

MARITIME REPORTER

AND
ENGINEERING NEWS



M/V Gulf Fleet No. 48

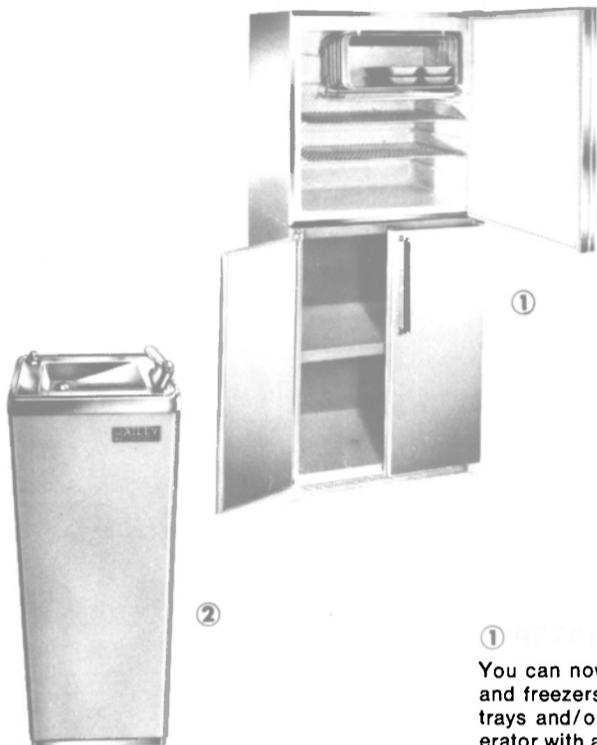
**HUDSHIP'S First
185' Supply Vessel Delivered
To Gulf Fleet Marine**
(SEE PAGE 4)

**POST CONFERENCE REPORT
89th SNAME ANNUAL MEETING**
(SEE PAGE 4)

DECEMBER 15, 1981

BAILEY

especially for marine use



①

① REFRIGERATORS AND FREEZERS

You can now combine these units in less than 5 cu. ft. of floor space. Capacity of refrigerators and freezers is 6 cu. ft., storage units of 11 cu. ft. A refrigerator with ample space for ice cube trays and/or frozen foods is ideal for officers' quarters. For mess or galley, combine a refrigerator with a storage unit or a freezer. If you need 12 cu. ft. of either refrigerator or freezer space, combine two similar units using our optional stacking frame with functional air grille to save valuable deck space.

We also have a complete line of standard, portable and under-counter refrigerators from 4 to 102 cu. ft., AC or DC. AC units with blower-type evaporators are self-defrosting. All units rat-proofed in accordance with U.S. Health Service requirements.

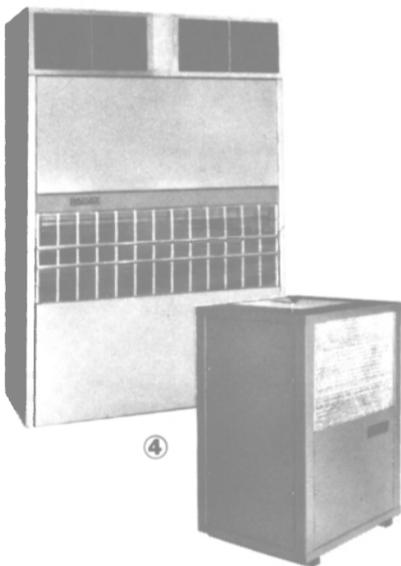


②

② WATER COOLERS

Model B14M has an easy-to-clean top, a recessed rust-resistant base and mounting brackets for bolting cooler to the deck, all of stainless steel. Panels are of pearl gray baked-on enamel finish but are also available in stainless steel at slight extra cost.

Cooler capacity is 14 gals. of 50°F. water per hour. Bubbler has a built-in pressure regulator assuring an even flow of water at line pressures of 20 to 125 psi.



③

③ ICE CUBERS

BAILEY Kold-Draft* Ice Cubers, occupying only 7½ sq. ft. of floor space, have a capacity of up to 1,200 lbs. per 24 hours. Add-A-Unit feature permits increasing this capacity without using more floor space. All models compensate for a 15° roll and/or pitch. Units have a special condenser, valves and fittings, permitting salt water to be used for cooling.

Models are in gray acrylic baked-on enamel; stainless steel finish is an optional extra. Daily capacities range from 110 to 1,200 lbs. using ice storage bins. Immediate delivery of complete units or repair parts from any of our four warehouses.

*Reg. TM Uniflow Mfg. Co.

④

④ AIR CONDITIONERS

Water-cooled, self-contained units have cabinets of heavy gauge steel, protected with rust inhibiting primer possessing excellent water immersion, salt spray and humidity resistance. Finish is neutral beige, baked enamel. In 3, 5, 7½ and 10 ton models, AC or DC.

Smaller models (AC only) are available for areas where deck space is at a minimum. Whereas other models must allow several inches for breather space, these fit flush against the bulkhead because the permanent-type, air return filter is in the front and the directional, controllable air discharge grille is on the top. In models ranging from 9,400 to 27,500 BTU/hr capacity, they are self-contained and sea water cooled. May be installed easily and inexpensively anywhere on a ship.

FOR YOUR
PROTECTION

When you purchase any kind of automatic equipment, be certain that your supplier can furnish proper service when needed. BAILEY maintains qualified mechanics to install units and service them properly, as well as a team of engineers to cope with any problems that may arise.

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Write 125 on Reader Service Card



McAllister Bros. Invites You to Sign On for the *Wavertree's* Most Important Voyage

Our tugs shepherding the historic ship *Wavertree* back to her berth at New York's South Street Seaport Museum are playing their part in an undertaking in which everyone who cherishes the seafaring heritage should share.

The *Wavertree* is a classically beautiful full rigged ship, brought to New York in 1970 through the generosity of supporters of the then fledgling Seaport Museum.

This summer, thanks to contributions organized by the Ship Trust of the National Maritime Historical Society, our tugs pulled the ship away to Hoboken for major structural restoration in the Bethlehem Steel yard. Volunteers labored away mucking out bilges and cleaning and repainting, as the shipyard crew did their varied jobs.

Why Not Join In?

We are proud to contribute too. The records don't show whether

our tugs handled the *Wavertree* when she left New York under sail in 1895, but we had been in business in the harbor for over a generation at that time. Since then our business has become worldwide. And we know that our industry, the shipping industry, has a role of deep importance to play in keeping alive the proud traditions, the spirit of loyalty, cooperation and enterprise—the things that are needed to conceive great voyages, and to make them.

The *Wavertree* embodies the history of an age when men sang at their work, dreamed tall dreams and opened our world through far voyages made under conditions of hazard and difficulty. Her most important voyage is the onward voyage she has to make today, a voyage down the seas of time to greet oncoming generations and encourage them to remember and share in what she and her people achieved at sea.

That's the voyage we invite you to sign on for.

McAllister Brothers, Inc. Towing and
Transportation, 17 Battery Place,
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Baltimore (301) 547-8678 • Norfolk (804) 627-3651
Philadelphia (215) 922-6200 • San Juan (809) 724-2360

McAllister



**TO: SHIP TRUST of the NATIONAL MARITIME
HISTORICAL SOCIETY**
2 Fulton Street, Brooklyn, New York 11201

- I'm with you! I enclose my contribution of \$25, made out to **Nat'l Maritime Historical Society**, to help the *Wavertree* restoration.
- I'm sending in a tax-deductible \$100 to help, and understand I'll receive a signed print of Os Brett's painting of the *Wavertree* off Cape Horn.
- I'd like some further information. Please send me a packet on the *Wavertree* campaign.

FROM: (Please print)

MR

NAME _____

ADDRESS _____

ZIP _____

Contributions to NMHS are tax-deductible

TRY US ON FOR SIZE



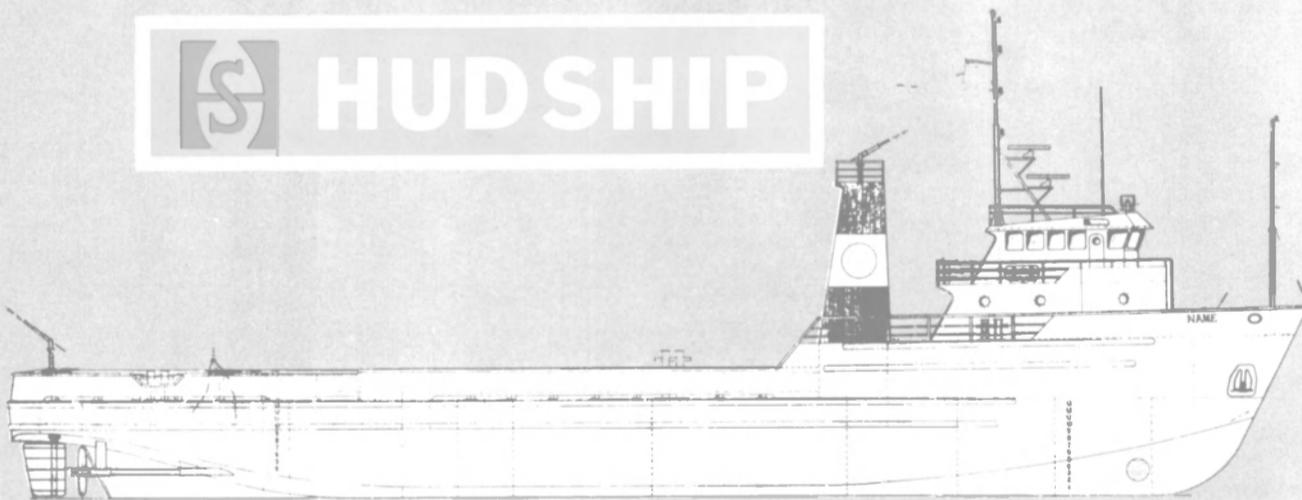
We've added the 185 foot and the 203 foot tug/supply vessels to our line of quality boats. It's what you've demanded from us and what we can deliver.

At our new seventeen acre shipyard we're building larger vessels for our old friends and some new friends too.



THE 185 FOOT CHARACTERISTICS

Length overall 185'
Beam 40'
Depth 14'
Design water line 10'



HUDSON SHIPBUILDERS INC.

456 River Edge Road (West Yard), P.O. Box Q, Pascagoula MS 39567
601-762-4626 TELEX 589-927 HUDSHIP PASC

Write 216 on Reader Service Card

ON THE COVER

Cover photograph by
Perry McMichael,
Pascagoula, Miss.

**Hudship's First 185' Supply
Vessel Delivered to
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PAGE 8

**Post Conference Report
89th SNAME Annual Meeting**

PAGE 36

**Award \$2.7 Million Repair
Contract To Todd Yard
For Dredge Overhaul**

The U.S. Army Corps of Engineers, New Orleans District, has awarded a \$2,781,904 contract to Todd Shipyards Corp., Galveston, Texas, for drydocking and repairing the Corps' dredge Langfitt. The Corps uses the vessel principally on the Mississippi River channel, the Mississippi River-Gulf Outlet, and the Calcasieu Bar Channel to maintain a deep-draft navigation channel for oceangoing vessels.

**Veliotis Takes New Post
With General Dynamics**

P. Takis Veliotis has been designated executive vice president-marine and international operations of General Dynamics Corp., according to a recent announcement by David S. Lewis, chairman and chief executive officer. The post, according to Mr. Lewis, is a new one that includes responsibility for the organization's shipbuilding and major corporate expansion.

Mr. Veliotis, who joined General Dynamics in 1973 as president and general manager of the company's Quincy Shipbuilding Division, has most recently been general manager of the Electric Boat Division. He will be succeeded as general manager at Electric Boat by Fritz G. Tovar, who has been general manager of Electric Boat's Quonset Point, R.I., facility. Mr. Tovar will be succeeded by William W. Bennet who has been assistant general manager at Quonset Point.

**MARITIME
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(USPS 016-750)

No. 24

Volume 43

**107 EAST 31st STREET
NEW YORK, N. Y. 10016**

(212) 689-3266

Telex: MARINTI 424768

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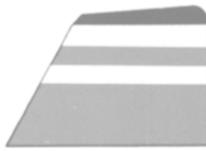
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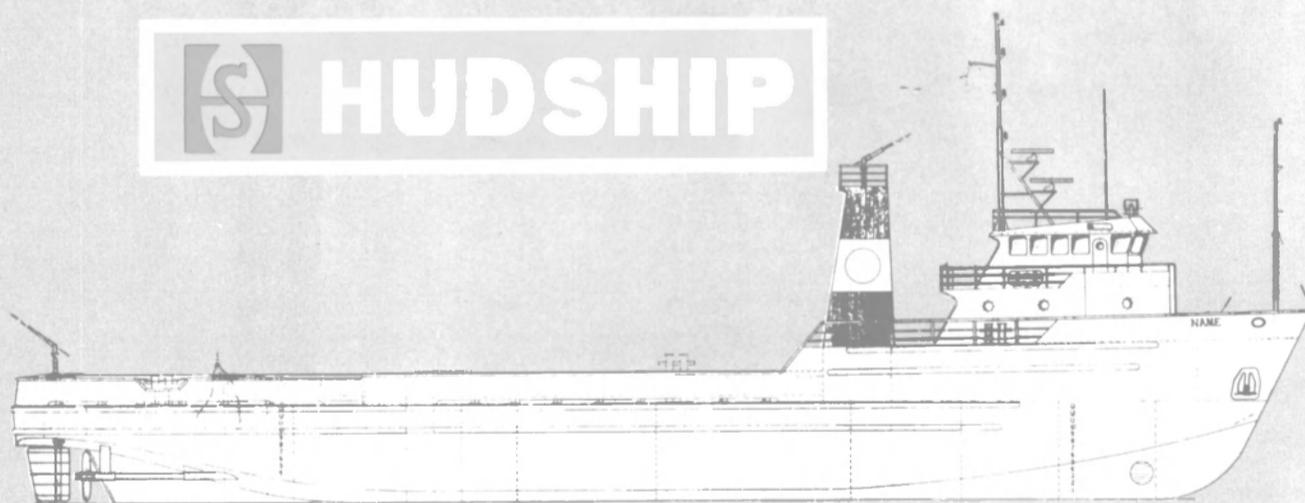
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DEVOE MARINE PAINTS AND COATINGS...WHEN PERFORMANCE COUNTS.

**Sun Company, Levingston
Sign Letter Of Intent
For Pa. Shipyard Sale**

The Sun Company, Inc., announced recently that it has signed a letter of intent for the sale of the assets of its Sun Ship subsidiary of Chester, Pa., to Levingston Shipbuilding Company, Orange, Texas. Terms of the transaction were not disclosed.

Levingston is a privately held company that operates two shipyards in Texas and a marine engineering facility in Annapolis, Md. It has been in the shipbuilding and ship repair business since 1933, with yards in Port Arthur and Orange, Texas.

Edward E. Paden, chief executive officer of Levingston, said: "Our firm is approaching this proposed transaction with a great deal of excitement and enthusi-

asm. Right now we have more business than we can accommodate at our Texas facilities, and the opportunity to expand with a major facility in Chester, Pa. is an excellent fit with our future growth plans.

"I am convinced that under our management, we can build a thriving business in southeastern Pennsylvania, and I'm looking forward to joining with the talented people of Sun Ship on such

a program to the benefit of the whole area."

Sun chairman Theodore A. Burtis said: "We have consistently said that a sale of Sun Ship would be made to a party with three key attributes: credibility in the shipbuilding and ship repair business; the financial resources needed to compete successfully in that business; and, most crucial, a commitment to maintaining a healthy, ongoing business in Chester. Levingston meets all of those requirements."

Sun said that the sale was conditional upon reaching a definitive agreement, obtaining appropriate government approvals, and the negotiation of labor agreements with the Sun Ship labor unions that are acceptable to Levingston.

MVI OILS

MVI oil has been the oil for medium-speed diesels for nearly 50 years



MVI Caprinus® R Oil is Shell's best for tow boats powered by the newest (or oldest) medium-speed diesels.

For almost a half-century, engine builders and operators alike have preferred MVI (medium viscosity index) oils for medium-speed diesels. Carbon deposits formed when using MVI oils tend to be soft and to slough off with normal engine operation. Deposits formed using HVI (high viscosity index) oils tend to be hard and continue to build up in the engines. In two-stroke units, hard deposits can block ports to the point that engine output suffers. Excessive ring groove fill can lead to bore polishing, broken rings and increased oil consumption.

The major difference in MVI lubricating oils today is in the additive technology that has extended oil life, with improved lubricating qualities and greater protection against corrosion. Yet, the primary benefit of MVI oil still applies - carbon deposits remain soft, and engines stay cleaner.

Shell has just completed a new plant doubling its MVI base stock capacity. Although engine manufacturers have broadened VI limits in their engine oil recommenda-

tions in recognition of a general MVI shortage - you do not have to accept an HVI oil.

Shell's new plant, combined with the increased use of oil analysis by operators to help conserve oil, means there will be enough MVI Caprinus® R Oil for the foreseeable future.

Keep the inherent advantages of MVI oil and take advantage of modern technology with MVI Caprinus R Oil for outstanding performance in your medium-speed diesels.

Write today for more information on MVI Caprinus R Oil, and the MVI/HVI story.

Shell Oil Company

Shell Service Bureau
P.O. Box 2663
Houston, Texas 77001



PLEASE SEND ME:

- Caprinus R Oil Technical Bulletin (SOC: 17-80)
- Shell lubricants for motor vessels (SOC: 122-79)
- Shell Marine Jobber Directory (SOC: 127-79)
- MVI marine mailer (SOC: 201-80)
- Maritime Reporter reprint (SOC: 211-80)
- MVI Questions & Answers (SOC: 204-81)

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____ MR _____

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

**Award GE \$9.9-Million
Contract Modification
For Nuclear Components**

General Electric Company, Machinery Apparatus Operation, Schenectady, N.Y., has been awarded a \$9,965,000 modification to a previously awarded cost-plus-fixed-fee contract for naval nuclear propulsion components. The work will be performed at various places. The Naval Sea Systems Command, Washington, D.C., is the contracting activity. (N00024-74-C-5128)

**American Steamship Names
D. Ward Fuller As Its
Chief Operating Officer**



D. Ward Fuller

Ward Fuller, executive vice president of American Steamship Company, Buffalo, N.Y., has been given the additional responsibility of chief operating officer, it was announced recently by Thomas W. Burke, president and chief executive officer of the GATX subsidiary company.

Mr. Fuller joined American Steamship in 1977 as special assistant to the chairman, and was elected vice president-finance in 1978, and vice president-marketing in 1979. Prior to joining American Steamship, Mr. Fuller was corporate treasurer for GATX Leasing Corporation in San Francisco. He was assistant vice president world banking group, Bank of America, from 1973 to 1975, and maintained a private law practice between 1970 and 1973.

At today's prices, a vessel fueled by coal can cost nearly \$3 million less per year to operate than one powered by diesel. And that's based on fuel prices alone. When you consider the higher maintenance cost of a diesel, and its need for expensive lubricating oil, the difference becomes even more staggering.

Small wonder that coal is

The boilers will power a 665-foot vessel with each supplying 48,000 pounds of superheated steam per hour at a temperature of 900F and operating at a pressure of 870 psi. Only proven state-of-the-art technology is used and the fuel is readily available coal.

The boilers and the totally enclosed coal and ash handling systems are custom engineered to

struction that have delivered top performance and high reliability for decades.

Of course, we're not newcomers to marine coal power. Our last coal-fired boilers which were launched on the Great Lakes in the 1950s are still in operation today. And now, once again we're offering significant coal-based fuel savings at sea.

After all, when you can save a million here, a million there, it

making a comeback in ocean ship-

ing Foster Wheeler, the world's

number of marine boilers,

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Foster Wheeler Boiler Corporation,
Livingston, New Jersey 07039.

WHEELER



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Small wonder that coal is making a comeback in ocean shipping. Foster Wheeler, the world's leading supplier of marine boilers, has been awarded a contract for two coal-fired marine steam generators. The first such units to be ordered for a United States ocean-going vessel in nearly fifty years.

The boilers will power a 665-foot vessel with each supplying 48,000 pounds of superheated steam per hour at a temperature of 900F and operating at a pressure of 870 psi. Only proven state-of-the-art technology is used and the fuel is readily available coal.

The boilers and the totally enclosed coal and ash handling systems are custom engineered to meet specific operating requirements. And with these fully automated units there's no need for additional manpower. What's more, these coal-fired units feature the same conservative Foster Wheeler design and exacting con-

struction that have delivered top performance and high reliability for decades.

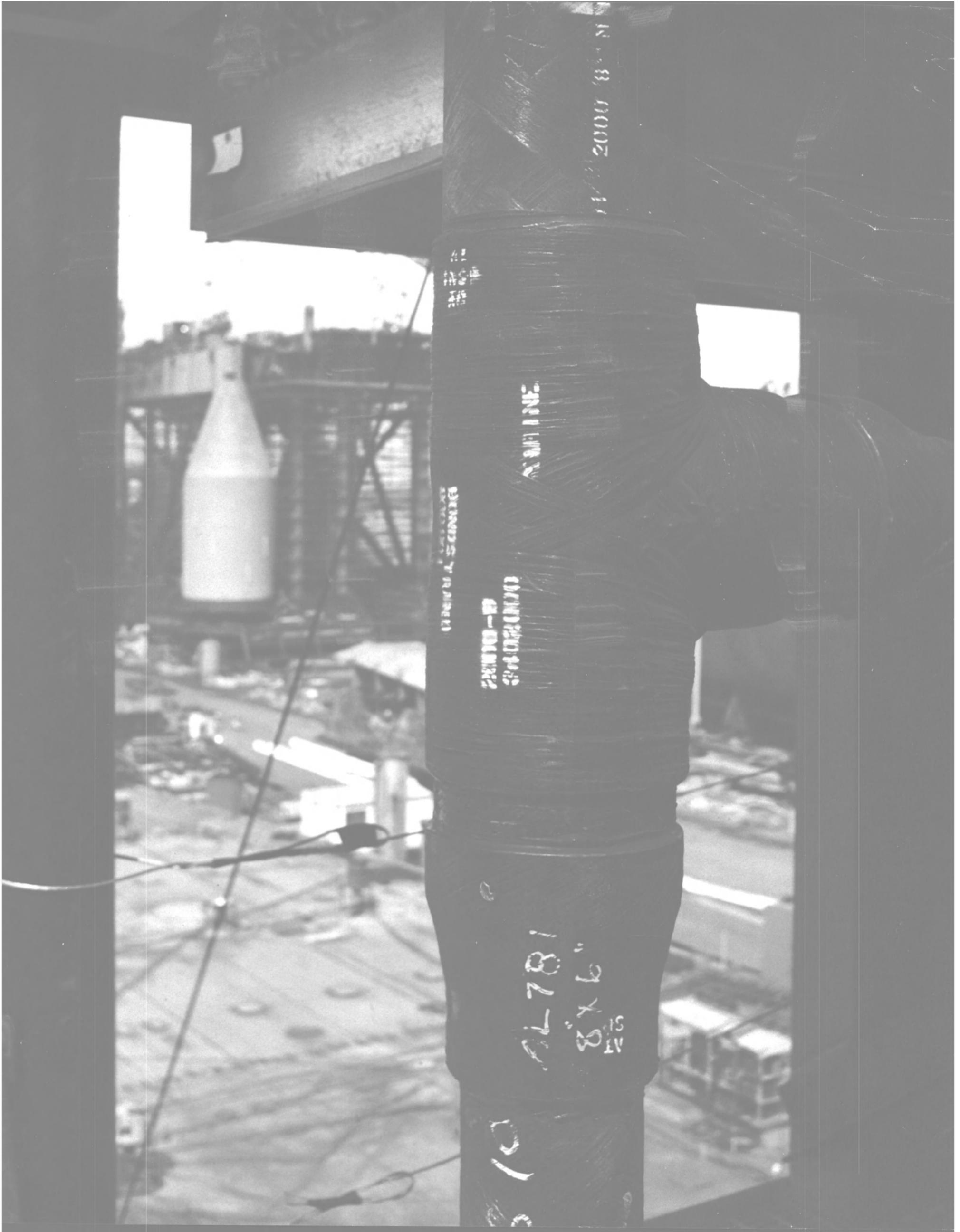
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FOSTER  WHEELER

Full steam ahead.





Maher Expands Container Facility, To Install First Paceco Transtainers In N.Y.

Maher Terminals Inc. has embarked on a major expansion program at its container facility in Elizabeth, N.J.

The program, scheduled for completion next August, includes the acquisition of a \$4.2-million container crane, which will be added to its three existing cranes. Maher is also adding some \$6 million in Paceco transtainers, which are rubber-tired, container-stacking cranes.

The Port Authority of New York and New Jersey recently authorized \$2.5 million in improvements to facilitate the use of the transtainers, including concrete pads on which the transtainers operate, relocation of utilities, and resurfacing and leveling of the operating area.

The Port Authority will finance the cost of the improvements and be reimbursed by Maher over the remaining 18-year period of the terminal operator's lease.

The Paceco transtainers, the first in the Port of New York according to the Port Authority, will facilitate the grounding, stacking and retrieval of containers.

Kvaerner, Oy Navire To Merge Shipbuilding, Equipment Capabilities

Kvaerner, the Norwegian shipbuilding and engineering group and the Finnish ship equipment manufacturing company Oy Navire AB, Parainen, have recently announced the intent to merge.

When joined with Kvaerner Brug equipment company, Oslo, Norway, the new organization will have annual sales of about \$65 million and employ about 750 people. The new company will rank second in the production of cargo access equipment, just below MacGregor.

Though the merger will not be fully effected until January 1, 1982, the two companies will begin cooperation immediately, it was announced by company executives.

The merger will give Kvaerner worldwide coverage with companies in West Germany, France, U.K., Holland, Singapore, Australia, Brazil, and the U.S., as well as Finland, Sweden, and Norway.

The new company will be known as Kvaerner Navire International AB, and its worldwide operations will be headquartered in Gothenburg, Sweden. Its products also will be provided through licensees in Japan, Taiwan, India, Spain, Italy, Yugoslavia, and Greece.

Baldt Inc. Develops New Abrasion-Resistant Chain —Brochure Available

Baldt Incorporated, Chester, Pa., has introduced a new line of abrasion-resistant chain which was developed for tough marine (ARC-15) and mining (ARC-30) applications. A brochure describing the new product is available from the company.

Composed of specially formulated, high-quality alloy steel, Baldt ARC is a quality-controlled flash-butt-welded chain with structure-welded studs that has a wear life up to three times that of standard chain, depending on actual service conditions.

Tested at a minimum tensile strength of 100,000 psi and a minimum yield strength of 60,000 psi, both ARC-15 and ARC-30 are

quenched and tempered in a unique manufacturing process that yields a chain with super-hard casing and a shock-absorbing core.

Both types of chain have been successfully break-tested at more than 744,000 pounds and proof-tested at more than 492,000 pounds for 2½-inch chain.

For a free copy of the brochure, Write 33 on Reader Service Card

WHEN YOU ARE LOOKING TO BUY ALUMINUM CREWBOATS

LOOK TO THE DESIGN...AND CRAFTSMANSHIP...OF



WITH OVER A DOZEN YEARS OF SKILL IN BUILDING ALUMINUM BOATS ... TO RIGID SPECIFICATIONS



25 FT. PUSH-KNEE BOAT



31 FT. "COMBER" CREWBOAT



38 FT. "MATMAR DRILL II" CREWBOAT



Kaiser Engineers Awarded Service Contract For Trident Sub Facilities

Raymond International Inc., Houston, Texas, announced recently that its subsidiary, Kaiser Engineers, Inc. of Oakland, Calif., has been awarded a contract to provide industrial engineering services for the East Coast Trident Refit Facility under development by the U.S. Navy.

The facility, with an estimated construction value in excess of \$300 million, is part of a Trident refit complex to be located at the Naval Submarine Base at Kings Bay, Ga., according to **Henry F. LeMieux**, Raymond's chairman and chief executive officer. The complex will include waterfront facilities, industrial support areas, personnel support areas, family housing, and recreation facilities.

Kaiser Engineer's contract with

the U.S. Naval Sea Systems Command calls for engineering and technical studies to determine the industrial requirements for Trident submarine waterfront and industrial facilities, for component maintenance, and for related material support. Kaiser Engineers will also review facility designs and specifications now being prepared by the Naval Facilities Engineering Command.

The Trident is the third generation of U.S. nuclear subma-

rines, following the earlier Polaris and Poseidon classes. The first of the Trident submarines, the Ohio, was commissioned recently. The Navy has one Trident refit facility in operation at Bangor, Wash. where Kaiser has been providing similar services since 1974.

Elliott Names H.A. Bach Bow Thruster Sales Mgr.

Howard A. Bach has been appointed manager of White Gill Bow Thruster sales by United Technologies' Elliott Company, Jeannette, Pa.



Howard A. Bach

In his new post, Mr. Bach will be responsible for sales of the Elliott White Gill Bow Thruster in the Western Hemisphere. He will operate out of the Pittsburgh, Pa., district office. Mr. Bach is a 30-year veteran of the Elliott Company.

Maritel Introduces New Facsimile Receiver —Literature Available

Maritel, Inc. of Annapolis, Md., has published literature describing a new "marine-rated" communications facsimile machine from Japan Radio Co., Ltd.—model JAX-4000A.

The literature contains information on all the machine's features, complete specifications, drawings of the system's configuration and dimensions, as well as operational steps. The machine, a medium-speed facsimile receiver, is designed for maritime satellite communication.

For a free copy of the literature,

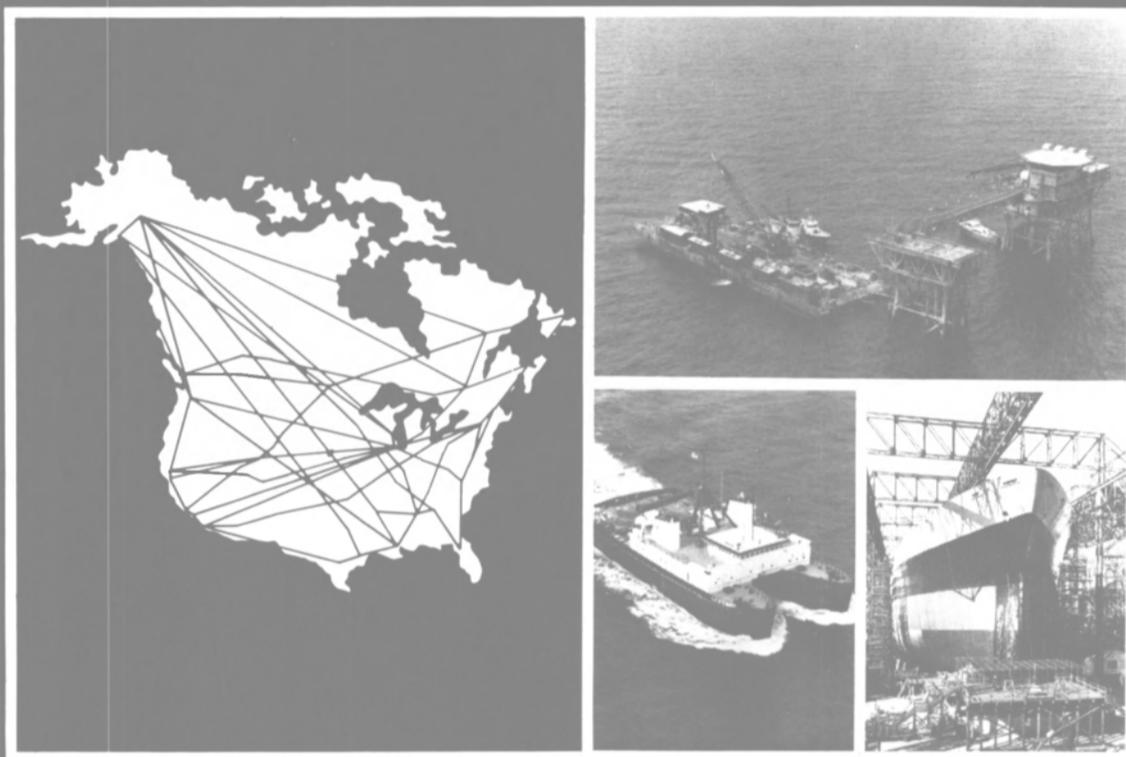
Write 34 on Reader Service Card

MarAd Approves Title XI For 20 Hopper Barges Costing \$4.7-Million

The Maritime Administration has approved in principle an application by Parker Towing Co., Inc., Tuscaloosa, Ala., to aid in financing the construction of 20 hopper barges.

Jeffboat, Inc., Jeffersonville, Ind., was the builder of the barges which were delivered recently. They are expected to join the company's current fleet and provide freight and general towage service on the Black Warrior-Tombigbee River system. The Title XI guarantee covers \$4,292,000 or 75 percent of the estimated actual cost of \$4,735,880.

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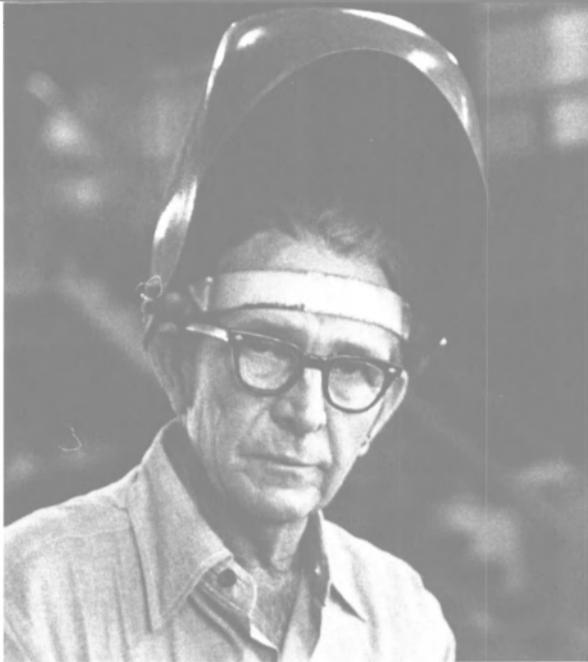
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Gulf Oil Announces Exec Assignments For Corporation And Divisions

Gulf Oil Corporation, Pittsburgh, Pa., recently announced several new executive personnel assignments at the corporate and division levels.

The new corporate assignments are:

M.J. Hill, from president, Gulf Oil Exploration and Production

Company, to corporate executive vice president, Houston. Mr. Hill will be the senior corporate officer in Houston with coordination responsibilities for Houston-based operations.

J.L. Murdy, from corporate vice president, finance, to corporate senior vice president, finance and planning.

C.M. Short, from assistant treasurer to corporate treasurer, succeeding **P.H. Weyrauch**, who has been named a corporate vice

president. Mr. Weyrauch will be based in Houston and report to Mr. Hill.

D.R. Hoyer, from president, Gulf Oil Company-International in London, to corporate vice president, Pittsburgh. Mr. Hoyer will be contact executive for European operations. Reporting to Mr. Hoyer is **R.F. Mansfield**, who was named president of Gulf Oil Company-Eastern Hemisphere. He formerly was general manager, administrative control for Gulf

Refining and Marketing Company. **N.G. Forsman**, former vice president, marketing, Gulf Oil Company-International, London, has been named president of that unit and will report to Mr. Mansfield.

The supply and transportation operations of Gulf Trading and Transportation Company will be phased into Gulf Refining and Marketing Company. **H.I. Goodman**, formerly president of Gulf Trading and Transportation Company, has been appointed corporate vice president, Houston, and will also become president of Gulf Trading Company. His appointment as corporate vice president was made to emphasize the inter-strategy-center nature of trading and its corporate impact.

In the Gulf Refining and Marketing Company, the new assignments are:

C.H. Bowman, promoted from senior vice president to president of Gulf Refining and Marketing Company, responsible for marketing, refining, and transportation operations in the U.S. and Puerto Rico, and international marine transportation and crude oil supply operations.

C.L. Campbell, from senior vice president, Gulf Trading and Transportation Company, to senior vice president, supply and transportation, Gulf Refining and Marketing Company.

At the Gulf Oil Exploration and Production Company:

J.L. Huitt was promoted from executive vice president to president of Gulf Oil Exploration and Production Company, replacing **M.J. Hill**.

P.E. Wyche, from vice president, exploration, Gulf Oil Exploration and Production Company-International, to executive vice president, Gulf Oil Exploration and Production Company, replacing Mr. Huitt.

B.W. Miller, from president, Gulf Oil Company-U.S., to senior vice president, Gulf Oil Exploration and Production Company.

And **S.L. Sugarman** was promoted from executive vice president, Gulf Trading and Transportation Company, Houston, to senior vice president, Gulf Oil Exploration and Production Company.

Joseph LaNasa Appointed VP And General Manager At AmShip Division

Joseph M. LaNasa has been appointed vice president and general manager of the AmShip Division of The American Ship Building Company, Lorain, Ohio.

Mr. LaNasa started his shipbuilding career in 1942 with American Ship Building in its Cleveland yard pipe shop. He progressed through various positions to assistant to the chief engineer of the mechanical department. Subsequently, he held vari-

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Maritime Reporter/Engineering News

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The hopper dredge Stuyvesant being launched at Avondale Shipyards, New Orleans.

Largest U.S.-Built Hopper Dredge Launched At Avondale Shipyards

The largest hopper dredge ever built in the United States — the Stuyvesant — was launched at Avondale Shipyards recently. The oceangoing dredge is owned by Stuyvesant Dredging Co., a partnership formed by the subsidiaries of Zapata Corp. and Boskalis Westminster Inc. The Stuyvesant will be operated and crewed by Williams-McWilliams Co. Inc. of New Orleans, a Zapata subsidiary.

The dredge is 372 feet long with a beam of 72 feet. It has a loaded draft of 29 feet and a cargo capacity of 8,800 cubic yards. The Stuyvesant has a total installed horsepower of 15,000 and can move at a speed of 12 knots. The dredge is equipped with twin 35-inch-diameter trailing suction pipes operated by hydraulic swell compensators, enabling the dredge to remove, load,

and transport to sea substantial amounts of dredged material. The hull has 40 hinged doors fitted in the bottom which are activated by hydraulic rams.

The seagoing Stuyvesant is completely self-contained. It is capable of working in busy waterways without delaying normal shipping traffic, and can also operate in heavy sea and swell conditions.

The dredge was christened by Mrs. John B. Breaux, wife of Congressman John B. Breaux of Louisiana, and Senator J. Bennett Johnston of Louisiana was the main speaker.

The Stuyvesant was designed specifically for the development and maintenance of U.S. waterways. After completion, anticipated for early 1982, the vessel will be available for work under contract to the U.S. Army Corps



Principals of the Stuyvesant christening were, left to right: Albert L. Bossier Jr., president of Avondale Shipyards, Inc.; Congressman John B. Breaux, Louisiana; P. van Lunteren, Royal Boskalis Westminster; William L. Rose Jr., president of Williams-McWilliams Co., Inc.; Mrs. John B. Breaux, sponsor; J. Kraaijeveld van Hemert, chairman of the board of Royal Boskalis Westminster; Congresswoman Lindy Boggs, Louisiana; Ronald Lassiter, president of Zapata Corporation; Senator J. Bennett Johnston, Louisiana; Dr. J.H. Lubbers, Dutch ambassador to the U.S.; Ian Anderson, president of Stuyvesant Dredging, Inc.; Ken Waldorf, president of Zapata Marine Services; and, in the forefront center, Miss Karen Marie Poole.

of Engineers and other customers.

Houston-based Zapata Corp. is a diversified natural resources company primarily engaged in energy-related work. Boskalis Westminster, Inc., is the U.S.

holding company of the Royal Boskalis Westminster N.V. of the Netherlands — a major international dredging, pipeline, and construction company. The dredge is being built to American Bureau of Shipping classification.

STUYVESANT

Major Suppliers			
Main Propulsion	(2) Stork Werkspoor Diesels B.V.	Pumps	Allweiler Pump Co., Machine Fabriek GJ NIJHUIS BV
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HP	15,000	Air Compressors	Compair Industrial, Inc.
Speed	12 knots	Sanitation Equipment	Pott Industries
Propellers	Bird-Johnson Co.	Cranes	Marine Crane
Shaft	Bird-Johnson Co.	Winches	Marine Safety Equipment Co.
Bearings	ACIPCO Steel Products	Anchor Windlass Capstan	CVD Giessen Werktuigenfabriek
Generators	Holec Machines	Cargo Gear	Cranes of Houston
Generator		Cathodic Protection	Engelhard Industries
Engines	Boyce Machinery		
Steering	Sperry Marine Systems		
Separators	Facet Enterprises		

ASNE Flagship Section Hears Paper On Engineering Costs And Risks

The second meeting for the 1981/82 season of the Flagship Section of The American Society of Naval Engineers had a unique format. It was held at a location close to the working place of many members, the Crystal City Marriott, which was also near a metro subway stop for the convenience of other members, and at a convenient time — immediately after normal working hours.

The meeting consisted of a cocktail hour and technical session only, enabling the participants to be on their way or free to attend other activities by 7:30 p.m. The technical session entailed examination of the "Costs

and Risks of Engineering Progress—An Update," a topic first broached by Adm. Nathan Sonenshein some 22 years ago, when he was a captain in the Bureau of Ships.

The authors, Comdr. Clark Graham, Lt. Comdrs. James Baskerville and Michael Reed, and Jan Hope used the common parameters of "Goal," "Risk," "Application," "Performance," "Evaluation," "Correction," and "Lessons Learned," to examine six major programs conducted by NAVSEA in the last two decades. These programs, "Waste Heat Boiler," "Pressure Fired Boiler," "Digital Combat Sys-

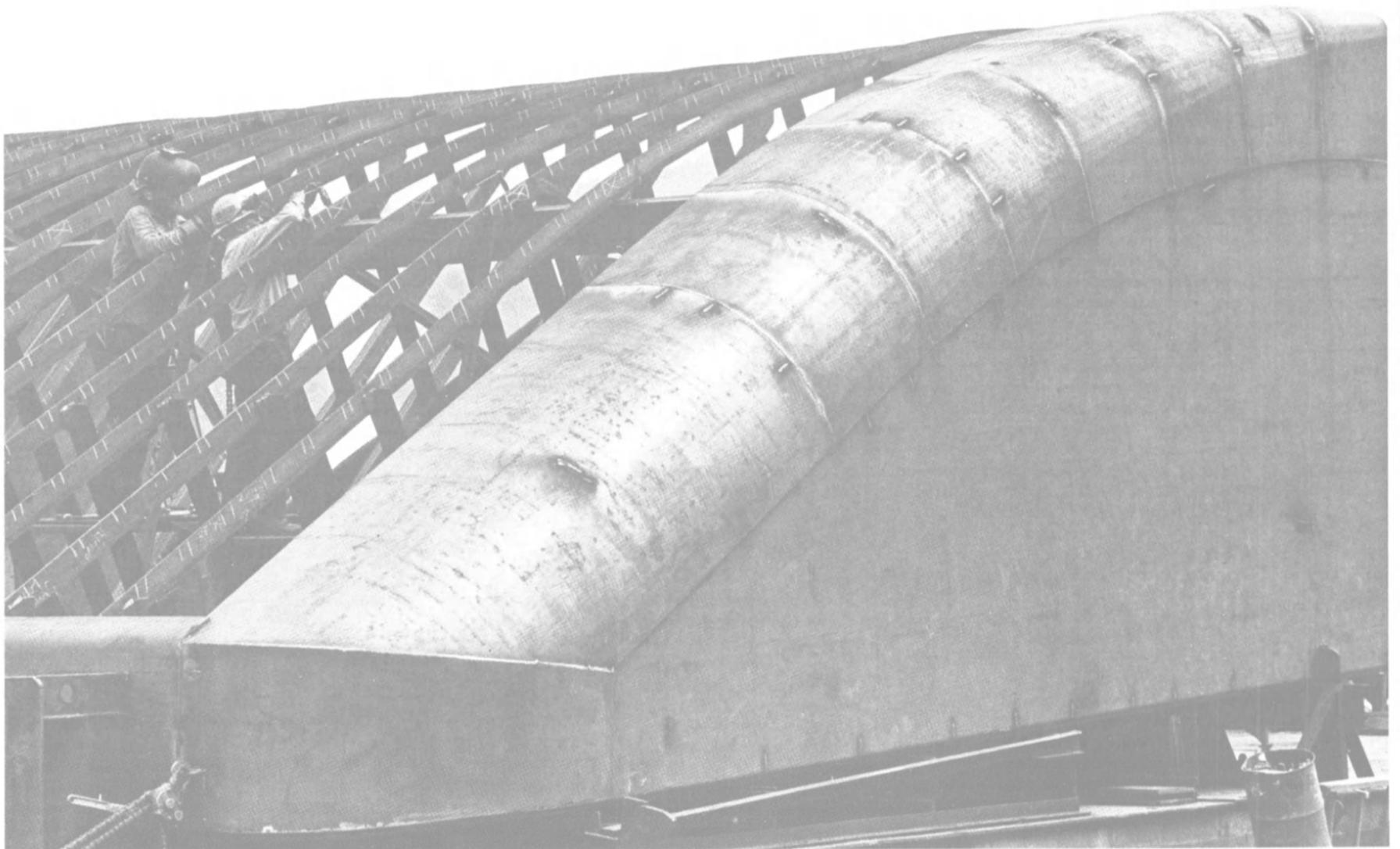


Principals shown during the ASNE Flagship Section meeting are, left to right: Capt. Barry Roberts, moderator; authors Jan Hope, Lt. Comdr. James Baskerville, Michael Reed, and Comdr. Clark Graham (section chairman).

tem," "AO 177 Highly Skewed Propeller," "Drone Antisubmarine Helicopter (DASH)," and the "Marine Gas Turbine" were analyzed as to how they contributed to engineering progress.

The conclusion reached was that while not all programs will

be highly successful nor even slightly successful, to obtain any success at all, a bold engineering outlook taking into consideration past experience and the acceptance of calculated risks must be the approach taken by NAVSEA in the future.



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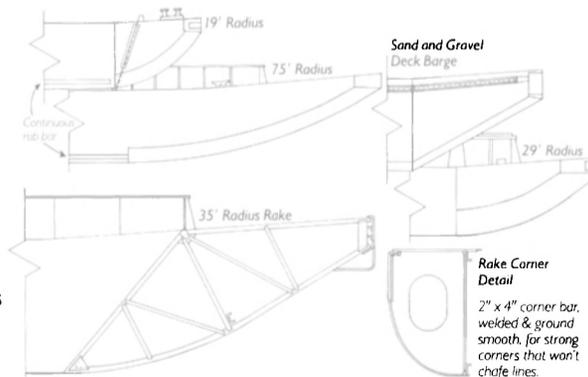
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Rake profile, from a small radius rake for low speed and high capacity to a 90-foot radius rake for high speed operation on major waterways, can be matched to virtually any commodity barge. And, even if a radius curved rake is traditional, we'll use a flat, angled sided rake if it will work better.

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DredgeMasters To Acquire Aquamarine Corporation

DredgeMasters International, Inc. of Hendersonville, Tenn., a subsidiary of Valley Industries, has announced the signing of a letter of intent to acquire Aquamarine Corporation of Waukesha, Wis., one of the world's leading manufacturers of aquatic vegetation control equipment.

This highly specialized equipment is utilized in removing aquatic weeds from lakes, canals, and waterways. Aquamarine manufactures a variety of machines that offer solutions to the basic problems of aquatic weed control including harvesting, transporting, and conveying.

DredgeMasters is well-known for designing and manufacturing portable hydraulic cutter suction dredges. According to Don C. Killom, president of DMI, "The acquisition of Aquamarine is a natural complement to the DMI line of products and services and will further enhance our strength in the waterways and marine con-

struction industries." Aquamarine is to be an operating subsidiary of DredgeMasters International. The Aquamarine division of NMI will be headed by Brate Bryant, who will serve as president of the division. Aquamarine was founded in 1968.

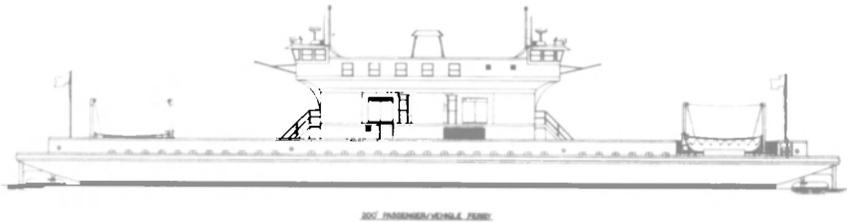
Detroit Diesel Publishes Literature On Range Of Twelve-Cylinder Engines

The Detroit Diesel Allison Division of General Motors Corporation, Detroit, Mich., has published data sheets containing easy-to-read specifications of its range of two-cycle, twelve-cylinder marine engines.

Each data sheet contains a photograph of the 525-hp, 675-hp and 800-hp engines, as well as graphs showing engine performance, line drawings illustrating their principal dimensions, and a list of standard equipment.

For a free copy of the data sheets,

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Advanced Marine To Design New Ferryboat

The Virginia Department of Highways and Transportation recently awarded a contract to Advanced Marine Enterprises, Inc., naval architects in Virginia Beach, for preparation of specifications and drawings and construction supervision for a new ferryboat. The design phase is scheduled to be completed by March 1982, at which time construction bids will be solicited from interested shipyards.

The new ferry will operate between Jamestown and Scotland wharf and will be double ended, 200 feet long, diesel-powered and capable of carrying 350 passengers and 50 vehicles.

At present, the state operates four ferries in this service. The

newest is the Surry, which was placed in service in 1979. The Virginia, Ocean City, and the Jamestown share duty with the Surry. The Ocean City, the oldest, will be taken out of service when the new ferry is completed.

Design of the new ferry will be similar to the Surry, with a great deal of attention paid to reliability and maintainability during design preparation. In addition to the diesel propulsion plant, it will be outfitted with three diesel generator sets each capable of handling the normal electrical load, and an emergency diesel generator set. Modern equipment for safety and fire control will be incorporated during the design phase to assure optimum protection for the passengers.

Newfoundland's Ocean Cargo Services Seen Expanding With Coming Offshore Oil Boom



Shown with Mr. Windsor before his address to the club are, left to right: Hon. Robert H. Gayner, Canadian consul in Chicago; Lester W. Brann Jr., president, Illinois State Chamber of Commerce; Mr. Windsor; W. Stanley Stuart Jr., vice president, U.S. Gypsum Company; James J. Doyle, partner, Ernst & Whinney; and Stewart E. Jamieson, special representative, Park-Side Oil Company.

Newfoundland's coming offshore oil boom will trigger a parallel growth in the province's maritime and air transportation services, the Hon. Neil Windsor, Newfoundland's minister of development, recently told members of the Executives Club of Chicago.

Already two ocean carriers serving the Newfoundland/Montreal trade route—Newfoundland Steamships Ltd., and Atlantic Freight Lines — are increasing

their capacity to meet rapidly expanding demand for containerized cargo between the Atlantic province and Central Canada.

Mr. Windsor also said that trial runs by super ice-breaker vessels demonstrate ocean shipping is possible year-round in Labrador where the Anaconda Company is studying the feasibility of a \$1-billion aluminum smelter close to where the Newfoundland government plans to build a \$4-billion hydroelectric plant.

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(904) 354-1868.

Westinghouse Awarded \$73-Million Modification To Navy Nuclear Contract

Westinghouse Electric Corporation, Bettis Atomic Power Laboratory, West Mifflin Borough, Pa., has been awarded a \$73,413,000 modification to a previously awarded cost-plus-fixed-fee contract for naval nuclear propulsion research and development. The work will be performed at various places. The Naval Sea Systems Command, Washington, D.C., is the contracting activity. (N00024-79-C-4026)

Soviets Plan Nuclear Powered Merchant Ship, To Be Completed By 1984

The USSR has launched a nuclear merchant shipbuilding program which will, by the close of the 1980s, make the Soviet merchant marine the only one to have both nuclear-powered icebreakers and cargo vessels.

According to a report in the journal "Soviet Shipping," the first nuclear-powered merchant ship will be a lighter carrier with a displacement in excess of 60,000 tons and a speed of up to 20 knots—the largest dry cargo ship in the Soviet fleet.

The Soviets already have three nuclear-powered oceangoing icebreakers in operation. The new nuclear merchant ship is expected to be completed by 1984.

According to the Soviet report, the new lighter carrier will have a 40,000-hp power plant. The ship will be able to transport 73 lighters of 450 tons each, or more than 1,300 containers.

Western maritime observers have pointed out that a number of problems have plagued the operation of Soviet nuclear-powered ships. The Soviets have admitted a number of shortcomings, including the short service life of major equipment, poor maintainability, and imperfect compartment designs for radioactive decontamination.

But the Soviet Merchant Marine Ministry has said categorically that during the past 20 years "there has not been a single radiation accident onboard Soviet nuclear icebreakers dangerous to the crew or the environment."

Nevertheless, the Soviets have disclosed that after six navigation seasons, the plant onboard the first nuclear icebreaker, the Lenin, was replaced by an improved version.

The Soviets assert that the oceangoing nuclear icebreakers have an "unlimited sailing range, and an endurance of between 500-700 days." By comparison, they said, the endurance of Western icebreakers does not exceed 50 days.

The Soviets complained that "not much information" has appeared in the West about Soviet nuclear-powered icebreakers.

Under present building plans,

another giant icebreaker already is under construction. The Rossiya, when completed, possibly by 1983-84, will be the fourth such icebreaker in the Soviet fleet. The others are the Lenin, Arktika and the Sibir.

The Soviet report said that previously launched atomic-powered merchant ships in the West and Japan were unsatisfactory. It claimed that these vessels had "not lived up to expectations . . ."

It remains to be seen, noted

Western maritime observers, how other countries will react to having nuclear-powered cargo ships trading in their ports.

The Russian report said the technology used in building the new nuclear-powered lighter carrier is "quite suitable and efficient for northern trade." It added that "the strengthened hull and the mighty power plant will enable the lighter carrier to force ice fields."

The USSR Merchant Marine

Ministry said recently concerning merchant ships used in Arctic conditions that, "the growth of Arctic shipments demanded by growth of the national economy, has called for a new effort to create a new dependable transportation system."

The ministry said the operation of oceangoing nuclear vessels "has proven the efficiency of their reactors and the feasibility of such plants in other super icebreakers and transport ships."

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Drew Marine Services is a new division of Drew Chemical Corporation, a company that has been a marine industry leader worldwide, for 70 years. Over the years, Drew has pioneered the development of many chemical treatment programs for the oceangoing marine industry—treatment programs that have made operating vessels more productive and profitable.

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**Name John Malagraph
General Manager Of
Advanced Marine In N.Y.**

Advanced Marine Enterprises Inc. recently announced the appointment of **John A. Malagraph** as general manager of their newly opened New York office, located at 170 Broadway.



John Malagraph

Prior to joining Advanced Marine Enterprises Inc., Mr. Malagraph spent 12 years with Designers & Planners Inc. (formerly

a subsidiary of Todd Shipyards), holding various management positions, including treasurer.

Advanced Marine's New York office joins the other highly successful naval architecture, management science, and marine and ocean engineering offices located at Arlington and Virginia Beach, Va., San Diego, Calif., and Philadelphia, Pa.

Since the start of its operations in mid-1981, the New York office has successfully completed jobs for Barge Music, Ltd.; Braswell Shipyards, Inc.; Department of Marine & Aviation, City of New York; and Marine Design & Operations. With this modest beginning, supported by the large resources of the other divisions, the New York office is expected to be self sustaining within one year.

Advanced Marine is currently serving the Naval Sea Systems Command; Military Sealift Command; U.S. Coast Guard; and a number of major shipyards including Ingalls, General Dynam-

ics, Quincy, and Norfolk Shipbuilding & Drydock Co. Advanced Marine's most recent award was the multiyear, multimillion-dollar engineering support contract with PMS-383 (NAVSEA Acquisition Manager for Auxiliary Ships).

Spanish Shipbuilders Assoc. Publishes New Brochure

—Copies Available

Wesley D. Wheeler Associates, Ltd., New York, N.Y., announced the recent publication of a new brochure detailing the capabilities and services provided by Construnaves, the Spanish Shipbuilders Association.

The brochure is divided into various sections which include graphs and figures corresponding to production, exports, and orders during the last decade, as well as a detailed list of some of the vessels delivered during the last year. It also contains photographs and data concerning the

shipyards that are members of the Association.

For a free copy of the brochure and further information,

Write 37 on Reader Service Card

New Kockumation Brochure Details U.S. Services And Equipment Available

A brochure describing the equipment and services provided in the U.S. by its three new agents has been published recently by Kockumation AB of Malmo, Sweden, manufacturer of seagoing electronic equipment.

The brochure details the new agents: NAV-COM of Deer Park, N.Y., Collins Marine of San Francisco, Calif., and Maricon Industries of Gretna, La. Also included in the four-page color brochure are descriptions of Kockumation's Levelmaster, Loadmaster, Steer-master, and Tyfon equipment, as well as photographs of the units.

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Photo courtesy of Ocean Marine Services.

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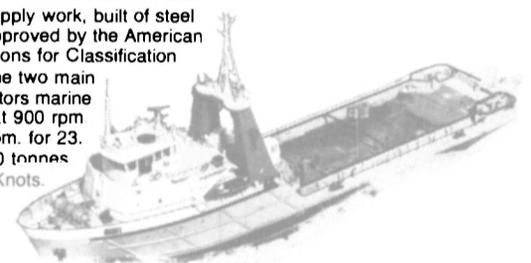


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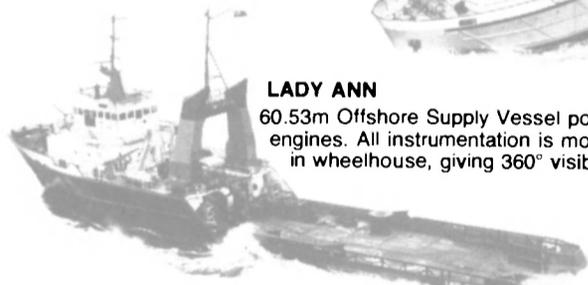
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60.53m Offshore Supply Vessel powered by 4 x 1,600 Daihatsu engines. All instrumentation is mounted in central console in wheelhouse, giving 360° visibility.



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Shell To Provide Bunkering Service At Port Of Mobile —Literature Available

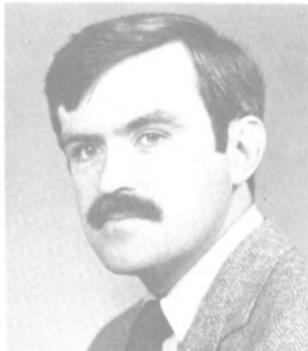
Shell Oil Company has announced they will sell bunker fuels at the Port of Mobile, Ala. Barging arrangements will enable them also to provide bunkers at the neighboring ports of Pensacola, Fla., Pascagoula and Gulfport, Miss.

Long-term terminal arrangements have been concluded and a blender has been installed to provide a complete line of marine bunker fuels, namely MFO, TFO and MDF.

Shell's decision to provide services at Mobile was based on forecasts of increased port tonnage and augmented by the completion of the Tombigbee Barge Canal in 1984, which will connect the port with the entire Mississippi and Ohio River Systems. Mobile is also strategically relative to Shell's Gulf Coast manufacturing and distribution facilities.

For more information on Shell's bunkering facilities,
Write 29 on Reader Service Card

Appoint Hession President Of Koehring Clyde, Whirley Crane Producer



John C. Hession

The appointment of **John C. Hession** as president of Koehring Clyde, Brookfield, Wis., was announced recently by **Vincent L. Martin**, executive vice president of Koehring Company, a unit of AMCA International Corporation.

Koehring Clyde produces and markets revolving Whirley cranes and other specialized equipment for lifting and pulling extremely heavy loads. Manufacturing operations for Koehring Clyde are located in Duluth, Minn., and sales offices are in Houston, Texas.

Mr. Hession joined Koehring Clyde from FMC Corporation, where he held various marketing and financial positions, most recently in FMC's construction equipment group in Cedar Rapids, Iowa.

AMCA International Corporation is a worldwide enterprise providing a broad range of primarily steel-based engineering, manufacturing, and construction products and services, with executive offices in Hanover, N.H.

Name Parks President Of Farrell Lines

The board of directors of Farrell Lines Incorporated of New York has named **Richard V. Parks** as president and chief operating officer, succeeding **James P. Horn** who has resigned.

Mr. Horn, formerly president of American Export Lines, joined

Farrell in March 1978 after the latter company's purchase of AEL. He served as a senior vice president of Farrell in charge of Mediterranean and Indian services, and in August of 1979 was chosen president to succeed **Thomas J. Smith**.

Mr. Parks came to Farrell in March 1979, and before becoming executive vice president was senior vice president for operations

and the North Europe service. He was with Seatrain Lines from 1975 to early 1979, serving as general manager in Europe. Prior to that, he had been with Sea-Land Service for 17 years.

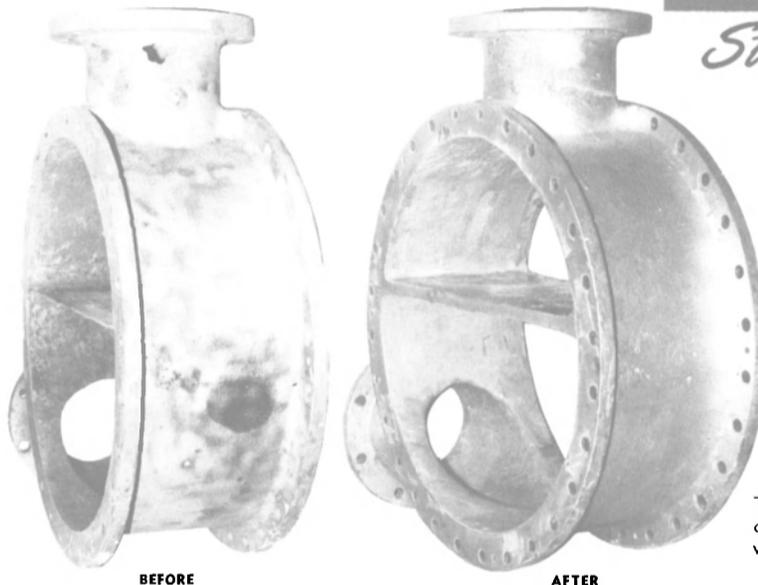
The announcement that Mr. Horn had resigned and Mr. Parks named in his place was made by **George F. Lowman**, board chairman and chief executive officer of Farrell.

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Packed in sturdy Navy type refillable metal containers.

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HOLLAND—Rotterdam
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Major manufacturers' representatives at the Todd-sponsored seminar were, left to right: W.T. Hailey, Colt; John T. Gilbride Jr., Todd-Seattle; Harry Falck, Allis-Chalmers; Harry Linssen, M.A.N.; Claus Windelev, B & W; Gerhard Laach, M.A.N.; Hans Peter Feddersen, M.A.N.; Vince Lane, Colt; Jack Jacox, Sulzer; John Balderston, Colt; Ernst Jung, Sulzer; H. Roffler, Sulzer; and Dan McDonnell, Todd-Seattle.

Todd-Seattle Sponsors Marine Diesel Seminar

Todd Pacific Shipyards, Seattle Division, recently sponsored the first international marine diesel engine seminar to be held on the West Coast. Four major diesel manufacturers made half-day presentations at the two-day conference that was attended by more than 150 persons representing more than 40 organizations. The seminar was held at Longacres Racetrack near Seattle, Wash.

Major representers were: M.A.N., Germany; Sulzer Brothers, Switzerland; B & W, Denmark; and Colt Industries, U.S. The technical presentations were designed to share state-of-the-art technology and progress in marine diesels with the prestigious audience, a who's who of marine interests in



The Todd diesel seminar featured top representatives from the diesel field including, left to right: Harry Linssen, sales representative, M.A.N. (U.S.); Claus Windelev, president B & W (U.S.); Gerhard Laach, vice president and technical manager, M.A.N. (U.S.); and Hans Peter Feddersen, manager, West Coast M.A.N. (U.S.).



Over 150 persons had the opportunity to meet diesel experts such as, (L to R): Jack Jacox, vice president, Sulzer (U.S.); Ernst Jung, technical manager (U.S.); and H. Roffler, service manager, (U.S.).

the Northwest. In addition to the Coast Guard and Navy, other government agencies represented included the Military Sea-Lift Command, National Oceanic and Atmospheric Administration, Washington and Alaska State Ferries. Major commercial interests that attended included Sea-Land, Inc., American President Lines, Crowley Maritime, Lykes Brothers Steamship Co., and Chevron Shipping as well as representatives of the American Bureau of Shipping and of marine engineering firms. Four divisions of Todd Shipyards Corporation and the Todd corporate office were represented along with more than 20 persons from the Seattle Division.

The consensus of the presentors was that a trend is developing toward diesel power plants as major shipping firms take an extremely close look at vessel fuel consumption. Prior to 1973, fuel efficiency was not a major concern with fuel amounting to 40 percent or less of operating costs. With fuel expenditures amounting to more than 60 percent of the operating budget and continuing to climb, shipowners are looking for ways to curtail costs. Recent studies show that of 72 ships ordered from U.S. yards in 1980, fifty-two are diesel powered. Approximately 70 U.S. ships are presently being considered for conversion to diesel power. One example that was given during the seminar was a tanker that converted to medium-speed diesels in 1978 achieved a \$927,000 fuel savings in the first year.

According to the participants, diesel engines have exacting maintenance requirements that not all ship crews will be pre-



Taking a picture break at the diesel seminar were, left to right: W.T. Hailey, vice president, marketing, Colt; Vince Lane, marketing manager, Colt; and John Balderston, vice president, engineering, Colt.

pared to handle. With the increase in diesel-powered ships and required service for them, Todd announced it is preparing to meet these requirements.

Todd Pacific Shipyards, Seattle Division, is forming a diesel department, and recently agreements were signed with Sulzer Brothers and M.A.N./B & W Diesel authorizing Todd Seattle as their Northwest service representatives.

Todd has a highly trained team with specialized equipment to service and repair these engines. Key personnel have completed training at Sulzer Brothers, Inc., B & W, and at the U.S. Merchant Marine Academy.

Todd is running a continuing in-house diesel training school for classes of 20 machinists. Todd has organized a traveling team that is ready to handle any problem that may require repairs in transit to other countries. This traveling crew recently completed a large emergency repair job at Ketchikan, Alaska. Eighteen men and all necessary tools were on the job within one day.

Todd to date has serviced and repaired both B & W and Sulzer slow-speed diesel engines for ships of German, British, Chinese, Singapore, and Liberian registry.

Norcontrol To Install

\$3-Million Vessel Traffic System

—Literature Available

A \$3-million vessel traffic control system covering the 12-mile harbor approach at Gothenburg, Sweden, will be installed by Norcontrol of Norway, one of the A.S. Kongsberg Vapenfabrikk group of companies. It is anticipated the system will be in service by the fall of 1982.

Similar systems have been installed by Norcontrol in the Bay of Campeche, Gulf of Mexico; Magnus Field, North Sea; and in Teesport, U.K.

All vessel traffic in the area will be monitored by the three radar units of the system and the data will be forwarded to Gothenburg harbor control and communication center, where the vessels will appear as pictures on four-color screens. The duty officer in the center will receive a constant overall impression of the entire traffic pattern, including chart data and information on the vessels' course, speed, and position.

The raw radar data being transmitted to the control center by a newly designed band compression link, made by L.M. Ericsson of Sweden, will be overlaid with synthetically generated traffic and cartographic data such as actual fairways/navigation channels, submarine cables, buoys, speed, and course vectors of the vessels.

The system incorporates a digital scan converter which, as the name suggests, converts raw radar data from analogue into a digital format. This enables the system's computer to very accurately plot and display target data almost instantaneously. The raw radar picture and the synthetically produced chart data are displayed on high resolution color monitors that permit full daylight viewing. In addition, data from each radar will be processed and displayed on three dedicated display consoles.

Based on information on the screens, the communications center will be able to advise the vessels' masters of impending problems and advise them of necessary steps to avoid



Traffic and cartographic data in the radar-surveilled area will be shown as color pictures on four display consoles in the port operational center of Gothenburg, Sweden. The VTM system, using the very latest microprocessor technology in processing data, is developed by Norcontrol of Norway.

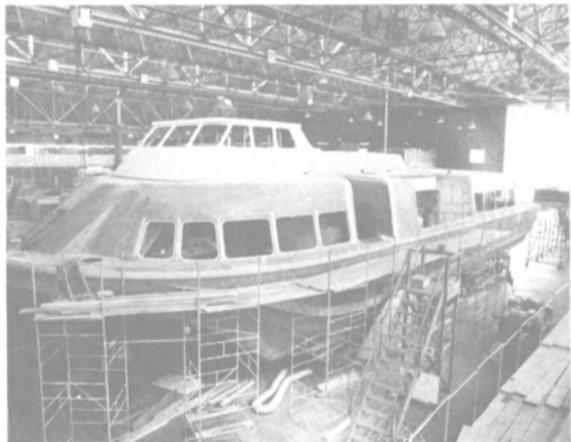
the problem. Swedish harbor authorities are convinced this vessel traffic control system will significantly reduce accidents due to incorrect course, groundings, or collisions.

For full information on the Norcontrol Vessel Traffic Control System,

Write 25 on Reader Service Card

Hong Kong Companies Order 14 Hovercraft Ferries From Vosper

Vosper Hovermarine, Southampton, England, has recently received an order for four of its new HM527 hovercraft—200-passenger ferries—from a new company, Sealink Ferries Ltd. of Hong Kong.



The HM527 under construction at Vosper Hovermarine, Southampton, England—one of four destined for ferry service in Hong Kong.

The ferries will operate at 36 knots on the 45-mile route between Hong Kong and Macau.

The value of the contract to Vosper Hovermarine is about \$22 million and the four vessels will be delivered separately in August and December 1982, and in April and July 1983.

The company also has received an order from the Hong Kong and Yaumati Ferry Co. for 10 of its HM218 SES craft for ferry service between Hong Kong and Canton on the Chinese mainland. There are currently 20 hovercraft from Vosper operating 10 hours per day, 350 days per year in Hong Kong ferry service.

In addition to its recent completion of a prototype fireboat for the Tacoma Fire Department, Vosper Hovermarine has sold four similar fireboats to the Port of Rotterdam Authority, two ferries to the Jordan Valley Authority, three crewboats to Shell Oil-Venezuela, one crewboat to Aramco in the Arabian Gulf, and four crewboats to a Cayman Island company for use in the Gulf of Mexico.

December 15, 1981

ASNE-Northern New England Section Hears Paper On The Future For Coal Use In Area

Whitcomb Wells, sales manager for C.H. Sprague & Son, Co., was the guest speaker at the fall meeting of the Northern New England Section of The American Society of Naval Engineers. The dinner meeting, held at the commissioned officers club, Portsmouth Naval Shipyard, was attended by 40 members and guests.

Mr. Wells discussed the future of coal as a fuel in New England and described the Sprague Marine Terminal facilities for handling oil, coal, and other bulk products. In New England today the cost of bituminous coal is approximately half that of the resid-



The fall meeting of the ASNE-Northern New England Section heard a paper delivered by Whitcomb Wells, sales manager for C.H. Sprague & Son, Co. (center). He was introduced by Norman Berge, vice chairman (left) and Philip Johnson, chairman.

ual oils used for fuel in power plants, paper mills, and other large users of steam.

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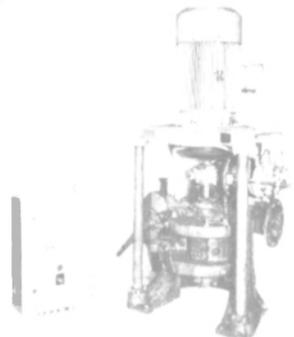
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Built 1976. 6" x 6" — 397 GPM @ 230' head — 100 PSI — 1750 RPM — 792 GPM @ 115' head — 50 PSI — 1750 RPM or M³/hr — 90/180 @ 70M/35M head. MOTOR: 33 KW — 440 volts 3-phase 60Hz — 1800 RPM. Teikoku Machinery Works, Osaka, Japan. Condition very good. Lloyds or ABS.

SELF-PRIMING EMERGENCY FIRE PUMP TYPE 125-2VCS-A-NV



4" x 4" — 220 GPM @ 231' head (100 PSI) 1750 RPM (50M³/hr. @ 70M total head). Complete with vacuum pump. MOTOR: 25KW — 1800 RPM — 440/3/60Hz. Teikoku Machinery Works, Osaka, Japan.

SEND FOR PLANS. BOTH OF THESE PUMPS REMOVED FROM VERY NEW HANSA VESSEL "RABENFELS"

AUXILIARY FIRE PUMPS

BUILT 1977 BY K.S.B. GERMANY — (RADIAL FLOW)

265 GPM — 220' HEAD

4" x 4" — 265 GPM — 220' head (60 M³ @ 70m) — 3520 RPM. MOTOR: 24KW — 440/3/60Hz.



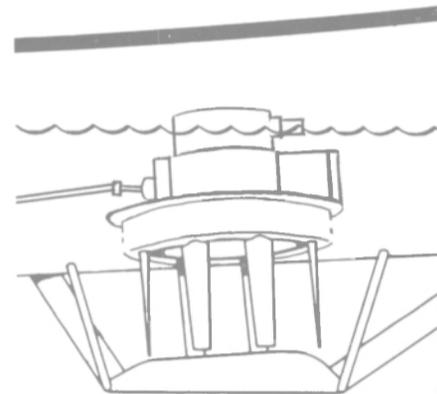
396 GPM — 230' HEAD

396 GPM @ 230' head (90M³ @ 70m)—3550 RPM. MOTOR: 33 KW — 3550 RPM — 440/3/60Hz.



TWO 1 VOITH--S CYCLOIDAL CC OMNI-DIRECTIO

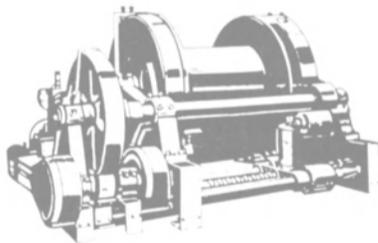
Can Be Located Side
For Fast and Precise Mo
On Axis Turns Make Them Id



Serial Nos. NR-1783 and NR-1784. Unit size 2 blade length—2400mm blade orbit diameter. P heavy duty motor 800/1000 HP—440/3/60—1 Mfg. by Electric Machinery Co. Complete with volts 120 A.C.—line volts 450—amps 941/3/60 HYDRAULIC COUPLING ARRANGEMENT. UNIT MOTORS FOR BRIDGE CONTROL.

LARGE STEAM TOWING ENGINE

9 X 10 TWIN ENGINE DRIVE
Air or Steam — 125/250 PSI



Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12'6" wide—6'6" high. Write for details.

ALSO AVAILABLE

Large towing ring — 36" I.D.

FAIRBANKS-MORSE 750 GPM — 125 PSI STAINLESS STEEL CENTRIFUGAL SEA WATER FIRE & FLUSHING PUMP

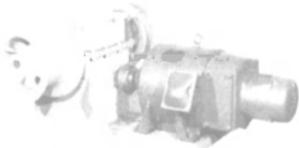
NEW
UNUSED



EX
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125 PSI (281 Ft.) total head. Suction lift none (flooded) 1750 RPM. With Falk #8F coupling—flexible, all metal, enclosed. MOTOR: Reliance type T—100 HP—1750 RPM —343 amps—230 volts DC—Frame 503A5. Pump has 5" suction—4" discharge. Pump & Motor mounted on base 37 3/4" wide X 6' 2 3/4" long X 3' 0 1/2" high. Total weight 3348 lbs.

DOUBLE GYPSY BOAT WINCH



mfg. by Lakeshore
duty; 2500 LBS @
125 FPM—15 HP—
230 VDC — 1780
RPM

\$2250

UNUSED ALCO MARINE CONDENSER



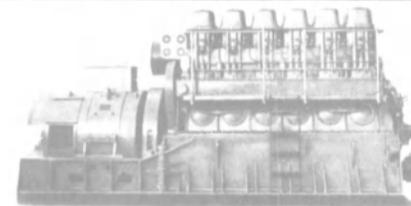
700 Sq. ft. — 2-pass — 5/8" CuNi tubes 0.049 (18BWG) — 108" effective length — 476 tubes — shell & head hydro test 30 PSI. Empty weight 6350 lbs. — 11,000 lbs. filled with water — operating 7550 lbs. — 2-Pass 9 3/8" inlet & outlet — length of condenser 156" — about 78" from exhaust flange to bottom of hot well.

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 — 2 1/2" steam — 4" exhaust. Overall width 6'8" — overall height 9'1 1/2" — depth 3'9 1/2". Wt. approx. 10,000 lbs.

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ABS — READY TO GO

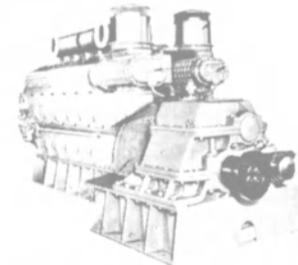


BALDWIN 250 KW DIESEL GENERATOR SET

ENGINE: Model VO — 450 HP at 400 RPM — 6 cylinder — 12 3/4" X 15 1/2" — 4-cycle — heat exchanger cooled — air starting. GENERATOR: 250 KW — Westinghouse — 120/240 volts DC.

MATCHED PAIR 900HP GM 12-567A DIESEL ENGINES

WITH FALK
REVERSE
AND
REDUCTION
GEAR



ENGINE: GM 12-567A — 8 1/2 X 10 — V-type — 2-cycle — 747 RPM — electric starting — serial Nos. 1041 & 1060. GEAR: Falk AirFlex — reverse & reduction — 2.48:1 forward — 2.52:1 reverse.



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313 E. BALTIMORE

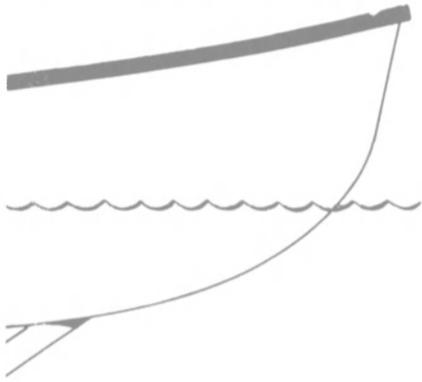
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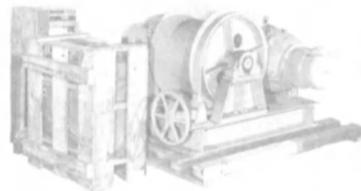
Starboard, Fore and Aft,
Mount Sideways and 360°
Suitable for Tugs, Ferries, Cranes, Etc.



150. 6 Stainless steel blades each unit—1500mm
CENTRAL DRIVE with Voith AD40 reduction gears and
1750 RPM—squirrel cage—884 amps—frame 23153.
"Stage Controls" & motor controls. Size 8—Control
DRIVE DIRECTLY WITH DIESEL ENGINE AND
MILITARY 1970. COMPLETE WITH HYDRAULIC SERVO

GENERAL PURPOSE WINCH 3500 LBS AT 200 FPM

NEW
UNUSED

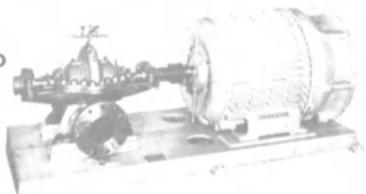


EX
U.S.N.

A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB
—1750 RPM—type KR—full load amps 32. Motor drives
winch through Falk reduction gear. Has compressor
hand brake.

NEW 5" ALL BRONZE BALDWIN-LIMA 1000 GPM 150 PSI TOTAL HEAD CENTRIFUGAL FIRE PUMP

NEW
UNUSED



EX
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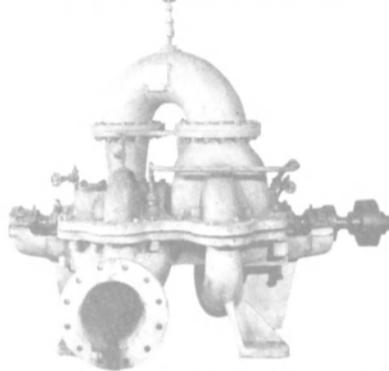
Single stage double suction type with 6" side suction
& 5" side discharge. 3600 RPM—test pressure 250 PSIG.
MOTOR: Reliance 125 HP 440/3/60—totally enclosed—
fan cooled—Frame D-5003-S—50°C.

T-2 TANKER EQUIPMENT

AVAILABILITY

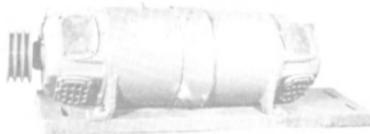
From Immediately To 5 Days

BRONZE INGERSOLL-RAND 6-GT CARGO PUMP



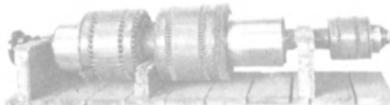
2000 GPM — 100 PSIG — Westinghouse or G.E. pump
motors — 200 HP — 440/3/60 — 1750 RPM.

G.E. NEW STYLE AMPLIDYNE



5LY148A — Type AM — Frame 605. Rebuilt with ABS.
Immediate delivery.

D.C. EXCITER ARMATURE FOR WEST. AUX. GEN.



110 KW — 32.5 KW — 5.5 KW — for Westinghouse
538 KW auxiliary generator. In stock for immediate
delivery. Reconditioned — with ABS.

G.E. 75/55 KW ARMATURE

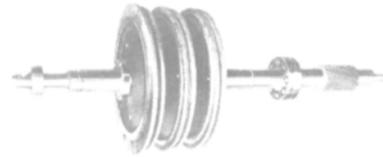


FOR 525 KW TURBO GENERATOR SETS
In stock for immediate delivery. Reconditioned — with
ABS.

538 KW WESTINGHOUSE TURBINE SPINDLE

For immediate delivery. Reconditioned with ABS.

G.E. 525 KW TYPE DORV 325 M AUXILIARY TURBINE ROTOR



In stock — for immediate delivery. A.B.S.

NEW WESTINGHOUSE AUX. GEN. STATIONARY BLADING

From Ex-Gulf Oil Spare Parts Stock

1 Box 2nd Stage Diaphragms — Curtis
1 Box 2nd Stage Diaphragms — Rateau

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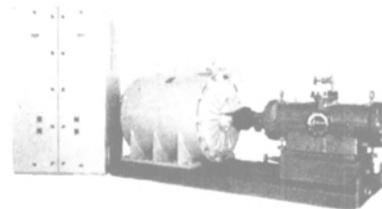
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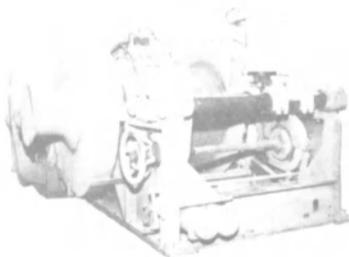
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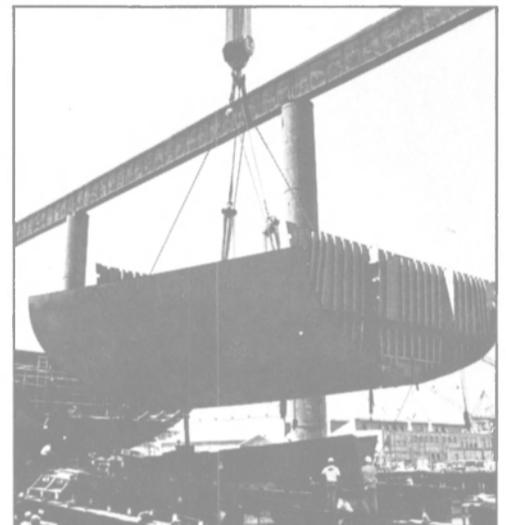
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A record turnout for the banquet was a logical sequence to the record number of people who attended the 89th Annual Meeting of SNAME.

SNAME

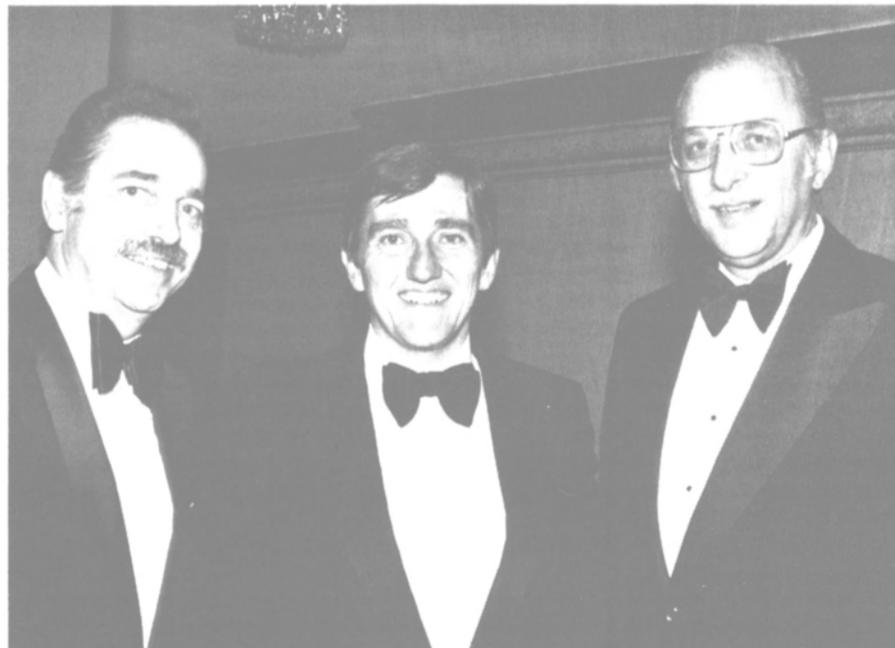
A Report On The 89th Annual Meeting

A series of extremely interesting technical papers, a banquet, dinner-dance, and the presenting of traditional awards were the hallmarks of the 89th annual meeting of The Society of Naval Architects and Marine Engineers held in the New York Hilton Hotel on November 18, 19, and 20, 1981.

The Society also elected four new vice presidents to serve three-year terms. Elected were: **Donald P. Courtsal**, Dravo Inc.; **Ronald K. Kiss**, U.S. Maritime Administration; **Alan C. McClure**, Alan C. McClure Associates; and **Perry W. Nelson**, M. Rosenblatt & Son, Inc. The new vice presidents will assume office on January 1, 1982.

AWARDS

The annual banquet was held Friday evening, November 20, and three medals were presented. In the order given, the Blakely Smith Medal "for outstanding accomplishment in ocean engineer-



Society president John J. Nachtsheim, Secretary of the Navy John F. Lehman Jr., the main speaker, and Robert G. Mende, Secretary and Executive Director of the Society shown, left to right, at the VIP reception.

ing" was presented to **Ben C. Gerwick Jr.**, professor of civil engineering at the University of California, Berkeley. The Vice Admiral "Jerry" Land Medal "for outstanding accomplishment in the marine field" went to **Ellsworth L. Peterson**, president of Peterson Builders, Inc., Sturgeon Bay, Wis., and the David W. Taylor Medal "for notable achievement in marine engineering" was awarded to **Erwin Carl Rohde**, who was manager-technical resources operation of the industrial and marine steam turbine division of the General Electric Company before his retirement in August 1981.

Professor Gerwick is one of a very small number of practitioners specializing in the construction of marine structures in prestressed concrete. His 40 years of international activity have involved him with major responsibilities for numerous marine

terminals, well-known bridges and more recently, the Arctic Ocean Terminal at Prudhoe Bay, Alaska. Professor Gerwick is a graduate of the University of California at Berkeley.

Mr. Peterson, recipient of the Land Medal, is an active Society member, giving freely of his time and resources as chairman of the Ship Production Committee, which administers this year a projected \$4.5 million in shipbuilding research funds. The company of which he is president, has expanded greatly under his direction, and today Peterson Builders, Inc. is a successful builder of many types of small to medium-size vessels, out of a wide range of structural materials. Mr. Peterson is a graduate of the U.S. Merchant Marine Academy, Kings Point, N.Y.

Mr. Rohde, recipient of the David W. Taylor Medal, spent almost 40 years in the industrial and marine steam turbine division of General Electric in Lynn, Mass., and was responsible for outstanding contributions to the advancement of steam turbine design for application to marine propulsion. He has been intimately involved in the development of main and auxiliary machinery for ships of every class and description, both naval and merchant. Mr. Rohde is a graduate of the University of Michigan.

SPEAKER

The main address at the dinner was given by Navy Secretary John Lehman, who called for "greater degree of harmony and mutual agreement between industry, labor, the administration, and Congress, among the separate agencies of the government possessing maritime responsibilities, and between the shipowners and shipbuilders."



Navy Secretary John F. Lehman Jr., delivering the main address to the 1,700 persons gathered at the Hilton Hotel ballroom.

He not only suggested that SNAME was in an "excellent position to be a leader in this movement," but also urged them to look abroad to "learn novel shipbuilding techniques" because "there is much we can learn" and because "we can no longer as-

sume that we're the best or first in this important global industry."

If a strong U.S. merchant fleet isn't developed it threatens to become not the "fourth arm of defense," but a "strategic missing link," he said.

The administration was aware of the "great difficulty" facing shipbuilders now and "we are doing our best to help. In the final analysis, though, we are all ulti-

mately responsible for our own survival, and it is for this reason that I commend the efforts of the industry to form a coalition, and to devise a strategy for success."

The 1970s, he added, was a decade of ominous naval and maritime trends. This current decade may well be our final chance—the last call for U.S. maritime superiority.

Apart from a general description of the administration's plans

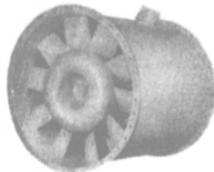
for a 600-ship fleet by the decade's end, Mr. Lehman didn't mention any specifics due from or being undertaken in Washington.

At the President's Luncheon, held on November 19, the following awards were presented.

The Captain Joseph H. Linnard Prize for 1981 was presented to Helge Johannessen and Knut T. Skarr for their paper "Guidelines (continued on page 38)

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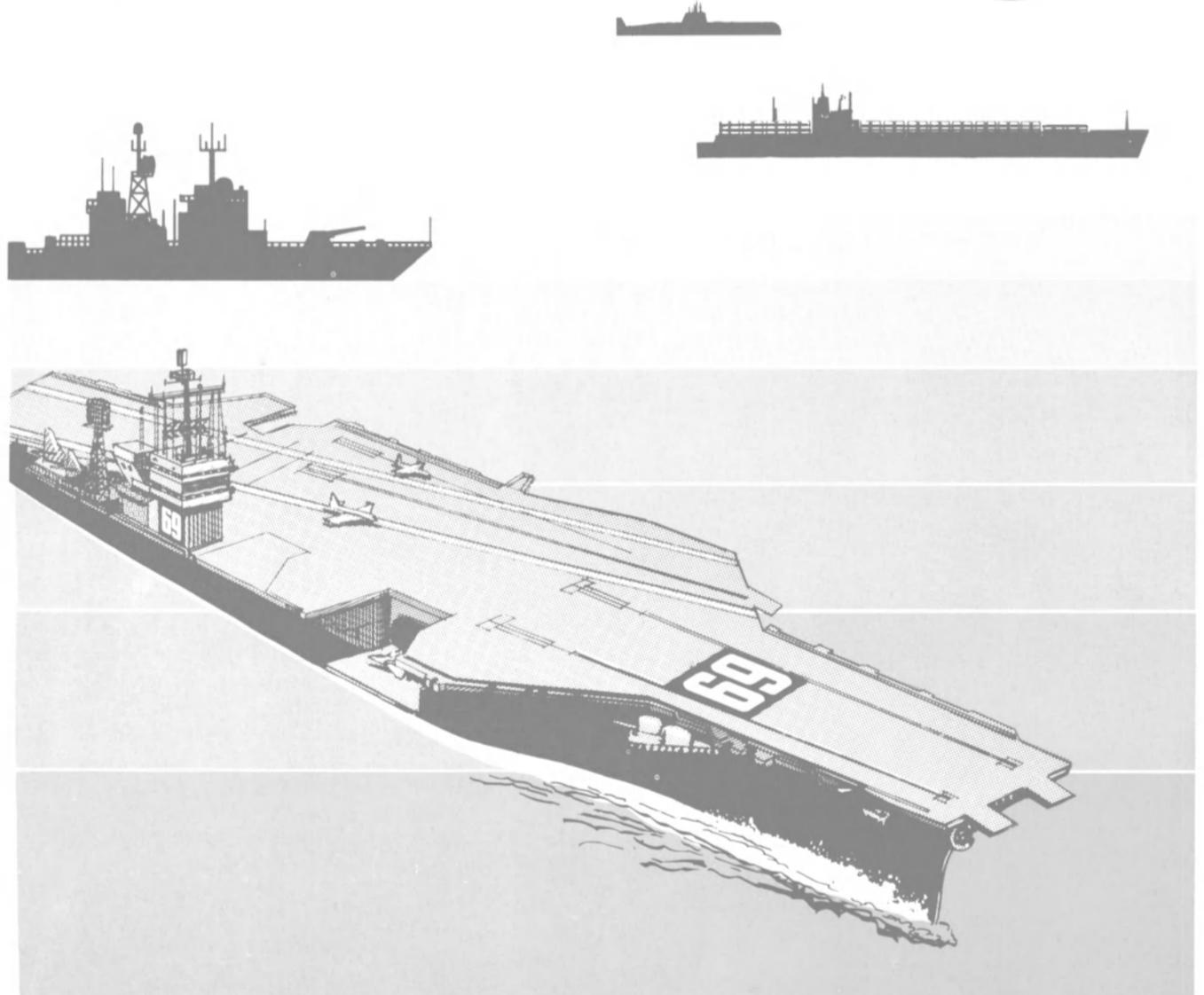
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The David W. Taylor Medal is presented by Society president **Nachtsheim** to **Erwin Carl Rohde**, retired, formerly manager of the General Electric Marine Steam Turbine Division, Lynn, Mass.



Blakely Smith, well-known pioneer in the offshore drilling industry, left, presents the medal named in his honor to **Ben C. Gerwick Jr.**, professor of civil engineering, University of California, Berkeley, Ca.



Ellsworth Peterson, left, president of Peterson Builders, Inc., of Sturgeon Bay, Wis., receives the VADM "Jerry" Land Medal from **Michael Honsinger**, a past president of the Society.



SNAME 89th Annual Meeting

(continued from page 37)

for the Prevention of Excessive Ship Vibration." This prize is given to the author or authors of the best paper contributed to the "Transactions" of the Society at its annual meeting the preceding year.

The Vice Admiral E.L. Cochran Award for 1981, which is for the best paper delivered before a Section of the Society, was presented to **Roy Harrington** for his paper, "Rudder Torque Prediction," delivered at the Hampton Roads Section on January 28, 1981.

The Graduate Paper Honor Prize for 1981 was awarded to **Ygal Shapir** of Israel and **Gregory J. White** of Berkeley, Calif., for their paper, "An Analysis of the Ultimate Strength of Deck Structures Under Inplane Loads," de-

livered before the Northern California Section on April 9, 1981.

The Undergraduate Paper Honor Prize for 1981 was awarded to **Michael R. Ales** and **Joseph L. McGettigan** for their paper, "An Experimental Analysis of the Effects of Pitch Gyration on Ship Motions in Head Seas," delivered at the Chesapeake Section on April 14, 1981.

The Graduate Paper Award for 1981 was given to **Rodney D. Peltzer** for his paper, "The Effect of Upstream Shear and Surface Roughness on the Vortex Shedding Patterns and Pressure Distributions Around a Circular Cylinder in Transitional Re Flows," delivered at the Chesapeake Section on May 20, 1980.

K. Scott Hunziker received the Undergraduate Paper Award for his paper, "The Hood Canal Bridge: Dynamic Loading from Wind and Waves," delivered at the Pacific Northwest Section on March 14, 1981.

Certificates of appreciation

were awarded to **Andrew A. Szygula** for his outstanding service as technical chairman of three symposia on propellers, and to **Howard B. Little**, the Society's accountant and auditor for the past 44 years. At the President's Luncheon, Golden Award 50-year Membership Certificates were presented to: **James C. Clarke**, **John Beattie Muir**, **James A. Pennypacker**, **Maurice L. Sellers**, **Ivar D. Soelberg**, **Leopold E. Starr**, **John L. Stevens Jr.**, and **G. Gilbert Wvland**.

TECHNICAL PAPERS

Fourteen technical papers were presented covering a broad range of interesting topics concerning vessel design for inland waterways, coastal tankers, frigates, and surface effect ships. Other papers were concerned with topics such as inert gas and ventilation systems, the marine environment, shell plating analysis, computer-aided design, hull and propeller roughness, integrated ducted propellers, hull and ma-

chinery, coal-fired steam generators, and ship vibration.

The highly acclaimed technical program was put together by the Papers Committee and was chaired by **Jack Obermeyer**. The papers were prepared by persons from Australia, China, England, Japan, Netherlands, and the U.S., representing industry, research institutes and organizations, naval architectural firms, and the U.S. Navy.

Two of the papers were the result of cross-Atlantic and cross-Pacific cooperation. "Hydrodynamic Added-Mass Matrix of Vibrating Ship Based on a Distribution of Hull Surface Sources" was authored by **William S. Corus** of the University of Michigan and **Schelte Hylarides** of the Netherlands Ship Model Basin. A paper entitled "Applications of a Computer-Aided, Optimal Preliminary Ship Structural Design Method" was written by **Donald Liu** and **John Mahowald** of the American Bureau of Shipping, and **Owen Hughes** of the University of New South Wales, Australia.

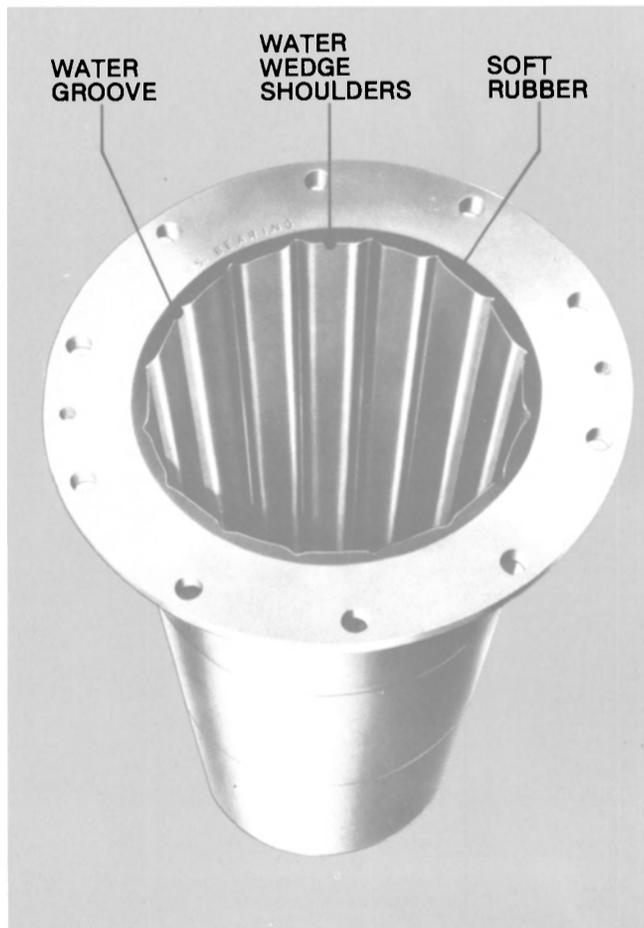
SNAME PRESIDENT



Society president **John J. Nachtsheim** delivers his address to the members at the President's Luncheon. More than 500 persons attended the affair.

In his address to the Society, SNAME president **John J. Nachtsheim** challenged the members to examine if they were "doing enough" in their involvement with the organization's affairs in light of what he viewed was a time of growth.

Mr. Nachtsheim gave four sectors of the marine industry's po-



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Artist's conception of the future LNG ship designed by Moss Rosenberg of Norway.

Moss Rosenberg Verft Develops Energy-Saving LNG Carrier

One of the many features that characterizes an LNG carrier is the presence of cargo boil-off, the result of heat leakage to the cargo from the surroundings. Until now, the boil-off has been utilized as fuel in producing steam for the steam-turbine propulsion plant. However, LNG has lately become comparatively expensive, and associated with relatively low thermal efficiency of the steam-propulsion-plant system, the use of boil-off as fuel is now considered uneconomic.

Moss Rosenberg Verft a.s. of Moss, Norway, decided to develop a 130,000-cubic-meter LNG carrier, paying particular attention to low operational costs and low cargo losses. The primary objective of the project study was to minimize boil-off and, therefore, consider alternative propulsion plants.

The firm developed a project ship which is the result of comprehensive programs and analyses, where the following areas were closely studied: reduction of boil-off, improvement of propulsion efficiency, reduction of hull resistance and optimization of the economical speed of the vessel.

Research and development work over the last few years have led to improvements with respect to reduced heat leakage to the cargo tanks. By inserting a ring of austenitic steel, a thermal brake, in the skirt supporting the spherical tank, heat leakage through the skirt can be reduced by more than 50 percent. Further, insulation thickness can easily be increased without any effect on the ship's main dimensions. This combination of improved insulation thickness and a skirt with thermal brake may reduce the boil-off rate from 0.25 percent to 0.11 percent.

Different alternatives of propulsion machinery were studied. The recent developments of large-bore slow-speed diesel engines with low fuel-oil consumption has made such plants most attractive

for LNG ship application. Such installations, however, cannot utilize cargo boil-off in the conventional way and the installation of a reliquefaction plant for the cargo is required. This also will result in increased delivered quantities of LNG. Compared to a steam-propulsion plant without reheat, the savings in fuel expenses on a diesel plant with boil-off reliquefaction is in the region of 36 percent (energy prices mid 1981).

Due to the increasing fuel costs, Moss Rosenberg also believes that the economical speed of the future ship will be lower than what is normally used today.

Based on the firm's studies so far, the future LNG ship of their design might have the following particulars: cargo capacity of

130,000 cubic meters, a length between perpendiculars of 240 meters, a molded breadth of 48 meters, a molded depth of 27 meters, a draft of 11 meters, four cargo tanks with the first having a diameter of 36.8 meters and the other three of 40.7 meters and speed of about 18 knots. The propulsion machinery would consist of a large-bore slow-speed diesel engine with a maximum continuous rating of 26,000 kw. The auxiliary machinery would consist of three diesel generators.

Besides being attractive as far

as construction costs are concerned, this project also is attractive as concerns the operating costs. Based on prices from August 1981, it may be possible to obtain savings for the projected ship of about \$300,000 on a standard 21-days round trip when traveling at the economical speed of 18 knots.

The Moss Rosenberg spherical LNG tank design has been in operation since 1973. A total of 101 spherical cargo tanks are installed on board 20 carriers transporting LNG worldwide.

Electric Boat Awarded \$7-Million Navy Contract For SSBN Sub Overhaul

The General Dynamics Electric Boat Division, Groton, Conn., has been awarded a \$7-million cost-plus-fixed-fee contract for planning yard services for maintenance support of SSBN submarines design documentation and services for overhaul support of SSBN submarines. The work will be performed at Groton. The Naval Sea Systems Command, Washington, D.C., is the contracting activity. (N00024-82-C-2003)

\$2.1-Million Title XI Guarantee For Tanker IGS And COW Retrofit

The Maritime Administration has approved in principle an application for a Title XI guarantee to aid in financing the reconstruction of the 264,000-dwt tankers Massachusetts, New York, and Maryland to comply with the

Port and Tanker Safety Act of 1978. Each of the vessels was built with the aid of construction-differential subsidy (CDS). They were delivered in October 1975, May 1976, and August 1976, respectively.

The ships are time chartered to subsidiaries of Seatrain Lines, Inc.—Bay State Tankers, Inc., New York Tankers, Inc., and Maryland Tankers, Inc. Seatrain currently is operating under Chapter 11 of the Bankruptcy Act.

Todd Shipyards, Galveston, Texas, performed the work on the Massachusetts and New York. Triple A Shipyard, San Francisco, Calif., reconstructed the Maryland. The work primarily involved installation of crude oil washing and inert gas systems. The ships were redelivered in April, October, and August 1981, respectively.

The Title XI guarantee for this reconstruction project totals \$2,134,000 or 75 percent of the estimated depreciated actual cost of \$2,845,828. No CDS was involved in this project.




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Utility Vessel M/V Lamnalco Mallard Delivered To Kuwait Service By HUDSHIP

Wendle Huddleston, president and chief executive officer of the HUDCO Group based in Morgan City, La., announced that Hudson Shipbuilders, Inc. (HUDSHIP) of Pascagoula, Miss., has recently delivered the 112-foot offshore utility vessel M/V Lamnalco Mallard to Lamnalco Limited, Dasmah, Kuwait.

The Mallard, the third vessel HUDSHIP has built for Lamnalco, has sailed for the Arabian Gulf, where she will operate out of Sharjah, U.A.E.

Principal dimensions of the Mallard are 112 feet by 26 feet by 10 feet, with a deck cargo capacity of 100 tons. Power is provided by twin GM 16V92 diesel engines delivering a total of 1,272 bhp through Twin Disc model MG-527 gears at 5.17:1 ratio.

Auxiliary power is furnished by twin 50-kw generators driven by GM 4-71 diesel engines.

All living spaces, pilothouse and galley areas are air-conditioned to provide for crew comfort. The living areas are designed and arranged to provide spacious accommodations for each crewman. Three 4-man staterooms are provided on the main deck, and two 2-man staterooms are located on the fo'c'sle deck.

The Mallard's sister ship Teal was launched from ceremonies on HUDSHIP's east bank yard with the crew of the Mallard watching just prior to their departure for the Arabian Gulf.

Lamnalco has greatly increased its fleet of owned and managed vessels in the last year, and they are especially proud of retaining



Twin GM diesel engines power the M/V Lamnalco Mallard en route to service in the Arabian Gulf.

their position as one of the market leaders in the highly competitive field of offshore supply charters in the Arabian Gulf and the Red Sea.

Hudson Shipbuilders, Inc., a division of the HUDCO Group, is nearing completion on the expan-

sion of its west bank facility. New translation rails, launchways, and bulkheads are in the final stages of completion and are keeping pace with the construction of the large offshore supply vessels under contract at the west bank.



Participants in the SNAME-New York meeting on the Marine Chemists were, left to right: William H. Garzke, publicity chairman; Curtis Nelson, meetings chairman; Charles Keller, author, National Fire Protection Service; Howard C. Blanding, executive committee; Sig Kellner, executive committee; Neil Reddy, section chairman; John Daidola, vice chairman; and Richard Wahlenmeier, membership chairman.

SNAME New York Hears Paper On Marine Gas Chemists

A meeting of the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers, held recently at the Buttonwood Restaurant in New York City, featured a presentation on the Marine Chemist.

The topic, "Is This Ship Gas Free? An Overview of the Duties and Training of a Marine Gas Chemist," was treated by Charles L. Keller, a marine field service specialist with the National Fire Protection Service, and included a slide presentation.

Mr. Keller detailed the duties and responsibilities of the marine chemist as they relate to safe repairs of a wide range of vessels. He discussed how the chemist determines if the conditions are acceptable for safe entry into and the conditions necessary for working within confined spaces.

He detailed what goes into determining whether an area is posted as "Safe For Workers," "Not Safe For Workers," "Safe For Hot Work," "Not Safe For Hot Work," and "Inerted." The latter can mean inerted with a non-reactive gas or inerted with a flammable compressed gas.

Mr. Keller gave a brief history of the development of this valuable professional group and the various disciplines to which a marine chemist must be exposed during training to meet the certification requirements of the National Fire Protection Association. He also described the standard procedures followed by a typical marine chemist to assure a vessel is adequately free of residues and gas to allow workers to safely engage in repairs and some of the instrumentation used in making the determination.



Shown at the SNAME-New England, ASNE joint meeting, left to right: Capt. Bruce C. Skinner, USCG, chairman, New England Section, SNAME; George Pelletier, president, Battleship Massachusetts; Rear Adm. John D. Beecher, USN, speaker; Ms. Margo Cottrell, president, Fall River Marine Museum; Comdr. Oliver Porter, USN (ret.), chairman Southern New England Section, ASNE.

SNAME-New England, ASNE Hear Rear Adm. Beecher On Battleship Reactivation

The joint fall meeting of the New England Section of The Society of Naval Architects and Marine Engineers and the Southern New England Section of The American Society of Naval Engineers featured a presentation by Rear Adm. John Beecher, USN, on "USN Battleship Reactivation Program," following dinner in the wardroom of the USS Massachusetts (BB-59) at Fall River, Mass. Close to 200 members attended the meeting.

Admiral Beecher is Deputy Commander for Surface Combatant Ships, Naval Sea Systems Command. He began his presen-

tation by summarizing 20th century American battleship design. He suggested that conditions that led to the retirement of the battleships have changed with the development of cruise missiles and a shortage of aircraft carriers.

Admiral Beecher then discussed some of the ship design impact of the conversion of the USS New Jersey (BB-62). Included were the impact of installation of Tomahawk and Harpoon weapon systems, upgraded electronics suite, a helicopter deck, and CHT system.

Allis-Chalmers Receives \$6-Million Mud Pump Order From Wilson

The Marine Diesel Division of the Allis-Chalmers Corp., Milwaukee, Wis., recently received an order valued at more than \$6 million covering construction of 60 mud pumps for drilling rigs made by the Wilson Manufacturing Co., Wichita Falls, Texas.

The division, whose major activity is construction of large marine diesel engines, also operates a custom manufacturing department which produces a wide range of products to specifications of other firms.

The Wilson Manufacturing Co. is a major supplier of products used by oil well drillers. Allis-Chalmers will make equipment in Wilson's line of model 600 duplex mud pumps, 600 hp maximum at 95 strokes per minute.

Allis-Chalmers said that the order includes an option for 60 additional pumps. The order includes Allis-Chalmers responsibility for manufacture, assembly, test, and shipping of the pumps to Wilson dealers.

Title XI Granted For Drill Rig Cheyenne Total Cost \$32.6-Million

MarAd has approved in principle an application by Tidelands II, Inc., a wholly owned subsidiary of Temple Drilling Co., Houston, Texas, for a Title XI loan guarantee to aid in financing construction of the offshore jackup drilling rig Cheyenne.

The 220-foot rig, which can drill in water 12 to 200 feet deep, is being built by Bethlehem Steel Corp., Sparrows Point, Md. The vessel is scheduled to be delivered by April 1982. Plans call for it to operate initially in the Gulf of Mexico. The Title XI guarantee amounts to \$24,472,000, or roughly 75 percent of the vessel's \$32,630,000 estimated actual cost.

\$1-Billion Lube Oil Refinery To Be Constructed In Saudi Arabia

An agreement to build in Saudi Arabia the world's largest lubricating oil refinery was signed in Riyadh recently by representatives of the General Petroleum and Minerals Organization (Petromin)—the Saudi Arabian state oil agency—and wholly owned subsidiaries of Standard Oil Company of California and Texaco Inc.

The agreement clears the way for formation of a new company to proceed with the joint venture partnership at a cost of over \$1 billion. Petromin will hold a 50 percent interest, and each of the other participants a 25 percent interest.

The new refinery will be located on the Arabian Gulf at Madinat-Al-Jubail Al-Sinaiyah, a major industrial complex in Saudi Arabia's national development program. Construction is scheduled to start in 1982, with commercial production planned for early 1986. The Jubail Lube Oil Refinery is designed to produce 12,000 barrels per day of premium lubricating oil base stocks for automotive and industrial use.

Signing the agreement for Petromin was Dr. **Abdulhady H. Taher**, the agency's governor. Signing for Texaco Saudi Investments Limited was **Alfred C. De Crane Jr.**, a director of that company and executive vice president of Texaco Inc. **W. Jones McQuinn**, president of Arabian Chevron Overseas Limited and a SoCal vice president, signed for his company.

Management of the new com-

pany will emphasize training of Saudis. The training of plant operators, engineers and supervisors, and the massive lube project itself, are expected to represent a significant contribution toward the kingdom's goal of acquiring technology. With initial assistance from SoCal and Texaco personnel, it is planned that the refinery will be managed, operated and maintained by a majority of Saudi Arab personnel.

The advertisement features a map of Europe with a ship in the center. The ship is labeled 'Flushing' and has a crane on its deck. The map shows the North Sea and the English Channel. The word 'ENGLAND' is written on the left side of the map. The word 'HOLLAND' is written on the right side of the map. The city of 'Flushing' is marked on the coast of Holland. Other cities marked on the map include 'Zeebrugge', 'Antwerp', 'Gent', 'Rotterdam', 'Amsterdam', 'Bremen', and 'Hamburg'. Above the map is the 'WHEELER' logo, which consists of a stylized 'W' in a triangle above the word 'WHEELER'. To the right of the map is the 'SCHELDE-SULZER' logo, which consists of a crown above the letters 'K' and 'M' in a stylized 'S' shape, followed by the words 'SCHELDE' and 'SULZER'. Below the logo is the text 'The Answer to Soaring Fuel Costs'.

Convert from steam to Schelde-Sulzer low-speed diesels. Cut fuel costs 40% or more.

Re-engining by Royal Schelde can provide the fuel economy you need to remain competitive and profitable.

New Schelde-Sulzer RLB marine diesel engines can cut fuel consumption around 40% when replacing steam turbines. In addition, these new low-speed diesels make most efficient use of fuels at the low end of the price range.

Let us estimate costs and probable pay-back periods for re-engining your ships at Royal Schelde Scheldepoort, one of the most modern and convenient yards in Europe.



Royal Schelde Scheldepoort
Flushing, (Vlissingen)
HOLLAND



POTENTIAL SAVINGS

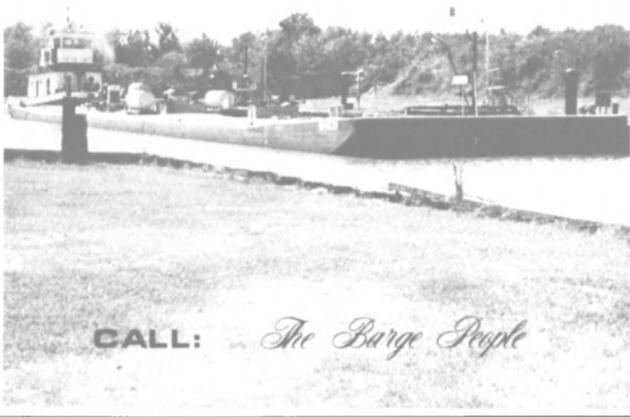
	Fuel Consumption (g/BHPH)	Savings From Conversion
New RLB Diesel	129	
Typical Steam Turbine	215	40%

EXCLUSIVE AGENTS:

WESLEY D. WHEELER ASSOCIATES, LTD.
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TUG FOR SALE

900 HP MODEL BOW WITH PUSH KNEES
 TWIN SCREW 12 V 71 DETROIT DIESEL
 ONE EACH 2/71 AND 3/71 20/30
 KW GENERATOR UNITS LOA 66 FT.
 BREADTH 21 FT. DRAFT 7 FT.
 CREW CAPACITY FOUR
 COMMUNICATION EQUIPMENT FULL
 COMPLIMENT
 FUEL CAPACITY 8000 GALLONS
 POTABLE WATER 5000 GALLONS
 LIST PRICE \$250,000

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M/V Aniara 1963
 Roll-on, roll-off
 Lloyd's + 100 A 1, "Ice Class 1"
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 \$850,000.00, terms: cash
 Call Mr. Benitez,
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SURPLUS DECK TANKS

14,335 Gal., Horizontal with saddle supports
 10' OD X 24' T-T X 27'6" OA
 1/4" steel clad 20% w/304SS
 16- 1" OD X 23' 304SS Coils in bottom.
 Design Pressure:
 Tank 30 PSI @ 150°F
 Coils 200 PSI @ 150°F

Four available, Formerly used on SS Marine Dow Chem
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WINCHES—Steam or Air Operated

Stockless Anchors 3,000 lbs. through 27,500 lbs. in stock,
 FOB Jersey City

Large inventory of surplus chain and fittings

Supply of new chain, including ten shots of 2 5/16" and
 twenty shots of 2 5/8"

9 x 12 American Hoist & Derrick Winches, reconditioned
 equal to new

Spare parts for all steam winches

STANDARD STEAM WINCH CO., INC.

Agents for The Crosby Group
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FIRESTONE

**HEAVY DUTY
BOAT TARPAULINS**

16' x 20' \$32
 18' x 24' \$38
 20' x 30' \$48
 26' x 40' \$89

Before Midnight Jan. 17

As part of an advertising test Firestone Tarp Mfg will send any of the above boat size tarpaulins to any reader of this publication who reads and responds to this test before midnight Jan. 17. Each tarpaulin Lot (#Z-18, PVC) is constructed of high density fabric (with virgin grade ingredient, supplied by Gulf Oil Co., Dow Chemical Co., and Union Oil Co.) with nylon reinforced rope hems, double lock stitched hems, electronically welded seams, 100% water proof, #4 (1/2" dia.) metal grommets set on 3 ft. centers with reinforced triangular corner patches and are recommended for all heavy duty use, all yachts and sailboats, and all bulk or pallet riding materials, and will be accompanied with a LIFETIME guarantee that it must perform 100% or it will be replaced free. Add \$7 handling & crating for each tarp ordered, Firestone Tarp Mfg pays all shipping. Should you wish to return your tarpaulins you may do so for a full refund. Any letter postmarked later than Jan. 17, will be returned. LIMIT: Fifty (50) tarps per address, no exceptions. Send appropriate sum together with your name & address to: Tarp Test Dept. #362A, Firestone Tarp Mfg., Inc., 6314 Santa Monica Blvd., Hollywood, Ca. 90038, for fastest service from any part of the country call collect, before midnight 7 days a week (213) 629-1062 (ask Operator for) TARP TEST #362A, have credit card ready.

FOR SALE

SELF PROPELLED RAIL CAR FERRY

(Convertible to Ferry, Offshore Barge, Processing Plant, Etc.)



370' x 59' x 16'

EXCELLENT CONDITION

Gross Tons-2255 DWT Capacity-3000 LT
 Propulsion 3 Enterprise Diesels, DMG 38, 2100 HP
 Diesel Fuel Capacity 42,000 Gallons
 Built-Portland, Oregon to ABS 1957
 Bottom & Sides 1/2" Steel Keel & Sheer Strake 3/4" Steel
 Deck Capacity 28 100 Ton Rail Cars



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MARINE DIESEL SPECIALISTS

Can we help you select the most fuel efficient engine for your Marine Requirements? We can offer:
Allis-Chalmers from 32 to 450 BHP, new/ MWM from 428 BHP to 8,000 BHP, new
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Portland (503) 224-9900

OFFERS FOR LIFERAFTS



OFFERS:

Plainly marked on the envelope "Offer on P.T. #170" will be received by the undersigned on an individual, combined lot or complete lot basis up to 2:00 p.m., Pacific Standard Time, January 29, 1982, for the following forty-three (43) liferafts located "as is and where is" at the British Columbia Ferry Corporation Liferaft Service Centre, 12800 Rice Mill Road, Richmond, British Columbia, Canada:

Canister type DSL rubber liferafts, 25mm, 25-person

Manufactured by Deutsche Schlauchbooffabrik, Hans Scheibert, Germany

Solas — 1960

Cylinder weight: 10.0kg

Tare weight: 42.18 lb.

Full weight: 56.35 lb.

Nitrogen: .75

Carbon Dioxide: 13.42 lb.

Packs—B (canisters are designed for "A" pack)

Note: These rafts were manufactured in 1968 and 1969. They were last serviced in 1975 and 1976. They are not approved for use in Canadian waters.

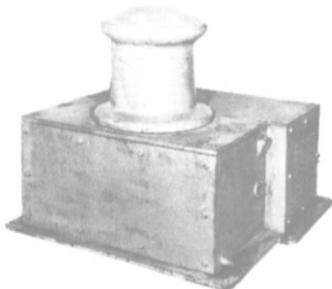
To view or for further information contact Mr. R.J. Burke or Mr. J. Thompson at the above address, telephone (604) 277-3121 or telex 043-55606.

Offers must be accompanied by a certified cheque in Canadian currency made payable to the British Columbia government Minister of Finance for the full amount of the bid. If the successful bidder subsequently withdraws his offer, the payment shall be liable to forfeiture.

The highest or any offer will not necessarily be accepted, but the bearer of the successful bid will be required to pay the 6% B.C. Social Services Tax, if applicable.

A.W. Charlton, CHAIRMAN
Purchasing Commission
Parliament Buildings
Victoria, British Columbia V8V 1T8
CANADA
Telex: 0497135

A.C. CAPSTAN 10,000 LBS @ 40 FPM



Totally enclosed 10 HP 440/3/60 1750 RPM motor. Barrell working area: top 11 1/2" diameter — bottom 13" diameter — over a 9" span. Deck space required 36" X 41". Total height 34".

THE BOSTON METALS COMPANY

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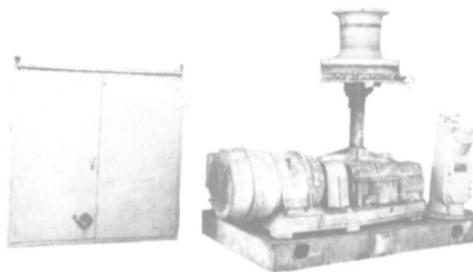
LARGE STOCKS ANCHORS -- CHAINCABLES

WINCHES -- WINDLASSES -- DECKCRANES
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Tel: 011-31-10-11 98 70 Telex: 22496 (wbpot)

2-SPEED A.C. MOTOR-DRIVEN CAPSTAN

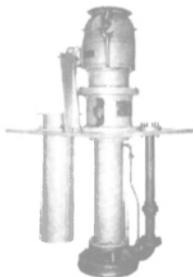


8500 lbs @ 90 FPM or 4250 lbs @ 180 FPM. Barrel size 15". Below-deck mounted motor — 31 HP — 440/3/60 — 42/38 amps — 820/1640 RPM. Squirrel cage — totally enclosed — watertight. Half hour duty 65°C. temp. rise. Base OAL 6'4". With magnetic brake, 2-speed control and master switch.

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NEW — UNUSED SUMP OR LOW PRESSURE DRAIN PUMPS



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

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CROUSE HINDS 1000 WATT FLOODLIGHTS

IN STOCK

NEW — UNUSED



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

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NEW U.S. MARAD-TYPE AXIAL FLOW FANS



(3) 10,500 CFM Model AF-100, "Baldor" 5 HP motor — 440/3/60 — 40° — 1750 RPM — 7 amps.

(1) Same as above, but 2-speed 1750/750 RPM — Frame 184TCZ

(2) 12,880 CFM — Size 15AF — Baldor Motor — 7.5/1.9 HP — 440/3/60 10/3.5 amps — 1750/880 RPM — 40°C — Frame 215TCZ

20,000 CFM — 1.9" SP — Size 200AF — 10 HP — 440/3/60 — 1750/880 RPM

(2) 40,665 CFM — size 43AF — 60 HP Baldor Motor — 440/3/60 — 1760 RPM — 75 amps — 50° rise — Frame 364TZ Ins. F

(1) 6000 CFM — AF40 — Baldor Motor — 3 HP — 440/3/60 — 1750 RPM — Ins. F — 40°C — Frame 182TCZ

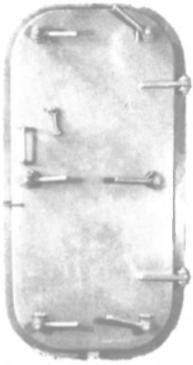
(3) 2000 CFM — size 20AF — .75 HP — 440/3/60 — 3450 RPM 1.3 amps — Ins. F — 40°C — Frame 560Z.

THE BOSTON METALS COMPANY

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FOR SALE

NEW WATERTIGHT DOORS



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. Also available with 8" bronze portlights.

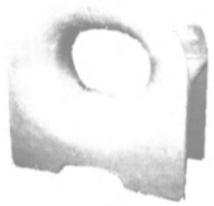
SIZE

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

EACH DOOR
IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)
14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base — length 28" — height 27 1/4". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS FOR SMALL VESSELS



Closed chocks — 12" X 6 1/2" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

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36" TEAKWOOD SHIPS WHEELS

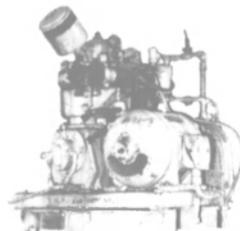


Brass bound on rim with brass hub marked "John Hastie & Co. Ltd. — Greenock".

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10 CFM — 600 LB WORTHINGTON H.P. AIR COMPRESSOR



7 1/2 HP Motor — 440/3/60.
Type VD2N—size 4 1/4 x 1 1/4 x 3. Ex-Navy — reconditioned.

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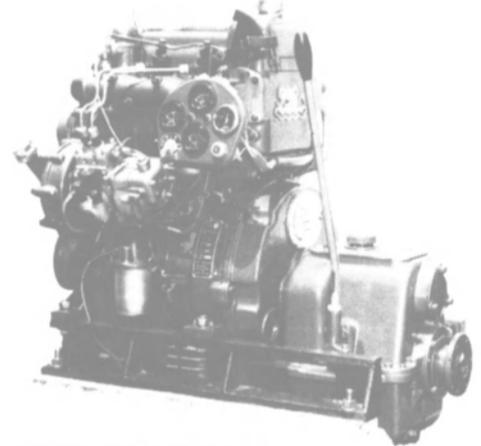
THE DIESEL DEAL OF THE YEAR! 20 HP Marine Diesel Engine

Complete with 2.1:1 Gear, 2 Batteries, Tools and Maintenance Spare Parts



OUR SERIES 90

perfect for powering small pleasure, fishing and commercial boats, auxiliary engine use, etc.



CHECK THE SPECS!

- | | | | |
|--|----------|---|---------|
| • Cylinders | 2 | • 12-Hr. SHP output rating | 18.4 HP |
| • Max. rated HP | 20 | • Approx. speed of output shaft at rated RPM: | |
| • Rated RPM | 2000 | Forward | 712 |
| • Fuel Consumption at rated output approx. | 2 gal/hr | Reverse | 735 |
| • Rotation: Clockwise when running forward and viewed from output end of shaft | | | |
| • Max length 37 3/4" / max. width 24 5/8" / max. height 34 1/4" | | | |

FACTORY NEW — IN CRATES — AND COMPLETE WITH INSTRUCTION BOOK, PARTS LIST AND PERFORMANCE CURVES

Precision made and beautifully crafted, our series 90 marine diesel is a rugged power plant. Versatile, compact and dependable, it's an exceptional engine. At 880 lbs (400Kg) it's a surprisingly

light high-speed 2-cyl. 4-cycle diesel. Water-cooled with a non-ferrous heat exchanger and sea water pump, it's equipped with reverse reduction gear box.

CAN BE STARTED WITH HAND CRANK

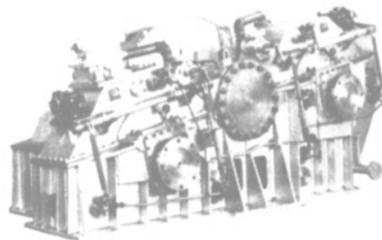
IMMEDIATE DELIVERY

We are your Direct Factory Outlet nearest to Gulf and Florida Ports

THE BOSTON METALS COMPANY

MAIN OFFICE: (301) 539-1900 — Call Al or Dean — WAREHOUSE (301) 752-1077
313 E. Baltimore St. TWX: 710-234-1637 Baltimore, Md. 21202 U.S.A.

NEW — 3200 HP Farrell - Birmingham DIESEL REDUCT. GEARS



DOUBLE INPUT — SINGLE OUTPUT

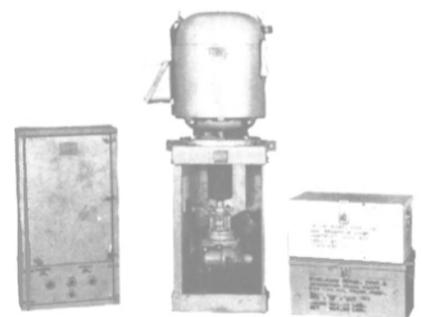
Farrell-Birmingham — 3200 SHP. Reduction gear: 1.81:1 — handles two 1600 HP diesels @ 720 RPM. With hydraulic couplings & Fawick clutch. Port and starboard.

\$7950 each

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NEW KINNEY 20 GPM FUEL OIL SERVICE PUMP



20 GPM/50 lbs — 2" X 2" — with 2 HP 440/3/60 860 RPM motor. Fuel oil service pump with relief valve.

\$1650

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AVAILABLE FOR IMMEDIATE DELIVERY

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A.B.S.
Classed Maltese Cross A-1
International Load Line

U.S.C.G.
Oceans
Certificate of Registry
Gross Tons — 8914
Panama Canal Tonnage
Certificate

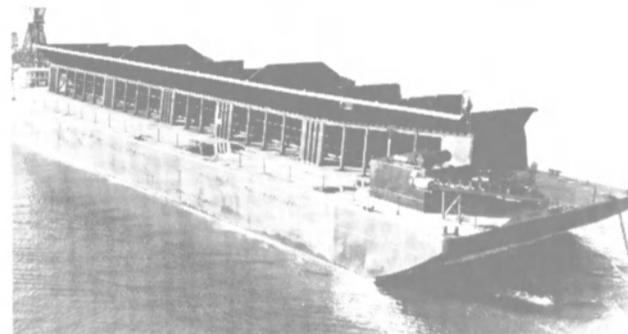
Length 400' 0"
Beam 99' 6"
Depth 25' 0"
Deadrise 27"
Draft Light 3' 11"
Draft Loaded 19' 4"
Transverse Bulkheads 5 O.T.
Length Bulkheads 3 O.T.
No. Tanks 20
Rolled Bilge 48" R.
Mich. Bow 60' length
Sq. Raked Stern 80' length

DECK CARGO
Open Deck Area 37,886 S.F.
Deck Load 1,500 P.S.F.
D.W.T 18,500 L.T.

AS OIL BARGE
Oil Cargo 150,000 BBL's
21,000 L.T.
Cargo Piping 14" Mains
10" Suctions

AVAILABLE DECEMBER 14, 1981

Self Unloading Aggregate Barge



ZAG-501

Length (O.A.) 248' - 0"
Beam 63' - 0"
Depth 16' - 0"
Displacement Light 1010 S.T.
Draft Light (F.W.) 2' - 7 1/2"
Draft Loaded (F.W.) 11' - 8"
DWT 4000 S.T.
Diesel Electric Set 100 KV
Hopper Volume 2667 cu. yd

Hopper Unloading Gates: 27-36" x 36" Horiz. sliding gates
w/individual hydr. controls.

Main Unloading Conveyor: 48" wide belt, 30 H.P. elect. motor, 250
ft./min. Max. disch. rate - 667 cu. yd./hr.

Transfer Conveyor: 42" wide belt, 10 H.P. elect. motor, 350 ft./min.
off loading location - Stbd. side fwd. at 9 ft. above deck.

Hull Plating: Deck, side shell & bott. 9/16"

Split Type Self Dumping Scows

Built 1979. For sale, long
or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved
offport dumping
Length (MLD) 180' - 0"
Beam (ML'D) 50' - 0"
Depth of Mid-Body (ML'D) 14' - 0"
Hopper Length (ML'D) 128' - 0"
Level Hopper Volume 1421 cu. yd.
DWT @ d = 10.22 ft. 1615 L.T.
Rake Lengths F. & A. 26' - 0"
Twin Skegs
Stern & Fwd. Rake Decks Stepped up 2' - 0"
Engine GM 671
Hydraulic Pumps (2) 12 GPM & 75 GPM
Time To Open (Fully Closed to Fully Open)
..... 6 Min. 5 Sec.
Time To Close 4 Min. 34 Sec.
Hopper Angle Fully Open 53.78°
Fuel Tank Capacity 445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)
..... 18" Diam. 120" Stroke

Plating
Side 9/16"
Bottom 5/8"
Hopper 5/8"

Combination Deck Cargo & Tank Barge

Fully-Classed
Ocean Service



230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A. 230' - 0"
Beam 60' - 0"
Depth 15' - 6"
Deadrise 6"
Number of Tanks 10
Total Tank Volume @ 95% 24,000 BBL
Cargo Pumps Two Twin Screw, Delevel IMO GTS-268-066-CBEM
Rating 1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location Below Deck Pumproom in Fwd. Rake
Diesel Engines Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location Above Deck in Fwd. Deckhouse
Fuel Capacity 1400 Gal.
Fill & Disch. Connections 8" ANS1 150# FLG P/S
Heating Coils 2" Sch. 80 Pipe For Shore Steam
Hull Plating Deck 1/2", Side Shell 3/8", Bott. 3/8", Shear Strake 1/2"
Deck Cargo Dwt. at Loadline 3900 S.T.

For additional information or to make an
appointment to inspect, call or write:
Tom Sherwood, Andy Canulette, Jr.,
or Dan Rogers

**Z
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3121 S.W. Moody Ave., Portland, Oregon 97201

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 Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
 Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

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 Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
 Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

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Aurand, 1270 Ellis Street, Cincinnati, OH 45223
 Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932

BOILERS—Tube Cleaning

Combustion Engineering, Inc., Windsor, Connecticut 06095
 A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BROKERS

Aldenships, 2182 S.E. 17th Street, Fort Lauderdale, FL 33316
 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

BRONZES—COMMEMORATIVE

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

BUNKERING SERVICE

Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152
 Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO HANDLING EQUIPMENT

Navire Cargo Gear, 77 River Street, Hoboken, NJ 07030
 W.W. Patterson Company, 3 Riversea Road, Pittsburgh, PA 15233

CARGO TRANSFER & ACCESS EQUIPMENT

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

CHAINS

Neptunia, Via Giovanni da Verrazzano, 12 16 165 Genova, Italy

CHOCKING SYSTEMS

Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
 Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling

Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CONTRACTORS—LABOR

CISCO, 1528 E. Adams Street, Jacksonville, FL 32202

CONTROL SYSTEMS—Monitoring

Arnesen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
 Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
 Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431
 National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
 Pan American Systems Corporation, P.O. Drawer 400, Belle Chasse, LA 70037
 Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

COUPLINGS

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

CRANES—HOISTS—DERRICKS—WHIRLEYS

American Hoist & Derrick Company (AMHoist), St. Paul, MN 55107
 Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
 M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
 National Supply Company, 1455 West Loop South, Houston, TX 77027
 Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CREDIT REPORTING

Steamship Vendors, P.O. Box 2850, Long Beach, CA 90801

DECK MACHINERY—Cargo Handling Equipment

Marine Technical Associates, 195 Patterson Avenue, Little Falls, NJ 07424
 Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS

B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
 General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
 Haynes Corporation, P.O. Box 179, Jackson, MI 49204
 Twin Disc, Inc., 1328 Racine Street, Racine, WI 53403

ELECTRICAL EQUIPMENT

Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
 Federal Pacific Electric Company, P.O. Box 1800, Somerville, NJ 08876
 Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
 Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS

Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906

EQUIPMENT—Marine

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
 Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
 Consafe Inc., P.O. Box 40339, Houston, TX 77040
 Duraline, 75 Hoffman Lane, Central Islip, NY 11722
 Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
 John P. Nissen, Jr. Company, Glenside, PA 19038
 Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
 Stal Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
 Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
 Uitor Ships Service A/S, Mastemyr, 1410 Kolbotn, Norway
 Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150
 Zesco, Inc., 3694 Westchase Drive, Houston, TX 77042

EVAPORATORS

Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
 Riley-Beard, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS — METALS

Fibergrate Corporation, P.O. Box 344610, Dallas, TX 75234
 Lukens Steel Company, Coatesville, PA 19320
 Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
 Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
 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
 Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing

Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
 Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FUEL OIL/ADDITIVES—Analysis & Combustion Testing

Ralfite Products Inc., 300 Broad Street, Stamford, CT 06901
 XRG International, Inc., 4125 S.W. Martin Hwy., Stuart, FL 33494

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
 Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT

Kiefer Corporation, 2202 W. Clybourn, Milwaukee, WI 53233

GANGWAYS

Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311
 W & A Engineers, Inc., 4040 Veterans Highway, Metairie, LA 70002

HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
 Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
 E. Mock & Sons, Inc., 20 Vesey Street, New York, NY 10017

HULL CLEANING

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
 Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
 Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044

HYDRAULICS

Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017

INERT GAS—Generators—Systems

Camar Corporation, P.O. Box 460, Worcester, MA 01613
 Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906
 Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
 Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY

INSULATION—Cloth, Fiberglass

Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
 Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
 Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
 Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER—Watertight Doors—Paneling

Masonite Commercial Division, Dover, OH 44622
 Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
 Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

Browning Marine, Inc., (Aqua Signal), P.O. Box 806G, St. Charles, IL 60174
 The Guest Corporation, 17 Culbro Drive, West Hartford, CT 06110
 Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
 Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
 Perko Inc., P.O. Box 6400D, Miami, Florida 33164
 Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

MACHINE TOOLS

Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS

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

NAME PLATES—BRONZE—ALUMINUM

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
 Agemar, Ave. 17 No. 108-129, P.O. Box 1465, Maracaibo, Venezuela
 All Points Associates, Inc., RD #1, Box 3309, Monroeville, OH 44847
 Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
 J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
 Jacksonville, Florida 32211
 Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130

C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
 CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
 Childs Engineering Corp., Box 333, Medfield, Mass. 02052
 John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
 Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
 C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
 Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129

Designers & Planners, Inc., 2341 Jefferson Davis Hwy., Suite 1100, Century Bldg., Arlington, VA 22202
 Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
 Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
 Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
 John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

The Glasten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104

Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480

Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hoffman Maritime Consultants Inc., P.O. Box 186, Glen Head, NY 11545

Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Jantzen Engineering Co., 6655-H Amberfont Drive, Baltimore, Md. 21227

James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
 Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063

John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048

MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
 Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746

Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424

Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
 Metritape, Inc., 33 Bradford Street, Concord, MA 01742

NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
 Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169

Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104

Captain Conrad P. Nilsen, 66 Beverly Road, Bloomfield, NJ 07003
 Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104

Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114

Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211

PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
 Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112

Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156

Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716

M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013
 and 657 Mission St., San Francisco, Calif.

Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316

Secor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003

Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
 George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007

T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235

Robert L. Stevens Associates, Inc., 654 Beacon Street, Boston, MA 02215

Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
 Timsco, 622 Azalea Road, Mobile, AL 36609

Townsend Marine Consultants, 18 Church Street, Georgetown, CT 06829

Wadam Wartsila Helsinki Shipyard, P.O. Box 132, SF-00151 Helsinki 15, Finland

Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016

James Weisbeck, 240 O'Kell Street, Buffalo, NY 14220
 Thomas B. Wilson Associates, 920 North Avalon Blvd., Wilmington, CA 90744

Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061

Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
 XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT

AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305

American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526

Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103

Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024

DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079

Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201

Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080

Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
 Hase McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631

ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611

Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780

Iotron Corp., 5 Alfred Circle, Bedford, MA 01730

Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605

Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway

Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302

Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503

Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401

Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729

- Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
- North American Philips Communication Corp., 55 Knights Bridge Road, Piscataway, NJ 08854
- RCA Service Co., Building 204-2, Camden, N.J. 08101
- Racal-Decca Marine, Inc., P.O. Box G, #1 Commerce Blvd., Palm Coast, FL 32037
- Racal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
- Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
- Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
- Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
- Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
- Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
- Southern Marine Research, Inc., 1401 N.W. 89th Court, Miami, FL 33172
- Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721
- OILS—Marine—Additives**
- B.P. Marine North America Trading, Gateway One, Suite 300, Newark, NJ 07102
- Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
- Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 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
- OIL/WATER SEPARATORS**
- Alfa-Laval, Inc., 2115 Linwood Avenue, Ft. Lee, NJ 07024
- Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
- McTigue Industries Inc., 1615 Ninth Avenue, Suite 1 South, Bohemia, NY 11716
- National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
- Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425
- PAINTS—COATINGS—CORROSION CONTROL**
- American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
- Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
- "CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
- Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
- E.I. Dupont de Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
- Henkel Corporation, 4620 West 77th Street, Minneapolis, MN 55435
- International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
- Jatun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
- Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
- Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
- Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143
- Woolsey Marine Division, 1250 Broadway, New York, NY 10001
- PETROLEUM SUPPLIES**
- Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
- PIPE—HOSE—Cargo Transfer, Clamps, Couplings, Coatings**
- Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748**
- Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
- Knights' Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567
- Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
- Tioga Pipe & Supply Company, 2450 Wheatshaf Lane, Philadelphia, PA 19137
- PLAQUES—BRONZE—ALUMINUM**
- Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707
- PLASTICS—Marine Applications**
- Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231
- PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines**
- Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
- Armo Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
- Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
- Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
- Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
- Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647
- Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
- Combustion Engineering, Inc., Windsor, Connecticut 06095
- General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
- Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
- Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
- MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
- Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
- Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
- Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
- Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
- P.J. Plishner Marine, 2 Lake Avenue Ext., Danbury, CT 06810
- 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
- Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
- Steamco Corporation, 1020 East 8th Street, Jacksonville, FL 32206
- Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
- Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
- Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
- Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
- Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652
- Waukesha Engine Division, Waukesha, WI 53187
- PUMPS—Repairs—Drives**
- Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- Transamerica DeLaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
- Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092
- REFRIGERATION—Refrigerant Valves**
- Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
- Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
- ROPE—Manila—Nylon—Hawsers—Fibers**
- American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
- Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
- Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
- RUDDER ANGLE INDICATORS**
- Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
- Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
- Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
- Modular Systems, 164 Franklin Avenue, Rockaway, NJ 07866
- SAFETY EQUIPMENT**
- ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, FL 33020
- Datrex, 3795 N.W. 25th Street, Miami, FL 33142
- SANITATION DEVICES—Pollution Control**
- American United Marine Corp., 575 Madison Avenue, New York, NY 10022
- Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
- Chapman Engineers (Omni-pure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
- Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
- Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111
- Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
- Microphor, Inc., P.O. Box 490, Willits, CA 95490
- Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
- St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
- Somat Corporation, Pomeroy, PA 19367
- SCAFFOLDING EQUIPMENT—Work Platforms**
- Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
- SHACKLES**
- West Footscray Engineering Works P/L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12, Australia
- SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT**
- Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
- Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
- Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- SHIPBREAKING—Salvage**
- The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
- Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201
- SHIPBUILDING STEEL**
- Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042
- Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
- SHIPBUILDING—Repairs, Maintenance, Drydocking**
- A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
- AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
- Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.
- Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
- Atlantic Marine Inc., P.O. Box 138 Fr. George Island, Jacksonville, FL 32226
- Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
- Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
- Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
- Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
- Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
- Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
- Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
- Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
- Carrington Slipways Pty. Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
- China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
- Conrad Industries, P.O. Box 790, Morgan City, La. 70380
- Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
- Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
- Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
- FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
- Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
- HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
- Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
- Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
- Havre de Grace, Havre de Grace, Md.
- Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
- Hudson Shipyards, Inc., P.O. Box Q, Pascagoula, MS 39567
- Jeffboat, Inc., Jeffersonville, Ind. 47130
- Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
- Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
- McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160
- MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
- Mattson Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
- Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
- Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
- Monark Boat Co., P.O. Box 210, Manticello, Ark. 71655
- Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
- National Steel & Shipbuilding Corp., San Diego, Calif. 92112
- Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
- O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
- Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
- Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
- Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
- Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
- Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
- St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
- Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
- Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
- Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
- Sun Ship Inc., Chester, PA 19013
- Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
- Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
- Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
- Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
- Thunderbolt Marine, Inc., P.O. Box 5628, Savannah, GA 31404
- Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
- Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
- Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
- Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
- Todd Shipyards, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
- Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
- West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2
- SHIPPING—PACKING**
- Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
- Crane Packing Co., 435 Regina Drive, Clarksburg, MD 20734
- SMOKE INDICATORS**
- Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
- STUFFING BOXES**
- Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
- SURVEYORS AND CONSULTANTS**
- Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
- Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038
- TANK CLEANING**
- Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
- Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- Salwico, Inc., 5 Marine View Plaza, Hoboken, NJ 07030
- TANK LEVELING INDICATORS**
- Transamerica DeLaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
- Vitronics, P.O. Box 42305, Houston, TX 77042
- Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017
- TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.**
- Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
- Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
- Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
- Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
- Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
- James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
- McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
- McDonough Marine Service, P.O. Box 26206, New Orleans, La.
- Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
- Ocean Salvors Company, One World Trade Center, New York, NY 10048
- Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
- Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
- Turecoco Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305
- VALVES AND FITTINGS**
- American United Marine, 575 Madison Avenue, New York, NY 10022
- Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
- Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
- Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
- Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
- Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
- Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
- Zidell Explorations, Inc. (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201
- WATER PURIFIERS**
- Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
- Specific Equipment Company, P.O. Box 55626, Houston, TX 77055
- WINCHES AND FAIRLEADERS**
- Beebe Brothers, Inc., 2724 6th Avenue South, Seattle, WA 98134
- Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
- Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134
- Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880
- WINDOWS**
- Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550
- WIRE AND CABLE**
- Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
- Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
- Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
- WIRE ROPE—Slings**
- Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042
- Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
- A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747
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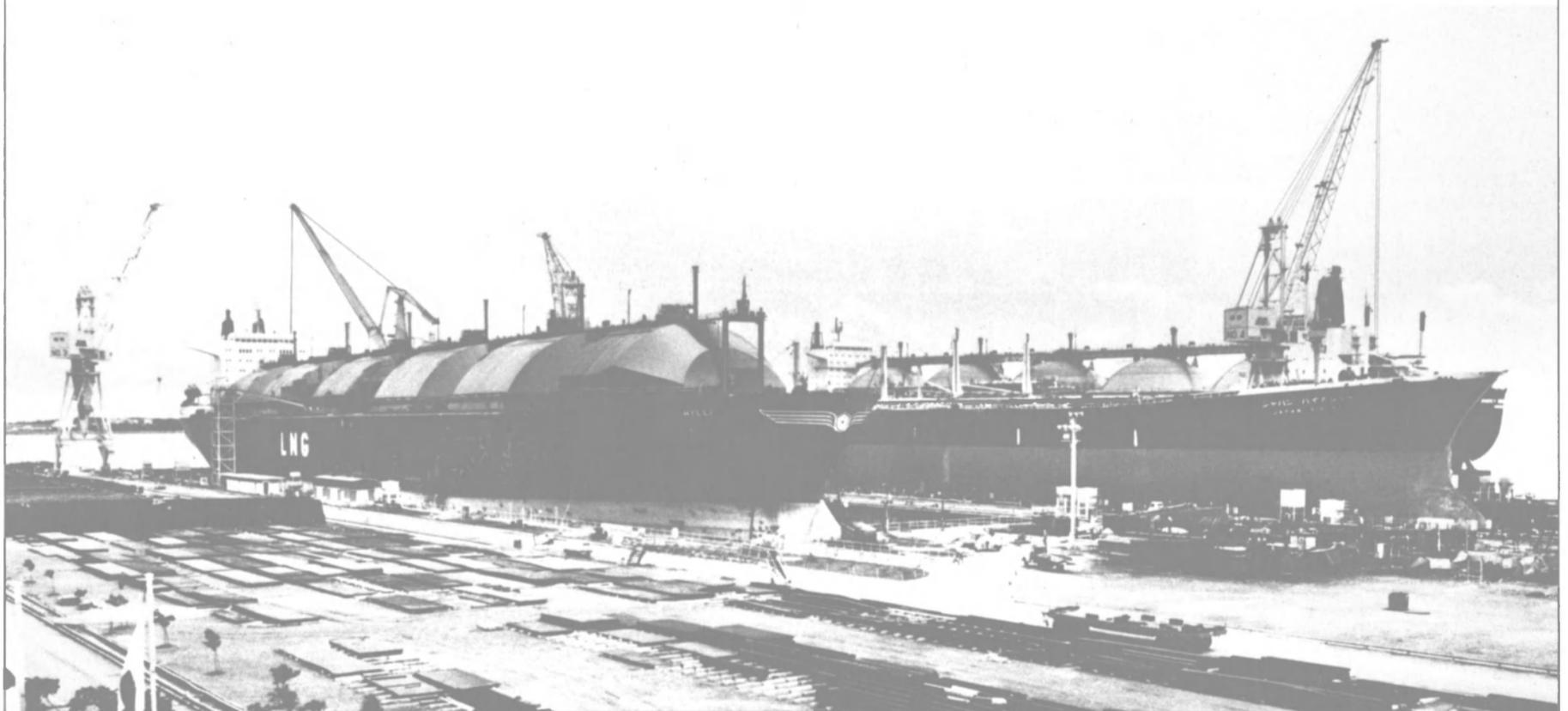
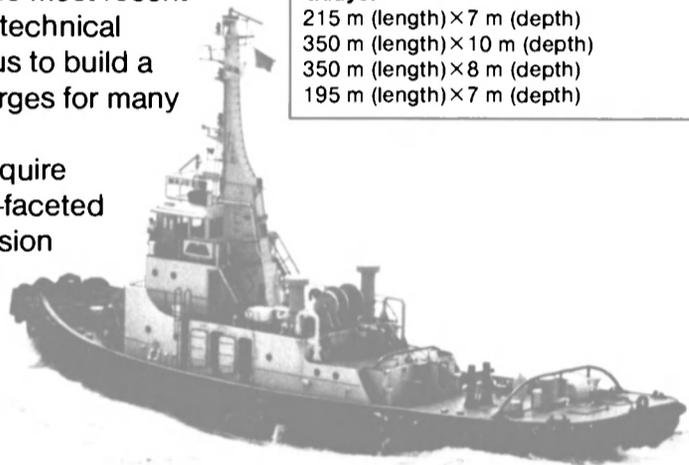
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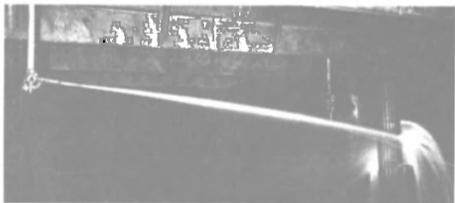
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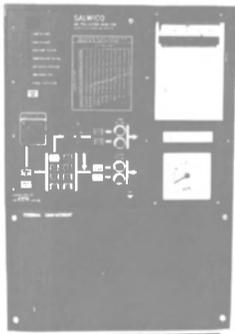
COW TALE



While this doesn't really have anything to do with cattle, it does have to do with COW and all the IMCO requirements relating to COW. Like, for example, inert gas systems, ullage monitoring, oil pollution monitoring, as well as COW itself. For COW, Gunclean is the only logical choice. Since 1967 more than 25,000 custom installations have provided maintenance-free, highly reliable tank cleaning. Fully programmable driving units assure efficient coverage with the fewest guns.

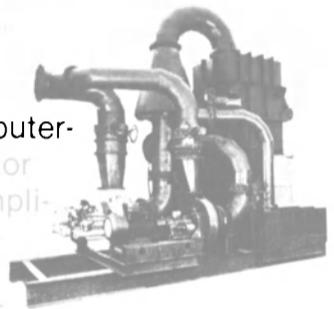


During COW, and at other times, full inerting of tanks is assured with the Howden Engineering inert gas system. Over 400 have been installed since 1962 and systems now being supplied meet the latest IMCO guidelines for the revision of regulation 62.



To measure and control oily ballast discharge is an additional requirement. The

Salwico computer-controlled monitor system assures compliance by measuring the oil discharge in ppm and converting it to both liters per nautical mile and total overboard discharge.



Ullage measuring accurate to IMCO rules is provided by the SAAB SUM-21 radar system. There are no moving parts in this intrinsically safe, exceptionally precise system, and no equipment in the tank. Alarm levels can be preset over the entire tank range. Independent high level alarms can be provided.

With equipment like this, Salwico can readily design and custom tailor an IMCO approved package for virtually any size or class of vessel. But more importantly, we can install it, maintain it, train your crew to operate it...anyplace in the world, any time of the day or night. Try us.



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