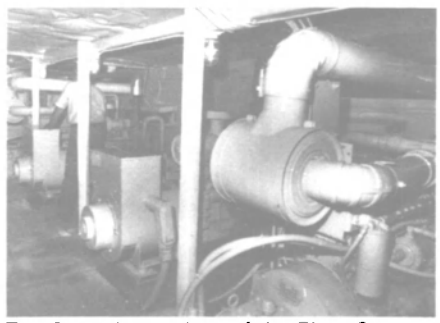
Cummins-Powered River Queen Delivered By Serodino Shipyard

—Literature Offered—

Serodino, Inc.'s Hales Bar, Tenn., shipyard recently launched the Cummins-powered excursion vessel River Queen for the Knoxville Riverboat Company. The 550-passenger vessel will be operated on the Tennessee River near Knoxville.

The River Queen, including the landing stage, has an overall length of 135 feet. Its hull is 107 feet long, 35 feet wide and 7.5 feet in depth.

Main propulsion is provided by two Cummins NT-855-M diesel engines to twin Michigan Nibrow 40-inch by 32-inch four-blade propellers through Twin Disc MG509 reduction gears with a 2.95:1 ratio. The NT-855-Ms are each rated at 300 hp at 1,800 rpm. Electrical power is provided by two 80-kw Lima generators driven by Cummins 6BT5.9 diesels. Both the main propulsion and generator engines were supplied by Cummins South, Inc. of Chattanooga, Tenn.



The Cummins engines of the River Queen.

Capt. **Robert M. Lumpp,** owner and president of the Knoxville Riverboat Co., worked closely with architect **A. Lawrence Bates** of Louisville, Ky., on the design of the River Queen. The result of their efforts is a vessel design much like the sidewheelers of yesteryear, except that it is operated with modern-day Cummins powerplants.

The elegantly furnished Queen has a main deck seating for 180 persons for dinner with an additional 120-seating capacity on the second deck.

For free literature on the services and facilities of Serodino, Inc.,

Circle 86 on Reader Service Card

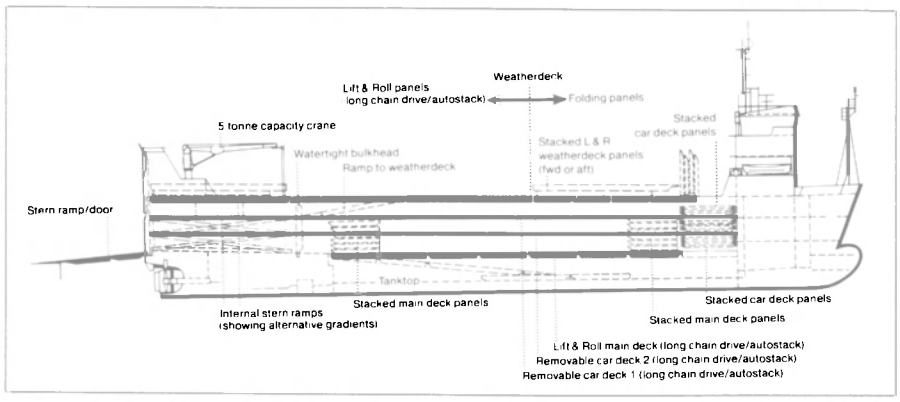
For copies of free literature on Cummins diesel engines,

Circle 87 on Reader Service Card

James Rand Reelected Chairman, Intertanko

The International Association of Independent Tanker Owners (Intertanko) recently announced that **James Rand** will continue as chairman of Intertanko. Mr. **Rand**, formerly chairman and chief executive of Marine Transport Lines (MTL), was elected in April as chairman of Intertanko for a third year.

Innovative Shortsea Vessel Fitted With Unique MacGregor-Navire CAE



MacGregor-Navire (MGN), the leading designer of cargo access equipment (CAE), has supplied the innovative shortsea RO/LO vessel Alster Rapid with a shipset of CAE that for originality and the mix of cargo made possible by its use, must stamp it as unique. The 2,515-dwt vessel, though small, is equipped so that it offers the cargo-handling capabilities of ships much larger.

The recently delivered Alster Rapid was built by the Hamburg yard of J.J. Sietas for the West German owner **Henry Stahl**, who immediately deployed the vessel in his U.K.-trading Washbay Line. The new ship will form part of a thrice-weekly service operated by the line for more than 20 years.

All four of the vessel's cargo decks above the tanktop level are entirely composed of removable flush-fitting panels. Each level, in fact, is a stowable MGN hatch cover that completely spans the hull to constitute a deck. Each deck includes an individual panel (or panels) that also does duty as interdeck ramps.

Shortsea RO/LO vessel Alster Rapid, built by Sietas yard in Hamburg, is extensively fitted with unique shipset of MacGregor-Navire cargo access equipment.

When the cargo to be loaded requires the removal of any deck, the panels of which it is formed can be rolled into stowage and stacked, both movements being performed automatically ; the only exception is the four panels on the forward part of the upper deck, which fold into stowage. Replacement of a deck is also automatic, the unstacking and rolling (and unfolding) being performed in reverse order.

Long cargo (up to about 148 feet) can be loaded vertically using shoreside cranes but the principal mode of access is horizontal, cargo being rolled over the stern via a 200-ton-capacity ramp that, in keeping with the singular nature of all this ship's CAE, is adjustable in length, width, and height. Width and height adjustment were included to cater for specific berthing conditions at ports

on the destined routes; height adjustment, in which the ramp can be hinged at any one of the four decks above the tank top, enables the ship to be worked at any quay height or tidal level, thus eliminating the need for link span berthing.

Another unusual feature of the Alster Rapid, which the MGN access equipment is designed to facilitate, is its ability to load flat-bottomed floating cargo such as small barges, these being floated/winched aboard through the stern in what the owner calls the slip-on/slip-off (SO/SO) mode. For this operation, one of the main deck panels is placed athwartships (there is a 5-ton crane fitted aft for this purpose) to form a watertight bulkhead located about 59 feet forward of the stern ramp, thus creating a separate section. For embarking floating cargo, the stern ramp is lowered to an angle of −20 degrees below the horizontal, its end reaching about 10 feet below the waterline. This exposure of the stern—the so-called "open air" section—also enables the loading of cargo of unlimited height when the upper deck panels within the sternmost section are removed.

Flexibility in cargo operations is greatly enhanced by the multi-angled ramp situated within the 59-foot-long sternmost section. This ramp, the two ends of which are separately height-adjustable by means of four jigger winches, is used as an extension or continuation of the external stern ramp. This facility, together with ramps on the main and weather decks (which may or may not have to be brought into use), permits direct access for wheeled cargo to any deck. The criteria for use of the main/weather deck ramps will depend on the gradient to be climbed, which in turn is determined by the quay height.

The Alster Rapid has an overall length of 290.6 feet, beam of 46.9 feet, depth to main deck of 16.6 feet, and draft of 16.7 feet. Propulsion is provided by a MAN B&W 8L 28/32-FVO diesel engine with an output of 1,530 bhp, giving a speed of 13 knots.

For complete literature fully describing all MacGregor-Navire equipment,

Circle 66 on Reader Service Card

Puget Sound Naval Yard Awarded $110.7-Million Contract For Overhaul

Puget Sound Naval Shipyard, Bremerton, Wash., is the successful offeror in a competitive test program between public and private sector shipyards for the regular overhaul of USS Alexander Hamilton (SSBN-617). Puget Sound Naval Shipyard is being assigned the overhaul on a fixed-price-incentive basis. The target price for this effort is $110,713,798. Work will be performed in Bremerton, and is expected to be completed November 30, 1988. The Naval Sea Systems Command, Washington, D.C., is the requiring activity.

Claremont Offers Free Catalog On Thermal & Acoustical Insulation

The Claremont Company, Inc., Meriden, Conn., is offering a free catalog on their line of thermal and acoustical insulation materials for industrial use.

The eight-page color publication contains over 40 photographs of Claremont products, from high temperature insulation pad components to acoustic and gasketing products. Each photo is headed with the product name and captioned with the product's vital specifications. The catalog is divided into six sections covering: high temperature insulation pad components, thermal insulation lagging, all purpose fiberglass tapes, general welding fabrics, exterior pad and equipment covers and acoustic and gasketing compounds. The Claremont publication also includes a "Claremont Gasketing Materials" general information table. The table gives the grade, binder, color, standard thickness, primary use, principal properties, applications and maximum service temperature of four grades of Claremont gasketing materials.

Circle 123 on Reader Service Card

Quick Delivery Reduces Drydocking Costs For Navy Bearing Replacement

With drydocking costs sometimes topping $10,000 per day, shipowners take a serious interest in delivery schedules for replacement parts, even when their resources are as vast as those of the U.S. Navy. The problem becomes increasingly acute when replacements can be ordered only after the original parts have been removed in drydock and examined for wear.

This fact came to light with the recent refitting of propeller shaft bearings for the Military Sealift Command tanker Kawishiwi (T-AO-146). One of six Neosho Class oilers, the 38,000-ton vessel has a cargo capacity of approximately 180,000 barrels of fuel oil.

The Kawishiwi's two propeller shaft liners were found to be worn beyond acceptable levels during a recent overhaul at Versatile Pacific Shipyards Inc. in North Vancouver, B.C. The under-size liners made it necessary to replace her two stern-tube and two strut bearings with over-size components. The over-size bearings brought the critical clearance between the 21⅛-inch shaft liners and the bearings back to an acceptable ⅛ inch.

Normal procurement time for replacement of the original bearings with the same type is 10 days for manufacturing, plus normal shipping time. With the assistance of Vancouver distributor Pacific Propulsion Ltd., the shipyard ordered Thordon XL elastomeric stave bearings from the manufacturer, Thomson-Gordon Ltd. These staves were manufacturered in a one-step molding process and delivered to the yard all within seven days.

Apart from fast delivery, the Navy can expect further benefits from the oiler's new bearings. The material has a coefficient of friction that is less that half that of rubber. Therefore, at slow speeds, before hydrodynamic conditions are achieved and water becomes the effective bearing surface, less torque will be required to drive the ship. This will result in reduced bearing and liner wear, quieter running, no "stick-slip" phenomenon, a measure of fuel economy, and longer life for most of the final drive components.

For further information and free literature describing in detail the specifications and applications of Thordon XL bearings,

Circle 4 on Reader Service Card

Portsmouth Naval Yard To Perform Sub Overhaul Worth $112 Million

Portsmouth Naval Shipyard, Portsmouth, N.H., is the successful offeror in a competitive test program between public and private sector shipyards for the regular overhaul of USS Kamehameha (SSBN-642). Portsmouth Naval Shipyard is being assigned the overhaul on a fixed-price-incentive basis. The target price for this effort is $112,100,000. Work will be performed in Portsmouth, and is expected to be completed November 10, 1988. The Naval Sea Systems Command, Washington, D.C., is the requiring activity.

$12.2-Million Contract Awarded Swiftships To Build 30 Patrol Boats

Swiftships, Inc. of Morgan City, La., has been awarded a $12,178,268 fixed price FMS contract for the supply of patrol boats and associated support hardware and services to the government of Cameroon.

Work, which will be performed in Morgan City, will consist of the construction of thirty, 38-foot high-speed aluminum patrol craft, plus modular maintenance and warehouse facilities. Services supplied under this contract will include operational, maintenance and repair training, and in-country technical assistance.

Swiftships is one of the world's leading producers of high-speed patrol and interdiction vessels, having delivered more than 350 boats to 42 countries.

Swiftships, Inc., is a subsidiary of NGS Enterprises, headquartered in Washington, D.C.

For free literature containing complete information on facilities and services offered by Swiftships,

Circle 125 on Reader Service Card

Peterson Gets $96.6-Million Navy Contract To Build Two Additional MCMs

The Naval Sea Systems Command has awarded a $96.6-million contract to Peterson Builders, Inc. of Sturgeon Bay, Wisc., for construction of two more mine countermeasures ships, the MCM-6 and MCM-8. The Wisconsin yard already had three MCMs on its orderbook under contracts totaling $180.2 million.

The new MCM, the first mine countermeasures ship developed by the Navy in almost 30 years, have an overall length of 224 feet, beam of 39 feet, and displacement of about 1,200 long tons. They will be equipped with the most modern combat systems to effectively search for, detect, and neutralize a variety of mine threats. In addition, the ships will be fitted with mechanical, magnetic, and acoustic minesweeping systems.

The MCM is constructed entirely of wood, a combination of oak framing and Douglas fir planking and deck sheathing. The superstructure is a combination of solid and laminated woods. The entire ship is covered with GRP fiberglass for environmental protection. The MCMs are built of wood to reduce their overall magnetic signature when hunting mines that are programmed to detonate based on a magnetic force field.

Tideland Introduces New Buoy Design For Deepwater Applications

Tideland's Sentinel SAB-12 provides a stable, striking visual target for ships entering a large offshore oil port on Gulf of Mexico.

Tideland Signal Corporation of Houston, Texas, has introduced the new SAB-12 Sentinel Articulated Buoy. According to the manufacturer, the buoy has outstanding station-keeping capabilities and may be deployed where water depth makes placement of a fixed structure impractical.

The SAB-12 consists of two rigid tubes flanged together above the waterline, a submerged buoyancy section and a cylindrical fiberglass daymark. The buoy is held in place by a tension element of jacketed Kevlar™ rope attached by a swivel to a large concrete sinker. When the buoy is installed it is said to be exceptionally stable, displaying minimal watch circle.

High above the waterline and impregnated with bright, permanent color, the daymark cylinder is a striking visual target. All Tideland navaids and SolaViva® solar electric generators are designed for dependability and will operate for many years with minimal maintenance. Exceptional visibility is a priority of the SAB-12's design: the focal plane of the lantern is 25 feet above MWL, and the radar reflector has a range in excess of eight miles. Adding a frequency-agile SeaBeacon® racon can make the buoy's location clear to oceangoing vessels more than 15 miles out, night and day in all weather conditions.

Sentinel Articulated Buoys are available in a range of sizes for a variety of applications and water depths up to 200 feet. Tideland offers a computerized buoy performance program for custom matching of buoy design and moorings to client specifications.

For free literature containing full details,

Circle 3 on Reader Service Card

Canadian Offshore Resources Exposition

October 7-9, Halifax, Nova Scotia

'Technological Advancements in Canada's Hydrocarbon Frontiers'

This year's Canadian Offshore Resources Exposition (CORE) and Marine Supply Show, and its associated Conference, will take place in Halifax, Nova Scotia, October 7 to 9. The Conference, with the theme "Technological Advancements in Canada's Hydrocarbon Frontiers," will be held in the World Trade and Convention Centre, and the exhibits will be in Ocean Terminals 33 and 34 in the Port of Halifax, plus an outdoor exhibition area adjacent to Terminal 34.

Attendance is expected to exceed 4,000 from manufacturing and primary resource industries, the military, government, and education. This audience is made up of executive and operations management, engineering, production managers, plant superintendents, designers, specifiers, and purchasing personnel. The 1985 CORE had about 450 exhibitors.

This sixth annual exhibition and conference will cover the research and development of the oil and gas industry in Atlantic Canada, the Arctic Islands, and the Beaufort Sea. Atlantic Canada is one of the world's great oil and gas reservoirs.

CORE is produced and managed by Industrial Trade Shows Inc. of Toronto, and sponsored by the following groups: Atlantic Provinces Economic Council; Canadian Ocean Industries Association; Cape Breton Offshore Trade Association; Canadian Petroleum Offshore Operators Division; Newfoundland Ocean Industries Association; Offshore Trade Association of Nova Scotia; Oilweek Magazine; Canadian Institute of Mining Petroleum Society, Nova Scotian Section; and Halifax Board of Trade. The 1986 Conference chairman is **William Riley**.

Conference Agenda
Tuesday, October 7

9:30 am—Keynote Speaker: The honorable **Joel Matheson**, Minister of Mines & Energy, Government of Nova Scotia

Session 1: Frontier Update

Chairman: **Kenneth Farquharson**

"Beaufort: Amauligak—Gulf Canada Corporation," **Robert Bleaney**
"Grand Banks: Technological Hurdles at Hibernia Mobil," **James Kelly**
"Scotian Shelf: Hunt for Oil—Petro-Canada," **N. McIntyre**
"Summary: Changing Regulatory Regimes on Canada's Frontiers," **M.E. Taschereau**, COGLA
12:30 pm—Luncheon
Principal speaker: Hon. **W. Marshall**, President of the Council & Minister Responsible for the Petroleum Directorate

Session 2: Advances in Canadian Technology I

Chairman: **Wynne Potter**
2:30 pm—"Small Water Area Twin Hull (SWATH) Vessels for Offshore," by **A. Eyres**, Eyretechnics
"Iceberg Management Techniques," by **Frank Smith**, Nordco
"CSA Offshore Structures & Standards Codes," by **Peter Adams**, C-FER
"Institute for Marine Dynamics (Ice Tank)," by **Norman Jeffrey**
"Canadian Marine Machinery Control System," by Capt. **(N) R. Preston**, DND
5:00 pm—Adjournment

Wednesday, October 8
Session 3: Advances in Canadian Technology II

Chairman: **C. Andrew Parker**
9:00 am—"Results of Hibernia G.B.S. Model Tests," by **John Henley**, Mobil
"Underwater Rover," by **Philip Nuytten**, Can Dive Services
"Flexible Riser Systems for Production in Severe Seas and Ice," by **Peter Gibb**, CanOcean
"Search & Rescue in Atlantic Canada," by Major Gen. **L. Ashley**, chairman, ICSAR
"Advances in Safety Systems for Canadian Offshore Industries," by **Larry Prather**, Husky/Bow Valley
12:00 Noon—Luncheon
Principal speaker Hon. Premier **John Buchanan** (PC,QC), Government of Nova Scotia.

CORE Exhibitors

ACZ Marine Contractors
Ametek
Angleo Marine Enterprises
Argus
Atlantic Corro Pros.
Atlantic Geoscience Centre
Atlantic Provinces Economic Council
Atlantic Towing
Bedford Institute of Oceanography
Canada Customs
Can-Dive Services
Canadian Pacific Air Lines
Canadian Petroleum Association
CDN Oilfield Service & Supply
CDN Shipping & Marine Engineering
Cody-Food Equipment
C.P. Express & Transport
Crawford Fittings (Canada)
City of Dartmouth Industrial Commission
Dartmouth Marine Slips
Datasonic
Newfoundland Ocean Industries Dev. Office
Deregt Special Cable
Eastern Canada Towing
East Coast Offshore Magazine
Energy, Mines & Resources (Canada)
Fabriek van Plaatwerken
Federal Ministry of Economics (Germany)
Franklin Electric
Fram Industrial
Grignard
Halifax Dartmouth Industries
Halifax Industrial Commission
Halifax Industries
Halifax Office Products
Halifax Shipyards
Hawker Siddeley (Canada)
Helly Hansen
Household Movers & Shippers
IFG de Wit/Resato
Impulse
INA Walzlager Schaeffler
Industrial Control Services
Industrial Council for Oceanology
Industrial Repair & Manufacturing
Industrial Paints (Canada)
Karcher Cleaning Systems
Krupp MaK Diesel
Krupp MaK Maschinen-bau
KBS Lien, Schanzlin & Becker
Loher
Macartney APS
Marine Equipment
Maritime Telephone & Telegraph
Mercon Steel Structures
Mesotech Systems

Conference Committee

William Riley, chairman
Victor Humphreys, vice chairman
Ken Farquharson
Andrew Parker
Hugh Plant
Wynne Potter

Mobil Oil Canada
Mulgrave Industrial Commission
National Research Council (Canada)
Netherlands Council for Trade Promotion
Nortech Surveys (Canada)
Nova Scotia Business Journal
Nowea International
Nova Scotia, Government of
Ocean Industry Development Office
Ocean Resources Magazine
Offshore Resources
Offshore Trade Association of Nova Scotia
Oilweek
Old Orchard Inn
Omnithruster
Ontario, Government of
Peace Bridge Brokerage
Pister-Kugelhahne
Pitney Bowes of Canada
Quebec Department of External Trade
Rheinische Armaturen
Romor Equipment
Saint John Shipbuilding
Schmitter Truck Heating
Smit International Marine Service
Steel Plate & Sections
Strait of Canso Industrial Development Authority
Sub-Sea Systems
Telecom Canada
T.K. Valve (Canada)
TRW Pleuger
T. Thompson
Ulstein Maritime Limited
Urijhof Aankers
Voith Turbo
Windsor-West Hants Area Industrial Commission
Wormald Fire Systems

$7.3-Million Order Awarded Gould For Torpedo System Support

Gould Incorporated, Ocean Systems Division, Cleveland, Ohio, is being awarded a $7,268,552 order under a basic ordering agreement to furnish 59 homing control logical units in support of the MK-48 torpedo system. Work will be performed in Cleveland, and is expected to be completed in August 1989. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00104-85-G-0229).

Siemens Energy Names Malott Head Of Electrical Distributor Products Group

Harry S. Burker Jr., president and chief executive officer of Siemens Energy & Automation Inc., recently announced that **Thomas J. Malott** has been named group executive and vice president of the company's Electrical Distributor Products Group. Mr. **Malott** will be responsible for the Circuit Protection Division, Electrical Apparatus Division, Control Products Division, Custom Control Division, and the distributor sales organization.

The Electrical Distributor Products Group manufactures and markets molded case circuit breakers and other low voltage electrical distribution and control equipment. Siemens Energy & Automation, a member of the Siemens Group, is a manufacturer of electrical and electronic equipment and systems for electric utilities, commercial and residential construction and general industry. Headquartered in Atlanta, Ga., the company has 24 manufacturing facilities in the United States and its products are marketed worldwide.

$14.6-Million Contract Awarded NASSCO For Overhaul Work

National Steel and Shipbuilding Company, San Diego, Calif., is being awarded a $14,573,936 firm-fixed-price contract for the regular overhaul of USS Albert David (FF-1050). Work will be performed in San Diego, and is expected to be completed September 11, 1987. Fourteen bids were solicited and seven offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8192).

PROPULSION

UPDATE

Spinner II Oil Cleaning Centrifuges Reduce Engine Wear Rates

—Literature Package Offered—

The Spinner II line of in-line flow powered oil cleaning centrifuges, a product of T.F. Hudgins & Associates Inc. of Houston, Texas, is now available from Warehouse Supplier of Lawrenceville, N.J. In addition, a free complete literature package with detailed brochures and pamphlets is being offered on the oil cleaning centrifuges, which fully describes their advantages, applications and features.

The Spinner II line supple ments full-flow filtration systems on diesel, dual-fuel or spark-ignited gas engines. Self powered by the engine's oil pressure, the centrifuge uses centrifugal force to remove dirt, sludge, soot and other detrimental contaminants from the engine oil. Such major engine manufacturers as Alpha Diesel, B&W Holeby, Bergen, Caterpillar, Colt Fairbanks Morse, Deutz, Isotta Fraschini, M.A.N., Pielstick, Wartsila and Waukesha have used the Spinner II oil cleaning centrifuge as standard or as a standard option on their engines.

Three models of the Spinner II cover a range of 120 to 960 gallons per hour and servicing is as easy as removing the "dirt cake" from the inner walls of the centrifuge bowl.

Oil flow through the Spinner II is constant throughout the service life of the unit, and it is able to capture particulate matter the full-flow misses down to less than .5 microns, effectively reducing engine wear rates. Additionally, Spinner II units may be combined in parallel to accommodate any size sump capacity for effective engine wear rate reduction.

The free literature package detailing the Spinner II line of oil cleaning centrifuges, includes several color as well as black-and-white photographs, drawings, charts, and graphs fully describing the product. For a free copy,

Circle 92 on Reader Service Card

Vincent Moore Named General Superintendent Of American Marine

Vincent Moore has been named general superintendent of American Marine Corporation after working for the New Orleans shipyard for nearly a year. Mr. **Moore** has over 20 years' experience in shipyard supervision and management. He was originally hired to operate the company's newly acquired 200-foot by 108-foot, 4,500-ton drydock.

American Marine Corporation, formerly Alexander Shipyard, has been in business since 1932. It has complete machine, electrical, and diesel shops, sandblasting and painting capabilities, and drydocking facilities.

For free literature containing full information on facilities and services offered by American Marine Corporation,

Circle 81 on Reader Service Card

Deutz-powered catamaran Dolphin will operate between San Francisco and San Pablo Bay for Crowley's Red & White Fleet.

Nichols Delivers Another Passenger Catamaran To Red & White Fleet

Crowley Maritime's Red & White Fleet recently took delivery of a new 86-foot catamaran intended for passenger service between San Francisco and San Pablo Bay. The 400-passenger commuter vessel Dolphin was christened at the fitting-out yard of Nichols Brothers Boat Builders, Inc. in Langley, Wash. It will provide the first ferry service between San Francisco and Vallejo in 49 years, according to **David Pence**, general manager of the Red & White Fleet.

The new catamaran is a virtual sister vessel of the Catamarin, which the Red & White Fleet now operates between San Francisco and Marin County.

Monday through Friday the Dolphin will carry commuters on morning and evening runs between the Ferry Building in San Francisco and Vallejo. It takes a commuter some 1½ hours to drive from Vallejo to San Francisco across the Oakland Bay Bridge. The catamaran will make the same trip by water in about 50 minutes. At mid-day and on weekends, the vessel will carry passengers to Marine World/Africa U.S.A., a new theme park being built on San Pablo Bay.

Like other Nichols-built catamarans, the Dolphin was designed by International Catamarans, Pty, Ltd. of Sydney, Australia. The vessel has a beam of 31 feet 6 inches, depth to the main deck of 9 feet 2 inches, and design full-load draft of 7 feet 2 inches. Fuel capacity is 4,000 gallons and fresh water 1,000 gallons.

Two Deutz B16AM 816 diesel engines, supplied by KHD Canada, each with an output of 1,346 bhp, will drive the vessel at a top speed of 30 knots via Reintjes WVS 832 reduction gears with ratio of 1:2.29, supplied by Karl Senner, Inc. The power train includes Coolidge 5-bladed stainless steel propellers, Systems Engineering propulsion controls, and Hough-Wagner steering system. The electronics suite, supplied by PSI of Seattle, includes two Furuno radars, Furuno Loran C, Ross depth sounder, Datamarine sea temperature/speed log system, and Raytheon VHF.

Three other International Catamarans-designed vessels are under construction in U.S. yards. Nichols will deliver a 100-foot, MWM-powered cat to **Robert** and **Lori Giersdorf** for use by Glacier Bay Yacht Tours this fall. A 78-foot vessel powered by Rolls Royce engines for use as a diving party boat in the Bahamas is nearing completion in Florida, and Gladding-Hearn Shipyard in Somerset, Mass., will build a 79-foot catamaran for an eastern buyer.

Other vessels under contract at the Nichols yard on Whidbey Island in Freland, Wash., include a 150-foot topsail schooner that will be used as a medical ship in Micronesia, and a sternwheel excursion vessel for use in Fairbanks, Alaska.

In another development, the Washington State Department of Transportation has announced it will purchase the 86-foot catamaran Glacier Express from the **Giersdorfs** and use it to initiate passenger-only ferry service between Seattle and Bremerton, Wash., in October this year. The vessel will be reconditioned and renamed; Nichols delivered the Glacier Express in 1985.

To obtain free literature fully describing the shipbuilding services and facilities of Nichols Brothers,

Circle 147 on Reader Service Card

DOLPHIN
Major Suppliers

Main engines (2)	Deutz
Reduction gears (2)	Reintjes
Propellers (2)	Coolidge
Propulsion controls	Systems Engineering
Steering system	Wagner
Motor starters	Klockner-Moeller
Generators	Alaska Diesel Electric
Generator engines	John Deere
Pumps	Pacific & Pump Industries
Lifesaving & marine hardware	Fisheries Supply
Valves	Tsubota
Coatings	International Paint
Wiring/fixtures	Hardware Specialties
Anchor & rope	Everett Steel
Doors & windows	Pacific Coast Marine
Piping	Alaska Copper & Brass
Radars (2)	Furuno
Loran C	Furuno
Depth sounder	Ross
Speed log	Datamarine
VHF radiotelephone	Raytheon
Aluminum plates and shapes	Reynolds
Anchor winch	Washington Chain

Hyundai Introduces Three Standard Crude Oil Tanker Designs

Recent increases in the oil trade have prompted more tanker owners to bring their laid-up tonnage into service, while studying possibilities of replacing obsolete vessels with competitive new ones. This trend could lead to increased demand for large- and medium-sized tankers, though a more moderate scale than the tanker boom of the early 1970s.

In order to swiftly meet such market conditions, Hyundai Heavy Industries Company, Ltd. (HHI) recently introduced three standard crude oil tanker designs with deadweights of 254,000, 156,000, and 114,000 tons. Their hull form is shaped for minimum resistance and structured for increased speed and greater deadweight capacity with as light a hull weight as possible. They are each equipped with a propulsion plant having a main engine with low fuel rate, and a large-diameter, low-rpm propeller. With the latest navigation equipment, selective cargo-handling systems, and economical electrical plants, these prototypes will provide clients with optimum performance and greater economy.

HHI began its shipbuilding operation with the construction of two VLCCs in 1973. Since then the Korean yard has become a leader in the area of crude oil tankers. Its wide experience with this type ship includes delivery of 12 VLCCs, eleven 62,500-dwt crude oil tankers, and four of 80,000 dwt. HHI currently has four tankers on its orderbook, including one 254,000-dwt VLCC.

For further information and free color brochures on HHI's standard tanker designs,

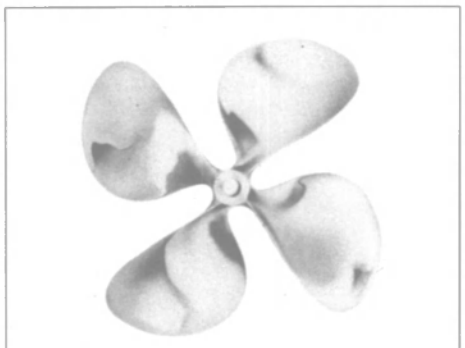
Circle 132 on Reader Service Card

Columbian CF-3 Stainless Propellers Provide High Performance And Long Life

According to **Bob Steeber,** Columbian Bronze Corporation's director of sales, the propellers now manufactured of CF-3 stainless steel alloy have the strength required to allow "fine-tuning" for maximum performance. The CF-3 does not yield under load or flex out of pitch, and is tough enough to resist erosion from cavitation and service in sandy waters.

Selecting the right alloy for propellers goes beyond metal that provides high-performance design and long life in harsh environments, Mr. **Steeber** said. It also requires a metal that has, in addition to high strength and toughness, a ductility that lets it bend a little under impact, minimizing damage to shafts, couplings, and transmissions.

Propellers made from CF-3, a readily weldable alloy, can be repaired to "like new" condition when necessary by a competent repair service.



Columbian propellers are now manufactured in CF-3 high-strength stainless steel.

Virtually all of Columbian's propeller lines—Tetradynes, Hydroflites, Makos, and Hydrosonics—can be manufactured from CF-3 stainless steel.

For additional information and free literature on Columbian propellers,

Circle 89 on Reader Service Card

The Gladding-Hearn Sally & Katherine features a Caterpillar 3408 DITA marine engine rated at 402 hp at 1,800 rpm.

Gladding-Hearn Builds Lobster Boat For New Hampshire Firm

—Color Literature Offered—

Over the last decade, Gladding-Hearn lobster boats of the Kristen & Michael class have established a well-earned reputation among New England fishermen. First built in the early 1970s, these 65-foot to 76-foot steel-hulled vessels are well-known for their quality, durability and overall offshore performance.

The latest boat of this class delivered by Gladding-Hearn Shipbuilding of Somerset, Mass., is the Sally & Katherine, built for the Sea View Lobster Corporation of Rye, N.H.

Launched this past April, the 65-foot all-steel lobster boat features a Caterpillar 3408 DITA marine engine that produces 402 hp at 1,800 rpm. Operating in companion with a Caterpillar 7211 reduction gear and Columbian Hydrosonic propeller, her oversized engine provides an abundant power reserve even at her top speed of 11 knots.

The Sally & Katherine's deckhouse is about 2 feet wider than that of earlier class boats, giving her a roomier cabin and narrower middecks. The deckhouse sports a T-shaped wood-grain-finish console, with a 24-inch Edson wheel and a full range of electronics. Interior arrangements of the deckhouse, captain's stateroom, and crews' quarters are similar to earlier class boats, but with added touches that make the Sally & Katherine special. Quality finished in oiled teak and formica, with decks of vinyl tile, the cabin spaces are more like those of a seagoing yacht. They are fully insulated against engine room noise and are comfortably heated by electric baseboard. Crew amenities include complete galley facilities, bunks for five hands and head facilities.

For lobstering duty, the Sally & Katherine has a large, fully insulated lobster hold amidships aft of the engine room. A larger insulated fish hold is aft of the lobster hold.

SALLY & KATHERINE
Equipment List

Main engine	Caterpillar
Reduction gear	Caterpillar
Propeller	Columbian
Shaft	Aquamet
Steering system	Wagner
Generator set	John Deere/Lima
Controls	Kobelt
Compass	Robertson
Radars (2)	Furuno
Fathometer	Furuno
Autopilot	Robertson
Radio navigation (2)	Standard
Loran-C	Northstar
Wheel	Edson
Bilge pump	MP
Anchor	Danforth
Searchlight	Perko
Navigation lights	Aqua Signal
Pot hauler	Scandia

Minor improvements have been made in the design of the seawater system as compared to an earlier vessel. The lobster hold is equipped with a Deming self-priming circulation pump and an electric Conde aeration system. Handling equipment includes a Scandia 16-inch pot hauler, grappling winch, takeout winch, and a 1,000-pound capacity working boom to service the fish hold. An open stern with removable safety rails provides a spacious deck area for work operations, pot handling and stowage.

A special feature of the Sally & Katherine is that her steel was presandblasted and coated with zinc prior to assembly and welding in an effort to provide added corrosion resistance and prolong the longevity of this quality vessel.

For free detailed color literature fully describing the shipbuilding services and facilities of Gladding-Hearn,

Circle 64 on Reader Service Card

National Steel Awarded $14½-Million Navy Contract To Overhaul Frigate

National Steel and Shipbuilding Company of San Diego has been awarded a $14,573,936 firm-fixed-price Navy contract for the regular overhaul of the frigate USS Albert David (FF-1050). The work will be performed in San Diego and is expected to be completed in September 1987. Fourteen proposals were solicited and seven bids were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8192).

Robertson Appoints New Sales Engineer

Robertson-Shipmate recently announced the appointment of **Thomas J. Mackie** as sales engineer.

A graduate of the State University of New York Maritime College, Mr. **Mackie** served aboard the R/V Melville of Scripps Institution of Oceanography preparing the vessel's bridge electronics for shipyard overhaul. He was then employed by Dynalytics Corporation, a consulting engineering firm, and later, by American President Lines as radio electronics officer aboard the M/V President Washington.

According to Robertson-Shipmate, Mr. **Mackie's** new position will strengthen both the company's technical capabilities and ability to service their broad customer base.

Drew And MAN B&W Conduct Joint Tests On Fuel Additive

Drew Ameroid Marine recently announced that it has completed a series of tests jointly sponsored with MAN B&W Diesel using Amergize® deposit modifier/combustion improver. The extensive tests, conducted on diesel engines both on a turbocharger test bed and on-board a ship, demonstrated the positive effect that the Amergize fuel additive has in reducing and preventing deposits on turbochargers of engines that burn today's heavy fuels.

The test rig at the Augsburg, West Germany, facility of MAN B&W was used to simulate fouling situations that these highly reliable and efficient turbochargers may experience. In these tests, Amergize-treated fuel at varying concentrations were compared with a baseline test. These tests showed not only that Amergize can reduce the fouling of a turbocharger, but that it can be done at economical dosages.

After completion of the test-bed evaluations, MAN B&W and Drew agreed to jointly sponsor shipboard trials. The vessel chosen had a medium-speed diesel engine with temporarily poor turbocharger efficiency. The ship's crew had to water-wash the T/C every 100 hours, and the T/C required frequent mechanical cleanings. This ship was chosen to see if Amergize, when applied at economical dosage rates, would significantly reduce the frequency and severity of the fouling.

After six months of comparing the baselines to the results achieved with Amergize, it was found that the ship could operate for three or more months without cleaning the turbocharger. In fact, this period might be extended, but this was the longest period during the trial in which the ship ran on Amergize. The results show that by using Amergize-treated fuels, diesel engines are able to burn blended fuels resulting in less harmful fouling, lower fuel consumption, and reduced maintenance.

Amergize fuel additive is the latest in new technology from Drew Ameroid. It is used on more than 800 ships worldwide, and has also been tested by independent laboratories with impressive results.

Drew service representatives will assist ship managers in determining specific treatment rates and dosing procedures for Amergize. In addition, the company offers its Pace® fuel evaluation program and its Red Carpet Service Program for any ship starting on Amergize, to identify the characteristics of the fuel aboard and determine dosage levels.

For additional information and free literature on Drew's Amergize fuel additive, Pace fuel evaluation, and the Red Carpet Service Program,

Circle 95 on Reader Service Card

PACIFIC MARINE EXPO

November 20-22, 1986
Seattle Center Exhibition Hall

Pacific Marine Expo, the commercial marine trade show scheduled for November 20-22 at the Seattle Center Exhibition Hall, represents the largest forum for sharing marine technology and ideas that will take place on the West Coast this year.

Sponsored by National Fisherman Expositions, the organizer of Fish Expo and Seafood Expo, Pacific Marine Expo is intended as a western alternative to Fish Expo in the even-numbered years in which that show is held in Boston. A broad spectrum of equipment vendors will showcase their latest products and services in the Exhibition Hall, while the seminar program to take place in the adjacent Mercer Forum will bring together fishing and workboat industry leaders to discuss key issues that confront them.

The 1985 Fish Expo held in Seattle drew 12,730 visitors and generated approximately $100 million in business. When surveyed at that show, some 63 percent of the visitors said they were likely to attend Pacific Marine Expo this year. That survey also revealed that 95 percent of the attending vessel operators were optimistic about their continued profitability, and envisioned making future investments in equipment and services.

Safety Conference

Now an annual event in the Pacific Northwest, the third Fishing Industry Safety Conference will coincide with Pacific Marine Expo at the Seattle Center. This year's safety conference will focus on collaborative efforts by the U.S. Coast Guard and the fishing industry to establish voluntary safety programs for fishing vessels. Such programs are aimed at helping the fishing industry reduce the losses of life and property that occur in commercial fishing operations.

In addition, voluntary safety efforts are intended to help control skyrocketing insurance costs for fishing vessels, and to provide a cost-effective alternative to proposed regulatory safety enhancement measures. Currently, there are numerous legislative proposals in Congress that would impose additional safety requirements on fishing vessel operators. Industry and Coast Guard spokesmen have lobbied against proposals that call for mandatory safety inspections aboard fishing vessels, however, and have asked Congress to give the voluntary programs a chance to prove themselves.

The Coast Guard has drafted a set of technical recommendations on the design, construction, and outfitting vessels, and has collaborated with the North Pacific Fishing Vessels Owners' Association on a set of operational recommendations for fishing vessel skippers and crewmen.

The voluntary safety program proposed by the Coast Guard also calls for the establishment of crew training programs in conjunction with fishermen's associations across the country. Such programs have now been established in the Pacific Northwest and other regions. This year's Safety Conference will feature speakers from the Coast Guard and the fishing and insurance industries.

Seminar Program

Thursday, November 20

9:00 am—"The State of the Seafood Market," presented in cooperation with *Seafood Business Magazine.* The U.S. seafood market is heating up. What is in store for West Coast producers?

9:00 am—"Public Policy and the Waterfront," presented in cooperation with the Seattle Marine Business Coalition. The cost of doing business along the waterfront is rising sharply because of development and regulatory pressures. What should our waterfront land use and environmental policies be?
Moderator: **Tom Dyer,** president, Seattle Marine Business Coalition
Panelists:
"The Political Perspective," by **Jim Street,** Seattle City Councilman.
"The Role of the Real Estate Developer," by **Richard Hesik,** Kidder, Matthews & Segner.
"The Port of Seattle," by **Pat Davis,** Port of Seattle Commission.
"The Industry Perspective," by **Bob McMahon,** Marine Construction & Design.
"Environmental Concerns," by **Phil Johnson,** Washington Department of Ecology.

Friday, November 21

9:00 am—By-Catch and Gear Selection," presented in cooperation with Pacific Marine Expo. Trawlers, crabbers, and longliners all catch fish and shellfish other than their target species. How should the complex of seafood resources be allocated among competing gear types?
Moderator: **Steve Hughes,** partner, Natural Resources Consultants.
Panelists:
"The Theories of Gear Selection," by **Dennis Lodge,** head, Fisheries/Nautical, Alaska Vocational Technical Center.
"The Politics of Management," by **Jim Branson,** executive director, North Pacific Fishery Management Council.
"The Trawler Perspective," by **R. Barry Fisher,** president, New Wave Fisheries, Inc.
"The Crabber Perspective," by **Kris E. Poulsen,** manager, Kris Poulsen & Associates.
"The Longliner Perspective," by **Mark Lundsten,** skipper, fishing vessel Masonic.

9:00 am—"Regulation and the Towing Industry," presented in cooperation with *Pacific Maritime Magazine.* How much additional regulation is likely as towing approaches the 21st Century? What are the probable consequences in terms of economics and technology?
Moderator: **Tom Bringloe,** The Glosten Associates, Inc.
Panelists:
Steve Scalzo, Foss Launch & Tug Company.
Stan Putzke, Crowley Maritime Corporation.
Bill Lawrence, American Waterways Operators.
L.A. Colluciello, National Transportation Safety Board.
Capt. **Douglas C. O'Donovan,** U.S. Coast Guard.
W.M. Hannan, American Bureau of Shipping.

Saturday, November 22

9:00 am—"The Status of the Stocks," presented by the Women's Fisheries Network in cooperation with PME. How healthy are our seafood stocks today, and how well do we understand them?
Moderator: **Shari Gross,** Gross & Associates.
Panelists:
"Salmon," **Steve Pennoyer,** Alaska Department of Fish & Game.
"Crab," **Jerry Reeves,** National Marine Fisheries Service.
"Groundfish," **Bob Francis,** Fisheries Research Institute, University of Washington.
"Halibut," **Steve Hoag,** International Pacific Halibut Commission.

9:00 am—"Third Fishing Industry

Safety Conference," presented in cooperation with the Vessel Safety Program. Are voluntary safety enhancement programs the answer to reducing fishing vessel casualties? Panelists:

"What Are the Voluntary Standards and How Will They Impact the Problem of Fishing Vessel Safety?" by Capt. **Gordon Piche,** U.S. Coast Guard Headquarters.

"The view from Washington, D.C.—A Summary of Legislative Approaches," by **Dennis Nixon,** University of Rhode Island.

"The North Pacific Fishing Vessel Owners' Association Program—Prototype for Voluntary Safety Enhancement," by **John Sabella,** Vessel Safety Program.

"How an Operating Company Responds," by **Joe Gnagey,** Westward Trailers, Inc.

"The Insurance Industry Perspective—Will Voluntary Safety Standards Translate into Cheaper Premiums?" by **Bob Taylor,** Fisherman's Insurances Services.

"The Legal Ramifications of Voluntary Safety Standards," by **Douglas M. Fryer,** Mikkelborg, Broz, Wells, Fryer & Yates.

For additional information on the Pacific Marine Expo show and seminars, contact **John Sabella** at (206) 281-8074 or National Fisherman Expositions at (206) 283-1150.

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(Continued on page 53)

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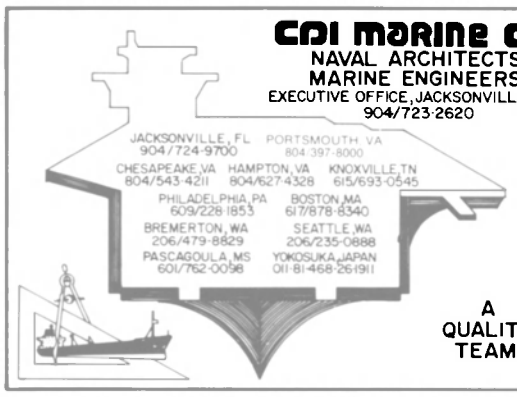

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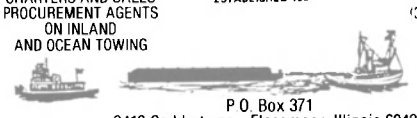

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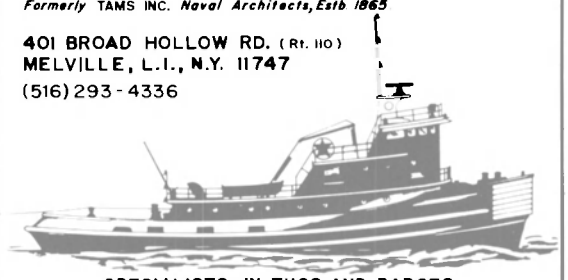

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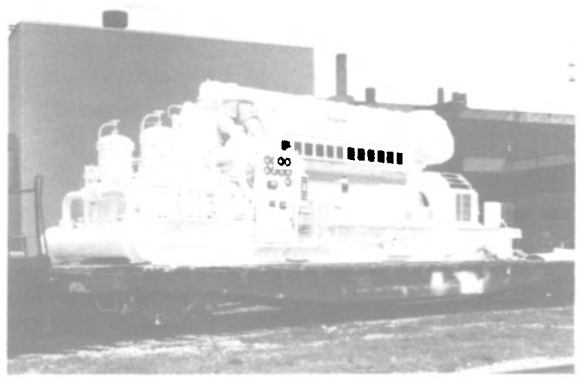
Fairbanks Morse Supplying Emergency Power For Sohio Drilling Facility In Alaska



The emergency power plant of the Sohio Endicott facility consists of two Fairbanks Morse 900-rpm turbo-charged dual-fuel engine generator sets. The 12-cylinder OP engines each generate 3,000 kw.

Sohio Petroleum Company is constructing several modules in New Iberia, La., that will be transported on barges to Prudhoe Bay, Alaska, to process oil, gas and water received from the Endicott Reservoir. They will be assembled to form an electrical generation system complex—emergency power plant, main power plant, and power system control console—to operate drilling equipment off the North Slope of Alaska.

The emergency power system was designed by Fairbanks Morse engineers to meet the requirements of the Sohio specifications. It consists of two Fairbanks Morse 900-rpm turbocharged dual-fuel engine generator sets and will be a stand-alone system used as the normal power supply until both the main power plant and the power system control console are commissioned in 1987.

For free Fairbanks Morse brochures containing additional information,

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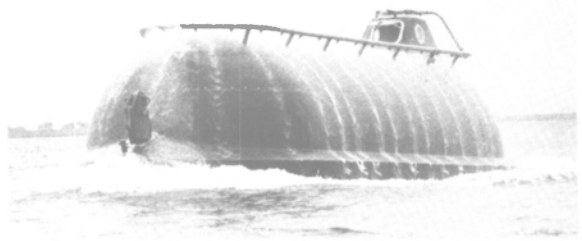
New GRP Survival Lifeboats From OME Withstand 1,000° C —Literature Available



A 71-man version of the Phoenix self-propelled hyperbaric lifeboat showing water deluge system and helmsman's position.

Halmalic Ltd., a leading United Kingdom GRP boatbuilding company, recently was chosen by Offshore Marine Engineering Ltd. to mould a range of self-propelled hyperbaric lifeboats (SPHL) for completion in OME's specialist facilities at Walsall, West Midlands, U.K.

Called the OME/Aqua Phoenix SPHL, these purpose-designed vessels are for the evacuation of up to 18 divers under pressure from diving support vessels, platforms or rigs involved in the offshore oil and gas industries. The design, by Offshore Marine Engineering, meets all existing and proposed safety-at-sea regulations, including the amended SOLAS rules and national requirements of the U.K., Netherlands, Norway and U.S.

These specialized lifeboats, moulded with fire-retardant resins throughout, consist of a totally enclosed GRP hull and canopy with full life support facilities for a five-day endurance of up to 18 divers under pressure, plus an additional four-man crew to provide round-the-clock attention.

One of the main features of the Phoenix design is the water deluge system which pumps seawater through a series of nozzles at a rate of 1,000 liters per minute on to the GRP canopy, protecting both the craft and its occupants from intense heat and possible burning during evacuation. This feature, combined with an integral air system for the crew and the engine, enables the vessel to operate in a fire or gas cloud for a minimum of 10 minutes. In a recent test, a Phoenix SPHL lasted more than 13 minutes in a fire of free-burning kerosene at over 1,000° C. The GRP hull and canopy remained intact and undamaged, according to the company. During this ordeal, the internal temperature remained at 28° C—a testimony to both OME design and Halmatic high quality mouldings.

The Phoenix design is also available as a conventional totally enclosed GRP lifeboat.

For free literature containing details on Offshore Marine Engineering lifeboats,

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Continental Maritime Awarded $4.9-Million Maintenance Contract

Continental Maritime, San Francisco, Calif., is being awarded a $4,878,885 firm-fixed-price contract for materials and services for the drydocking phased maintenance availability of USS Mauna Kea (AE-22). Work will be performed in San Francisco, and is expected to be completed January 27, 1987. Five bids were solicited and four offers were received. The Supervisor of Shipbuilding, Conversion and Repair, San Francisco, is the contracting activity (N62798-86-C-0103).

$5.6-Million Contract Awarded To Sperry

Sperry Corporation, Sperry Management Division and Defense Products Group, Great Neck, N.Y., is being awarded a $5,567,000 firm-fixed-price contract for the United Kingdom fleet ballistic missile and navigation update and Trident II effort for Ships Inertial Navigation Systems (SINS). Work will be performed in Great Neck (97.4 percent), and the United Kingdom (2.6 percent), and is expected to be completed June 30, 1987. This contract is in support of a Foreign Military Sale to the United Kingdom. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-4173).

Marathon LeTourneau Awarded Contract To Convert Rig

Marathon LeTourneau Company of Houston, Texas, has been awarded a contract by Placid Oil Company of Dallas, Texas, to convert the Penrod 72, a semisubmersible offshore drilling rig, to a floating production unit.

The conversion will be done at Marathon's Brownsville, Texas yard. The work involves a complexity of modifications to the existing piping, electrical and drilling systems, and includes the addition of a new heliport, four sponsons, vent booms and a production process support module.

In addition, on arrival at Marathon's Brownsville yard, the unit will be drydocked and a number of repairs will be made. All modifications and repairs are scheduled to be completed in January 1987. The unit will then work for Placid Oil Company in the Gulf of Mexico.

Marathon is a Penn Central Company. Penn Central manufactures products and supplies services in the areas of electronics, telecommunications, defense and energy.

For free literature on Marathon LeTourneau,

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GAUGES
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HATCH & DECK COVERS—Chain Pipe
MacGregor-Navire International, A.B., P.O. Box 4111, S-400 40 Gothenburg SWEDEN
MacGregor Navire (U.S.A.) Inc., 135 Dermody St., Cranford, NJ 07016
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

HEAT EXCHANGERS
Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144
Meco (Mechanical Equipment Co., Inc.), 861 Carondelet Street, New Orleans, LA 70130
Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130
Vapor Corp., 6420 West Howard St., Chicago IL 60648

HORNS/WHISTLES
Kohlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

HULL CLEANING
Petroferm Marine, Route 2, Box 280, Amelia Island, FL 32034
Phosmarine Equipment, 21 Bd. de Paris, 13002, Marseille, France
Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

HYDRAULICS
Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202
Bardex Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA. 93116
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030
Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607
Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091
Parker Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
Titeflex Corporation, P.O. Box 54, Springfield, MA 01109
Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

INERT GAS
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

INSULATION—Cloth, Fiberglass
Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001
Duracote Corp., 350 North Diamond St., Ravenna, Ohio 44266
Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

INSURANCE
Adams & Porter Associates Inc., 510 Bering Dr., Houston TX 77057

JOINER—Watertight Doors—Paneling
Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729
Astech, 3030 S. Red Hill Ave., Santa Ana, CA 92711
Bailey Distributors, Inc., 2323 Randolph Avenue, Avenel, NJ 07001
Masonite Commercial Division, Dover, OH 44622
Walz & Krenzer Inc., 1390 Mt. Read Blvd., Rochester NY 14606

KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039
Perko Inc., P.O. Box 6400D, Miami, FL 33164
Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209

LINE BLINDS
American Piping Products Inc., Box 1056, New Hyde Park, NY 11040
Stacey/Fetterolf Corp., P.O. Box 103, Skippack, PA 19474

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030
Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202
Del Gavio, 207 W. Central Ave., Maywood, NJ 07607. Telex: 132610 DEL-MARINE
Jered Brown Brothers Inc., 1300 Coolidge, P.O. Box 2006, Troy, MI 48007
American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080
Goltens, 160 Van Brunt St., Brooklyn, NY 11231

METAL MARKER
J. P. Nissen Company, P.O. Box 188, Glenside PA 19038

MINING
Rocky Mountain Energy, 10 Longspeake Dr., Box 2000, Broomfield, CO 80020

NAME PLATES—BRONZE—ALUMINUM
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356
American Hydromath Inc., Box 2450, Danby-Pawlet Road, Pawlet, VT 05761

American Systems Engineering Corp., P.O. Box 8988, Virginia Beach, VA 23452
Ameritech Corporation, 7 Belver Avenue, Suite 215, N. Kingston, RI 02852
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, MD 20015
Art Anderson Associates, 148 First St., Bremerton, WA 98310
B.C. Research, 3650 Wesbrook Mall, Vancouver, B.C. Canada V6S 2L2
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
CDI Marine Co., 900 Regency Square Blvd., Suite 203, Jacksonville, FL 32211
C.T. Marine, 18 Church Street, Georgetown, CT 06829
Century Engineering, inc., 32 West Rd., Towson, MD 21204
Childs Engineering Corp., Box 333, Medfield, MA 02052
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, MA 02026
C.R. Cushing, 18 Vesey St., New York, NY 10007
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202
ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401
Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
Engineering Visions, 1111 Bay Blvd., Chula Vista CA 92011
Capt. R.J. Fearson & Associates, P.O. Box 983, Tampa, FL 33601
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, NY 11050
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001
John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331
J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005
Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921
HydroComp, Inc., 10 Cutts Road, P.O. Box 865, Durham, NH 03824
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
JJH Inc. of Virginia, 330 County St, Portsmouth VA 23704
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 J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, OH 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, NY 11746
Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109
Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217
R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003
Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121
Northern Marine, P.O. Box 1169, Traverse City, MI 49685
Ocean-Oil Internatinal Engineering Corporation, 3019 Mercedes Blvd., New Orleans, LA 70114
Omega Marine Engineering Systems Inc., 11757 Katy Freeway, Suite 390, Houston TX 77079
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156
Q.E.D. Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
Sargent & Herkes Inc., 611 Gravier St., New Orleans, LA 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316
SEACOR Systems Engineering Corp., 520 Fellowship Rd., Ste C306, Mt. Laurel NJ 08054
STV/Sanders & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202
Seaworthy Systems Inc., 28 Main St., Essex CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20688; 2 Skyline Pl, 5203 Leesburg Pike, Falls Church VA 22041
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004
George G. Sharp, Inc., 100 Church St., New York, NY 10007
Simmons Associates, P.O. Box 760, Sarasota, FL 33578
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Thomas Coudon Associates, 6655 Amberton Drive, Baltimore, MD 21227
Timsco, 622 Azalea Road, Mobile, AL 36609
Tracor Hydronautics, Inc., 7210 Pindell School Rd., Laurel, MD 20707
Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

NAVIGATION & COMMUNICATIONS EQUIPMENT

AT&T Communications, 412 Mt Kemble Ave., Room N420, Morristown, NJ 07960
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
Comsat Maritime Services, 22250 Comsat Dr., Clarksburg MD 20871
A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
Henschel, 9 Hoyt Drive, Newburyport, MA 01950
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202
Kongsberg Vopenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Naval Electronics, 5479 Jetport Industrial Blvd., Tampa FL 33614
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
Navigation Sciences Inc., 6900 Wisconsin Ave., Bethesda, MD 20815 TX: 705999
Perko Inc. (Lights), P.O. Box 6400D, Miami, FL 33164
Racal Marine Inc., 1 Commerce Blvd., Palm Coast, FL 32037-0029
Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033
Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Robertson-Shipmate, 400 Oser Ave., Hauppauge NY 11788
S.P. Radio A/S, DK 9200 Aalborg, Denmark
SAIT Inc., 33 Rector St., New York, NY 10006
Simrad, 2208 NW Market St., Seattle WA 98107
Sperry Corporation, Rte 29 North, Charlottesville, VA 22906
Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA
Tracor Instruments Austin Inc., 6500 Tracor Lane, Austin, TX 78725

OILS—Marine—Additives

B P North America Petroleum, 555 US Route 1, So. Iselin, NJ 08830
Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77701
Mobil Oil Corp., 150 East 42 Street, New York, NY 10017
Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017

OIL/WATER SEPARATORS

Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
Equipment Engineering, 666 Baker St., No. 265, Costa Mesa CA 92626
FAST Systems, Inc., 1717 Sublette, St. Louis, MO 63110
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND
Marketec, Inc., 27 Bowers Lone, Chatham, NJ 07928
Mitsubishi International Corp., Machinery Div., 520 Madison Ave., New York, NY 10022
NALCO Chemical, Co., 2901 Butterfield Road, Oak Brook, IL 60521
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062
Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323

PAINTS—COATINGS—CORROSION CONTROL

American Abrasive Metals Co., 460 Coit St., Irvington NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207
Esgard, Box 2698, Lafayette, LA 70502
Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181
International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
Jotun Marine Coatings Inc., 175 Penrod Court N&O, Glen Burnie, MD 21061
Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203

PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings

Amermarine International, P.O. Box 9205, Dundalk, MD 21222
Ameron Fiberglass Pipe Division, P.O. Box 801148, Houston TX 77280
Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063
Knights Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567
Murdock Engineering, P.O. Box 152278, Irving, TX 75015
Tioga Pipe Supply Co. Inc., 2450 Wheatsheaf La., P.O. Box 5997, Philadelphia, PA 19137
Willcox, P.O. Box 484, Garfield NJ 07026

PLASTICS—Marine Applications

Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231

PNEUMATICS

Limitorque Corporation, 5114 Woodall Rd., Lynchburg, VA 24506

PROPELLER POLISHING

Aquafacs Marine Technical Services, Pier One, Berth One, Boston MA 02128
Pacific Marine Services, P.O. Box 3400, Terminal Island, CA 90731

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Allison Gas Turbine Division, General Motors Corp., P.O. Box 420 Speed code U6, Indianapolis, IN 46206
Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
BMV Bergen Diesel A.S., P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner LA 70062
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Caterpillar, Inc., Engine Division, 100 NE Adams St., Peoria IL 61629
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
Combustion Engineering, Inc., Windsor, CT 06095
Coolidge Propeller, 1608 Fairview Ave. East, Seattle, WA 98102; 3717 Industrial Rd., Pascagoula, MS 39567
Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057
Daihatsu Diesel (USA) Inc., 180 Adams Ave., Happauge NY 11788
Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
General Motors, Electro-Motive Division, LaGrange, IL 60525
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231
KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323
M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeby, Denmark
MTU of North America, 10450 Corporate Dr., Sugarland, TX 77478
MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Mitsubishi International Corporation, Mita Kokusai Bldg. 4-28 Mita 1-chome, Minato-ku Tokyo 108 Japan
National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037
North American Marine Jet P.O Box 1232 Benton, AR 72015
Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054
Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201
Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032
Riva Calzoni, Via Stendhal 34, 20144 Milan ITALY
SKF Steel, Couplings Div., 22 Waterville Rd., P.O. Box 745, Avon, CT 06001
Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166
Skinner Engine, Co., P.O. Box 1149, Erie PA 16512
Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414
Tenfjord Inc., 200 Jackson Ave., Hoboken, NJ 07030
Ulstein Maritime Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway
J.M. Voith GmbH Dept. WErung, Postfach 1940 7920 Heidenheim/Brenz, West Germany
Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021
Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647
Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072

PUMPS—Repairs—Drives

Allweiler Pump Inc., 5410 Newport Dr., Rolling Meadows, IL 60008 TX: 270-0444
Cat Pumps Corp., 1681 94th Lane NE, Minneapolis MN 55434
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
Del Gavio, 207 W. Central Ave., Maywood, NJ 07607. Telex: 132610 DEL-MARINE
FMC Coffin Turbo Pump, 326 S Dean St., Englewood NJ 07631
Goltens, 160 Van Brunt St., Brooklyn, NY 11231
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
Meco (Mechanical Equipment Co., Inc.), 861 Carondelet Street, New Orleans, LA 70130
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
Transamerica Delaval, Pyramid Pump Div., P.O. Box 447, Monroe, NC 28110
Vita Motivator Company, 200 West 20th St., New York, NY 10011
Warren Pumps Division, Bridges Avenue, Warren, MA 01083
Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231
Grasso, Inc., 1101 N. Governor Street, P.O. Box 4799, Evansville, IN 47711-0799
United Technologies, Carrier Transicold Division, P.O. Box 4805, Syracuse, NY 13221

ROPE—Manila—Nylon—Hawsers—Fibers

A.L. Don Co., Foot of Dock St., Matawan, NJ 07747
Allied Fibers, 1411 Broadway, New York, NY 10018
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666
Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986
Vermeire N.V. Industripark Zwaarveld, B-9160 Hamme, Belgium TX: 21687

SANITATION DEVICES—Pollution Control

Davit Sales Inc., P.O. Box 232, Jefferson Valley, NY 10535
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
FAST Systems Inc., 1717 Sublette, St. Louis, MO 63110
Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND

SCAFFOLDING EQUIPMENT—Work Platforms

McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238

SCALE MODELS

Oriental Industry Co., 408-29 Sokyo-Dong, Mapo-ku Seoul KOREA

SCUTTLES/MANHOLES

L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

SHAFT SEALS, MECHANICAL PACKING

EG&G Sealol Engineered Prod. Div. Marine Products Group, Warwick, RI 02888
Garlock Inc., Mechanical Packing Div., 1666 Division St., Palmyra, NY 14522

SHIPBREAKING—Salvage

Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

SHIPBUILDING EQUIPMENT

Bardex Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA. 93116
M.A.N.—GHH, Sterkrade Werfsrabe 112 D-4100 Duisburg 18, West Germany
MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156
Total Transportation System Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 248, N 5201, Os, Norway

SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, OH 45042
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
Welded Beam Company, P.O. Box 280, Perry, OH 44081

SHIPBUILDING—Repairs, Maintenance, Drydocking

Arsenale Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep: Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
Bardex Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116
Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1 (In US)-Blohm & Voss CO, Springfield, N.J.
Blount Marine Corp., P.O. Box 368, Warren, RI 02885
Brodosplit, Put Udarniku 19, P.O. Box 107, 58000 Split YUGOSLAVIA
Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada
Chesapeake Shipbuilding Inc., 710 Fitzwater St., Salisbury, MD 21801
Cityvarvet AB, Lindholmen, P.O. Box 2753, S-402 76 Goteborg SWEDEN
Conrad Industries, P.O. Box 790, Morgan City, LA 70380
Coast Iron & Machine Works, 5225-7th Street E., Tacoma, WA 98424
Curacao Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004
Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401
Enterprise Marine & Industrial Repairs Inc., Tyler & Coastwise Streets, Port Newark, NJ 07114
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
Gladding-Hearn Shipbuilding, Box D (1 Riverside Ave.), Somerset MA 02726
Good People Sea And Shore Services Inc., 255 Commercial St., North Sydney, Cape Breton Island, NS CANADA B2A 3M3
HBC Barge Co. Brownsville, PA 15417
Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, KOREA
Industrial Marine Engineering Ltd., P.O. Box 172, Suva, Fiji
Jeffboat Inc., Jeffersonville, Ind. 47130
Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057
Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409
Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094
Paul Lindenau GmbH, & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany
Lisnave, Apartado 2138, 1103 Lisbon, Codex PORTUGAL
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134
M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany
Main Iron Works, Inc., P.O. box 1918, Houma, LA 70361
Marathon LeTourneau Offshore, P.O. Box 61865, Houston, TX 77208
Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199
Marinette Maine Corporation, Marinette, WI 54143
Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 2-chome, Chiyoda-ku, Toyko, 100 Japan
MonArk Boat Co., P.O. Box 210, Monticello, AR 71655
Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077
Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552
National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048
National Steel & Shipbuilding Corp., San Diego, CA 92112
Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089
Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607
Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249
Northwest Marine Ironworks, P.O. Box 3109, Portland, OR 97208
Pennsylvania Shipbuilding, P.O. Box 442, Chester, PA 19016
Port Allen Marine, P.O. Box 108, Port Allen, LA 70767
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905
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Free 12-Page Brochure Highlights Avondale's Seven Divisions

Avondale Industries, Inc., a new employee-owned company, is offering a free 12-page color brochure on their seven divisions, including: the Shipyards, Danly, Luria Brothers, Mayville, Ortner Freight Car, Wabash Alloys and Yuba divisions.

The color publication contains sections with text on each Avondale division, describing the division's products, services and facilities. Each section contains color photographs.

From ships to die sets, Avondale Industries serves the marine, transportation, energy, defense and industrial markets around the world. The company has more than 10,000 employees, and 1985 sales of approximately $1.2 billion.

Avondale's Shipyards Division, engaged in the design, repair, modernization and construction of various commercial and military vessels, is currently building auxiliary oilers (T-AOs) for the U.S. Navy. The shipyard facilities, principally located in the New Orleans area, include multiple building ways, side-launching facilities, a floating drydock for launching vessels up to 900 feet long, and a 705-foot floating drydock. The Shipyard Division employs more than 6,000 people, and its current contract backlog exceeds $1 billion.

For a free copy of this colorful and informative brochure from Avondale Industries,

Circle 102 on Reader Service Card

Racal's ISES Improves Ship Operating Efficiency —Literature Available

Ship electronic systems covering all aspects of management afloat were presented by Racal to the international shipping community at the Europort Exhibition in Amsterdam.

Known as ISES—Integrated Ship Electronics Systems—the range of equipment is being supplied by Racal Marine Systems Limited and combines the company's extensive electronics capability with in depth understanding of ship operational requirements built up over 40 years within Decca.

The ISES concept integrates ship operational functions into central work stations so that command and control from a single point becomes practical. ISES is modular, versatile and flexible and covers the four main ship management areas: bridge, engine room, cargo and administration. Each operates in stand-alone mode or may be interconnected to exchange and dispaly information, still further improving ship operating efficiency. Data may be transferred ashore by the ship's communications equipment.

The four subsystems making up ISES are:

Bridge: IBES (Integrated Bridge Electronic System). This comes in two forms. IBES 100 is based on the Racal MNS 2000 multi-sensor navigation receiver and processor interfaced to an ARPA display and adaptive autopilot, with the facility to add an automatic chart table. Transfer of data between these units makes for a highly cost-effective integrated navigation and collision avoidance system.

IBES 1000, the more advanced and comprehensive bridge system, enables every mile of a ship's progress to be monitored and controlled to a degree of efficiency not previously attainable. It is possible not only to undertake from a single command position the safe and efficient navigation of the ship but also to perform a complete range of other functions, including voyage planning, voyage monitoring and passage economics. Full communication between the color graphics-based work station and the ARPA and automatic chart table allows for the onboard creation of electronic charts.

IBES 1000 comprises stand-alone equipment which meets or exceeds statutory requirements and a master work station with MC68000-based processor, color graphic display and control facilities which provide simple and rapid access. The work stations (each processor drives up to five) communicate with ARPA, autopilot, multi-sensor navigation receiver, automatic chart table and other navigational sensors such as log, gyro and sounders.

Engine room: ISIS (Integrated Ship Instrumentation System). This draws on Racal's 20 years of experience in marine automation. It is based on ISIS 450 which has full Unmanned Machinery Space capability and meets the requirements of all major Classification Societies. ISIS monitors and controls main and auxiliary machinery, ballast, trim, etc., from one or more locations as well as undertaking trend analysis and performance monitoring.

Cargo: ICES (Integrated Cargo Electronic System). This system undertakes stress and stability calculations as well as monitoring and controlling cargo, including tank levels, draft, temperatures and the status of valves and pumps. It also provides the capability to plan, record and produce the paperwork associated with cargo operations and personnel training.

Administration: IMAS (Integrated Management Administration System). This performs such time-consuming shipborne tasks as public and private documentation, accounts, stores and stock control, maintenance planning, training, welfare, entertainment and word processing. IMAS will, of course access administrative data in the bridge, machinery and cargo integrated systems.

ISES hardware features high definition, fast response color displays with dedicated keyboard and rolling ball cursor control, all optimized for marine use.

The ISES family, developed after extensive project studies and sea trials with British Marine Technology (formerly BSRA and NMI) and BP Shipping, presents the ship operator with new and highly flexible ways of increasing ship efficiency.

For further information and free literature on Racal's ISES,

Circle 7 on Reader Service Card

Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113
Sudoimport, 10 Usperiski Per, 103006 Moscow USSR
Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601
3. MAJ Associated Shipbuilding Industry, P.O. Box 117, 51001 Rijeka YUGOSLAVIA
Todd Shipyards Corporation, One Evertrust Plaza, Jersey City, NJ 07302
Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316
Verreault Navigation Inc., Les Mechins, Quebec, G0J 1T0
Walker Boat Yard, P.O. Box 729, Paducah, KY 42001
Waller Marine, Inc. 11777 Katy Freeway/Suite 395, Houston, TX
Westport Shipyard, Inc., P.O. Box 308, Westport, WA 98595
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

SHIPPING—PACKING
Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
Signet Corporation, 1800 West Loop South, Suite 1600, Houston, TX 77027

SIMULATOR TRAINING
Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371
Ship Analytics/Maritime Training & Research Center, North Stonington Professional Center, N Stonington CT 06359

SILENCERS
Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

STUFFING BOXES
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

SURVEYORS AND CONSULTANTS
Advanced Technologies Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102
Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073

SURVIVAL EQUIPMENT
Imperial Manufacturing Co., P.O. Box 4119, Bremerton, WA 98312
Survival International, 7859 S 180th St., Kent, WA 98032

TANK CLEANING
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

TANK LEVELING INDICATORS
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

TORSIONAL VIBRATION SPECIALISTS
T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay Houston Towing Co., 2243 Milford, P.O. Box 3006, Houston, TX 77253
Bulkfleet Marine Corporation, 1800 West Loop S., Ste 1600, Houston, TX 77027
Curtis Bay Towing, World Trade Center, Suite 800, Baltimore MD 21202
Jack Faulkner, Inc., 1005 W. Harimaw Ct., Metairie, LA 70001
McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, LA
Midland Affiliated Co., 580 Walnut St., Cincinnati, OH 45201
Moran Towing & Transportation, Two Greenwich Plaza, Greenwich CT 06830
National Marine Service, Transport Div., 1750 Brentwood Blvd., St. Louis, MO 63144
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767; Walker Boat Yard, P.O. Box 729, Port Allen, LA
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, TX 77002
Turecamo Coastal & Harbor Corp. 1 Edgewater Plaza Staten Island, N.Y. 10305

VALVES AND FITTINGS
Bailey, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747
Boston Metals Company, 233 E. Redwood St., Baltimore, MD 21202
Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056
Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663
Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139
Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Metropolitan Plumbing Supply, 5000 2nd Street, Long Island City, NY 11101
Nupro Co., 4800 E. 345th St., Willoughby, OH 44094
Parker Hydraulic Valve Division, 520 Ternes Avenue, Elyria, OH 44035
Parker Actuator Division, 9948 Rittman Road, P.O. Box 450, Wadsworth, OH 44281-0450
Parker Systems Division, 651 Robbins Drive, Box 3500, Troy, MI 48007-3500
Pittsburgh Brass Manufacturing, Sandy Hill Rd., R.D. 6 Box 387-A, Irwin, PA 15642
Stacey/Fetterolf Corporation, P.O. Box 103, Skippack, PA 19474
Stockham Valves & Fittings, Box 10326, Birmingham, AL 35202
Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236
Tate Andale Inc., 1941 Landsdowne Rd., Baltimore, MD 21227
Teleflex Inc., 771 First Ave., King of Prussia, PA 19406
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186
Whitey Co., 318 Bishop Road, Highland Heights, OH 44143
William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101
Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110
Vibranalysis Engineering Corp., 4380 S. Wayside, Suite 100, Houston TX 77087

WATER PURIFIERS
Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Atlas-Danmark Marine & Offshore Baltorpej, 154 DK-2750 Ballerup, Copenhagen, Denmark, TX 35177 Atlas DK
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130
Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

WEATHER CHART RECORDERS
Alden Electronics, 40 Washington St., Westborough, MA 01581

WELDING
Metallizing Co. of America, Inc., 321 So. Hamilton, Sullivan, IL 61951
Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912

WELDING EQUIPMENT
Enerjee Ltd., 32 S. Lafayette Ave., Morrisville, PA 19067
Erico Fastening Systems, Inc., 301 New Albany Rd, Moorestown, NJ 08057

WINCHES AND FAIRLEADS
Fritz Culver, Inc., P.O. Box 569, Covington, LA 70434
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
McElroy Machine & Mfg. Co., Inc., Lorraine Rd., Industrial Seaway, Gulfport, MS 39501
Nashville Bridge Co., P.O. Box 239 Nashville TN 37202
Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550

WINDOW WIPERS
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

WIRE/CABLE LUBRICATOR
Atlantis Services, Inc., 1057 Kings Ave., Jacksonville, FL 32207

WIRE AND CABLE
Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

ZINC
Thermal Reduction Company, 1 Pavilion Avenue, Riverside, NJ 08075
Smith & McCroken, 153 Franklin St., New York, NY 10013

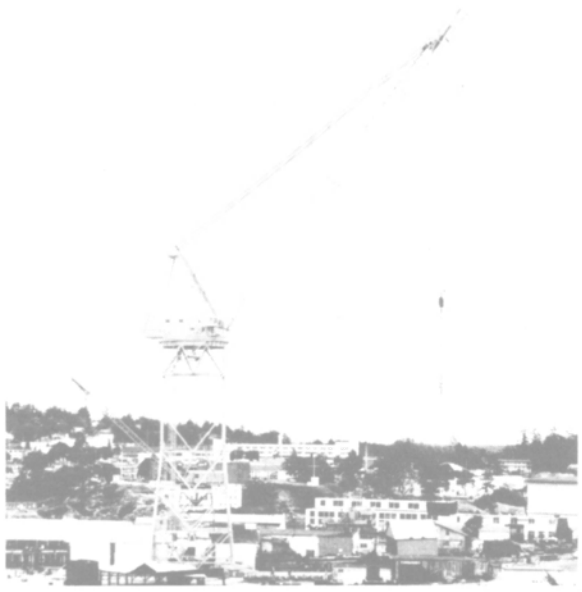
New Meter Receivers Available For Use With GEMS Tank Level Indicating Transmitters

New meter receiver stations are available from GEMS Sensors Division for use with GEMS tank level indicating transmitters. This versatile "one-design" unit contains automatic indicating meter, controls and adjustments and optional built-in alarms. The compact, modular design is available with enclosures for bulkhead or wall mounting.

For further literature containing full information,

Circle 72 on Reader Service Card

136-Ton Crane Installed At Versatile Pacific-Victoria —Free Literature Offered



Recently installed 136-ton-capacity crane at Victoria yard of Versatile Pacific Shipyards Inc.

Versatile Pacific Shipyards Inc., one of Canada's leading shipbuilders and repairers, recently installed a 136-ton-capacity crane to service the shipbuilding berth in their Victoria division.

The crane, which was designed by Washington Iron Works, will facilitate the handling of large pre-outfitted sections and features a high gantry (55 meters) and a boom of 84 meters long. It can lift 136 tons at a 40-meter radius and 50 tons at 81 meters. An auxiliary lift of 10 tons is also available.

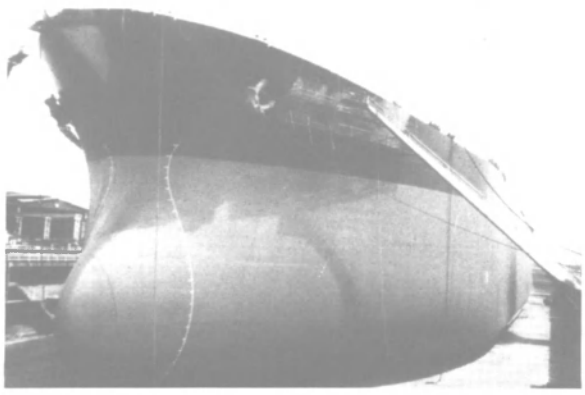
For free literature on Versatile Shipyards,

Circle 77 on Reader Service Card

For free detailed literature on the line of cranes offered by Washington Iron Works,

Circle 78 on Reader Service Card

More Than 500 Vessels Now Coated With Jotun Seaconomy



Ship No. 500 to be protected with Jotun's Seaconomy low-cost antifouling is VLCC World Champion.

The 273,117-dwt VLCC World Champion owned by World-Wide Shipping of Hong Kong recently became the 500th ship to be coated by Jotun's Seaconomy, a low-cost, selfpolishing antifouling said to give a drydocking interval of 30 months.

The range of antifoulings available from the worldwide network of Jotun Marine Coatings, headquartered in Sandefjord, Norway, incorporates the latest developments in selfpolishing, organotin copolymer technology. Seaconomy, the most recently introduced product that went on the market only 18 months ago, was specially developed to replace the long-life antifoulings at no extra cost. In addition, the company's Seamate HB gives optimum antifouling protection, while Seaflex was formulated for upgrading of existing conventional long-life antifoulings.

Providing a linear rate of biocide release, the low-cost Seaconomy is said to offer better antifouling performance than a long-life treatment. In addition, its selfpolishing action insures that there is no increase in hull roughness while in service.

Seaconomy can often be used without shotblasting, needs no sealing coat, and normally can be applied in a single coat for drydocking intervals of 24 months, depending on the condition of the hull. According to Jotun, no really effective, conventionally acting, long-life antifouling system is available for such infrequent maintenance.

The selective protective treatment on the World Champion comprised two coats of Jotun Vinylguard Silvergrey modified vinyl primer, followed by a single coat of Seaconomy. This enabled the owner to follow a very tight drydocking schedule and obtain the benefits of a selfpolishing antifouling.

For additional information and free literature on Jotun's Seaconomy and other coatings,

Circle 79 on Reader Service Card

American Ship Awards Contract For Preliminary Passenger Ship Design

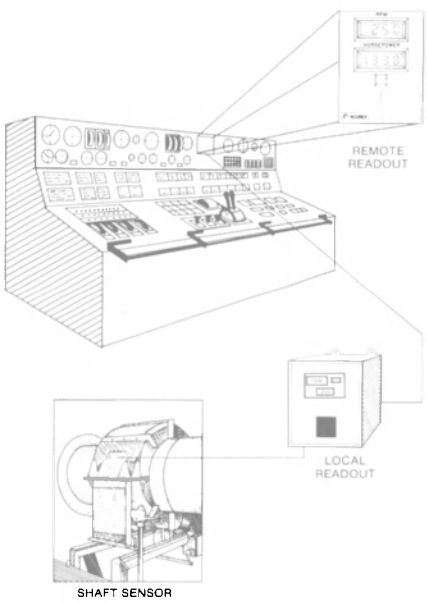
The American Ship Building Company of Tampa, Fla., recently signed a contract with the naval architectural firm of Knud E. Hansen of Copenhagen for the preliminary design and engineering, and specifications for two 800-passenger cruise ships. The Danish firm is one of the world's foremost designers of passenger vessels.

American Ship plans to build the two cruise ships at its Tampa Shipyards Inc., with portions subcontracted to another subsidiary, Nashville Bridge Company in Tennessee. The company plans to operate the ships in the Hawaiian interisland trade with an as yet unidentified partner.

These ships would be the first big oceangoing passenger vessels built in the U.S. since the SS United States was delivered in 1952.

Free Eight-Page Brochure On Marine Powermeters Offered By Acurex

Acurex Corporation, Autodata Division, Mountain View, Calif., has published a free eight-page brochure on "Powermeters for Marine Environments."



Acurex Model 1600A Series Horsepower Measurement Systems consist of two major interconnected units. A shaft sensor unit that measures the torque and rpm, and a readout that displays torque, rpm, and calculated horsepower.

The introduction explains that the Acurex Model 1600A Series Horsepower Measurement Systems are used to display instantaneous horsepower and rpm on large ship's main propulsion shafts. Horsepower is computed from torque and rpm. The Acurex horsepower meters are used for a variety of applications including fuel conservation system, ship's powerplant monitor, sea trials horsepower meter, twin-screw load balancing, and hull fouling determination.

The system mounts directly on the main propulsion shaft and requires only 56 cm (22 inches) of shaft length. All systems are totally precalibrated, requiring no further adjustment. The Model 1600A measurement systems continuously display shaft horsepower, torque, and rpm.

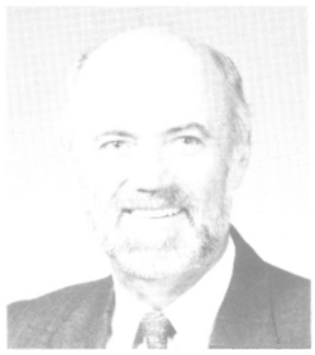
Features and benefits include: ready to use immediately after installation; easy and rapid installation; no shaft redesign or disassembly; shaft sensor operates in harsh environments; low maintenance; not affected by torsional pulses; and zero and full-scale calibration verification while underway.

In addition to a description of the system, the publication discusses system components, operation, 1600A specifications, options, etc.

For a free copy of "Powermeters for Marine Environments" from Acurex Corporation,

Circle 71 on Reader Service Card

Continental Grain Elects Robert Gardner VP, ContiCarriers & Terminals



Robert Gardner

Continental Grain Co. has elected **Robert Gardner** to vice president-general manager of ContiCarriers & Terminals, Inc., a Continental Grain unit based in Chicago. He reports to **John Zick,** vice president and general manager, Chicago region, of Continental's North American Grain Division.

Mr. **Gardner** had been vice president-marine operations for ContiCarriers & Terminals since 1982.

ContiCarriers & Terminals, Inc. is an inland marine transportation and bulk commodity handling subsidiary.

Hyundai Gets $27-Million Contract To Build Tanker For Fred. Olsen Of Norway

Hyundai Heavy Industries Co., Ltd. of Ulsan, South Korea, has been awarded a contract by Fred. Olsen & Company of Oslo for construction of a 156,000-dwt tanker at an estimated cost of $27 million.

The Norweigan firm ordered the mid-sized tanker on behalf of three other companies—A/S Bonheur, A/S Borgaa, and A/S Granger Rolf. After delivery in 1988, Olsen will take the vessel on long-term charter.

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- **Outstanding Oceangoing Ships Annual**
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- **Special Navigations/ Communications Equipment Review**
- **Naval Technology & Shipbuilding Edition**
- Finalized U.S. Navy Programs for 1986-87
  —Latest Changes & Developments
  —Full Statistics
- **PLUS**—A wealth of current marine business and technical information first.

JANUARY 1987 ISSUE

Advertising Closing Date—**December 10**

- **Special Workboat/Shallow Draft Industry Issue**
- **PLUS**—A wealth of current marine business and technical information first.

FEBRUARY 1987 ISSUE

Advertising Closing Date—**January 10**

- **1987 NAVY ANNUAL**
- **U.S. Navy Shipbuilding Programs**
- **PLUS**—A wealth of current marine business and technical information first.

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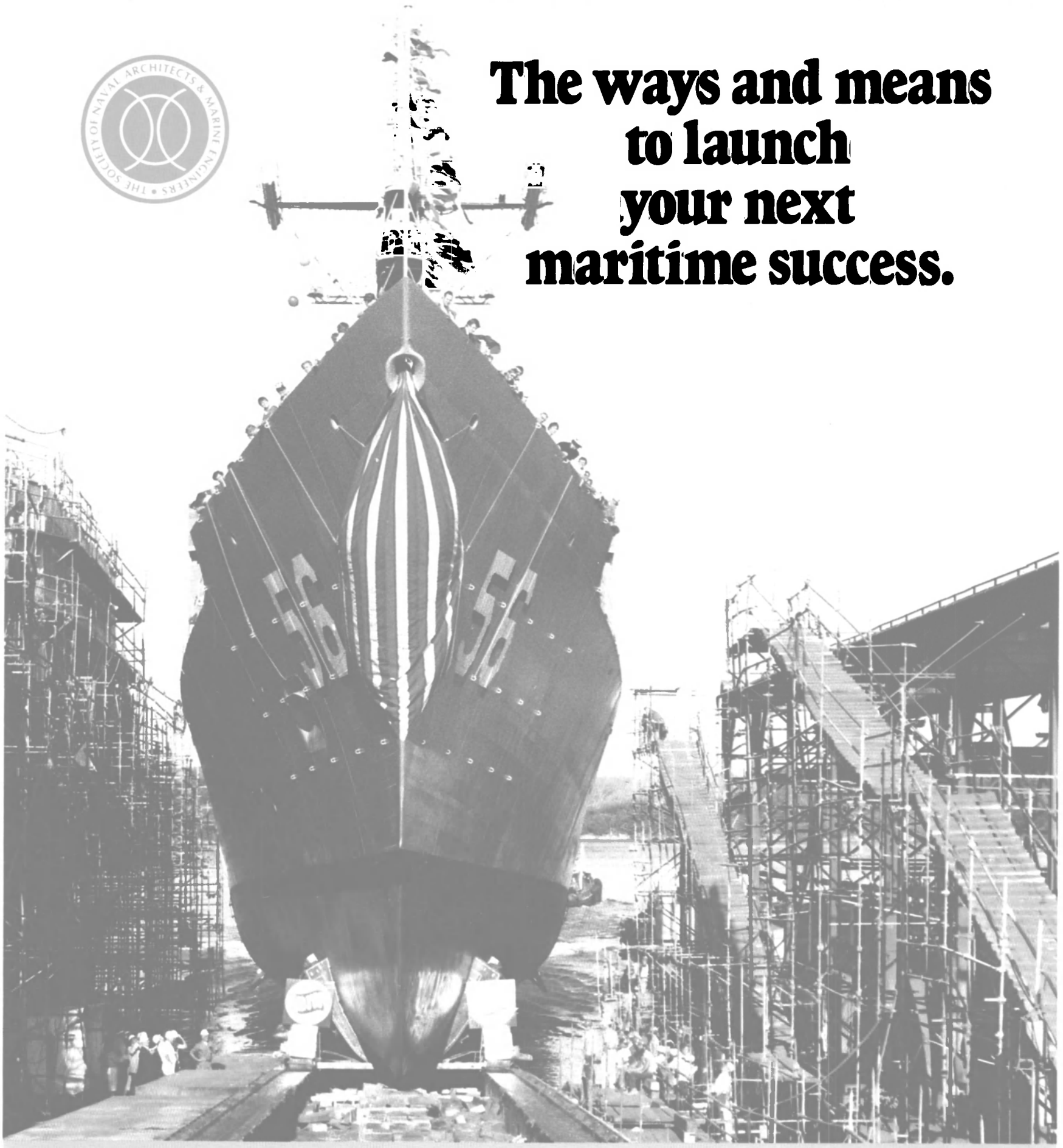

The Fifth International Maritime Exposition

November 19-21, 1986 New York Hilton

During the 94th Annual Meeting of the Society of Naval Architects and Marine Engineers

SHOW HOURS:
Wednesday, November 19: 2 pm to 6 pm
Thursday, November 20: 10 am to 6 pm
Friday, November 21: 10 am to 4 pm

From keel to truk, all the latest marine products and services will be on display at The Fifth International Maritime Exposition. It's an excellent way to preview and review the key offerings of your top suppliers. All at one time, all in one place. Sponsored again by the prestigious Society of Naval Architects and Marine Engineers (SNAME), this event promises to be a valuable learning experience for all who attend. And as in past years, you can attend whether you're a SNAME member or not. For free tickets to the exposition, contact the Reber-Friel Company, exposition management, 221 King Manor Drive, King of Prussia, PA 19406, (215) 272-4020.

Circle 216 on Reader Service Card

Marine Travelift Big Capacity Mobile Shiplifts Offer Ship Yards More Service Opportunities

250AMO with 136′ LCU at Davis Boat Works, Newport News, VA.

Expand your boat service opportunities with Marine Travelift's new 500 ton capacity or the 250 ton capacity mobile shiplifts...and capture a larger share of profits.

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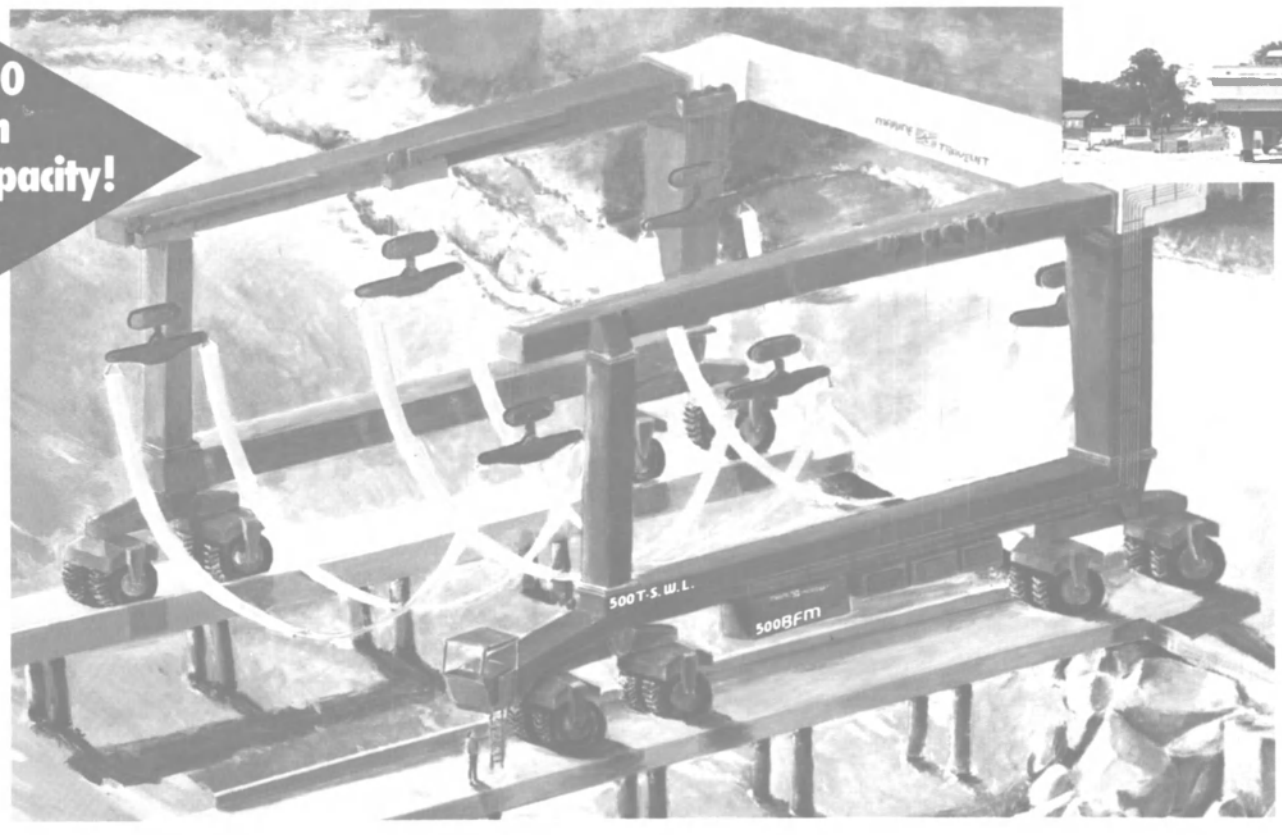
250 AMO with 108 YP Navy Training Vessel at U.S. Navy Small Craft Repair Facility, Annapolis, Maryland.



500BFM Mobile Shiplifts to handle boats to 200′ with beams to 40′

For more information and complete specifications on our large capacity lifts or our complete line of mobile boat hoists with capacities from 15 to 500 tons, contact your local representative or Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235 • 414-743-6202 • Telex: TRAVELIFT STGB 260056 • FAX: 414-743-1522.

Circle 150 on Reader Service Card

MARINE TRAVELIFT INC.