

MARITIME REPORTER

AND
ENGINEERING NEWS

DECK MACHINERY REVIEW



Photo courtesy of MacGregor Comanin

**Market For Deck
Machinery Sparked By
Offshore Rig Boom**
(SEE PAGE 10)

FEBRUARY 1, 1981



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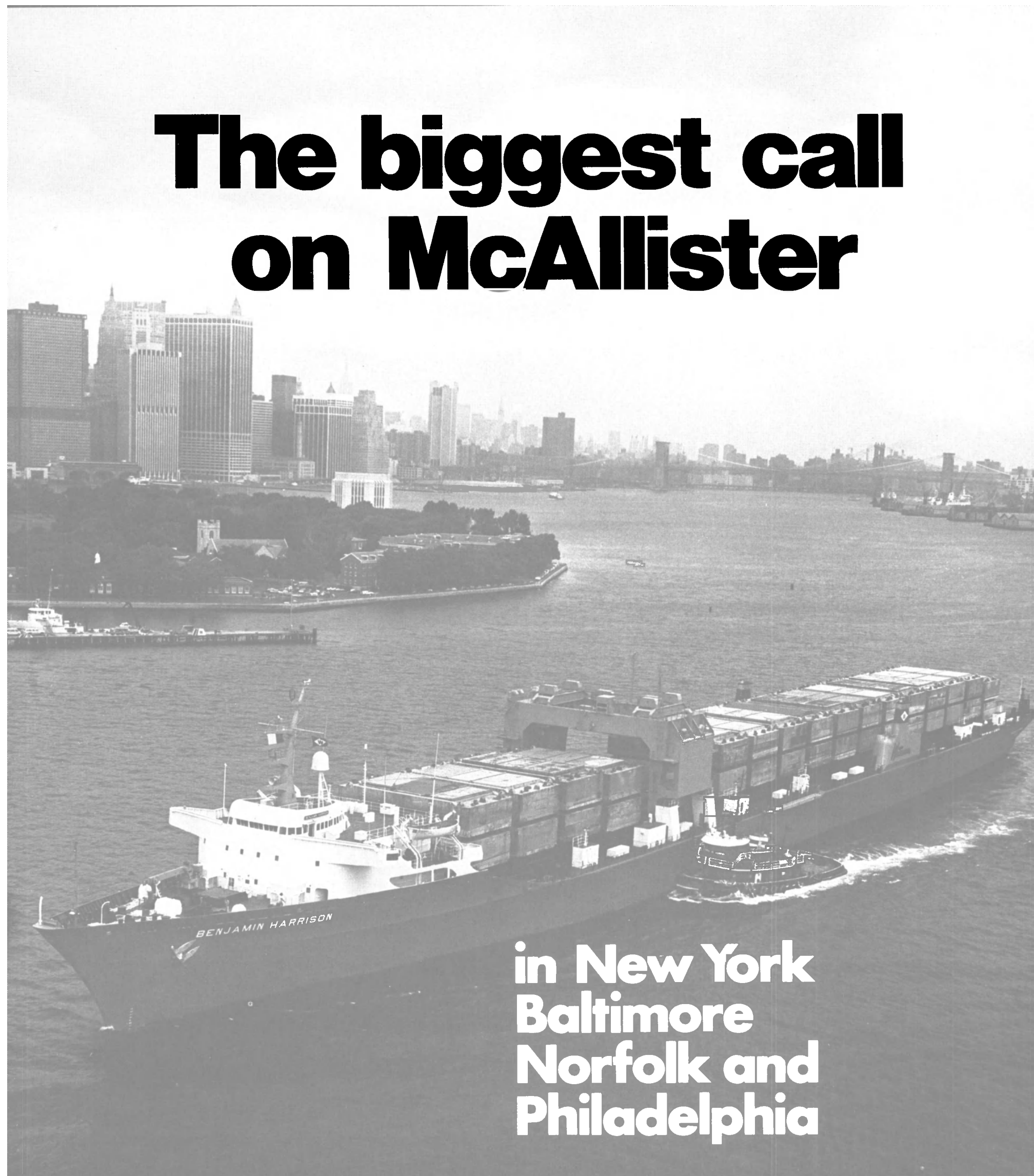
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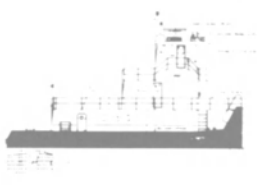
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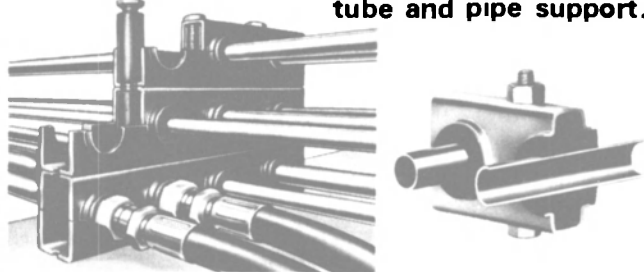
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Title XI Approved For Houston Offshore Jackup To Cost \$28.8 Million

The Maritime Administration has approved in principle an application from Houston Offshore Limited IV, a subsidiary of Houston Offshore International, Houston, for a Title XI guarantee to aid in financing the construction of a jackup drilling barge.

Bethlehem Steel Corporation, Sparrows Point, Md., was selected to build the 220-foot-long, mat-supported drilling barge. Delivery has been set for June 1, 1981. Houston Offshore Limited IV plans to use the barge along the U.S. Gulf Coast.

The approved Title XI guarantee amount of \$21,607,000 represents 75 percent of the barge's \$28,810,000 estimated actual cost.

Irv H. Dennen Named President Of Fairbanks Morse Engine Division



Irv H. Dennen

Irv H. Dennen has been appointed president of the Fairbanks Morse Engine Division at Beloit, Wis. He assumes responsibility for all of the operating functions of this important division of Colt Industries.

Mr. Dennen first joined Colt as president of the Pratt & Whitney Machine Tool Division in 1970. In 1979 he joined the Ingersoll Milling Machine Company as executive vice president. He is a graduate of the University of Michigan with BSE and MSE degrees in mechanical and industrial engineering. After service as an officer in the U.S. Navy, he obtained a law degree from DePaul University.

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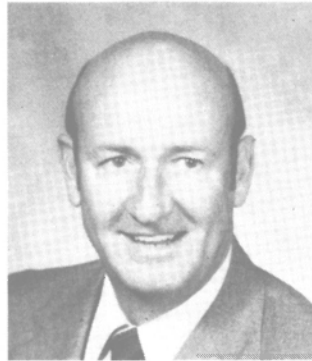
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J.P. MacGregor Named General Manager For Schnitzer-Levin Marine



James P. MacGregor

James P. MacGregor has been named to fill the newly established position of general manager for Schnitzer-Levin Marine Company in San Francisco. He will be responsible for coordinating overall company activities, according to Wallace Z. Levin, managing director for the firm. Schnitzer-Levin supplies electrical, steam, and diesel equipment for marine and industrial firms. In the past year, it expanded to provide engineering and technical services on an international basis.

Mr. MacGregor previously was Western regional manager for the Installation and Service Engineering Division of General Electric Company. He is a registered professional engineer in California and Massachusetts.

C.J. Bolger Appointed President Of Alexander Marine Associates



Christopher J. Bolger

William B. Alexander, chairman of the board of Alexander Marine Associates, Inc., announces the appointment of Christopher J. Bolger as president of the corporation. Mr. Bolger previously had been vice president of the New York office.

Sale Of IOT To Southern Natural Resources Closed —Executives Announced

Southern Natural Resources, Inc. of Birmingham, Ala., has completed the purchase of Interstate and Ocean Transport Company of Philadelphia. Interstate and its affiliates own and operate the largest independent fleet of coastal tank barges and tugs in the United States.

Henry C. Goodrich, chairman and chief executive officer of

Southern Natural Resources, and Adrian S. Hooper, chairman and chief executive officer of Interstate, jointly announced the closing. Terms of the acquisition, as previously announced, call for cash and short-term notes in excess of \$100 million.

Mr. Goodrich said that the headquarters of the new wholly owned subsidiary of Southern Natural will remain in Philadelphia. Mr. Hooper will continue to

serve as chairman and chief executive officer of Interstate and Ocean Transport Company, and he has also been elected a vice president of Southern Natural Resources. Mr. Goodrich also said that Stephen A. Van Dyck, formerly executive vice president of Interstate, has been named president and chief operating officer, and John C. Newcomb, formerly secretary, has been named vice president, general counsel, and

secretary of the new Southern Natural subsidiary.

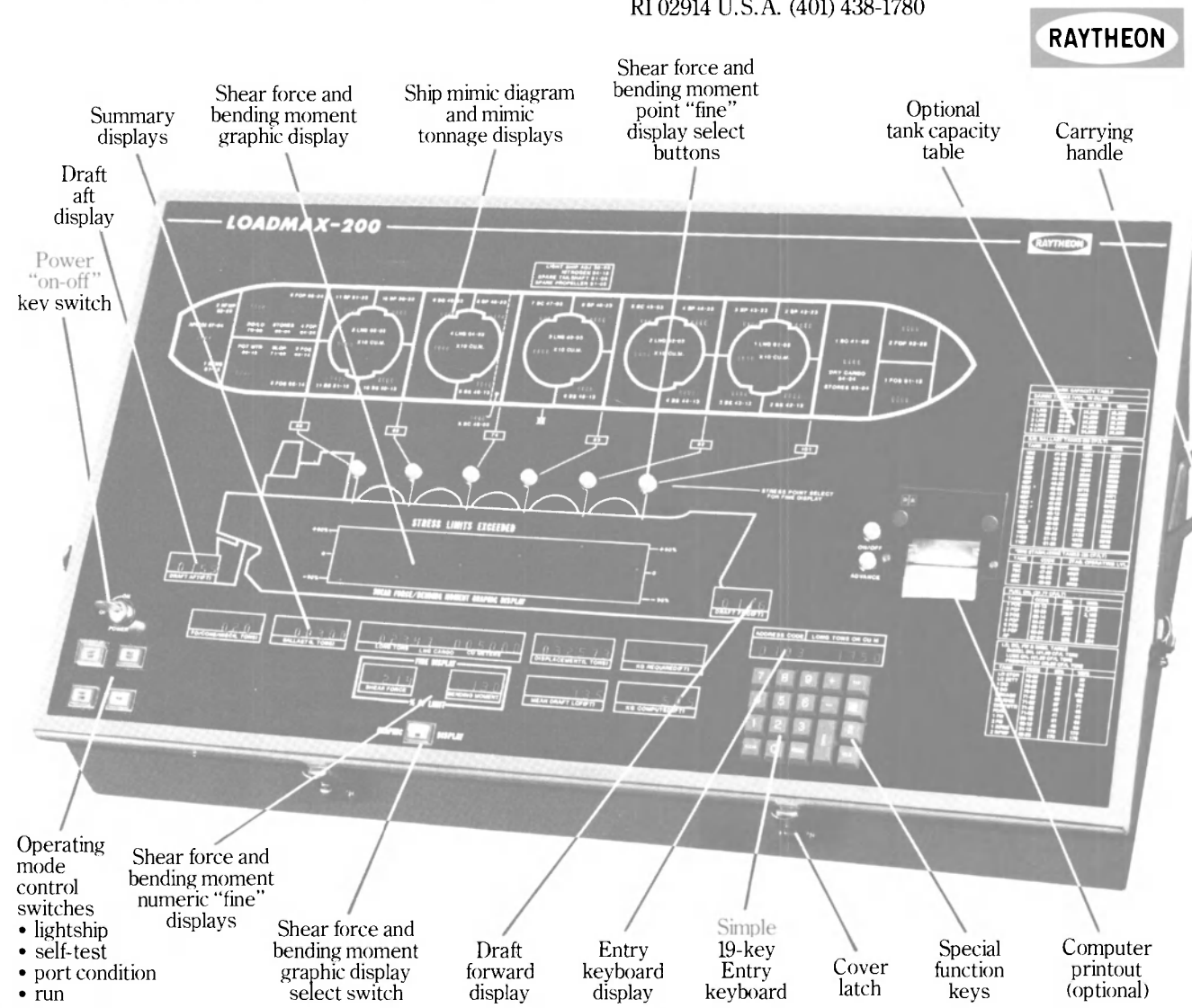
Mr. Hooper has held various posts at Interstate since joining the firm in 1950. He became president in 1963 and chairman in 1973. Mr. Van Dyck joined Interstate in 1974, after holding posts in investment banking and electronics manufacturing. Mr. Newcomb joined Interstate as secretary in 1975 from private law practice.

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**Two New River Terminals
Added By Alter—Third
To Be Constructed**

Alter Company of Davenport, Iowa, has announced the recent addition of two new river terminals in Rock Island, Ill., and Omaha, Neb., and a third terminal soon to be constructed in Burlington, Iowa.

The Rock Island river terminal handles dry bulk, liquids, steel,

lumber, and other commodities. Within the 88,000 square feet of enclosed space, storage and bagging services are performed. The balance of the 20-acre site will be used for outdoor storage and expansion. The terminal, located at Mile 480.8 on the Upper Mississippi River, is serviced by the Burlington Northern and the Milwaukee Railroads. Interstate highway connections can be made via Illinois 92, an expressway two blocks from the terminal.

The South Omaha river terminal, currently under rehabilitation, has 18,800 square feet of enclosed storage and 30 acres for outdoor storage and development. Located at Mile 612.2 on the Missouri River, the Omaha facility is serviced by the Burlington Northern Railroad and is easily accessible from a major highway.

At Burlington, Iowa, the company has received permits from the U.S. Corps of Engineers to erect a 200-foot dock, several

cells, and railroad trackage. Various development schemes are being studied for the 90-acre site. Located at Mile 398 on the Upper Mississippi River, the site is situated at the closest point on the Mississippi to the Wyoming coal fields. The fields are served by the Burlington Northern Railroad.

Alter's other river terminals are at St. Paul, Minn.; LaCrosse, Wis.; and Buffalo, Iowa.

**Dockery Succeeds Warden
As President Of
Raytheon Marine**

Charles J. Dockery has been promoted to president of Raytheon Marine Company, Manchester, N.H. He had served as vice president and assistant general manager since last May.

Raytheon Marine Company, a division of Raytheon Company, is a leading international producer of marine electronic equipment for oceangoing vessels, commercial fishing and workboats, and pleasure craft. Mr. Dockery will also serve as president of Sorensen Company, a Raytheon unit producing power supplies and related products at the company's Manchester plant. He succeeds Richard V. Warden who has resigned to pursue other business interests.

Prior to joining Raytheon, Mr. Dockery was vice president-operations with the Signal Division of Federal Signal Corporation, Chicago. From 1966 until 1975 he served as vice president-operations with Kollsman Instrument Company, Merrimack, N.H. Earlier, he worked for ARMA Corporation, Garden City, N.Y.

**Omnithruster Awarded
INMA Tuna Fleet Contract**

Charles M. Aker, vice president and general manager for Omnithruster Inc., has announced the award of a contract from Industrie Navali Meccaniche Affini S.P.A. (INMA), La Spezia, Italy, for Omnithruster maneuvering and slow-speed propulsion systems for a fleet of tuna vessels being built by their shipyard. Capt. Craig Connors, well-known tuna boat owner and fish processor of San Diego, will head the technical direction of the consortium.

According to Mr. Aker, "The Omnithruster systems were chosen because patented features provide many advantages for fishing operations, among which are: thrusting underway and in currents while pitching in heavy seas; thrusting during net-setting operations, thus reducing the need for a skiff; the ability to automatically hold heading during brailing; and to provide emergency steering if the rudder or steering system should fail by producing side thrusting while underway; also to provide emergency slow-speed propulsion in the event that a ship's single engine

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were to fail; smaller openings in the hull than with conventional thrusters meaning less drag and increased fuel savings."

The INMA 240-foot tuna vessels will be equipped with JT800, 600-hp Hydrojet Omnithruster systems providing a propulsion option utilizing patented Thrust Directors™, all of which will be contained within the hull, and controlled by Omnitrol™ Model 1000A electronic units.

Alvin Goodspeed Named General Sales Manager At GM-Detroit Diesel



Alvin B. Goodspeed

Alvin B. Goodspeed, general director of export sales, automotive components for the General Motors Marketing Staff, has been named general sales manager of Detroit Diesel Allison Division, General Motors Corporation. He will have executive responsibility for the Division's sales and service operation, worldwide, according to Donald J. Atwood, DDA general manager and a GM vice president.

Mr. Goodspeed joined General Motors with the AC Spark Plug Division in 1952 in Milwaukee, Wis., as a contract coordinator. He subsequently held the positions of contracts manager, director of sales, and director of material at AC's Milwaukee Operations.

In 1970, Mr. Goodspeed was named general sales manager for the newly formed Delco Electronics Division in Kokomo, Ind. He moved to GM Overseas Operations in 1973 as manager of sales coordination for the automotive components staff in Detroit. He has been general director of export sales for automotive components with the GM Marketing Staff since 1978.

Bath Iron Works To Build \$25-Million Training Simulator For U.S. Navy

Maine Congressman David F. Emery announced recently that a contract for approximately \$25 million has been awarded by the U.S. Navy to Bath Iron Works to construct a unique training simulator at the Great Lakes Naval Training Center to teach future crewmen of guided-missile frigates. The First District Congressman was the principal speaker at the launching of the guided-

missile frigate Gallery (FFG-26).

BIW will build the sophisticated training facility at the Illinois base. It will consist of major propulsion components of the FFG-7-class guided-missile frigates, 13 of which are now under contract at the Maine shipyard. The project will be supervised for the Navy by Capt. Charles L. Mull, USN, Supervisor of Shipbuilding at Bath.

"The simulator will be an exact duplication of the shipboard en-

gineering environment, said John F. Sullivan Jr., president and chief executive officer at BIW. "Trainees will feel they are aboard an actual frigate as they learn how to get underway on dry land."

BIW will build major units of the simulator at the shipyard, barge them to the Illinois naval base, then assemble them in the center's new Marine Gas Turbine Propulsion System Maintenance and Operational Training Facil-

ity. The Navy expects to train about 1,000 students a year in the simulator, which will include main propulsion, auxiliary machinery, command, and control stations.

The contract calls for planning to get underway immediately, construction of the units to begin in October of 1982, and the project to be completed in April of 1983. Some BIW employees will be temporarily transferred to the Great Lakes area for the project.

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to

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We initiated this transaction, served as financial adviser to IOT Corporation, and assisted in the negotiations.

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January 1981

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Present at Avondale Shipyard for recent APL keel laying were (L to R): Larry Marshall, APL administrative assistant; Tom O'Brian, APL hull inspector; Lt. Cdr. Don Tunstall, USCG inspector; Buddy Roberts, ASI lead production engineer; Eugene K. Pentimonti, APL vice president-engineering; Rick Adler, ASI project manager; Herb Lyman, APL hull inspector; P.E. Griffin, APL senior inspector; Robert Adams, APL construction representative; John Smith, ASI assistant program manager; R. Bloom, Marad construction representative; and S. Altieri, APL machinery inspector.

Avondale Lays Keel For Largest U.S.-Built Diesel-Powered Containership

The keel for the first of three diesel-powered containerships under construction for American President Lines (APL) was laid recently at Avondale Shipyards, Inc. (ASI) near New Orleans. These three containerships will be the largest ever built in the United States, and the first domestically owned and built with diesel propulsion.

Each of the 860-foot, single-screw vessels will be powered by a slow-speed, direct-coupled, Allis

Chalmers Sulzer 12RND90M diesel engine, also constructed in the U.S. With an output of 43,200 bhp at 126 rpm, they will be capable of sustaining a maximum service speed of 25 knots at the design draft of 29 feet 7 inches. Each ship will have a carrying capacity of 2,500 twenty-foot containers.

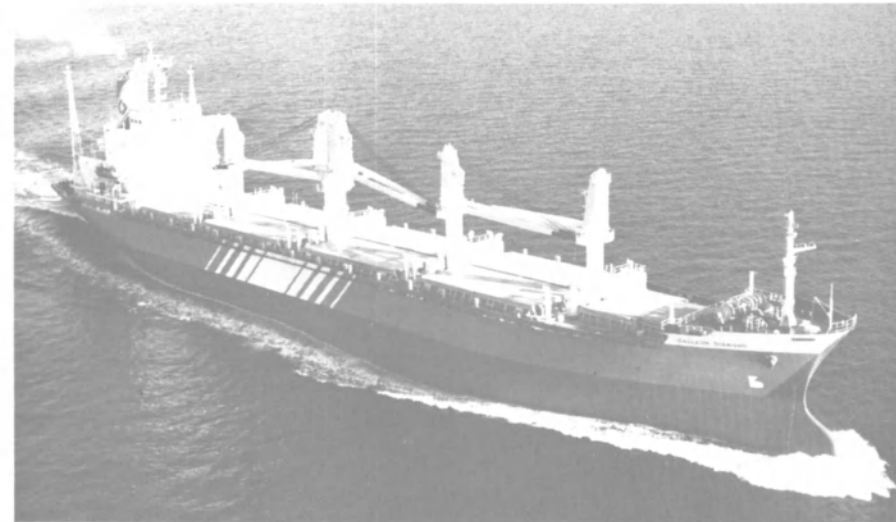
Attending the keel-laying ceremonies for the first vessel were: Eugene K. Pentimonti, APL vice president-engineering; Lt. Cdr. Don Tunstall, U.S. Coast Guard

inspector; Rick Adler, ASI project manager; R. Bloom, MarAd construction representative; Robert Adams, APL construction representative; Buddy Roberts, ASI lead production engineer; and

other officials from the shipyard and APL.

American President Lines, Ltd., based in Oakland, Calif., is a subsidiary of Natomas Company of San Francisco.

Cargo Ship For Philippines Owner Delivered By Hitachi



The 19,407-dwt cargo ship Galleon Diamond (shown above) was delivered recently to Galleon Shipping Corporation of the Philippines by the Hiroshima Works (Innoshima) of Hitachi Zosen, Japan. She is the first of three sister ships ordered from Hitachi by Galleon; one more will be constructed at the Hiroshima Works and the other will be built at the Setoda Shipyard of Naikai Zosen, an affiliate of Hitachi.

Galleon Diamond is designed to carry containers, lumber, bulk, and other cargoes. She will also be used to carry tobacco, coconut products, and hemp, therefore all cargo holds are fitted with de-

humidifiers. The ship is equipped with three 16-ton cranes for general cargo, and one 50-ton, twin type deck crane for extra-heavy cargoes such as construction machinery.

The single main engine is the newly developed, long-stroke Hitachi B&W diesel, type 6L67GFC, with constant-pressure turbocharging. This fuel-efficient, two-stroke engine has a maximum continuous output of 11,200 bhp at 119 rpm; maximum trial speed was 19.8 knots.

Built to American Bureau of Shipping classification, the 13,886-gt vessel has an overall length of 498.7 feet, beam of 75.8 feet, depth of 46.3 feet, and design draft (full load) of 32.5 feet.

Vemar Shipyard Delivers Its First Offshore Rig To Glendell Drilling

Vemar Shipyard, Channelview, Texas, VECO International's offshore rig construction facility, recently celebrated the completion of its first drilling rig. Nearly 600 people attended the christening ceremony at the Vemar yard.

Vemar built the \$12-million posted barge rig for Glendell Drilling Company. The new barge, which took over four months to complete, is a wetlands rig for use in the shallow waters of southern Louisiana. It has the capacity to drill down to 20,000 feet.

Mrs. Delwin C. Stults, wife of Glendell's president, broke the traditional bottle of champagne to give the rig its official name, Mr. Del. Vemar general manager Charles Johnson said: "Over the next few years we have orders to build 10 rigs, but none will be as special as the first. This one stands as a monument to all the people who had a hand in building it." Vemar currently employs more than 300 persons.

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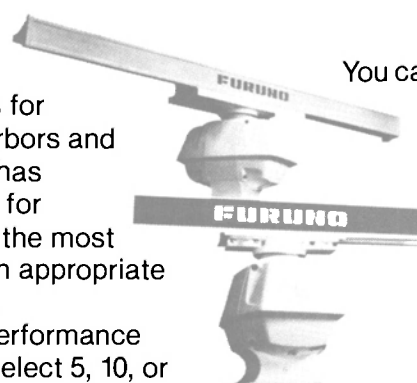
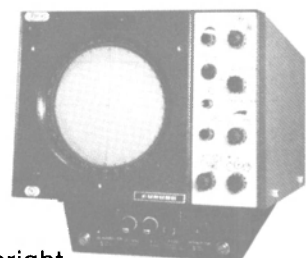
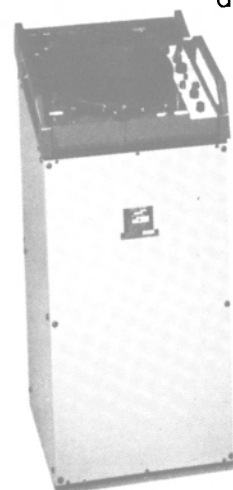
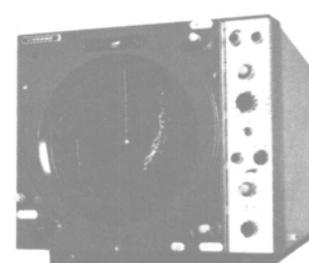
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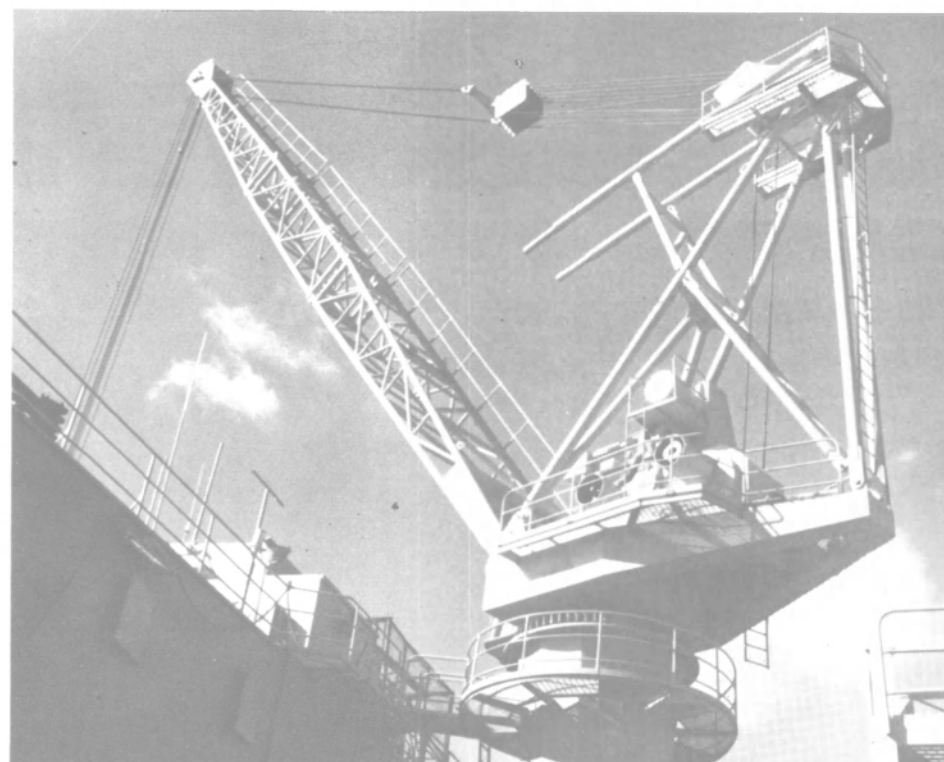
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MARINE DECK MACHINERY A REVIEW



Marathon LeTourneau's Marine Pedestal Crane

The boom in offshore drill rig ordering during the past year—a total of 156 were contracted for during 1980 worldwide — broke all previous records. At year-end, there were 195 rigs of all types on order. This, along with the hundreds of vessels needed to serve these new rigs, has sparked the market for all types of deck machinery, including cranes,

winches, capstans, windlasses, and mooring systems.

We asked the major manufacturers of deck machinery to tell us about their equipment and marketing plans; this review is based on their replies. For additional information and free literature on deck machinery,

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ALASKA MARINE CRANE



Alaska Marine Crane of Seattle recently announced the introduction of its model MCF 2550 platform-mounted marine crane. This new product gives the company a line of platform cranes with lifting capacities ranging from five to 35 tons.

The hydraulic-operated MCF 2550 has a 25-ton lift capacity at 10-foot radius; pedestal diameter is 41 inches. The 50-foot boom has continuous swing rotation in either direction up to two revolutions per minute. Hinge pins, cylinder rods, and fasteners are stainless steel. The hydraulic winch is a high-speed model with 300 feet of wire rope, and four-part fall block with swivel hook and safety latch.

Alaska Marine sees the unique rotating cab with self-contained power pack, and the high pedestal as the main selling features of the MCF 2550, and the major markets the offshore, shipbuilding, and fishing industries. The new crane is fully certified by the American Petroleum Institute, and has a six-month factory warranty.

Left: Alaska Marine Crane's new Model MCF 2550 platform-mounted marine crane.

APPLETON MARINE

The Appleton Marine Division of Appleton Machine Company in Appleton, Wisc., designs and manufactures a wide range of marine deck equipment, including all styles of cranes and winches as well as deck fittings. Each design is governed by appropriate regulatory agencies such as the American Bureau of Shipping, U.S. Coast Guard, American Petroleum Institute, and Det norske Veritas. The division serves all sectors of the marine market, including offshore drilling units and support vessels, and oceangoing ships.

Among the major Appleton

Marine products are: dual wild-cat offshore mooring winch for mooring offshore drill ships and semisubmersibles; swivel fairlead and chain stopper, part of a drill ship mooring system; three-section, extendible-boom crane rated 1,500 pounds at 38 feet; 300-hp electro-hydraulic, hose-handling crane rated 15 metric tons at a 54-foot outreach; and the aluminum Sea-Lift® crane, built to American Bureau and Coast Guard specifications, which features 360-degree continuous slewing and boom tip braking system to prevent the load from swinging.

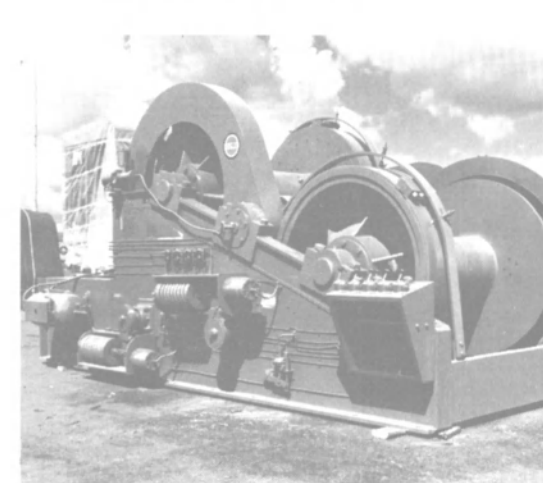
Other Appleton products include anchor windlasses, oceanographic winches, deck fittings, knuckleboom cranes, diving system winches, and mooring system control consoles.

BEEBE BROS.

Beebe Bros., Inc. of Seattle recently announced a major new improvement to the Beebe-65 Barge Winch, which is widely used throughout the industry, an electric brake that increases holding capacity from 60,000 to 70,000 pounds. The barge connector with the new, higher holding capacity brake continues to feature quick-release dogs with holding capacities up to 100,000 pounds. According to Beebe, the design of the electric brake not only increases braking torque and holding capacity, but reduces brake adjustment requirements and extends brake life.

Built for use with 1¼-inch-diameter and smaller lines, the unit is said to be fast and easy to operate electrically by remote control from the pilothouse, deck, or both. The Beebe-65 winch is also available with air or hydraulic motors.

CLYDE IRON

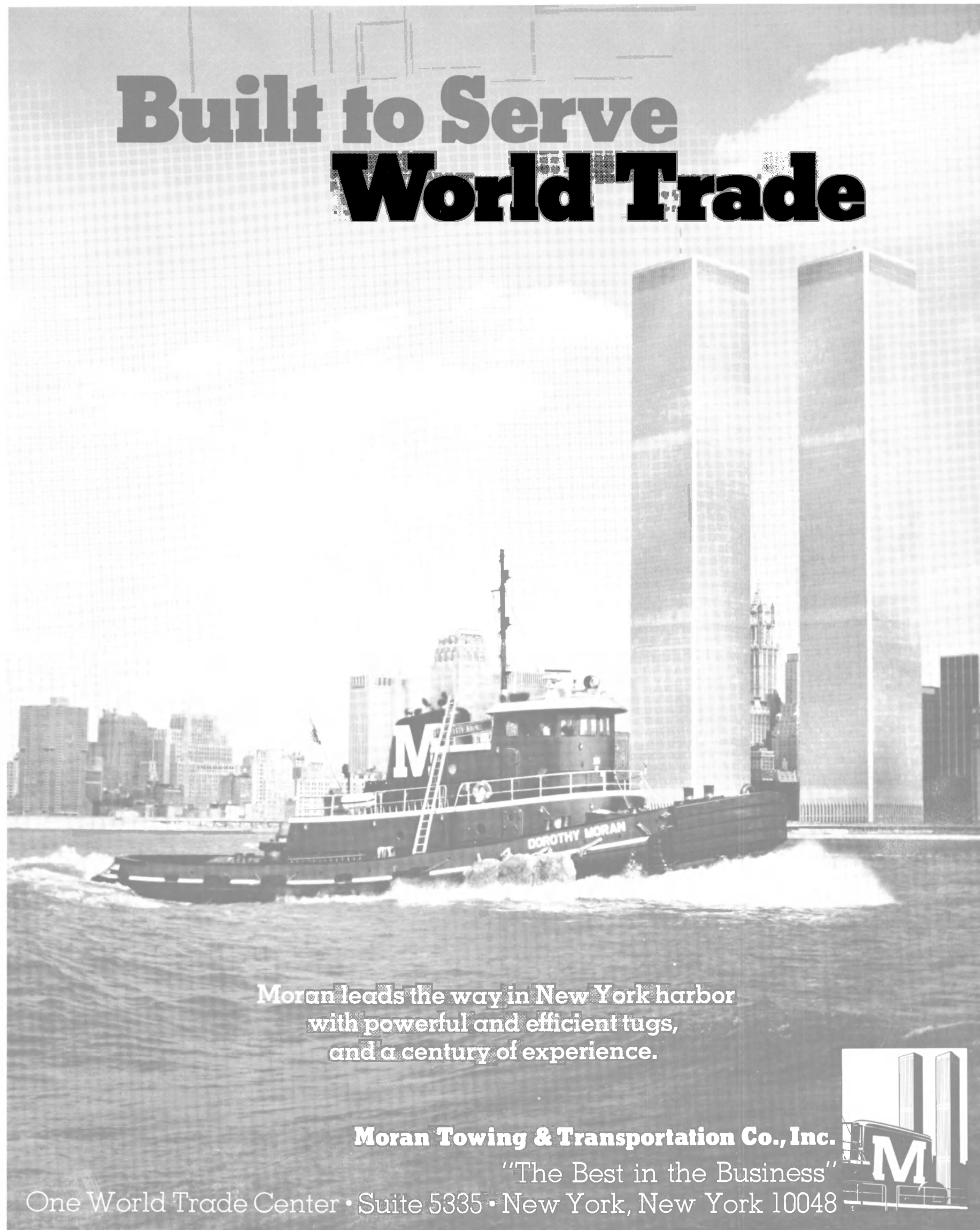


Clyde Iron's AD™ Winch.

Clyde Iron, a unit of AMCA International Corporation, manufactures a line of heavy-duty winches and cranes for shipboard and offshore applications. One of Clyde's outstanding offshore crane

(continued on page 12)

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**Deck Machinery
— A Review
Clyde Iron**

(continued from page 10)
installations in recent years is aboard the giant semisubmersible, pipelaying/derrick barge Semac I. Heavy lifts on the vessel are accommodated by a Clyde Model 42 Offshore Whirley with full

electric drive, capable of lifting 500 tons overstem and 350 tons full revolving. Simple, rugged, and easy to maintain, that crane was customized and tailored to meet the huge barge's unique requirements.

Also installed aboard the Semac I are three Clyde CPS-96 Sea Whirlers™ with 75-ton main load blocks. Used for routine lifting, these full-revolving, fast-cycling,

versatile pedestal cranes contribute greatly to the vessel's material-handling requirements.

Clyde's AD™ winch, engineered in graduated sizes with stall pull/bare drum ratings from 150,000 to 350,000 pounds, is offered in single or multiple drum arrangements for anchor/pulling applications. Features of the AD line include: anti-friction bearing design; alloy steel shafts, supported

close to load centers; rigid, heavily braced framing and bearing housings; large-capacity steel drum; spring-loaded, air-released pawl; high-strength, multiple steel roller chain drive, splash oil bath lubricated; heavy-duty, single contracting band brake, air released; hand-operated air controls assembled in modular console within easy reach of the operator; and air compressor and receiver.

Clyde also offers a constant tension hydraulic tugger, the CTH Models, with running pull/bare drum ranging from 10,000 to 54,000 pounds. The CTH tugger hydraulic pump and motor combination can be driven by either a TEFC continuous rated squirrel cage electric motor or diesel engine.

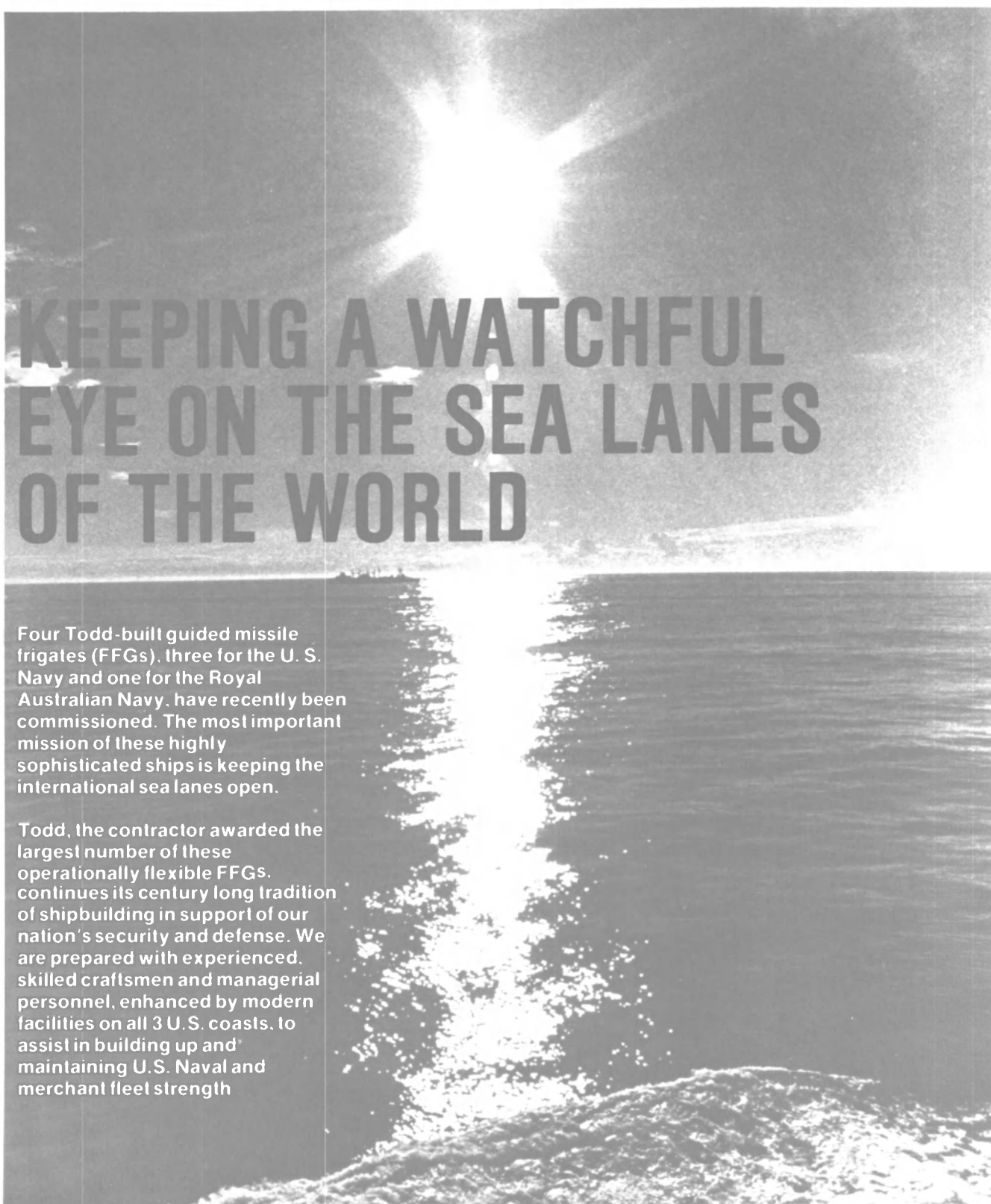
**HIAB CRANES
& LOADERS**

Hiab Cranes & Loaders Inc., with offices in Newark, Del. and manufacturing facilities in York, Pa., has more than 25 years experience in the design and manufacture of marine cranes. In order to meet the growing market demand for deck cranes, Hiab has produced offshore versions of its most popular loaders—the model 650 and the model 1165 with increased corrosion protection. These marine cranes feature all-round bases for deck mounting in offshore applications, and are available with a wide range of lifting attachments to enhance their versatility.

The Hiab 1165 is a 100-percent marine crane designed and built for the demanding offshore supply and workboat industry. Available with lifting capacities up to 10 tons, it offers corrosion-resistant construction and reliable hydraulic operation that insures years of trouble-free service under the toughest operating conditions.

Rotability through a full 360 degrees and adaptability for mounting at virtually any shipboard location makes the Hiab unit one of the most versatile deck cranes ever offered for marine service. All Hiab deck crane models fold quickly and conveniently into a compact stow-away position. The company's most popular model, the 1165, extends to a 48-foot height and 42 feet horizontally; when not in use, it folds to 31 by 88 by 78 inches.

Other features include one-man operation, a full range of special lifting attachments and accessories, stationary mounting for shoreside cargo handling, etc. Hiab cranes are suitable for use on all types of ships, vessels, workboats, and barges; sales, service, and parts are available on a worldwide basis in more than 60 countries.



Four Todd-built guided missile frigates (FFGs), three for the U. S. Navy and one for the Royal Australian Navy, have recently been commissioned. The most important mission of these highly sophisticated ships is keeping the international sea lanes open.

Todd, the contractor awarded the largest number of these operationally flexible FFGs, continues its century long tradition of shipbuilding in support of our nation's security and defense. We are prepared with experienced, skilled craftsmen and managerial personnel, enhanced by modern facilities on all 3 U. S. coasts, to assist in building up and maintaining U. S. Naval and merchant fleet strength.



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HYDE PRODUCTS

Hyde Products, Inc. of Cleveland, a subsidiary of Zimmite Corporation, has manufactured quality deck machinery since 1895. Its latest venture in deck machinery is a remote-drop, barge anchor windlass that incorporates the most recent developments in hydraulic technology. The company has also been active in the design of products and systems to increase steering gear reliability and provide pilothouse control of emergency situations.

Hyde's electro-hydraulic, automatic constant-tension mooring winches will automatically maintain a constant line pull with zero creep. The winches render automatically when the load exceeds the preset rendering pull, and automatically heave in when the load falls below the preset tension.

Horizontal or vertical anchor windlasses can be furnished in an assorted arrangement of components to meet specific customer requirements. These units can be either electric or electro-hydraulic drive, ac or dc.

The Hyde automatic power unit transfer system is designed to provide automatic pilothouse control of steering systems that currently use manual power unit transfer procedures. The rudder-arresting and standby steering system provides a means to hold and move a ship's rudder or rudders in the event of main steering failure. And the Hyde/Henschel rudder failure alarm system is designed to actuate an audible and visual alarm in the pilothouse when the rudder differs more than five degrees from the position ordered by the helm.

LAKE SHORE

Lake Shore, Inc. of Iron Mountain, Mich., designs and manufactures a full line of deck machinery, including: mooring, cargo hose, topping, anchor-handling, and traction winches; anchor windlasses; lifeboat davits; and cranes for cargo handling, hose and stores handling, and diesel engine service for ocean, Great Lakes, offshore, and Navy applications. Types of drive systems supplied include hydraulic, electro-hydraulic, diesel, static dc, wound-rotor ac, and variable-frequency ac.

Lake Shore's Marine Sales Department specializes in custom-designing machinery to meet customer specifications. In addition to its own designs, the company is the U.S. licensee for Clarke Chapman cargo-handling cranes, and represents Norwinch for offshore winch applications, Aquila Favco for offshore crane applications, and Marine Cranes for hose-handling and stores cranes.

MacGREGOR COMARAIN

MacGregor-Comarain Inc. of Cranford, N.J., is the U.S. arm of the giant MacGregor Organisation, the world's biggest supplier of cargo access equipment, hatch covers, ramps, doors, elevators, and platforms. With International Coordination Centres in Paris and near London (Hounslow),

MacGregor serves the shipbuilding industry through 36 subsidiaries, licensees, and agents worldwide.

MacGregor-Comarain is involved in at least three of the current integrated tug/barge (ITG) projects in the U.S., having secured contracts for two of them, with others pending. For

the ITB under construction at Sun Ship for California and Hawaii Sugar Company, the Cranford firm is supplying hatch covers and coamings as a package unit. The hatch cover chosen is MacGregor's direct pull, wire operated from the barge's own deck cranes, of which there are three.

Other recent U.S. installations include the three bulk carriers (continued on page 14)

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MR

Deck Machinery
— A Review

MacGregor Comarain

(continued from page 13)

nearing completion at Livingston Shipbuilding, three RO/RO-containerships building at Sun Ship for Waterman Steamship Company, Farrell Lines' two containerships delivered recently by Bethlehem's Sparrows Point yard, Waterman's two LASH ships delivered by Avondale last year, and

the two heavy-lift vessels constructed by Peterson Builders for American Heavy Lift.

MacGregor-Comarain Inc. has been an integral part of the U.S. maritime community for more than 33 years, during which time it has furnished nearly 200 shipsets of cargo access equipment to American shipbuilders. As part of that community, said company president John Nydegger, it will continue to support and encourage the expansion and growth of U.S.-flag construction.

MARATHON
LeTOURNEAU

Marathon LeTourneau marine pedestal cranes, installed on all classes of the Houston company's self-elevating, offshore drilling platforms and supplied to other segments of the marine industry for installation on other types of vessels, are manufactured in a range of lifting capacities

and configurations to meet many offshore industry needs.

Models PCM-80AS, PCM-120AS, and PCM-350 make up the Marine Division's line of pedestal cranes. All three models can be supplied to American Bureau of Shipping specifications, and utilize the field-proven LeTourneau diesel-electric power system that greatly simplifies operation. All are of proven design, which has not required significant modification since its introduction.

This design features a main column, or pedestal, that serves both as housing for main bearing and mounting for the swing gear, thus eliminating the need for hook rollers. In the unlikely event of support bearing failure due to overload, the crane body comes to rest on the pedestal rather than breaking free. The original design also incorporates a fail-safe, spring-loaded braking system. If power is interrupted, the operating system locks, thus preventing uncontrolled movement of hook, luffing, or swing members.

The versatile and widely used, variable-radius, full-revolving PCM-120AS marine pedestal crane, several of which are normally standard equipment on Marathon jackup offshore rigs, is also available in optional models PCM-120 and PCM-120C. The unit has a 50-ton maximum lifting capacity when equipped with a 100-foot boom. The unique column design provides ideal support for operation of the swing gear and its motor-driven pinion. PCM-120AS swing and hoist functions are powered by dc motors to permit smooth operation at infinitely variable speeds.

The standard gantry for models PCM-120AS, PCM-120, and PCM-120C features an all-welded, two-piece frame that greatly simplifies erection. The Marathon LeTourneau engineered boom, another proven design, features ball joint mount. Boom insert sections allow for a wide choice of boom lengths, ranging from a minimum of 60 feet up to 120 feet. A jib with separate winch for a 5-ton straw line is also available.

Newest and largest capacity Marathon LeTourneau variable-radius marine pedestal crane, the 60-ton-capacity at 58-foot outreach PCM-350, utilizes dc electric motors for smooth operation and control of main hook and boom luffing, straw line, and crane swing.

The unitized main frame, winch housing, and turntable are of all-welded, heavy steel plate. The main frame also serves as support for the optional machinery house and operator's cab with control console.

The PCM-350, which like all Marathon marine pedestal cranes can be operated from the cab or a remote station, features a unique gantry with all-welded

(continued on page 16)

The U.S.C.G. says "Launch Away!"

World-renowned

Schat Life Raft Davits are now approved for use on

U.S. ships. Schat's Raft Launching

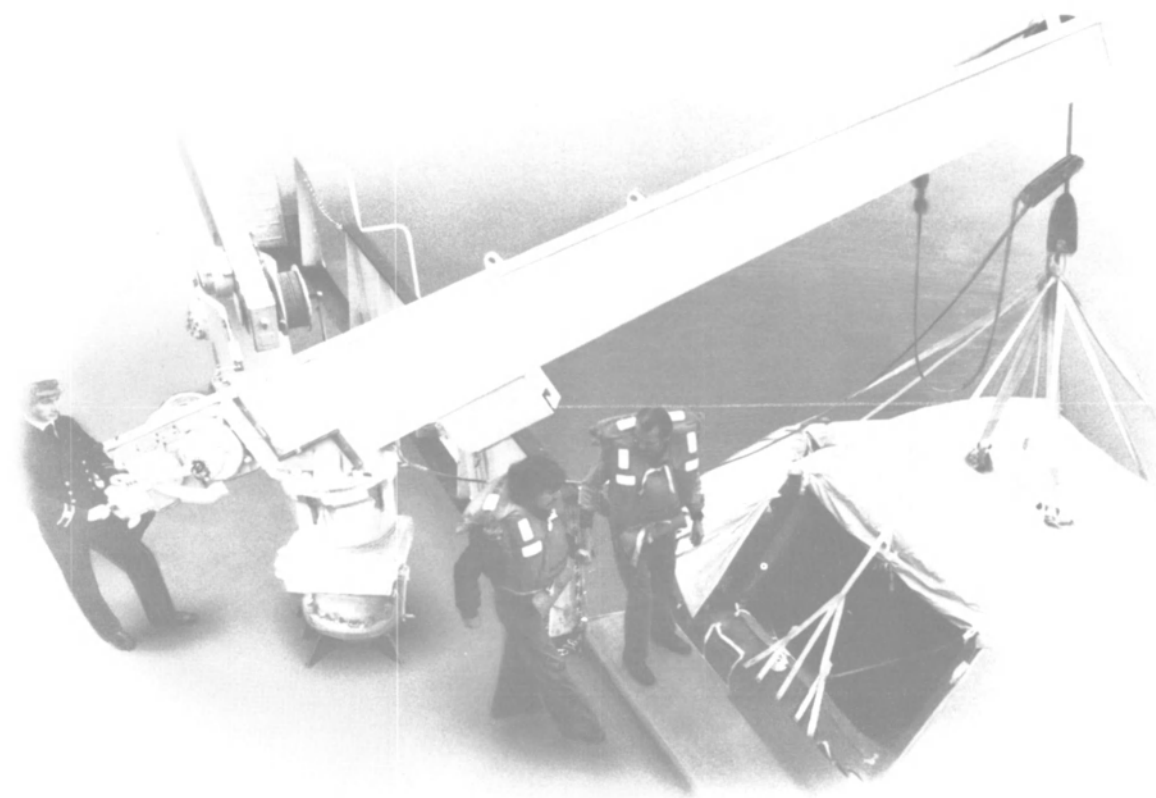
Davits are built to the highest standards and are now approved by every leading safety authority in the world. The latest seal of approval comes from the U.S. Coast Guard, allowing ship owners and builders to retrofit this proven davit on their vessels.

Slewing Arm Design. Schat's design features the slewing arm for maximum flexibility. The internal winch mechanism means that several fully-loaded inflatable rafts can be launched

in sequence within 30 minutes. Simple to operate, easy to maintain, and designed for space-saving stowaway, the

Raft Launching Davit is fitted on hundreds of ships, ferries, oil rigs and platforms around the world. Now it's made in America for American ships and offshore structures.

For full details on the Raft Launching Davits or other items of Schat lifting and transfer equipment, contact The Schat Davit Corporation, 226 West Park Place, Newark, Delaware 19711. Telephone: 302/366-1961. Telex: 835374.



SCHAT
Leaders in lifting and transfer

The night Crowley tied the American knot.

George Talbot, American's West Coast sales manager, remembers it well. One of our best customers, Crowley Maritime, called early one afternoon with a big problem. There was a barge on the beach off Moclips, Washington, and Crowley needed two miles of 9" polypropylene rope *fast*—by 6:00 AM the next day, less than 18 hours away.

They had to have polypropylene. Salvage tugs could only get within two miles of the beach, so the rope had to be light enough for a helicopter to pull it from the beach to the tug. Crowley wanted the

in Los Angeles. But he still had to get all 14,000 pounds to Portland by 6:00 AM the next day. Back to the telephone. Warehouses agreed to put in extra hours, special trucks were hired at overtime rates, a flight was found to move the L.A. consignment to San Francisco.

Then, disaster. The only airfreighter out of San Francisco

was scheduled to leave before the L.A. flight arrived, and it was going east rather than north.

George hit the phones again. Middle-of-the-night calls finally got the airfreighter diverted north to Portland, then east. And every last inch of rope was delivered in Portland before the 6:00 AM deadline.

The rest of the story is Crowley's. They had trucks waiting at the airport and transported the rope to the barge location. Various lengths were tied together with bowlines, strung from the beach to the barge by helicopter and the cargo was successfully salvaged.

George Talbot is very good at his job. Just like all the guys at our other 14 Service Centers. With American, it's the old story: the difficult we do right away, the impossible just takes a little longer.



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Deck Machinery

— A Review

Marathon LeTourneau

(continued from page 14)

structural components and spring-loaded boom stop member.

The PCM-80AS unit has a 30-ton lifting capacity and unique column design that provides ideal support for operation of the swing gear and its motor-driven pinion. Its swing and hoist functions are powered by dc motors for smooth operation at variable speeds.

Also available in two optional models, PCM-80 and PCM-80C, this variable-radius crane can be operated either from the cab or a remote station, with remote control a standard feature on all models.

SCHAT DAVIT

Schat Davit Corporation of Newark, Del., manufactures a variety of cranes for shipboard applications. (In this company's terminology, the terms "davit" and "crane" are used interchangeably.)

The Schat Special Purpose Davit (SPD) is designed, as its name suggests, with a particular task in mind. Its manufacture, therefore, can be more economical than a standard deck crane that is designed for continuous usage. Among the wide range of Schat's SPDs are the rigid arm davit and the davit jib with tie bar.

The davit with a rigid arm is generally suitable for the lighter load range up to about two tons. Jib and tie bar construction is suitable for loads above two tons, or where the required hook height or large radius precludes the use of the more economical rigid arm unit. The SPD's hoist winch can be operated electrically, hydraulically, or pneumatically, and in the case of light loads, manually. The slewing gearbox can be similarly powered, although in this case it is possible to slew loads of up to five tons by manual operation, depending on outreach and other conditions. These small, special purpose cranes, with lift capacities up to five tons, are commonly used to handle stores, accommodation ladders, bunkering hoses, and engine room parts.

Schat gantry cranes incorporate a double track feature for increased stability and for locating the hoist and traversing ropes within the track flanges. Tracks terminate at the ship's side; outreach is obtained on either side of the vessel by the traversing carriage. Typical capacities are five tons over the side, with a combined center lift of 10 tons.

The carriage is fitted with Meehanite sheaves with sealed roller bearings mounted on stainless steel flanged rollers, fitted

with self-aligning roller bearings. Side guide rollers are provided to insure stability and satisfactory operation under trim conditions. Winches are totally enclosed, with gears running in an oil bath. The winches are mounted on deck, and the moving carriage is completely free from the power supply. Limiting devices are provided to safe-

guard all motions. The gantry crane is operated either by a remote control console carried by the operator, or from fixed operating stations on deck.

Schat hose handling cranes designed specifically for tanker cargo hoses are available with capacities up to 20 tons for handling the largest cargo hoses. Schat is

a leading supplier of this type crane, with well over 200 units in service.

The base of the oil hose crane provides access for the incoming supply over a rotary union, allowing rotation of the crane in either direction through more than 360 degrees. The base has a circular flange for mounting on a deck

Crude Oil Washing problems come in many shapes and sizes. So do BUTTERWORTH tank cleaning machines.

The Right System Reduces Turn-around Time... Increases Profits.

Because tank washing problems can be simple or complex there is no *one* machine that is right for every tank or task. But with this wide range of equipment Butterworth Systems can help you select precisely the right machine or combinations of machines for your vessel, so you get the optimum cleaning system at minimum cost.

With the IMCO deadline approaching, there couldn't be a better time to let Butterworth Systems solve your tank cleaning problems.

The Industry Leader Yesterday, Today and Tomorrow

For over fifty years Butterworth Systems has been the world leader in tank cleaning equipment. Our complete line of

tank washing machines offer thoroughly proven performance and the highest reliability. Each BUTTERWORTH[®] tank cleaning machine has its own unique cleaning capabilities and advantages which can provide a tailor-made system for your specific crude oil washing needs.

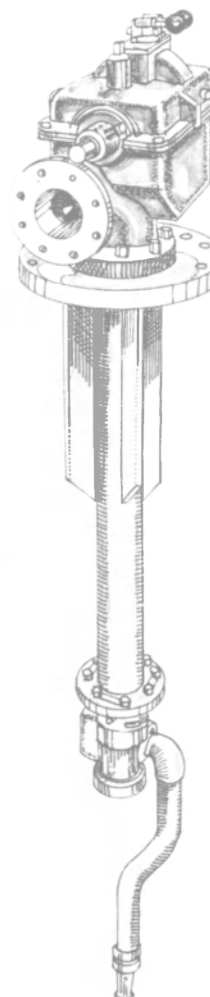
1.

The LAVOMATIC[®] SA Machine. For Fastest Cleaning of Large Tanks.

The deck mounted LAVOMATIC[®] SA tank cleaning machine has a capacity of 90-150 tons per hour and a Selective Arc feature for single or multi-stage crude oil washing. It is the only tank cleaning machine in the world which has a patented programmed speed feature which concentrates cleaning effectiveness wherever sludge buildup is normally heavy. The LAVOMATIC[®] SA unit automatically slows

down when washing critical areas and then speeds up over less critical areas. This speed programming feature can result in up to 60% reduced cleaning time.

The LAVOMATIC[®] SA advantage: the fastest economical cleaning of even the largest tanks plus a long history of superb performance and reliability.

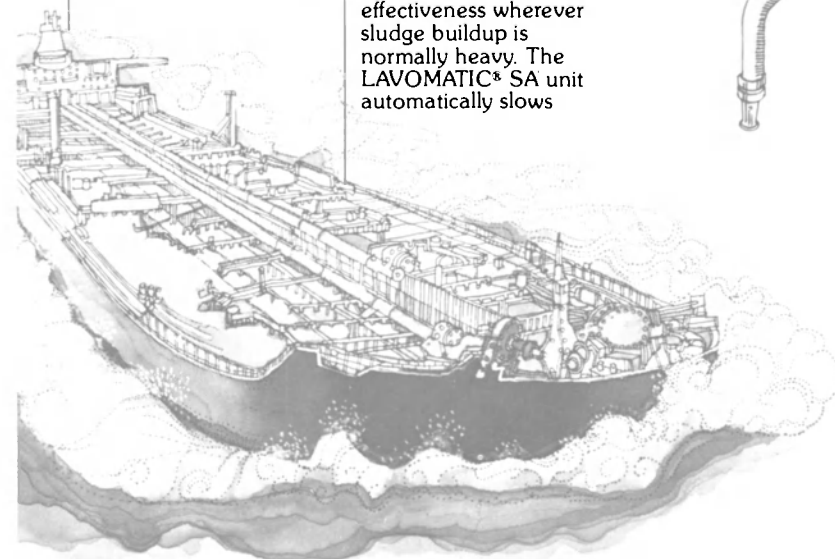


2. Introducing the BUTTERWORTH[®] P-60 Machine. Making Multi-stage Crude Oil Washing More Economical.

The latest addition to the Butterworth Systems family of tank cleaning machines, the P-60 is a single nozzle, deck mounted machine functionally similar to the LAVOMATIC[®] SA machine. The capacity of the P-60 ranges from 90 to 150 tons per hour. It features a permanently mounted control box/power source, preset speed and full-flow turbine.

Three preset selectable arcs are available to the tanker crew for a full wash, side wash or bottom wash. The bottom wash setting features a closer wash pattern to provide the greater cleaning power required there.

The P-60 advantage: provides multi-stage washing and proven Butterworth Systems reliability while reducing initial cost.



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Maritime Reporter/Engineering News

foundation. A slewing ring fitted to the base is capable of sustaining vertical load and tilting moment. The jib is a steel fabrication incorporating the bearings for the pivot pins on the yoke and sheaves for the wire ropes.

For transfer of oil at sea, Schat has developed its "Flow Boom" crane that handles single or

twin hoses, with operating envelopes that consider the relative positions between ship manifolds. Flow capacity for crude oil through 20-inch hose is 6,000 tons per hour; through 24-inch pipe construction flow boom, capacity is 12,000 tons per hour. Flow velocity is 48 feet per second at pressures up to 150 psi.

TBW INDUSTRIES

Versatility has never been more in demand in the maritime industry than it is today, and this is what characterizes TBW Industries' philosophy in the development and marketing of its deck

machinery products for the 1980s, according to Robert M. Thompson, president of the Houma, La. company.

The products of TBW's SMATCO Division have long been synonymous with the offshore industry. Its original line of equipment centered around anchor-handling/towing winches. Within a short time span in the early 70s it had expanded to include a complete line of machinery ranging from anchor windlasses to stern rollers.

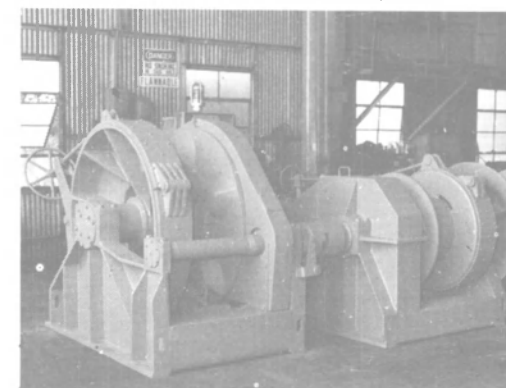
As the quest for oil moved from the calm, shallow waters of the Gulf of Mexico to the harsh environment of the North Sea and the deepwater exploration in Southeast Asia, SMATCO earned its reputation for toughness and durability. It is this type of work that led SMATCO to its latest development: caliper/disc brakes and clutches. The refinement of this system has opened new options to the operator faced with the tasks of heavier loads in deeper waters. Taking the heart of the brake system to task, SMATCO now offers disc brakes on all of its winches and related equipment.

Another advancement in the state of the art has been the design of a double-drum waterfall winch designed especially for tugboats. Traditionally, waterfall winches were unacceptable because of height. SMATCO's new low-profile winch has eliminated this major problem and at the same time reduced the overall width by nearly 50 percent. This offers the operator a larger and safer working area, as well as the advantage of always working closer to the center line of the vessel.

Recognizing the U.S. maritime industry as an area needing the same level of quality as the offshore oil operators, SMATCO launched an effort to become a sought-after supplier. Since its initial effort in 1978, the company has secured mooring equipment orders from major shipyards such as Sun Ship, NASSCO, Avondale, Newport News, and General Dynamics. Ships include RO/ROs, product carriers, and dredges.

A further development has been the SMATCO-Samson range of soft rope, twin capstan type tractor winches. Originally developed

(continued on page 18)

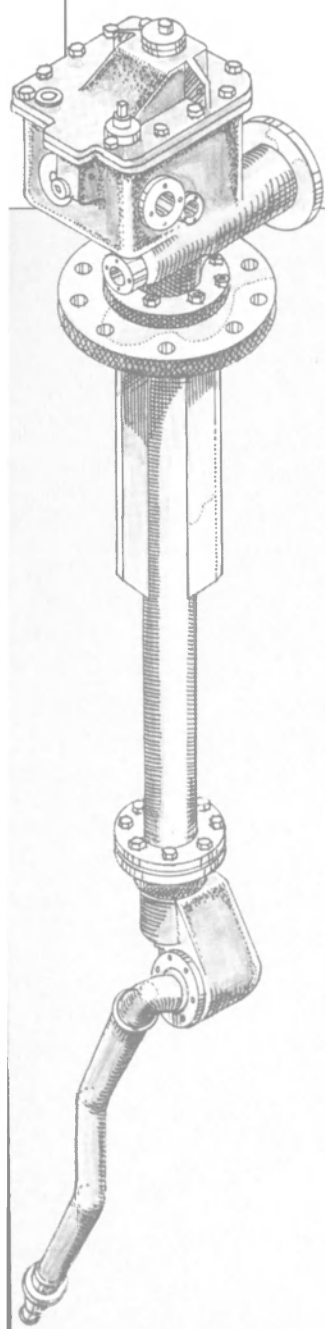


SMATCO Model 3062-EHAS-100/39-EH AS-100 Constant Tension Anchor Windlass/Mooring Winch Combination Unit.

3.

The BUTTERWORTH® MP Machine. Cleans Hard-to-reach Areas From Any Angle.

The multi-position, very high-capacity BUTTERWORTH® MP machine is designed to clean hard-to-reach areas in complex tank structures. Self-powered



and range to clean medium sized tanks or hidden areas in large tanks. The SSK machine can be fixed-in-place at any angle, weighs 55 lbs and has a throughput capacity of 80 tons per hour and an effective cleaning range of approximately 100 feet.

The SSK advantage: low cost cleaning of moderate size tanks with famous Butterworth Systems technology.

5.

The BUTTERWORTH® SK Machine. Cleans Hidden Areas or Smaller Tanks.

Fixed-in-place at any angle, the SK machine has a twelve year track record of dependable, effective cleaning. It features Butterworth Systems' exclusive

"ball of twine" spray pattern that crisscrosses and overlaps for thorough cleaning. The SK machine weighs 55 pounds and has a throughput of 30-60 tons per hour and a range of 70 feet.

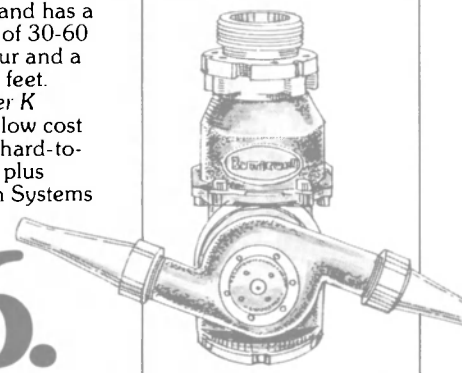
The Super K advantage: low cost cleaning of hard-to-reach areas plus Butterworth Systems reliability.

6.

The BUTTERWORTH® K Machine. For Small Tanks, Fixed-in-place at Any Location.

Over 20,000 BUTTERWORTH® K machines have made it the industry favorite for every kind of tank cleaning for twenty-three years. Now the K machine provides valuable COW service.

It weighs less than fifty pounds, has a cleaning range of 30 feet and up to 30 tons per hour throughput.

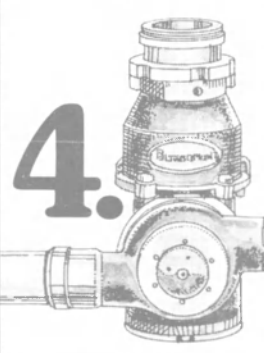


Fixed-in-place, the K machine is ideal for cleaning smaller tanks or small hard-to-clean areas in large tanks. Its twin nozzles rotate while the entire unit revolves, thereby producing Butterworth Systems' "ball of twine" pattern which ensures that every inch of surface is completely covered.

The K advantage: small size, lightweight, low cost and the most proven Butterworth Systems technology.

and featuring simple design, the MP provides the very high reliability required for within-tank mounting. This single nozzle tank cleaning machine weighs 178 lbs and can be fixed-in-place in any location, at any angle, and is specifically designed to allow installation on tank bottoms under the cargo.

The MP advantage: cleans large areas which cannot be reached by conventional deck-mounted equipment and provides unbeatable Butterworth Systems performance.



The BUTTERWORTH® SSK Machine. For Small Areas or Medium Size Tanks.

The BUTTERWORTH® SSK two-nozzle machine combines throughput

For any capacity range or tank location Butterworth Systems has proven equipment to meet your needs.

Unit	Capacity Tons Per Hour	Weight	Location	Attitude
LAVOMATIC® SA	90-150 TPH	820 lbs	Deck Mounted	Vertical
BUTTERWORTH® P-60	90-150 TPH	690 lbs	Deck Mounted	Vertical
BUTTERWORTH® MP	70-150 TPH	178 lbs	Any	Any
BUTTERWORTH® SSK	60-80 TPH	55 lbs	Any	Any
BUTTERWORTH® SK	30-60 TPH	55 lbs	Any	Any
BUTTERWORTH® K	20-30 TPH	48 lbs	Any	Any



Butterworth Systems

For more information contact Butterworth Systems Inc. 224 Park Avenue, Box 352, Ham Park, N.J. 07932 USA Telephone: (201) 765-1549 Telex: 136434

Butterworth Systems (UK) Ltd. 445 Brighton Road, South Croydon, Surrey CR2 6EU, England Telephone: 01-668-6211 Telex: 946524

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**Deck Machinery
— A Review
TBW Industries**

(continued from page 17)
by Samson Ocean Systems, Inc. and now manufactured exclusively by SMATCO, these range in line pulls from 6,500 to 400,000 pounds. Currently under construction are six of these designed to operate with 21-inch-circumfer-

ence nylon rope; they will be installed on six Exxon tankers.

The signing of a license agreement with Ishikawajima-Harima Heavy Industries (IHI) of Tokyo further broadens TBW's manufacturing capabilities for the maritime industry. The license covers SMATCO's manufacture of IHI's Mark II series electro-hydraulic cranes and deck machinery. These cranes have capacities from 5 to

80 tons, in both single and double configurations.

A barge operator in Argentina recently became one of the first customers for a new radio-controlled, emergency anchor windlass system that has been designed, developed, and manufactured by SSI, another TBW Industries company. The new system, installed on barges built by Astilleros Espanoles, S.A., is de-

signed to reduce substantially one of the major hazards in the shipping industry — the danger imposed by free-drifting barges when the towline between them and the tug has been severed. Upon severance of a towline, the SSI system immobilizes the barge by allowing its anchor to be released by remote control.

Pedestal Crane, newest member of the TBW family and producer of a full line of stationary cranes with the patented King Post design, used for both offshore and onshore materials handling, has just announced new sales of more than \$2 million to Amoco, Mobil, Sun Ship, and Texaco.

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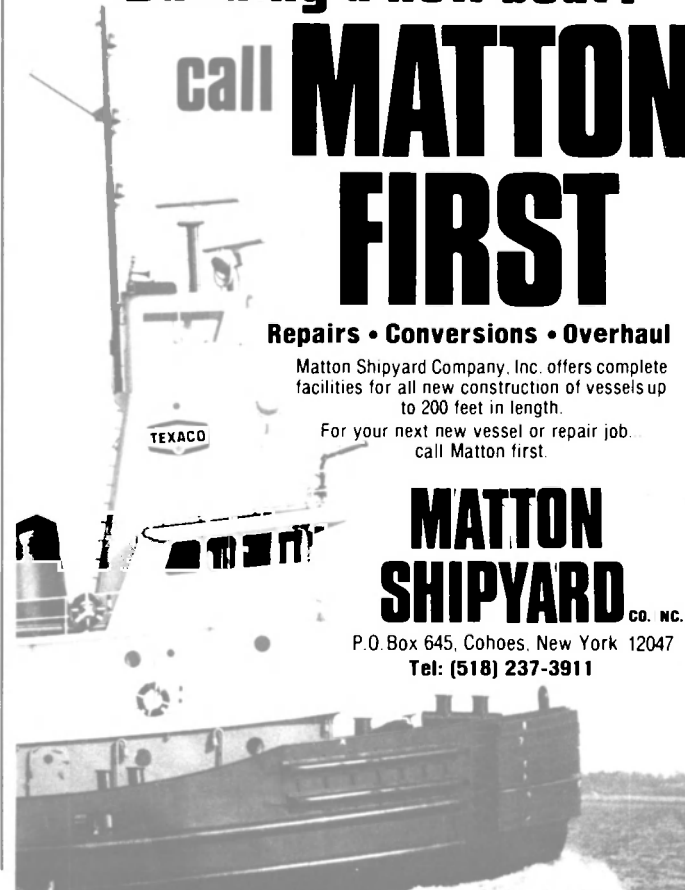
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Maritime Reporter/Engineering News

**MarAd Approves Title XI
On Goodyear's Bulker
To Cost \$31.7 Million**

The Maritime Administration has approved in principle an application from Goodyear Steamship Company, Buffalo, N.Y., for a Title XI guarantee to aid in financing a self-unloading bulk carrier for operation on the Great Lakes.

Bay Shipbuilding Corporation, Sturgeon Bay, Wis., expects to deliver the 634-foot-long, 23,445-dwt vessel in April 1981. The Title XI guarantee will cover \$27,476,000, or 87½ percent of the bulk carrier's \$31,701,434 estimated cost.

**Hitachi Zosen Gets
Orders For Two More
Semisubmersible Rigs**

Hitachi Zosen of Japan recently received orders from two Liberian companies—Nympha Corporation and Actinia Corporation—for two semisubmersible offshore oil drilling rigs. Both rigs will be operated by Foramer S.A. of France. The rigs are each 82.3 meters long, 60.96 meters wide, and 35.36 meters high (270 by 200 by 116 feet). The rigs are the latest, improved version of the Enhanced Pacesetter type and are based on the original design of Friede & Goldman, Ltd. of New Orleans. The rig can handle a variable deck load of 3,200 tons.

Designed to operate in deep seas of about 450-610 meters (1,500-2,000 feet), they are capable of drilling to a maximum depth of 9,144 meters (approximately 30,000 feet). Able to operate in waves up to 30 meters high and wind speeds up to 51 meters/sec, they are equipped with four thrusters that maintain a stationary state necessary for drilling in rough seas.

The rigs will be built at Hitachi's Ariake Works, according to the rules and regulations applicable to those rigs operating in the U.K. sector of the North Sea, and will be classed by Det norske Veritas. Delivery is scheduled for the fall of 1982.



Capt. Thomas Bush (at podium), head of the navigation branch of the U.S. Navy's Strategic Systems Project Office, presents Sperry division personnel with a special flag at a recent ceremony commemorating the 25th anniversary of the beginning of the Fleet Ballistic Missile program. Holding the flag are: Robert L. Wendt (left), president of Sperry division; Norman Meyer (center, behind flag), Sperry vice president for strategic systems; and Kurt Merl (right), vice president and general manager of Sperry division's Systems Management unit.

Navy Honors Sperry Contribution On 25th Anniversary Of FBM Program

The U.S. Navy has presented the Sperry division of Sperry Corporation with a special flag honoring the company's contribution to the Fleet Ballistic Missile (FBM) program, and commemorating the 25th anniversary of the beginning of the program that led to the development of the strategic nuclear-powered submarine fleet.

Sperry has served as the systems manager of the navigation systems for the FBM program since the program began. In addition, Sperry also provides key pieces of hardware for the navigation system, including the navigation control console, which is the central control and monitor station for operation of the system. Sperry has developed nine generations of navigation systems for the Polaris, Poseidon, and Trident submarines to meet the increasing needs for higher accuracy and longer periods of submerged operation between navigational fixes.

"We are honored by this presentation, and are extremely proud of it," said Robert L. Wendt, president of the Sperry division. "We take great satisfaction from the fact that, despite more than 1,500 operational patrols by this submarine fleet, no patrol has ever been aborted because of a navigation system failure. We are also pleased that, in part because of Sperry's contributions, the FBM submarines remain the least vulnerable part of the strategic triad."

The FBM program was begun on November 17, 1955 with the establishment of the Special Projects Office of the U.S. Navy, after authorization of the development program in September by President Dwight D. Eisenhower.

The first FBM submarine, the USS George Washington, was launched less than four years lat-

er, on June 9, 1959, and the first successful submerged test firing of the Polaris missile was made from the submarine off Cape Canaveral on July 20, 1960. The USS George Washington began its first operational patrol on November 15, 1960, carrying 16 Polaris missiles, each with a range of 1,200 nautical miles.

The Sperry division, one of five divisions of Sperry Corporation, is a leading developer of systems and hardware for defense and the maritime industry, and is the corporation's principal contributor of new technologies for land, sea and missile applications.



Insertion of a new 81-meter-long midbody added 140,000 dwt to the tanker Seawise Giant making her, at 560,000 dwt, world's largest tanker. Conversion was performed at Nippon Kokan's Tsu Shipyard in Japan for Universal Petroleum Carrier Inc.

Jumboized 'Seawise Giant' Is Now World's Biggest Tanker

The Seawise Giant, a 420,000-dwt tanker owned by Universal Petroleum Carrier Inc., has been jumboized at the Tsu Shipyard of NKK (Nippon Kokan) in Japan. The huge ship gained 81 meters in length and 140,000 tons (metric) in deadweight to become, at 560,000 dwt, the world's largest tanker. She is classed by the American Bureau of Shipping.

Shin-ichi Hirayama, president of NKK America Incorporated,

said that the operation was carried out by cutting the tanker into two parts at about 120 meters from the stem, and adding a new midbody between them.

Her overall length went from 377 meters to 458.45 meters (1,237 to 1,504 feet) and her draft increased from 23.62 meters to 24.56 meters (77.5 to 80.6 feet). Beam and depth remained the same at 68.8 and 29.8 meters, respectively (225.7 and 97.8 feet).

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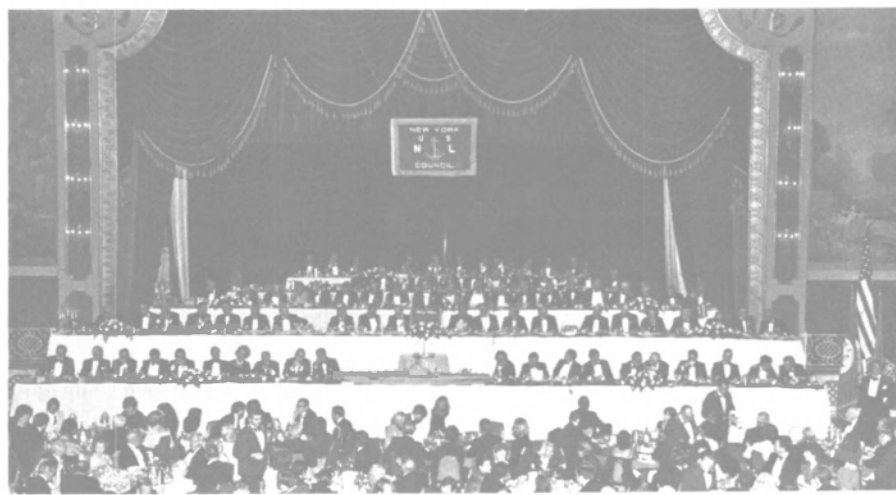
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Haig And Hayward Honored At Navy League Annual Dinner



Guests of honor at the recent 76th Anniversary Dinner (shown above) of the Navy League of the United States, New York Council, were Gen. Alexander M. Haig Jr. (since nominated by President-elect Reagan to be Secretary of State in the coming Administration), and Adm. Thomas B. Hayward, Chief of Naval Operations.

General Haig cited his concern over a "growing presence" of Soviet Bloc ships in Western European ports. He said he felt a priority of the Reagan Administration will be to modernize America's merchant fleet. General Haig told the large audience at the Waldorf-Astoria Hotel that the recent election results were,

among other things, a mandate from the American people who are aware of America's declining defense policy.

Sharing the guest of honor spotlight, Admiral Hayward spoke of the strain placed on the U.S. Naval Fleet—unable to maintain a presence on all the world's oceans and operating at half its capacity since the Vietnam War. "Competition, endurance, and resilience" have become the bywords of today's Navy, he said. As an example of endurance, Admiral Hayward noted that the 5,600 sailors aboard the aircraft carrier USS Eisenhower returned for Christmas leave in the U.S. after 264 days on patrol in the Indian Ocean.

Bethlehem's Beaumont Yard Had Outstanding 1980—Booked Into '82

The continuing push in petroleum exploration fueled another outstanding year for Bethlehem Steel Corporation's Beaumont, Texas, yard, Sherman C. Perry, general manager, has reported. Demand for Bethlehem's jackup drilling rigs continues strong, he said. Contracts for nine mobile offshore drilling units were signed with four customers during 1980, and the yard is booked well into 1982.

"Having two years of work already on the books means stability for the Beaumont area economy, and our employees are assured of continued employment. It's obvious that we in the Beaumont yard have much to be thankful for. It's much better to be concentrating on getting the job done well than to be worrying about getting a job," Mr. Perry said. The yard has a current work force of about 2,200, and this should remain steady well into 1982. He also reported that during 1980 the yard's total payroll was about \$48.5 million, and annual purchases locally for various materials pump another \$35 million into the economy.

During 1980, nine mobile offshore drilling units were delivered, Mr. Perry noted, and all of them are engaged in the search for oil and gas.

Herbig Promoted To VP And General Manager At Ferrous Corporation

David Herbig has been promoted to vice president and general manager of Ferrous Corporation of Bellevue, Wash., a manufacturer and international marketer of fuel oil catalysts for marine, railroad, and industrial use. He will be responsible for developing a long-range plan for the rapidly growing company.

Renfroe Adds New Model Clamp To Its Line Of Quality Lifting Devices

J.C. Renfroe & Sons, Inc., with plant and executive offices located in Jacksonville, Fla., recently announced the addition of a new model lifting clamp to complement its existing line of quality lifting devices.

The Model TLA is a vertical lifting clamp incorporating a "Lock Open" and a "Lock Closed" feature and an auxiliary lock. The clamp is capable of turning a steel plate from horizontal to vertical to horizontal through a hundred and eighty degrees arc. The "Lock Open," "Lock Closed" feature facilities attaching and removing the clamp from the plate.

For more detailed information on the TLA as well as all of the Renfroe products,

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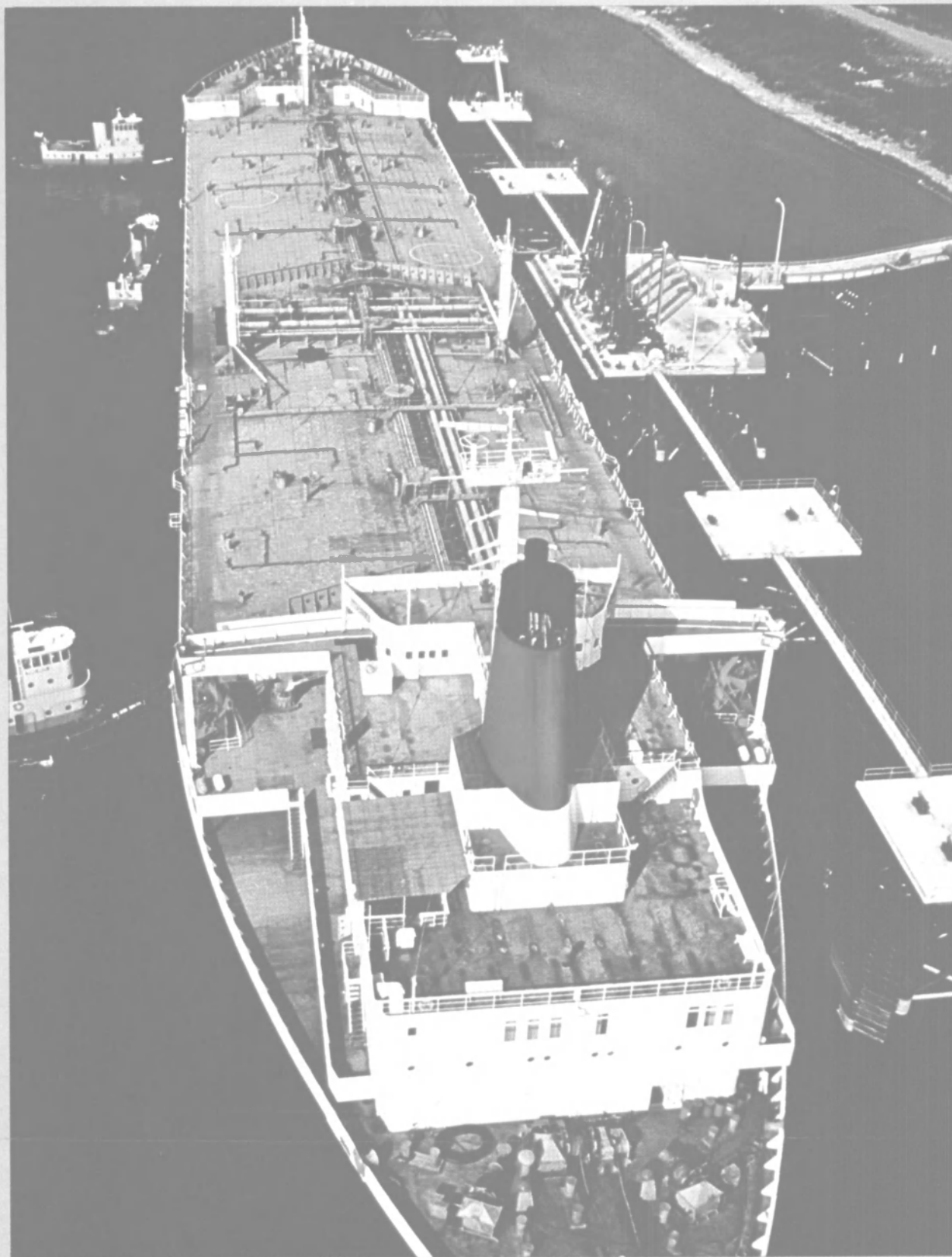
The AF-6 MKII is FCC type accepted Part 83 and approved under Canadian RSS182 category Y specifications.

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China Shipbuilding Will Build Third Jackup For Santa Fe International

Santa Fe International Corporation, Alhambra, Calif., has announced that it has placed an order for a new jackup drilling rig to work initially in the Gulf of Suez. The new unit, Rig 136, will be the company's fourth offshore drilling rig under construction in

Far East shipyards. It is scheduled to be delivered from China Shipbuilding Corporation in Kaohsiung, Taiwan, in June 1982.

A three-legged unit, Rig 136 will be a modified version of the L-780 series designed by Friede & Goldman of New Orleans. It will be capable of drilling in 250 feet of water and to 20,000 feet below the seabed.

Immediately following its delivery, the new unit is scheduled

to go to Egypt, where it has been committed to Gulf of Suez Petroleum Company for an initial three-year contract. Gulf of Suez Petroleum is jointly owned by Egyptian General Petroleum Company and Amoco Egypt Oil Company.

China Shipbuilding currently is constructing two other jackup drilling units for Santa Fe. Rig 127 is scheduled to be delivered in April 1981, and Rig 134 the

following December. Both are committed to major oil companies for two-year contracts.

Thomas Moran Named Chairman Of The Board For Moran Towing Corp.



Thomas E. Moran

Thomas E. Moran, president and chief executive officer of the Moran Towing Corporation, has been elected chairman of the board of the family-owned firm. A fourth generation towing company executive in his family, Mr. Moran succeeds his father, Rear Adm. Edmond J. Moran as head of one of the largest towing and transportation companies in the United States. Admiral Moran, who has been chairman of the board since 1961 and president of the company since 1939, continues as a director of Moran Towing Corporation.

Mr. Moran began a maritime career in cargo ships and tankers of the American merchant marine in the 1940s, serving in Atlantic and Pacific war zones. After the war in 1946, he joined the operations staff of Marine Transport Lines in New York, a pioneering firm in the construction and operation of specialized vessels for the transport of liquid and dry bulk cargoes.

In 1952, Marine Transport Lines appointed Mr. Moran operations manager, and elected him vice president in 1959. He resigned from Marine Transport Lines in 1964 to accept the presidency of the Moran Towing Corporation. He had served as a director of the corporation since 1954.

Hoving Replaces Koning As Managing Director Of Stork-Werkspoor Diesel

Consultations between the Supervisory Board of Stork-Werkspoor Diesel BV of Amsterdam, the Netherlands, and B.W.E. Koning have led to the agreement that Mr. Koning resign his post as managing director, effective January 1, 1981. J.W. Hoving, formerly Board of Management director in charge of financial and social affairs, has taken on full responsibility of the general management from that date. The announcement was made by A. Prins, chairman of the Supervisory Board of Directors.

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\$401-Million Trident Contract Awarded To General Dynamics

The Electric Boat Division of General Dynamics Corporation, Groton, Conn., has received a \$401-million U.S. Navy contract for construction of another Trident nuclear-powered, missile-firing submarine. The SSBN-733 is the eighth Trident ordered by

the Navy. This latest contract includes options for two additional SSBNs.

The largest submarine ever built, the Trident is 560 feet long and has a displacement of 18,750 tons—larger than World War II cruisers. Capable of carrying 24 intercontinental ballistic missiles, the Trident will have a crew of 154 and an endurance 40 percent greater than present submarines.

MacGregor Group Names von Landesberger Chief Executive Officer

John A. von Landesberger, Geneva, Switzerland, has been appointed chief executive officer to the Group of International MacGregor Holding S.A., the leading designers and suppliers of marine cargo access equipment. He was for many years executive vice

chairman of Uniroyal's Swiss holding company, and a director of its overseas subsidiaries. Mr. von Landesberger will continue to live in Geneva.

New Brochure On Diesel Engines Available From Caterpillar Tractor

Marking nearly 50 years of experience in manufacturing of the highest quality engines and engine systems, Caterpillar has just published a full-color, 16-page brochure titled *The Standard of Engine Excellence*, which documents the company's continuing commitment to the engine business.

The brochure highlights Cat's research, engineering, foundry, and manufacturing technology. It also details the company's quality control, its full product line, applications, and worldwide product support.

For a free copy of this exceptionally well produced brochure, Write 72 on Reader Service Card

Davie Shipbuilding To Construct Jackup Rig For Mexican Owner

Davie Shipbuilding Limited of Lauzon, Quebec, Canada, recently announced that it has entered the Mexican offshore market with the signing of a \$40-million (Canadian) contract with Perforadora Mexico S/A for a 300-foot (maximum water depth) jackup drilling platform. Perforadora is a subsidiary of Industrial Minera S/A, one of Mexico's largest privately owned group of companies.

Axelson Named Corporate Development Director At Inland Oil & Transport



Melvin W. Axelson

Inland Oil & Transport Company has announced the appointment of Melvin W. Axelson as director of corporate development. Inland, based in St. Louis, is one of the nation's largest privately owned transporters of liquid products on the inland waterways. Inland's towboats move petroleum and chemical products for hire on all major rivers, and on the Intra-coastal Canal.

Prior to joining Inland, Mr.

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Eddie E. (Bud) Hadsell, President
Fuel Oil Supply and Terminals, Inc.

Helmut L. Schwarz, President
Krupp International, Inc.

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Axelson was employed by Amoco Oil Company. He has more than 30 years' experience in marine transportation, including serving as superintendent of chartering and scheduling for Amoco. In his new position, Mr. Axelson will engage in developmental planning, business research, and coordination of new projects for Inland.

\$5.1-Million Improvement For Port Of Iberia Begun By McDermott Dredging

In ceremonies held recently at the McDermott Incorporated Shipyard in the Port of Iberia, La., Governor David C. Trean officially marked the start of a \$5.1-million improvement program for the Port that is being funded by the State.

McDermott's Dredging Division has been contracted to complete the first stage of the program, dredging the nine miles of the Commercial and Rodere Canals, which connect the Port with the Intracoastal Waterway. The canals will be widened to 125 feet bottom width, and a top width of at least 200 feet. The channel will be dredged to a depth of 12.8 feet MSL (mean sea level). More than 625,000 cubic yards of spoil will be taken from the canals and used to reinforce the banks of the waterways. The \$1.6-million first stage of the improvement program is expected to be completed by the middle of 1981.

Halter Marine Delivered 64 Commercial Vessels In 1980

Halter Marine, Inc. delivered 64 commercial and 89 pleasure vessels to its customers in 1980, announced Harold P. Halter, chairman and president of the New Orleans-based shipbuilding firm. Halter's six commercial shipyards delivered 42 supply boats, 11 crewboats, four tugs, two fire/utility vessels, two liftboats, two fishing vessels and a pilot boat. The seventh commercial division supplied pre-cut, fabricated steel and subassemblies to the other shipyards.

Not included in the vessel count was a 4,000-dwt floating drydock built by the Industrial Canal Division in New Orleans, and the Chickasaw, Ala. Division for use in launching the seven giant catamaran tugs (CATUG) under construction at Chickasaw. Delivery of the first CATUG was scheduled for January 1981.

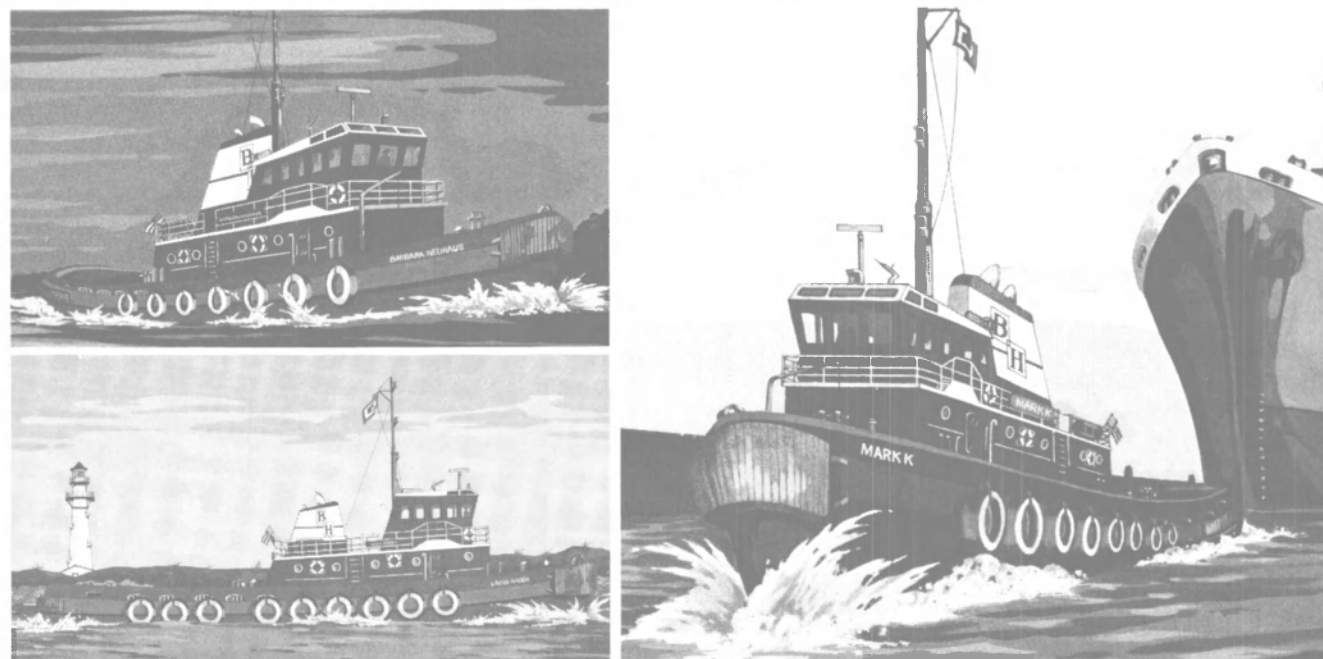
Also slated for delivery in January was the first of four 110-foot surface effect ships (SES) under contract to Command Marine, Inc. of Lafayette, La. The high-speed SES design provides substantial fuel savings and a more comfortable ride than conventional mono-hull vessels because of the resistance-reducing air cushion contained between the SES rigid side hulls and flexible bow and stern seals. Bell-Halter,

Inc. is a corporation formed by Bell Aerospace-Textron and Halter Marine, Inc. to build surface effect ships.

"We are confident the SES concept will gain even greater demand as these first vessels continue to prove themselves in the oil patch and in other duties such as ferry service, search and rescue, inter-island supply, and in military or Coast Guard activities," Mr. Halter stated.

He pointed out, "The Bell-Halter demonstration SES (christened in January 1979) was recently purchased by the U.S. Navy to assess feasible weapons/combat systems that could be installed and operated from the boat." The U.S. Coast Guard would conduct an operational evaluation of the vessel as a patrol boat in the Gulf of Mexico for the first six months before turning the SES over to the Navy.

Mr. Halter said the company would continue to diversify its product line with innovative marine vessels and cited the Industrial Canal Division's new pressure vessel fabrication shop as an example of the firm's efforts to include other products. Halter is one of only two shipbuilders in the Gulf Coast area to be certified by the American Society of Mechanical Engineers to build coded pressure vessels.



Three new tugs join the Bay-Houston family.

Three new additions to the Bay-Houston fleet will be the Barbara H. Neuhaus, Laura Haden and Mark K. All attest to the dedication of Bay-Houston to provide the best

towing service available on the Gulf Coast.

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That fact and many others about the proper handling of foam insulation are found in *Polyurethane Foam Insulation: Fire Risks and Safety*, a newly revised safety manual that's free for the asking from the CPR Division of The Upjohn Company.

Because the energy-savings of polyurethane insulation are so crucial to us all, it's a substance we must learn to use properly. And that means going by the book on polyurethane safety from CPR Upjohn. If you handle or live or work where there is foam insulation, write us for your copy today.

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Giant Belcher Barge Launched In Galveston

Believed to be the largest barge ever built in the U.S., the 640-foot Belcher 102 (shown above) was launched recently at the Galveston Shipbuilding Company yard in Galveston, Texas. To be employed in the U.S. coastal transportation of petroleum products, this double-skinned barge has a cargo capacity of 412,000 barrels, or 55,000 dwt.

With dimensions of 640 feet by 105 feet and a depth of 48 feet, the Belcher 102 is equipped with five deepwell cargo pumps, two ballast pumps, and a circulating hot oil cargo heating system with 10 million Btus capacity.

The pushing notch on this barge with dimensions of 55 feet wide by 115 feet deep will accommodate a single-screw, 15,000-bhp

tug with a B&W diesel that burns heavy fuel oil. Also, Belcher 102 is equipped with a 1,000-hp M&T bow thruster unit.

NASSCO To Retrofit Three Tankers At Total Cost Of \$19.8 Million

The Maritime Administration and Maritime Subsidy Board have authorized execution of the agency's first construction-differential subsidy (CDS) contracts for the retrofitting of tankers in compliance with the Port and Tanker Safety Act of 1978. The CDS, estimated to total \$9,153,273, would aid in the reconstruction of three 89,700-dwt tankers owned by subsidiaries of the Berger Group, at the National Steel and

Shipbuilding Company in San Diego. Specifically, the contracts call for the installation of crude oil washing systems and other retrofits required under the act.

The vessels and companies involved are the Rose City, owned by Northwest Shipping Corporation; the Beaver State, owned by Yeon Shipping Corporation; and the Worth, owned by Worth Oil Transport Company. All three were built and are being operated with the assistance of Federal subsidy.

The Beaver State and Rose City currently hold 20-year "hell-or-high-water" time charters and are sub-time-chartered to Texaco. The Worth has a 10-year time charter with Texaco. Assuming the vessels meet the requirement of the 1978 act, all three are guaranteed revenue through 1986.

The Board approved a negotiated fixed price of \$6,607,291 for reconstruction of each vessel. Of that total, the Government will pay 46.17 percent, or \$3,051,091 in CDS.

The modifications involved have been approved by the Department of the Navy as suitable for use in time of war or national emergency. The Navy has also suggested that eight additional features would enhance the usefulness of the vessels for national defense. These include alongside fueling at sea and high-line transfer; astern fueling at sea; prohibition of grey cast iron; nuclear, biological, and chemical washdown, MARISAT communications equipment; maximum clear-deck area; steering control systems; and steering gear emergency electrical supply. The Board approved NASSCO's negotiated fixed prices totaling \$816,508 to

cover the cost of these national defense features.

The Berger Group has similar applications pending for CDS assistance in retrofitting four other tankers.

Donald Chrisco Named Director Of Materials At St. Louis Ship



Donald D. Chrisco

Donald D. Chrisco has been named director of materials at St. Louis Ship, division of Pott Industries Inc. He joined St. Louis Ship in March 1980 as director of purchasing. Prior to that he served in various material responsibilities for Monsanto Company, International Telephone & Telegraph in St. Louis, and International Systems in Mobile, Ala.

Except for steel, Mr. Chrisco is responsible for the total material function for St. Louis Ship and its two affiliated shipyards, Paducah Marine Ways and Caruthersville Shipyard. The three shipyards comprise the Shipyard Group of Pott Industries Inc., a subsidiary of Houston Natural Gas Corp.

Zigler Yard Launches 80,000-Barrel Tank Barge For Louisiana Marine

Zigler Shipyard, a division of Lee-Vac, Ltd., recently launched an 80,000-barrel barge, the LMT Pelican, constructed for Louisiana Marine Transport of Chelsea, Mass. The barge, the second of its kind to be constructed by the Jennings, La., yard, features internally coated tanks to carry gasoline and aircraft fuels.

The ABS approved and U.S. Coast Guard certified barge is equipped with conventional Gould cargo pumps driven by Detroit Diesel 250-bhp engines, and carries 30-kw generators. Operations manager Fred Stokes attributes the completion of the vessel six weeks ahead of schedule to fabrication techniques that simultaneously utilize all sections of the yard. The yard developed an inverse technique in fabricating the stern rake. The 200-ton component, the biggest module ever constructed by the yard, was fabricated upside down, turned over and put in place.

Equipped with a 25-foot notch on the stern, the LMT Pelican carries a diesel-driven hydraulic pump system to drive the anchor windlass. The vessel was designed by Marine Design, Inc. of Melville, N.Y.

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It's our new EN 2182R Watch Receiver. We designed it to meet or exceed the very latest SOLAS 74/IMCO A.383 round-the-clock distress monitoring directives, and the pertinent requirements of just about every maritime regulatory agency in the world. CEPT. UK Home Office, Scandinavia's PTT, USA's FCC, you name it. And it's available right now, so you can forget about having to apply for additional extensions.

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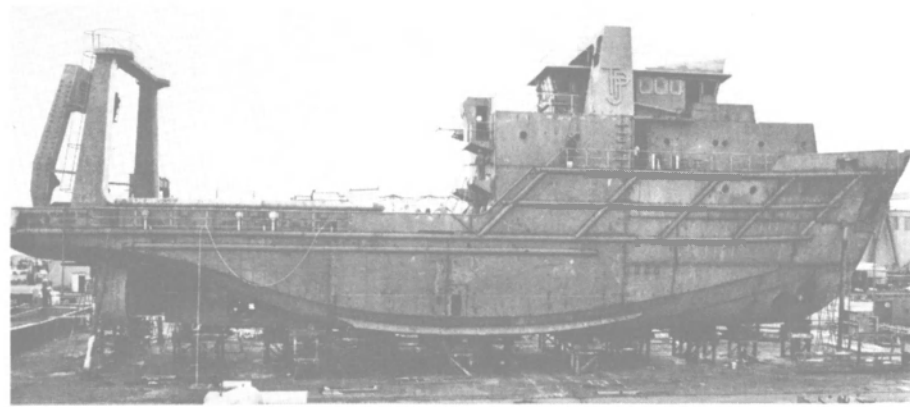
test generator. Plus provisions for external speakers, alarm indicator and reset controls. And an optional digital clock which automatically lifts mute during silent periods. This watch receiver will mount anywhere, table, bulkhead, or overhead, so it won't get in your way. It operates on both AC and DC; all you do is plug it in and it's ready to go.

The low cost is also a relief. Especially since no unit anywhere near the price of the EN 2182R comes anywhere near its performance. And it comes with a full year's guarantee. So here's an easy way to get rid of a headache — before it starts. Call Electro-Nav today.

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Write 386 on Reader Service Card



Specialized support vessel **Flinders Tide** shown nearing completion at New South Wales yard of Carrington Slipways. Owned by Tidewater Port Jackson Marine Pty. of Sydney, the vessel is powered by twin Electro-Motive, 1,500-hp diesels.

Advanced Vessel To Join Fleet Of Tidewater Marine Joint Venture

One of the most advanced vessels to go into service for Tidewater Marine Service, Inc.'s Australian joint venture company, Tidewater Port Jackson Marine Pty., Ltd. of Sydney, was nearing completion at Carrington Slipways, Newcastle, New South Wales, when the photo above was taken. The vessel is the **Flinders Tide**, named in honor of the 18th century explorer Capt. Matthew Flinders, Royal Navy, who discovered and charted large areas of Australia's coastline, with emphasis on the Bass Strait, where the vessel is expected to operate.

"**Flinders Tide** is designed to provide support for a remote-controlled vehicle (RCV), which is an undersea submersible used to survey and monitor pipelines and underwater construction, and to aid seabed survey work. The vessel also has important secondary functions that include diving and firefighting roles," according to **Ray J. Hope**, executive vice president of Tidewater Marine Service, Inc., and **J.C. (Bill) Needham**, manager of Tidewater Port Jackson Marine Pty. According to Mr. Hope and Mr. Needham, **Flinders Tide** will be among the most advanced vessels currently engaged in the offshore oil and gas industry and will rank high among the world's most specialized offshore support equipment.

"The RCV, attached to the vessel by cable, will propel itself along the ocean floor, or pipeline, and will relay pictures by television camera to the mother vessel. It is equipped with remote-controlled arms capable of handling small objects, wire, shackles, or tools, and is remarkably versatile," they said.

The **Flinders Tide** will be able to keep station on the RCV by operating in the dynamic positioning mode, maintaining position automatically in winds up to 20 knots with associated seas, plus two-knot current, either from the same or different directions.

Approximately 51 meters (167

feet) long, the new support vessel will be powered by twin EMD 12 cylinder 645-E6 main engines having a total of 3,000 hp (maximum continuous) at 900 rpm, driving controllable-pitch propellers, and three 600-hp Ulstein transverse thrusters. When in the dynamic positioning mode, the main engines will run at constant speed and control of the main propeller pitch, three transverse thrusters, and twin rudders will be effected by a Honeywell A.S.K. model 3100 computer. The system will be capable of using either a Decca "Trisponder" surface network or a Honeywell RS 902 hydro-acoustic subsea beacon position reference system.

The RCV will be deployed through a 10-meter-diameter "moon pool," and when engaged in seabed recovery work, will be used in conjunction with deck winches and a hydraulically operated hinged "A" frame stern gantry of 30-ton S.W.L. Two 50-ton, two 10-ton, and two 3-ton hydraulic deck winches will be fitted.

The **Flinders Tide** has accommodations for divers, and when working in this mode the vessel can be moored in a four-point mooring system pioneered by Tidewater Marine. The vessel's anchors will utilize the general-purpose winches and windlass. In diving support work, a saturated diving system can be provided on deck, and the bell will be deployed through the moon pool which is capable of aeration for this purpose. Workshops and RCV control room are provided onboard.

A firefighting system capable of delivering 2,400 tons of water per hour will be installed. The two remote-controlled monitors will be fitted atop a special gantry crane at the stern. Each will be powered by a 960-hp diesel pump capable of discharging water a distance of 145 meters to a height of 40 meters (475/131 feet).

The **Flinders Tide** was expected to go into service in January 1981.

C.H. King Promoted To Senior VP-Operations Of Global Marine

C.H. King has been promoted to senior vice president, operations of Global Marine Drilling Company of Houston, it was announced by Gary L. Kott, president. He will be responsible for the management of all operations, including drilling, materials, and marine-related activities. During

a 15-year career at Global Marine, Mr. King has served in various management capacities and was a drilling group vice president prior to his latest promotion.

Global Marine Drilling, a wholly owned subsidiary of Los Angeles-based Global Marine Inc., is a major offshore drilling contractor with an 18-rig fleet serving the worldwide petroleum industry. A planned \$2-billion expenditure program is under way to expand the fleet to 52 rigs by 1985.

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- 30 Foot Power Cord
- 1 1/2" I.D.—10 Foot Hose

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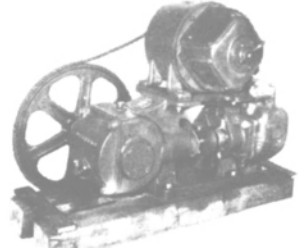
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PUMPS

WORTHINGTON 2½x2 SANITARY & FLUSHING PUMP — 20 GPM — 80 LBS

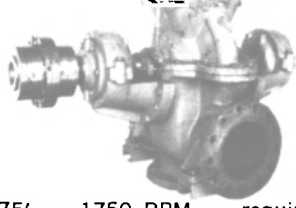


Motor driven type KAA — 1½" suction — 1" discharge. MOTOR: 2 HP — 230 VDC. Can also be furnished with A.C. motor if desired.

UNUSFD 5"x4" — 500 GPM @ 20 PSI — 1800 RPM WEIL GENERAL CIRCULATOR SERVICE PUMP

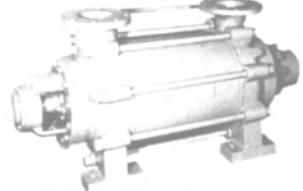
With totally enclosed explosion-proof motor. Bronze pump — horizontally split case — flooded submergence test pressure 300 PSI. MOTOR: Continental 10 HP — 440/3/60 — 1800 RPM — fan cooled — totally enclosed — horizontal — self-ventilated — EXPLOSION-PROOF. Unit 60" long — 24" flange to flange.

2000 GPM @ 75' BRONZE PUMPS



8X8 — 2000 GPM @ 75' — 1750 RPM — requires 50 HP 440/3/60 1750 RPM motor — frame 445-S. Pumps are ball-bearing split case centrifugals with cast iron driplip base. Very good condition.

UNUSED NIJUIS FIRE PUMP — PUMP ONLY



HID-5125250 — 531 GPM @ 323' head @ 1800 RPM

6X5 BRONZE GARDNER-DENVER PUMP

Split case type D — 1000 GPM — 125 lbs — 281' @ 1800 RPM. Requires 100 HP diesel drive. Suction lift 15 to 25' — 10½" diameter flange. 6" Suction 5" Discharge.

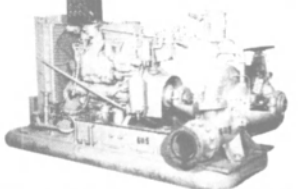
"EUREKA" DUPLEX DOUBLE-ACTING RECIPROCATING BILGE PUMP 500 GPM — 100' HEAD

Motor driven — pump operates at 320 RPM. MOTOR: 15 HP — 440/3/60 1750 RPM. DIMENSIONS: 5'9" high — 3' wide — 4' deep. Ex-M.V. Globtic Sun.

NIJUIS 3510 GPM DIESEL DRIVEN FIRE PUMP

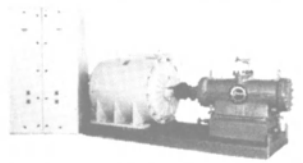
3510 GPM @ 350' head — 161.7 PSI. Pump is 10X8 — factory new — horizontally split case. ENGINE: GM 6V-71 or 8-V-71. Can furnish with heat exchanger & radiator.

GARDNER-DENVER 6'X5" BRONZE CENTRIFUGAL FIRE OR JETTING PUMP



Driven by GM 3-71 diesel engine. PUMP: 1000 GPM @ 150 PSI/1500 GPM @ 100 PSI — 1750/2000 RPM. Maximum head 175 PSI. Self-contained fuel tank in base. Automatic self-priming optional.

NEW UNUSED — 700 GPM — 150 PSI DELAVAL ROTARY PUMP



6X8 — 700 GPM @ 150 PSI — 1150 RPM — with 4-speed motor & control 100/75/50/37.5 HP — 440/3/60 — 1200/900/600/450 RPM. With Cutler-Hammer controller.

UNUSED BRONZE 2000 GPM @ 337' HEAD FIRE OR HIGH PRESSURE SERVICE PUMP



Mfg by Frederick Iron & Steel — 8" side discharge; — 8" bottom suction — model 8DSU-SPL. MOTOR: Crocker Wheeler — 250 HP — 240 volts DC — 1900 RPM — 102 7/8" O.A.L. — 34½" wide — 37" high.

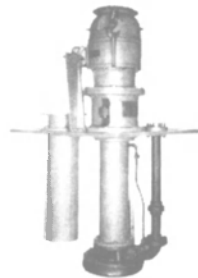
NEW UNUSED

KINNEY 20 GPM FUEL OIL SERVICE PUMP

Vertical — 50 PSI — with 2" inlet & outlet. MOTOR: 2 HP — 440/3/60 860 RPM — with starter. For fuel oil service, etc.

NEW UNUSED

SUMP OR LOW PRESSURE DRAIN PUMPS



Bronze — 40 GPM @ 40 PSI. 2" Discharge — single impeller — CW rotation — 32" from deck plate to base. Complete with flotation equipment. Totally enclosed 5 HP 440/3/60 1725 RPM motor. Repair parts for motor & pump included.

CARVER CHILLED WATER SERVICE PUMP 160 GPM — 57 PSI



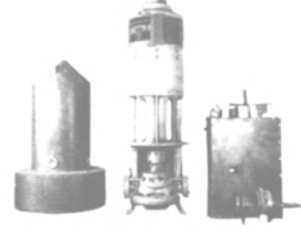
For air conditioning or water circulation. 160 GPM @ 57 PSI — 110 ft. head. Closed coupled — 10 HP 440/3/60/3500 RPM.

500 GPM FIRE SERVICE PUMP



Mfg. by Buffalo. Bronze — 500 GPM @ 100 Lbs. — 5x4 — 30 HP/240 DC — 105 amps — 1750 RPM.

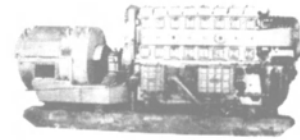
PASSENGER/CRUISE SHIP SELF PRIMING NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP



FOR EMERGENCY USE ON PASSENGER SHIPS, ETC. PUMP: JAS — 264 GPM — 171' head — two 6" inlets — one 5" outlet. MOTOR: 40 HP — 230 volts DC — 149 amps. COMPLETE WITH NASH — SELF PRIMING PUMP ATTACHED.

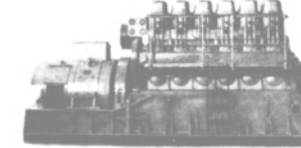
DIESEL GENERATOR SETS

290KW GM 8-268A DIESEL GENERATOR SET



120/240 VDC—1250 amps—shunt wound. ENGINE: GM 8-268A — 8 cyl — 6½x7 — 1200 RPM — good condition.

300KW BALDWIN DIESEL GENERATOR SET

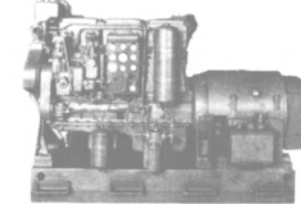


300KW — 120/240 VDC — 1250 amps — stab. shunt — 450 RPM. Baldwin diesel model VO. Ex C-1MAVO1.

100KW GBD8 DIESEL GENERATORS

From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM — Delco generator — self-excited. ENGINE: Superior GBD-8 — 8 cyl — 5½x7 — 150 HP — 30 volt electric starting. Reconditioned to ABS. Dry weight 10,000 lbs. — OAL 124" — 65 11/16" high — 42" wide. Height necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

60 KW CUMMINS DIESEL GEN. SETS



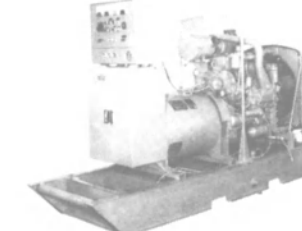
60KW — 120 volts — 500 amps DC generators. 6-Cyl. model H Cummins diesel engine.

75 KW CUMMINS DIESEL GENERATOR SET



75KW — 93.8 KVA — 440/3/60 — 1200 RPM — electric starting. Cummins 6-cyl engine with free-standing switchgear.

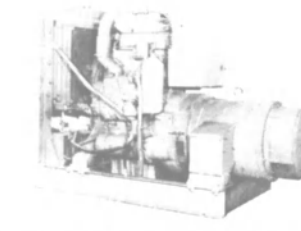
GM-4-71-T TURBO-CHARGED 100 KW DIESEL GENERATOR SET RADIATOR COOLED 1800 RPM



12 wire — all voltages possible — 100 KW 440/220/3/60. With switchgear. Has protective cabinet.

GM 8-268A 200 KW A.C. DIESEL GENERATOR SETS
ENGINE: 8-268A — 6½" bore — 7" stroke — 1200 RPM — driving Westinghouse generator — 200 KW — 440 volts — 3-phase — 60 cycle — 321 amps — 80% PF @ 1200 RPM. Switchgear available.

20KW 2-71 DIESEL GENERATOR SETS TEST RUN 1 HOUR



220/3/60 — 1200 RPM — Electric Machinery Co. or Delco. Brushless — will demonstrate running. (Also have 20KW sets with 220/440/3/60 — with brushes — 1200 RPM — Delco. Weight 2200 lbs.)

KNOWN 'ROUND THE WORLD

THE BOSTON

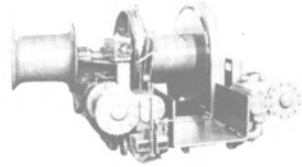
313 E. BALTIMORE

Marine
Main Of

GM 3-268A 100 KW DIESEL GENERATOR SETS
 ENGINE: GM 3-268A — 6 1/2 X 7 — 1200 RPM — 80% PF — electric starting. GENERATOR: 100 KW — 440/3/60/1200 RPM — 161 amps. Drip-proof — open — self-ventilated. (Class A insulation stator — class B insulation on field). EXCITATION: 2 KW DC unit — 9' 1 3/4" long — 37" wide.

WINCHES

STEAM MOORING WINCHES

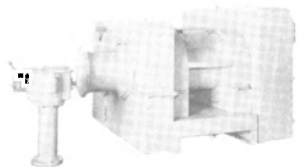


12" X 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head 20,000 LBS @ 100 FPM — FIRST LATER ALSO HANDLES 16,000 @ 150 FPM OR 50,000 @ 8 FPM.

Drum will show 1500 ft or 1 1/2" wire in 9 layers. Steam inlet 3 1/2" — 4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' X 6' 3 1/2" — overall 8' 4 1/2" wide x 9' long. Mfg by Friedrich Kocks.

ALL UNITS CAN BE DEMONSTRATED RUNNING

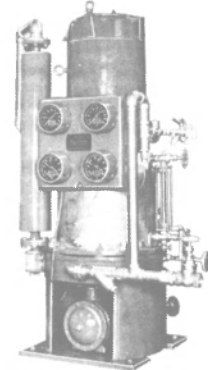
MODEL U1 UNIT WINCHES



7450 Lbs. @ 223 FPM. G.E. 50 HP Motor — 230 VDC. With controls and master switch.

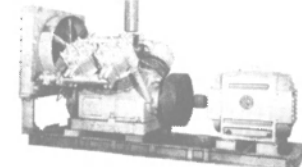
AIR COMPRESSORS

NASH MULTI-PHASE CONTROL AIR COMPRESSOR 50 CFM — 100 PSI



Model MV-673. Continuous pressure maintained by pressure control valve. Complete with motor, heat exchanger, separator, silencer, pressure control valve, water seal pressure control valve. CAPACITY: 50 CFM @ 100 PSI — 3500 RPM. Motor 27 HP — 440/3/60. Cooling water flow 35 GPM — relief valve set for 110 PSI. Vertical configuration. Pressure switch: on 80 PSIG — off 100 PSIG. Just removed from AT&T Vessel "Long Lines". Excellent condition.

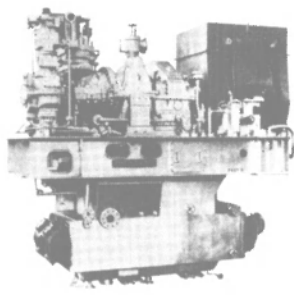
MARINE SHIPBOARD AIR COMPRESSOR V-TYPE — TS-22820



160 CFM @ 125 lbs — two stage 870 RPM — 8X8 1/4 X 8 1/4 — air cooled — with intercooler. Direct — connected air compressor #2261021. MOTOR: 50 HP 440/3/60 — mfg by U.S. Motor. AIR COMPRESSOR: Mfg by Air Pumps Ltd. Excellent condition — formerly used on AT&T Vessel "Long Lines" and removed only because they needed a larger unit. Complete with inter- and after-cooler. Very good condition.

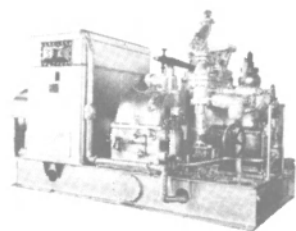
TURBO GENERATORS STEAM TURBINE — GEARS

1000 KW DELAVAL ALLIS-CHALMERS GEARED TURBO GENERATORS



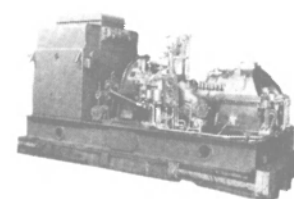
DeLaval turbine 1442 HP — 10019 RPM — class GJN — 9-stage — 1050 PSI — 950° TT. GEAR: 10019/12000. GENERATOR: Allis-Chalmers 1000 KW — 450/3/60/1200 — static excitation. Complete with condenser & switchgear optional. Send for brochure.

750 KW G.E. 7-STAGE TURBINE



450/3/60/1200 RPM — type FN3-FN24 — 10033 RPM. GEAR: 10033/1200 RPM. GENERATOR: type ATL — 6-pole — 450/3/60/1200 RPM — 0.80PF. EXCITER: 10KW 120 volts DC. Steam inlet 2 1/2" — 125% load — 2 hour normal steam condition. Normal steam condition 525 lbs/825°TT — 1 lb absolute back pressure at turbine exhaust flange. Steam flow 100% load 7870 lbs. OAL 11' 4 1/2" — OAW 6' 1/2" — OAH 6' 4". Total weight 24,500 lbs.

MARINER CLASS TURBINE & GEAR ONLY



G.E. 700KW DRV618-MR73 — 10938/1200 RPM 850 PSI — 850°TT — GEI-90755 CONDENSING. Complete with rotor bearings, diaphragms, packing, etc. Gear complete — type S — 432 — Form B — 10938/1200 RPM.

TURBINE & GEAR ONLY — NON-CONDENSING

G.E. 700KW DRV318-MR1 — 10938/1200 RPM — 850 PSI — 850°TT — 24 PSIG exhaust pressure. Rotor, diaphragms, packings, bearings available.

AUXILIARY TURBO GENERATORS ROTORS ETC.

● 400KW DELAVAL ROTOR — 7-STAGE — CLASS CD — 5910 RPM

835 lb W.P. — 840°TT — ex-Esso: Gloucester — Dallas Class — some Beth Sparrows Point & Quincy vessels, & Newport News Hulls 499-504 — in Book 820.

● 750KW DELAVAL ROTOR — 7-STAGE — CLASS G.J.

9823 — 585/865# steam pressure

● GEARS

Class KD — 9283/1200 — ex-City Service "Alton Jones" type vessels

GE ROTOR NEW

750 KW

Type FN-3-FN24 — 7-stage — 10033 RPM

WESTINGHOUSE NEW

1250 KW

540# — 825°TT — 8050 RPM

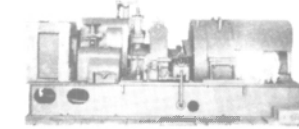
● FOR G.E. T2 VESSELS

G.E. DORV-325M — 5654 RPM — T2 tanker

● WESTINGHOUSE 538KW

5010 RPM — T2 vessel

TURBINE & GEAR ONLY



New DeLaval type H.D. Turbine — #245204 — gear type KDC — 730 HP — 440# — 740°TT — 9977 RPM — with reduction gear output 1200 RPM. Turbine serial #245204.

G.E. 300KW TURBO GENERATOR & GEAR



G.E. 300KW generator & 40KW D.C. exciter — 450/3/60/1200 RPM — ex USN D.E. vessel. TURBINE: DORV-325N — 4873 RPM — 400# — 50°F superheat.

300KW WESTINGHOUSE — LOW PRESSURE TURBINE & GEAR ONLY

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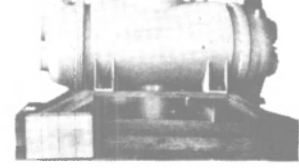
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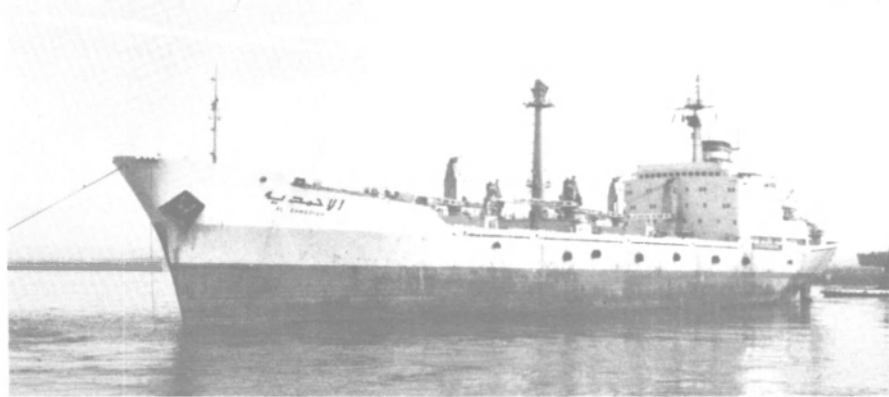
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BEFORE — As general cargo ships, vessels had LOA of 511.80 feet, dwt of 16,900.



AFTER — Converted ships are 592.92 feet LOA, 15,000 dwt, capacity of 800 TEUs.

Cadiz Yard Of AESA Delivers Three Containership Conversions

Wesley D. Wheeler Associates, Ltd. of New York, exclusive agents in the U.S. for Astilleros Espanoles, S.A. (AESA), has announced the recent delivery of three major containership conversions by the Spanish shipbuilder's Cadiz yard. The vessels are owned by United Arab Shipping Company of Kuwait.

Three 16,900-dwt general cargo ships—the Al Ahmadiyah, Al Rumaithiah, and Al Shamiah—had their entire cargo sections removed and replaced with complete new midbodies, which are outfitted for the stowage of either 20-foot or 40-foot containers in a cell guide system specially

designed by AESA-Puerto Real. The new midbodies extend the vessels' length by 24.726 meters (81.126 feet), while maintaining the original beam and depth. The new deadweight is 15,000 tons.

Keeping the vessels' original 21.80-meter (71.52-foot) beam necessitated the addition of 4,500 metric tons of cast iron ingot ballast in each ship, surrounded by a high-density, pumpable gel having anticorrosive and antibacteria properties.

Classed by Lloyd's Register of Shipping, the converted vessels have an overall length of 194.326 meters, length BP of 180.726 meters, and depth of 13.20 meters

(about 637.54 / 592.93 / 43.31 feet). Their new draft is 9.50 meters (31.17 feet). Powered by the original 12,000-bhp, single-acting, two-cycle diesel engines built by the Bryansk Engine Works in Russia, the vessels have a service speed of approximately 18.5 knots. The original ships were constructed at the Nosenko Shipyard in Nikolayev, U.S.S.R., in 1968-70.

New features of these vessels include 16 AESA MacGregor pontoon hatch covers in each ship, and a modern heel control system that is actuated by a large-capacity pump rated at 1,150 cubic meters per hour at a seven-meter water head. This system can compensate for up to 60 tons of cargo placed as far as 9.7 meters off the vessel's center line. It responds within 90 seconds, limiting the vessel's heel to within five degrees port or starboard.

Provision has been made to accommodate 100 40-foot deck reefer containers, for which deck receptacles are provided. For these reefer containers, power is furnished by three additional Ruston/GEL, 938-kva 380-volt generators, complete with switchboard.

Smoke detecting and CO₂ fire fighting systems supplied by John Kert, Liverpool, are installed in the wheelhouse. The wheelhouse was raised one level for better visibility over the deck containers. This necessitated relocation of all the navigation equipment.

One of the advantages of the Cadiz yard is its proximity to AESA's newbuilding yard at Puerto Real, where 1,200-ton lifts are possible in the drydock and wet basin, as well as the availability of extensive engineering and technical services.

Caterpillar-Powered Trawler Completed By G&W Industries

The fishing trawler Andromeda was delivered recently by G&W Industries, Inc. of Cleveland. Designed by John W. Gilbert Associates of Boston and built for Busty and Peter Mocerri of Gloucester, Mass., the vessel will be used for North Atlantic ground fishing.

Andromeda has an overall length of 96 feet, beam of 24 feet 9 inches, and depth of 12 feet 8

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Included in the electronics (supplied by Graham Marine Electronics of Gloucester) are two Furuno radars—FR1011 and FR 701, one Furuno CC200 Loran C, one Northstar 6000 Loran C, two ST-TEX HE-353 depth finders, one Modus 24 SSB radio, and two Modar 55 75 VHF radios.

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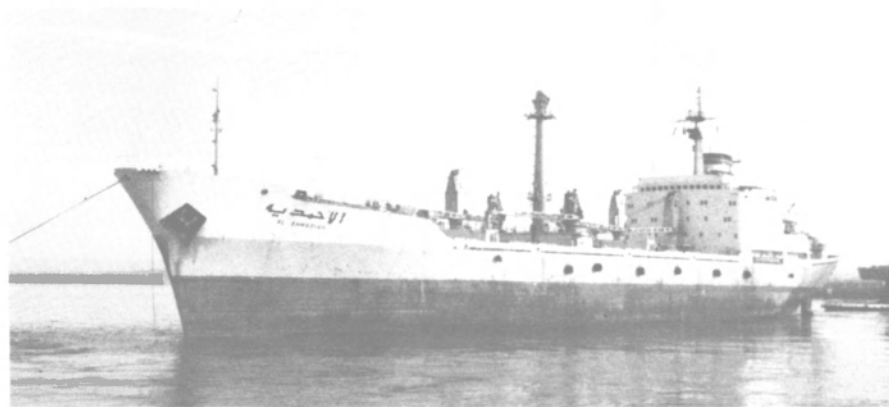
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NICOR Inc. Acquires Acadian Marine Service

NICOR Inc., Naperville, Ill., has announced acquisition of Acadian Marine Service, Inc., a privately owned marine transportation company based in New Orleans. Operating a modern fleet of special-purpose vessels worldwide, including regions of the U.S. and Mexican Gulf, Caribbean, North Atlantic, and offshore West Africa, Acadian Marine serves the oceanographic research, seismographic, container, and offshore oil industry trades.

Priour J. Leary Jr., president of Acadian Marine, said NICOR's strength will allow Acadian to take advantage of tremendous worldwide demand for offshore oil service vessels. He stated NICOR's financial backing will enable Acadian to expand its current marine interests, develop new markets, and encourage growth in the currently active offshore oil industry. Mr. Leary reported Acadian's present management team will remain intact.

According to L.L. Forsell, NICOR group vice president, Transportation and Extractive, acquisition of Acadian is consistent with NICOR's plans to expand into salt water its marine and oil-service involvement which began in 1978 with the addition of National Marine Service, Inc., which limits its activities to the freshwater inland waterways.

Subsidy Board Approves CDS For \$1.7-Million Delta Line Retrofits

The Maritime Subsidy Board has approved Delta Steamship Lines' application for construction-differential subsidy (CDS) to increase the cargo-handling capability of two breakbulk vessels that it operates in its subsidized foreign service.

The total approved CDS amount is \$534,792.69, or 32.11 percent of the cost of \$832,751 for the reconstruction of each vessel. The work will be done under a fixed-price contract negotiated by Delta with Buck Kreihns Company of New Orleans, and will involve the replacement of existing five-ton-capacity cranes with 25-ton cranes, plus the installation of necessary fittings to each of the two C3-class vessels, the Del Valle and the Del Monte.

The Board also determined that a price of \$29,030 for additional spares and container fittings was fair and reasonable for each of the vessels but was not eligible for subsidy. Those costs would be met by Delta.

Guralnick Associates Awarded Study Contract By State Of Alaska

Morris Guralnick Associates, Inc. (MGA) has been named by the State of Alaska as the recipient of a study contract for the

planned replacement of the Tustumena in the Alaska Ferry fleet, it was announced recently by Hugh F. Munroe, president and chief executive officer of the prominent San Francisco firm of naval architects and marine engineers.

In making the announcement, Mr. Munroe stated: "The Alaska Department of Transportation intends to replace this vessel with

one or more new ships, and will reassign the vessel or dispose of it depending on the outcome of a study. This contract is one of three to be awarded to implement this plan.

"It is our understanding," the MGA president continued, "that the Alaska Department of Transportation will use the ideas generated by these study contracts to provide direction on the design and procurement of a new ferry

or ferries to improve the service now being performed by the Tustumena. The work to be accomplished includes preparation of concept designs of passenger and vehicle arrangements, propulsion plans, and cost estimates. Additionally, MGA will prepare economic studies intended to assist in determining the ultimate reallocation of the older vessel. All of this work must be completed in 63 days."

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Bob Ware Receives Writer's Award From Propeller Club



The editor of this magazine, Bob Ware (left), is the recipient of the 1980 American Merchant Marine Writer's Award, an honor presented annually by The Propeller Club of the United States for outstanding marine journalism. Framed Certificate of Appreciation was presented at recent Propeller Club luncheon in New York by James J. Dickman (right), 1st vice president of the Propeller Club Port of New York and president of New York Shipping Association. Certificate reads "For authorship of published news articles in a marine-related publication judged to represent an outstanding contribution to creation of a better and more accurate understanding of the vital importance of the American Merchant Marine."

Two Big Bulkfleet Barges Christened At Quincy Yard

General Dynamics' Quincy Shipbuilding Division recently christened two large oil-carrying barges during a colorful twin ceremony at the shipyard. The barges, Bulkfleet Pennsylvania and Bulkfleet Texas, were both built for Bulkfleet Marine Corporation of Houston. The 503-foot, 33,400-dwt vessels each have a capacity of 210,000 barrels of petroleum products.

While a crowd of several hundred invited guests and shipyard employees looked on, Mrs. James N. Brown, wife of the marine operations manager of Gulf Oil Company-U.S., snipped a ribbon activating a mechanical arm that smashed the traditional bottle of champagne on the bow of the Bulkfleet Pennsylvania. Minutes later, Mrs. J. Barry



Among the principals at recent christening ceremonies for twin Bulkfleet Marine oil barges at General Dynamics' Quincy yard were (L to R): J. Barry Snyder, president and chief executive officer of Bulkfleet Marine Corporation; Mrs. Snyder, who christened the Bulkfleet Texas; David S. Lewis, chairman and chief executive officer of General Dynamics; Mrs. James N. Brown, sponsor of the Bulkfleet Pennsylvania; and Mr. Brown, manager, marine operations, Gulf Oil Company-U.S.

Snyder, wife of Bulkfleet's president and chief executive officer, snipped another ribbon to christen Bulkfleet Texas. Mr. Snyder was the principal speaker. The barges were floating bow to bow in one of the shipyard's huge construction basins.

Representing General Dynamics in the ceremony were David S. Lewis, General Dynamics' chairman and chief executive officer; P. Takis Veliotis, executive vice president-marine, and Gary S. Grimes, Quincy Shipbuilding Division general manager. Also on hand for the event were senator Paul Tsongas (D-Mass.) and Buck Miller, president of Gulf Oil Company-U.S.

The christening was the third at Quincy during 1980. Earlier, the shipyard christened the liquefied natural gas tankers Lake Charles and Louisiana, the last in a series of ten 936-foot LNG vessels built there over the past several years.

Dravo SteelShip Delivers Three Towboats To Radcliff



The 88-foot towboat Pintail (above) is one of three identical vessels delivered recently by Dravo SteelShip to Radcliff Materials of Mobile. Each is powered by Twin Caterpillar D-398 diesels developing a total of 1,650 bhp.

Dravo SteelShip Corporation, Pine Bluff, Ark., recently delivered three 88-foot by 38-foot by 9-foot steel towboats to Radcliff Materials, Inc. of Mobile, Ala. These towboats, the Pintail, the Kingfisher, and the Kittiwake, are powered by twin Caterpillar D-398 diesel engines, each rated 825 bhp at 1,225 rpm. The engines are equipped with Caterpillar 7261, 4.22:1 reduction gears. Fernstrum keel coolers provide for main engine jacket and after cooling.

Twin Caterpillar 3304 engines with 55-kw generators supply ship's power, which includes VARO searchlights, Carlisle & Finch 12-inch, 1,000-watt searchlights, NABRICO deck winches, Stephens-Adamson Model 12V-10HP capstan, and Kahlenberg Model Q-3 air horn. Owner-furnished electronics include Modar Triton VHF, Raytheon RAY 350 loudhailer, SI-TEX Model 23 radar, and other equipment. The electronics were supplied by RCA Service Company, Mobile.

Main engines and generator sets were supplied by Burford Equipment Company of Montgomery, Ala. A telephone booth supplied by Acoustical Development is located in the engine room.

The steering system is a Dravo SteelShip standard design with an Activation power unit. Designed with two main and four flanking rudders, steering is controlled by WABCO LogicMaster controls. Each vessel is equipped with two Kahlenberg four-blade, stainless-steel, 72 by 62-inch propellers.

Tank capacities onboard each vessel are: fuel, 30,000 gallons; clean lube oil, 500 gallons; dirty lube oil, 500 gallons; potable water, 7,100 gallons; and bilge, 20,500 gallons.

Each towboat is designed with five state-rooms to accommodate a crew of eight. A Microphor Type II sanitation system is provided on each vessel.

Dravo SteelShip is currently building two 75-foot tugboats, two 85-foot towboats, two 65-foot towboats for stock, and several other pieces of marine equipment.

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GE Reorganizes Its Installation & Service Engineering Division

General Electric's Installation & Service Engineering Division (I&SE), the company's on-site field engineering service arm, recently announced a new organizational structure. "The purpose of the new structure is to place greater focus on served markets and to improve GE's position to

meet customer requirements for quality on-site field engineering service," stated Robert T. Bruce, vice president and general manager of the Division.

GE field engineering services include installation, maintenance, modernization, customer training, and project management services on electrical, electronic, mechanical, and nuclear equipment and systems for the marine, utility, and industrial mining industries. The new organization realigns

the Installation & Service Engineering Division into four regional Service Departments providing services in the United States, and one International Department, to provide the same services in areas around the world. An Engineering and Programs Department provides essential support backup to the regional departments. The Division currently has a worldwide network of 170 offices with more than 4,700 field engineering personnel.

For additional information on GE's I&SE Division, Write 71 on Reader Service Card

Newport News Awarded \$8.1-Million Navy Contract On Submarine Overhaul

Newport News Shipbuilding, a Tenneco company, has been awarded a U.S. Navy contract worth some \$8.1 million for advance work in preparation for the repair, overhaul, and refueling of the nuclear-powered, ballistic missile submarine George Washington Carver. The Naval Sea Systems Command was the contracting activity.

Structural Guidelines For Aluminum Vessels Published By USCG

The U.S. Coast Guard has published structural guidelines applicable to aluminum vessels 60 to 135 feet in length having speeds up to 24 knots. They apply to vessels that are similar in hull form to passenger/cargo crewboats used in the offshore oil industry.

Titled Navigation and Vessel Inspection Circular 11-80, *Structural Plan Review Guidelines for Aluminum Small Passenger Vessels*, the guidelines are intended to facilitate local Coast Guard review of plans for such boats by providing a uniform and relatively simple step-by-step procedure for evaluating the structural design.

Free copies may be obtained by requesting NVC 11-80 from the Commandant (G-MP-4/14), U.S. Coast Guard, Washington, D.C. 20593.

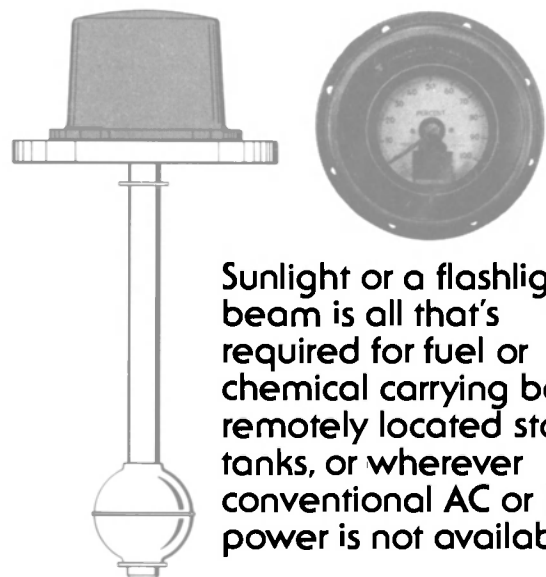
Gulf Oil Opens New Service Facility In Staten Island, N.Y.

Gulf Oil Company-U.S. has opened a new bulk lube facility at its Gulfport Terminal located on the Arthur Kill Waterway one mile south of Goethals Bridge on Staten Island, N.Y. The facility will provide bulk over-the-dock service of lube oil, No. 2 fuel, and potable water to towboats, catugs, and other service vessels. Packaged lubricants such as hydraulic fluids and greases also will be available.

"The new Gulfport terminal emphasizes Gulf's commitment to serve the growing inland river and coastal marine markets. Plans for similar facilities are in the works for other inland ports," M.W. Cramer, Gulf's director of industrial lubricants, said. Service at the new facility is available on a 24-hour basis at berth number 16 at Gulfport. The 600-foot dock can accommodate vessels up to 300 feet in length. Mean water level at the dock is 32 feet.

For more information on the facility, Write 68 on Reader Service Card

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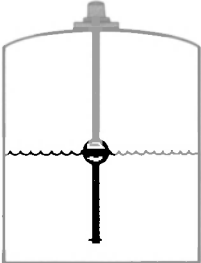
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Receiver supplied flange mounted or for remote mounting.

Receiver shown here is flange-mounted directly on top of a transmitter. However, it may be supplied for remote mounting at distance from the transmitter.



For application information, call toll-free (800) 243-3177.

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Applicants must possess a BS degree in engineering or related discipline (or equivalent) plus a background in at least three of the following areas: physics; naval architecture; electrical; materials; mechanical, marine or ocean engineering; chemistry or metallurgy.

Salary range: \$52,247 to \$61,600 (Currently limited by law to \$50,112.50).

This position is located in Arlington, Virginia in the Crystal City Complex. Interested applicants should send a Standard Form 171, Personal Qualifications Statement to:

Naval Sea Systems Command (MAT 09M5)
National Center 3, Room 4E17
Attn: SES Unit
Washington, D.C. 20362
Announcement: SEA 05R-1-80 MR

Applications must be received by March 7, 1981 for consideration.

An Equal Opportunity Employer U.S. Citizenship Required

Captain McVay Named Vice President Of Moran Towing & Transportation

Capt. Russell G. McVay, harbor operations manager of the Moran Towing & Transportation Co., Inc., was elected vice president of the company by the board of directors, it was announced by Thomas E. Moran, president.



Capt. Russell G. McVay

A specialist in tug/barge operations, Captain McVay served in Moran's offshore tugs in 1965. In 1969, he was assigned managerial duties with Moran in Baltimore. Transferred in 1973 to Moran's headquarters in One World Trade Center, New York City, he was appointed manager of the Seaboard Shipping Company, a Moran oil barge transportation subsidiary.

Captain McVay's appointment as harbor operations manager for Moran Towing & Transportation in 1978 included operational responsibility for all Moran harbor tugs and oil barges throughout the Greater Port of New York, Long Island Sound, and adjacent waterways.

Simrad's New Watch Alarm Receiver Gets Approval From FCC

The Federal Communications Commission has given approval to Simrad's new, compact watch alarm receiver, model RW 105, which fulfills all legal requirements of the new IMCO/SOLAS Regulations. It can be set to receive all transmissions on the 2182 kHz "Mayday" frequency, or automatically mute all but distress signals preceded by the two-tone alarm.

An internal digital clock lifts the mute during radio silence periods. If a silent watch period is required, the squelch can be activated manually. Only 10 by 6 by 4 inches, with built-in test generator and provision for optional tape recorder, the RW 105 easily fits into limited space. It has also been approved by most European authorities.

For additional information and free literature on Simrad's new watch alarm receiver,

Write 70 on Reader Service Card

Mynaugh Appointed Engineering Manager At Interocean Management

George P. Steele, president of the Philadelphia-based Interocean Management Corporation, recently announced several key changes

within the company's organization. Promoted to new responsibilities were Joseph L. Mynaugh to manager of engineering; Capt. Frank X. DiPolito to operations superintendent; and Stephen E. Thomas to controller.

Prior to joining the company in 1977 as port engineer, Mr. Mynaugh had been sailing as chief engineer aboard oceangoing tankers. He started his marine career as a wiper aboard ship in

1949, advancing to the rank of chief engineer in 1965. Mr. Mynaugh served as the company's engineering superintendent from 1979 until assuming his present position as manager of engineering.

Captain DiPolito, a 1968 graduate of the Maritime College at Fort Schuyler, sailed as master of one of the company's managed VLCCs before being assigned ashore in March of 1980

as port captain. His responsibilities will include operational control of, among others, two 400,000-dwt tankers, the largest tankers built in this country.

Mr. Thomas has been employed by Interocean Management since 1976 in various accounting functions, and most recently as assistant controller. His experience prior to joining Interocean Management had been in marine accounting with a major oil company.

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Applicants must possess a BS degree in engineering or related discipline (or equivalent) plus a background in mechanical/electronic engineering or naval architecture.

Salary range: \$52,247 to \$81,600 (Currently limited by law to \$50,112.50). This position is located in Arlington, Virginia in the Crystal City Complex. Interested applicants should send a Standard Form 171, Personal Qualifications Statement to:

Naval Sea Systems Command (SEA-00224)
National Center 3, Room 4E17
Attn: SES Unit
Washington, D.C. 20362
Announcement: PMS 399-317-80 MR

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Jumboized tanker Fredericksburg now has superstructure full aft, and is 24 feet longer, 19 feet wider, and capable of carrying some 110,000 more barrels of oil.

Newport News Completes Jumboizing Of Two Tankers

Newport News Shipbuilding recently delivered two jumboized commercial ships, the Charleston, and the Fredericksburg. The Charleston, ex Cities Service Norfolk, is owned by the Ariadne Corporation of Lake Success, N.Y., one of the Berger Group companies. The Fredericksburg was enlarged

for affiliated companies of Keystone Shipping Company of Philadelphia. Jumboizing is a technique pioneered by Newport News in the 1950s. The procedure consists of increasing cargo capacity by cutting off the existing forward section of the ship and adding a new, larger forebody to

the stern of the existing ship, or, in the case of relatively new ships, cutting them in half and inserting a newly constructed midbody. Newport News leads the U.S. maritime industry in this field, having completed more than two dozen jumboizing jobs since 1956.

By adding a new forebody a shipowner can enlarge a ship and extend its life by some 20 years without making the sizable capital investment to build an entirely new ship.

The carrying capacity of the Fredericksburg was increased by approximately 113,000 barrels of oil, and her deadweight raised from 26,000 to 39,900 tons (metric). In addition to increased capacity, both ships were reconstructed to meet current maritime rules and regulations. The bridge atop the superstructure, which was repositioned from midship to aft, now contains the latest navigational equipment; crew accommodations were completely modernized.

Newport News currently has contracts to jumboize two more commercial ships that will be delivered during 1981. The Virginia yard also has under construction or has contracted to build 10 ships for the U.S. Navy—two nuclear-powered aircraft carriers and eight nuclear-powered attack submarines.

A subsidiary of Tenneco Inc., Newport News Shipbuilding employs more than 24,000 persons. The 475-acre shipyard stretches along two miles of the James River near the the Virginia port of Hampton Roads.

NKK Delivers Its First Car/Bulk Carrier With Hoistable Decks

NKK (Nippon Kokan) of Japan recently delivered the 42,000-dwt car/bulk carrier Merak Eighty, fitted with temporarily hoistable cardecks, to Irvine Shipping Inc. of Liberia. **Shin-ichi Hirayama**, president of NKK America Incorporated, said the bulk carrier is NKK's first new vessel equipped with such hoistable decks. She was built at the Shimizu Shipyard.

The cardeck installation, called NKK-Kvaerner Hoistable Car Deck System, is applicable to vessels having topside wing tanks, and provides temporary decks in the recessed space between the topside tanks and the tank tops by utilizing hold space to a minimum.

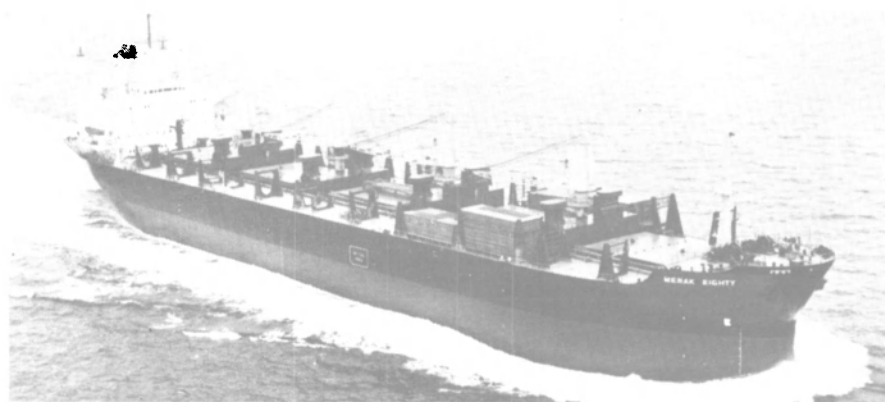
Merak Eighty has a length between perpendiculars of 184.50 meters, molded beam of 30.48 meters, molded depth of 17.75 meters, and draft of 11.55 meters (605.3/100/58.2/37.9 feet). Her

single main engine is a NKK/S.E.M.T. Pielstick 10PC4-V570 diesel with a maximum continuous rating of 15,000 bhp at 400 rpm, providing a service speed of 15.1 knots. Car capacity is approximately 2,650 units.

The basic concept of the hoistable deck technology is that when the ship hauls bulk cargo, large, steel-plate temporary decks, suspended by wires from the topside tanks, are hoisted up and held firmly under the tanks. When the carrier transports automobiles, the temporary decks are lowered.

The new carrier is also equipped with a conventional pontoon-type, cardeck system. This system provides temporary decks in the central part of the holds when the carrier transports automobiles. When she carries bulk cargo, cranes lift the temporary decks onto the main deck.

The hoistable cardeck system is one of two temporary cardeck



The 42,000-dwt Merak Eighty, a car/bulk carrier equipped with temporarily hoistable cardecks, was delivered recently by NKK's Shimizu Shipyard to Irvine Shipping.

systems for which NKK has been licensed under a technical cooperation agreement with Kvaerner Brug A/S of Norway. The other is known as the Kvaerner-Kaldones (K-K) Car Deck System.

The K-K deck system has been developed for use in open-type bulk carriers utilizing vertical cargo holds. In this system, temporary decks are stacked vertically alongside the hold bulkheads when bulk cargo is loaded. When cars are carried, the decks are

put in place beginning from the bottom of the hold. The K-K deck system is also applicable to vessels having topside wing tanks.

Temporary cardecks will be highly effective when both hoistable and K-K systems are used in combination car/bulk carriers. Compared with conventional temporary deck systems, these NKK-Kvaerner cardeck systems are said to feature larger temporary decks and relatively simple guide facilities for positioning them.

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The 64,000-dwt Danelock, first bulk carrier of Burmeister & Wain's fuel-saving Panamax type, was delivered recently by the Copenhagen shipyard. Her power plant is a slow-speed B&W 5L80GFC diesel producing 12,600 bhp at 90 rpm.

Burmeister & Wain Delivers First Panamax Bulk Carrier

Burmeister & Wain Shipyard in Copenhagen recently christened the motorship Danelock, the first bulk carrier of the yard's new, fuel-saving Panamax type of approximately 64,000 dwt. Shortly after, the ship was delivered to Turnville Shipping Ltd. of Monrovia, Liberia—a member of the Wheelock Marden Shipping Group, Hong Kong. The sponsor was Mrs. Anne Marden, wife of John Marden, chairman of Wheelock Marden and Company Ltd. and Wheelock Maritime International Ltd., both of Hong Kong.

Like B&W's other bulk carriers, the Dane-

lock is built to Det norske Veritas +1A1 classification. She has an overall length of 225.00 meters, molded beam of 32.24 meters, molded depth of 18.00 meters, and maximum draft of 13.10 meters (about 738/106/59/43 feet). Total cargo cubic (grain) is 79,100 cubic meters.

The new bulk carrier type, designated BC60E2, is characterized by an outstanding operational economy provided by the reduction in fuel oil consumption of 15-20 percent compared with more conventional bulkers of the same size. This improvement has been achieved through a successful develop-

ment of the hull design with a bulbous bow and flat-sectioned aft body, and the installation of a two-stroke/long-stroke diesel engine. With a daily fuel consumption of less than 40 tons, an average speed of 15 knots can be maintained.

The ship is provided with seven large, almost identical hatches, with inclined coamings and MacGregor hydraulically operated, steel hatch covers. Hold Nos. 1, 3, 5, and 7 can be utilized for the transportation of ore. Water ballast is carried in wing tanks, bottom tanks, in fore and aft peaks, and in Hold No. 4; total water ballast capacity is 30,400 tons.

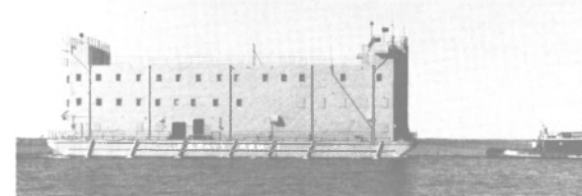
Accommodations for officers and crew are arranged aft in a five-deck superstructure. Situated on the lowest deck are galley, provision and cold storerooms, office, hospital, and hobby room with exercise and film equipment. Accommodations for deck crew, cook, galley personnel, and a laundry are arranged on the boat deck. On the saloon deck, living rooms for petty officers and crew, mess, rooms, and accommodations for the steward, pantry, and duty mess are arranged. Accommodations for deck and engine officers are located on the officer deck. The captain and chief engineer each have a suite comprising office, dayroom, bedroom, and bathroom. On this deck a special pilot's cabin also is situated.

At the navigation bridge level, wheelhouse, radio station, and accommodation for the radio officer are situated. The ship is equipped with the most modern navigation instruments, including Loran, radio direction finder, radar, satellite navigator, autopilot, and gyrocompass. A Loadmaster unit is installed on the bridge, together with instruments for remote control of the main engine to permit unmanned engine room operation.

The main engine is a 5-cylinder, long-stroke diesel, B&W type L80GFC, with an output of 12,600 bhp at 90 rpm. The auxiliary machinery consists of three B&W diesel engines, type 5T23LH, each driving a 500-kw generator. On the port side of the engine space, a sound-insulated control room is arranged with control instruments for the machinery.

The steering gear is of the rotary vane type, with a B&W spade rudder of 44 square meters weighing approximately 90 tons. In accordance with DnV class requirements, it can be turned from 35 degrees on one side to 30 degrees on the other in 28 seconds.

First Navy Berthing Barges Delivered By Marinette



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Marinette Marine Corporation recently delivered the first and second barges of a total of 16 units under construction for the U.S. Navy.

The YRBM(L) vessels have a 146-foot overall length, 46-foot beam, and a 688 long ton displacement. A total of 201 enlisted men, 26 officers, and 30 chief petty officers will be accommodated within the vessel. Additional features to crew facilities include recreation rooms, machine shop areas, galley, and classrooms.

Delivery of remaining vessels will be at staggered intervals, scheduled through 1983.

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February 1, 1981

**Todd-Seattle Yard Promotes
Five—McDonnell Appointed
Assistant General Manager**

John T. Gilbride Jr., general manager and vice president of Todd Pacific Shipyards Corporation's Seattle Division, recently announced five promotions at the Seattle yard.

Dan McDonnell has been named assistant general manager-production; he had been general superintendent since July 1979. Prior to joining Todd, he had 19 years of marine engineering experience, including five years as marine superintendent, West Coast, for General Electric in San Francisco; seven years as Western Regional manager for Argo International of New York; and seven years as a consulting engineer (owner/manager of McDonnell Engineering in Seattle).

Don Mulunax has been appointed general superintendent. He had been the superintendent in charge of all Steel Department operations for the past three years, and has 29 years of service with Todd that involved supervision in all aspects of ship repair, conversion, and new construction.

Gerry Sneiderman will continue as assistant general superintendent, but will also assume responsibility for all Navy overhaul, Navy repair, commercial ship repair, and industrial operations of the Production Department.

Bill Potts has been named safety and general services superintendent, with responsibility for Production Department safety, and the Toolroom, Paint, and Labor Departments. He has 18 years with the company, including such positions as assistant foreman of the Pipe Department, ship superintendent, foreman of the Steel Shops, and for the past two years foreman of the Welding Department.

Tom Roesch was appointed test & trials manager, responsible for the operation of the combat systems and the Test & Trial Department. He has been with Todd since August 1979, and prior to then served 10 years with the U.S. Navy.

**Future Ship Designs Topic
At ASNE Northern New
England Section Meeting**



At recent meeting of ASNE Northern New England Section (L to R): Capt. Phil O'Connell, Section chairman; and Comdr. Michael Terry, guest speaker.

The Northern New England Section, the American Society of Naval Engineers, held its monthly meeting recently at the Commissioned Officers Club, Naval Shipyard, Portsmouth, N.H. Comdr. **Michael Terry**, Research and Development Program Manager, Ship Design and Integration Directorate, Naval Sea Systems Command, was the technical session speaker. His presentation was titled *Ship Design for the Year 2000*.

Comdr. Terry graduated from MIT in 1962, and earned an MS degree in mechanical engineering and a naval engineer's de-

gree from MIT in 1969. He is an engineering duty officer, and has had broad experience in the ship design field. Duty assignments have included project officer for the building of the USS Planview (AGEH-1), AALC Hovercraft Program at DTNSRDC, PHM Hydrofoil Program at NAVSEA, CV-67 modified repeat ship design manager and surface ship conform program manager at NAVSEA.

**Hitachi Completes Jackup
Drilling Rig For India**



The jackup offshore drilling rig Sagar Vikas (shown above), ordered by the Oil and Natural Gas Commission of India, was delivered recently by the Osaka Works of Hitachi Zosen, Japan. Scheduled for operation in the oil field of Bombay High, it is the first rig built for India by Hitachi, and the eighth rig to be completed by the Japanese shipbuilder, which has nine more on order.

For the Sagar Vikas, a fixed jacking unit was adopted, doing away with the conventional jackhouse. Overall weight was thereby reduced, allowing a greater payload of supplies and materials to be taken on the rig. It is capable of operating in water depths to 300 feet, drilling to a maximum depth of 20,000 feet, and can withstand winds up to 86 knots and waves up to 61 feet high. The drilling platform can be raised or lowered at a rate of about one foot per minute.

The three-legged platform has a length of 210 feet, beam of 194.5 feet, and depth of 23 feet, and has been built to American Bureau of Shipping classification.

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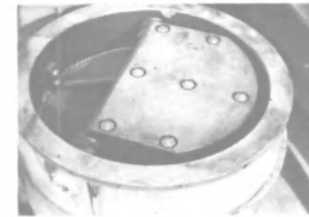


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OFFER FOR VESSEL

OFFERS: Plainly marked on the envelope "Offer on P.T. #178" will be received by the undersigned up to 2:00 p.m., Pacific Standard Time, March 12, 1981 for the following vessel located "as is and where is" of the British Columbia Ferry Corporation Deas Dock, 12800 Rice Mill Road, Richmond, British Columbia, Canada:

M.V. "Pender Queen" — Official No. 150894

Year and location built: 1923—Yarrows Ltd., British Columbia; hull—wooden; single end; length overall—177 ft.; length between perps—153 ft.; freeboard loaded—4 ft. 3 7/8 in.; draft—10 ft.; breadth (extreme O.V./G.D.)—46 ft.; speed full load—11 knots; tonnage (Gross) 428.29, (reg'd.) 291.24; horsepower—1020 BHP; engines (two)—Fairbanks-Morse, opposed piston, 7 cylinder model 38F514, 525 BHP @ 1200 rpm; twin screw; passenger & crew authority; passenger 250, crew 6; capacity lineal foot—750; capacity auto—40; deck clearance 12 ft. max., 11 ft. 6 in. min.; seating capacities—snack bar 13, exterior 30, other 93; radio—1 P.Y.E. Section AM, 1 Johnson 527 FM, 1 Coronet COM 12 V.N. VHF; radar 1 Dicco Super 101; lifeboats—2 wooden (22 persons each).

Extensive spares for the engines and related equipment are included. List available at the site.

To view or for further information contact Mr. E. Dodds, Deas Dock Superintendent at the above address, telephone (604) 277-3121, Vancouver telex 0435-5606.

Offers must be accompanied by a certified cheque made payable to the Minister of Finance, Government of British Columbia, for 10% of the bid. If the successful bidder subsequently withdraws his offer, the 10% payment shall be liable to forfeiture.

Any licence and/or registration of the vessel will be transferred to the purchaser by Mr. G. Baldwin, Chief Operations Manager, B.C. Ferry Corporation, 818 Broughton Street, Victoria, B.C., Canada V8W 1E4.

It is a Condition of Sale that all British Columbia Ferry Corporation identification be removed from this vessel.

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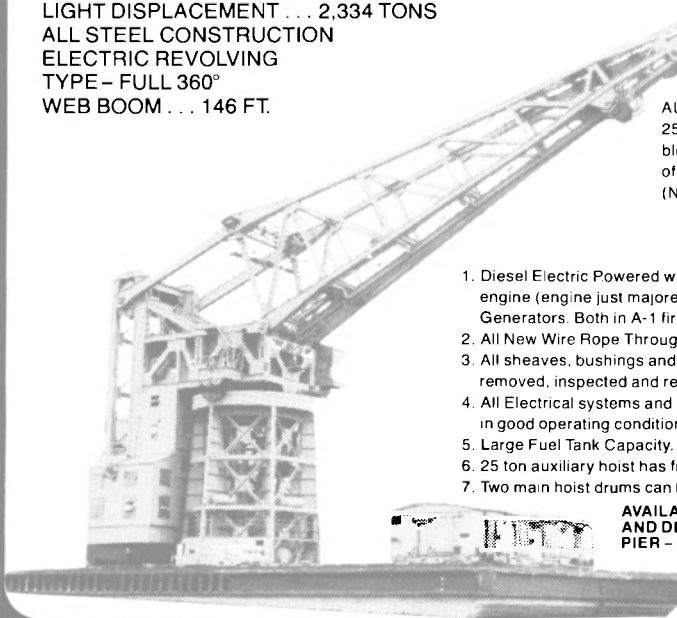
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NEW 1970-72

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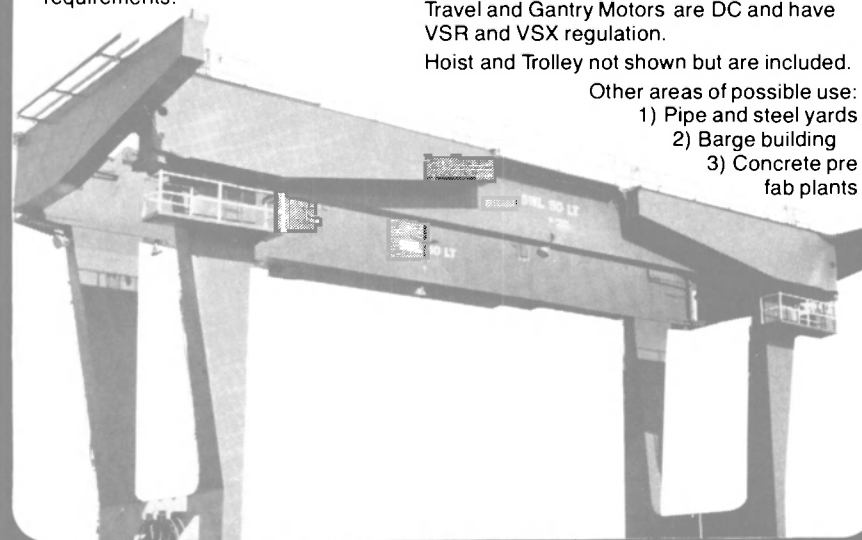
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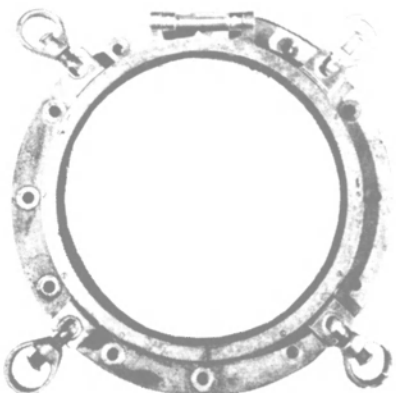
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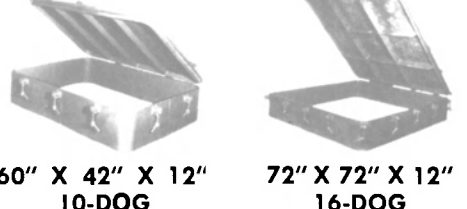
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4 Dogs on underside—topside flush, with T-Key openers.

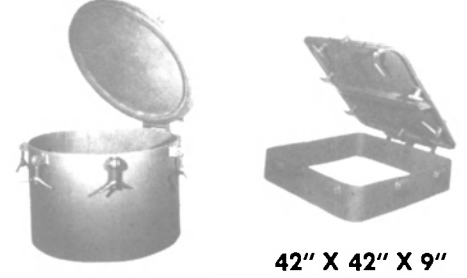
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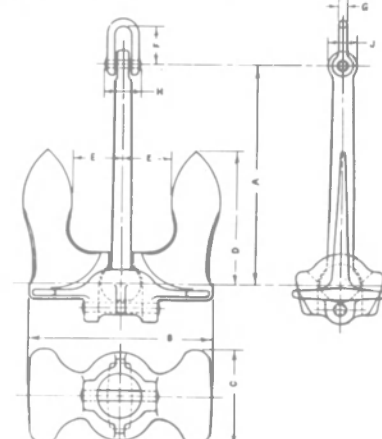
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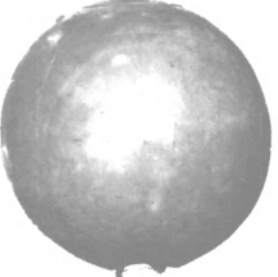
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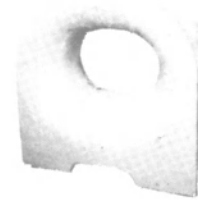
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SURPLUS BERGER FAIRLEADS




2 Model 620—for 1 1/2" wire—20" sheave. Located San Francisco, Ca.
\$3950 EACH

3 Model 614—for 1 1/4" wire—14" sheave. Located Panama City, Fla.
\$2495 EACH

THE BOSTON METALS COMPANY
 313 E. Baltimore St. Baltimore, Md. 21202
 Marine Warehouse (301) 752-1077

CROUSE HINDS 1000 WATT FLOODLIGHTS



NEW—UNUSED
 HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

THE BOSTON METALS COMPANY
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NEW—UNUSED 3" STEEL DUPLEX STRAINER



With hand wheel. Mfg. by Derbyshire. Flange to flange 14 3/8"—width 26"—center of hole to base 11". Fine steel mesh basket. Working pressure 300 lbs. 6 3/4" bolt circle with 8 bolt holes.

THE BOSTON METALS COMPANY
 313 E. Baltimore St. Baltimore, Md. 21202
 Marine Warehouse (301) 752-1077

LST MACHINERY

PORT & STARBOARD GM 12-567A 900 HP DIESEL ENGINES
 with Falk reverse & reduction gears
 ENGINE: GM 12-567A—8 1/2" X 10"—V-type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk AirFlex—reverse & reduction—2.48:1 forward—2.52:1 reverse.



GOULD FIRE & BILGE PUMP
 250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.



4-BLADE PROPELLERS BRONZE—PORT & STARBOARD



7" Diameter—pitch constant 4.699. Bore tapers from 6 1/8" to 4 53/64". 14 1/2" Taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

100KW GBD-8 DIESEL GENS.
 120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl—5 1/2" X 7"—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high—42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.



GARDNER-DENVER BALLAST PUMP
 Bronze—1500 GPM—56" head or 25 bs—8" suction—6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40" T rise—stab. shunt—ballbearing—drip-proof. Controls available.



CLUTCH TIRE AIR COMPRESSOR
 Model 320—4 X 2 1/2 X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.



COMBINATION LUBE OIL & SALT WATER COOLING PUMPS
 Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1 1/2" X 1 1/2")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1 1/2") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40° C temp rise. Ball bearing.



TAILSHAFTS
 Diameter: 6 1/8" Length: 21' 2 5/8"

THE BOSTON METALS COMPANY
 313 E. Baltimore St. 752-1077 Baltimore, Md. 21202

BUYERS DIRECTORY

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
R.V. Fenstrum & Company, 1716 Eleventh Avenue, Menominee, WI 49858
James D. Noll Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 3039K8), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186

Blasting—Cleaning—Equipment
Blaster Systems Inc., 224 Park Ave., Florham Park, NJ 07932
GMCC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205
Goff Corporation, One Pleasant Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning
Combustion Engineering, Inc., Windsor, Connecticut 05095
A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BRAKES
Goodyear Aerospace (Industrial Brakes Division), Box 477, Berea, OH 44003

BROKERS
B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Canastota Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

BUNKERING SERVICE
Belcher Company of New York, Inc., 48-02 54th Avenue, Massena, NY 11378
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHOCKING SYSTEMS
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling
Paco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

CONTROL SYSTEMS—Monitoring
Artesian Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megastems, Inc., 5909 West 120th Street, Cleveland, OH 44130
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Detawal, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS
Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07079
J. D. Neuhous, Wilten-Heven, Hebezeuge, D 5810 Wilten-Heven, West Germany
Paco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK MACHINERY—Cargo Handling Equipment
Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
Markey Machine Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Galten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, MO 64115
Twin Disc, Incorporated, Racine, Wis. 53403

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS
Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine
ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
Rockwell International, Power Tool Division, 403 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wis. 53186
Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150

EVAPORATORS
Riley-Best, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS—METALS
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS
Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Wauhaven Z.Z. 52
Hortell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44653
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing
Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85007
Kidder, Peabody & Co., Inc., 10 Manover Square, New York, N.Y. 10005
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231

GANGWAYS
Ramptomster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11096
Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS
Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Comar Corporation, P.O. Box 400, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredrikstad mak. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038
Whitehall Brokerage, Inc., 685 3rd Ave., New York, NY 10017

JOINER—Waterlight Doors—Paneling
Maritime Commercial Division, Dover, OH 44522
Walz & Krenzer, Inc., 400 Tralbold Road, Rochester, NY 14624

KEEL COOLERS
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44032

LIFEBOATS & DAVITS
Schot Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 10-99 3901 North 29th Avenue, Hollywood, FL 33020
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 64200, Miami, Florida 33164
Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53207
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

LNG CONTAINMENT
McDonnell Douglas Astronautics Co., 5301 Balsa Ave., Huntington Beach, CA 92647

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1030 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
A.L. Burbank & Co., Ltd., Marine Thermostat Dept., One World Trade Center, Suite 2811, New York, NY 10048
General Electric Company—Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
Agemar, Avenida 3E No. 71-51, Edif. Acuario (Planta Baja)
Aparada 1465, Maracaibo, Venezuela
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amrikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Del. Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John F. Callatti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJang & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates, Inc., 3309 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 82 Beaver Street, New York, NY 10005
Donhoiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glotzer 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
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hydraulics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Kragen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01470
Lucander Designs, P.O. Box 711, San Perito, TX 78550
Alan C. McCure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metriape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Ave., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlton Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07816
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013
and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahel and Schmahel, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 05426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spangens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taulber Inc., 8 Columbia St., Millford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timco, 622 Azalea Road, Mobile, AL 36609
Corning Townsend III, 18 Church St., Georgetown, CT 06829
Undersoe Systems, 112 W. Main St., Bay Shore, N.Y. 11706
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwalk, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70033

NAVIGATION & COMMUNICATIONS EQUIPMENT
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Dantronics Company, P.O. Box 204, Boca Raton, FL 33432
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02090
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, Palm Coast, FL 32207
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Intermarine Electronics, Inc., Flowerfield Bldg., #7, St. James, N.Y. 11750
Iatron Corp., 5 Alfred Circle, Bedford, MA 01730
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606

Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
North American Philips Communication Corp., 91 Mckee Road, Mahwah, N.J. 07450
RCA Service Co., Building 204-2, Camden, N.J. 08101
Radar Devices, Inc., 2255 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Texas Instruments Inc., P.O. Box 226030, M/S 3107, Dallas, TX 75265
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721
OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrox Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10219
Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Shell Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017
OIL/WATER SEPARATORS
Alfa-Laval, Inc., 2115 Lindwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Sigma Treatment Systems, 603 Dean St., Brooklyn, NY 11238
PAINTS—COATINGS—CORROSION CONTROL
Belzona Molecular Metallife Inc., 224 7th Street, Garden City, NY 11530
"CONSOIL" manufactured by Hotline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devco Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94030
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
John-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21220
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
PETROLEUM SUPPLIES
Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
PIPE—HOSE—Cargo Transfer, Clamps, Couplings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
UNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hixson Ave., Wilmington, CA 90748
Hydra-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikihuhigashi 1-Chome, Naniwa-Ku, Osaka 556-01, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
PLASTICS—Marine Applications
Huber Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
PROPULSION EQUIPMENT—Bowlsterns, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., 110 Orchard St., Auburn, N.Y. 13021
Alsthom-Atlantique, 2 quai de Seine, 92023 Saint-Denis, France
Arma Steel Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, Inc., 110 Norfolk St., Walpole, Mass. 02031
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004
Caterpillar Tractor Company, Engine Division, Peoria, IL 61629
Cohi Industries' Fairbanks Morse Engine Division, Beloit, Wis. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525
Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B5
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnitrustror Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oxerhus Industries, P.O. Box 20527, New Orleans, LA 70150
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073
Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica Delaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08600
Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Solina, KS 67401
Vaith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652
PUMPS—Repairs—Drives
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083
REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
ROPE—Manila—Nylon—Hawsers—Fibers
American Mtg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
Tubbs Cordage Company, Orange, CA 92668
RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
SANITATION DEVICES—Pollution Control
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford IL 61111

Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willis, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, La. 70560
Research Products Blankenship, 2639 Andron, Dallas, Texas 75220
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Sigma Treatment Systems, 603 Dean Street, Brooklyn, NY 11238
SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Cent Ave., Fort Lee, N.J. 07024
Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055
Trux Just Corp., P.O. Box 60, Boise, Idaho 83707
SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02031
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
SHIPBREAKING—Salvage
American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Levin Metals Corporation, 1310 Canal Blvd., Richmond, CA 94807
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201
SHIPBUILDING STEEL
Arma Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moattschappij bv, P.O. Box 3236, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzas de la Armado, Frat 856, Pisco 14, Castillo 150 Y, Valparaiso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Avondale Shipyards, Inc., P.O. Box 52010, New Orleans, La. 70150
Bay Shipbuilding Corporation, 403 North Third Avenue, Sturgeon Bay, WI 54235
Bergeson Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Shipyards Pty. Ltd., Old Funf Road, Temago, N.S.W., Australia 2322
Centramer, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
Corrad Industries, P.O. Box 790, Morgan City, La. 70320
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
Galveston Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004
Delatre-Lievrier, Tour Fiat, Cedex 16, 92034 Paris La Defense, France
Darbyh Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Eskatelle Shipyards, Inc., P.O. Box 3001, New Orleans, La. 70122
FMC Corp., Marine & Rail Equipment Div., 4760 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halter Marine, Inc., P.O. Box 29246, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan, N. 10048
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipyards, Inc., P.O. Box Q, Pascagoula, MS 39567
Jackson Engineering Company, Inc., 2945 Richmond Terrace, Staten Island, NY 10333
Jeffboat, Inc., Jeffboat, Inc., Ind. 47130
Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockhead Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McBennett Incorporated, 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Misenor Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
North American Hydraulics, P.O. Box 278, Brompton, Ontario Canada L6V 2L1
O.A.R.N. (Officine All'estimento-Riparazioni Navli), P.O. Box 1395, Genoa, Italy 16100
Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, La. 70767
Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012
Port of Portland, P.O. Box 3529, Portland, Ore. 97203
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
S.E.B.N., Societa Esterioaio Balini Napolatani, Via Marinella Varca N.6 (80133) Naples, Italy
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau St., St. Louis, Mo. 63111

STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175
The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308
Setenava-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal
Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113
Sudamport, 3 Kalyovskaya, Moscow K-6, USSR
Sun Ship Inc., Chester, PA 19013
Swiftships Inc., P.O. Box 1503, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Thomas Marine Inc., 37 Brantford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21504
SHIP STABILIZERS
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
SMOKE INDICATORS
Robert H. Wagner Co., Inc., Passaic Avenue, Chatham, N.J. 07928
STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44067
SURVEYORS AND CONSULTANTS
Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038
TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwick, Inc., 77 River St., Hoboken, N.J. 07030
TANK LEVELING INDICATORS
Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032
Yu-Cage System, 150 E. 42nd St. (Room 910), New York, NY 10001
Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042
TECHNICAL MANUAL PREPARATION
Calkins, Inc., 2468 N. Jerusalem Road, N. Baltimore, NY 11710
TERMINALS—Oil-Transfer
Calco Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614
DeLong Corp., 29 Broadway, New York, N.Y. 10006
Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottesville, VA 22902
TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chesapeake Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lightering, 21 West Main St., Oyster Bay, N.Y. 11771
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Coast Marine Corporation, Canal Place One, Suite 2400, New Orleans, La. 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 2325, New York, N.Y. 10048
Ocean Salvors Company, One World Trade Center, New York, N.Y. 10048
Sudamerica & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecoma Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305
TRAINING SERVICES—Simulator
Ship Analytics, Park Circle, Centerport, NY 11721
VALVES AND FITTINGS
Doyle Corporation, Morris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208
Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222
Vass, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Weger Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
Winnell of America, Inc., 16014 Cowley Road, Grafton, OH 44044
WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
WINCHES AND FAIRLEADERS
Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644
Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
Geomark Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada
Markley Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Barger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134
WINDOWS
Kearfoot Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550
WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
WIRE ROPE—Stings
Arma Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
ZINC
Smith & McCorken, 153 Franklin St., New York, N.Y. 10013

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors.

U.S. SHIP CONSTRUCTION CONTRACTS

1 — MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — JANUARY 1, 1981

Builder	Owner	Total No.	Type	Hull Nos.	Est. GT (Each)	Est. DWT (Each)	Est. HP (Each)	Est. Total Cost (\$Mil.)
American Ship Building	Interlake Steamship	1	Bulk	909	32,000	59,000	D-16,000	50.0
Avondale Shipyards	American President Lines	3	Container	2329-31	40,500	30,300	D-43,200	330.0
	Suwanee River	3	Tug/Barge	2323-8	16,000	41,300	D-18,200	111.6
	Ogden Marine	2	Products	2318-19	25,000	42,000	D-15,000	100.0
	Eagle Dredging	1	Dredge	2320	4,200	4,900	D-7,500	30.0
	Corps of Engineers	1	Dredge	2322	9,900	8,000	D-10,400	67.5
	United States Trust	1	Dredge	2332	—	—	—	30.0
Bath Iron Works	Corps of Engineers	1	Dredge*	402	6,000	—	D-7,000	65.0
Bay Shipbuilding	Goodyear Steamship	1	Bulk	724	12,000	23,500	D-7,500	25.0
	Ogelbay Norton	1	Bulk	726	33,000	50,000	D-14,000	52.4
Bethlehem-Sparrows Point	Artemis Marine	1	Tug/Barge	4652	32,000	47,000	D-18,200	52.6
	First-Fifth Tug/Barge	5	Tug/Barge	4653-7	32,000	47,000	D-18,200	266.0
Equitable Shipyards	City of New York	2	Ferry	1713-14	3,000	4,200	D-7,800	30.0
General Dynamics-Quincy	Bulkfleet Marine	2	Tug/Barge	055-6	12,000	27,000	D-8,000	NA
	Coastwise Shipping	3	Tank Barge	023-5	—	—	—	NA
	New England Electric	1	Collier	—	23,500	36,000	T-12,000	60.0
Levingston Shipbuilding	Levingston Falcon I	3	Bulk	751-3	23,500	36,000	D-14,800	120.0
Mangone Shipbuilding	Sun Transport	1	Products	129	1,600	2,300	D-1,900	NA
National Steel & SB	Union Oil	3	Products	415-17	24,500	37,500	T-13,000	150.0
	American Tankships	5	Products	419-23	24,500	37,500	D-11,400	239.0
	American Trading Trans.	3	Products	424-6	27,000	44,000	D-11,400	153.0
Norfolk Shipbuilding	Corps of Engineers	1	Dredge	178	2,750	—	D-2,250	18.5
Sun Ship, Inc.	Sun Transport	1	Products	677	17,000	31,000	D-14,200	36.0
	Waterman Steamship	3	RO/RO-Cont.	679-80, 82	18,500	23,500	T-32,000	207.1
	Calif. & Hawaii Sugar	1	Barge	683	21,000	37,000	—	25.0
Upper Peninsula SB	State of Michigan	1/4	Tug(1)/Barge(4)	001-5	5,400	10,000	D-8,000	35.5

* Subcontracted from Sun Ship (formerly Sun Hull No. 681).

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — JANUARY 1, 1981

Builder	Owner	Name	Type	Delivery
Alabama Dry Dock	Diamond M	Diamond M. Hunter	Semisub.	12/81
		Diamond M. Eagle		4/82
Baker Marine	Huthnance Dig.	Charger I	Jackup	6/81
		Charger II		9/81
	Ingliside, Texas	Magnum Marine		11/81
		Magnum Marine		2/82
		Magnum Marine		5/82
		J. Storm XV		3/81
		J. Storm XVII		7/81
		J. Storm XVII		9/81
		(unnamed)		1/82
Bethlehem Steel	Broughton Offshore	Broughton II	Jackup	2/81
	Griffin-Alexander	Griffin-Alexander I		4/81
		Griffin-Alexander II		6/81
		Griffin-Alexander V		5/82
	Houtech Energy	Houtech I		10/81
		Houtech II		3/82
		Houtech III		9/82
		Houtech IV		12/80
	Keys Offshore	Keys 200		12/80
		Keys 201		7/81
		Keys 202		9/81
		(unnamed)		1/82
	O & U Drilling	J. Storm XVII		1/82
Bethlehem Steel	Houston Offshore	Sabine III	Jackup	5/81
	Sparrows Point, Md.	Griffin-Alexander III		3/82
		Griffin-Alexander IV		5/82
		Griffin-Alexander VI		6/82
		Griffin-Alexander VII		9/82
		Cheyenne		4/82
	Temple Drilling	(unnamed)	Jackup	10/81
	Oil Patch Drilling	(unnamed)		12/81
General Dynamics	Transworld Drilling	Transworld 69	Submersible	7/81
		Transworld 70		8/81
		Transworld 72		12/81
		Transworld 73		1/82
	Bonito Offshore	Bonito I	Jackup	3/82
	Chiles Drilling	Yucatan		9/81
	Global Marine	Glomar Main Pass I		11/81
		Glomar Main Pass II		1/82
		Glomar Main Pass III		3/82
		Glomar Main Pass IV		9/82
	Huthnance Drilling	Vanguard I		7/81
		Vanguard II		10/82
	Keys Offshore	Keys 300		3/81
		Keys 301		5/81
		Keys 302		6/81
		Keys 303		7/82
Levingston Shipbuilding	Dixilyn-Field	DF-87	Jackup	4/81
	Orange, Texas	(unnamed)		10/81
	Noble Drilling	(unnamed)		12/82
	Bridas S.A.P.I.C.	Rio Colorado I		12/80
Marathon LeTourneau	Chiles Drilling	Seabee	Jackup	3/83
	Brownsville, Texas	Glomar High Island V		5/81
		Glomar Adriatic I		8/81
		Glomar Adriatic II		10/81
	Penrod Drilling	Penrod 86		2/82
		Penrod 88		5/82
		Penrod 90		8/82
	Rowan Drilling	(unnamed)		4/83
		(unnamed)		4/83
Marathon LeTourneau	Penrod Drilling	Penrod 87	Jackup	5/82
	Vicksburg, Miss.	Penrod 89		9/82
		Penrod 91		1/83
		Charles Rowan		3/81
		Arch Rowan		6/81
		Gilbert Rowan		10/81
		Cecil Provine		3/82
		(unnamed)		9/83
		(unnamed)		1983

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — JANUARY 1, 1981 — (Con.)

Builder	Owner	Name	Type	Delivery	
	Rowan Drilling	(unnamed)	Jackup	1984	
Vemar Shipyards	Atwood Oceanics	Richmond	Submersible	9/81	
	Channelview, Texas	Cliffs Drilling	(unnamed)	Jackup	7/81
		Penrod Drilling	Penrod 170	Submersible	12/81
			Penrod 171	Submersible	4/82
			Penrod 172	Submersible	8/82

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — JANUARY 1, 1981

Builder	Type	Navy Nos.	No.	Est. Contract Value, \$Mil.
Avondale Shipyards	Fleet Oiler	AO-177-9	3	\$216.0
		AO-180, 186	2	146.2
Bath Iron Works	Guided-Missile Frigate	FFG-16	1	59.4
		FFG-21, 24, 26	3	178.2
		FFG-29, 32, 34	3	147.0
		FFG-36, 39, 42	3	209.9
		FFG-45, 47, 49	3	203.0
Boeing Marine Systems	Missile Patrol Hydrofoil	PHM-2	1	21.3
		PHM-3-6	4	178.0
GD-Electric Boat	Attack Submarine	SSN-698-1	2	856.0
		SSN-700-4	5	2,171.4
		SSN-705-10	6	2,605.6
		SSN-719-20	2	—
		SSN-726	1	285.4
		SSBN-727-9	3	699.4
		SSBN-730	1	354.5
		SSBN-731-2	2	699.0
Ingalls Shipbuilding	Missile Cruiser	DDG-993-6	4	1,400.0
		DD-997	1	—
	Aegis Missile Cruiser	CG-47	1	287.8
Lockheed Shipbuilding	Sub. Tender	AS-41	1	—
Marinette Marine	Fleet Ocean Tug	T-ATF-170-2	3	25.1
		T-ATF-169	1	7.6
National Steel & SB	Destroyer Tender	AD-42-4	3	532.2
	Cable Repair Ship	T-ARC-7	1	107.0
Newport News SB	Attack Carrier	CVN-70-71	2	—
	Attack Submarine	SSN-711	1	103.2
		SSN-712-15	4	—
		SSN-716-18	3	380.8
Peterson Builders	Patrol Gunboats	F-PGG-1-9	9	78.9
Tacoma Boatbuilding	Missile Patrol Chaser	F-PCG-1-4	4	52.5
	Med. End. Cutter*	WMEC-901-4	4	130.0
	Med. End. Cutter*	WMEC-905-13	9	378.0
Todd-San Pedro	Guided Missile Frigate	FFG-14	1	48.7
		FFG-19, 23, 25	3	151.0
		FFG-27, 30, 33	3	147.0
		FFG-38, 41, 43	3	214.8
		FFG-46	1	67.7
Todd-Seattle	Guided-Missile Frigate	FFG-17-18	2	99.3
		FFG-20, 22	2	100.7
		FFG-28, 31, 35	3	147.0
		FFG-37, 40	2	143.2
		FFG-44, 48	2	135.3

*For U.S. Coast Guard.

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 **COMMERCIAL DIVISION**
MASONITE CORPORATION Marine Business Department
202 Harger St., Dover, Ohio 44622

B&W

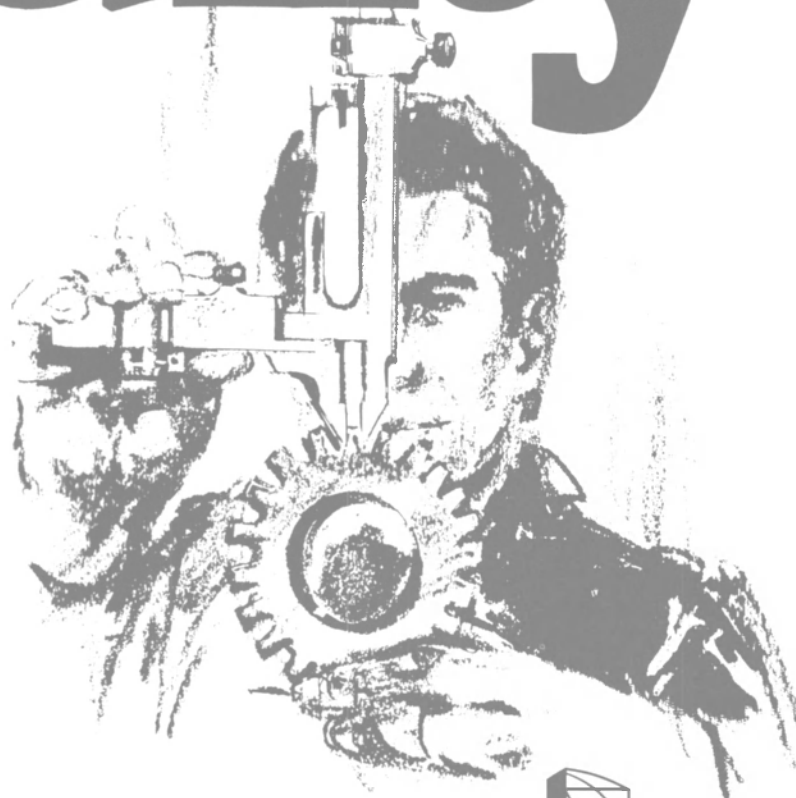
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TELEX: 21261 - CABLES: UNICOMSHIP - TELEPHONE: 4321013

20 March 1979

Mr. R. H. Dietrich
Bethlehem Steel Corporation - Shipbuilding
Bethlehem, Pa. 18106
U. S. A.

Dear Bob:

m. v. "UNION PRIDE"

This will acknowledge receipt of your letter of February 26th, 1979 enclosing invoices for work performed on the above named vessel November/December of last year at Hoboken.

I would like to take this opportunity to express the satisfaction of Owners for the quality of work carried out at Hoboken. The end result was totally satisfactory, and this is a particularly happy note for me as I met with a good deal of opposition to awarding the engine job to Beth. While all concerned had no doubts that the rudder job could easily be handled by Beth, there were a great number of reservations about awarding a major diesel engine repair to Bethlehem Steel.

The satisfactory end result made Beth look good in Owners eyes, who will certainly have no hesitation in doing future diesel engine repairs at Hoboken.

I look forward to doing business with Beth in the future. With kindest personal regards, I remain,

Yours sincerely,

UNION COMMERCIAL STEAMSHIP COMPANY


MARK SCUFALOS, Pres.

MS/ts

A O H C M SCUFALOS 8018827 - S BACHAS 8031912 - S J KALAFATIDES 6721497 - N J BEVINTHIS 8623271

Thank you, Mr. Scufalos.

BethShip

Ship Repair Sales Office: (212) 558-9500. Telex: 222-847. Cables: BETHSHIP New York.
Drydocks in Baltimore, New York, Boston, Los Angeles and San Francisco Harbors, and at Beaumont, Texas.

Write 132 on Reader Service Card

When you spot Elbe One, you're not far from Gulf.



Hamburg is a fine port for going ashore. The trick is to get there without going aground.

The estuary of the Elbe is treacherous. Elbe 1 is moored at its mouth, well over the horizon from any landfall. Just to her north and south lie Grosser Vogelshoof and Scharhorn Riff, the outermost shoals of the estuary, over 60 km from safe waters.

Once you've passed the islands of Scharhorn and Neuwerk, surrounded by drying sands, you're on the home stretch. Another 10 km and you'll spot Cuxhaven to starboard and 15 km beyond, you enter the roadstead of Brunsbüttelkoog. From here, it's clear sailing upriver to Germany's busiest port.

Hamburg. Still another port where you'll find premium Gulf marine lubricants like Gulf Veritas DPO oils.

These alkaline detergent lubricating oils are for use in medium and high-speed diesel engines burning

distillate or marine diesel fuels. They're formulated to MIL-L-2104B level performance with added alkaline reserve to neutralize the acidic products of combustion, plus the dispersant detergent qualities needed to maintain a high degree of component cleanliness.

All of Gulf's marine products give you maximum-quality, performance and bottom-line economy. They're available, backed by a complete and comprehensive service capability, at ports of call throughout the world. For specifics, please contact your local Gulf representative.



Gulf Trading and Transportation Company
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