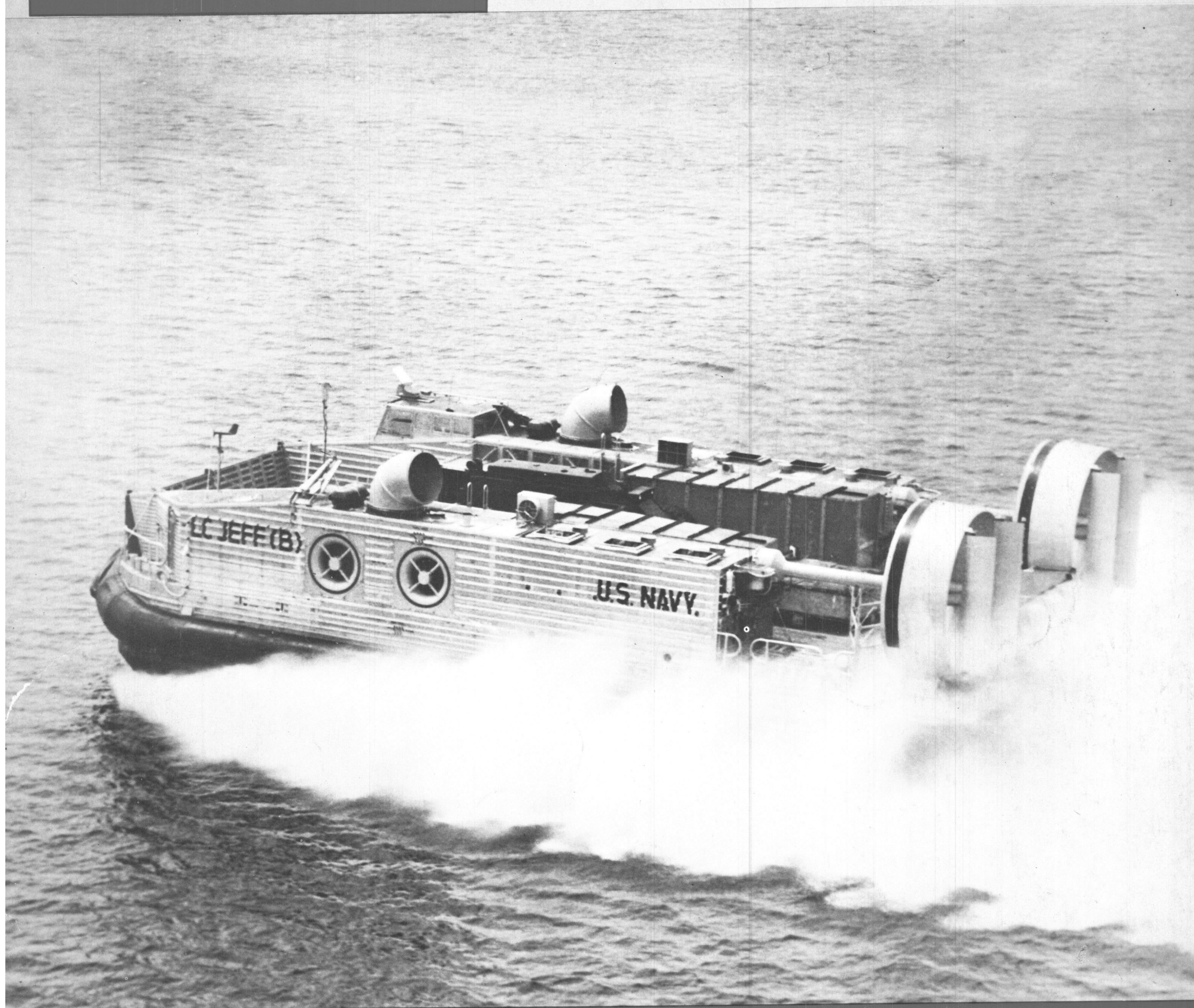


MARITIME REPORTER AND ENGINEERING NEWS



**Bell Aerospace Delivers 160-Ton JEFF(B)
Air Cushion Landing Craft To Navy**
(SEE PAGE 6)

SEPTEMBER 15, 1978

Ready made or custom blended

PNX* *Floterope®*

is best for marine use

PNX is a versatile rope that's available in two different types. The standard blend, adopted after considerable testing under diversified conditions, is just the right combination of two yarns...one, our highly successful monofilament polypropylene; the other, the most suitable multifilament synthetic yarn. Other yarns being offered in blends by some rope manufacturers do not possess the high strength nor resistance to internal or external abrasive wear.

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The standard blend can be furnished from stock. For the custom blend, we suggest you consult our engineers who will recommend the proper blend for your job... at no extra cost.

*Patent No. 3,026,669

Dacron is duPont's trade-mark for polyester fiber.

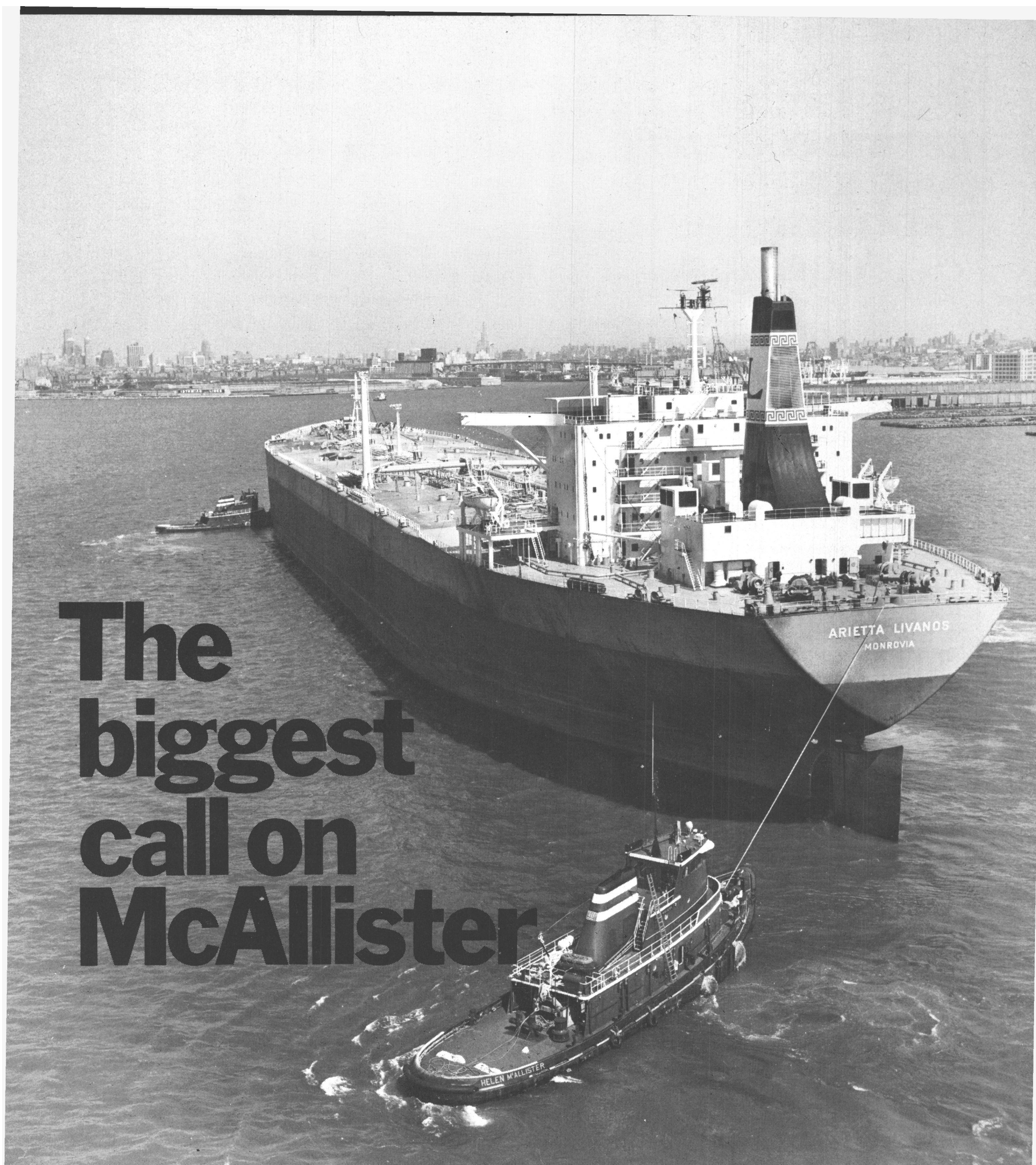
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Testing Completed On Discovery Well In Baltimore Canyon Area

Texaco and the five companies associated in exploring Block 598 announced completion of testing procedures on their discovery well in the Baltimore Canyon Area on the Outer Continental Shelf. Participants in the venture are: Texaco Inc., 31.5 percent; Getty Oil Company, 20 percent; Sun Oil Company (Delaware), 16 percent; Allied Chemical Corporation, 12.5 percent; Transco Exploration Company, 10 percent, and Freeport Oil Company, a subsidiary of Freeport Minerals, 10 percent. After plugging, the drilling rig, ODECO Ocean Victory, will be moved approximately 1½ miles to the west to drill a confirmation well. At least one, and possibly two additional test wells will be required to determine whether a commercial field has been discovered.

Data Sheet Describes Shipboard Interior Fireproof Panels

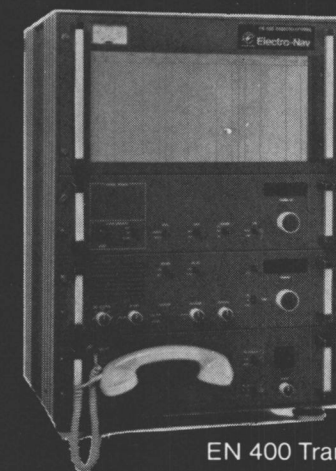
Marinite® XL Fireproof Marine Joiner Panels are described in a new data sheet available from Johns-Manville. The 4-foot by 8-foot panels are designed to provide structural strength and high thermal and acoustical insulating values in a variety of interior marine applications. The panels comply with U.S. Coast Guard requirements for incombustibility, and for divisional bulkheads and linings.

Formed from calcium silicate with inert fillers and reinforcing agents, Marinite XL panels are easy to cut and handle. High strength, insulating value, ease of erection, fire safety, durability and appearance are the advantages cited.

The data sheet describes the product, available forms, typical applications and available finishes. Tables outline specifications, including physical properties, dimensional tolerances, thermal conductivity, and fire hazard classification.

A copy of the data sheet, Marinite XL Fireproof Marine Joiner Panel (IND-3221), can be obtained by writing to **Larry Hall**, Industrial Products Division, Johns-Manville, Ken-Caryl Ranch, Denver, Colo. 80217.

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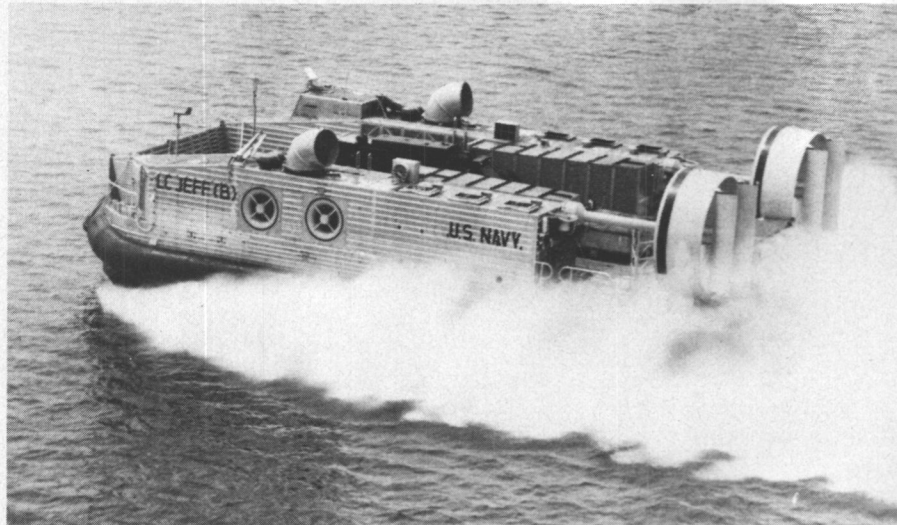
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Bell Aerospace Delivers 160-Ton Air Cushion Landing Craft To Navy



New Navy craft skims over the water at Panama City, Fla., following the ceremony on July 28, when it was received from Bell Aerospace Textron. The JEFF(B) is an amphibious air cushion vehicle capable of hauling a 60-ton payload from ship-to-shore and inland.

The Navy has received its first advanced development air cushion vehicle, the JEFF(B), at the Naval Coastal Systems Center, Panama City, Fla.

Designed and constructed by Bell Aerospace Textron, the JEFF(B) is ready for a period of intense Navy testing. A complete checkout and shakedown of all systems has already been conducted.

The craft has a design gross weight of 325,000 pounds and has achieved speeds of more than 50 knots in the Gulf of Mexico test range. In addition, it has demonstrated ability to operate with two of its six engines shut down.

With a 50-knot over-water speed, coupled with the ability to proceed beyond the water's edge to offload a 60-ton payload of tanks and heavy artillery inland, the JEFF Craft will pave the way for adding an essential new dimension to Navy/Marine Corps amphibious assault capability. This flexibility can be translated into tactical surprise, increased survivability and a rapid buildup of forces ashore by the amphibious forces of the future.

The JEFF Craft are the largest (in terms of design weight) military hovercraft in the world. They stand at the perimeter of known technology for ACVs. The craft will demonstrate new technology with unique subsystems, and during tests and trials will also demonstrate the military effectiveness of the concept of employing air cushion vehicles in amphibious assault. The best features of the JEFF(A) and JEFF(B) will then be combined to design and build a production configuration. The follow-on design and procurement of fleet hardware will be accomplished under the Landing Craft, Air Cushion (LCAC) Acquisition Program.

Another craft, the JEFF(A), which is being constructed by the Aerojet Liquid Rocket Company, will be delivered to the Navy this month. The two craft use very

and military utility of employing ACVs in an amphibious assault.

Presenting the key to the JEFF(B) for Bell Aerospace Textron at the July 28 ceremony was John Kelly, vice president, New Orleans, Operations, and Robert Postle, Bell's program manager throughout the design and construction of the craft.

Accepting the key to the JEFF(B) for the Navy was Jeffrey Benson, the Naval Sea Systems Command AALC program manager in Washington, D.C.

Mr. Benson's remarks included congratulations to the Navy and to Bell personnel for their outstanding individual and team efforts, and a special note of appreciation to the families of all involved for their support in achieving this important milestone.

The key to the craft and custody for its operations and maintenance were transferred to Comdr. Wallace G. Wilder, USN, the officer-in-charge of the AALC Experimental Trials Unit, a field activity, and representative of the Commanding Officer, David W. Taylor Naval Ship Research and Development Center, located at Carderock, Md.

Also on the podium for the delivery ceremony were Melvin M. Brown, AALC Program technical manager at DTNSRDC, Carderock; Casey Forrest, the current Bell AALC Program manager; Comdr. William A. Rehder, USN, Supervisor of Shipbuilding, Conversion and Repair, New Orleans, La.; Frank Higgins, manager of Test Operations of the AALC Experimental Trials Unit, and Lt. J.N. Mullican, USN, Officer-in-Charge of the JEFF(B).

Lieutenant Mullican, USN, BMI C.L. Groover, and Adm. R.M. Green, members of the ETU, accepted the key, started the craft, brought it up on cushion, turned and proceeded down the ramp onto beautiful St. Andrew Bay for the first mission under complete Navy control.

Avondale To Construct Two Multi-Product Ships For Ogden Marine

Ogden Corporation, 277 Park Avenue, New York, N.Y. 10017, has announced that Ogden Marine, Inc. will construct two U.S.-flag 42,000-ton multi-product vessels at Avondale Shipyards. A long-term charter has been entered into for one vessel.

These ships, of Avondale design, will carry a wide range of refined products and crude oil. The new design meets all present and anticipated international and U.S. safety and environmental requirements, including segregated ballast, double bottom, collision avoidance, inert gas and modern electronic navigation equipment. The design also achieves significant fuel economy by utilizing an

advanced propulsion system that drives a special slow-speed propeller.

Having individual pumps for each tank, the vessel can handle more than 10 different types of product simultaneously. The vessel is 640 feet in length overall, 105½ feet in beam with a 38-foot draft. This shallow draft configuration enables entry into most U.S. ports, and efficient service through the Panama Canal.

Ogden expects that this design will begin a new era for U.S.-flag vessels in flexibility of product and economy of operation. These ships will be offered for sale, charter and affreightment contracts, and trade-in of existing U.S.-flag vessels can be negotiated.

Orion Gautreaux Named Zapata Vice President



Orion M. Gautreaux

Zapata Corporation, Zapata Tower, P.O. Box 4240, Houston, Texas 77001, has announced that Orion M. Gautreaux has been named the company's vice president-dredging and marine construction. He will continue to serve as president of Williams-McWilliams Co., Inc., Zapata's New Orleans, La.-based dredging and marine construction subsidiary.

Mr. Gautreaux has been associated with Williams-McWilliams and its predecessor companies for 42 years, and has been president of that company since 1969. A native of Louisiana, he holds a BSME degree from Louisiana State University. Mr. Gautreaux is an active member of several trade and professional organizations, and currently is serving as chairman and president of the World Dredging Association.

Williams-McWilliams Co., Inc., operates six hydraulic dredges that work in the Gulf Coast area, and constructs offshore and marine structures at two fabrication yards in New Orleans. A Williams-McWilliams affiliate operates SEMAC 1, a semisubmersible pipelay/derrick barge working in the North Sea.

In addition to dredging and marine construction operations, Houston-based Zapata Corporation's businesses include building and general construction, offshore drilling, marine services, petroleum exploration, bulk shipping; coal and copper mining; and menhaden, anchovy and tuna fishing.



Jeffrey Benson accepts the key to the JEFF(B) for the Navy from John Kelly and Robert Postle of Bell Aerospace Textron.



Lt. J.N. Mullican, USN, accepts the key to start the JEFF(B) from Comdr. Wallace G. Wilder, USN.

different technical approaches to meet the same set of performance requirements. Each will carry more than 60 tons of payload.

Developed under the Navy's Amphibious Assault Landing Craft (AALC) Program, the JEFF Craft have been designed to operate from the well decks of amphibious ships. Riding on a cushion of air a few inches above the surface of water or land, the craft will be able to transition from the sea through the surf and across the beach to offload cargo—men, vehicles and equipment—on hard ground. With these craft, the Navy will develop the technology and demonstrate the feasibility

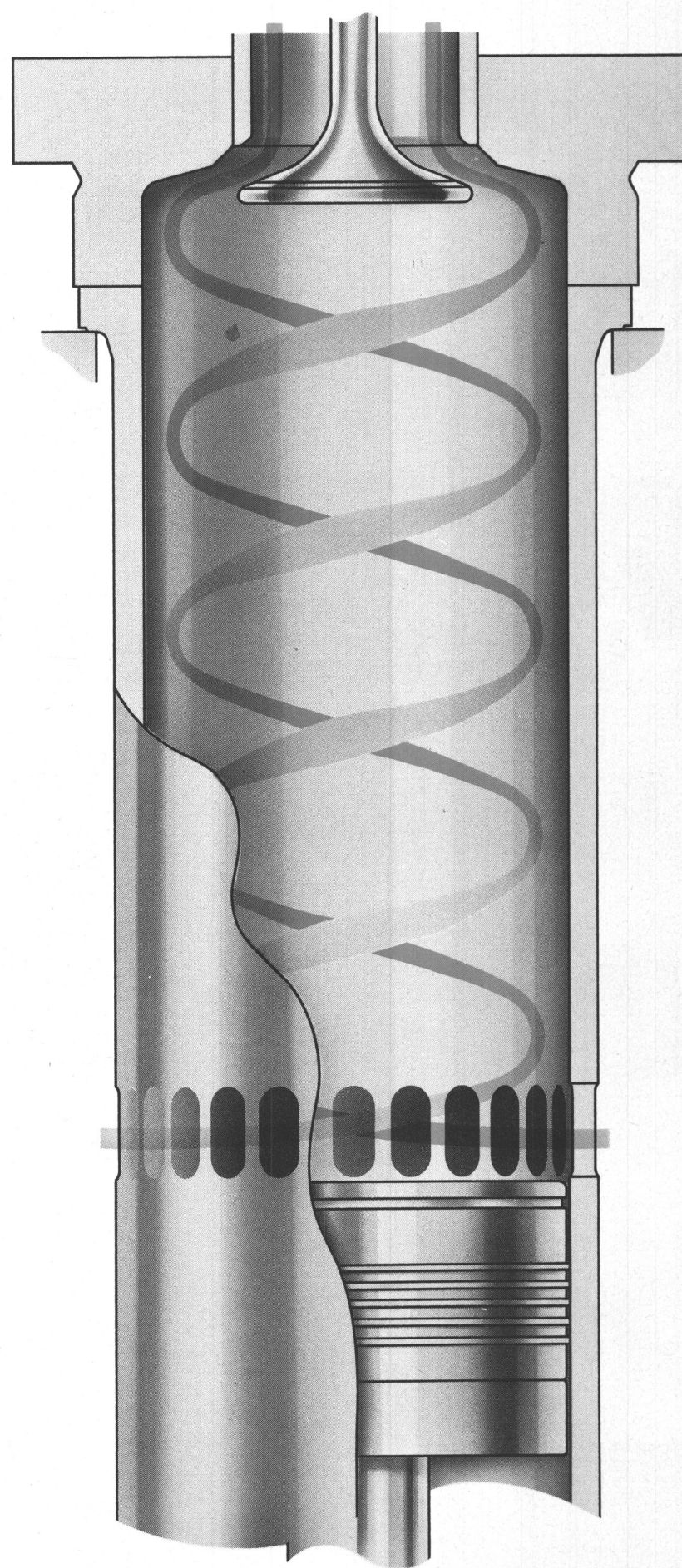
B&W Uniflow Scavenging System offers consistent running over a wide speed range.

Uniflow Scavenging is simple: Only inlet ports in the cylinder liner and only one exhaust valve in the cover. It is efficient: Incoming air and displaced gases describe a straightforward flow pattern of low resistance, as in a tube.

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B&W GF-engines mean low specific fuel consumption at all loads.



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B&W

September 15, 1978

7

Eagle Dredging Awards \$25-Million Contract To Avondale Shipyards, Inc.

J.W. Bean, president, Eagle Dredging Corp., New Orleans, La., a joint venture of C.F. Bean Corp. and Adriaan Volker Dredging Company, Rotterdam, Holland, has announced the signing of a \$25-million contract with Avon-

dale Shipyards, Inc., a subsidiary of Ogden Corporation, to construct a split-hull hopper dredge.

The vessel will be named Eagle I and will be only the fourth of its type in the world. Construction will begin this month and conclude in 21 months.

The dredge will have the capability to clear channels and harbors throughout the world. It will be self-propelled and will be an

oceangoing vessel, unlike conventional dredges. The length is 328 feet, the beam 68 feet, and the draft 22 feet. The hull will hold up to 4,750 cubic yards of material.

Mr. Bean said that the split-hull design represents the most advanced technology available in hopper dredges. After sailing to a predetermined disposal site, the vessel's hull opens to release the

dredged material. The dredge will help solve existing environmental problems in the United States associated with crowded inland disposal sites. Additionally, its digging depth of up to 80 feet will allow construction of several ports currently being planned throughout the country.

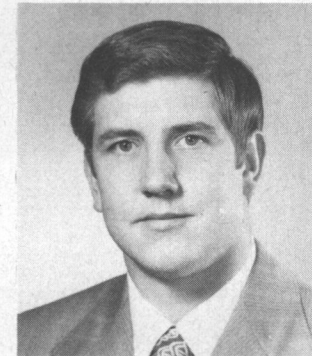
Eagle I will be financed under a Title XI guarantee from the Maritime Administration (Mar-Ad) of the Department of Commerce.

C.F. Bean Corp. is a New Orleans-based dredging company with operations on the West, East, and Gulf Coasts of the United States. International experience includes work in South America, Central America, the Caribbean, the Middle East, Africa, and the Far East.

Adriaan Volker Dredging Company, a member of Royal Adriaan Volker Group, is one of the largest dredging companies in the world.

Its operations are worldwide, and the company is a leader in the operation of all types of dredging equipment. Related companies within the Volker Group have extensive experience in major pipeline construction, heavy civil construction, offshore works, and related activities.

Wayne Lynn Named To Colmac Board



Wayne Lynn

Wayne Lynn, manager of Colmac Coil in Colville, Wash., has been named to the Colmac board of directors at a recent shareholder's meeting.

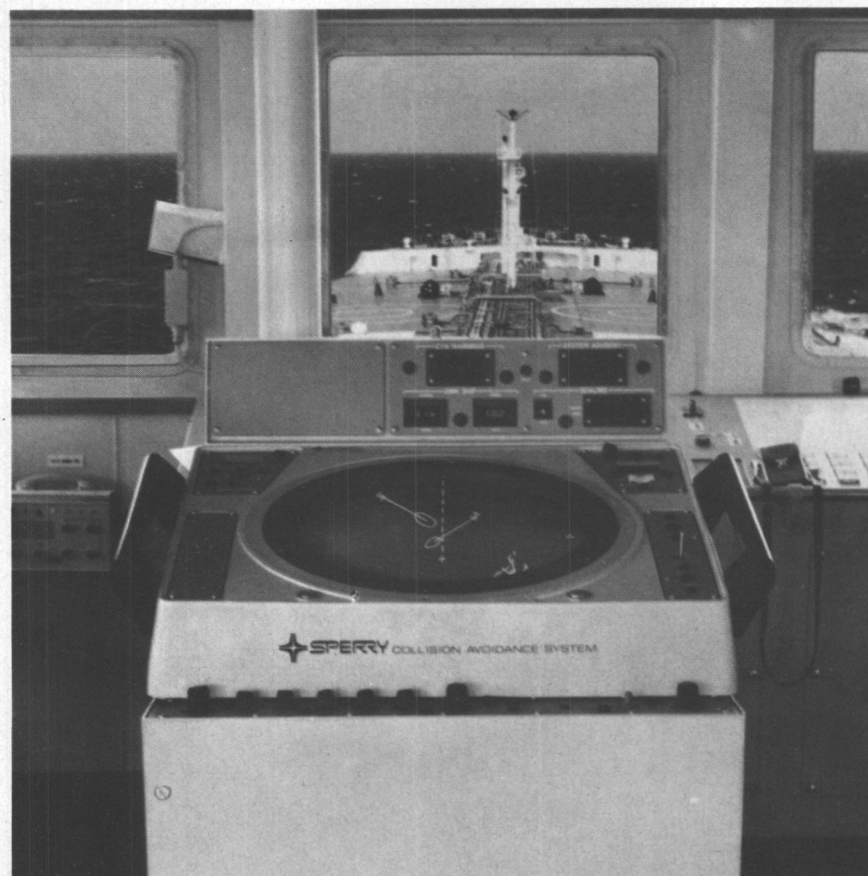
Colmac, an international manufacturer of laundry and dry cleaning finishing equipment, is the parent company of Colmac Coil.

Colmac Coil manufactures coils for reheat, solar hot water, experimental, after cooler, refrigeration and air-conditioning. They are a major manufacturer of coils to the marine industry.

Ewers Marine Services Relocates To Oakland

Frank Ewers has announced that the office of F.J. Ewers Marine Services formerly located in San Francisco, has been moved to 303 Hegenberger Road, Suite 202, Oakland, Calif. 94621. Mr. Ewers was formerly an executive with Marcona Corporation, headquartered in San Francisco.

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Busy harbors—crowded shipping lanes—ships coming and going—their size and number ever increasing—the navigational problems becoming more complicated and difficult. The slow and tedious process of manually plotting radar data to determine collision possibilities needs a better way.

Now, Sperry's Collision Avoidance System provides the better way—safer, quicker, more reliable and readily capable of handling today's requirements for multiple threat situations. Collision dangers are presented with accuracy, clarity, and simplicity in a graphical format that permits the watch officer to assess risks almost instantaneously.



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**Equitable To Construct
Second Floating Drydock
For Allied Shipyard, Inc.**

Equitable Shipyards, Inc. has been awarded a contract by Allied Shipyard, Inc. of Larose, La., for the construction of a second floating drydock of 1,000-long-ton capacity. The new drydock will be identical to one built by Equitable for Allied Shipyard, Inc. in 1971.

The 125-foot by 60-foot by 22-foot drydock will be constructed in Equitable's Madisonville, La., Facility and is scheduled for completion in December 1978. When completed, it will be towed to Allied's shipyard located on the Intracoastal Waterway at Larose.

The drydock will be used both for repair work and for launching newly constructed vessels, and is an integral part of an overall expansion plan being undertaken by Allied.

**Newfoundland Headed
For Major Economic
Advances In 1980s**

With oil and gas reserves equal to the North Sea, a commercial fishing industry expected to triple in size, huge mineral deposits, and extensive hydro-power potential, "the 1980s will be the decade that belongs to Newfoundland and Labrador," according to a new publication, "Newfoundland Opportunity."

The 16-page color publication, issued by the provincial Department of Industrial Development, St. John's, Newfoundland, Canada, welcomes outside investors, saying: "What we need is investment capital, because with just 562,000 people in a province that covers 144,000 square miles, local financial resources are obviously limited."

The new publication ticks off these resource-based opportunities:

Offshore oil and gas reserves calculated at one-quarter of Canada's potential. Potential for a storage and transshipment terminal at Bell Island in a former iron mine that can hold up to 90 million barrels of oil at one-fifth the cost of conventional tank storage.

With the value of Newfoundland fish landings expected to triple by 1985 to \$200 million, along with a fivefold increase in export value, investment opportunities are emerging for secondary processing operations, such as canning, breeding, smoking and vacuum packaging.

Mining is already an \$846 million industry in Newfoundland, but the surface has already been scratched. There are approximately 2,500 mineral deposits and occurrences, including copper, lead, gold, zinc, silver, gypsum, limestone, cadmium, barium, silica, asbestos, pyrophyllite, iron, as

well as stone, clay, sand, and gravel.

Hydro-power potential is immense, particularly in the Lower Churchill River in Labrador, where over \$78 million has already been spent toward a hydro-power project that will add 1,800 megawatts and cost approximately \$2.3 billion when completed.

Newfoundland is rich in forestry lands. Waiting for profitable development are 75 million

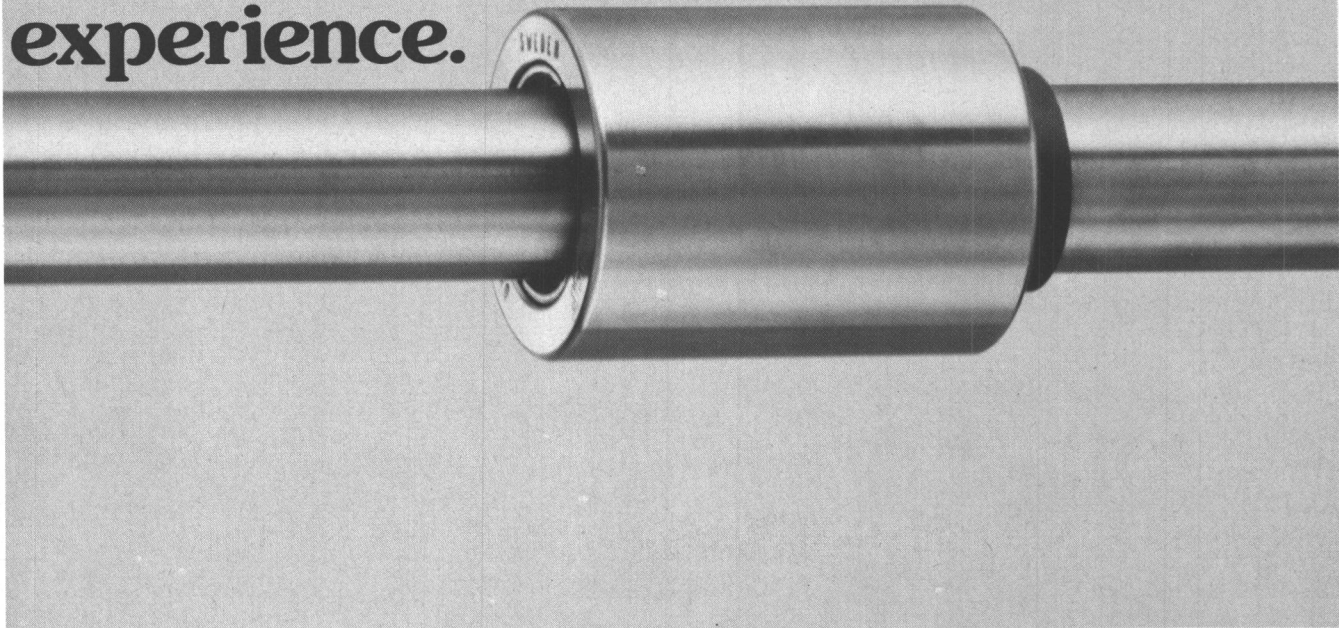
acres of productive forest land, including enough timber for a sustainable annual cut of 2.6 million cords of softwood and 100,000 cords of hardwood. The forestry industry is already sizeable. In 1978, Newfoundland newsprint exports are expected to be worth \$158 million, and the industry as a whole has a \$72-million annual payroll.

Investment opportunities await the secondary industry manufac-

turer. Currently produced are a number of high technology products — footwear, food products, cement, steel products, containers, paints, varnishes, wallboard, chemicals, and boats ranging from small craft to giant trawlers, and oil supply vessels.

For a copy of the new publication, write Dept. DCI-Newfoundland Opportunity, Suite 2100, 733 Third Avenue, New York, N.Y. 10017.

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SKF Steel, in turn, is well known to the international shipbuilding industry. The hydraulically-mounted OK coupling has been manufactured since 1945. Its performance and reliability have been tested time and time again...from tugs to supertankers.

As such, B-JCo and SKF offer over 30 years' experience in meeting marine industry needs. However, having a working knowledge of the product and how to apply it, is only part of our story. We also offer some real operating and economic advantages to the shipbuilder and owner.

The OK coupling is simple.

It consists of only four parts—an inner sleeve, outer sleeve and ring nut, all made of high quality steel, plus one seal. To install the coupling, pressurized oil is injected between the inner and outer sleeves. When the oil is released, both sleeves lock into position and compress against the shaft. To remove the coupling, this procedure is simply reversed.

The OK coupling saves time, space and money.

Unlike conventional couplings, the OK-type requires no keys or fitted bolts. This minimizes labor hours and costs when mounting and demounting the coupling. It also reduces down-

time and related expenses for periodic survey inspections. Size for size, the OK coupling saves space since large diameter flanges are not required. In addition, it's designed to transmit more torque than conventional types of comparable size.

The OK coupling is built for durability and strength.

Keys, which can be subject to fretting, wear and deformity when exposed to varying shock and reversing loads, aren't needed. The development of shaft cracks, caused by stress concentrations at the keyway, are eliminated.

A detailed brochure of the OK coupling is available from Bird-Johnson. Our new brochure tells you how it functions, outlines its economic advantages and describes the broad range of sizes available. To get your copy, just fill in the coupon below.

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ALRC Gets \$13-Million Award To Supply Pumps For Boeing-Built Ships

A three-year, \$13-million contract has been awarded to the Aerojet Liquid Rocket Company (ALRC) of Sacramento, Calif., by Boeing Marine Systems of Seattle, Wash., to produce waterjet pumps for five Patrol Hydrofoil Missile-carrying ships (PHMs)

which Boeing is building for the U.S. Navy.

Scheduled for completion in October of 1982, the five PHMs will be used for coastal water operations, utilizing their unique ability to maintain speed and maneuverability in virtually all sea environments. The PHMs have a high-speed capability of over 40 knots even in relatively high sea states.

The set of pumps for each vessel consists of two 800-hp pumps used for propulsion during the hullborne mode and one 17,000-hp pump that is used to propel the ship during high-speed foilborne operation. The PHM belongs to a class of hydrofoils with fully submerged foils. The ship platform, the hull, operates above the effects of surface waves. The foils that provide lift and control forces

operate below the water surface where wave effects diminish with depth. While the hydrofoil has a modest speed advantage in calm seas over the conventional ship with equivalent power, the speed advantage is as much as two to four times greater in rough seas.

In making the announcement, ALRC executive vice president **Roger I. Ramseler** pointed out that the waterjet propulsion system represents a significant transfer of aerospace technology to industry. Five years ago, the Marine Systems Division of ALRC designed and produced the pumps for the Boeing-built USS Pegasus (PHM-1), which is the first and only missile-equipped hydrofoil ship in the U.S. fleet.

W.E. Christiansen Jr. Joins St. Louis Ship

W. Edward Christiansen Jr. has been appointed vice president-production for the Shipbuilding Group of Pott Industries Inc., according to **E. Renshaw**, Group president.



W.E. Christiansen Jr.

Mr. Christiansen has had extensive experience in all areas of shipbuilding production from program manager, manager of production control, general superintendent of machinery, director of installation, director of tests and trials, assistant repair manager and production manager at shipyards such as General Dynamics, Ingalls, Lockheed, and Campbell Industries.

Mr. Christiansen was graduated from Webb Institute of Naval Architecture with a B.S. degree in naval architecture and marine engineering. He is a member of The Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, and The Propeller Club, and is a registered professional engineer.

In his new position, **Mr. Christiansen** will be responsible for production activities of St. Louis Ship and Dixie Dredge Corp. in St. Louis, Mo., Caruthersville Shipyard Inc. in Caruthersville, Mo., and Paducah Marine Ways Inc. in Paducah, Ky. The three shipyards comprise the Shipbuilding Group of Pott Industries Inc., one of the largest shipbuilding firms on the inland waterways. Pott Industries Inc. is also engaged in inland waterways transportation and offshore marine services.

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molded into a rubber lining. Shaft and bearing faces are kept lubricated with a thin film of water. No oil or grease is ever needed.

Available world-wide from yards and marine stores in a full range of shaft diameters and load capacities for new construction and overhauls. Or phone us for same-day shipment from our 20,000-bearing inventory.

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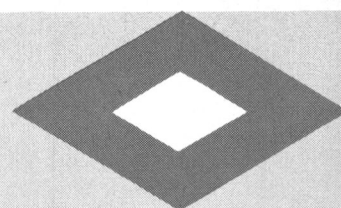
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The 265,000 dwt VLCC NEW YORK, built at Bethlehem Steel Corporation's Sparrows Point Shipyard, leaving for sea trials.

Rhine-Schelde-Verolme Awarded Contract To Build Drilling Rig

The Offshore Division of Rhine-Schelde-Verolme, engineers and shipbuilders of Rotterdam, the Netherlands, have received an order for the delivery of a jackup-type drilling rig of the Levington III class with a total value of about 100 million guilders.

The contract was concluded

with Centromor on the order of Petrobaltic, a combined organization of Poland, USSR and East Germany, which is engaged in the search for oil in the Baltic Sea. The jackup-type rig has a length of approximately 63 meters (about 207 feet), is 54 meters wide (177 feet), and 6.7 meters high (22 feet). The three legs have a length of 127 meters (417 feet). The rig is suitable to undertake drilling activities in a water depth of 91 meters (299 feet).

PSI Completes Total Package Concept With Todd 'Apache' Contract

Propulsion Systems, Inc. of Kent, Wash., was recently awarded a contract by Todd Shipyards, Galveston Division, to supply the controls package for Santa Fe International's pipelaying vessel "Apache." The controls package is in addition to the twin controllable-pitch propellers, side

thrusters, and rotary vane steering gear already supplied by PSI.

The Apache is a new generation of special-purpose ships designed to utilize a computer-controlled automatic station-keeping system. This system allows complete, commanding control of the vessel's propulsive and steering equipment to keep the ship within feet of its assigned position.

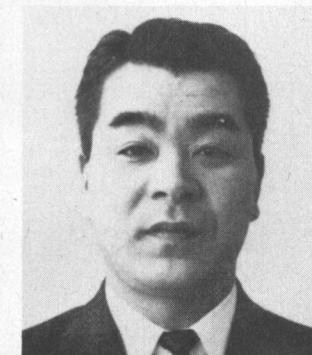
One of the contributing factors to this high degree of accuracy is the function of the PSI control system. It will interface with and operate the main propulsion, thruster, and steering gear package in conjunction with the automatic station-keeping system.

The equipment will be constructed at PSI's Kent facility, with delivery expected in the fourth quarter of 1978.

Propulsion Systems, Inc. is a marine systems engineering and manufacturing firm. The concern designs, manufactures and/or supplies propulsion systems including prime movers, controllable-pitch propellers, steerable and tunnel thrusters, rotary vane steering gear, control systems, and instrumentation for the marine industry.

M. Akizawa Named General Manager NKK New York

Masayoshi Akizawa has been appointed NKK (Nippon Kokan) New York general manager, succeeding Takeo Arakawa who is returning to Tokyo as a senior general manager at the company's head office.

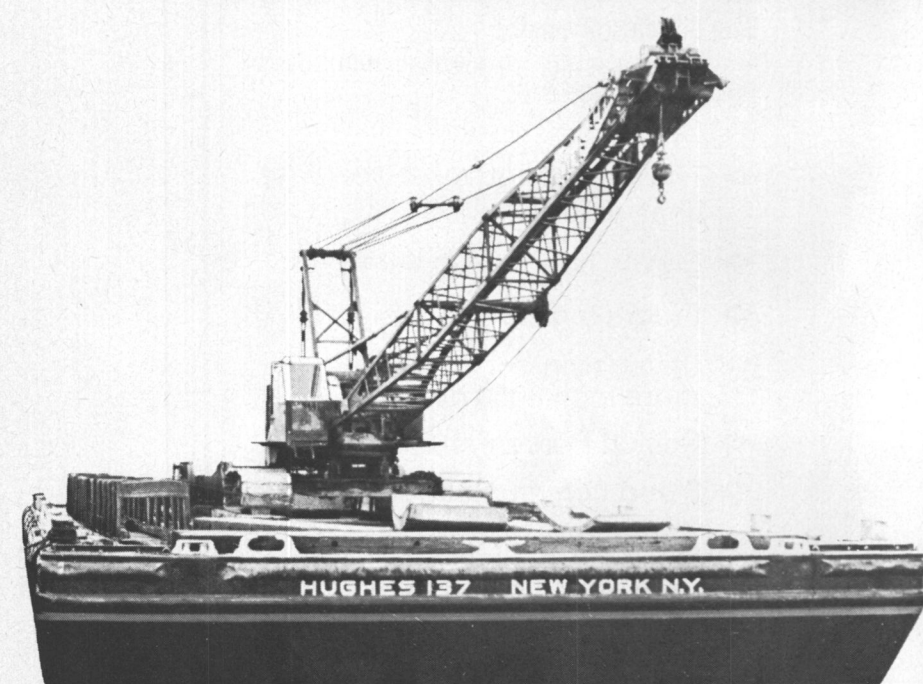


Masayoshi Akizawa

Mr. Akizawa was formerly NKK New York assistant general manager.

NKK is Japan's number two steel producer and only integrated steelmaker/engineer-constructor/shipbuilder. The company's fiscal 1977 sales (April 1, 1976 to March 31, 1977) were \$4.3 billion.

Mr. Akizawa joined NKK's Shipbuilding Division in 1951, upon graduation from Keio University, Tokyo. He served in key positions within the company's Shipbuilding and Heavy Industries Divisions, and in 1973 was named general manager of the General Affairs Department of NKK's Tsu Shipyard. He assumed his New York assignment in November 1975.



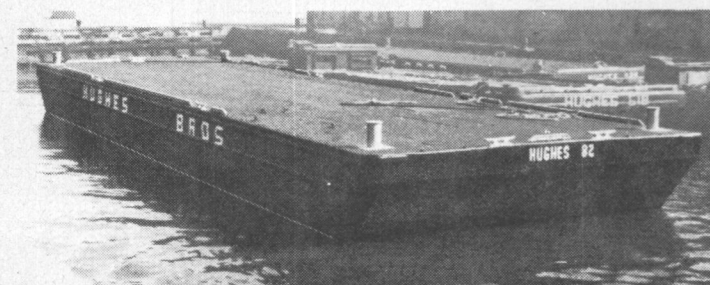
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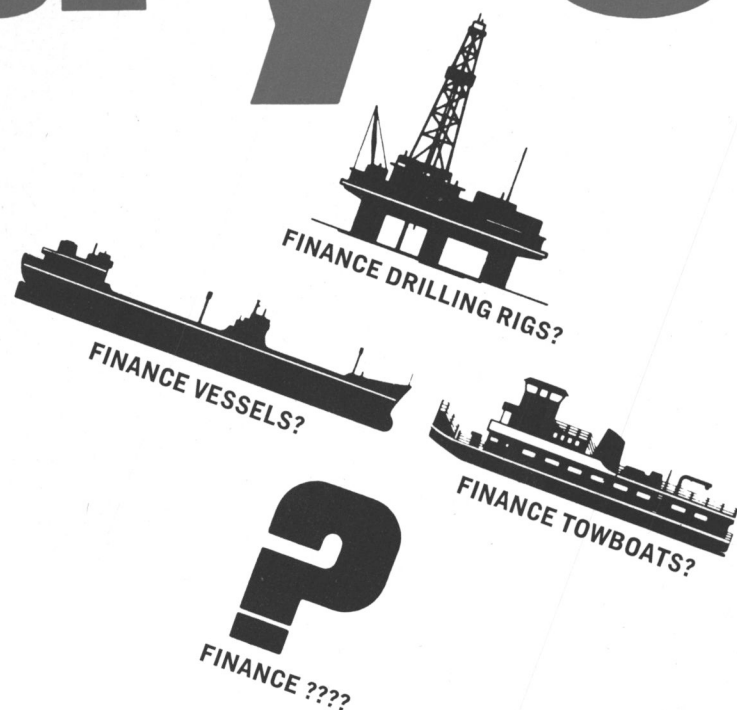


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September 15, 1978

MarAd Study Examines Shipping Policy Options

The Maritime Administration (MarAd) has released an extensive study on the liner segment of oceanborne shipping which examines three national maritime policy alternatives and projects their probable impact on American-flag operators in the nation's foreign trade over the next 10 years.

The options considered are that (1) the status quo be maintained, (2) the policy be modified to encourage more competition among merchant fleets of the world, or (3) the policy be changed to permit greater cooperation between American and other national flags carrying general cargoes. The study on "The U.S. Merchant Marine and the International Conference System" was prepared by Harbridge House, Inc., under a contract let in Au-

gust 1977 by MarAd, an agency of the U.S. Department of Commerce. Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs, said in announcing the results: "We expect this analysis to be extremely useful in exploring the various policy alternatives which the Federal Government is considering to end the chaos and restore stability to our liner trades. It is both timely and objective. For that reason,

it should be a valuable tool to the Administration's Interagency Task Force which is studying maritime policy, to members of the Congress in their consideration of a number of bills designed to remedy the situation, and to the shipping lines in long-range planning."

Mr. Blackwell stressed that "our purpose is not to advocate specific policies but rather to project the expected consequences of alternative courses of action, with special emphasis on topics of immediate concern to the Maritime Administration and the U.S. merchant marine, to which we provide Federal support under the Merchant Marine Acts of 1936 and 1970."

The report noted that the U.S.-flag liner fleet, consisting of some 270 vessels operated by commercial firms, is fairly new, generally well managed, and highly innovative. "Yet," it said, "the fleet is in a precarious economic position, for by and large the rate of return is not commensurate with the investor risks and, as a result, disinvestment rather than reinvestment is a real possibility."

The report said U.S. policy on world trade is unique regarding liner conferences, the associations of shipping operators which establish the rates, terms, and conditions of liner cargo carriage. The reference is to the Shipping Act of 1916, under which conference carriers in the U.S. to foreign trades may operate only within open conferences; that is, they may not exclude any would-be joiners. The rest of the world has generally opted for closed conferences where existing members may refuse the entry of new applications. The 1916 Act also forbids the use by conferences of measures designed to balance supply with demand and/or to obtain cargo via rebating and other economic practices.

The study examined these approaches to the shipping conference question:

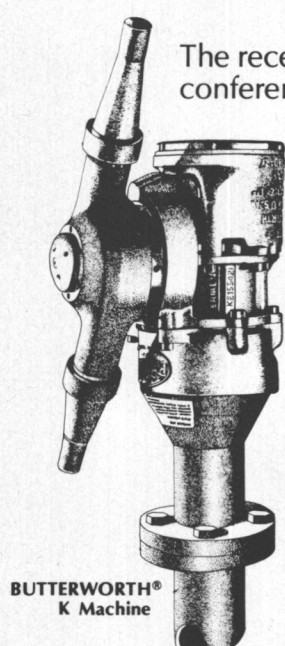
Proposals to continue present policies—maintain the status quo, continue to rely on the Shipping Act, approve shipping pools and equal-access agreements on a case-by-case basis, and generally support the open-conference system.

Proposals to increase competition—remove the antitrust exemptions of conferences, abolish the Federal Maritime Commission or reduce its regulatory jurisdiction, disapprove pooling agreements, remove Government rate control, and decrease Government cargo preference.

Proposals to increase cooperation—permit increased pooling arrangements, authorize closed conferences, and permit shipper councils; adopt a UN code of

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BUTTERWORTH® K Machine

The recent IMCO conference on Tanker Safety and Pollution Prevention has focused attention on Inert Gas Systems and Crude Oil Washing on oil tankers. Owners faced with new building or retrofitting inert gas, who are considering C.O.W., should bring their tank cleaning problems to Butterworth Systems... the leader in tank cleaning for 48 years.

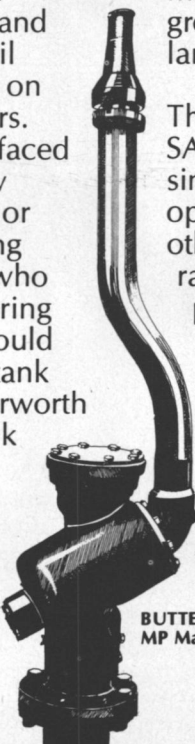
BUTTERWORTH® K and SK machines are not only the world's leading portable tank cleaning machines, but fixed in

place deep within cargo tanks, some K machines have been going strong for almost 20 years.

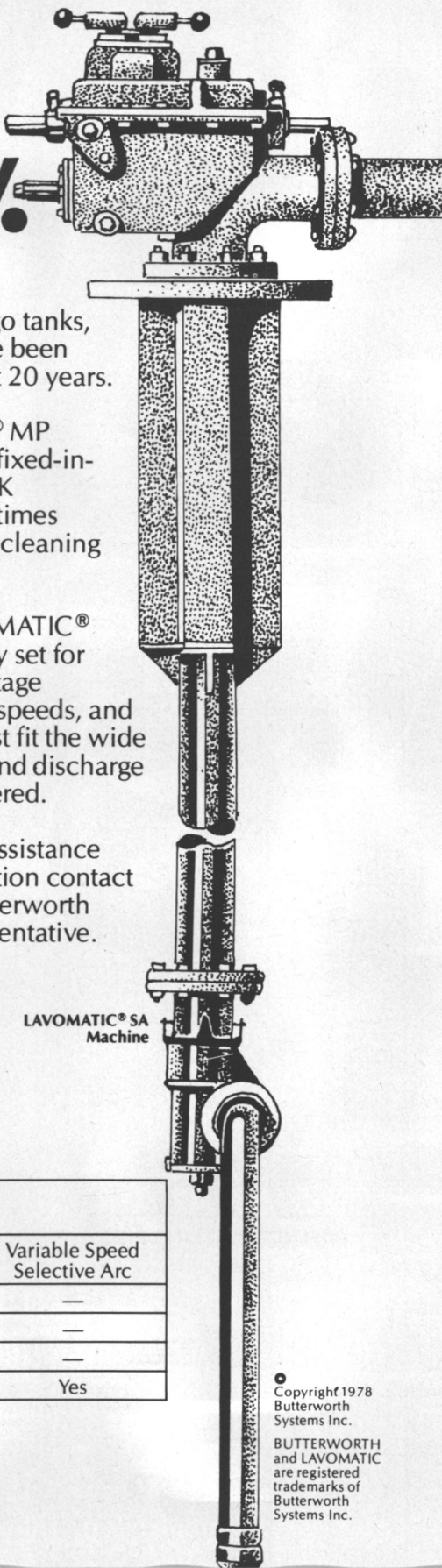
The BUTTERWORTH® MP machine provides the fixed-in-place reliability of the K machines plus five-times greater capacity for cleaning larger tanks.

The versatile LAVOMATIC® SA machine is easily set for single or multiple-stage operation, variable speeds, and other options to best fit the wide range of washing and discharge patterns encountered.

For technical assistance without obligation contact your local Butterworth Systems representative.



BUTTERWORTH® MP Machine



LAVOMATIC® SA Machine

For any capacity range or location Butterworth Systems has proven equipment to meet your needs.					
Unit	Capacity Tons Per Hour	Weight	Location	Attitude	Variable Speed Selective Arc
BUTTERWORTH K	20-30 TPH	48 lbs.	Any	Any	—
BUTTERWORTH SK	30-60 TPH	55 lbs.	Any	Any	—
BUTTERWORTH MP	70-150 TPH	178 lbs.	Any	Any	—
LAVOMATIC SA	90-150 TPH	820 lbs.	Deck Mounted	Vertical	Yes

For more information and a free copy of a 12-page brochure titled, "Tanker Safety and Environmental Protection," contact:



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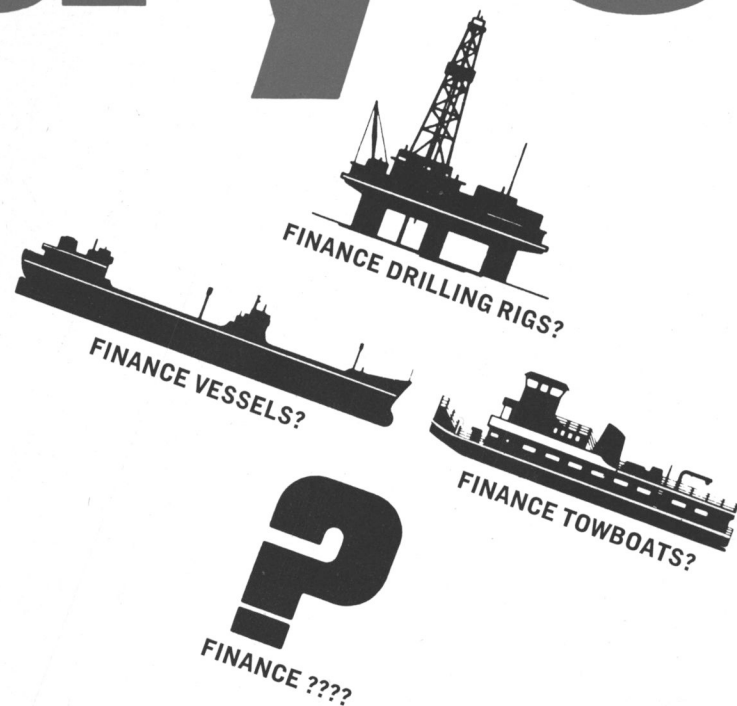
Boeing Awards Six Hydrofoil Contracts Totaling \$4,360,000

More than 30 major contractors will supply materials for the five PHMs now under construction. The ships, of the Pegasus class and based upon prototype built

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gral part of the overall control system which provides the high maneuverability of PHM. The Hydraulic Research contract is valued at approximately \$1,600,000.

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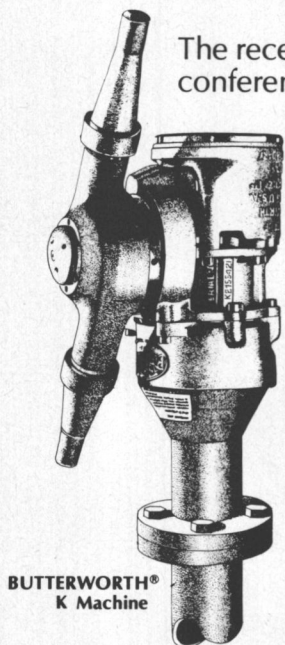
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(continued next page)

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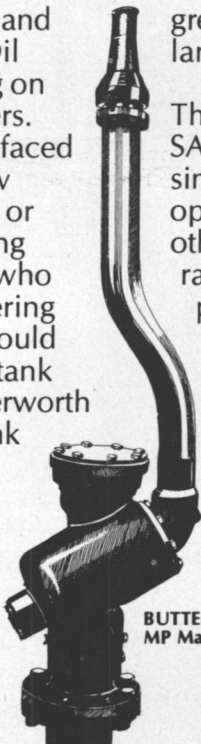
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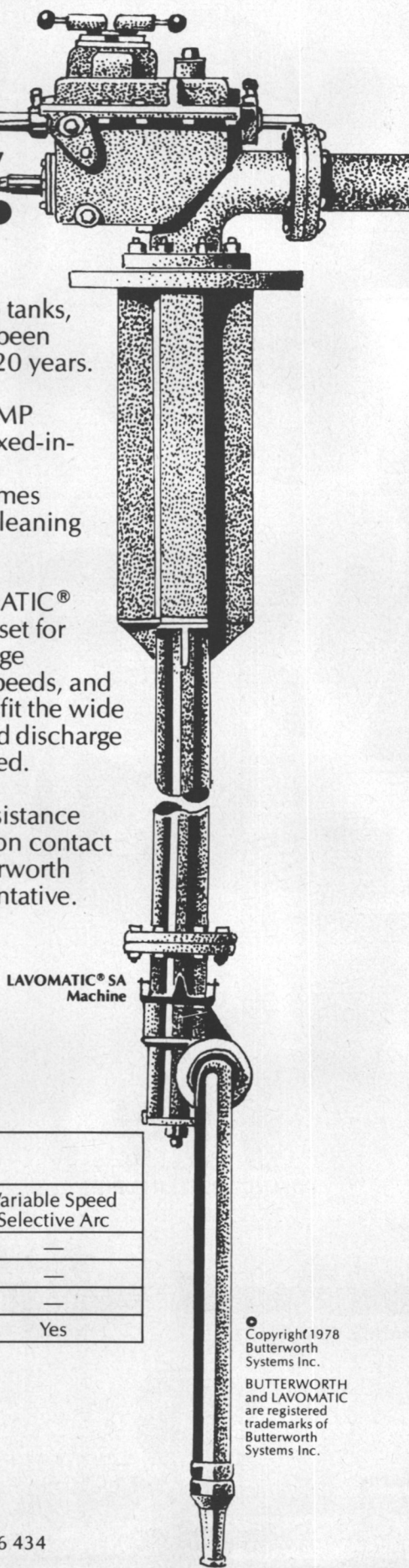
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LAVOMATIC® SA Machine

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LAVOMATIC SA	90-150 TPH	820 lbs.	Deck Mounted	Vertical	Yes

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In its analysis, the study team used a computer model in performing more than 30 simulations to calculate the variations in profitability of vessel operation under the three different scenarios. Three U.S. trades were chosen for detailed study and to exemplify the different competitive environments. They are the North Atlantic, Mediterranean, and the Venezuelan portions of the Latin American trade.

"The North Atlantic trade is an extremely important trade that demonstrates the effects of current U.S. policies on a route served by well-established and well-financed companies from both the U.S. and our main trading partners," the report said. "The Mediterranean trade represents a more competitive and more unstable trade. The Latin American (Venezuela) trade is almost totally bilateral with a small 'third flag' component, and as such tends to be representative of the effects of increased cooperation."

Altogether, 11 types of behavior — actions deemed most likely to occur during the 1977-86 time-frame — were simulated in the study; not all of them in each trade area, but including a base case for each and such additional factors as Eastern Bloc and the third-flag expansion, rebating, and capacity rationalization. The impact of these actions as indicated in the simulations are summarized by route and scenario in the report.

In its major general conclusions, the study team found that:

Over the long run, adopting a policy of increased competition on all trades would mean that U.S.-flag operators would be fewer in number but larger in size. Substantial increases in competition in most U.S. trades would create problems for major trading partners and could intensify existing international shipping policy disputes. That policy also would likely reduce the U.S.-flag market share.

A policy of increased cooperation would support the continued viability of a larger number of smaller operators and encourage their future participation.

"The primary concern of the U.S. Government must be to ensure the carriage of U.S. ocean-borne cargo under conditions that will support the policy and achieve the objectives of the 1936 Merchant Marine Act, as amended," the report said. "The simulations demonstrate that with increased cooperation, these objectives are more nearly achieved."

A limited number of copies of the full contract report are available for review in the MarAd Office of Public Affairs, pending publication by the agency. Copies of the executive summary are available upon request at the same office, Room 3895, Department of Commerce, 14th and Constitution Avenue, N.W., Washington, D.C. 20230.

Three-Day Maritime Safety Meeting Set For Chicago October 2-4

The Marine Section, National Safety Council—largest group in the United States maritime industry promoting company efforts to reduce employee accidents — will hold its 61st annual convention and seminar on October 2-4, 1978 at the Palmer House Hotel in Chicago, Ill., its chief executive officer reported.

Lars N. Pedersen, general chairman of the Marine Section, said that the three-day conference will bring together virtually all of the top officials involved with safety in the nation's maritime community. "This will be one of the most comprehensive and broad ranging discussions of ship industry worker health and safety since the group was established as a unit of the National Safety Council in 1917."

He said the conference program is near completion and that details will be released shortly. In addition to stevedoring and related waterfront cargo-handling operations, it will include subjects on commercial fisheries, shipbuilding and repairing, barging and towing, Great Lakes and ocean-going vessels activities, safety training programs with audio visual aids, and a full session on the U.S. Coast Guard, Captain Pedersen added.

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**J. Ray McDermott & Co., Inc. Delivers
126-Foot Tug To Louisiana Tugs Company**



The 126-foot tug Lamco VI recently completed at the J. Ray McDermott & Co., Inc., New Iberia, La., Shipyard for Louisiana Tugs Company.

The 126-foot tug Lamco VI was recently completed at the J. Ray McDermott & Co., Inc., New Iberia, La., Shipyard and commissioned into the fleet of the Louisiana Tugs Company.

The Lamco VI has the capability of operating virtually anywhere in the world. At 126 feet by 34 feet by 16 feet, she has the size and stability to function efficiently in heavy seas. Her two 114-inch-diameter four-bladed stainless-steel propellers operating in Kort nozzles are powered by two EMD 16645 E6A diesel engines with five-to-one reversing reduction gears.

The tug is fully air-conditioned and heated, with modern galley and quarters designed to accommodate a crew of 10.

Lamco VI has a double drum towing winch with a capacity of 2,200 feet of 2-inch wire rope per drum, giving her the versatility

to perform towing and anchor handling assignments. She also boasts a full complement of sophisticated electronic and navigational equipment expected on an oceangoing tug — including two radars, a Loran system, single-sideband radios and automatic direction finders.

**W.B. Arnold Co. Inc.
Relocates Gulf Office**

W.B. Arnold Co. Inc., West Caldwell, N.J., has moved its Gulf regional office to 126 Northpoint Drive, Suite 144, Houston, Texas 77060.

The company serves the marine and offshore industries with a wide variety of specialized products and services. **James M. Waltrip** continues as vice president and regional manager.

The main office is located at 1140 Bloomfield Avenue, West Caldwell, N.J. 07006.

**First Crab Boat Built By Halter Marine,
The 150-Foot Alaskan Enterprise, To
Operate In Bering Sea For Francis Miller**



Powered by twin GMC V16-149 engines, the Alaskan Enterprise is shown steaming out of the Halter Shipyard in Mississippi, enroute to its home port of Seattle.

What is one of the largest vessels ever designed for the Alaskan crab fishery, with an estimated capacity of 450,000 pounds of live king crabs, was recently completed at Halter Marine, Inc., Moss Point, Miss., shipyard.

The \$2-million-plus Alaskan Enterprise, which was delivered on Labor Day in Seattle, Wash., to its owner **Francis L. Miller**, also represents a number of firsts for its New Orleans, La.-based builder — it is Halter's first crab vessel, it is Halter's first boat for the Alaskan fisheries, and it is Halter's largest fishing vessel.

Halter Marine owns and operates 10 shipyards in the Southeastern U.S., and is the world's largest builder of supply boats for the offshore oil and gas industry. The company builds more than 30 different types of steel, aluminum and fiberglass vessels.

The seine-style Alaskan Enterprise measures 150 feet 6 inches by 38 feet by 16 feet, and is powered by twin GMC V16-149 engines developing 1,940 horsepower.

Among its innovations are two 12-ton cranes supplied by Slattery Equipment of Olympia, Wash., and a 350-horsepower Omnithruster JT-700 with thrust directors located in the bow. This will be one of the first vessels in Alaska with the Omnithruster, which is designed for slow-speed propulsion which improves maneuverability dramatically. Unique to Omnithruster, it can be controlled by the vessel's autopilot and thereby permits the vessel to hold its position even with the helm unattended.

The vessel has floodable circulating seawater crab tanks with a 16,800 cubic foot capacity.

The owner of the Alaskan En-

terprise, **Francis L. Miller**, is a highly regarded veteran highliner of the Alaskan crab fishery. Mr. Miller also owns an interest in another new crab vessel slated for delivery in time for this month's opening of the Alaskan king crab fishing season. The two new ultramodern vessels are replacing four smaller crab catchers which Mr. Miller has owned prior to these acquisitions.

The Alaskan Enterprise has been financed by Mr. Miller with a loan from the General Electric Credit Corporation (GECC). The transaction was handled by GECC marine financing representative **Jim Shoults** of Seattle.

The General Electric Company financial subsidiary is one of the major lenders in the commercial marine industry, having arranged financing in recent years for over \$750,000,000 tankers, freighters, workboats and fishing vessels.

**Norman Scott Named
States Line President**

States Steamship Company, San Francisco, Calif., has announced additions to its top management, following a board of directors meeting.

J.R. Dant was elected chairman of the board. Succeeding him as president is **Norman Scott**, former president of American President Lines.

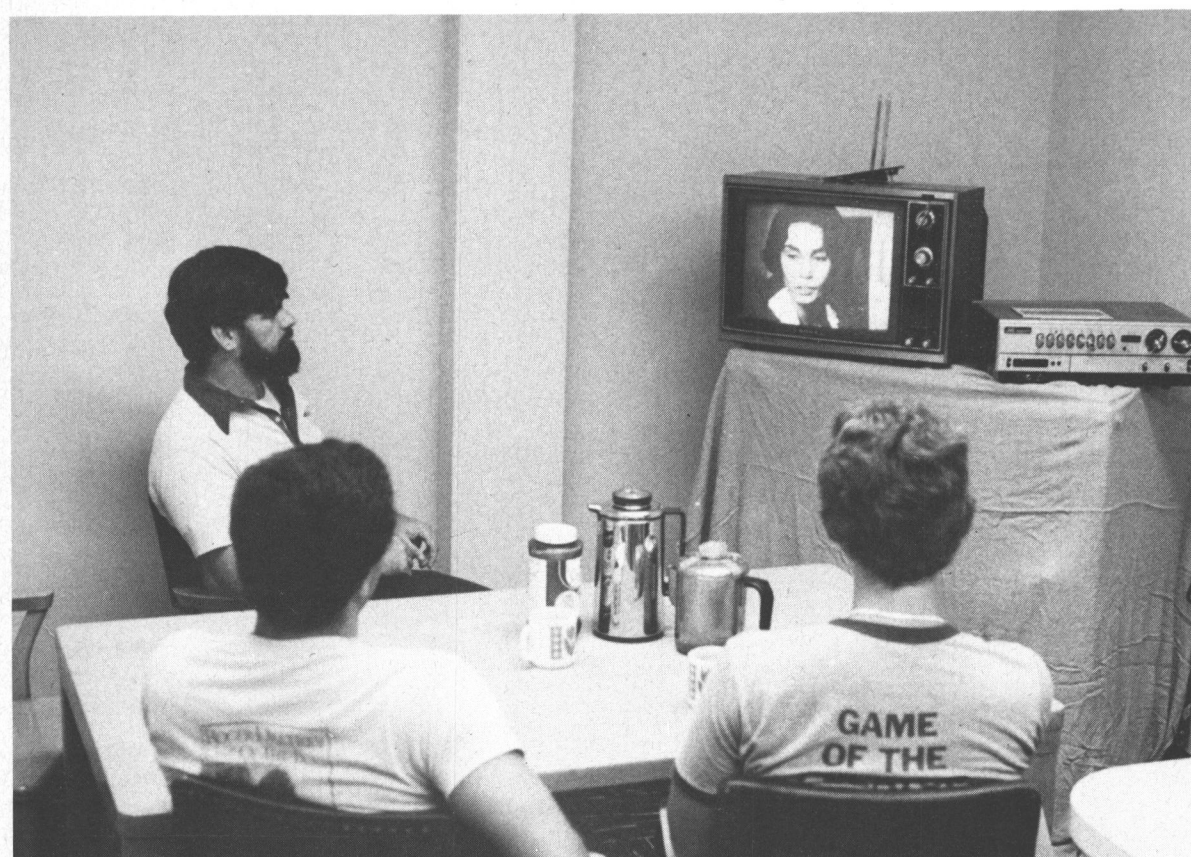
Four additions were made to the company's board of directors: Capt. **J.W. Dickover**, vice president and general manager of the company; **E.L. Hall**, retired executive vice president, Northern Trust Company, Chicago; Mr. Scott, and Mr. Dant, son of J.R. Dant.



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AN AFFILIATE OF TELE-SIGNAL CORPORATION

**Boeing Awards Six
Hydrofoil Contracts
Totaling \$4,360,000**

Boeing Marine Systems, P.O. Box 3707, Seattle, Wash. 98124, has awarded contracts totaling more than \$4,360,000 for work in connection with the production of Patrol Hydrofoil Missiles (PHM) for the U.S. Navy.

More than 30 major contractors will supply materials for the five PHMs now under construction. The ships, of the Pegasus class and based upon prototype built by Boeing now in service with the U.S. Pacific Fleet, are capable of speeds in excess of 40 knots (50 mph).

AiResearch Manufacturing Company of Phoenix, Ariz., and Torrance, Calif., has received two

contracts for a total in excess of \$1,600,000. AiResearch of Arizona will design, develop, test and manufacture the shipservice power units, and air start compressors for the production program will be provided by AiResearch of California.

The flap and steering actuators will be supplied by Hydraulic Research (Textron) of Valencia, Calif. The actuators are an inte-

gral part of the overall control system which provides the high maneuverability of PHM. The Hydraulic Research contract is valued at approximately \$1,600,000.

Vard Newport of Santa Ana, Calif., has been chosen to provide chilled water, bilge and waste-water pumps under a \$580,000 contract.

A Wisconsin company, Aqua-Chem, Inc., will supply the water distillers for the five PHMs. The Aqua-Chem contract is in excess of \$300,000. Evaporative waste systems will be provided by GARD, Inc. of Niles, Ill., at a value of \$280,000.

Manufacture of the fast, compact warships is on schedule toward delivery of the first production PHM to the U.S. Navy in February 1981. Delivery of the fifth ship is scheduled for the spring of 1982.

The PHM is ideally suited for area surveillance in support of task force operations. Design flexibility in the 131-foot-long 230-ton hydrofoils includes weight and space reserves to permit expansion of operational roles to antisubmarine (ASM) and anti-air warfare (AAW).

**Hongkong United
Dockyards Ltd. (HUD)
Forms New Subsidiary**



C.C. Chen

Hongkong United Dockyards Ltd. (HUD) have formed a new subsidiary company — Ship Repairers & Shipbuilders (HK) Ltd. The company will act as agents for a number of major overseas ship repairing companies and will liaise with local shipowners requiring docking and repair work overseas.

The new company has already obtained the agency for Lisnave in Portugal, one of the world's largest ship repairing companies, and has also been appointed as agents by the other major Portuguese company, Setenave. They will also represent the two companies for new shipbuilding. Other major worldwide ship repairing companies are at present discussing representation with Ship Repairers & Shipbuilders (HK) Ltd.

The new subsidiary will be headed by C.C. Chen, a highly experienced shipping executive who has been with HUD for 11 years.

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that makes special
products for
special applications?
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At Niles Expanded Metals, we make expanded metal products for your special applications.

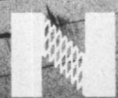
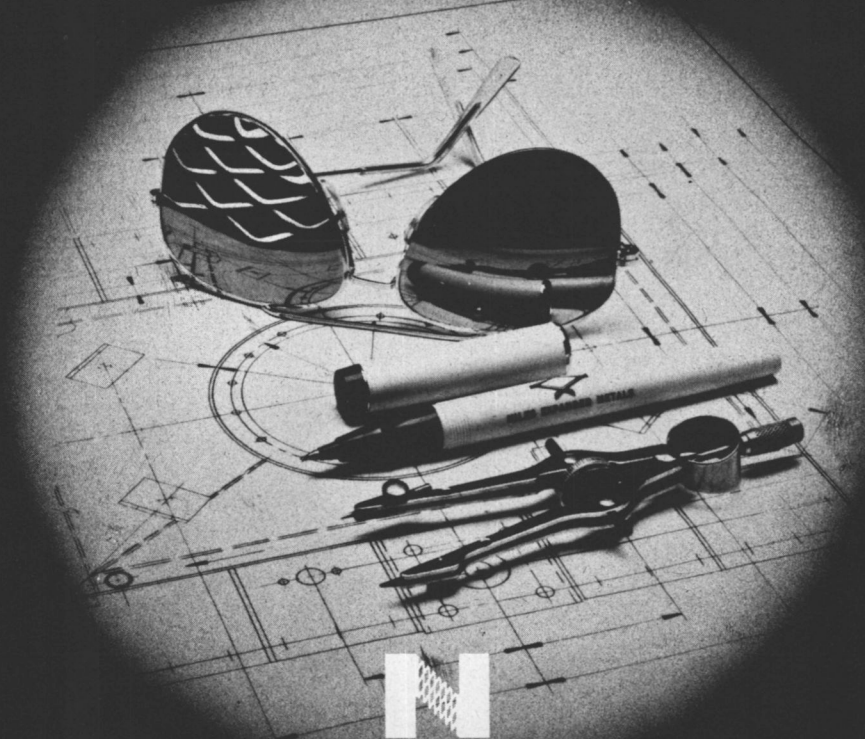
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We're constantly expanding. For you.





M/V *Dennis Hendrix* is 180 ft. long, has a 52-ft. beam and a 9-ft. draft. High-alkalinity CAPRINUS R Oil 40 is helping each of her three EMD16-645 E5's dependably deliver 2,800 hp at 900 rpm.

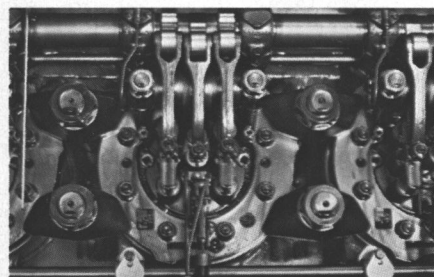
How Shell's CAPRINUS® R Oil 40 is helping keep EMD's clean with low wear in the 8,400-hp Dennis Hendrix

High dispersancy and anti-wear properties of Shell's high-alkalinity oil contribute to excellent condition of EMD16-645 E5's after ten months' service.

One of the most powerful towboats on the waterways, the *M/V Dennis Hendrix*, was built by Jeffboat, Inc. It has been in service since July, 1977 for the American Commercial Barge Line located in Jeffersonville, Indiana.

Under her three stacks are three EMD16-645 E5's on Shell CAPRINUS® R Oil 40, each rated at 2,800 hp to give the vessel her payload thrust of 8,400 hp.

CAPRINUS R has delivered trouble-free performance for over



After 5,564 hours on CAPRINUS R Oil 40, the top deck of the port engine is sparkling clean; cams polished; heads metal bright. This demonstrates the effectiveness of the high dispersant additive system in CAPRINUS R Oil 40.



Ports are virtually 100 percent open for this cylinder after 5,564 hours on CAPRINUS R Oil 40. Average top ring side clearance .0096 inches. No chipping or scuffing of rings. CAPRINUS R Oil 40 fights deposit buildup and wear, helps lengthen the service life of critical engine parts.

5,560 hours in the port and starboard engines, and for slightly fewer hours in the center engine.

Exceptional cleanliness; low wear

When the vessel docked for a minor mechanical repair, there was an opportunity to inspect her engines. Appearance: excellent. Top decks were clean, free of sludge and lacquer. There were only light carbonaceous deposits in the airbox.

Garland Bradley, Chief Engineer, summed up his impression in one word: "Beautiful!"

Wear levels were equally impressive. Top ring side clearance of port and starboard engine pistons averaged a low .0096 inches. No scuffing or chipping of rings.

Filter life up to 2,776 hours

Filter life is running longer than with the previously used oil — up to 2,776 hours on one of the engines. That's not surprising.

CAPRINUS R Oil's dispersant additive system helps keep contaminants in suspension, prevents heavy deposit buildup on filters. That can mean important savings.

High alkalinity stays on guard

CAPRINUS R Oil *retains* its high alkalinity in extended high-stress service. It neutralizes combustion acids, combats piston and liner wear and the formation of deposits — all at a moderate ash level. Another benefit: CAPRINUS R Oil offers superior resistance to oxidation and viscosity increase over long periods.

Send for our new brochure. See why nearly 100 towboats have made the switch to CAPRINUS R Oil 40! Just write: Shell Oil Company, Manager, Commercial Communications, One Shell Plaza, Houston, Texas 77002.

*CAPRINUS is a trademark and is used as such in this writing.



**Come to
Shell for answers**

NKK Signs Agreement With Baker Marine Corp.

NKK (Nippon Kokan) has concluded a license agreement for a jackup-type drilling rig made by Baker Marine Corp. (BMC), a leading U.S. rig builder.

Masayoshi Akizawa, NKK New York general manager, said under the terms of the contract, NKK will manufacture and mar-

ket the BMC jackup-type rigs on an exclusive basis in Japan, and will have nonexclusive rights in other countries of Asia except Malaysia, Indonesia, the Philippines, and Singapore.

NKK previously had a technical tie up with ETA, a leading U.S. rig designer, which developed the ETA-type rig design. Last year, the assets of ETA were purchased by BMC and assigned to its wholly owned sub-

siary, Baker Marine Engineers, Inc., located in Houston, Texas.

The new agreement permits NKK to manufacture and sell two series of jackup-type rigs—BMC jackup drilling rigs using BME electric-driven jacks, or BMC electrohydraulic jacks.

NKK, second largest steelmaker in Japan as well as a leading contractor in the heavy industry sector and also a shipbuilder, engages in offshore development

projects such as submarine pipelines, drilling platforms and storage tanks.

Women Invade Engineers' Seagoing Dredge Fleet

"It's not that unusual; everyone has to make a living," says Lee Ann Tyler, the first female officer ever to serve aboard one of the Army Engineers' seagoing dredges, the Comber, working out of the Philadelphia District.



Lee Ann Tyler

Lee Ann works the day shift from 8 a.m. through 4 p.m. for 10 days and then has four days off, as do all hopper dredge assistants. Separate facilities have been provided for her. Otherwise, Lee Ann says she is just "one of the guys." The experience of working on a dredge is like every experience. It's a learning process.

Hired for the summer as a hopper dredge assistant aboard the Comber, which was built in 1947 and is responsible for maintaining the Delaware River channel at its authorized depth of 40 feet, Lee Ann performs the same tasks as her male counterparts—deck work, some navigation and assisting the dragtender, quartermaster and deckhands.

Twenty years old and a native of Long Island, N.Y., Lee Ann is not taken by surprise by the marine life; one of her first interests was sailing. This fall, Lee Ann will be a senior at the New York Maritime College, where she is studying marine transportation, with economics as her major. Lee Ann is uncertain of her exact career plans, but hopes to eventually get her master's license.

Being the only female on the dredge comes as no shock since her school is mostly male. Lee Ann is accustomed to adjusting to being surrounded by males. She feels that being a female in this type of job is nothing spectacular. Her interests happen to lie in what is presently a male-dominated field.

When asked how she feels about being waited on by a male at dinner, Lee Ann responded, "I put in my day's work as a hopper dredge assistant, and that's how he puts in his day's work."

Our turnaround time will turn you on.

Every day your ship is in a yard for repairs, it costs you money. Every day the delivery date slips, it not only hits you on the profit side, but it can wreak havoc with your shipping schedules and those of your customers.

It takes a lot for a shipyard to be able to do a repair job effectively and complete the work on time and within budget.

It takes complete facilities

And no other yard in the Western Hemisphere can match us. Whether it's for routine maintenance, extensive machinery and hull repairs, jumbo/conversion or modification to IMCO standards, we can handle it on our 470 acres along two miles of waterfront. We have:

- 9 piers capable of berthing ships to 1200 feet long.
- Deep-draft graving docks from 650

to 1600 ft. long by 92 to 250 ft. wide.

- The capability to dock fully-loaded container ships.
- A 300,000 sq. ft. machining center.
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- A complete pattern shop.
- A complete materials testing laboratory.
- 11 acres devoted to steel production, plus a foundry that can pour stern frames, rudders and valve bodies.
- A 6½ acre steel fabrication center with 500 machines designed for the precision preparation of steel for repairs...both big and small.

Because we perform all these services ourselves, we maintain complete control. Your ship is never delayed while we wait for delivery of a critical component from an outside supplier.

It takes people

And we have over 25,000 of the most highly skilled men and women in the industry, including 3000 engineers and designers, fully prepared to put their expertise to work to get your ship back to sea...on time and within budget.

It takes experience

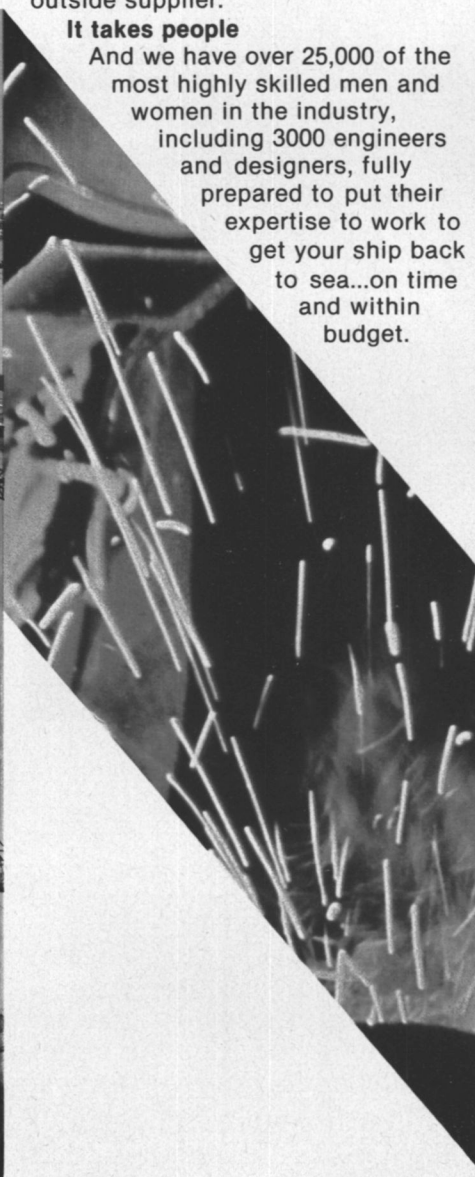
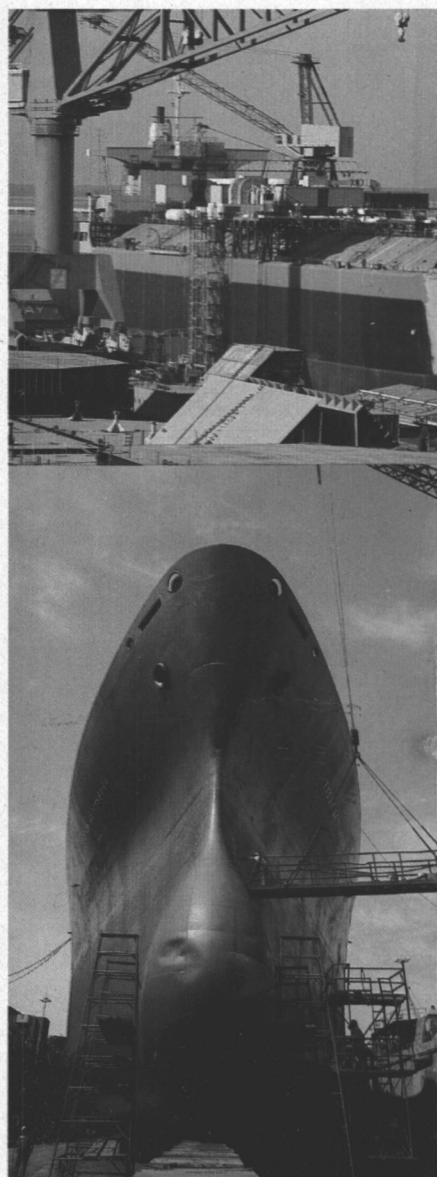
And Newport News Shipbuilding has been building and repairing ships for almost 100 years...from clipper ships to nuclear-powered submarines and supertankers. With our know-how and our people, it's no surprise that we can provide the finest service at competitive rates. Any type of ship - luxury cruiser, container, molten sulphur, cryogenic or other specialty cargo - the more complex the job, the more you need Newport News Shipbuilding.

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**New from
RUSSELLSTOLL**

Complies with Underwriters Laboratories, Inc. and U.S. Coast Guard specifications.

NON-METALLIC CONTROL STATION DEVICE COVERS

High Collar Surrounds and Protects Controls

A high level of safety is achieved for control stations with new RUSSELLSTOLL non-metallic device covers. Covers are one-piece custom molded from high strength, 30% glass-reinforced thermoplastic polyester—a tough, non-corrosive, self-extinguishing plastic.

Control covers are furnished complete with pilot lamps and transformers where required and approved operators with pressure plate type terminals. All Device Covers contain ample room for wiring. Buttons and lenses are protected from physical abuse by the high collar design of the cover.

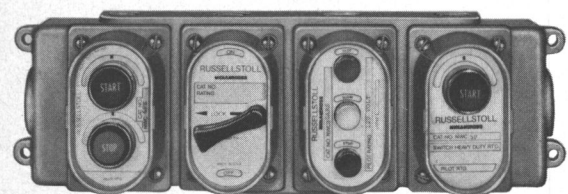
The new device covers install easily on standard FS/FD and Marine Conduit Boxes. For a completely non-metallic installation, a polyester non-metallic

conduit box is available. Neoprene gaskets and stainless steel screws are furnished for watertight installation.

Control device covers include push buttons, pilot lights and selector switches for Marine and Industrial applications. Combinations of push buttons, pilot lights and toggle switches can be supplied to meet your requirements. Legends for buttons are available in a wide variety of standard and custom markings—or a legend of your special choice.

Call or write for complete catalog details and plan to up-date your control stations with "high collar" safety.

Midland-Ross Corporation
Electrical Products Division
P.O. Box 1548 • Pittsburgh, Pa. 15230
Telephone Hot Line: 201/992-8400



MIDLANDROSS

Technical Report On Mooring For LNG Ships Released By MarAd

The Maritime Administration has released a technical report on the feasibility of a new Single Point Mooring (SPM) concept designed for ships carrying liquefied natural gas (LNG) and other low-temperature cargoes.

The study was carried out by

Donaldson Associates, Rancho Palos Verdes, Calif., under contract to the Maritime Administration. Additional funding and technical support were provided by Pacific Marine Associates, a jointly held subsidiary of Pacific Lighting Corporation and Pacific Gas & Electric Company.

The cryogenic SPM provides an unmanned, remote tanker mooring and transfer conduct which is operable in an unusually wide

range of weather conditions. It does not have liquefaction, storage, or vaporization capability and is, therefore, used in conjunction with an onshore or offshore storage facility.

The study concentrated on five key areas: (1) motion characteristics of the cargo transfer buoy; (2) design of the marine hose assembly; (3) design of a coaxial LNG/vapor swivel in the top of the buoy; (4) a self-sealing dis-

connect, and (5) pressure drop and thermal analysis for a tri-axial pipeline concept.

Positive results were obtained for each of the key areas investigated. The report concludes that subsequent technical effort can follow the normal design path for new marine systems, namely, test verification of the analytical results obtained.

The final report is available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161, for \$5.50. The order number is PB-283474/AS.

New Diesel/Electric Supply Boats Featured In Halter Brochure

An eight-page brochure, replete with color photos and descriptions of the many types of vessels built by Halter Marine, Inc., features a new type of HALMAR tug/supply vessel using diesel/electric propulsion.

Halter Marine, Inc. is the world's largest builder of supply vessels for the offshore oil industry. The company owns and operates 10 shipyards in the Southeastern United States, and builds a wide variety of vessels, including crewboats, tugs, utility boats, fishing vessels, and oceanographic research vessels.

For a copy of the brochure, titled "HALMAR Supply Utility Vessels," write to A.J. Rizzo, Halter Marine, Inc., 10001 Lake Forest Boulevard, New Orleans, La. 70127.

Port Electric Named Marine Distributor By Jeamar Winches Ltd.

Hank Barnes, sales manager, Port Electric Supply Corporation, has announced the appointment of Port Electric by Jeamar Winches Ltd., 53 Maple Avenue, Thornhill, Ontario, Canada L3T 3S8, as the exclusive distributor of their whole range of winches for the states of New York and New Jersey, and the cities of Philadelphia, Pa., and Baltimore, Md.

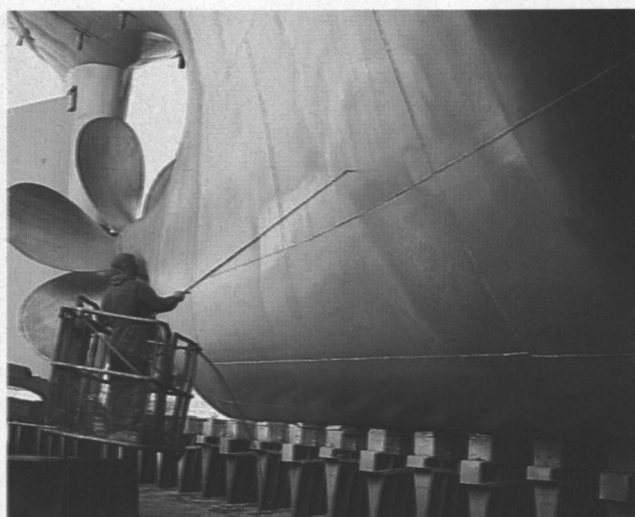
Jeamar Winches are one of the world's leading manufacturers of winches, producing a complete range of machines, including hand winches, electric winches, engine-powered winches and hydraulic winches.

Port Electric has been established for many years and are well-known for their technical expertise in both the marine and industrial fields.

This new association will be of great benefit to the existing clients of both Jeamar Winches and Port Electric, and will greatly enhance the service to winch users generally.

Port Electric Supply Corp. is located at 157 Perry Street, New York, N.Y. 10014.

MAUI. The first vessel in the U.S. to apply the most unique bottom coating in the world, SPC.



MAUI: dark area—Cathodic Protection Dielectric shield; green—first coat of SPC; blue—second coat of SPC.



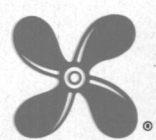
MAUI: ready for sea with 4 coats of SPC.

Matson's new 720', 38,700 ton maximum displacement container vessel, MAUI, has been coated with SPC self-polishing copolymer by Maryland Shipbuilding and Drydock. Built by Bath Iron Works, MAUI went through fitting out period with only an anti-corrosive coating below the waterline. Prior to receiving 4 coats of SPC the only surface preparation required was a high pressure water wash.

SPC self-polishing copolymer antifouling bottom paint is a revolutionary coating patented by International Paint Company. The unique chemical combination of biocide and vehicle allows the water turbulence to polish SPC's surface as the ship passes through the water. Not only does the hull remain clean but the progressive smoothing of the underwater hull results in significant operational savings.

You too can expect to save at least 12% in fuel costs if you coat your vessels with SPC. You will also require fewer drydockings because the life of SPC is directly proportional to its thickness. Recoating with SPC is simpler than with conventional antifouling systems. A high pressure water wash, touch up of physically damaged areas with anti-corrosive, and the surface is ready for enough additional coats of SPC to last until next planned drydocking two, three or even four years away.

Contact your nearest International Marine Coatings representative and challenge him to show how much SPC can save for you.



International Marine Coatings International Paint Company, Inc.

Executive Sales Office: 17 Battery Place North, New York, NY 10004
c/o W. Norman Duncan, Vice President-General Sales Manager

3915 Louisa Street, P.O. Box 26069, New Orleans, LA 70186
c/o F. Brick Hurst, Vice President, Southern District & Offshore

220 South Linden Avenue, South San Francisco, CA 94080
c/o Grant Johnson, Executive Vice President





**New from
RUSSELLSTOLL**

Complies with Underwriters Laboratories, Inc. and U.S. Coast Guard specifications.

NON-METALLIC CONTROL STATION DEVICE COVERS

High Collar Surrounds and Protects Controls

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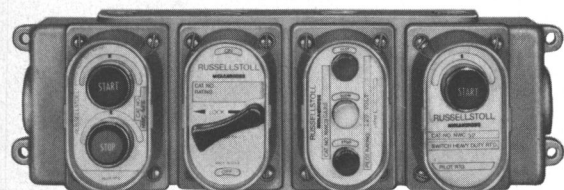
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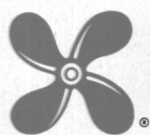
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Self-Polishing Copolymer A/F
SAVES FUEL

**Neptune Orient Lines
Orders Containerships
From Ishikawajima**

Neptune Orient Lines Ltd., planning a major expansion in its trans-Pacific container-carrying capacity, has ordered two fully cellularized containerships to be built by Ishikawajima Heavy Industries of Japan, with the price tag put at \$50 million.

Scheduled for delivery by late 1979, each of the two ships will have a capacity of 1,600 twenty-foot equivalent units. Contracts for two to four additional containerships of the 1,600-unit size will be announced soon, the company said.

Neptune Orient is the Singapore national-flag line that began its service to the U.S. West Coast in February of this year. At present, the line calls at the California ports of Long Beach and Oakland, but with the expansion of its fleet next year it plans to include Seattle and Vancouver in its itinerary.

Containership Agency Inc., New York, is East Coast agent for Neptune Orient.

**Custom Bridge Enclosures
Described In Brochure**

The Dorlec Corporation of Cherry Hill, N.J., recently made available a free catalog describing the various custom enclosures offered by the company to the marine industry. Applications now include aircraft carriers, destroyers, submarines and ships bridge controls. For any custom enclosures, any shape, any size, call or write for a free copy of the Dorlec Enclosure System catalog, or send a sketch for a free design proposal to Dorlec Corporation, 619 Hollywood Avenue, Cherry Hill, N.J. 08002, Attention: J. Doyle.

**Perry Oceanographics
Designs And Builds New
Undersea Work System**

Perry Oceanographics, Inc., P.O. Box 10297, Riviera Beach, Fla. 33404, under contract to Seaforth Maritime Limited, Aberdeen, Scotland, has started the design and construction of a new concept in undersea observation, maintenance, and repair vehicle. This vehicle, a Mobile Diving Unit (MDU), is a major component of a 16-man diving complex being built by Seaforth Maritime for Occidental Petroleum (Caledonia) Ltd. Scheduled for delivery in early 1979, the system will be used aboard Occidental's semisubmersible multifunction support vessel (MSV). Diving consultants for the project are John Haynie, Inc.

The vessel will be used for deepwater maintenance tasks at the Piper and Claymore production platforms and associated

pipelines in the northern North Sea.

The Perry MDU, based on both diver lockout submarine and conventional diving chamber technology, will give the divers horizontal mobility, nearly unlimited electrical and hydraulic power at the work site, and a full at-site, surface-monitored instrumentation capability.

The MDU is an 18-ton, 1,000-foot depth vehicle capable of

maneuvering in any direction. It consists of a one-atmosphere observation chamber (AOC) and three-man submersible decompression chamber (SDC). Mounted above the SDC, the AOC affords an excellent view of the work site through a 31-inch panoramic window. The AOC contains controls, navigation, sonar, and communications systems. It also acts as the operating station for a manipulator and hy-

draulic tool package. The SDC is fully fitted for three divers equipped for North Sea diving. The compartments are connected by a hatch that may be opened to provide an expanded one-atmosphere work space during extended observation missions.

The MDU also has television, welding, water jet, and non-destructive testing capabilities, and is designed for dry transfer to underwater welding habitats.

**Long Distance
Champion
of the World.**

Simrad's LC-204 has more signal pulling power and cycle matching ability than any other Loran C receiver in maritime service. With it you can navigate the great circle route from the U.S. East Coast to Europe on high accuracy groundwave alone! You can do the same going to the Mediterranean... or from San Francisco to Japan, with only a short distance on skywave in mid-ocean. The entire Gulf of Mexico is a Simrad sea, as is the North Sea. No other Loran C receiver can match that kind of performance.

There are more Simrad LC-204 Loran C receivers in commercial shipping service and the fisheries than the sets of all other manufacturers combined. More than 450 ports worldwide have Simrad service centers. Simrad LC-204 receivers meet or exceed the Minimum Performance Standard (MPS) of the Radio Technical Committee for Marine Service, for ships operating in U.S. waters.

Specify the Simrad LC-204 for its extraordinary performance, unmatched reliability and ease of

servicing. When it comes to the things that really count, Simrad is easily the champion.

When the Coast Guard rulemaking is published, mandating Loran C receivers on board all ships 1600 tons or over operating in U.S. waters, the LC-204 may be in short supply. Make sure you have the best... place your order now.

For details of our special pre-rule-making price promotion, contact your Simrad dealer or write Simrad, Inc., One Labriola Court, Armonk, NY 10504.

SIMRAD
A trusted name at sea.

El Paso Natural Gas To Open Two New Gas Purchase Offices

El Paso Natural Gas Company has announced that it will open new regional gas purchase offices this month, one in Houston, Texas, and one in Denver, Colo.

The Houston office will be headed by **Thomas W. Sieh**, senior gas purchase representative, and will be located in the LNG Tower at 2919 Allen Parkway. The Denver office will be headed by **Robert W. Cooms Jr.**, senior gas purchase representative, and will be located at 720 South Colorado Boulevard, Suite 500.

The Houston office will seek to acquire both offshore and onshore gas supplies in the Gulf Coast area. The Denver office will seek gas supplies in the Rocky Mountain area.

El Paso Natural Gas already has a regional gas purchase office in Midland, Texas.

Samson And SMATCO Join To Expand Traction Winch Market

Samson Ocean Systems, Inc. and TBW Industries, Incorporated have reached an agreement whereby SMATCO, Inc., a TBW Industries Company, will be licensed to utilize Samson's Traction Winch designs and patents for manufacture and sale to their customers.

The Traction Winch was developed by Samson for use with double-braided rope used in hawser systems for single point mooring buoys, originally in the North Sea and now throughout the world. Under the agreement, the winch will be identified as the "SMATCO TRACTION WINCH, engineered for SAMSON BRAIDED ROPE."

SMATCO serves the marine and offshore oil industry with an extensive line of towing, anchor-handling and mooring winches, capstans, windlasses, stern rollers and related machinery.

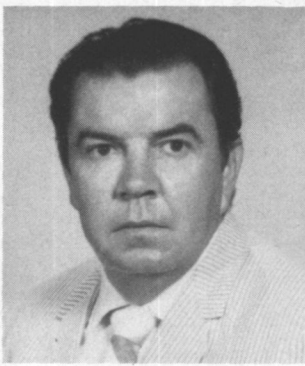
Samson designs and manufactures braided ropes up to 30-inch circumference and 2,500,000-pounds tensile, and combines this capability with special hardware to provide the marine and ocean industry with rope systems for deepwater berthing, towing, supply vessel mooring, deepsea mining, multipoint and pierside mooring. Traction Winches are now required for these systems as an improved method to handle the larger ropes coming into use for deeper water and more sophisticated mooring and towing concepts.

It is expected that the agreement will provide the heavy marine and ocean industry with a unique combination of advanced winch engineering and related equipment from SMATCO, Inc., and stronger and more cost-effective synthetic fiber strength

members through Samson's recently formed Systems Division.

Information and literature on SMATCO Traction Winches engineered for Samson Braided Ropes may be obtained from **J. Linehan**, Samson Systems Division, 99 High Street, Boston, Mass. 02110.

Captain Tom Smith Forms CTS And Associates



Capt. Tom Smith

Capt. **Tom Smith**, well-known international marine surveyor, until recently vice president of Nelson and Associates, Inc., announces the formation of CTS and Associates, international marine consultants, surveyors, engineers and ultrasonic technicians (audio gauging or nondestructive thickness testing).

Graduating from the U.S. Navy's Group II Service School and special extension courses in early 1942, Captain **Smith** has since been involved professionally in the marine interests, including the establishment of his own boat-building firm in the early 60s. Offering classification society and underwriter approved ultrasonic (audio) gauging, Captain **Smith** states he has recently added his own "in-house" computer, allowing analysis and print-out of all gauge reports which, he states, result in the "most definitive" gauge report presently in the industry. The computer has also been "programmed in" to his phone answering service, allowing the customer to leave "unlimited" message content, as opposed to the usual "name and number," and providing an "automatic" relay to the "on-duty" surveyor on a seven-day, 24-hour basis.

The recent addition to the staff of Capt. **James (Jim) McCrory**, well-known in south Florida and the Virgin Islands/San Juan areas, has somewhat relieved the heavy work load on the Underwriting Condition/Survey and Yacht Departments, and it is hoped these departments will expand still further under his expert guidance, stated Captain **Smith**.

The headquarters office in Miami has its own Limited Shore (radio) Station, call sign "KYR-525" covering approximately 25 miles offshore from Fort Lauderdale to Marathon, allowing "skippers" to call in hours before docking, assuring a surveyor onboard immediately following vessels clearing customs. Station monitors VHF channel #16 with a

working frequency of channel #09. CTS and Associates are located at 11320 S.W. 108th Court, Miami, Fla. 33176.

Charles Lehman Elected ACBL Vice President

Charles F. Lehman has been elected a vice president of American Commercial Barge Line Company, according to an announcement made at ACBL's general offices in Jeffersonville, Indiana.

Mr. **Lehman** previously served as director of public affairs for the barge line, and he will continue his responsibility in the area of public affairs and governmental relations in his position as vice president.

Mr. **Lehman** joined ACBL in 1955, serving first as pilot and master on the company's towboats. He was made barge maintenance superintendent in 1966, and in 1977 was named director of public affairs.

A native of Chicago, Mr. **Lehman** resides with his wife and daughter in Prospect, Ky.

ACBL is the principal operating company in the Inland Waterways Services Division of Texas Gas, which also has other major interests in gas transmission services, oil and gas exploration and production, general commodities trucking, the transport of new automobiles and trucks, and ship-building activities.

Swann Oil Relocates New York Office

Swann Oil, Inc., 130 Presidential Boulevard, Bala Cynwyd, Pa. 19004, has announced the relocation of its New York Supply and Distribution Offices to 405 Park Avenue, New York, N.Y. 10022.

John P. Stathis, Swann's vice president, Supply and Distribution, will be in charge of the office.

Swann's Supply and Distribution component handles the firm's international ship chartering requirements and the sale of bunkering services to non-company vessels, and coordinates the international and domestic supply of a variety of petroleum products to the company's wholly owned and operated logistical network. This network includes company owned and operated terminals in Sassamansville, Allentown, Philadelphia and Pinedale, Pa.; Augusta and Savannah, Ga.; Chesapeake and Richmond, Va.; and Wilmington, N.C. Products are delivered using company vehicles and vessels—the firm maintains one of the largest privately held truck fleets in the Eastern United States, a variety of integrated tug-barge units and oceangoing tankers.

Since its founding in 1948 by **Leonard A. Swann Sr.**, Swann Oil has grown to be one of the largest independent importers and marketers of petroleum products

in the Eastern United States. In 1975, the company moved its executive headquarters from Sassamansville to Bala Cynwyd, suburb of Philadelphia. **Leonard A. Swann Sr.** is chairman of the board, **Leonard A. Swann Jr.** is president and chief executive officer of Swann Oil, Inc.

IMODCO Receives Third Contract From PEMEX In Two-Month Period

Three contracts over a two-month period, totaling approximately \$9.5 million, have been received by IMODCO, 10960 Wilshire Boulevard, Los Angeles, Calif. 90024, a unit of AMCA International Corporation, from PEMEX, the Mexican state-controlled oil company, reflecting the rapidly expanding petroleum development program in that country as well as a close working relationship between the two companies.

A just-concluded contract is for a 12.5 meter (about 41 feet) in diameter Single Point Mooring terminal to be sited offshore Dos Bocas in the Gulf of Campeche. This Single Point Mooring buoy will service vessels up to 250,000 dwt.

The offshore terminal will be capable of safely withstanding wind velocities up to 100 knots and maximum wave heights up to 28 feet. It is scheduled for delivery next spring.

An earlier contract, calling for the supply of a 12.5-meter SPM with a two-grade Multiple Product Distribution Unit, to accommodate tankers up to 150,000 dwt, was received from PEMEX for installation late this summer offshore Rabon Grande, near Coatzacoalcas in the Gulf of Campeche.

In July, IMODCO also received a contract from PEMEX for the engineering and construction of an 11-meter (about 36-foot) SPM, with a three-grade MPDU, to be located two miles offshore Mazatlan on Mexico's west coast to accommodate vessels of up to 60,000 dwt.

IMODCO is a pioneer and one of the world leaders in the development of offshore marine terminals, largely utilized for the transfer of crude oil and petroleum products.

Weber Marine Opens Third Service Facility On Mississippi River

Douglas Weber, vice president of Weber Marine, Inc., River Road, Burnside, La. 70738, has announced the opening of a third location at Mile 137 on the Mississippi River near Reserve, La. This new facility will provide crewboat service and floating crane service to nearby oceangoing vessels. When in final operation, the new branch will employ about 15 persons from the St. James-St. John Parish area.

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tape controlled plasma arc burning machine



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Jeffboat Appoints Greene Executive Vice President

Robert W. Greene III has been appointed executive vice president and general manager of Jeffboat, Incorporated, Jeffersonville, Ind., according to H.J. Bobzien Jr., president of the Inland Waterways Services Division of Texas Gas Transmission Corporation.

Mr. Greene moves into the position previously held by John F. McKay, who has resigned to pur-

sue other business interests. Mr. Greene has worked with the Inland Waterways Division of Texas Gas for 10 years and has served as a vice president of American Commercial Barge Line Company, Jeffboat, and other companies within the division. Most recently, he has been responsible for terminals and development, with particular emphasis on coal transportation systems. Mr. Greene is a native of Louisville, Ky., and has degrees from Georgia Tech and the Harvard Business School.

Marinette Marine Corp. Awards Contract To PSI

Propulsion Systems, Inc. of Kent, Wash., has been awarded a follow-on contract by Marinette Marine Corp. for the U.S. Navy's T-ATF fleet tug program. The equipment to be supplied consists of three shipsets of controllable-pitch propellers and bow thrusters identical to the four previous systems supplied by PSI.

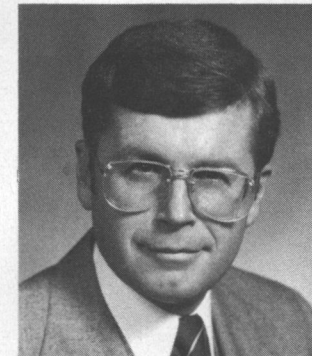
The T-ATF tugs are twin-screw

vessels of 7,200-hp design, utilizing 9-foot-diameter, four-bladed C.P. wheels. In conjunction with the propellers, a 300-hp controllable-pitch bow thruster is used for improved station keeping and harbor maneuverability.

The fleet tug program represents the Navy's current, continuing efforts to provide safe, efficient auxiliary service to its fleet.

The equipment is to be constructed at PSI's Kent facility, with delivery expected in 1979.

James H. Sanborn Joins Interstate And Ocean Transport Company



James H. Sanborn

James H. Sanborn has joined Interstate and Ocean Transport Company, Three Parkway, Philadelphia, Pa. 19102, as vice president and general manager of Eastern United States Operations. Mr. Sanborn reports to Stephen A. Van Dyck, chief operating officer of Interstate, a subsidiary of IOT Corporation.

Interstate operates a fleet of 50 coastal and inland tank barges engaged primarily in petroleum and petrochemical transportation on the East and Gulf Coasts of the United States. The total capacity of the barge fleet exceeds 3,400,000 barrels, giving Interstate the largest fleet of coastal tank barges in the world. The total gross registered tonnage of IOT's barge and tanker subsidiaries makes IOT Corporation the largest operator of American-flag vessels.

Mr. Sanborn's responsibilities involve all aspects of Interstate's marine transportation services on the East Coast, including marketing, operations, traffic and the company's Fleet Centers at Philadelphia, and Baltimore, Md.

Prior to joining Interstate, Mr. Sanborn was president of A.P. St. Philip Towing and Transportation Co., Tampa, Fla. A graduate of the United States Merchant Marine Academy, he served as third and second officer on various ships of American Export Lines before receiving his MBA from the Wharton Graduate Division of the University of Pennsylvania. Mr. Sanborn has also held positions with Pittston Marine, Mobil Oil, and Frank A. Hanley Co., Marine Surveyors, Philadelphia.

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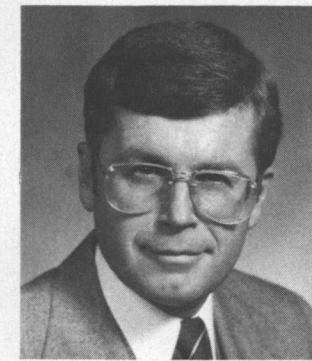
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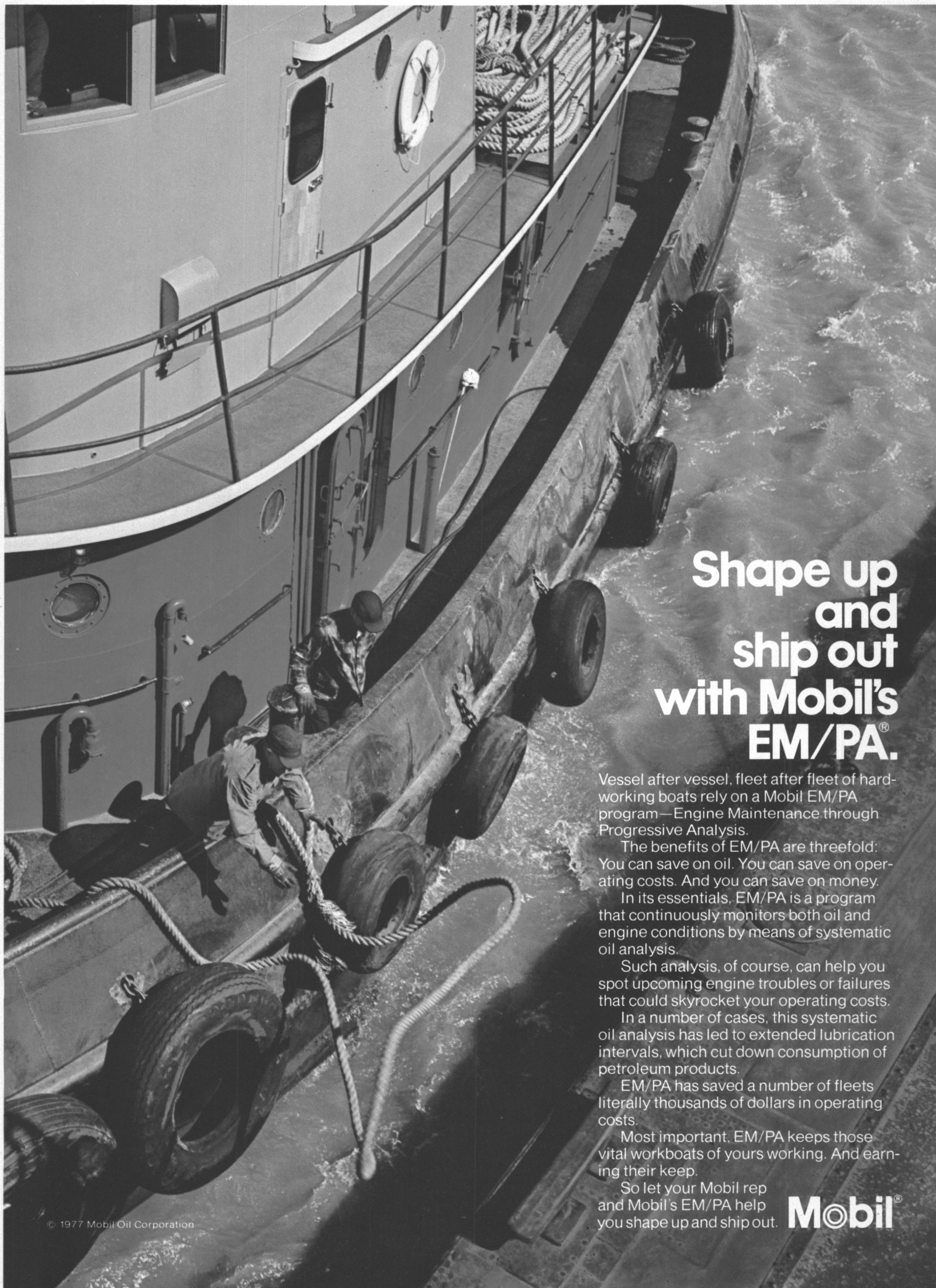
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L. James Gardner Joins Bath Iron

President John F. Sullivan of the Bath Iron Works Corporation, Bath, Maine, has announced the appointment of L. James Gardner as general counsel for the shipyard. Mr. Gardner is the shipyard's first full-time staff attorney.



L. James Gardner

He has extensive experience in corporate, governmental and international law, and recently returned to this country after a long-term assignment in South America.

He joins Bath Iron Works from Page Communications Engineers, Inc., a subsidiary of the Northrop Corporation, where he was responsible for legal activities of all foreign and domestic operations.

His professional career has included positions on the legal staffs of RCA Corporation, National Aeronautics and Space Administration (NASA), and the U.S. Navy Department's Office of General Counsel.

He took his undergraduate degree in foreign affairs from George Washington University and his law degree from the University of Arizona.

Castle & Cooke, Inc. Plans Purchase Of Seven Ships

D.J. Kirchhoff, president and chief executive officer of Castle & Cooke, Inc., has announced that an agreement in principle has been reached with a Honolulu-based conglomerate and European interests in which seven refrigerated cargo vessels and other properties will be acquired by the U.S. firm.

The acquisitions, calling for an undisclosed amount of stock and cash, will increase Castle & Cooke's company-owned fleet to 15 vessels.

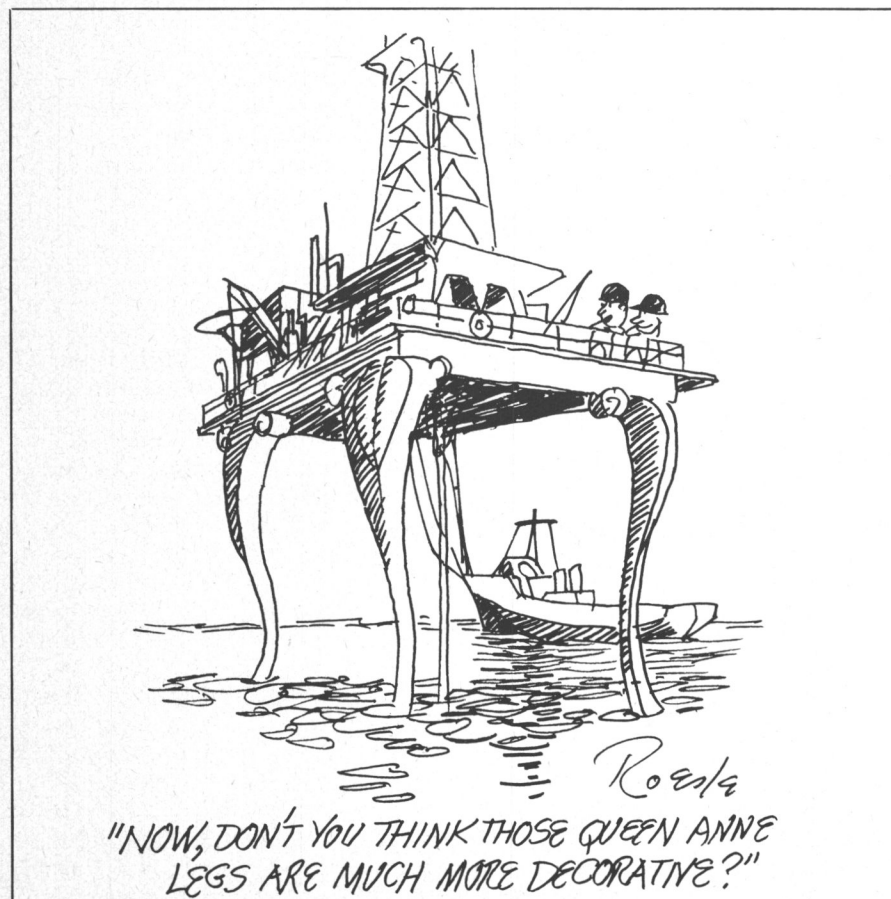
According to Mr. Kirchhoff, the enlarged fleet will provide about 40 percent of the company's refrigerated cargo needs for transporting bananas and other foreign-grown fresh produce to market. Chartered vessels supply the remainder of the company's reefer vessel needs.

The seven vessels to be acquired will be operated by Intercontinental Transportation Services Ltd., a wholly owned Castle & Cooke subsidiary.

ITS, established in 1976, operates the other eight vessels in the Castle & Cooke reefer ship fleet.

The subsidiary was formed when Castle & Cooke elected to purchase refrigerated ships to supplement its chartered vessels as a hedge against increasing cost of chartering and the unavailability of suitable tonnage during periods of vessel shortages, Mr. Kirchhoff explained.

Castle & Cooke produces and markets Dole bananas, pineapples and mushrooms, brand-name seafoods and California group vegetables. The company also engages in real estate and manufacturing.

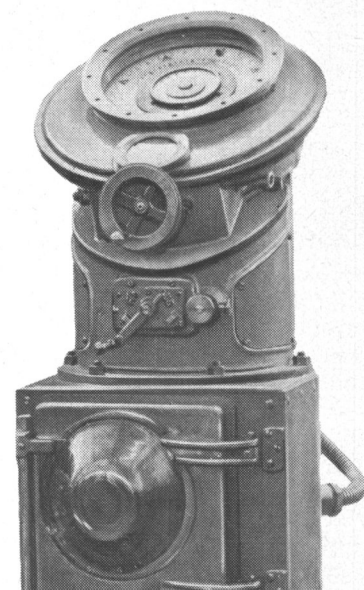


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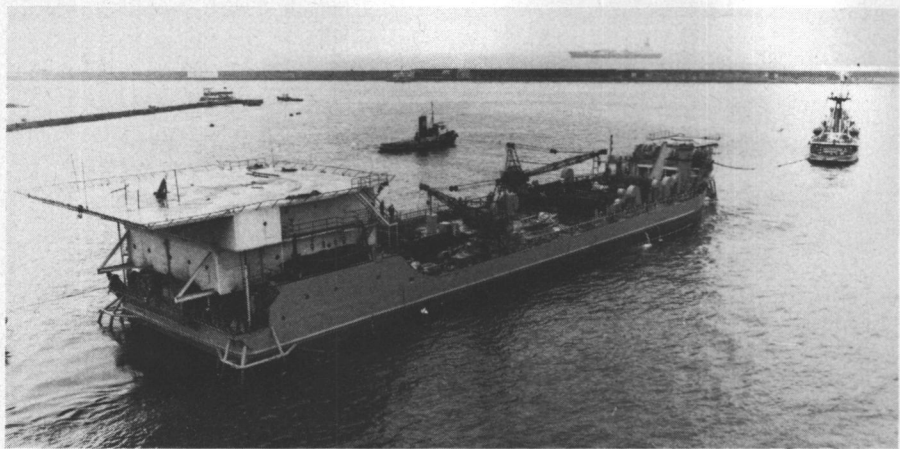
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OARN CONVERSION — OARN Officine Allestimento e Riparazioni Navi S.p.A. ship repair yard in Genoa, Italy, recently converted the drilling ship Discoverer I to an open sea drilling tender (shown above) for the Offshore Company of Houston, Texas. About 1,000 tons of drilling equipment was removed from the vessel prior to conversion by OARN's huge floating crane Giulio Cesare. The drilling platform and the 100-ton drilling tower were dismantled and also transported by the yard crane. The four mooring winches weighing 50 tons each were completely overhauled and reinstalled differently, with 130 tons of new structures added for deck support. All work was completed with the approval of the American Bureau of Shipping and to the satisfaction of the owners. OARN is represented in the United States by **James R. Porter**, Continental Marine Agency, Inc., 250 Park Avenue, Suite 815, New York, N.Y. 10017.

Nominations Are Open For Shephard Award For Maritime Safety

Nominations are being accepted for the third annual Rear Admiral Halert C. Shephard Award for Achievement in Merchant Marine Safety.

The award is given either for a single outstanding contribution to merchant marine safety, or for dedication to, and constructive participation in, activities associated with maritime safety over a period of time. Nominees may include individuals such as ship operators, naval architects and marine engineers, ship repairers, shipbuilders, and those associated with ship operations, government, or marine associations.

The award was established by the American Institute of Merchant Shipping (AIMS) in 1976, in honor of the late Admiral Shephard, who served in the United States Coast Guard as Chief, Office of Merchant Marine Safety, and who was internationally acclaimed for his work in the field. The award is administered by the American Bureau of Shipping (ABS).

Nominations should be submitted to Rear Admiral Halert C. Shephard Award, c/o **Robert T. Young**, Chairman, American Bureau of Shipping, 45 Broad Street, New York, N.Y. 10004. The deadline for receiving nominations is January 1, 1979. The award will be presented on April 17, 1979, at the ABS annual meeting at its headquarters in New York City.

The 1977 recipient was Adm. **Charles P. Murphy**, general manager, Ship Construction, Sea-Land Service, Inc., and the 1976 recipient of the award was **John L. Horton**, manager, Marine Division of Cleveland-Cliffs Iron Company.

Human Element In Ship Operation Is Subject Of Maine Maritime Seminar

The Maine Maritime Academy, Castine, Maine, will sponsor a seminar on "The Human Element In Ship Operations" on campus, October 22-25, 1978. The seminar is designed to provide a forum through which chief executive officers and senior managers in the maritime industry will experience an in-depth exposure to the problems and possible solutions associated with the human element, as it affects ship operations and ship safety.

Major faculty members scheduled to participate are Rear Adm. **William M. Benkert**, USCG (ret.); **Thomas Mara**, president, Maritime Marine Service Corporation; **Alan Pesch**, president, Ecletech Associates, Inc.; **Craig Rich**, Plymouth Polytechnic Institute, Plymouth, England, and **Stanley Wheatley**, Director, National Mar-

itime Research Center, United States Merchant Marine Academy.

The seminar signals an era of expanding Continuing Education Programs at the Academy, oriented toward the maritime and maritime-related industries in the planned establishment of an Advanced Maritime Studies Center.

Interested persons may contact Comdr. **Verge Forbes**, Director of Conferences and Institutes, Maine Maritime Academy, Castine, Maine. (Phone (207) 326-4311 for further information.)

Halter Marine Adds Tenth Shipyard

Halter Marine, Inc. has added the 10th shipyard to its rapidly expanding group with the opening of a new division at Chickasaw, Ala.

The new shipyard is located on a fork of the Mobile River five miles north of the city of Mobile, on a site formerly occupied by the Gulf Shipyard. During the two world wars, Gulf built scores of troop carriers and Liberty ships at the location. Gulf abandoned the site after World War II, and it has remained vacant since that time except for small boat construction on an irregular basis.

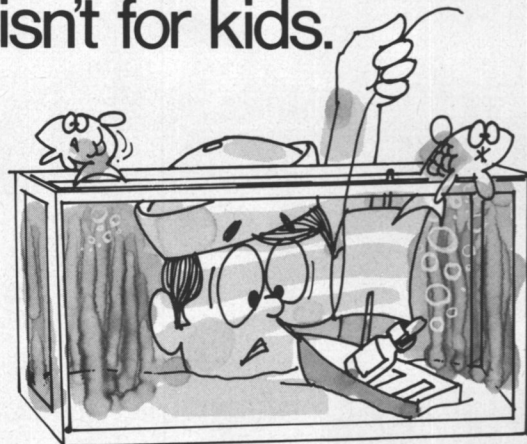
The Chickasaw Division encompasses approximately 20 acres, including 1,100 feet of launch ways and 700 feet of berthing space. Also included is a giant steel frame building which is 400 feet long, 100 feet wide and 70 feet high. The building is currently in a state of disrepair, but when renovated will be used for burning plate and for the construction of sections and subassemblies. Railroad tracks around the building and construction area facilitate movement of heavy equipment and assemblies. A huge mold loft occupies the upper portion of the building.

Sixty persons are already at work at Chickasaw and up to 300 will be needed within five months, according to **Floyd J. Naquin**, Halter's executive vice president, who made the announcement. The yard is currently building four 66-foot lift boats and one 166-foot supply boat. Mr. Naquin added that Chickasaw's 40-foot water depth and easy access to the Gulf of Mexico will allow the company to expand its product line to larger and deeper draft vessels.

Halter's nine other shipyards are located at New Orleans, La. (2); Lockport, La.; Chalmette, La.; Pierre Part, La.; Calumet, La.; Moss Point, Miss.; Pearl- ington, Miss., and North Miami Beach, Fla.

The company builds a wide variety of vessels of steel, aluminum and fiberglass, and is the world's largest builder of supply boats for the offshore oil and gas industry.

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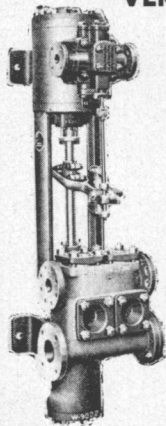
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City _____ State _____ Zip _____

PUMPS

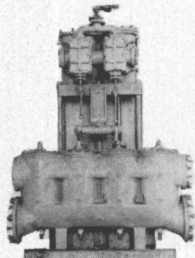
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



7½ x 4 x 10—3" suction—2" discharge—1¼" steam—1½" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 8 to 20 GPM—up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

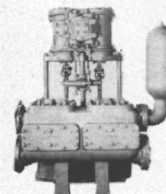
\$795

WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



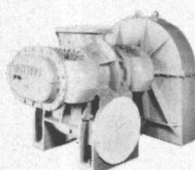
1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'9" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



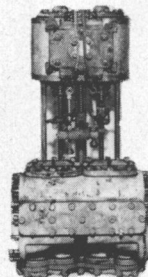
10 X 11 X 12 — Worthington — 560 GPM @ 125# G. 8" Suction — 6" discharge pumps bronze fitted.

WATEROUS CARGO PUMP



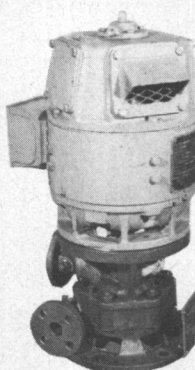
Model P1118 — 600 GPM @ 100 PSI @ 222 RPM — 8" suction — 8" discharge. Complete with input gear box. For diesel motor drive. Ex Y.O. & Y.W. vessels.

8" X 8" X 10" VERTICAL DUPLEX PUMP

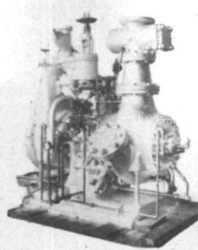


Hendy design Suction 8" — discharge 6" — 160 GPM @ 100 PSI.

NEW VERTICAL BRINE PUMP



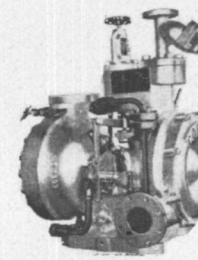
3½ GPM @ 20 lbs—3500 RPM —1.25 HP—120 volt DC motor mfg by Electro-Dynamic.



COFFIN FEED PUMPS — ALL SIZES — TYPE DE

3 TYPE DE-2
540 GPM 1870' NET HEAD
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

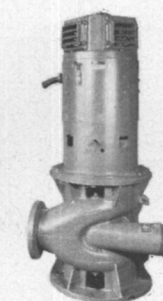
2 TYPE DE-B 214 GPM 2070' NET HEAD
7040 RPM — 241 HP. Steam pressure 597 PSI — superheat 100°-300°F. Typical serial No. DEB 1-25-37



TYPE CG

2 TYPE CG 350 GPM 1880' NET HEAD
7220 RPM—311 HP. Steam pressure 580 PSIG—0°-100° superheat. Exhaust 15 lbs—typical serial #5437-CG-8-8-33

BALLAST PUMPS



Gardner-Denver — bronze — vertical — total suction lift 15' — 8" suction — 6" discharge — 1500 GPM @ 25 lbs — 1750 RPM. MOTOR: 30 HP — 230 VDC — 112 amps — made by Century.

ANCHOR WINDLASS MOTORS

Vertical — 20 HP — 230 volts D.C.

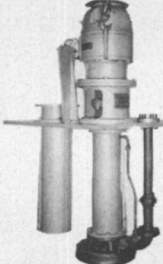
RAMP WINCH MOTOR

20 H.P. gearhead deck ramp winch motor.

MISCELLANEOUS

- Bronze Triplex Strainers
- Pneumatic Control Stands
- Combination Lube Oil & Fresh Water Pump for Reduction Gear
- 35000 CFM Fans

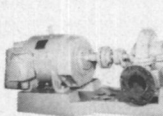
4 NEW UNUSED SUMP OR LOW PRESSURE DRAIN PUMPS



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

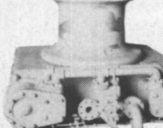
\$2750 EACH

500 GPM BRONZE BUFFALO PUMP



500 GPM @ 100 lb head. Mfg by Buffalo Pump. 5" Suction—4" discharge. MOTOR: 30 HP—240 volts DC—105 amps—1750 RPM. Equal-to-new condition.

LIDGERWOOD STEAM CAPSTAN

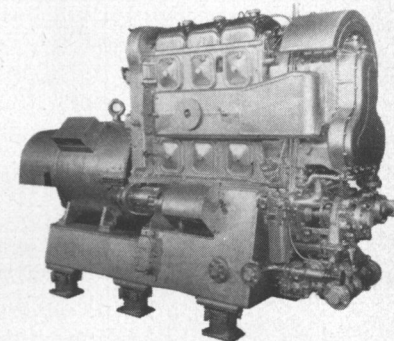


8 X 8—125 lb. working pressure. Reversible.

PLEASE NOTE:

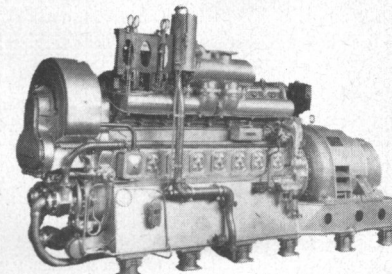
Our Marine Dept. & Warehouse is
250 Scott St. at McHenry — Baltimore

G. M. 3-268A 100 KW A.C. DIESEL GENERATOR SETS



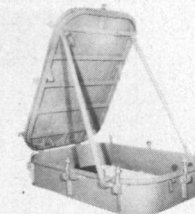
ENGINE: GM 3-268A—6½ x 7—1200 RPM—80% power factor—electric starting. GENERATOR: 100 KW—440/3/60/1200 RPM—161 amps. Dripproof — open — self-ventilated. (Class "A" insulation stator — Class "B" insulation on field). EXCITATION: 2 KW DC unit — 9' 1¼" long — 37" wide.

G. M. 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% power factor at 1200 RPM. Switchgear available.

NEW MARINE HATCHES



Steel galvanized — 30" X 48" — test pressure 5 PSI — 8" coaming — closure is bolt & lug type.

\$695 EACH



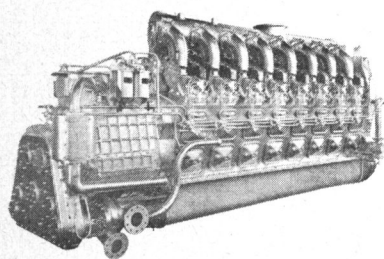
THE **BOSTON**
313 E. BALTIMORE

Main Office: (301) 441-1111
CABLE: BOSIRON—BALTIMORE

now located at
Baltimore, Md. 21230

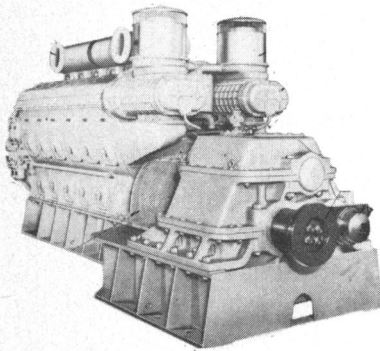
NEW PHONE
(301)
752-1077

G.M. 16-278A 1700 H.P. DIESEL ENGINES



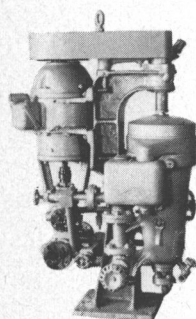
Limited supply remaining
Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

MATCHED PAIR 900 H.P. G.M. 12-567A DIESEL ENGINES with Falk reverse and reduction gears



ENGINE: 12-567A — 8½x10 — VEE type — 2-cycle — 747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse and reduction—2.48:1 forward—2.52:1 reverse.

SHARPLES OIL PURIFIER



Ex U.S.N.—reconditioned—ready to go. Complete with motor starter & pump. For lube or fuel oil. 225 GPH — viscosity 45, SSU @ 100°F fuel oil. 225 GPH—viscosity 180-200 SSU—130° lube oil. For lube oil models M-85-34-5-23BM-44 — for fuel oil M-85-35-5-8CA-13. Bowl speed 17,000 RPM—1" oil inlet & outlet. Vertical 2 HP 440/4/3400 RPM motor. Many units with stainless steel bowls.

\$1650 EACH

IN METALS CO.

ST. • BALTIMORE, MD. 21202

1900 Marine Dept.: (301) 752-1077
MD. U.S.A. TWX 710-234-1637

T-2 EQUIPMENT

Selected Items Listed

UNUSED G.E. MAIN PROPULSION STATOR

Type ATB-2 — serial No. 6978272. 2300/2370 volts — 60/62 cycles — 3 phase — 3600/3720 RPM — amps armature 1237/1315 — 4925/5400 KW — 1.0 P.F.

T-2 UNUSED G.E. MAIN PROPULSION STEAM TURBINE WITH ROTOR

10 Stage — 435# — 720° T.T.
Turbine complete with rotor — serial No. 109166 — 4925/5400 KW — 3600/3720 RPM — 10-stage — 435# — 720° T.T. — 28.5" VAC.

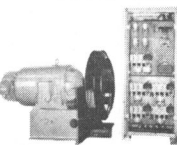
WESTINGHOUSE MAIN PROPULSION STEAM TURBINES

1 unit shrouded
WILL SELL ROTOR SEPARATELY

WESTINGHOUSE MAIN PROPULSION GENERATOR STATOR

From Ex-Pecos — in like-new condition. With A.B.S.

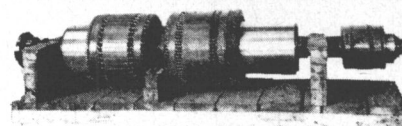
5-SPEED FORCED DRAFT FAN MOTOR WITH IMPELLER



For T-2 Tanker. MOTOR: Totally enclosed—frame 505-S—440/3/60 —1770 RPM—typical serial #673-1807. CONTROLLER: 50 HP — CR-5333-820 — Cat. 932-1485. Max. amps 60.

WESTINGHOUSE 538KW TURBINE ROTORS

WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE



We have both types:
110KW — 32KW — 5.5KW
110KW — 28KW — 5.5KW

SPECIAL OFFER T-2 AUXILIARY GENERATOR ROTORS

G.E. AUX. TURBINE ROTORS
DORV-325M — 5645 RPM
For G.E. 525 KW TURBO GENERATOR SETS



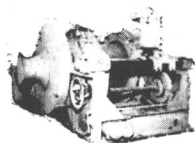
Very little use. In like-new condition. Balanced, and with A.B.S. Certificate.

STATIONARY BLADING AVAILABLE

COMPLETE WESTINGHOUSE
538 KW TURBO GENERATORS
Complete steam end, reduction gear, electrical end. Some units recently overhauled for U.S. Government.

NEW STYLE AMPLIDYNES

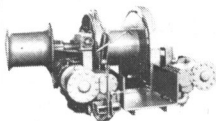
100,000 lb. Almon Johnson Constant Tension Mooring Winches



1 Available. In very good condition. Series 232 mooring & anchoring winches — automatic self-tensioning. Wide range from 100,000 lb line pull at 10 FPM to 26,000 lbs at 400 FPM. Gypsy line pull 12,000 lbs at 125 FPM. Drum declutchable through spiral jaw clutch for free spooling.

Driven by 50 HP — 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab. shunt — 181 amps — max. RPM 1900. Cutler-Hammer brake — 18" — type NM.

STEAM MOORING WINCHES 12" x 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head



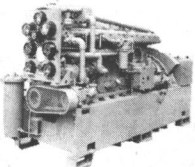
CAPACITY: 20,000 lbs at 100 FPM —first layer; 16,000 lbs at 150 FPM. Drum will show 1500 feet of 1½" wire in 9 layers. Steam inlet 3½"—4" exhaust. Base dimensions 6' x 6' 3½"—overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks—Bremen, Germany. Recently removed from ARCO "Challenger".

ALSO IN STOCK

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

100 KW GBD-8 DIESEL GENs.



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

2 3/4" STUD LINK CHAIN

10 Shots — with connecting links. ABS certificate. Like new. IN STOCK.

VERTICAL DEEP WELL PUMP

750 GPM. All bronze. 333' Total dynamic head radial flow — 6-stage — single suction — CCW rotation. Mfg. by Peerless—model 12LA—84.4 HP. Without motor, but with control panel.

30" MOTOR DRIVEN GATE VALVE

From ex-Navy vessel. Chapman 220/440. Steel, bronze trim.

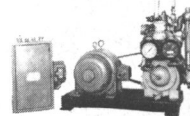
2-POLE MOORING BITTS

Large fabricated size 20" poles—57" centers. Base 80" long X 24" high X 23½" high. ALSO 14" — 12" — 10" bitts.

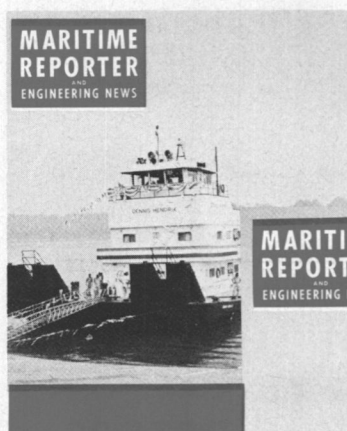
BULKWORK CHOCKS

2 Roller and 3 roller closed chocks

600 LB. DIESEL STARTING AIR COMPRESSOR



Ingersoll-Rand—bronze Navy air starting compressor and motor—4½x1½x3½ type 30—class T—600 lb. discharge pressure. For GM and O.P. Fairbanks engines. CAPACITY: 10 CFM @ 600 lbs.—with intercooler, aftercooler and relief valves. MOTOR: 7½ HP—440/3/60 — 1760 RPM — with magnetic starter. Total weight about 700 lbs. AOL 3' 6"—OAW 20"—OAH 3' 2". Completely overhauled. Can be demonstrated running.



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MONTH
THE
CURRENT
MAGAZINE

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THE ADVERTISING LEADER

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- MARITIME REPORTER CARRIED MORE PAGES OF ADVERTISING IN 1977 THAN THE NUMBER 2 MAGAZINE, MARINE ENGINEERING/LOG.
- THE REASON...THESE ADVERTISERS KNOW MARITIME REPORTER IS THE MOST POPULAR MAGAZINE WITH MARINE MEN WHO BUY...REQUESTED BY THOUSANDS MORE MARINE READERS WITH THE FOLLOWING TITLES THAN ANY OTHER MARINE MAGAZINE IN THE WORLD.

THESE ARE THE BUYERS... READERS WITH THE AUTHORITY TO GIVE BUSINESS TO ALL MARINE ADVERTISERS

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Directors, owners, agents, presidents, vice presidents, managers, secretaries, treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside

SHIPBUILDING, BOAT BUILDING, DRILL RIG BUILDING AND REPAIR COMPANIES

Directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers, purchasing agents, naval architects and chief draftsmen

PROFESSIONAL MEN

Naval architects, engineers and consultants shoreside

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Maritime Reporter...

buyers request it!

**TOTAL CIRCULATION OVER 98% PERSONALLY REQUESTED
...IN WRITING...BY EACH INDIVIDUAL READER**

MARITIME REPORTER has a requested circulation to over 17,500 buying power readers (titles opposite) ... thousands more than any other marine magazine in the entire world including...

MARINE ENGINEERING/LOG • MOTOR SHIP • OCEAN INDUSTRY • OFFSHORE • SEATRADE • SEA TECHNOLOGY • WATERWAYS JOURNAL • WORK BOAT •

Here are the reasons your marine advertising belongs in the leading magazine, MARITIME REPORTER... where it works harder ... covers your entire market ... to produce more sales for you.

LARGEST REQUESTED CIRCULATION TO BUYERS — Worldwide, MARITIME REPORTER is requested, in writing, by thousands more marine men who specify and buy than *any* other marine magazine in the entire world.

LARGEST U.S. REQUESTED CIRCULATION TO BUYERS — Throughout the entire United States ... MARITIME REPORTER is requested by thousands more shoreside buyers than *any* other U.S. marine magazine.

LARGEST NUMBER OF ADVERTISERS — In 1977, a larger number of advertisers used MARITIME REPORTER than used the second magazine, Marine Engineering/Log.

MOST ADVERTISING SPACE — In 1977, MARITIME REPORTER carried more pages of advertising (7" x 10") than the second magazine, Marine Engineering/Log.

400,000 FREE DIRECTORY LISTINGS — Regular display advertisers in MARITIME REPORTER receive a free listing — company name and address — in the buyers directory section in all 24 issues for one entire year ... whether an ad appears in every issue or not. No other marine magazine gives you this continuous sales-building exposure.

LOWEST COST — Why pay more ... MARITIME REPORTER's advertising rates are the lowest, cost per buyer, in the entire industry.

MORE BUYING POWER READERS

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**MARITIME
REPORTER**
AND
ENGINEERING NEWS

Raymond Subsidiary Awarded \$10-Million Contract In Venezuela

Corporacion Raymond S.A., a subsidiary of Raymond International Inc., 2801 South Post Oak Road, P.O. Box 22718, Houston, Texas 77027, has been awarded a contract of about \$10 million by Estructuras Venezolanas to design and construct a marginal

wharf in Guanta, Venezuela, said Henry F. LeMieux, chairman and president of the parent company.

Raymond Offshore Constructors will design the facility and then mobilize the marine and pile-driving equipment necessary to drive the prestressed concrete cylinder piles required to support the general cargo wharf. The current project is an extension of the existing complex.

The 36-inch-diameter cylinder piles will be manufactured by Consorcio Raymond-Brown & Root, a Raymond-sponsored joint venture, in a concrete manufacturing plant located at Maracaibo, Venezuela. The concrete piles will then be barged to the project site for installation. Precast concrete caps and deck slabs for the project will be manufactured at a yard to be built at the job site in Guanta.

Construction of the wharf is scheduled to begin soon, and is expected to be completed in late 1979.

Raymond International and its subsidiaries have been active in Latin America for more than 50 years. More than 1,000 marine structures have been installed in Lake Maracaibo, Venezuela, by the Raymond-sponsored joint venture. These structures include a gas conservation platform; a flow station nearly twice the size of a football field, and many single-column drilling and conductor platforms.

Another Raymond subsidiary, Kaiser Engineers, Inc., is involved in the \$4-billion expansion of what is expected to be the world's largest direct reduction steel complex at Puerto Ordaz, Venezuela.

Raymond International Builders Division currently is improving and expanding port facilities at Guayaquil, Ecuador, under a contract with a value of about \$60 million. The original port facilities there were built in the early 1960s by Raymond.

"The Zone is developing a unique characteristic, as most merchandise is shipped out to foreign countries rather than being imported into the United States. This is the opposite to other zones, as most of the shipments are sold to customers in this country."

The Port began Zone operations in a 47,000-square-foot warehouse in Dania last July. It will move into new quarters in the Port this month. The new Zone, which cost almost 3 million dollars to construct, will have two buildings totaling 140,000 square feet of warehouse space and 15 acres of land ready to lease for building by Zone users. Fourteen companies have already signed leases for space in the warehouses, and about 20 other companies are using the Zone through its public warehouse facility, which does not require them to lease space from the Port.

Canadian Shipbuilding Production Summary For First Six Months

Deliveries of vessels by member yards of the Canadian Shipbuilding and Ship Repairing Association in the first six months of 1978 totaled 22 with an estimated gross tonnage of 97,161. This compares with 12 vessels and a gross tonnage of 74,380 in the same period of 1977. The 1978 tonnage represents an increase of 30.6 percent over 1977. Deliveries of bulk carriers accounted for most of this increase.

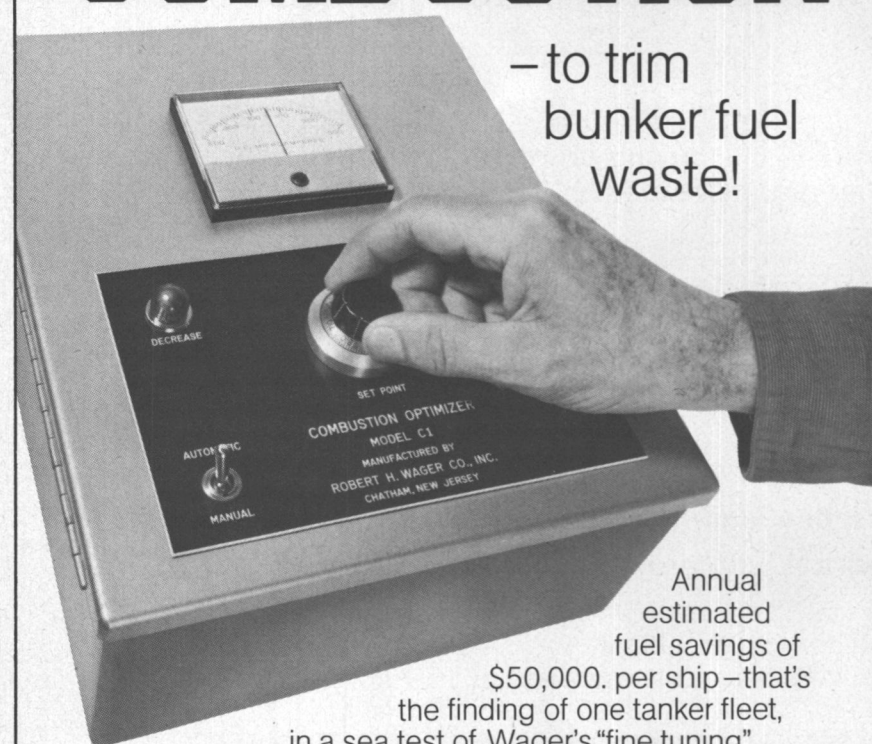
Vessels under construction at the end of June 1978 totaled 44 with a gross tonnage of 347,961, a drop of about 19 percent from the year before in terms of tonnage.

The value of new construction in Canadian shipyards in the first half of 1978 at \$169,350,000 was 6.8 percent higher than in the same period of 1977, an increase somewhat less than the jump in material costs over the period. Value increases were substantial in the West Coast and Great Lakes areas (82.5 percent and 43.7 percent, respectively), but were largely offset by value decreases in the St. Lawrence and East Coast areas. Construction on behalf of the Federal Government as a proportion of the total dropped from 14.4 percent in the first six months of 1977 to 10.4 percent in the same period of 1978.

The value of repair and conversion work carried out by member yards increased in total by 16.7 percent over the periods under review to a figure of \$70,504,000. Again, the most notable increases occurred in the West Coast and Great Lakes areas. Government work during the current period constituted 29.3 percent of the total value as compared to 19.7 percent in the same period of 1977.

"FINE TUNE" COMBUSTION

—to trim
bunker fuel
waste!



Annual estimated fuel savings of \$50,000. per ship—that's the finding of one tanker fleet, in a sea test of Wager's "fine tuning" Combustion Optimizer.

This new Wager electronic device makes every drop of fuel oil count. It automatically maintains "fine line" boiler efficiency by accurately tuning the air-fuel ratio controls—and the dollar savings add up.

It's a simple device. All you do is preset your boiler for optimum combustion. The Wager Combustion Optimizer takes over—and continuously monitors the boiler exhaust gases and periodically trims the air-fuel ratio to maintain optimum combustion at its predetermined setting.

The Wager Combustion Optimizer is supplied as illustrated, for tie-in to existing boiler read-out equipment such as a smoke indicator or oxygen analyzer.

Either way, with fuel oil in diminishing supply—at ballooning cost—this is a fuel-saving device whose time has come.

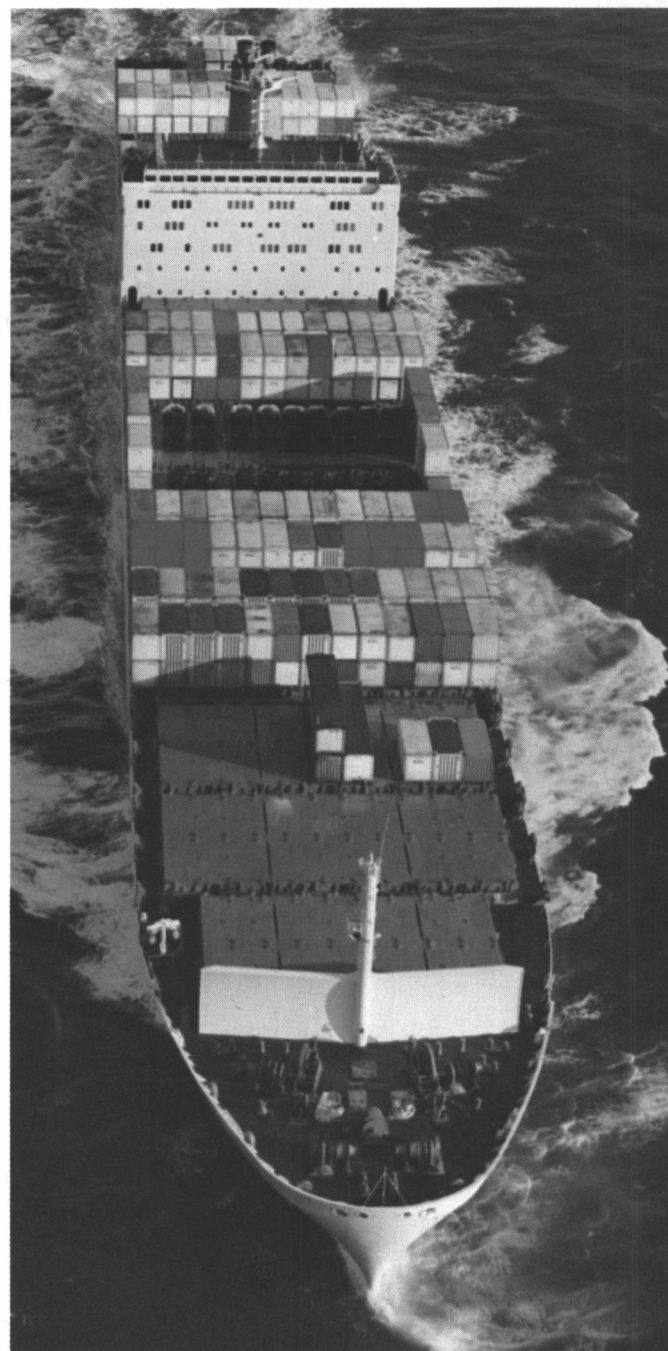
Technical Bulletin C1, Wager Combustion Optimizer, gives you all the facts. Write for it.

WAGER ROBERT H. WAGER CO., INC.
PASSAIC AVENUE
CHATHAM, NEW JERSEY 07928 USA
(201) 635-9200

Port Everglades Foreign Trade Zone Expansion Approved

The U.S. Department of Commerce has approved Port Everglades' request to expand the Foreign Trade Zone from 30 to 82 acres. Commissioner Fred J. Stevens, senior member of the Port Commission, stated: "The 52-acre expansion area makes Port Everglades the largest Foreign Trade Zone in Florida." Commissioner Stevens also stated: "The original 30 acres of the Zone should be filled with one and a half million square feet of building floor space within three years, which could mean about 200 new jobs in Broward County. We expect the additional 52 acres will be developed by 1985, and there should be over 700 people working in the Zone by then."

The Port's Zone is the first such facility authorized in Florida, and is the only operating Zone in the state. During the past year, more than 30 companies have used the Zone as a transshipment point to distribute merchandise from the Far East and Europe to South and Central America, and only about 10 percent of the merchandise handled has entered the United States. Commissioner Stevens stated:



MacGregor muscle

MacGregor. Giving you power to move cargo on and off ships faster. Using every new technique to streamline loading methods and cut time in port. MacGregor cargo handling expertise

has been applied to every kind of dry cargo ship afloat. Custom-built or converted. Backed by a service network covering every major maritime nation.

MacGREGOR
Cargo transfer and access equipment

The entire resources of the International MacGregor Organisation are available to the United States maritime industry through:
MacGregor Comarain Inc., 135 Dermody Street, Cranford N.J. 07016. Telephone: 272 8440 Telex: 138618

Marine Concrete Structures Delivers First 2 Platforms From New Dock Facility

Marine Concrete Structures, Inc., Metairie, La. 70004, has delivered the first two offshore production platforms from its new graving dock facility at the firm's Port Bienville Yard, Don Payne, president, announced.

The graving dock, 155 feet in width, is the widest facility of this type along the entire Gulf Coast from Texas to Florida, and including the Mississippi River System. It was specially designed to this width by the firm's engineering staff in order to accommodate new construction of concrete gravity structures of unusual dimensions for use in offshore waters, Mr. Payne pointed

out. It can also provide full dry-docking of semisubmersible drilling rigs up to 155 feet for inspection and repair.

Known as the Robertson L. Belden Graving Dock, the new facility was named after the founder and chairman of the company. Mr. Belden is a pioneer in the development of precast, prestressed concrete structures used by the oil and gas industry

in the Gulf of Mexico. Presently, there are over 400 structures built by the company in use in coastal areas, Mexico and Venezuela as production platforms, tank batteries, and oil-water separators.

Mr. Payne said the addition of the graving dock to its Port Bienville Yard will add an additional 100 jobs to its basic payroll. This figure will expand as new construction projects are started in the graving dock.


The Marine Concrete Structures yard at Port Bienville, Miss., is the largest constructor of concrete gravity structures in the United States.



How to Treat Shipboard Potable Water: *Suspiciously.*

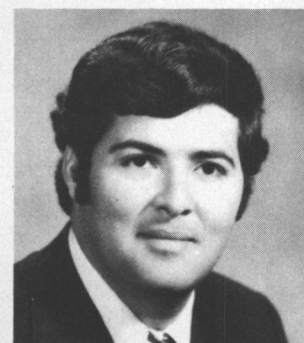
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Waukesha Engine Names Hernandez Area Manager Mexico/Central America



Jaime M. Hernandez

Jaime M. Hernandez has been named Mexico and Central America area manager for Waukesha Engine Division, Dresser Industries, Inc., Waukesha, Wis. 53187.

In this position, he is responsible for promoting sales and developing a distributor organization in Mexico and Central America. Mr. Hernandez joined the division in 1974, and has been in charge of the Mexico City field sales office since that time.

A 1966 graduate of the U.S. Merchant Marine Academy, he holds a Bachelor of Science degree in marine engineering.

Waukesha Engine Division makes heavy duty diesel and gas engines for the petroleum, marine, off-highway equipment and power generation markets.

Comet Marine Named By The Air Power Group Of Joy Manufacturing Co.

John Perez, general manager of Comet Marine Supply Co., New York, N.Y., has announced the appointment of Comet as marine distributor for the Air Power Group of Joy Manufacturing Company, covering Joy Industrial Equipment Air Compressors and Accessories.

Comet Marine Supply Co., 155-157 Perry Street, New York, N.Y. 10014, is one of the industry's largest suppliers of a wide range of marine deck and engine supplies, including pump parts, instruments and other spare parts.

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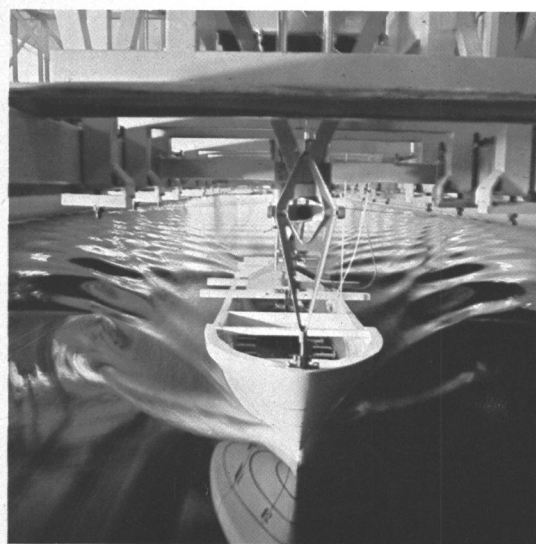
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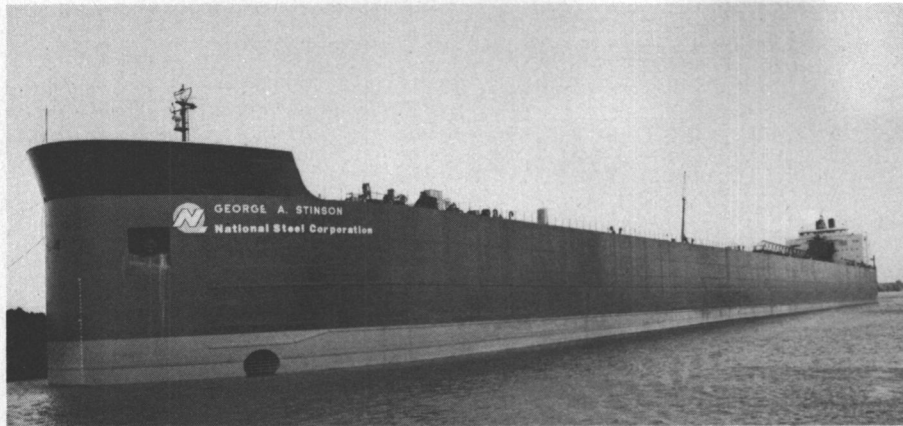
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The 1,000-Foot M/V George A. Stinson Joins National Steel's Fleet Of Ore-Carrying Vessels



Designed and built by the AmShip Division of American Ship Building Company, the M/V George A. Stinson has a capacity to transport 59,000 tons of iron ore pellets.

The M/V George A. Stinson, the first 1,000-foot super ore carrier in National Steel Corporation's Great Lakes fleet, was christened in Detroit, Mich., on August 21 by Mrs. George A. Stinson, in honor of her husband who is chairman of National Steel.

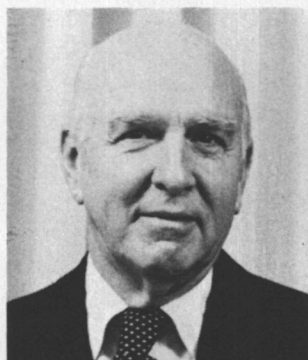
She broke the traditional bottle of champagne against the bow of the huge, self-unloading vessel as several hundred invited guests looked on to join in her wish of "Godspeed and good luck," in ceremonies at the Downtown Detroit Riverfront.

In remarks at the ceremony, chairman Stinson pointed out that "in a larger sense, the vessel signifies an important commitment by National Steel to modernize and remain competitive in the world business community. At a time when we have seen foreign ships use these same waters to unload steel in the American market at illegal prices, this highly sophisticated vessel is another example of the plain fact that our equipment is as modern and competitive as in any other steel operation overseas.

"And, although I am very proud to have this vessel bear my name, I would like to dedicate it to all people in the Detroit area: to the many thousands of past, present and future employees of the Great Lakes Steel Division who convert iron ore and coal into steel . . . to our many customers in the Detroit area who make cars and other products people need . . . to the many city officials in Detroit and also in Ecorse and River Rouge, where our Great Lakes Steel operations are located . . . to our many suppliers . . . and to our many friends throughout this area who have encouraged us over the years."

Howard M. Love, National's president, said in his remarks opening the ceremony that "this christening is especially significant since it conveniently comes at a time when National Steel is experiencing a 'new birth' in its business life.

"In the past five years alone, it is interesting to note that National has invested more than one billion dollars in its plants and



George A. Stinson

equipment. This program has enabled us to modernize our plants and to increase our steelmaking capacity by more than two million tons per year."

Designed and built by the AmShip Division of American Ship Building Company, Lorain, Ohio, the M/V George A. Stinson has a length overall of 1,000 feet, a beam of 105 feet, depth of 50 feet, and a draft of 28 feet. She will be operated by The Hanna Mining Company of Cleveland, Ohio, manager of National Steel Corporation's Great Lakes vessels.

The ore carrier will transport about half of the 5.8 million tons of iron ore pellets being produced yearly at the newly expanded National Steel Pellet Plant at Keewatin, Minn., destined primarily for National's Great Lakes Steel and Weirton Steel Divisions. She has a capacity to transport 59,000 gross tons of iron ore pellets, at maximum summer draft, or 52,000 net tons of coal, at a full-load speed of 15.8 mph.

The M/V George A. Stinson has the largest carrying capacity in National Steel's fleet of Great Lakes ore-carrying vessels, and is one of the most efficient self-unloading type vessels of its kind, utilizing two belts under the cargo hold hopper bottom. It is equipped with a 260-foot-long unloading boom, operable on either side of the 105-foot beam of the boat. Using its loop belt system, the super ore carrier can unload its maximum 59,000-ton-capacity cargo at the rate of 10,000 gross tons of pellets or 6,000 net tons of coal per hour.

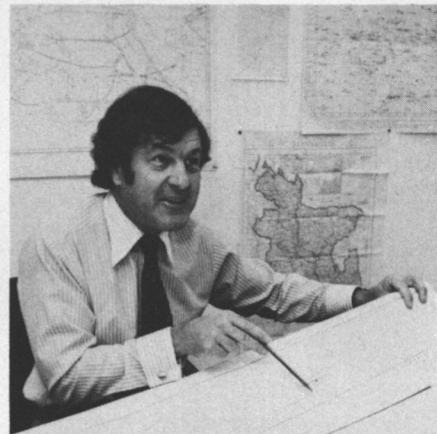
Propulsion, navigation, environmental, and safety equipment also

are all of the latest design. Powered by twin diesels producing 16,000 hp, her twin rudders, twin controllable-pitch propellers, and a 1,500-horsepower bow thruster all assist in safe maneuvering. A dual radar system, one forward and one aft, aids in night and poor visibility navigation. Her covered motorized lifeboat is the first on the Great Lakes.

Australian Designs Fast 1,600-Ton Containership With Crew Of Only Five

An Australian naval architect has designed a fast, short-haul containership of nearly 1,600 tons which has a crew of only five men.

He is Warwick Hood of Sydney, who said the ship, equipped with the latest technological aids, could be managed by a crew of only two.



Warwick Hood with a design of his ship.

Mr. Hood said there was nothing revolutionary about the equipment. "All the ingredients we have used are readily available. Only the recipe is new."

Mr. Hood, a designer of racing yachts including Australia's 1967 America's Cup challenger Dame Pattie, was commissioned to design a vessel for a fast service covering 200 miles across Bass Strait between the mainland and the Australian island State of Tasmania.

With the design completed and a model tank-tested, negotiations are now going on for construction of two of the 308-foot ships at a cost of about \$A6,000,000 each.

Each carrying 74 containers stacked two-high on deck and no cargo below deck, they would operate daily round trips between terminals.

With twin lightweight diesel engines providing a speed of 22 knots, they would make two nine-hour crossings with two hours at each end for loading and unloading, servicing, refuelling and crew change, and a one-hour margin "for the unexpected."

"With the planned level of automation, all functions could be handled with a crew of five—a master, two navigation officers and two engineering officers," Mr. Hood said.

"The ship will be controlled

entirely from the air-conditioned wheelhouse where ergonomically laid-out controls such as radar, compasses and machinery surveillance systems will give the crew virtually an armchair ride.

"There will be no one in the automated engine room. There will be no seamen because their traditional functions have been eliminated or replaced by automatic or remote-controlled devices.

"For example, there are no ropes to tie, there is no cargo-handling gear on the ship, and there are no hatch covers because the containers are all on deck. The containers don't need to be lashed down because they fit into a full-height cell guide structure built on the deck."

A mooring arrangement has been developed whereby hydraulic arms controlled from the wharf would link the ship to the wharf in a precise location. Container cranes could be positioned to begin immediate unloading.

"This type of operation can only operate successfully between two purpose-built terminals with mooring facilities and cranes organized specifically for the ship," Mr. Hood said.

The ship would be equipped with a wide array of technological aids, including satellite navigation equipment, situation display radar, weather facsimile receiver to print out instant weather maps, automatic pilot and equipment to operate and monitor all engine-room functions.

Normally, a ship of this size would carry about 16 crew.

In the accommodation area would be rest rooms with beds, television lounge and an aircraft-type galley stocked with prepared meals at each port.

"A lot of people said we were doing something revolutionary, which made me angry, and there was a lot of resistance to the project on that basis," Mr. Hood said.

"It is unusual in a number of respects, but there is nothing new in the level of technology used to achieve it. What we are aiming for is a very professional kind of seagoing operation."

For additional information, contact Geoff Dixon, Australian Information Service, 636 Fifth Avenue, New York, N.Y. 10020.

New Armco Bulletin On SEALOY Boat Shaft

A new bulletin, "Armco SEALOY Boat Shaft," describes the composition, mechanical properties, tolerances and machinability of SEALOY Boat Shafts. SEALOY is now offered by Armco, in addition to AQUAMET 17, AQUAMET 18 and AQUAMET 22 shafting.

For a copy of the bulletin, write to Edward E. Wilkinson, Armco Inc., Dept. LA-4278, Middletown, Ohio 45043.

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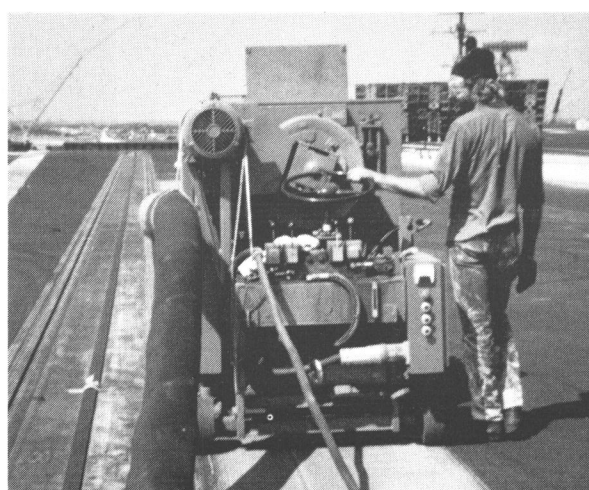
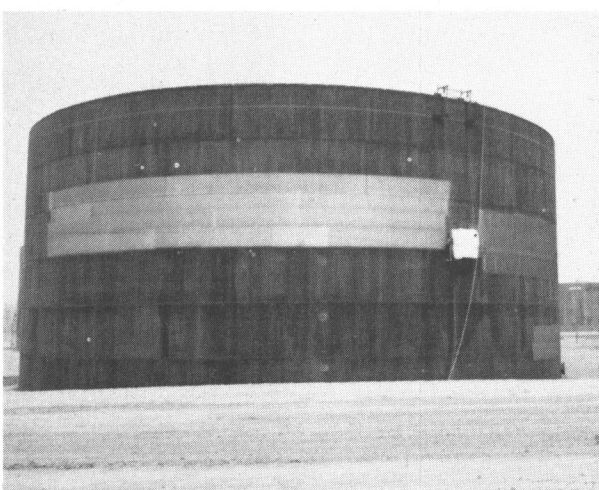
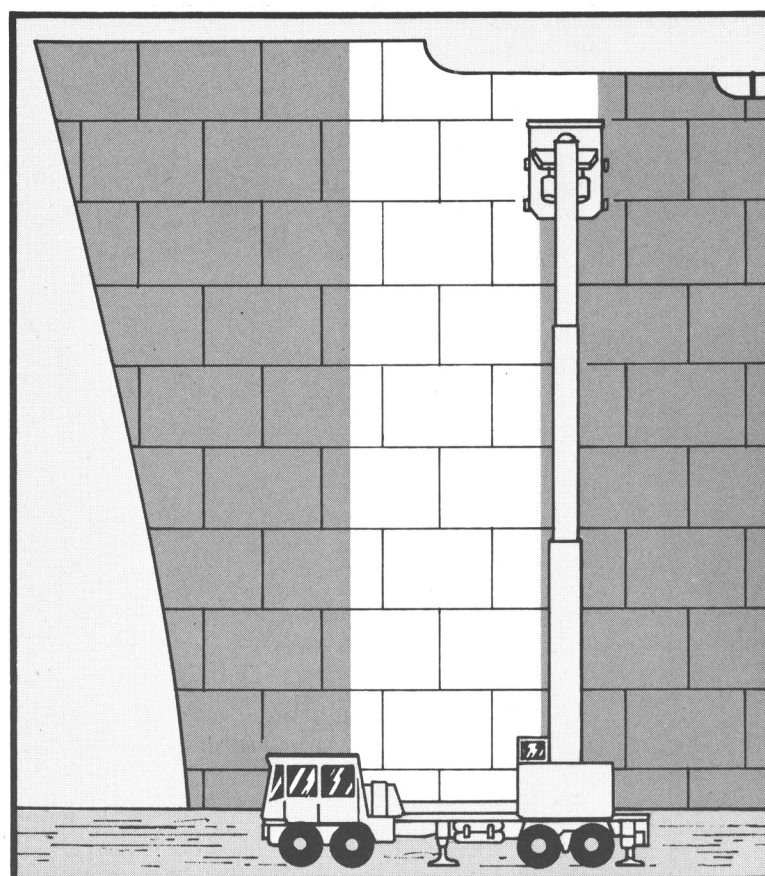
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PORTA-SHOTBLAST's new Hull Blaster is operated from a 35-ton, 80-foot mobile boom truck.

Nelco holds five equipment patents in 16 countries.

License rights for manufacturing and contracting are available.



*For more information:
Stop by and talk with us at the Kuwait Convention, Oct. 20-25.
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Surface Preparation Costs Reduced By Porta-Shotblast

An Oklahoma City company has combined the principles of the shotgun and the vacuum cleaner in the development of a machine that economically prepares surfaces for painting by blasting with steel shot or grit, then recirculating the shot for continued use.

The Porta-Shotblast units come in a variety of sizes and types and have a broad range of applications in *marine industries*. A number of factors contribute to the system's significant reduction of the painting preparation costs as compared with those costs in conventional sand blasting.

Developed by Nelco Manufacturing Company, the units are available for horizontal or vertical use, producing a uniform near-white or white surface.

Actual job studies show the equipment prepares three times more square feet an hour than conventional blasting methods. Since the steel shot and grit are recirculated, costly waste removal is eliminated, as is constant cash outlay for new blasting material.

The units give shipyards quicker turnaround time and also allow work to continue by neighboring crafts. With conventional blasting, abrasive material and surface scaling cloud the area and make other work—particularly painting—difficult.

Only two to three men are needed to operate a Porta-Shotblast unit, compared to six to twelve for a comparable production rate with other blasting systems.

Workmen operating the units need no special safety equipment, only protective goggles and hard hats.

The horizontal units move across the surface on wheels. Vertical units either are suspended from the top of a structure and are remote-controlled, or they are lifted and moved against a surface by a boom truck.

Vertical units eliminate the need for scaffolding. Workmen on the ground control the units, providing another safety factor.

Power sources include electric, hydraulic (with diesel) and an electric-diesel combination. The steel abrasive is thrown against the surface by a spinning wheel, then reclaimed, separated from residue and returned to the wheel supply hopper.

Porta-Shotblast units already have been used by the U.S. Navy for surface preparation on a number of ships, including helicopter decks and aircraft carriers. Units are also in use in the petroleum industry for preparing large capacity storage tanks and other metal surfaces.

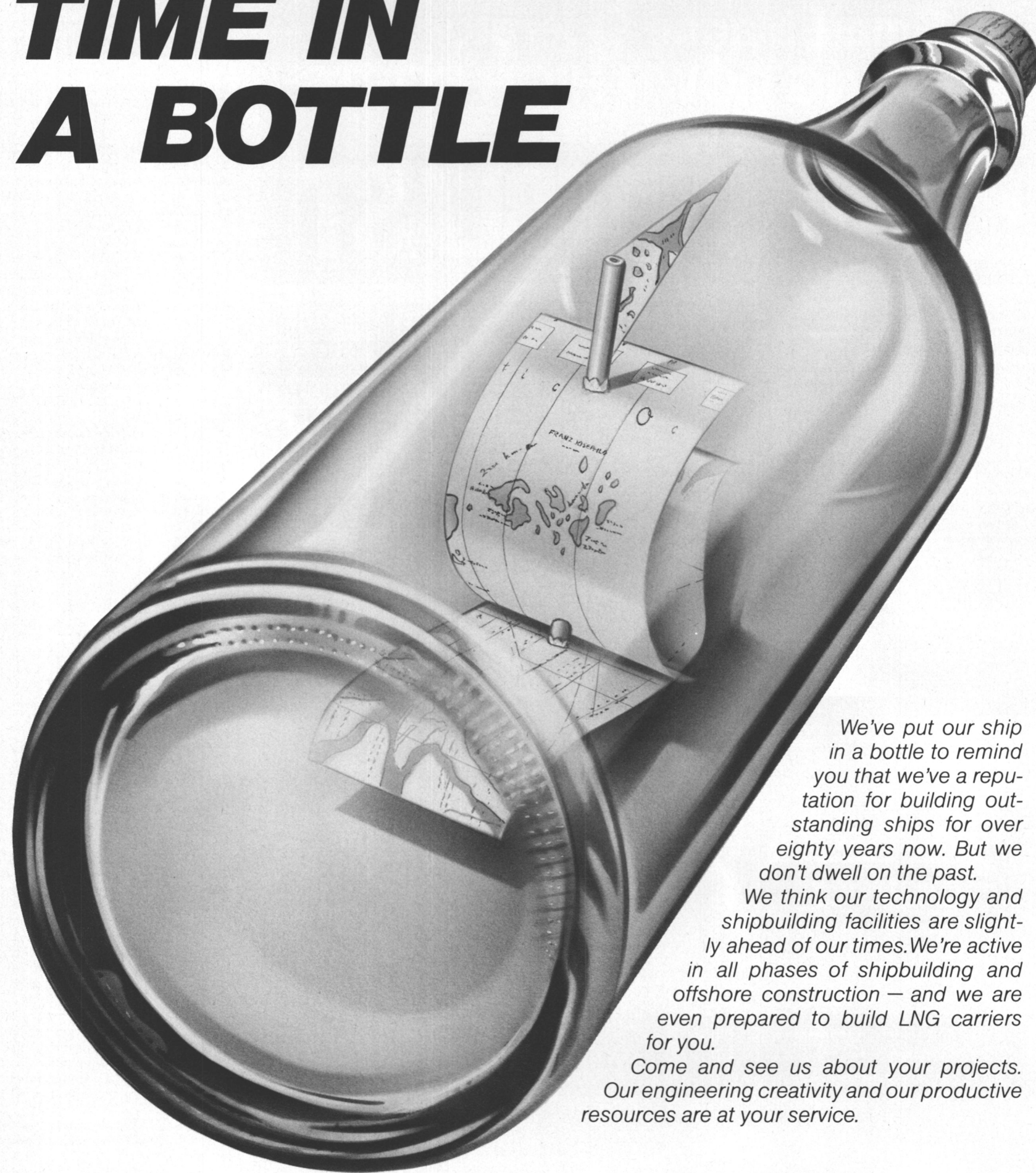
In addition, they have been blasting surfaces for skid protection, rubber and oil removal and stripe cleaning. One horizontal model, with slight modifications, can fit through a 3 x 4 foot "manway" to clean the bottom of tanks or other compartments.

Completely self-contained, even the largest unit can be transported on a two-ton truck.

Nelco Manufacturing Corporation is one of the nation's largest builders of deck and hull surface preparation equipment.

Porta-Shotblast equipment can be purchased, leased or acquired on a lease-purchase arrangement. For more information, contact...R.T. Nelson, Nelco Manufacturing Corp., P.O. Box 763 Oklahoma City, OK 73104 or Lester J. Zaleski, GMMC/Porta-Shotblast, 1112 Davidson Road, Nashville, TN 37205.

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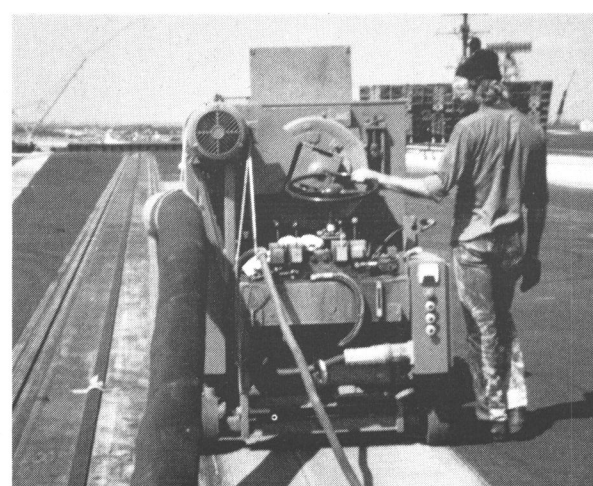
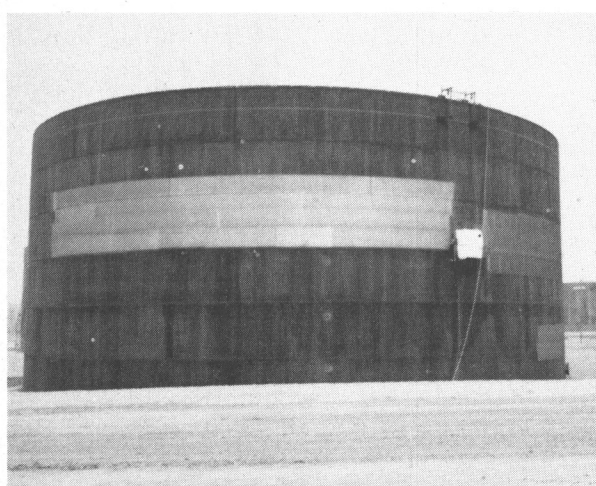
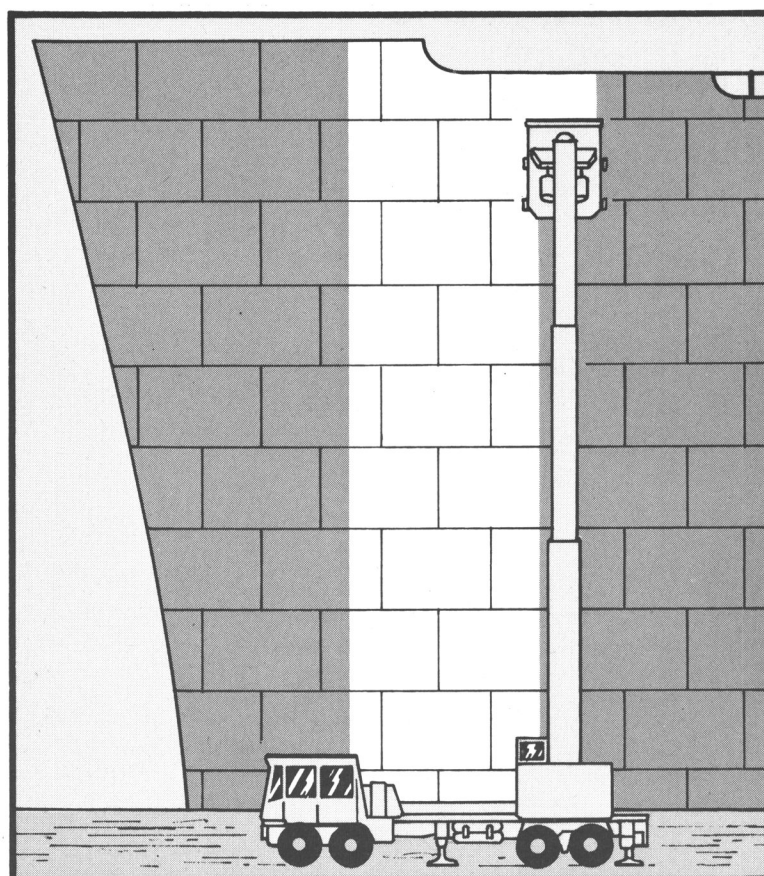
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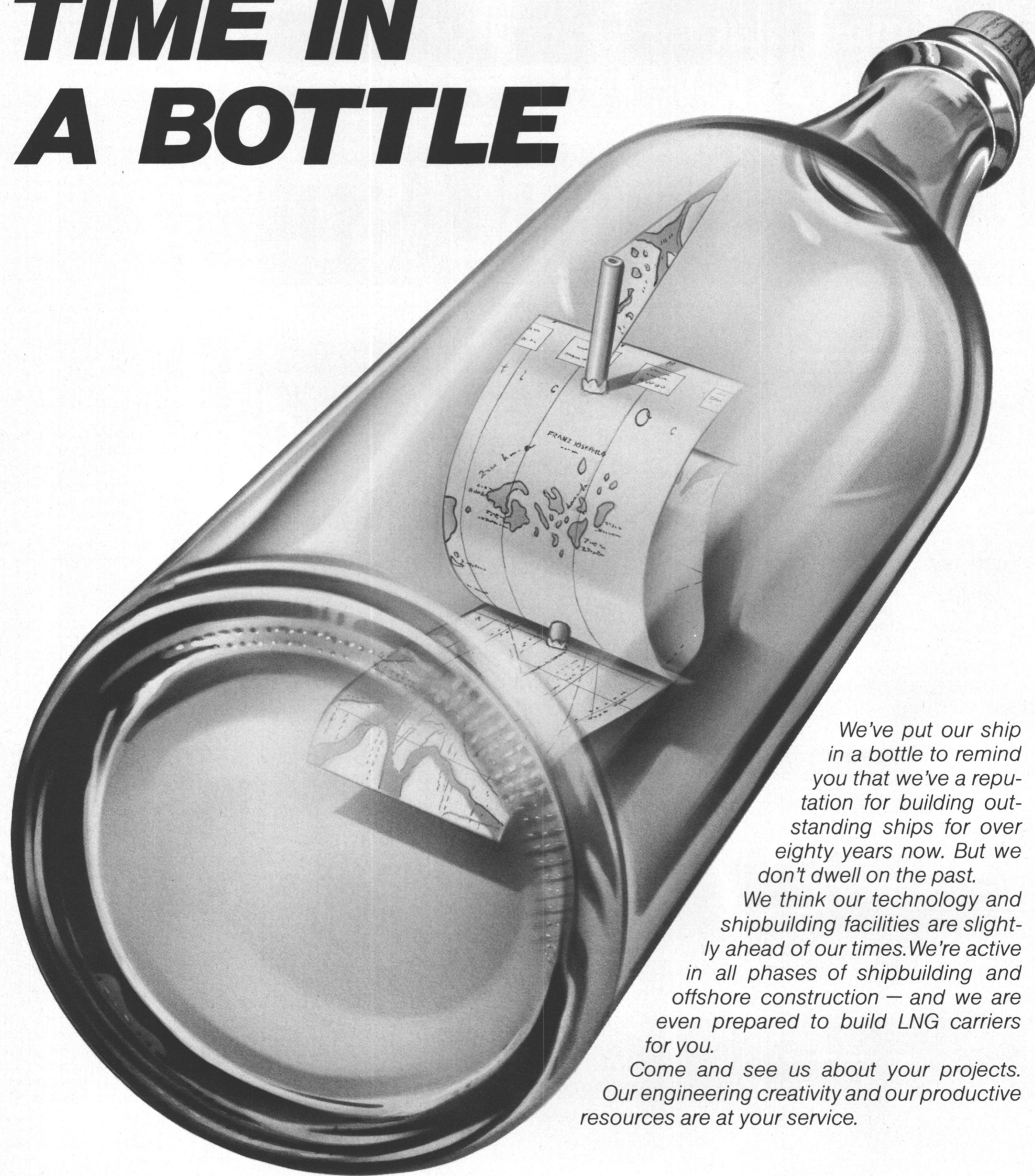
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**SNAME Gulf Central Section
Told How A Load Line
Assignment Is Obtained**

The 30th Annual Summer Meeting of The Society of Naval Architects and Marine Engineers (SNAME) Gulf Central Section was held at the Saxony Restaurant in New Orleans, La., on July 27, 1978.

Prior to the technical session, **William W. Hamilton**, SNAME Gulf Section chairman, presented certificates of appreciation to **Sal Guarino** for his outstanding service as vice chairman of the Gulf Central Section of SNAME for the past two years.

Following the awards, the technical paper of the evening, entitled "Procedure for Obtaining a Load Line Assignment," was presented to a capacity crowd of members and guests from as far away as Cincinnati, Ohio. The guest speakers and authors of the paper were **Ralph Martin**, principal surveyor, Hull Technical, American Bureau of Shipping, New Orleans, and Comdr. **Daniel F. Bobeck**, Chief, Merchant Marine Technical Branch, United States Coast Guard, New Orleans.



Shown above during the Summer Meeting of the SNAME Gulf Central Section are, left to right: Comdr. **Daniel F. Bobeck**, author; **Sal Guarino**, Section vice chairman, and **Ralph Martin**, author and Papers chairman.

The paper presented a comprehensive picture of how a load line assignment is obtained. The role and requirements of the U.S. Coast Guard and ABS were explained by each author. As stated in the paper, its purpose was to present a step-by-step procedure which, when followed, should ensure a load line assignment on or before the time the vessel is ready to go to work. The authors responded to questions from the audience, following their presentation.

The next meeting will be on the evening of October 12, 1978, when the topic of discussion will be "Developments in Underwater Welding."



September 15, 1978

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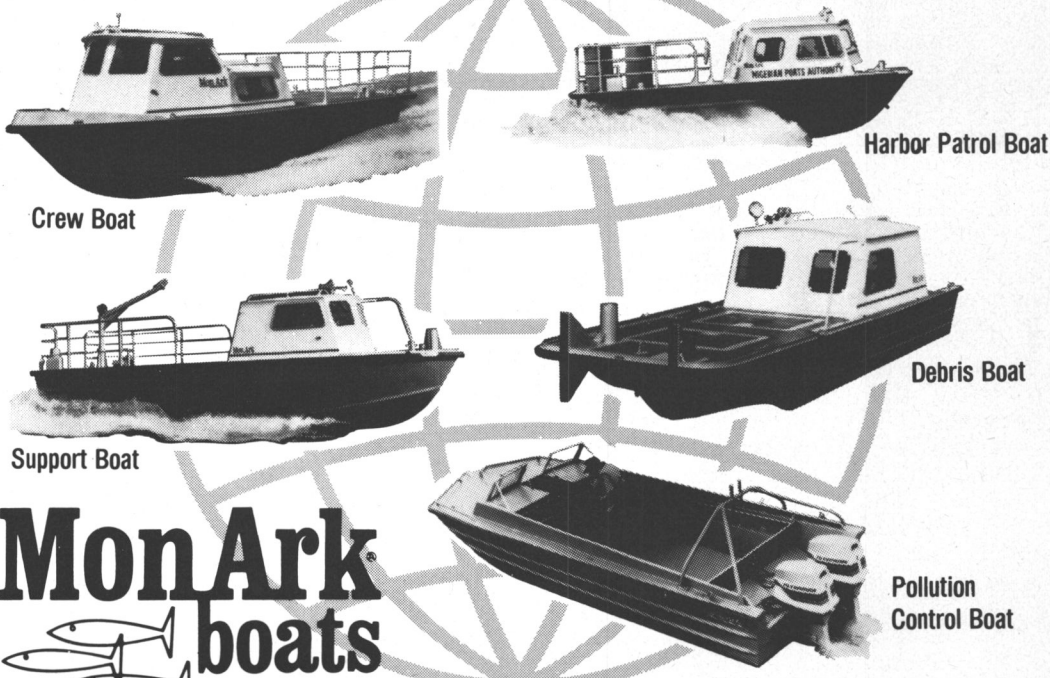
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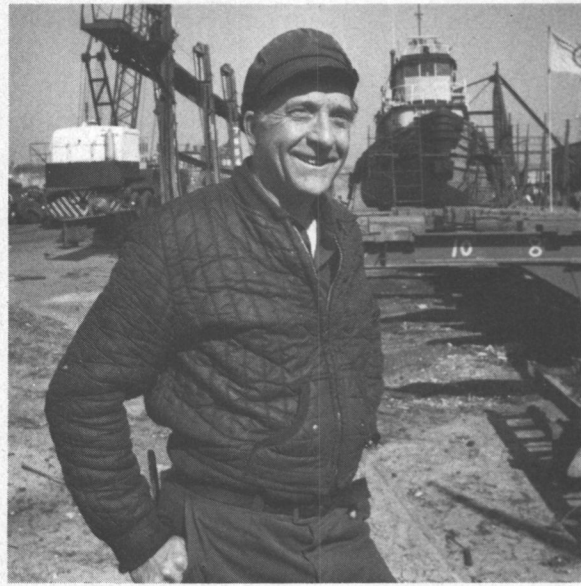
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Repairing Vessels Since 1834, Camden Ship Repair Company Starts \$4-Million Expansion

The Camden Ship Repair Company, a shipyard which has been repairing vessels since 1834, has recently invested a million dollars in purchasing and reconditioning a 700-ton floating drydock. This facility can accommodate ships up to 160 feet in length and 60 feet in beam. The drydock is part of an ambitious growth program, designed to bring the shipyard back to its World War II prominence.

At that time, the yard was known as the Mathis Shipbuilding Corporation. It employed upward of 1,200 workers, who launched one minesweeper every 30 days. Today, the accent at the yard is on ship repair, which is handled by a much smaller number of skilled marine craftsmen, most of whom have over 20 years of ship repair experience.

According to Joseph G. McCann, president, the floating drydock is part of a \$4-million proposed expansion program. He says that the completed expansion could result ultimately in an increase annual gross sales of 1,000 percent.



Silhouetted against a marine background in the Camden Ship Repair Company, Camden, N.J., Lawrence (Bob) Humes, youngest in a family of 15 children, is a third generation dockmaster in this 144-year-old shipyard who "lives" at the yard. His grandfather was dockmaster from 1860 to 1897, and his father was dockmaster from 1897 to 1952.

Located at Cooper's Point on Camden's north shore, the company has the good fortune of being the only commercial repair yard along the Delaware River, and the only one between New York City and Baltimore, Md. Presently, it repairs and maintains 240 to 270 vessels. The floating drydock is expected to double this number. Current facilities at the yard include a 700-ton-capacity marine railway which can hold ships 250 feet in length, a 50-ton-capacity marine railway for crafts up to 50 feet long, two working piers, and fabricating, machine, pipe, paint, electrical, diesel and sheet metal shops.

In addition to the drydock, Mr. McCann has also outlined other parts of the Camden Ship Repair Company expansion program. Upon completion of some dredging by the Army Corps of Engineers in the Delaware River's "back channel," Mr. McCann is planning to have 35,000 cubic yards of silt dredged from the company's docks. This dredged material will be used to fill in an area between the piers after bulkheads are in place. Two piers will also be restored as working areas, thus creating an additional

1,000 feet of berthing space. Simultaneous with the dredging, landfill and bulkhead improvements, will be the installation of a 2,400-ton-capacity marine railway and related facilities. A 50-ton-capacity mobile crane will also be brought in to supplement the shipyard's two 35-ton-capacity mobile cranes now in use.

The bulk of the Camden Ship Repair Company business presently draws from East Coast shipping. However, as a result of its aggressive expansion program, the company expects to attract repair business from shipping outfits in the Midwest and Gulf of Mexico. It also will service the support vessels for the offshore oil rigs in the Baltimore Canyon off the New Jersey-Delaware Coast. Says Mr. McCann: "If everything works out as planned, even though the Camden Ship Repair Company saw its heyday in World War II, it might still experience an even greater history-making feat in the very near future."

API President Suggests That Oil Firms Should Participate In Solving U.S. Energy Dilemma

The president of the American Petroleum Institute said that oil companies should be participants in solving the nation's energy dilemma because government, on its own, lacks the expertise needed to develop and implement energy policies.

The suggestion came from Frank N. Ikard, who spoke in Tulsa, Okla., on August 29 at the U.S. Department of Energy's fourth annual symposium on enhanced oil and gas recovery and improved drilling methods.

"Government," Mr. Ikard declared, "simply doesn't have the expertise to develop, on its own, the policies needed in the future."

As an example, he cited government policy on enhanced oil recovery programs, which use such things as steam, pressurized water, and chemicals to bring more oil to the surface.

Mr. Ikard told his audience of oil recovery experts that "you know better than anyone else in this whole country how much we need to rely on enhanced oil recovery to meet our energy needs."

"Put quite simply, we have no hope of closing the impending energy gap in this country without pushing ahead strongly on enhanced recovery development."

"Yet a new program now in the making—the National Energy Supply Strategy—places most of its emphasis on synthetic fuel development. If implemented along the lines it's now taking, the supply strategy program will not help enhanced recovery at all."

Mr. Ikard pointed out that a recent study by the National Petroleum Council showed that an additional 900,000 barrels a day of crude oil could be produced by "tertiary" enhanced recovery operations by 1985, "if all domestic oil prices were decontrolled."

He said that although the Federal Government has received a tremendous amount of information on energy problems, it has accomplished very little in the way of solutions.

"Three American presidents in a row have initiated studies—and have offered programs," Mr. Ikard noted. "The energy problem qualifies, at this point, as one of the most thoroughly analyzed problems in American history."

"The amount of data that has been collected is awesome. In recent years, no fewer than 50 Federal departments and agencies, and 100 Congressional committees and orga-

nizations, have been gathering information on energy.

"So there certainly is no information gap. We understand the problem, and we've every possible solution. When we turn to what has actually been accomplished, however, we find — unfortunately — very little."

SNAME Chesapeake Section Names Executive Committee

The Chesapeake Section of The Society of Naval Architects and Marine Engineers has announced its officers and Executive Committee members for the 1978-79 season, as follows:

Walter E. Schmid, chairman; Dr. James Lisnyk, vice chairman and Papers Committee; Frank Slyker, secretary-treasurer; Thomas Robinson, Alexander Landsburg and Capt. John William Kime, elected members; Robert Scott and Richard Ralph, Meetings; Dr. N. Salvesen, Sailing Yacht Symposium; Dr. David Moran, Public Relations; Capt. Richard Gauthey, Membership; Ralph Johnson, Technical and Research representative; Roger Compton, Education; Jack Abbott, Awards; John Buck, Sections, and Dr. Reuven Leopold, past chairman.

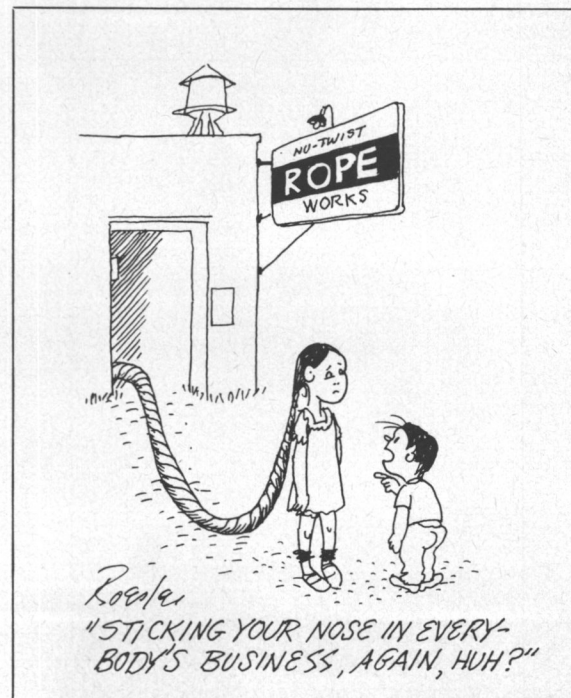
Cargos Unlimited Announce Cargo Transfer Vessel And Fleeting Site Now Operational

Sid Raymond, president of Cargos Unlimited Transfer and Stevedoring Co. Inc., has announced that the New Orleans, La.-based company's transfer barge, Cargos One, and fleeting site are operational.

The Cargos One is on duty at Mile 167.3 on the Mississippi River at Sunshine, La., in St. James Parish. The fleeting site, where LeGardeur International Inc. recently completed the installation of mooring anchor piles and buoys, is located at Mile 150 on the river at St. Elmo, La.

The Cargos One is a 368-foot converted tanker. It carries two crawler-mounted Manitowoc cranes which are equipped with special job-engineered buckets for transferring bulk commodities from ship to barge or vice versa. It can also handle general cargo.

While operating from its home base at Sunshine, La., the Cargos One can be relocated to any point on the river to accommodate shippers.

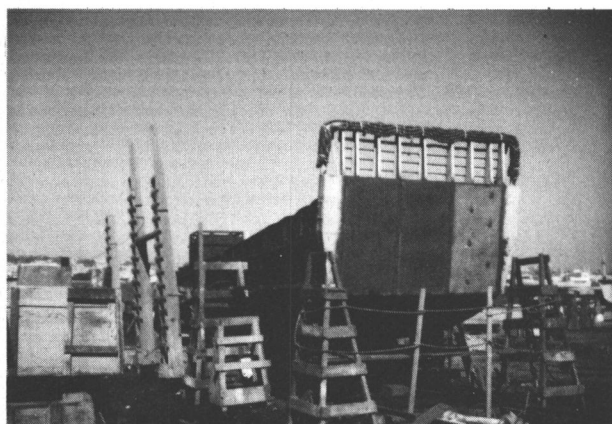


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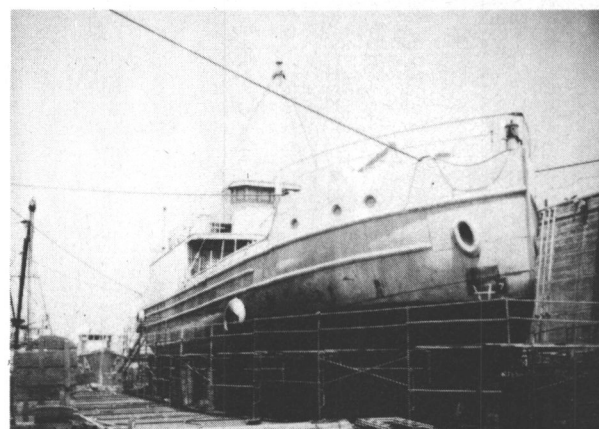
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(6) West Coast — ENGINES COMPLETELY REBUILT



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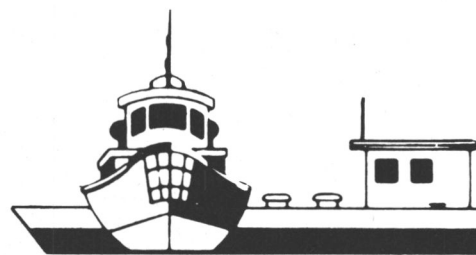
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H.P. Drewry Will Hold Two-Day Seminars In U.S. On

World And U.S. Bulk Shipping

For the first time, H.P. Drewry (Shipping Consultants) Limited will hold seminars in the United States, at which time the firm's directors will share with U.S. maritime executives their expertise and worldwide knowledge. In order to tailor the seminars to the needs of the U.S. executive, the subjects to be covered were selected by H.P. Drewry (Shipping Consultants) Inc., Houston, Texas, a wholly owned subsidiary of H.P. Drewry (Shipping Consultants) Limited of London, England.

Over the years, H.P. Drewry (Shipping Consultants) Limited has received worldwide recognition for excellence in its presentation and analysis of maritime economics and shipping operations. The company now ranks as a foremost producer of objective and well researched publications on the numerous aspects of shipping economics. On the basis of its unique pool of professional experts and acting independently of any other commercial enterprise, the company also has built up a thriving consultancy. There are subscribers to H.P. Drewry publications in over 80 countries, and the company has undertaken numerous consultancy assignments for a wide range of international clients.

The Seminar format has been conceived by H.P. Drewry (Shipping Consultants) Inc. to appeal to companies and organizations involved in the many aspects of international seaborne commerce, including shipowning, shipbuilding, oil, energy, mining, agriculture, chemicals, trading, ports, terminals, storage, banking, ship finance, stock broking, insurance, investment, law, education, government, international organizations, and professional associations and institutions.

The purpose of each two-day Seminar is to provide both a comprehensive picture of the trades, costs and revenues of world and U.S. tanker and dry-bulk cargo shipping and a forum for the study of the volatile nature of shipping costs and revenues and U.S. shipping problems. A further aim is to compare and contrast U.S. and non-U.S. shipping costs and revenues.

Four seminars will be held in various locations throughout the United States. The seminars, all identical in subject and format, will be held on October 25-26 in Houston, Texas; October 30-31 in San Francisco, Calif.; November 2-3 in New York, N.Y., and November 7-8 in Washington, D.C.

The Program

First day—An analysis of the shipping and trading environment, placing the U.S. in a world context; and an examination of the tanker and dry-bulk carrier markets.

Registration from 8:30 a.m. to 9:30 a.m.

Session 1: World Trade Review and Outlook.

Session 2: The Seaborne Trade and Transportation of Oil and Gas.

Lunch—12:30 p.m. to 2:00 p.m.

Session 3: The Seaborne Trade and Transportation of Dry-Bulk Commodities.

Session 4: The Tanker Market—Structure and Trends.

Session 5: The Dry-Bulk Carrier Market—Structure and Trends.

Evening Reception—6:00 p.m. to 7:30 p.m.

Second Day—A detailed analysis of U.S. and non-U.S. bulk shipping costs and revenues, together with an examination of U.S. bulk-shipping problems. Sessions run from 9:00 a.m. to 5:00 p.m.

Session 6: The Structure of Shipping Costs and Revenues.

Session 7: Prospective Costs and Revenues in the Tanker Market.

Lunch—12:30 p.m. to 2:00 p.m.

Session 8: Prospective Costs and Revenues in the Dry-Bulk Market.

Session 9: Current U.S. Shipping Problems and Policies in the Global Context.

Session 10: Questions and Answers—Summing Up and Closure.

Seminar Format

Each participant will receive comprehensive documentation two weeks before the Seminar. This will allow the speakers to give only summary papers with appropriate visual aids at the presentation, thereby offering maximum time for constructive discussion. The Seminar papers will contain extensive data on bulk trades, shipping costs and revenues, and will thus serve as a valuable reference manual for the future.

An essential feature of a seminar is to encourage active participation by the delegates and in order to create an informal atmosphere and promote meaningful discussion, the number of participants at each venue will be restricted to 100.

The Seminar Team

It is intended that the formal Seminar presentations will be made primarily by the directors of H.P. Drewry (Shipping Consultants) Limited, London, assist-

ed by Prof. Victor Norman of the Norwegian School of Economics and Business Administration, Bergen, who are all experienced in presenting papers to international conferences and seminars. The wide ranging discussions of U.S. and world shipping that will be a key feature of the seminars will be under the control of an independent chairman.

Besides the directors of H.P. Drewry, the Seminar team consists of Professor Norman who was educated at Yale and Massachusetts Institute of Technology, and was assistant professor at the Institute for Shipping Research in Bergen, Norway, from 1971 to 1975. He has written a series of articles and monographs on shipping questions. His current research relates to international trade and the determinants of transport demand; Andrew B. Carpenter who is an economics graduate of Bristol University. His career has been devoted to energy demand/supply forecasting and the economics of oil transportation. As the Tanker Director of H.P. Drewry, he has been the senior consultant on a wide range of projects, including fleet acquisition policies, freight rate forecasting and secondary transport system appraisals, and Peter J. Rowbotham, an honors graduate from London University, who, since 1959, has been associated with publishing and research organizations concerned with ship-

ping and commodities with particular expertise in minerals. He joined H.P. Drewry in 1971 and has responsibility for publications and consultancy in dry-bulk cargo shipping.

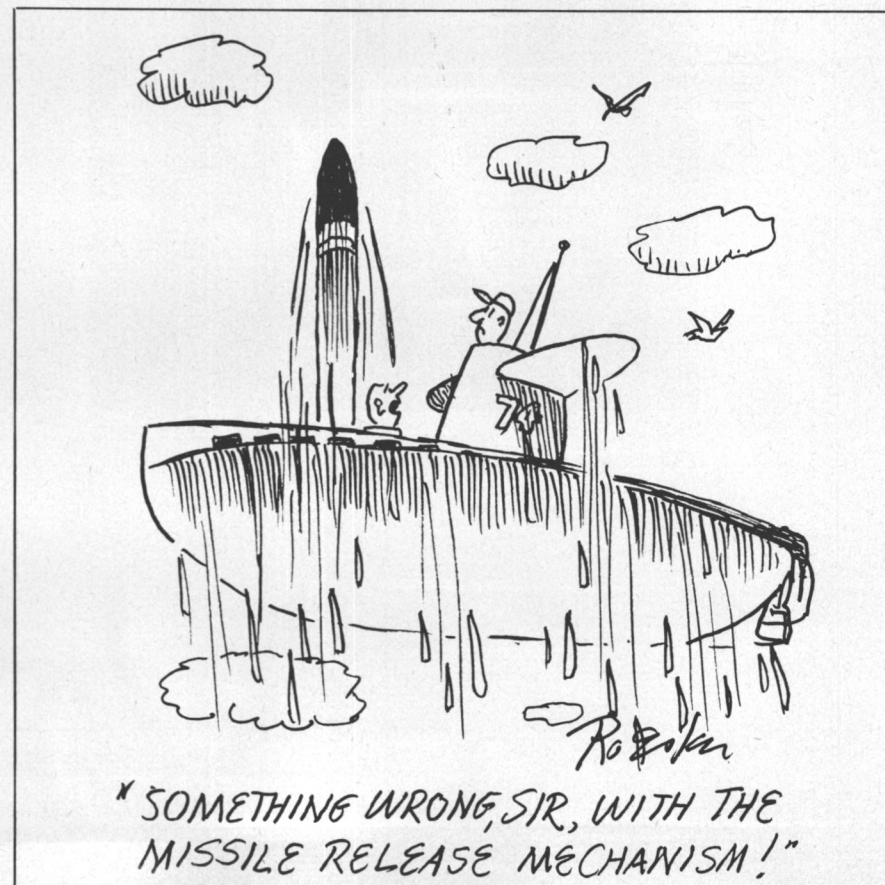
Also on the Seminar team are Dennis Stonebridge who graduated from Bristol University in 1962 with an honors degree in economics. His early experience in maritime economics was gained with the Westinform Service and as a senior lecturer in transport at a London Polytechnic. He joined H.P. Drewry in 1973 with responsibility for shipbuilding/ship repairing publications and consultancy, and Hugh C. Williams, an honors degree graduate from Bristol University. He also is a qualified Chartered Accountant. He has had wide experience both as an accountant and investment analyst in the oil/gas trade and joined H.P. Drewry in 1974. He is responsible for the supervision of the energy/oil/gas inputs into publications and consultancy projects.

Registration

Early registration is urged since the number of delegates is limited (100). The registration fee required will include all documentation, refreshments, two lunches and an evening social function. A reduced rate is offered for second and subsequent registrations from the same company for attendance at one venue only.

The seminars will be held in comfortably arranged meeting rooms in a conveniently located hotel in each city. Hotel information will be sent to each registrant.

For further information and a registration form, contact Arthur E. Penny, Suite 318, Post Office Box 42999, Houston, Texas 77042 (telephone is Area Code 713, 932-8821).



The Effect Of The 1978 IMCO Tanker Safety And Pollution Prevention Conference On Ship Design And Operation

MacIver Robinson, OBE CEng FRINA, Surveyor General, Marine Division, Department of Trade, will chair a Joint Conference on "The Effect of the 1978 IMCO Tanker Safety and Pollution Prevention Conference on Ship Design and Operation," arranged by The Royal Institution of Naval Architects and The Institute of Marine Engineers, December 7, 1978, at the Institute Conference Centre, 76 Mark Lane, London EC3R 7JN, to discuss problems facing shipowners resulting from the IMCO Conference involving ship design and operation, safety, pollution prevention, segregated ballast, cargo pumping systems, crude oil washing, steering gear, the structural design of ships, inspection and certification.

Seven papers will be presented, and an informative debate is anticipated.

Paper No. 1—"An Introduction to the New Measures and Procedures," by **Dr. J. Cowley**, CEng FIMarE, Engineer Surveyor in Chief, Marine Division, Department of Trade.

The new measures and procedures agreed at the 1978 IMCO Conference will be considered under three main headings: Design and Equipment; Inspection and Certification, and Procedural Arrangements.

Paper No. 2—"Design Considerations of New Oil Tankers," by **F.H. Atkinson**, CEng FRINA of Lloyd's Register of Shipping.

The effect of the new regulations on tanker design involving the optimization of transverse and longitudinal bulkhead positioning to comply with segregated ballast and protective location requirements. The stability and oil outflow aspects will be considered together with the effect, if any, of the crude oil washing requirements on structural design.

Paper No. 3—"Some Suggestions on the Design Implications and the Sub Division of Ships," by authors from the Department of Naval Architecture and Ocean

Engineering, The University, Glasgow, (to be confirmed).

Paper No. 4—"The Views of an Individual Owner on the Implications of the T.S.P.P.," by **Capt. G.A. Marchant**, Support Services Manager, P & O Bulk Shipping Ltd.

A ship operator's views on T.S.P.P. Conference details, problems with existing and new ships, pros and cons of crude oil washing, crew training, collision avoidance aids and steering standards. The author will concentrate on the operational aspects.

Paper No. 5—"The Effect of the New Regulations on Existing Ships," by **A.F. Brereton**, CEng FRINA, Group Technical Director, Shipping Management S.A.M.

The author will concentrate on the design and modification aspects of the new regulations.

Paper No. 6—"Safety Aspects of Ships' Steering Gear," by **W. Owens**, CEng FIMarE, Managing Director, John Hastie of Greenock Ltd.

The author will cover existing steering gear and control systems; modifications to reduce risk of hydraulic failure; proposals for new systems in high risk ships and cost estimates of the modifications required.

Paper No. 7—"Pumping Systems for Product and Oil Tankers to Reduce Risk of Pollution," by **Marit M. Westlake**, MSc CEng, Frank Mohn U.K. Ltd.

The system is based on the principle of one self-contained hydraulic pump and pipe unit per tank, the system used in chemical tankers. Advantages are avoidance of inter-tank contamination, minimization of valve leakage, improved tank drainage and reduced slop. Applicable to conventional cargo and segregated ballast ships.

Details and application forms may be obtained from The Conference Officer, The Institute of Marine Engineers, 76 Mark Lane, London EC3R 7JN, England; Telephone 01 481 8493; Telex 886841.

Ocean Systems, Inc. Buys Three Remote-Controlled Underwater Submersibles

Ocean Systems, Inc., 1441 Park 10 Boulevard, Houston, Texas 77084, has purchased three new remote-controlled underwater submersibles for service operations in water depths up to 1,000 meters. The three units are a part of a long-term purchase agreement with International Submarine Engineers of Vancouver.

Two of the new units are TROV systems. They are 1,000-meter work vehicles, which have two manipulators and carry TV, photographic and underwater survey

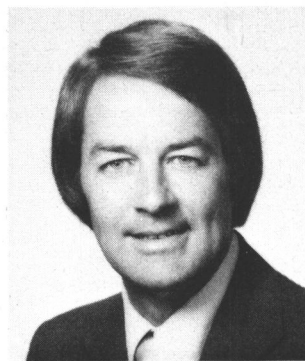
equipment. The third unit is a TREC system, which is a single-manipulator work vehicle used primarily for underwater platform and pipeline inspection in water depths up to 400 meters.

With the acquisition of the three new submersibles, Ocean Systems will have five complete systems in the field, two of which are under contract. The company has established a complete TROV/TREC operations and training center at their Houston headquarters.

Ocean Systems, Inc. is an Enserch, Inc. company specializing in underwater survey and inspection service for the worldwide oil and gas industry.

James Sweat Joins Matzer Associates

James C. Sweat, naval architect, has joined **Rudolph F. Matzer and Associates** of Jacksonville, Fla., according to **Rodney E. Lay**, president of the internationally known firm of naval architects and marine engineers.



James C. Sweat

Mr. Sweat comes to Matzer Associates with experience in the design and engineering of boats, ships and other waterborne vessels, as well as a background in industrial engineering.

The new Matzer naval architect is a native of Brunswick, Ga. He received his Bachelor of Science degree in industrial management from Georgia Tech, and the degree of Bachelor of Engineering in naval architecture and marine engineering from the University of Michigan.

Prior to his association with Matzer Associates, Mr. Sweat was with Design Associates as a naval architect, and before that with Halter Marine, Inc. as naval architect and project engineer. Both firms are in New Orleans, La.

For several years, Mr. Sweat was employed by Newport News Shipbuilding as a senior systems engineer concerned with building of merchant ships and management plans for modern shipyards. He also co-directed industrial engineering studies for submarine overhaul.

While big ships have been part of his interests, Mr. Sweat also has experience in small vessels, having worked as designer/builder of steel sailing vessels from 25 to 52 feet overall for Colvin Manufacturing Company, Miles, Va.

Mr. Sweat joins the Jacksonville company that was founded 20 years ago by the late **Rudolph F. Matzer** for the purpose of naval architecture, marine engineering, marine surveying and consultation. Matzer-designed vessels are many and varied. They include heavy-lift ships, roll-on/roll-off ships, container vessels, tugs, research ships, fishing boats, yachts, workboats, and other type vessels that may be found in any part of the world.

When Mr. Matzer died in December 1977, Mr. Lay became president of the firm in accordance with arrangements made by the founder for the continuation of the firm's work.

Mr. Lay, who was vice presi-

dent and Mr. Matzer's close associate for six years, has continued the steady, dynamic growth of the Matzer operation that prides itself on creative naval architecture "through the application of inventive engineering, technical excellence plus pragmatic analysis, review and execution."

Offshore Logistics, Inc. Announces Earnings For The Year Ended June 30

Offshore Logistics, Inc., Lafayette, La., a supplier of marine and aviation services to the worldwide oil industry, has reported gross revenues for the year ended June 30, 1978 of \$77.0 million, an increase of 14 percent from \$67.8 million for fiscal 1977. Net income was \$5.6 million, or \$2.03 per share, compared with \$6.1 million, or \$2.20 per share.

The company has adopted the policy of deferring the cost of American Bureau of Shipping special surveys significant for the first time in 1978. Such costs are being amortized over the periods benefited. Accordingly, earnings for the first three quarters of 1978 have been restated. This restatement results in an increase in earnings previously reported for the nine months ended March 31, 1978, of \$710,000, or \$0.26 per share. Net income for the fourth quarter of 1978 was \$1,375,000, or \$0.49 per share, compared to \$2,175,000 and \$0.78 per share for the fourth quarter of 1977.

Mr. Keenan, chairman of the board and president, stated that the increase in gross revenue for the year was attributable primarily to growth of the helicopter fleet as the company increased the number of aircraft from 72 to 107 during 1978. The contribution to earnings before taxes from the Aviation Division has continued to increase during fiscal 1978, and demand for helicopter services, especially in the Gulf of Mexico, is extremely strong.

The decline in fourth quarter earnings from the previous year is due primarily to the decline in drilling activity offshore Alaska. During the fourth quarter of fiscal 1977, Offshore Logistics, Inc., has seven of its largest vessels employed in the drilling activities offshore Alaska. Unfortunately, the drilling programs in Alaska have not to date proved successful, and activity in this area decreased to a point which required redeployment of these vessels to other areas.

Mr. Keenan further stated that recent announcements concerning drilling operations off the East Coast of the United States and some increase in the level of activity in the Lower Cook Inlet of Alaska are encouraging signs to the entire industry and especially to Offshore Logistics, Inc., which operates one of the largest U.S.-flag fleets of towing anchor handling vessels.

Maritime Transportation Research Board Names Five New Members

Five new members have been appointed to the National Research Council's Maritime Transportation Research Board, succeeding those whose terms expired June 30.

The new members, who will serve three-year terms, are: Al-

bert L. Bossier Jr., president and chief operating officer, Avondale Shipyards, Inc.; Hazel Brown, president, Harry Lundeberg School of Seamanship; Donald P. Courtsal, vice president, Dravo Corporation; Allen E. Schumacher, chairman, American Hull Insurance Syndicate; and Sheldon A. Vogel, partner, admiralty law firm of Bigham Englar Jones and Houston.

In addition, Paul F. Richardson

of Paul F. Richardson Associates, Inc., was appointed to a second three-year term on the board. Phillip Eisenberg, chairman of the executive committee, Hydronautics, Inc., and Robert Kharasch, partner in the law firm, Galland, Kharasch, Calkins, and Short, agreed to extend their terms for an additional year.

The board is a major unit of the Commission on Sociotechnical Systems of the National Research

Council. It performs research advisory services on all aspects of marine transportation and marine transportation systems, including impact of such systems on the economy and society; improvement of ships, cargo handling, ports and marine facilities; education, training, and working conditions of marine personnel; and relationship of elements of the marine transportation system to other transportation, economic, and social systems.

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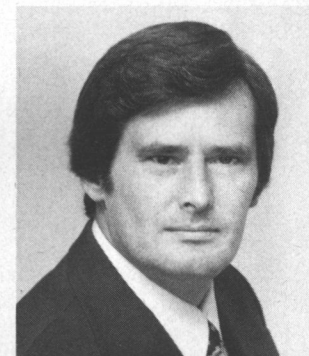
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Francis A. Martin And Ottaway, Inc. Name Norman Jensen Partner

Harry J. Ottaway, president of Francis A. Martin and Ottaway, Inc., 25 Broadway, New York, N.Y. 10004, has announced that Norman C. Jensen has become a partner of the firm and will hold the position of vice president and director.



Norman C. Jensen

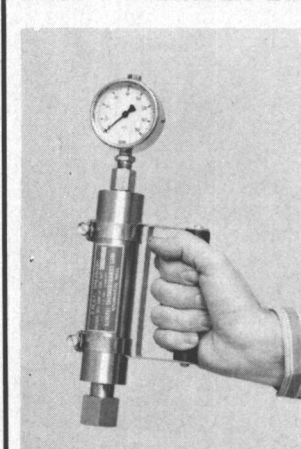
Mr. Jensen is a graduate of the U.S. Merchant Marine Academy and has served in the merchant marine for about 10 years. Prior to joining Martin and Ottaway in May 1974, Mr. Jensen served as port engineer with Cosmopolitan Shipping Co. and American President Lines. Mr. Jensen is a member of The Society of Marine Port Engineers, New York, The Society of Naval Architects and Marine Engineers, and The Association of Average Adjusters of the United States.

The firm of Francis A. Martin and Ottaway, Inc. is engaged in the practice of marine consultation, ship appraisal, marine engineering, vessel surveying and related professional activities.

The firm was founded in 1875 and has remained in business continuously since that date. In 1961, the company was purchased by the late William T. Ottaway and Harry J. Ottaway. Leroy T. Kanapaux and Harry G. Webber have been associated with the firm since 1955 and 1971, respectively.

Hull and machinery and condition surveys of vessels are the major function, with a heavy accent on expertise regarding marine insurance. Additionally, the firm furnishes written opinions to average adjusters on controversial marine insurance claims and presently holds a contract with the U.S. Government for furnishing vessel value appraisals.

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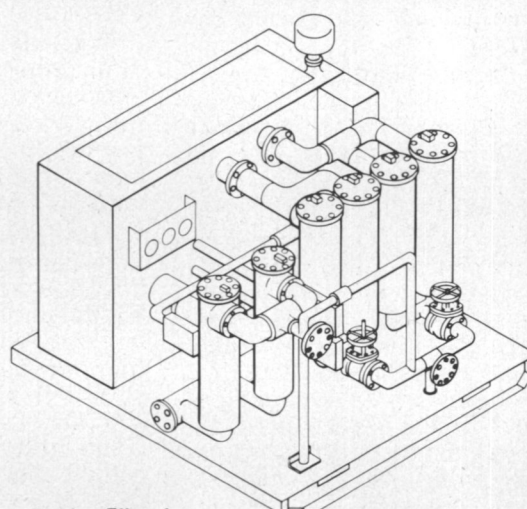
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Francis W. Bauer Joins ORBA Corporation

Francis W. Bauer has joined ORBA Corporation as director, project management. In his new position, Mr. Bauer is responsible for the implementation of ORBA's major projects, including engineering, procurement, contracting, construction, start-up and testing. Mr. Bauer will also play a key role in the development of ORBA's domestic and international business.



Francis W. Bauer

Mr. Bauer received his B.S. degree in engineering at the University of Redlands, Calif., and a B.S. degree in marine sciences at Notre Dame, and is a licensed professional engineer in 11 states. He has over 30 years' experience in the development and implementation of power and industrial facilities, including major dry bulk handling facilities. He has been a lead mechanical engineer, project engineer, engineering manager and project manager with such firms as Bechtel, Ebasco, and Burns and Roe.

ORBA is an international firm which specializes in the design, engineering, construction and operation of dry bulk handling sys-

tems. The Superior Midwest Energy Coal Terminal, designed, built and operated by ORBA, was selected by the American Society of Civil Engineers as the Outstanding Civil Engineering Achievement of 1977, and by the National Society of Professional Engineers as one of the Ten Outstanding Engineering Achievements in the United States in 1976.

ORBA's world headquarters are at One Gothic Plaza, Fairfield, N.J. ORBA is a unit of AMCA International Corporation of Hanover, N.H., a diversified corporation with major activities in energy, engineering, construction and manufacturing.

Stacey Valve To Specialize In Valves For Marine Industry

Stacey Valve Co., Inc. is a recently formed company directed by Arne Eikevik, former owner of Valve Services, Inc., and Jack and Bernard Steinman, former owners of Mueller Steam Specialty.

The company specializes in the fabrication of Custom Made valves for the marine industry to your specifications or theirs—any size, body material and trim—hand-wheel, geared or motor operated.

They also manufacture a line of Blind Flange Valves (Double Block and Bleed) for the complete segregation of various types of cargo and blocking off parts of pipelines.

For further information, contact B. Steinman, Stacey Valve Co., Inc., 29 Meserole Avenue, Brooklyn, N.Y. 11222. Phone (212) 383-2550.

New Void Space Coating Introduced By Sigma—Literature Available

A new product for void space coating of ballast tanks has been developed and is being marketed by Sigma Coatings, Inc., a wholly owned subsidiary of American Petrofina, Incorporated.

The new coating, designated as 40-C-1 Float Shield, is currently being used by some of the nation's largest marine transportation

companies. This polarized biodegradable material will give a molecular film by either spraying or floating over a minimum surface preparation.

The new product has unique wetting properties and a flash-point in excess of 300 degrees F, while providing extended protection to steel.

For complete literature and data sheets, write Pat Mitchell, Sigma Coatings, Inc., P.O. Box 826, Harvey, La. 70059.



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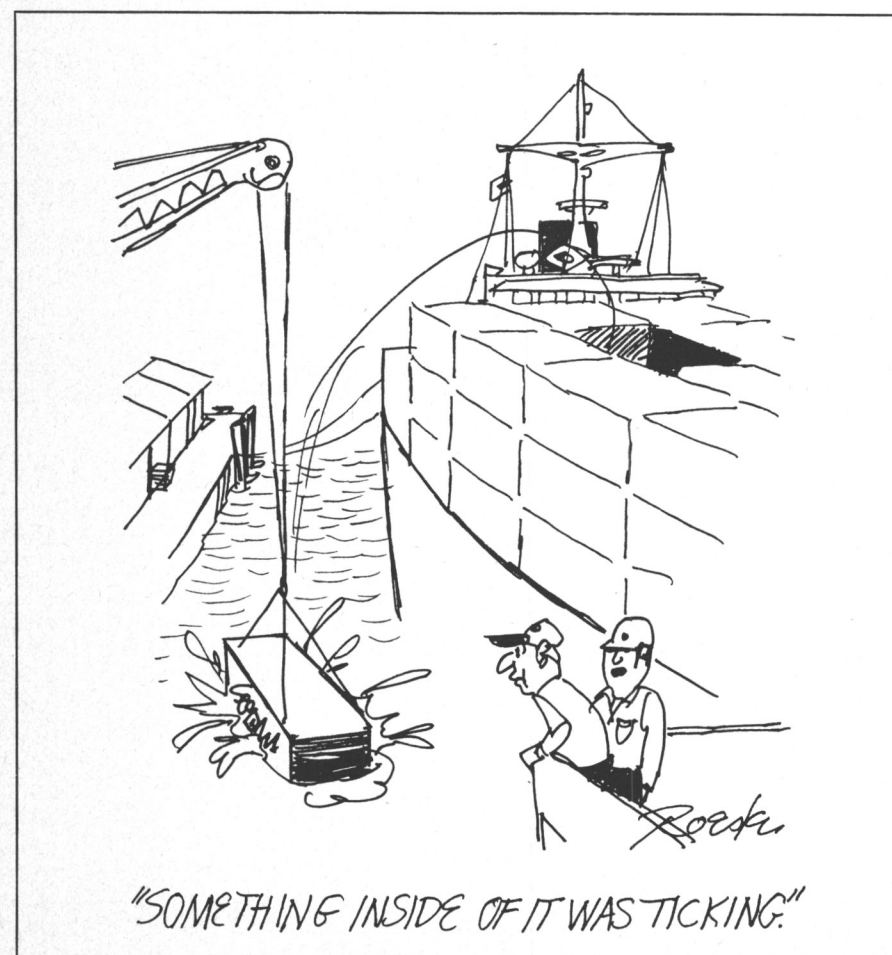
a 2 1/4" line. A Markey hydraulic capstan is provided for line handling. Heide-class Moran tugs with Markey towing machinery make efficient, dependable offshore towing teams. Markey deck machinery helps any tug do its job better. Whatever you need, we can build it. Ask us



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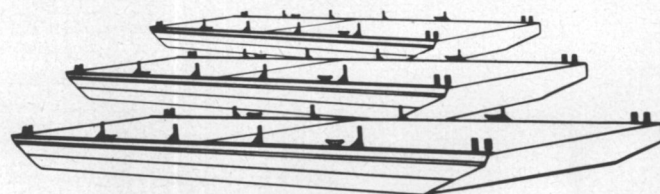
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Jardine Plans To Restructure Oilfield Servicing—New Name Jardine Offshore Promet



William Courtauld



Brian Chang

Plans are at an advanced stage for Promet and Jardine Offshore to be merged. The two groups, both of which are major components of Jardine Matheson (South East Asia), form the backbone of Jardine's involvement in the oilfield service industry. In effect, two mergers are planned — on the one hand between the Singapore operations of each group, and on the other between their international operations. Both of the resulting entities will be owned by a new holding company. The combined group is to be named "Jardine Offshore Promet." A preliminary indication of plans to rationalize its investments in the oil servicing and engineering fields was given in May by Jardine Matheson (South East Asia) at the time of releasing its 1977 results.

The proposed merger was announced by William Courtauld, a Jardine Matheson group general manager who is responsible for Jardine's oilfield and related activities.

The Singapore operations of the Jardine Offshore Promet Group will be organized into three divisions, in addition to a central finance and administrative function.

The Offshore Division will act as the service agent for all marine contracting activities of the Group worldwide. These include offshore oilfield construction, maintenance and support services, and also ocean towing and civil marine activities such as port construction and dredging. The formation of Jardine Offshore Promet will bring together a diverse fleet of over 30 units of marine equipment ranging from crane barges to harbor tugs.

The Promet Division will consist of all the Group's onshore manufacturing activities. These include shipbuilding and steel fabrication, construction of modular housing units, and the casting and machining of a wide range of steel products. The Promet Division's 50-acre waterfront yard in Jurong, Singapore, which has a production capacity

of 30,000 tons of steel per annum, is equipped with one of Southeast Asia's most sophisticated undercover fabrication facilities.

The Agencies Division will handle the marketing of a number of marine-orientated products such as Carboline paints and Skagit winches. It will also include the anticorrosion businesses now owned by Promet.

The senior management team of Jardine Offshore Promet's Singapore operations is made up as follows. During its initial stages, the chairman will be William Courtauld. He is being transferred to Jardine's head office in Hong Kong toward the end of the year, and will be succeeded by Brian Dickinson. Mr. Dickinson is on the main board of Jardine Matheson & Co. Ltd., and recently took up his appointment as Jardine's regional director for Southeast Asia, based in Singapore. The managing director and chief operating officer will be Brian Chang. Mr. Chang was founder and chairman of Promet, and has been the principal architect of its development. He was also founder of Jardine Offshore. The director of finance and administration will be Peter J. Collins. Mr. Collins was previously finance director of Jardine Matheson Holdings (South East Asia). The head of the Offshore Division will be Michael D. Fort. He previously served as general manager and then managing director of Jardine Offshore Pte. Ltd. The head of the Promet Division will be Dr. Benety Chang. He was previously general manager of Promet. The head of the Agencies Division will be Leon Moore. He has been extensively involved in the development of Jardine's oil-related activities in a number of senior positions.

Jardine Offshore Promet's Singapore administrative headquarters are to be at the company's Jurong fabrication yard. The existing offices there are being expanded to accommodate personnel moving from the previous Jardine Offshore offices near Orchard Road.



SAFETY WINNERS — The National Safety Council has presented its Award of Honor to Bath Iron Works Corporation, Bath, Maine, and commended it for the best safety record among all the nation's private shipyards last year. Displaying the award are, from left: William J. Curtis, manager of Plant Safety; Robert M. Smith, vice president of Industrial and Community Relations, and Leroy K. Hawes, immediate past president of Local 6, Industrial Union of Marine and Shipbuilding Workers of America. In his letter of congratulations to the 4,500 men and women shipbuilders, the president of the National Safety Council, Vincent Tofany, wrote: "This Award is the Council's highest order of recognition for outstanding occupational safety. Any company that qualifies for this honor has reached an exemplary level of safety performance."

Maritime Reporter/Engineering News

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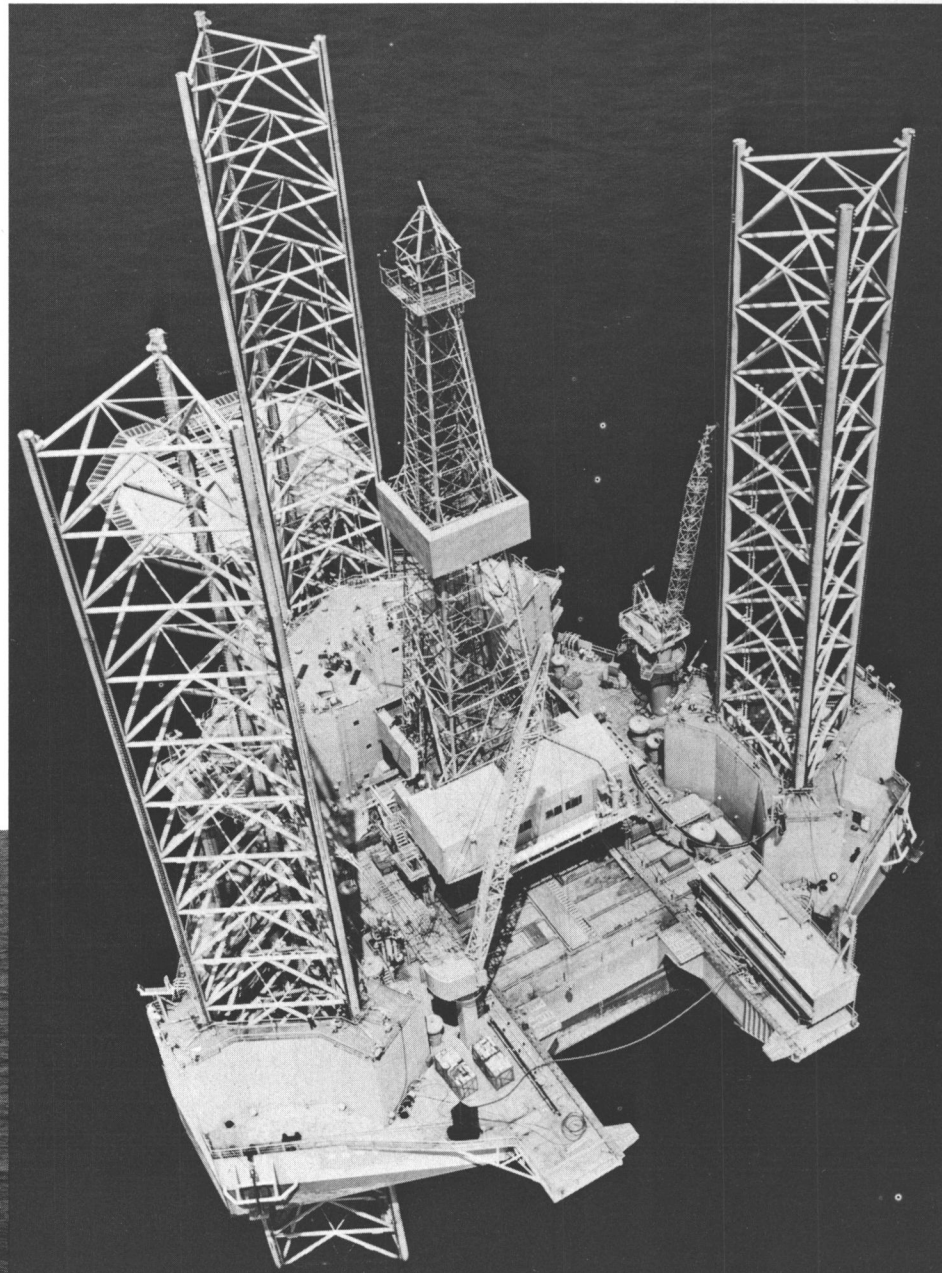
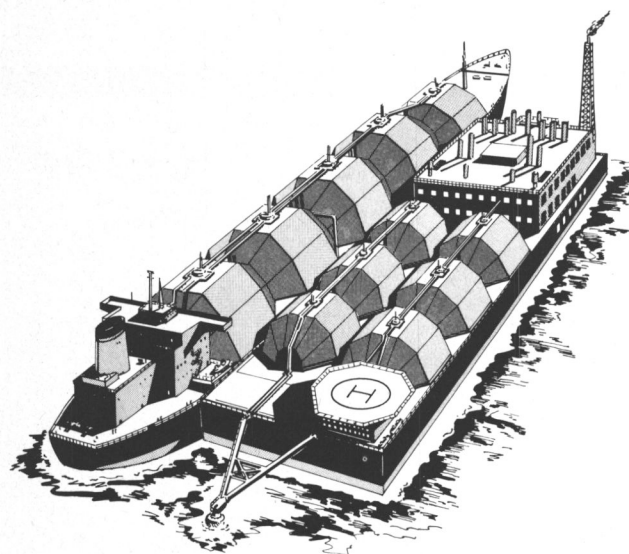
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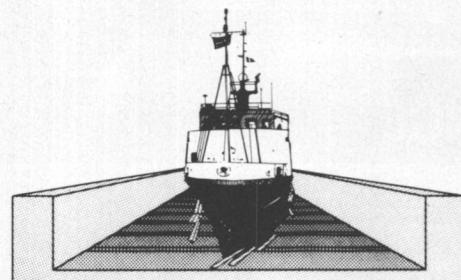
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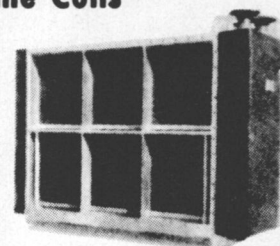
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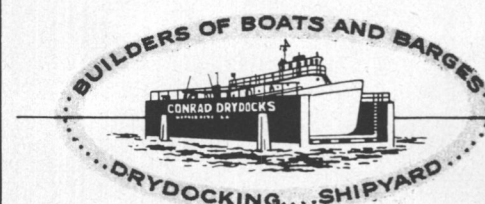
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New Brochure Available On Shipboard Video Entertainment

The use of video aboard ship for crew entertainment, training and safety as well as duplication services, etc., is the subject of a new brochure offered by Video Library Systems Inc. This full-color 16-page publication contains complete data and photos describing the company's full line of products, a film library and other services available for marine use.

The VLS system of balanced software programming and hardware also features a two-way video communication system for ships. The programming supplied by VLS is on a rotating library principle, with direct distribution between VLS and each vessel.

For your copy of this new brochure, write **Kevin Tuohey**, Video Library Systems Inc., 185 Oser Avenue, Hauppauge, N.Y. 11787.

People's Republic Of China Becomes 19th Licensee Country For Sulzer Diesel Engines

Sulzer, Winterthur, Switzerland, and the China National Technical Import Corporation have concluded a contract which provides for the manufacture of slow-speed two-stroke crosshead engines under license. This means that the People's Republic of China is the 19th country that manufactures these large diesel engines with ratings of up to 30,000 kw (40,000 bhp), according to the plans and know-how of the Swiss company. In the main, these engines will be employed for marine applications.

Even today, numerous Sulzer diesel engines are serving the Chinese merchant fleet. They were acquired through the purchase of

new or second-hand tonnage abroad or directly for Chinese newbuildings. The engines built in China will assist in the build up and extension of the coastal and oceangoing shipping fleets.

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Electro-Nav Opens Service Department On West Coast

Electro-Nav, Inc., Marine Electronics, Elizabeth, N.J., has announced the opening of a West Coast Service Department in the San Francisco Bay Area.

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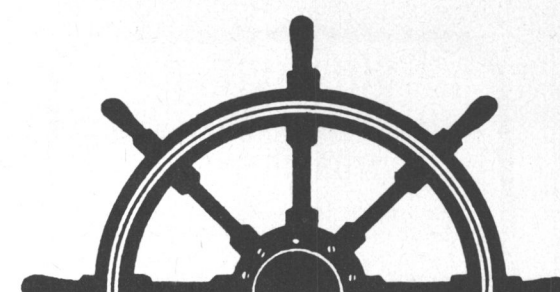
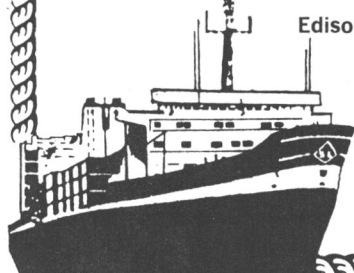
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This position will be responsible for all safety items related to vessels and shipboard activities with respect to programs, training, inspections, regulations, and reports. Safety experience required, preferably in the marine field.

Sea-Land offers fully competitive salary, excellent benefits, a professional atmosphere, and an opportunity with a top growth company. Please send resume indicating salary history and requirements in confidence to:

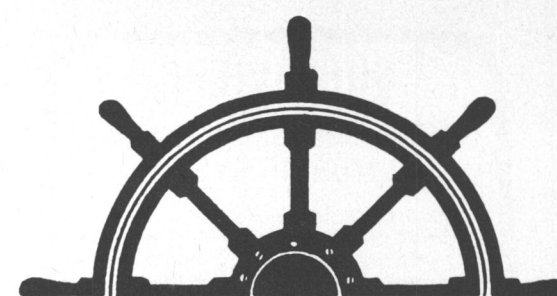
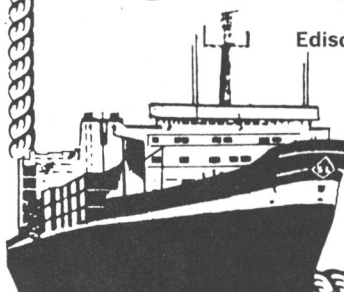
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**SEA-LAND
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Requires a BS Degree (M.S. preferred) in Naval Architecture and/or Computer Science. Background should include training in PL/1, 6 years of systems design and programming experience, and 1-2 years experience in N/C systems — especially STEERBEAR and/or AUTOKON or SPADES. Successful candidate will serve as the senior analyst/programmer for the complete STEERBEAR system, which involves over 500 subprograms. Responsibilities will include developing new program modules, testing and verifying original Kockums programs, implementing modules on IBM 3031, and serving as the single point of contact with Kockums personnel in regard to the STEERBEAR program.

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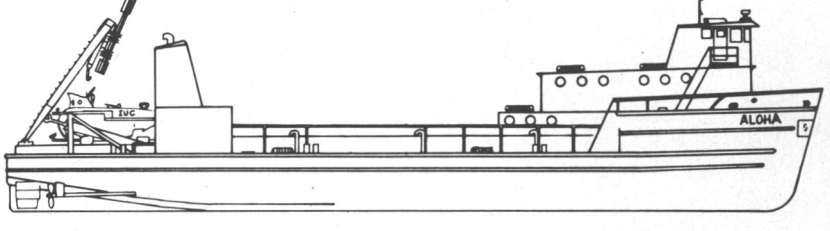
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Applicant should have a B.S. in marine engineer-
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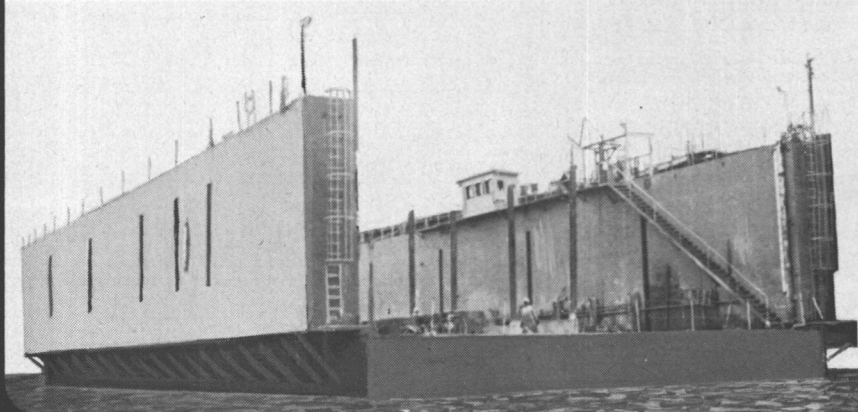
Zidell has it...

Floating Drydock

Presently in Use

Length over-all — 160'
Breadth — 66'
Total depth — 30' 6"
Breadth between wing walls — 56'
Capacity — 1,000 tons

Three longitudinal bulkheads; four transverse bulkheads; ten watertight ballast tanks. Ten 8" centrifugal pumps (20 HP motors). Ten electric flood valves; ten manual flood valves. Ten cross-over valves. Total weight — 375 tons. Two ventilation blowers for voids. 4' void full length of each wing wall. Four positioning bilge blocks, electrically operated from control house. Heavy tow pads. Two positioning winches at forward end of port and starboard wing walls. Currently in operation and in use. 4' keel blocks full length included.



NEW MODEL, 32 CLYDE

Whirley Crane

As Shore Mounted Gantry

Main block lift 175 Tons, auxiliary 50 Ton lift and jib 15 Ton lift, height of crane from track to top of "A" frame 138' 8". Track gauge 32' 0". Broken down at present time for shipment.

Four propulsion trucks, six 20" diameter wheels per truck with four 30 H.P. travel motors at a travel speed of 120 F.P.M. Main hoist motors two 250 H.P. motors, Boom hoist motors two 125 H.P. motors, Swing motors two 75 H.P. motors, Boom length — 140' 0". Prime mover Cummins V 12 Model V.T.-17510-P 635 H.P. at 2100 R.P.M. turning five generators.



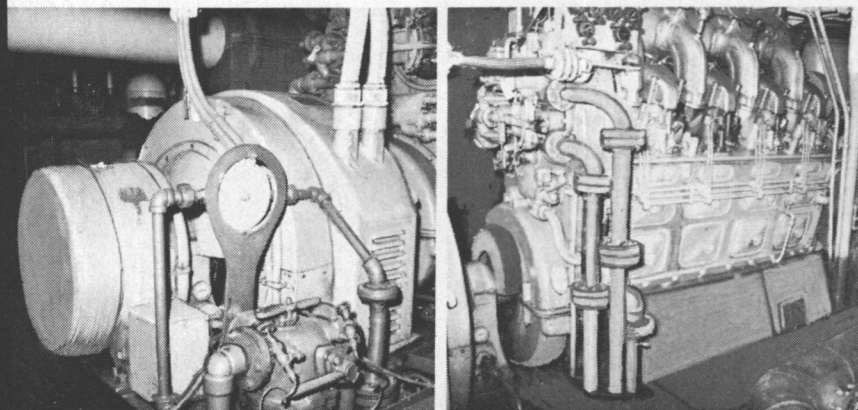
As Barge Mounted Crane
Same general specifications as Shore Mounted. (Lift capacity 160 Tons, full revolving, 230 Tons lifting capacity over stern.)

Specific details pertaining to this crane available upon request.

Diesel Generators

5-350 KW units in parallel with a 1750 KW capacity.
To be used as power package for dredge, drilling rig, repair facility, etc. or as 5 individual units.

General Motors Model 8-278A, typical serial 45004, air start — 600 RPM, driving a G.E. alternating current Generator Type AT1, Model 12G732, 350 KW continuous, or 438 KW for 2 hrs., 440V-3-60, complete with all attached auxiliaries. Other available components include generator control panels, oil coolers, air compressors, air tanks. 5 units available.

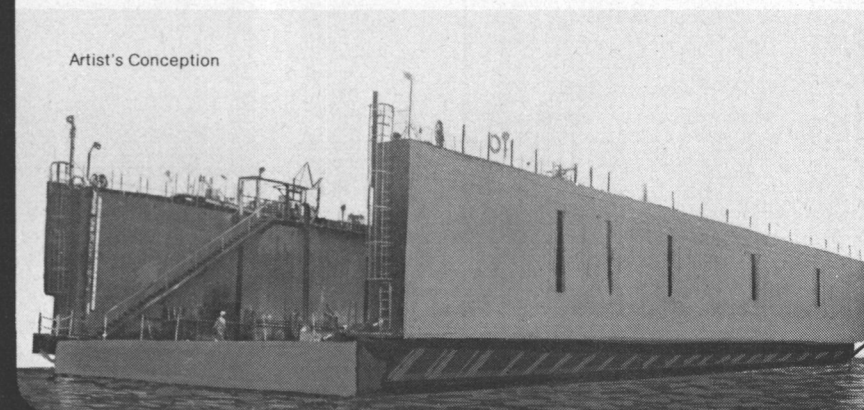


Floating Drydock

Under Construction

Length over-all — 200'
Breadth — 84'
Total depth — 30' 6"
Breadth between wing walls — 74'
Capacity — 2,400 tons

Three longitudinal bulkheads; four transverse bulkheads; fifteen watertight ballast tanks. Six 8" centrifugal pumps (40 HP motors). Fifteen air operated flood valves. Total weight — 900 tons. Two ventilation blowers — one for starboard pump room and one for port pump room. 4' keel blocks full length included.



Artist's Conception

For additional information and quotations please contact: Stan Rosenfeld or Andy Canulette Marine and Industrial Sales Division of:



ZIDELL EXPLORATIONS, INC.

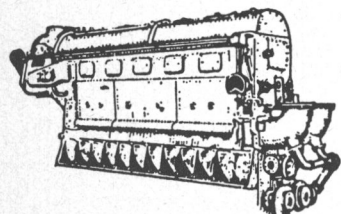
3121 S.W. Moody Ave., Portland, Or. 97201
Phone: 503/228-8691 Telex: 36-0503 Cable "Zidell"

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INC.

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3121 S.W. Moody Ave., Portland, Ore. 97201
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MARINE DIESEL ENGINES



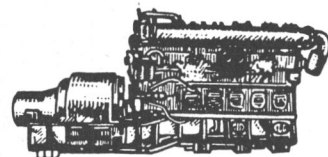
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-1/2 — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

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4—COOPER-BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.



3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

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A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATL.

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATL.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.



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1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).



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1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5 1/4 x 5, with Diehl Motors, 46 HP, 230 Volts DC, 870 RPM, 167 Amperes.

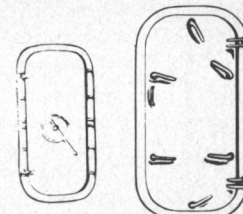
3—INGERSOLL - RAND, Size 5x5x4x4, 50 CFM, 150 PSI, with G.E. Motor, 20 HP, 440/3/60.

1—INGERSOLL - RAND, Model 40B, 155 CFM, 110 PSI, 870 RPM, with 40 HP Motor, 230 DC.

2—WORTHINGTON, 20 CFH, 3000 PSI, 4 stage, 585 RPM, with Worthington Steam Turbine, 47 HP, 5502 RPM.

STEEL WATERTIGHT DOORS

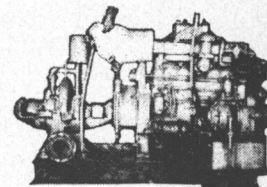
Used, Good
Condition,
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Many sizes available, priced reasonable
Some Typical Prices shown below. Please
Inquire for other sizes.

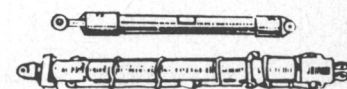
26"x48"-4 Dogs
26"x57"-6 Dogs
26"x60"-4 Dogs, 6 Dogs
26"x66"-6 Dogs, 8 Dogs
26"x66"-Q.A. Type

FIRE PUMPS



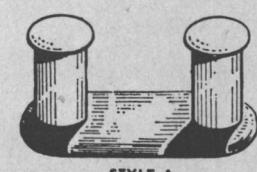
2—BUDA, Model 6-LD-468, Diesel Engines
6 cylinders, 100 BHP, Marine, Gardner
Denver, centrifugal Pumps, Bronze, horizontally split case, 1000 GPM, 280' head, 6 suction and 5" discharge.

HYDRAULIC CYLINDERS

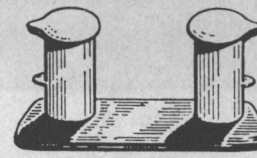


Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45 1/2"	double
10"	26"	3.75"	58 1/2"	double
2"	8"	1 1/2"	20"	double
2.5"	15"	1.12"	25 1/2"	double
3"	8"	1.37"	15 1/2"	double
6"	8"	4"	144"	double

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STYLE A



STYLE B

Used, clean, good,
suitable for reuse.
Predominantly 12"
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Specify quantity,
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ANCHOR CHAINS USED - GOOD



1 3/4" Size	2 1/4" Size
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2 1/4" Size	

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326' x 40' x 10.8' Built 1948 \$175,000.00

B—STEEL DIESEL TUGBOATS

1800 HP (Single Screw)
110' x 24.6' x 14' ... Rebuilt 1963 . \$225,000.00
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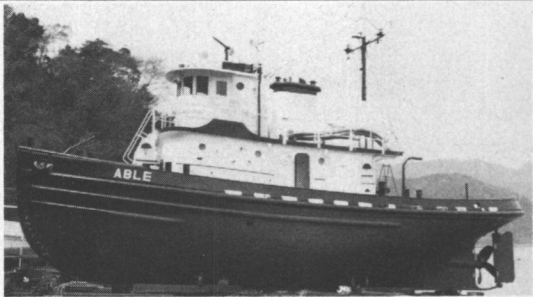
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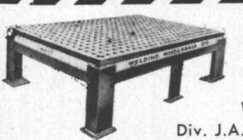
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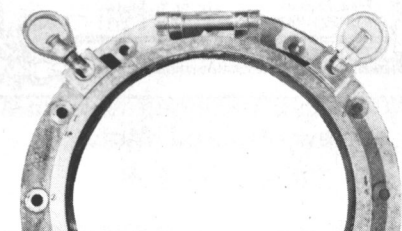
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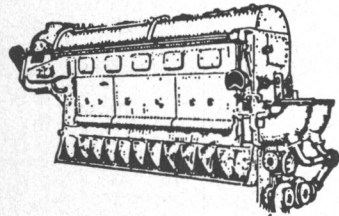
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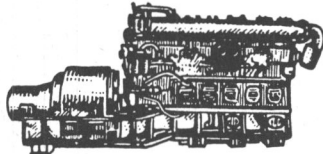
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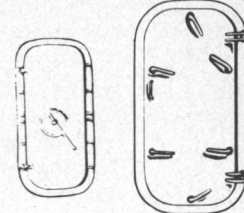
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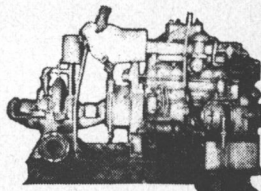
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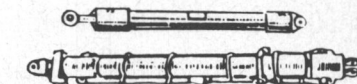
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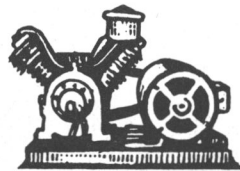


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6"	8"	4"	144"	double



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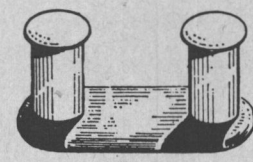
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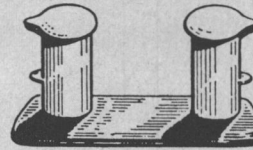
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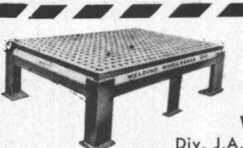
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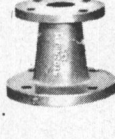
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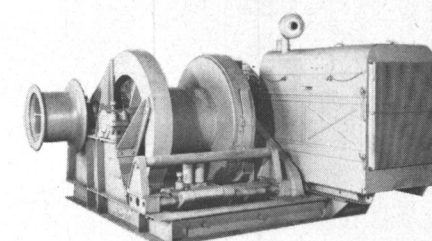
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539-1900 (301) 752-1077

ICEBREAKER

EX-USCG POLAR ICEBREAKER "EDISTO"
WAGB "284"

269' OVERALL — 63' BEAM — 28' DRAFT
DIESEL ELECTRIC — 10,000 SHP — 10.5 KNOTS



Normal Range	38,000 Miles
Range at Maximum Speed	16,000 Miles
Accommodations	250 Persons
Potable Water Capacity	60,382 Gallons
JPS Helicopter Fuel Capacity	17,772 Gallons
Also has full galley, (2) 2-Ton deck cranes, large Almon-Johnson Constant Tension Towing Winch, Helicopter Deck	

Displacement 6315 tons. Diesel-electric propulsion with (6) F.M. OP 38D8 1/8 diesel engines driving Westinghouse 1375 KW generators powering two 5000 HP Westinghouse shunt wound DC propulsion motors driving after shafts. 2 Ships service heating boilers. Feedwater capacity 12,872 gallons; lube oil 10,382 gallons; (2) 17" diameter propellers with 11' 10" pitch. Engine spares on board. Steel plate—high tensile 1¼ to 1½—ice belt 1½ to 1¾—yield point 56,000 PSI. Last drydocking 1973. General condition good. This class of vessel has been satisfactory for 25 to 30 years with no significant structural damage while operating in continuous 3-ft. ice and ramming 11' ice to half its length.

SUITABLE FOR BERTHING OR ACCOMMODATION VESSEL

Offered as she lies where she lies at our pier in Baltimore, Maryland, U.S.A. We are principals and owners.

FOR COMPLETE INFORMATION, CONTACT

THE BOSTON METALS CO.

313 E. Baltimore St., Baltimore, Md. 21202, U.S.A. —Phone: (301) 539-1900 or 752-1077
TWX: 710-234-1637 CABLE: BOSIRON Baltimore, Md. U.S.A.

SAVE OVER 50% OF NEW COST!

DEPENDABLE
20 KW GM 2-71 & 30 KW GM 3-71
RADIATOR COOLED DIESEL GENERATOR SETS



Mounted on steel sub-base with radiator

Don't miss this opportunity for BIG SAVINGS on these world-famous generator sets. Priced in running condition.

DIMENSIONS:
20 KW 71" Overall length; 50" Overall height; 33" Overall width. Weight about 2200 lbs.
30 KW 83" Overall length; 46" Overall height; 33" Overall width. Weight about 3500 lbs.

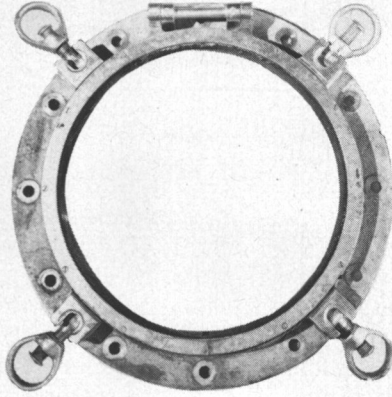
2-71
220 / 440 Volts — single phase 60-cycle — 1200 RPM — 0.8 PF. Generators are Delco or Electric Machine Co.

3-71
220 / 440 Volts — single phase 60-cycle — 1200 RPM — 0.8 PF. Equipped with Delco generators.

GM 2-71 \$3150
GM 3-71 \$3950
F.O.B. Baltimore
WILL TEST RUN UNDER LOAD

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16" MARINE 4-DOG PORTLIGHTS
CLEAN BRIGHT BRASS
all paint removed



Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations. Have 1/2" spigots—depth over dogs 7"—overall diameter from 20 1/2" to 22 1/2". Bolt circle approx. 19 1/2"—12 holes—3/4"—width of flange about 2"—62 lbs. Because each ship varies somewhat in portlight dimensions, all above dimensions are approximate.

THE BOSTON METALS COMPANY
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FIBERGLASS LIFEBOATS
BUILT TO ABS SPECS
by "ANCAS" — Arendal, Oslo



(1) Motor Lifeboat with 12.5 HP Lister Diesel Model SL3 —36 person—365 CBF #3805—24' x 7' 10 1/2" x 3'2" deep —19' 6" between hooks. Release gear made by Marine Safety Equipment Co., Farmingdale, N.J. All tanks, safety ropes & hang-on bars.

(1) Our Propelled Lifeboat—38 person—384 CBF #3806—24' x 7' 10 1/2" x 3'2" deep —19' 6" between hooks. All tanks, safety ropes & hang-on bars.

AS REMOVED FROM "ARCO CHALLENGER"
For Foreign Flag Ships use. Meet all International Classifications.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 752-1077

2 COMPLETE SETS
MOORING CHOCKS
For 1 1/2" wire. With mounting brackets for deck. With cable guide sheave not visible in photo. When they leave our plant, they are re-conditioned, ready for use. Mfg by Friedrich Kocks—from ex-ARCO "CHALLENGER".



THE BOSTON METALS COMPANY
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FOR SALE
NEW WATERTIGHT DOORS
With Stainless Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE
26"x48" 26"x66"
26"x60" 30"x60"

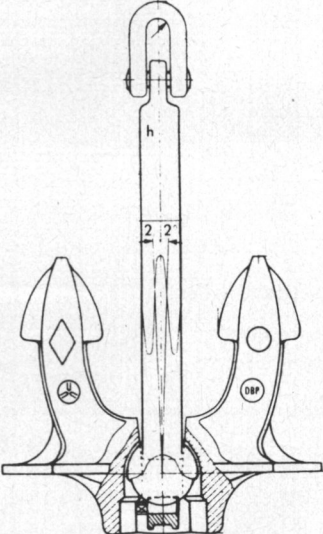
EACH DOOR
IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS
(MEET PANAMA REGULATIONS)
With extended legs for welding to deck. 14" Wide on base—length 28"—height 27 1/4". IMMEDIATE DELIVERY FROM STOCK.



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LARGE STOCKLESS ANCHORS



FOR SHIPBOARD, CONSTRUCTION AND MOORING USE.

1 Each available in the following Sizes

29,908 LBS	33,456 LBS
28,277 LBS	32,531 LBS
28,894 LBS	32,751 LBS

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Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19223
Way-Wolff Associates Inc., 45-10 Vernon Blvd., Long Island City, N.Y. 11101

BATTERIES

Soft Corp of America, Industrial Battery Div., 402 Myrtle Ave., Bantam, N.J. 07005

BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

Lucian G. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Morris Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850

Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment

Atlantic Sandblasting & Coatings, Inc., 505 Faulkenburg Road, Tampa, Florida 33619

Clemco Industries, 2177 Jerrald Ave., San Francisco, Ca. 94124
Complete Abrasive Blasting Systems, 18250 68th Avenue South, Kent, WA 98031

GMAC, Porto-Shabblast, 1112 Davidson Road, Nashville, Tenn. 37205

Nelco Mfg. Corp., P.O. Box 763, Oklahoma City, Okla. 73104

BOILERS

Combustion Engineering, Inc., Windsor, Connecticut 06095
Indeck Power Equipment Co., 1075 Noel Ave., Wheeling, Ill. 60090

Way-Wolff Associates Inc., 45-10 Vernon Blvd., Long Island City, N.Y. 11101

BOW THRUSTERS

Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
OmniThruster Inc., 10880 Wilshire Blvd., Suite 614, Los Angeles, CA 90024

Schofel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166

BROKERS

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153

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

Riggs Marine Corp., 29 Broadway, New York, N.Y. 10006

BUNKERING SERVICE

Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CABLE—Electrical

Seacoast Electrical Supply Corp., 225 Passaic St., Passaic, N.J. 07055

CARGO TRANSFER & ACCESS EQUIPMENT

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHOCKING SYSTEMS

Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18926

CLOCKS

Wempe Chronometerwerke Germany, Stubbenhuk 25 2000 Hamburg 11, Germany

COILS—Cooling, Heating, Ventilating

Calmac Coil, Inc., Colville, Wash. 99114
CONTAINERS—Cargo Container Handling

Pacoco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

CONTAINER LASHINGS & COMPONENTS

Line Fast Corp., 805 Grundy Ave., Holbrook, N.Y. 11741

CONTROL SYSTEMS

Automated Marine Systems Division, Litton Systems Canada Limited, 21101 Oxnard St., Woodland Hills, CA 91364

Delaval Turbine Inc., (Gems Sensors Div.) Spring Lane, Farmington, Conn. 06032

Fakboro Marine Operations, P.O. Box 435, Burlington, Mass. 01803

Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913

Marine Electric RPD Inc., 166 National Road, Edison, N.J. 08817

National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, Mo. 63144

Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

CORROSION CONTROL

Carboline Co., Marine Div., 350 Hanley Industrial Court, St. Louis, Mo. 63144

CRANES—HOISTS—DERRICKS—WHIRLEYS

Clyde Iron, a unit of AMCA International Corp., Suite 200/Shekton Bldg., University Plaza, New York, N.Y. 10019

AB Hagglund & Soner, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087

Marathon LeTourneau Company, P.O. Box 2307, Longview, Texas 75601

Pacoco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK COATINGS—Non-Slip

O'Neill Company Inc., 2515 Belair Road, Baltimore, Md. 21206

DECK COVERS—Chain Pipe

Lackstad Co., Inc., 179 West 5th Street, Bayonne, N.J. 07002

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696

Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

DECK MACHINERY—Cargo Handling Equipment

AB Hagglund & Soner, Rep. in U.S.A. by Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

New England Trawler Equipment Co., 291 Eastern Ave., Chelsea, Mass. 02150

DIESEL ACCESSORIES

Controls, Inc., 2655 U.S. Rt. 22, Union, N.J. 07083

General Thermodynamics Corporation, 150 Ballardvale St., Wilmington, Mass. 01887

DIESEL ENGINES

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021

Burmester & Wain, One State Street Plaza, New York, N.Y. 10004

Caterpillar Tractor Co., Industrial Division, Peoria, Ill. 61629

Electro-Motive Division General Motors, La Grange, Illinois 60525

Gallen Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231

Indeck Power Equipment Co., 1075 Noel Ave., Wheeling, Ill. 60090

M.A.N. AG Werke Augsburg Postfach 10 00 80 D-8900 Augsburg 1 Germany

Mitsui Engineering & Shipbuilding Co. Ltd., 6-4 Tsukiji, 5-chome, Chuo Ku, Tokyo, Japan

MTU/Motoren-und Turbinen-Union, Friedrichshafen GmbH, P.O. Box 2040, D-7990 Friedrichshafen, W. Germany

Oosterhuis Industries Inc., 1800 Engineers Road, Belle Chasse, La. 70037

Power & Propulsion Systems, Inc., 9821 Katy Freeway, Houston, Texas 77024

DIVERS

International Underwater Contractors Inc., 222 Fordham Street, City Island, New York 10464

RMP Marine Services, Inc., Pier D, Berth 34, Long Beach, Calif. 90802 — Norfolk, VA, Houston, TX, Honolulu, HA

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706

DOCK BUILDERS

DeLong Corporation, 29 Broadway, New York, N.Y. 10006

GHT Stevedore, Ferrostal Overseas Corp., 17 Battery Place, New York, N.Y. 10004

DOORS—Watertight—Joiner

Wolz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

DUCTORS

Vita Motorator Co., 200 West 20th Street, New York, N.Y. 10011

ELECTRICAL EQUIPMENT

Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013

Marine Industrial Products Co., 1275 Bloomfield Ave., Fairfield, N.J. 07006

Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030

Midland Ross Corp., Electrical Products Div., P.O. Box 1548, Pittsburgh, Pa. 15230

Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014

Port Electric Supply, 157 Perry Street, N.Y. 10014

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EQUIPMENT—Marine

Alexander Industries, Inc., 1901 Julia Street, New Orleans, LA 70113

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

Kearlort Marine Products, 350 South Fulton Ave., Mount Vernon, N.Y. 10550

Nicolai Joffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080

Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030

Peck Equipment Co., 3500 Elm Avenue, Portsmouth, Va. 23704

Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

EVAPORATORS

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

EXPANDED METALS

Niles Expanded Metals Inc., 700 North Pleasant Ave., Niles, Ohio 44446

FANS—VENTILATORS

Coppus Engineering Corp., 344 Park Avenue, Worcester, Mass. 01610

Dasic International Corp., 1035 Southeast Ninth Street, Portland, OR 97214

Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030

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 44062

Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850

FINANCING—Leasing

General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904

Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005

Lehman Brothers Inc., One Williams Street, New York, N.Y. 10004

FITTINGS & HARDWARE

Robson Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FURNITURE

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

GANGWAYS

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

GAUGES—Pressure

General Instrument Corp., 3811 University Blvd. W. #26, Jacksonville, Fla. 32217

HULL CLEANING

MP Industries Inc., 1200 Ponce St., Baltimore, Md. 21224

Phosmarin Equipment (Phocenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France

RAP Marine Services, Inc., Pier D, Berth 34, Long Beach, Calif. 90802 — Norfolk, VA, Houston, TX, Honolulu, HA

HYDRAULIC POWER

Abex Corp., Denison Div., 1160 Dublin Rd., Columbus, Ohio 43216

INERT GAS—Generators—Systems

Airflex Engineering, Inc., 1901 Julia St., New Orleans, La. 70113

Goulin Corporation, Garden Street, Everett, Mass. 02149

Smith Nymegen Corporation, 1511 K Street, N.W., Washington, D.C. 20005

INSULATION—Cloth, Fiberglass

Bailey Gensetter 6 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

R.B. Jones Insurance, 911 Main St., Kansas City, MO 64199

R.B. Jones Insurance, 120 S. Central Ave., St. Louis, MO 63105

R.B. Jones Insurance, 160 Water St., New York, N.Y. 10038

Marsh & McLennan Inc., 1221 Ave. of the Americas, New York, N.Y. 10020

KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LADDERS

Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, Fla. 33020

Automatic Power Inc., 213 Hutchinson Street, Houston, Texas 77003

Midland Ross Corp., Electrical Prod. Div., P.O. Box 1548, Pittsburgh, Pa. 15230

Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014

Perko Inc., P.O. Box 64000, Miami, Florida 33164

Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

Tideland Signal Corp., P.O. Box 52430, Houston, Texas 77052

MACHINE TOOLS

Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MARINE MACHINERY REPAIR

Worthington Service Corp., 233 Mount Airy Road, Basking Ridge, N.J. 07920

MARINE VALVES—Manhole Covers Gauge Hatches

J.M. Huber Corp., P.O. Box 2831, Borger, Texas 79007

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

Alpha Engineers, 7215 N.E. 13th Ave., Vancouver, Wash. 98665

American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004

Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 503, 35 Wisconsin Circle, Chevy Chase, Md. 20015

Anchorage Marine Services Incorporated, 844 Biscayne Boulevard, Miami, Florida 33132

J.L. Bludworth, P.O. Box 5217, Houston, Texas 77012

Soquer & Associates, P.O. Box 30184, New Orleans, La. 70190

Sreit & Garcia, Naval Architects, 441 Gravier St., New Orleans, La. 70130

CADCOM Inc., 2024 West St., Suite B, Annapolis, Md. 21401

R.A.CADY-Marine Survey Practice, 2301 Leroy Stevens Road, Mobile, Ala. 36609

Catalina National, Inc., 1725 Monrovia Ave. (Suite A4), Costa Mesa, CA 92627

C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211

Childs Engineering Corp., Box 333, Medfield, Mass. 02052

Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517

Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148

Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico

C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Daniel Yacht & Ship Brokerage Ltd., 1861 S.E. 17th St., Suite 206, Ft. Lauderdale, Fla. 33316

Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119

Designers & Planners Inc., One State Street Plaza, New York, N.Y. 10004

M. Mack Earle, 103 Mallor Ave., Baltimore, Md. 21228

Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 14 Vanderventer Ave., Port Washington, N.Y. 11050

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006

John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

Arthur A. Grant & Son, Inc., 1745 First National Bank of Commerce Bldg., New Orleans, La. 70112

Phillip Gresser & Associates (PTE) Ltd., 122 Eng Neo Ave., Singapore 11

Morris Gursnick Associates, Inc., 550 Kearny Street, San Francisco, Calif. 94108

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Jontsen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227

James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133

Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460

Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567

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

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

BUYERS DIRECTORY (continued)

OIL PURIFIERS—Separators

Golden Marine Co., Inc., 160 Van Brunt St., Brooklyn, N.Y. 11231
OILS—Marine—Additives
 Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
 Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
 Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
 Texaco, Inc. (International Marine) 135 East 42nd St., N.Y., N.Y. 10017

PAINT—Coatings, Protective

Carboline Co., Marine Div., 350 Hanley Industrial Court, St. Louis, Mo. 63144
 Devco & Reynolds Co., Inc., P.O. Box 7600, Louisville, Ky. 40207
 Hanline Bros., Inc. (Consol Point), 1400 Warner St., Baltimore, Md. 21230
 International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
 Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
 Petterson Sargent Co., 1471 Jersey Ave., New Brunswick, N.J. 08901
 Products Research & Chemical Corp., (PRC Coating and Sealants Div.), 5430 San Fernando Road, Glendale, California 91203

PETROLEUM SUPPLIES

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PILOT LADDERS—Wood Products

A.L. Don Co., 58 Grant Avenue, Carteret, N.J. 07008

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
 Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
 Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
 Penzo Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

PLASTICS—Marine Applications

Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PLATENS

Welding Wholesale Co., Div. J.A. Cunningham Eqp., Inc., 2151 Dreer St., Philadelphia, Pa. 19125

PROPELLERS: NEW AND RECONDITIONED—SYSTEMS

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
 Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
 The Columbian Bronze Corp., 216 North Main Street, Freeport, N.Y. 11520
 Coalidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
 Escher Wyss GmbH, P.O. Box 798, Ravensburg, Germany
 Lips BV, Lipsstraat 52, Drunen, Netherlands
 LIPS Propeller Works Inc., 420 Lexington Ave., New York, N.Y. 10017
 Valth Schneider—U.S. Agent: Krupp International, Inc., 550 Mamaroneck Ave., Harrison, N.Y. 10528

PROPULSION—Marine

Combustion Engineering, Inc., Windsor, Connecticut 06095
 Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
 In-Place Machining Co., 1929 N. Buffman St., Milwaukee, WI 53212
 Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
 Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
 Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

PUMPS—Repairs—Drives

Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602
 Penzo Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
 Worthington Pump Inc., P.O. Box 1250, Mountaineer, N.J. 07092

RATCHETS

CM American, Division Columbus McKinnon Corp., P.O. Box 74, Wickes Rocks, Pa. 15136

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
 Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

RIGGING & BLOCKS

D. Van Beest En Zn.B.V., P.O. Box 57, Merwestraat 1-5, Slidrecht, The Netherlands

ROPE—Manila—Nylon—Hawesars—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
 Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
 The Cordage Corp., Columbian Drive, Auburn, N.Y. 13021
 Wall Rope Works, Inc., Beverly, N. J. 08010

RUDDER ANGLE INDICATORS

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
 Hove McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
 Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

SCAFFOLDING EQUIPMENT—Work Platforms

Chamberlain Manufacturing Corp., 845 Iarch Ave., Elmhurst, Ill. 60126
 Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
 Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055
 Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SEWAGE—Pollution Control

Argo Marine, Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013

Clear Water, Inc., N. Main Street, Walworth, WI 53184
 Calit Industries, Water & Waste Management Operation, Belfort, Wisc. 53511

Demco, Inc., P.O. Box 94700, Oklahoma City, Oklahoma 73109
 Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696

Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184

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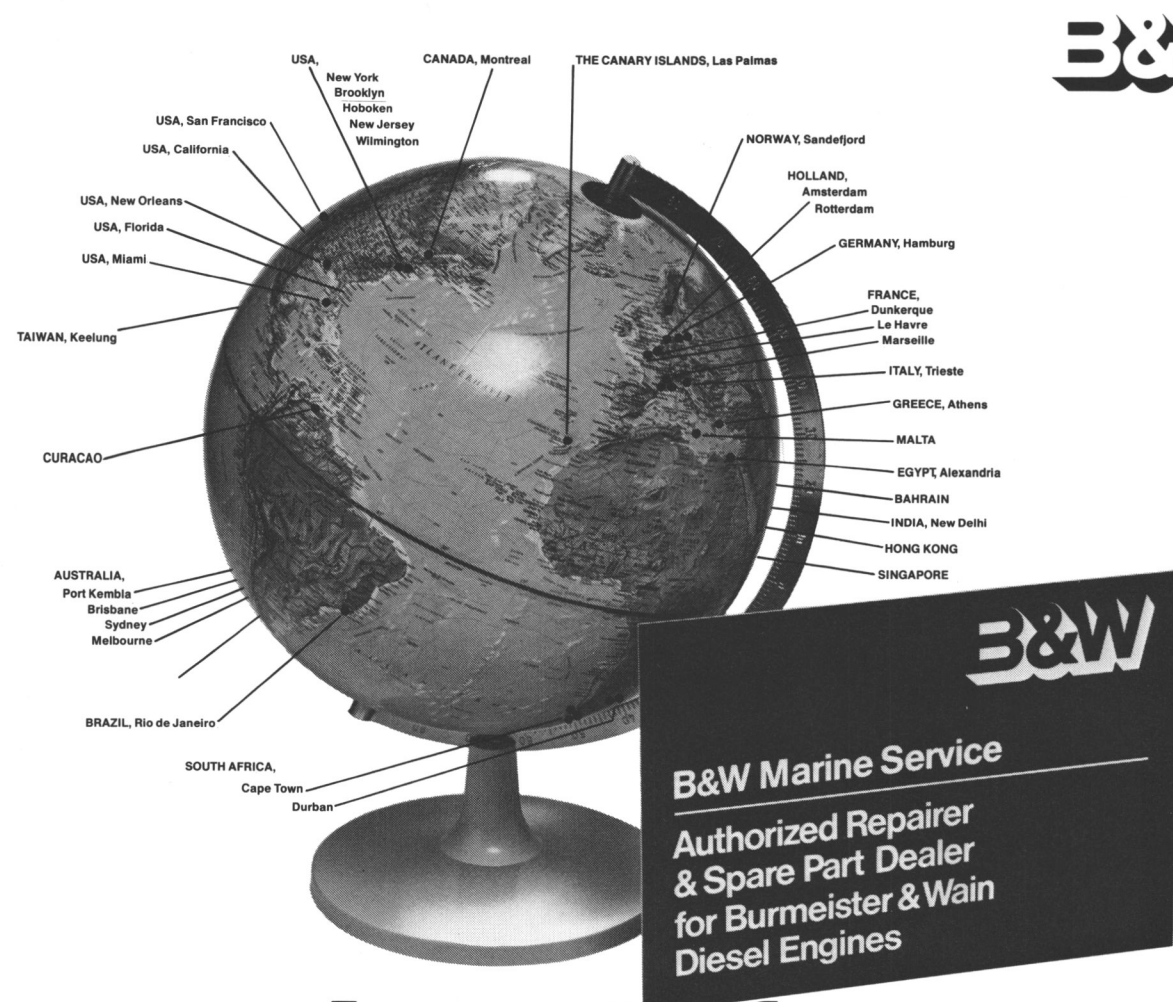
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