

MARITIME REPORTER AND ENGINEERING NEWS



HMAS Adelaide

**Todd Delivers First Of
Four GE Gas-Turbine-Powered
FFGs To Australian Navy**

(SEE PAGE 16)

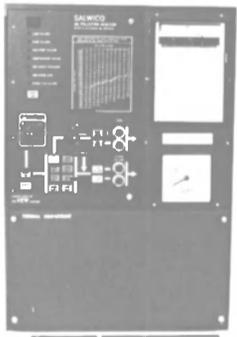
JANUARY 15, 1981

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,



ing, 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.



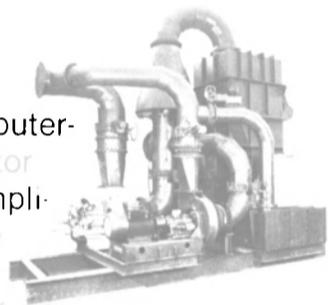
During COW, and at other times, full inerting of tanks is assured with the Howden Engineering inert gas system. Over 400 have been installed since 1962 and systems now being supplied meet the latest IMCO guidelines for the revision of regulation 62.

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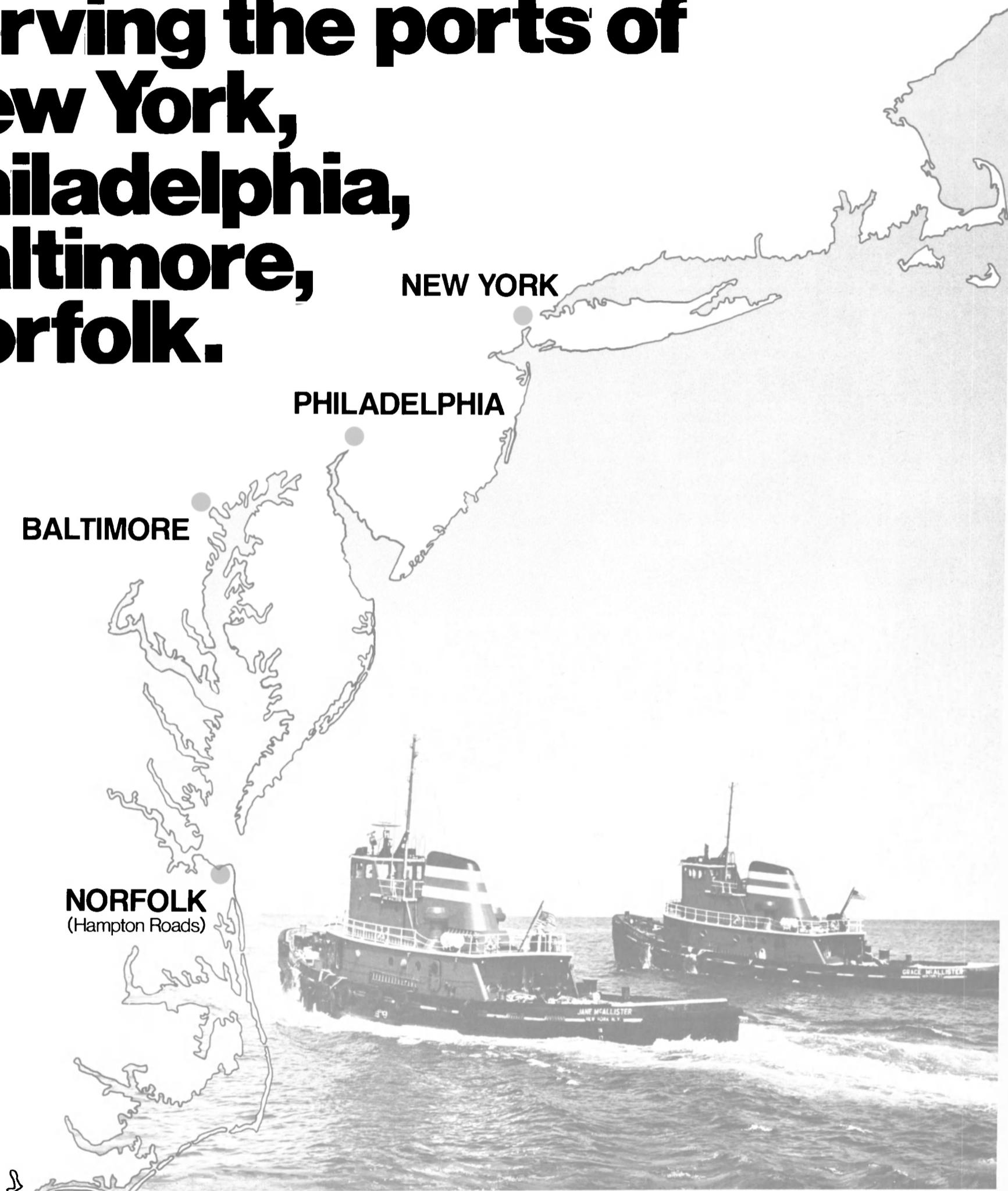
With equipment like this, Salwico can readily design and custom tailor an IMCO approved package for virtually any size or class of vessel. But more importantly, we can install it, maintain it, train your crew to operate it...anyplace in the world, any time of the day or night. Try us.



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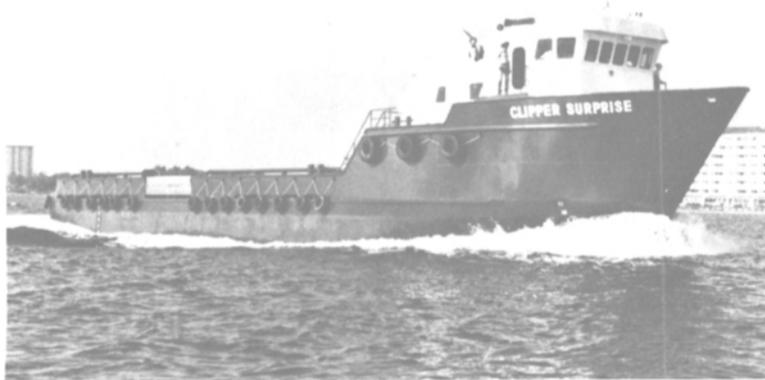
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\$250-Million Shipyard To Be Constructed By Dome Petroleum Ltd.

A Calgary, Canada, company recently announced plans to build a new shipyard at an estimated cost of about \$250 million (Canadian). William Richards, president of Dome Petroleum Ltd., said that the "world scale" facility would be used to construct liquefied natural gas (LNG) carriers and ice-strengthened crude oil tankers.

According to Mr. Richards, the shipyard would have a steel throughput of 60,000 tons annually, and when in full production would have a work force of more than 2,000 persons.

Dome Petroleum has a contract to supply a group of Japanese utilities with about 400 million cubic feet of gas daily beginning in 1985. Initial production at the new shipyard would be LNG tankers to carry the Canadian gas to Japan. A site for the new facility has not yet been selected.

MarAd Approves Title XI On \$28.9-Million Bulk Self-Unloader

The Maritime Administration has approved in principle an application by Cooper Steamship Company for a Title XI guarantee to aid in financing a self-unloading bulk carrier designed for operation on the Great Lakes. Cooper Steamship is a wholly owned subsidiary of the American Steamship Company, Buffalo, N.Y.

The 730-foot-long, 31,720-dwt vessel was delivered by Bay Shipbuilding Corporation, Sturgeon Bay, Wis., last April. Title XI financing will cover \$24,409,000, or 87 1/2 percent of the vessel's \$28,896,840 depreciated actual cost.

New Bulletin Available On Colt-Pielstick Diesel Engine Applications

A newly revised bulletin describing Colt-Pielstick PC-2 Series diesel engine applications for marine service is now available. The 28-page book is in full color, and describes in detail the engine room arrangements and specifications of ships that are Colt-Pielstick powered.

For a free copy of the new bulletin,
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**MARITIME
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AND
ENGINEERING NEWS

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fuel savings up to \$228,000* demonstrated as a result of regular hull cleanings with **SCAMP**

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An Exxon Corporation study determined actual cash savings from regular hull cleanings with SCAMP® equipment.

** NET FUEL SAVINGS ATTAINABLE 24 MONTH DRY DOCK CYCLE			
At Constant Speed of	21 MDWT Diesel	50 MDWT Steam	250 MDWT Steam
11 Knots	\$31,000	\$127,000	\$144,000
12 Knots	\$33,000	\$141,000	\$161,000
13 Knots	\$35,000	\$157,000	\$188,000
14 Knots	\$38,000	\$185,000	\$228,000

The net savings represent total fuel savings from regular hull cleanings and delay costs based on 4 to 16 hour cleaning periods. For example, for a VLCC, the savings amounted to 6 tons of fuel per day or \$36,000 per round trip.

The following chart illustrates typical fuel savings of a 50 MDWT vessel operating at a reduced speed of 11 knots as an example.

* Source: Exxon Corporation study of various vessel sizes.
A limited number of copies of this Exxon Corporation study are available. Please write on your company letterhead to Donald Powell, Vice President—Marketing, Butterworth Systems Inc., P.O. Box 3, Dept. LL, Bayonne, N.J. 07002 [USA].

Increase of shaft horsepower and fuel consumption become necessary to hold speed at 11 knots due to loss of hull and propulsion plant efficiency as time elapses. Since regrowth of fouling takes place after each cleaning, maximum net savings are realized from a regular SCAMP hull cleaning program. In the preceding example, net savings (fuel savings less SCAMP hull cleaning costs) were \$127,000.

Optimum cleaning programs are: every round trip for long-haul VLCC's and every four months for smaller vessels commencing at the onset of fouling, about 10 to 12 months after dry dock.

A SCAMP hull cleaning program returns fuel savings many times greater than the cost of the cleanings even when operating at reduced speeds.

Since its introduction, over 1600 vessels have been cleaned by SCAMP units. Many ship operators bank on it.

Workboat arrives and the SCAMP unit is lowered into water.

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Australia Fights Oil Spills With MARCO Class I Skimmers

The Australian Department of Transport has improved its oil-spill response capability with the purchase of four Class I re-



Four of these 28-foot oil skimmers have been delivered by MARCO Seattle to the Australian Department of Transport. They will be stationed at Brisbane, Melbourne, Perth, and Sydney.

covery vessels from MARCO Seattle. The MARCO skimmers are the first self-propelled Filterbelt® skimmers ordered by Australia, and are part of a government program to improve that nation's response to major oil spills. A skimmer will be stationed at the strategic population industrial centers of Brisbane, Melbourne, Perth, and Sydney, and can be deployed quickly from these centers to any spill site.

With a top speed of 18 knots, the Class I is ideal for rapid first response to oil spills on waterways, bays, and harbors. Once at the spill site, the Class I skims at approximately 2-3 knots and removes all oil and debris from its path, generally as fast as it is encountered. In addition, the aluminum-hulled vessel is compact and lightweight for easier transfer to distant spill sites. It can be carried overland on its own towable trail-

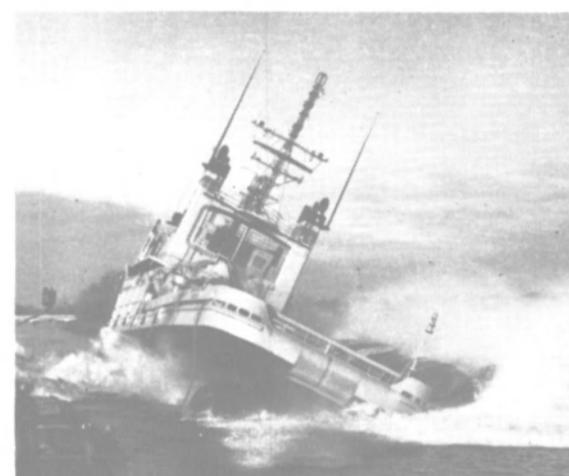
er, or to more remote locations by C-130 aircraft.

At the heart of the skimmer is the unique MARCO Filterbelt system, considered by many to be the most effective system for removal of all types of oil from the surface of water, including light distillates, heavy weathered crude, and Bunker C. The system operates as well under moderate sea conditions as in calm water.

The Class I's principal dimensions include a length of 28 feet (8.5m), a beam of 8 feet (2.44m), and a depth of 3 feet (0.9m). Standard equipment includes a diesel/hydraulic power system for the Filterbelt, a 500-gallon oil sump, an automatic decanting system, a debris collection basket, and twin 60-horsepower outboard engines.

MARCO is a leading designer and builder of skimming vessels, ranging from the 28-foot Class I to the 60-foot Class III. Since 1972, MARCO has delivered more than 70 skimmers worldwide to government agencies, oil-spill clean-up cooperatives, and major oil companies.

Marinette Launches Another In Navy Fleet Tug Series



Marinette Marine Corporation, under contract from the Naval Sea Systems Command, recently launched the sixth vessel (shown above) in a series of seven being built for the Navy. Five vessels have previously been delivered to the Navy.

The T-ATF fleet tug is 226 feet in length, 40 feet in beam, and has a design draft of 16 feet. The vessel generates 7,000 bhp through twin screws enclosed in Kort nozzles. She has a loaded service speed of 14 knots, and a range of 10,000 miles. Delivery of the last two vessels is scheduled for mid-1981.



CROWLEY BARGE LAUNCHED AT BETHLEHEM — Designated to service the Caribbean and Gulf of Mexico with petroleum products, the first of two oil/deck cargo barges being built for the Crowley Maritime Corporation was launched recently at Bethlehem Steel Corporation's San Francisco shipyard. The new barge, Hull 4137, measures 400 feet long by 100 feet wide and has a capacity of 148,000 barrels. It is scheduled for delivery in January 1981. Construction on the second Crowley barge, Hull 4138, started last July, and it is scheduled for delivery in May 1981.

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\$53.2-Million Contract For Supply Boats Signed By Halter



David E. Verlander (left), Halter vice president, administration, and Frank A. Nemeec, president of Marsea Marine Companies, sign contracts for fourteen 180-foot supply boats. The \$53.2-million package is believed to be the largest supply boat order in U.S. history.

Halter Marine, Inc. has signed contracts for the construction of 14 supply vessels for the Marsea Marine Companies. The contracts between the New Orleans-based corporations total \$53.2 million, and are believed to constitute the largest supply boat order in U.S. history.

The new 180-foot vessels will be capable of carrying bulk and liquid muds, diesel fuel, drill pipe, and other supplies to offshore installations. They will also be equipped to fight off-ship fires, while their engine rooms will be protected by CO₂ flooding systems.

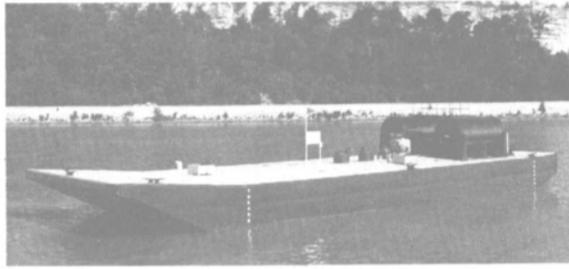
The contracts call for six of the vessels to be delivered in 1981, with the remaining eight vessels to be delivered during 1982. This is in addition to a six-vessel contract package signed and delivered to Marsea Companies in 1980.

Halter Marine, Inc. is the world's largest builder of supply vessels for the offshore oil and gas industry. The company owns and operates 10 shipyards in the Southeastern United States.



SHIPMATES — Newly modified guided-missile frigate **USS McInerney (FFG-8)** and newly developed Seahawk helicopter conduct first sea trials of an air-sea combination called the "antisubmarine warfare weapons systems of the future." Bath Iron Works recently delivered the shipboard portion of the prototype system to the U.S. Navy 11 days ahead of schedule. Called LAMPS MK III, the combined system is intended to give warships "over-the-horizon" surveillance and attack capabilities. BIW modified structure, installed and tested unique electronics systems for LAMPS MK III, as well as other electronics installations under a Navy contract of approximately \$16 million. Complete testing aboard the **McInerney** of the total system, formally designated Light Airborne Multi-Purpose Systems, is slated for Navy evaluation in early 1981. The system is intended for installation aboard FFG-7 class frigates and Spruance (DD-953) class destroyers once it is proven.

Riverway Shipyard Co. Completes Construction Of 120-Foot Tank Barge



Riverway Shipyard Company, Grafton, III., recently completed construction of the KM-1, a new double-skin side, single-skin bottom raked barge (pictured above) for Kiesel Marine Service of St. Louis. The tank barge will be used as a midstreaming fuel barge for service in St. Louis.

KM-1 measures 120 by 35 by 9 feet 4 inches. The double-skin sides and single-skin bottom are constructed of 5/16-inch plate. The bulkheads and deck are 1/4-inch plate. The headlog and corners are 3/4-inch plate.

The barge has two fuel oil tanks and one water tank built in the hull. Located on deck are two lube oil tanks and one pump engine fuel tank. Fuel oil capacity is 161,540 gallons; potable water capacity is 17,230 gallons; lube oil capacity is 12,000 gallons; and pump engine fuel tank capacity is 300 gallons.

Fuel oil is unloaded by way of a Peabody-Barnes self-priming centrifugal pump located on the deck at the rate of 700 gallons per minute, powered by a Detroit Diesel 4-71 engine. The total offloading time is approximately four hours.

The barge is certified by the United States Coast Guard for the carriage of Grade "D" products or lower.

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Twin Towing/Supply Vessels Delivered By Quality Shipyards

Richard M. Currence, president of Gulf Fleet Marine Corporation, has announced the delivery of two new 190-foot by 40-foot by 14-foot towing/supply vessels. The Gulf Fleet No. 42 and Gulf Fleet No. 43 (shown above) are sister vessels and are powered by two

GM Electro-Motive Division 16-645-E2 diesel engines that develop 3,900 bhp through Reintjes WAV 481 3:1 reduction gears. These vessels each have a clear deck space of 96 feet by 32 feet with a maximum deck cargo capacity of 522 long tons, and are

capable of sustained speeds up to 13 knots.

Under deck, each vessel can carry 520 tons of drill water and has bulk tanks with a capacity of 5,800 cubic feet with a transfer rate of 50 tons per hour. Liquid mud tanks with 1,250-barrel capacity allow each vessel to carry 189 tons of liquid mud, which can be transferred at a rate of 600-800 gallons per minute at 170 feet. Each vessel also is fitted with 1,250-barrel-capacity calcium chloride tanks.

The vessels are equipped with a towing package that consists of a SMATCO 66 DAW 200 double-drum towing winch with a drum capacity of 2,500 feet of 2-inch cable on each drum, a 5-foot by 8-foot stern roller, and a measured bollard pull of 70,000 pounds. Classed by the American Bureau of Shipping as +A1 (AMS), All Ocean Towing, the vessels are built in accordance with U.S. Coast Guard specifications.

No. 42 and No. 43 were built in Houma, La., by Quality Ship-

yards, Inc., another Gulf Fleet company. They represent one phase of an active and on-going construction program that allows Gulf Fleet to build equipment to meet the needs of other offshore petroleum and construction industries.

Gulf Fleet Marine Corporation provides a wide range of services to the offshore petroleum industry with a fleet of more than 100 supply and towing/supply vessels, tugs, and barges. Gulf Fleet Marine is one of the Houston Natural Gas Corporation group of companies.

Singer Company Gets \$5.6-Million Navy Award

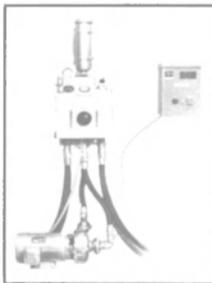
The Singer Company, Librascope Division, Glendale, Calif., has been awarded a \$5,577,452 modification to a previously awarded contract for MK 92 Attack Control Console and MK 93 Emergency Preset Console. The Naval Sea Systems Command is the contracting activity. (N00024-80-C-6440)

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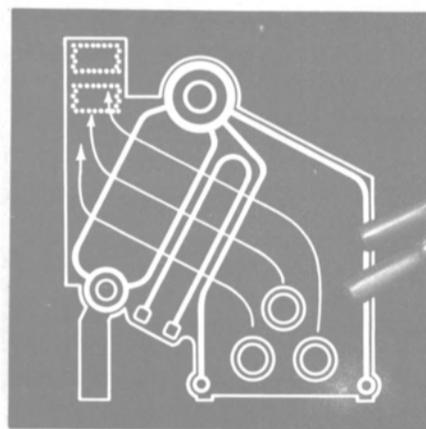
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Maritime Reporter/Engineering News

\$5.5-Million Navy Contract Awarded To Honeywell

Honeywell Incorporated, Defense Electronics Division, Training and Control Systems Center, West Covina, Calif., has been awarded a \$5,485,468 cost-plus-fixed-fee contract for AN/BQR-21 operational engineering, class installation, and hull support. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-6015)

New Brochure Details Johnson & Towers Program For Detroit Diesels

A handsome new six-page, full-color brochure detailing its complete diesel capability in marine, industrial, and electrical power generation applications is being offered free on request for single copies by Johnson & Towers, Inc., diesel power specialist of Mount Laurel, N.J., a distributor for Detroit Diesel Allison.

Titled "Power Engineering To Meet Your Needs," it presents J & T's nine-point program for excellence in Detroit Diesel Allison sales and service. They are: peerless performance, superior service, parts when you need them, exchange components mean quality with savings, research and development, meticulous manufacturing, year-round training programs, worldwide exports, and modern data processing benefits you. Each is illustrated with a four-color photograph.

To obtain single copies of the brochure free of charge, Write 66 on Reader Service Card

Foxboro Enters Joint Ventures With Two Companies In China

The Foxboro Company, Foxboro, Mass., has signed 20-year joint venture agreements with The Shanghai Instrumentation Industry and the Guang Dong Instrument Factory, both located in the People's Republic of China. Under the agreement with The Shanghai Instrumentation Industry, Shanghai, that joint venture company will manufacture Foxboro electronic instrumentation and systems. Under the agreement with the Guang Dong Instrument Factory, Zhao Qin, Guang Dong, that joint venture company will manufacture the Foxboro line of pneumatic instrumentation.

A sales and service organization will be established and will be wholly owned by the Chinese. This organization will be responsible for the sales and service of Foxboro products in the People's Republic of China, whether those products are manufactured by the joint venture companies or by other Foxboro facilities worldwide.

Bulletin On New Fuel Oil Blending Unit Available From IMO

The IMO® Pump Division of Transamerica Delaval Inc., Monroe, N.C., has just published an illustrated six-page bulletin on a new fuel oil blending unit recently introduced by the division.

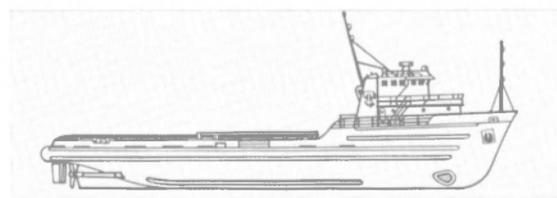
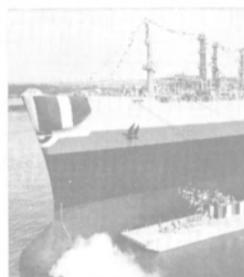
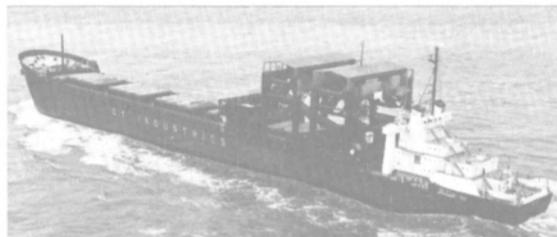
Designed primarily for mari-

time applications, the new unit is nevertheless exciting widespread interest in shoreside industries wherever small- and medium-sized stationary diesel engines are run. The unit blends diesel oil into lower cost No. 6 or other heavy oil, reducing operating costs of shipboard, utility, and industrial installations. Usable either in automatic or manual mode, the new

fuel oil blending unit utilizes a full-flow viscometer, solid-state controls, and three-screw IMO pumps for maximum reliability. The new bulletin presents a summary of engineering information on design and operation of the new unit.

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CONVERSIONS - Our massive drydock enables us to add new midbodies.
WORKBOATS - Now on order, the workboats of the future.

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ON THE COVER

Australia Receives First Of Four Gas-Turbine-Powered FFGs From Todd Seattle

Although the recent commissioning of the guided-missile frigate HMAS Adelaide appeared ordinary and publicity-shy at Todd Pacific Shipyards, it was a historic event.

First, it was learned Her Majesty's Australian Ship Adelaide is considered the newest and first Australian Navy ship built for Australia in 12 years. Next, the 445-foot computerized escort ship is the first of its class of Australian ships to be commissioned in a United States shipyard. Todd Pacific Seattle is Washington State's major shipyard, a wholly owned subsidiary of Todd Shipyards Corporation, the largest in-

dependent shipbuilder and repairer in the United States.

When Adelaide sails for Australia after extensive training and trials in the U.S. within a year, she will be the first gas-turbine-powered vessel in the Australian Navy. The Adelaide was turned over by Todd officials to the Australian Navy, and was commissioned into active service in formal ceremonies November 15 at Todd's facilities on Harbor Island, where Comdr. G.R. Lamperd of the Royal Australian Navy (RAN) of Canberra was given HMAS Adelaide's command.

The Lord Mavor of Adelaide, the Right Honorable J.V.S.



The HMAS Adelaide shown on sea trials on Puget Sound prior to recent delivery and commissioning. The General Electric gas-turbine-powered, guided-missile frigate is first of four being built by Todd Pacific Seattle for the Australian Navy.

Bowen, was guest of honor at the ceremony, and on behalf of the City of Adelaide presented the ship with a sterling silver plate and a special trophy to commemorate the event and the tie between the city and the ship.

The Adelaide is the first of four General Electric gas-turbine-powered FFGs being built by Todd Pacific Seattle for the Australian Navy. The next three ships will be named for the cities of Canberra, Sydney, and Darwin. Four of the 12 FFGs under Todd

contract are being purchased by the Royal Australian Navy under a "foreign military sales" agreement with the United States Government. The total contract price for all 12 ships is roughly \$750 million, or about \$62.5 per ship.

The Adelaide is 445 feet long and displaces 3,600 tons. The ship is fitted with a 76-mm gun, missile launcher, torpedo tubes, and is capable of carrying two helicopters. She has a complement of 183 officers and men.

SNAME Los Angeles Section Hears Paper On Noise Control

Some 45 members and guests of the Los Angeles Metropolitan Section of The Society of Naval Architects and Marine Engineers gathered aboard the Princess Louise for a recent meeting. The evening's paper, titled "Shipboard Noise," was presented by Dr. Robert Saucedo, president of the Casde Corporation.

The timely paper addressed the problems associated with the common practice of correcting shipboard noise problems at the completion of the construction period rather than establishing a viable noise-control program as part of the initial contract definition. Dr. Saucedo postulated several basic prerequisites, applicable to any ship design and construction program, that would aid in predict-

ing noise problem areas and provide a means of continually updating the builder's specifications throughout the construction period.

Some typical prerequisites would be: establishing of commonly accepted limits for noise (a melding of Navy, MarAd, and OSHA requirements); methodology for implementation of the noise control program; establishment of specific test criteria to verify predicted problem areas; procedures for substitution of excessively noisy equipment or addition of isolators, acoustic absorptive treatments, etc., based on cost trade-offs; and a viable means of compensating the shipbuilder for "as-found" noise problem corrections.



One of these two 133,000-cubic-meter LNG carriers undergoing final outfitting at the Kockums yard in Sweden has been sold to a West German consortium. The Malmo yard has also granted an option on the second ship.

Kockums Sells LNG Ship To West German Consortium

Kockums AB of Malmo, Sweden, has reached a preliminary agreement with a West German consortium for the sale of one of the two LNG carriers now undergoing final outfitting at the yard. Kockums has also granted an option on the second LNG carrier. Negotiations regarding the sales contract have been initiated, and the ship is expected to be delivered by June 30, 1981. The contract is subject to approval by Swedish authorities.

The sale represents a highly positive outcome of Kockums' intensive marketing efforts in the face of the difficult market conditions that prevail in this area. Kockums considers the sale price to be satisfactory, according to

managing director Christian Christiansson. The West German consortium will operate the LNG carrier on the international market under German flag. The operator will be Tankreederei Ahrenkiel GmbH, Hamburg. If no cargo is available as of the delivery date, the ship will be laid up at Kockums.

The Kockums LNG carrier is designed for the transport of liquefied natural gas and is fitted with five tanks with a total capacity of 133,000 cubic meters. Length overall is 284.5 meters, beam is 41.8 meters, and draft is 10.7 meters (about 933.4 by 137.1 by 35.1 feet). The ship operates at a speed of 20.1 knots.

Write 162 on Reader Service Card ▶

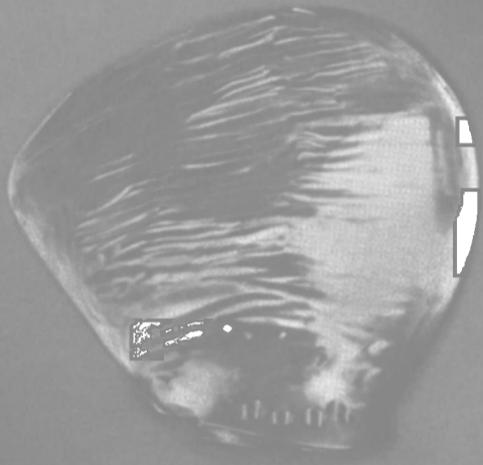
Maritime Reporter/Engineering News



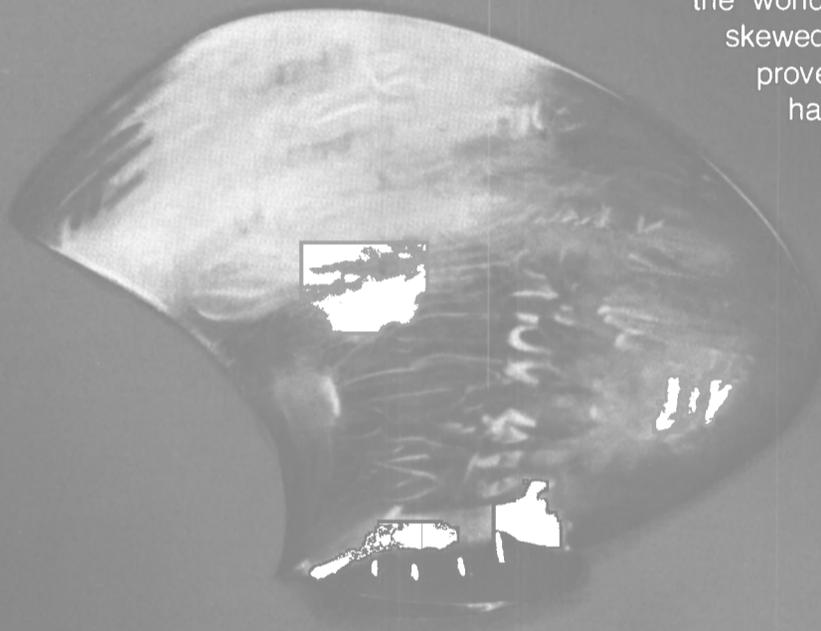
At recent Los Angeles SNAME meeting held aboard the 'Princess Louise' (L to R): Edward V. Stewart, chairman of Section; Dr. Robert Saucedo, author; George L. Stiehl, vice chairman; and George F. Henning, secretary-treasurer.

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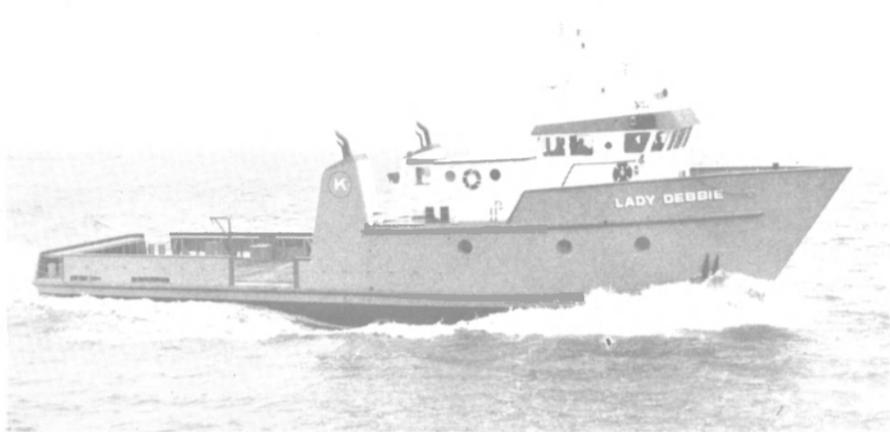


1981

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Twin-Screw Supply Vessel Delivered By Bender Shipbuilding



The recently delivered Lady Debbie (shown above) is the first of two twin-screw, 113-foot supply boats to be built by Bender Shipbuilding & Repair Company of Mobile for Keen Marine Services of Metairie, La. Constructed to a design of Maritime Engineering Services of Biloxi, Miss., the vessel is classed by the American Bureau of Shipping for Full Ocean Service, and meets U.S. Coast Guard Subchapter I requirements.

Lady Debbie has an overall length of 113 feet 5¼ inches, beam of 26 feet, depth of 11 feet 2 inches, and design draft of 8 feet 6 inches. Her liquid capacities include: fuel oil, 21,400 gallons; lube oil, 500 gallons; potable water, 1,900 gallons; cargo water, 19,400 gallons; and ballast, 21,000 gallons. She can carry deck cargo of 77.25 long tons; clear deck area aft is 48 feet long by 20.5 feet wide, and forward between

the stacks 15 feet long and 13.5 feet wide.

Main propulsion is by two GM Detroit Diesel 16V92 engines, each rated 600 bhp at 1,800 rpm, with Mathers single-lever pneumatic controls. Two 50-kw generators are driven by Detroit Diesel 4-71N engines, producing 120/208-volt, 3-phase, 60-Hertz power.

A central air-conditioning and heating system by Carrier is installed in the forecastle house; it serves the pilothouse, crew quarters, heads, lounge, galley, and storeroom. Compressed air is provided by two Quincy D310 compressors, each driven by a 2-hp electric motor.

The 300-barrel liquid mud or calcium chloride system consists of two pumps, each driven from the front of the 4-71 generator diesels through Funk 1:1, reversing clutched pump drives. A Barnes 5-hp unit pumps effluent from the 430-gallon sewage tank

to a valved outlet on the main deck. The main bilge pump is a Barnes 25CCE, 15-hp unit with backup provided by the fire pump of the same model. Cargo water is transferred by a 5-hp Barnes 25CCE pump, with discharge in the forward main deck area. Fresh water service, with a 40-gallon hot water tank, is supplied by a 5-hp Barnes pressure set. The fuel oil transfer system consists of a 15-hp Barnes 25CCE pump that moves fuel from the aft tanks to the day tanks or to a valved deck outlet.

The USCG-approved steering system has two 7½-gpm hydraulic pumps driven by 5-hp electric motors, one unit operating and one as standby at all times. The helm units are Char-Lynn model 211-1038 Orbitrols, one at the

pilothouse console and one at the aft control station. Anchor handling is provided by a Skipper ST-34-E electric winch; the Danforth 500-pound anchor is attached to 7½ fathoms of 1-inch stud link chain and 100 fathoms of 7/8-inch galvanized wire rope. The painting system and materials were supplied by International Paints.

Electronics include a Raytheon model 4200 radar, Raytheon Ray 55 VHF radio, Intec 1500 SSB radio, Raytheon F720D flasher depth sounder, Ray Nav 3000 Loran C, Raytheon 350 Loudhailer, and RLB14ACR, class A emergency radio.

The second boat for Keen Marine Services, the Lady Beth, was delivered in December.

Three Executive Changes Announced By Ellicott Machine Corporation



Martin W. Goldsborough

Thomas K. Galvin Jr.

Herbert P. Bure

Richard E. Bowe, chairman of the board of directors of Ellicott Machine Corporation, has announced the election of Martin W. Goldsborough as president of Ellicott Machine Corporation Inter-

national and Ellicott Machine Corporation-Dredge Division, and Thomas K. Galvin Jr. as president of Ellicott Engineering, Inc. and executive vice president of Ellicott Machine Corporation International.

Mr. Goldsborough, a graduate of the U.S. Naval Academy and the Harvard Business School, joined Ellicott in 1971. Mr. Galvin, a graduate of the University of Maryland, joined the company in 1952.

Mr. Bowe also announced the retirement of Herbert P. Bure, formerly president of Ellicott Machine Corporation International, after nearly 30 years association with Ellicott. Mr. Bure will continue as consultant to Ellicott and act as representative to several industry organizations. A native of Amsterdam, the Netherlands, Mr. Bure received a degree in mechanical engineering from the Engineering College in Haarlem. He spent the latter years of World War II as a resistance fighter in the Dutch underground. He came to the United States in 1946 and joined Ellicott three years later as Far Eastern representative based in Jakarta, Indonesia. In 1954, he came to Baltimore as a sales engineer in the International Division; in 1966, he became vice president and general manager; and in 1972, he was made president in charge of all operations of the Dredge Division.



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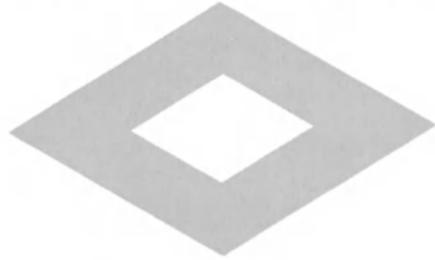
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RYSKO Delivers Another Tug/Supply Vessel To Billy Pugh Offshore

RYSKO Shipyard, Inc. recently delivered the tug/supply vessel Tom Martin Pugh to Billy Pugh Offshore. This is the fifth vessel built for Billy Pugh by RYSKO's Blountstown, Fla., yard.

The latest vessel has an overall length of 175 feet, beam of 38 feet, and depth of 14 feet, and is capable of carrying 3,000 cubic feet of dry mud in four tanks. Fuel capacity is 37,600 gallons, fresh water 55,740 gallons, and drill water 134,298 gallons. Her cargo deck measures 15 feet 6 inches by 13 feet 8 inches, and is capable of a deck load of 495 long tons.

Main propulsion is by twin Caterpillar D-399TA diesels, each rated 1,125 bhp at 1,225 rpm, equipped with Caterpillar 7261 reverse/reduction gears, Aquamet shafting, and Johnson Cutless bearings. The two propellers are Coolidge 4-blade, stainless steel. A Schottel S152L bow thruster is powered by a Detroit Diesel 8V71 engine. Two 99-kw ship's service generators are driven by Detroit Diesel 8V71s. Steering is by Skipper Hydraulics, engine alarm system by E.M.I., and dry mud system by SMATCO.

Electronics include two Decca 65121 HA radars, Drake TRM-1 SSB radio, Raytheon R-2460-W depth recorder, Raytheon 350 Loudhailer, and Triton 55/75 VHF radio.

The Tom Martin Pugh is classed +A1 by the American Bureau of Shipping, and is certified under U.S. Coast Guard Subchapter I.

APL And Port Of L.A. Join To Develop New Container Terminal

American President Lines (APL) and the Port of Los Angeles recently announced agreement to jointly develop a multimillion-dollar container terminal at Los Angeles, which, when completed, will be the largest on the U.S. West Coast. The 20-year revenue-sharing agreement was signed by **Dorman L. Commons**, chairman of APL and president of its San Francisco-based parent, Natomas Company, and **Tom Bradley**, Mayor of Los Angeles, onboard the APL containership president Van Buren.

Development of the parcel, located on John S. Gibson Boulevard on the West Basin of the Los Angeles Harbor, will take place in several phases to keep pace with expansion of the company's cargo volume. Initially, the development will encompass 100 acres. Upon completion of the project, the facility will have capability of on-site storage and handling of some 6,000 forty-foot containers on chassis.

The terminal will ultimately include at least two deepsea berths, each 960 feet in length; a 200,000-square-foot container



Aboard containership President Van Buren, APL chairman **Dorman L. Commons** (right) signs agreement for new container facility in Los Angeles as L.A. Mayor **Tom Bradley** looks on.

freight station (for handling less-than-full containerloads of cargo); and complete facilities for U.S. Customs inspection and for maintenance and repair, etc.

APL anticipates moving to the new facilities from its present facility in the port in 1983. In addition to meeting future cargo-handling needs, the new terminal is being designed to accommodate APL's three new containerships, which when completed in 1982 will be the largest ever built in the United States and the first domestically owned and built containerships to be diesel-powered.



FIRST DASHBOAT LAUNCHED—The first of four Bell-Halter 110-foot, high-speed surface effect ships for Command Marine, Inc. of Lafayette, La., was launched recently at Halter Marine's Chalmette, La., division. Photo shows catamaran design of the all-aluminum vessel and the flexible bow seal (stern seal not shown), which dramatically reduces resistance with the water. The new dashboats will be able to carry up to 120 passengers or 40 tons of cargo at 32 knots in calm seas and 28 knots in heavy seas and foul weather conditions.

Gulf Oil Foundation Supports Academy Programs



USMMA superintendent Rear Adm. **Thomas A. King** accepts \$3,000 check in support of Academy programs from **Donald Brown**, managing director of Gulf Trading and Transportation Company.

The U.S. Merchant Marine Academy, Kings Point, N.Y., through its alumni fund, has received a \$3,000 Assistance Grant from the Gulf Oil Foundation. The grant will be used for general academic programs at Kings Point.

The purpose of the Assistance Grants is to further special projects proposed by specific departments in colleges and universities. In addition to these grants, Gulf's Aid to Education Program includes undergraduate scholarships, graduate fellowships, employee matching gifts, capital grants and various special grants.

The Gulf check was presented to Academy superintendent Rear Adm. **Thomas A. King**

by **Donald Brown**, managing director of Gulf Trading and Transportation Company, its marine branch, and a 1949 Kings Point graduate.

New Bulletin On Mud Pumps For Drilling Operations Available From National

The right triplex pump for the shallowest to deepest drilling operations can be readily selected with a new eight-page guide from National Supply Company. The guide gives full physical dimensions and performance specification of the entire National triplex mud pump line. Five models are available from 500 to 1,600 input hp, all adaptable to a variety of drive arrangements. Each is compactly engineered for space savings and most efficient rig set-up and layout, says the guide. Text sections emphasize engineering features that improve durability, operating smoothness, ease of inspection and servicing.

For a free copy of Bulletin No. 642, Write 44 on Reader Service Card

Electro-Nav To Furnish Electronics Parts And Service For Polish Ships

Electro-Nav president **Robert E. Negrón** has announced that his company had reached agreement with the Marine Division of Unitra Unitech to furnish spare parts and services as required for the marine electronics of all Polish-flag vessels calling at U.S. ports.



Unitra Unitech director **Eugeniusz Kazimierczak** signs service agreement as Marine Division manager **Jerzy Jacniacki**, left, and Electro-Nav president **Robert E. Negrón** look on.

Eugeniusz Kazimierczak, director of Unitra Unitech, explained that his organization is charged by the Polish Government with providing a wide range of technical services to industrial enterprises in his country, including shipyards and ships. "Vessels affected by this agreement," he said, "include cargoliners, passenger ships, and the fishing craft of DALMAR, the Polish State Fishing Organization."

Jerzy Jacniacki, manager of Unitra Unitech's Marine Bureau, whose division is responsible for the technical needs of all Polish shipping at home and overseas, said that: "Some 400 Polish-flag vessels call at American ports each year. They may occasionally need spare parts and service for their communications and navigation equipment, and we are far away. We fully expect this arrangement with Electro-Nav to expedite service to our vessels, save time, speed turnaround, and cut servicing costs."

Electro-Nav will service vessels in every major port in the continental U.S., and will assign its sub-agents to provide parts and repairs in more remote ports. The agreement goes into effect immediately.

Hitachi Zosen

PANAMAX REFERENCE

Hitachi Zosen receives its 50th order for a Panamax Bulk Carrier.

Hitachi Zosen's Panamax-type bulk carriers have been impressing the shipping industry ever since the first one was developed in 1968. And for years they have been receiving praise for their performance and economical advantages. In fact, today the U.S. MARAD Report rates the Panamax-type as the most efficient design for dry bulk

carriers passing through the Panama Canal.

Recently, Hitachi Zosen received its 50th order for a Panamax-type ship, a 62,900 ton deadweight bulk carrier with a grain cargo holding capacity of approximately 2,640,000 cubic feet (exclus. top side tank). This well balanced, fuel-saving ship is powered by a Hitachi-Sulzer 6RND76-M

type diesel engine, and it measures 215.0 meters (length), 32.2 meters (breadth), 17.8 meters (depth) and 12.9 meters (draft).

With Hitachi Zosen you get more than sound shipbuilding. You get the experience of economic efficiency that has made Hitachi Zosen's Panamax bulk carriers the most profitable choice afloat.

PRINCIPAL PARTICULARS		Speed and Fuel Oil Consumption		Main Engine	
Length (o.a.)	224.50 m (736.55 ft)	Sea Speed at CSO	15.6 Knots	HITACHI-B & W 7L67GFCA Type Diesel Engine	1 set
Length (b.p.)	215.00 m (705.38 ft)	Sea Speed at CSO with 15% Sea Margin	15.1 Knots	MCO	15,200 ps at 123 rpm
Breadth (moulded)	32.20 m (105.64 ft)	Endurance for 15.1 Knots	abt. 21,100 Sea Miles	CSO	13,800 ps at 119 rpm
Depth (moulded)	17.80 m (58.40 ft)	Fuel Oil Consumption	48.4 T/D	Generator	500 kW 3 sets
Design Draft (moulded)	12.40 m (40.68 ft)	Capacity		Auxiliary Boiler	1.35 t/h 1 set
Classification	ABS \star A1 (E) "Bulk Carrier," "Strengthened for the Carriage of Ore Cargoes - Hold No. 2, 4 & 6 may be Empty" and \star AMS.	Cargo Hold		Exhaust Gas Economizer	1 set
Gross Tonnage	abt. 30,500 T	(Grain) (exclu. Top S.T.)	abt. 74,700 m ³ (2,638,030 ft ³)	Special Features:	
Deadweight at Design Draft	60,200 LT	Fuel Oil Tank	abt. 3,365 m ³ (118,840 ft ³)	Stowage Factor for Design Draft	
		Fresh Water Tank	abt. 430 m ³ (15,190 ft ³)	For Grain & Coal	abt. 46.1 ft ³ /LT
		Water Ballast Tank (inclu. No. 4 hold)	abt. 31,965 m ³ (1,128,850 ft ³)	For Ore	abt. 26.2 ft ³ /LT
		Complement (single berth cabin for all crew)	35 Persons	Panama Passage	
		Hatch Cover		DWT at 40 ft Draft in F.W.	57,200 LT
		Type	Single Pull Steel Hatch Cover	Stowage Factor	48.5 ft ³ /LT
		Size	Length x Breadth	Mean Draft at Ballast Condition	
		Hatch No. 1	16.1 m x 13.2 m	Light Ballast	abt. 6.4 m (21.00 ft)
		Hatch No. 2~No. 7	16.0 m x 13.2 m	Heavy Ballast	abt. 8.4 m (27.56 ft)
		Ballast Pump	800 m ³ /h x 28 m 2 sets	Optional Items:	
				Classification	LR, BV, NV, NK
				Main Engine	HITACHI-B&W 2x6K45GTCA Type Twin Bank Diesel Engine HITACHI-SULZER 6RND 76-M Type Diesel Engine



HITACHI ZOSEN: 1-1-1, Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan Phone: (03) 213-6611 Telex: J22363, J24490 Cable: SHIPYARD TOKYO

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**RCA Adds Radiotelephone
To Marine Equipment Line
—Literature Available**

RCA Service Company has announced the introduction of a new VHF/FM radiotelephone to its marine equipment line. The Model 8080 is a fully synthesized marine radiotelephone that has been designed specifically to meet the

needs of the most demanding marine environment, according to Edward B. Campbell, manager, Industrial Electronic Services Marketing, RCA Service Company. "It combines keyboard channel selection with automatic scanning and covers all U.S. and International channels," Mr. Campbell said.

A key feature of the unit is the programmable microprocessor

that allows up to 20 channels to be automatically or manually scanned for traffic in particular situations, such as negotiating harbors patrolled by Vessel Traffic Systems. Other features include 25-watt transmitter output capability and a receiver design that assures crisp signals even in congested harbors.

"The 8080 is U.S.-built with integrated circuit technology and

corrosion-resistant materials to withstand the most rugged marine conditions," Mr. Campbell said. "The unit is ideal for commercial fishing vessels, workboats, large yachts, and deepsea vessels."

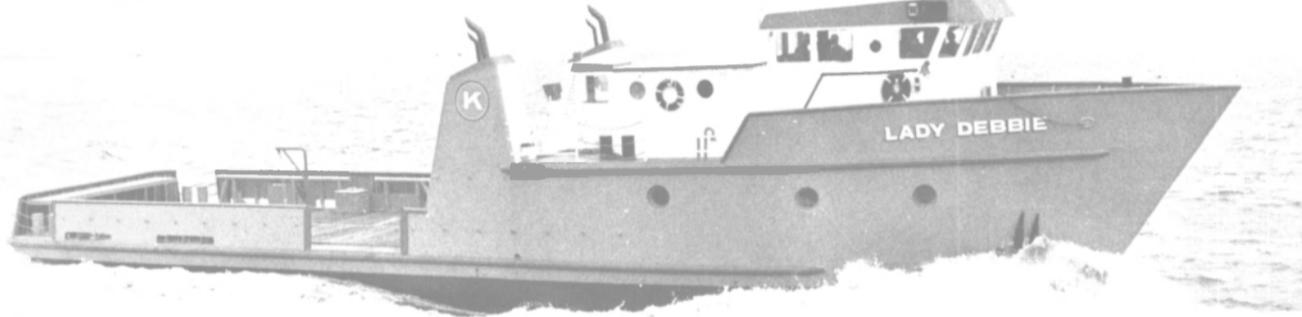
For further information and free literature on the Model 8080 radiotelephone,

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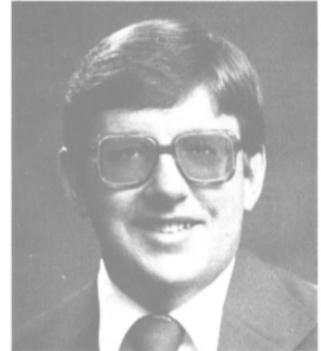
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**Robert Spude Named
Purchasing Director
At Bay Shipbuilding**



Robert J. Spude

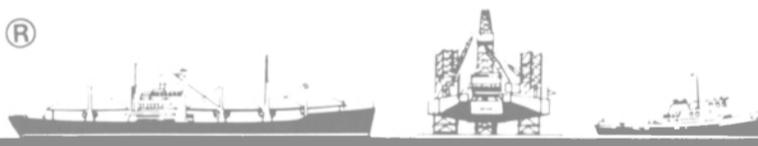
A.J. Zuehlke, president of Bay Shipbuilding Corporation, announced recently that Robert J. Spude has been appointed to the position of director of purchasing. Bay Shipbuilding, a subsidiary of The Manitowoc Company, Inc., is located in Sturgeon Bay, Wis.

In his new position Mr. Spude will be responsible for all material purchasing and expediting for new ship construction, ship repair, plant equipment, supplies, and consumables. Prior to his promotion, Mr. Spude served as senior buyer for Bay Shipbuilding.

**Fritz Named Supervisor
Of Engineering Computer
Operations At J.J. Henry**

W. Barkley Fritz has joined the J.J. Henry Company Inc., naval architects and marine engineers, as supervisor of engineering computer operations, and will be based in the Moorestown, N.J., office. He reports to John H. Klose, director of the hull design division, and is responsible for the coordination, expansion, and improvement of computer capabilities throughout the organization with special emphasis on implementing the "SPADES Hull Design System," a capability recently acquired through an agreement with Cali and Associates.

Following graduation from Loyola College, Mr. Fritz acquired his master's degree in mathematics at Johns Hopkins University. After service as a deck officer in the U.S. Navy, he was employed by the U.S. Government and Westinghouse Electric Corporation, and has acquired many years' experience in managing various computer operations, including the past five years at Sun Ship.



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Manager, Technical Services

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Olney Grindall
Senior Service Engineer

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Hitachi To Build Third Jackup Rig For Danish J.L. Offshore Drilling

Hitachi Zosen recently received an order for construction of another cantilever type, jackup offshore oil drilling rig for J.L. Offshore Drilling A/S, Copenhagen. This is the third rig of this type to be ordered from Hitachi by J.L. Offshore. All three rigs are

designed for operation under rough sea and severe weather conditions. The first is scheduled for delivery on July 1, 1981, the second on October 1, 1981, and this latest one in January 1982.

The rig is designed for operation in water depths under severe North Sea weather conditions of up to 62.5 meters (205 feet) and in water depths of less severe weather conditions of up to 91.8 meters (301 feet). It ranks

among the world's largest of this kind, a cantilever type. Hitachi has drawn upon its long and extensive experience in both marine and industrial fields in the design and construction of this highly advanced rig.

Hull dimensions are 70 by 76 by 7 meters. The three legs have an overall length of 104.8 meters (343 feet), and can be extended up to 129.5 meters (425 feet).

The rig will be built at Hitachi's

Ariake Works to American Bureau of Shipping Classification. It will have a complement of 72 persons, and drilling capability of 6,096 meters (20,000 feet).

J.E. Folsom Named Gulf Region Sales Manager For Hydranautics



John E. Folsom

John E. Folsom has been appointed regional sales manager covering the Gulf of Mexico area for Hydranautics Hydraulic systems, according to James L. Bartlett, president. Mr. Folsom will direct marketing and sales efforts on all Hydranautics Hydraulic systems for shipyard and offshore-related industries. He will be headquartered at the new Hydranautics sales office located at 4801 Woodway 300E, Houston.

Hydranautics Hydraulic is headquartered in Goleta, Calif. The company designs and manufactures mechanical, hydromechanical and electromechanical systems, subsystems and components for material handling and transfer. In addition to the office in Houston, Hydranautics maintains engineering and sales offices in London, Singapore, and Cairo, and has representatives around the world.

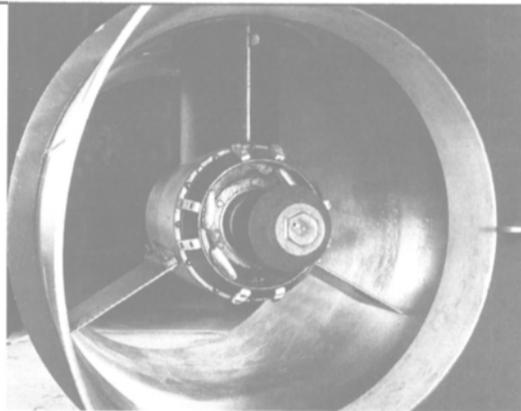
New Brochure Available From Unimation On Portable Welding Robot

A new, illustrated brochure covering the benefits and capabilities of the Unimate® Apprentice® arc welding robot is available from Unimation Inc., Danbury, Conn. The brochure references the robot as an economical automatic welder that provides greater arc time and better weld quality. Designed for one-of-a-kind weldments, as well as repetitive welding, the Apprentice robot can be programmed in minutes. It easily compensates for poor metal fit ups, and eliminates most of the OSHA-mandated protection devices required by welder operators.

Covered in the new brochure are the robot's ease-of-use, and versatility. Specification diagrams, mounting configurations and examples of Apprentice robots currently in use in industry are included in the 8½ x 11 brochure.

For a free copy of the new Apprentice robot brochure, Write 63 on Reader Service Card

Michigan-Jastram... new worlds of maneuverability.



Michigan Jastram gear case as installed.

As a professional, you know that speed, efficiency and maneuverability are increasingly important to your profitability. That's why — when it comes to making the right move — you should run with Michigan-Jastram Bow Thrusters.

Michigan-Jastram combines Michigan Wheel's experience in design and manufacturing of propellers and nozzle systems with the experience in design and manufacturing of right angle gears and thrusters of Jastram-Werke of Hamburg, Germany. The result...the latest designs of propulsion and maneuvering equipment in North America today.

Michigan-Jastram Bow Thrusters are your modern means of improving maneuvering capabilities in ships of all sizes and types.

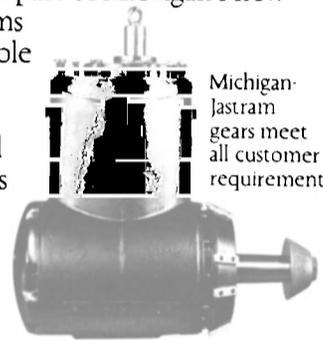
By generating transverse thrust, the vessel achieves the ultimate manageability. Especially at slow speed, when the main rudder ceases to respond, the ship can still maintain control. What that means for you is... improved maneuvering capability, substantial saving of tugboat charges, reduced risk of collision and increased safety at low visibility.

Michigan-Jastram Bow Thrusters are usually delivered with full length high quality tunnels for

lower material cost and ease of installation. Once installed in the vessel hull, simply connect the system to your engine. In its standard form the bow thruster gear and propeller can be removed through the tunnel.

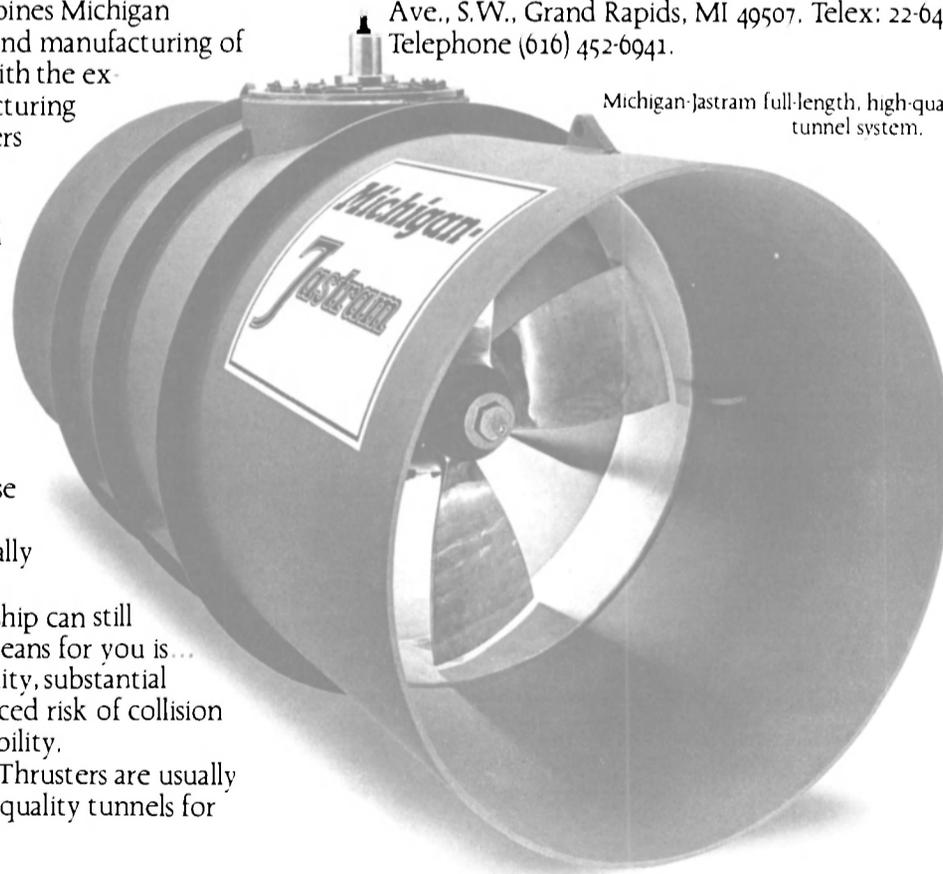
Michigan-Jastram, a part of Michigan's new Michigan Propulsion Systems Group, is playing a major role in the development of maneuvering techniques. Their wide experience and staff of qualified employees have made Michigan-Jastram a specialist in the field of maneuvering technology.

For more information about Michigan-Jastram, contact us at our home base in Grand Rapids, today. 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507. Telex: 22-6444. Telephone (616) 452-6941.



Michigan-Jastram gears meet all customer requirements.

Michigan-Jastram full-length, high-quality, tunnel system.



Michigan-Jastram

Modern ways to move your ship.

Write 263 on Reader Service Card

**Andre Buchel Named
President Of Sulzer Bros.**



Andre Buchel

Andre Buchel has assumed presidency of Sulzer Bros., Inc., headquartered at 200 Park Avenue, New York City. He replaces Felix van der Schaar, who has been appointed group vice president, Diesel Division, of the parent company, Sulzer Brothers Limited, in Winterthur, Switzerland. Prior to becoming president of the U.S. firm, Mr. Buchel spent his career with Sulzer Brothers

Limited and their member company Escher Wyss Ltd. in Switzerland and abroad. He has held various positions in product development, sales, and marketing, especially in the field of thermal turbo-machinery. He holds a master of engineering degree from the Federal Polytechnical Institute of Lausanne, and is a member of the American Society of Mechanical Engineers.

**Simrad Introduces New
Microcomputer-Controlled
Loran C Navigator**

A highly sophisticated, microcomputer-controlled Loran C from Simrad is said to take the time and work out of blue-water navigation. The Simrad/Taiyo model TL-856 provides the latest state-of-the-art features for accurate and economical navigation. Up to 10 different waypoints can be programmed, and course and distance can be called up between present position and any of the way-

points. Present location can be displayed as Loran C coordinates or Lat/Long.

Ground speed, time to destination, and cross track error also are instantly available at any time. Acquisition and tracking of master and all secondaries in the selected chain is fully automatic. High performance is maintained in severe interference areas by use of four tunable and two internally preset notch filters. Various alarm indicators and self-

test functions to check the microprocessor and displays also are built in.

Model TL-856 utilizes 12-, 24-, or 32-volt dc. Height is 6 1/8 inches, width 12 5/8 inches, and depth is 12 5/8 inches. It is designed and manufactured to meet or exceed the U.S. Coast Guard endorsed RTCM Minimum Performance Standard (MPS).

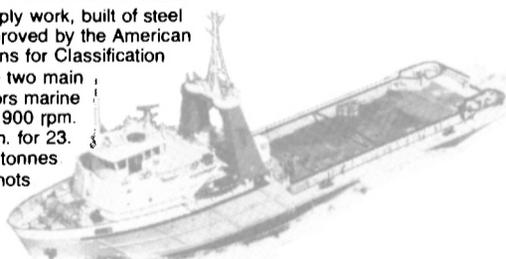
For additional information on the TL-856, Write 56 on Reader Service Card

**The largest builder
of small ships
in Australia**

Our modern flow-line shipyard has all the extras:
On site fabrication shop/machine shop, superb building & launch facilities.
'in house' computer system handling 32 operating channels, computer based N.C. Cutting and we are in close proximity to major suppliers.

WESTERN TIDE

Designed for off shore oil rig supply work, built of steel welded construction, tested and approved by the American Bureau of Shipping Regulations for Classification plus A1 (E) and AMS and ACCU. The two main engines are EMD General Motors marine diesels, each developing 2144 KW at 900 rpm. Fully air conditioned accom. for 23. L.O.A. 59.75m. Displacement: 1850 tonnes. Speed: 13.65 Knots



LADY ANN

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.



Write today for further details and your copy of our latest brochure



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Tel: Newcastle 64 8071 Telex: 28185 Cable: Carrslips

European Agent: European Marine & Machinery Agencies, 60 Brookley Road, Brockenhurst, Hants, SO47RA, U.K. Telex: 47509
Middle East Sales Manager: John Skelton, P.O. Box 4134, Nicosia Cyprus. Telex: 2332 Mickys Attn Skelton

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Super Servant 1?**



**You saw it first in
Maritime Reporter**

The only marine magazine published twice each month...MARITIME REPORTER delivers the most important marine information first...weeks before the slower monthlies.

MR is the best read marine magazine because it's the only current marine magazine. As a result, MR is requested, in writing, by thousands more buying influence readers than any other marine publication in the entire world.

Because MARITIME REPORTER is number 1 with marine people who specify and buy...it is number 1 with the world's leading marine advertisers.

In 1979 MARITIME REPORTER carried more pages of advertising than number 2, ME/Log. MARITIME REPORTER carried 1866 pages (7x10) of advertising. Number 2, ME/Log carried less advertising for the third consecutive year...down to 1298 pages in '79.

Send for complete information showing how MARITIME REPORTER can put real power behind your marine advertising to produce more sales for you in 1981.

**The best read marine magazine
produces the best advertising results.**



MARITIME REPORTER/Engineering News
107 East 31st Street New York, N.Y. 10016
(212) 689-3266

Tracor Marine Awarded \$8-Million Contract By Rockwell International

Tracor Marine, Inc., a Fort Lauderdale, Fla., subsidiary of Tracor, Inc., has been awarded a fixed-price contract from Rockwell International to operate the vessel Ocean Energy Converter in support of the Department of En-

ergy's Ocean Thermal Energy Conversion (OTEC) Program. The contract is for two years with an approximate value of \$8 million, with operations for two additional years.

Moored off the island of Hawaii in 4,000 feet of water, the 525-foot vessel and its 2,200-foot-long gimballed pipe bundle will be the platform from which several prototype megawatt heat exchangers will be tested.

OTEC is a promising alternate energy scheme presently being developed by the Department of Energy. The basic principle is to use the temperature difference between the warm surface waters and the cold deep waters available in tropical latitudes to evaporate and condense a working fluid such as ammonia. The energy of expansion derived during the evaporation process can be used to drive a turbine for electrical power generation.

Although the vessel will be moored, all systems will be operational as the ship's special thrusters will be used to counteract the force of variable currents at the site. Approximately 50 crew members and management and support personnel will be involved in operating and monitoring the vessel and various onboard test systems.

Tracor Marine has played a key role in pioneering efforts to har-

ness the vast wealth of the oceans for many years. Taking over the operation of the largest OTEC test platform in this new technological area represents another of the firm's involvement in such efforts. Tracor, Inc. is an international technological products and services company headquartered in Austin, Texas.

IBM Awarded \$3.6-Million Navy Contract For Sonar System Components

International Business Machines Corporation, FSD, Manassas, Va., has been awarded a \$3,628,375 modification to a previously awarded contract for long lead materials for the AN/BQQ-6 sonar system. Work will be performed in Manassas, Va., and Owego, N.Y. The Naval Sea Systems Command was the contracting activity. (N00024-78-C-6189)

Remember the U.S.T. Atlantic?



You saw it first in Maritime Reporter

The only marine magazine published twice each month... MARITIME REPORTER delivers the most important marine information first... weeks before the slower monthlies.

MR is the best read marine magazine because it's the only current marine magazine. As a result, MR is requested, in writing, by thousands more buying influence readers than any other marine publication in the entire world.

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The best read marine magazine produces the best advertising results.



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At joint meeting of ASNE Golden Gate Section and SNAME Northern California Section (L to R): Henry Olson, papers chairman, SNAME; Peter A. Fisher, author; Grant C. Johnson, author; Thomas B. Cole, Section chairman, SNAME; and Capt. Art Wardwell, USN, Section chairman, ASNE.

Joint SNAME/ASNE Meeting Hears Report On SPC Coating

The annual Joint Meeting of The Society of Naval Architects and Marine Engineers, Northern California Section, and the American Society of Naval Engineers, Golden Gate Section, was held recently at the Fleet Admiral Nimitz Club, Treasure Island Naval Station, Calif. A paper titled, "Evaluation of SPC Underwater Coating on a Modern Containership," was presented by Peter A. Fisher of Matson Navigation Company, and Grant C. Johnson of International Paint Company (Calif.), Inc.

Hull surface roughness, biological fouling, effect of roughness on propulsion power, and characteristics of self polishing copolymer (SPC) coatings that help prevent fouling and limit increase of roughness over the life

of the ship, were discussed in the first part of the paper.

The second part dealt with a trial application of an SPC coating, supplied by the International Paint Company, on the Matson Navigation containership Maui. The performance of this ship was compared over a two-year period with performance of the Manulani, a very similar containership operated on the same route but coated with a conventional antifouling system. The paper concluded that, in spite of its much higher cost, the SPC system appeared cost effective because performance degradation (in terms of fuel consumption increase as a function of time since last dry-docking) was much less with the SPC system than with the conventional antifouling system.

\$4.7-Million Navy Service Contract Awarded To Vitro Laboratories

Automation Industries, Vitro Laboratories, Silver Spring, Md., has been awarded a \$4,715,437 cost-plus-fixed-fee contract for engineering and technical services in support of NAVSEA's Submarine Life Cycle Management Program. The Naval Sea Systems Command was the contracting activity. (N00024-81-C-2006)

Distributor Changes Corporate Name

Effective February 1, 1981, Watson & Meehan, the Cummins diesel engine distributor for northern California and Nevada, will change its corporate name to Cummins West, Inc. Vice President **Thomas A. Lyon** succeeds president **Walter McCarthy** as chief executive and principal owner. Mr. McCarthy is retiring and selling the franchise, as provided in his contract with the manufacturer, Cummins Engine Company of Columbus, Ind. He will, however, remain a consultant to and representative of Cummins West, Inc.

Mr. Lyon joined Watson & Meehan as vice president in 1979, after 16 years with the Cummins Engine Company, where his positions included corporate controller and vice president-international.

Watson & Meehan is Cummins's oldest distributor, founded in San Francisco in 1933 by the late H.S. Watson and R.P. Meehan who retired in 1966. Since the latter date, the management team of Mr. McCarthy and executive vice president and general manager **Dennis T. Martin** have overseen a fourfold growth in sales. Mr. Martin is also retiring.

Bethlehem's Beaumont Yard Completes Jackup For Temple Drilling

Temple Drilling Company and Bethlehem Steel Corporation's Beaumont shipyard recently commissioned a 150-foot water depth mobile offshore drilling rig for Tideland Limited II. The rig was christened the Comanche by its sponsor, Mrs. **Janis Huitt**, wife of Dr. **J.L. Huitt**, senior vice president, Gulf Oil Exploration and Production Company-U.S. operations. Upon delivery, the rig will work in the Gulf of Mexico for Gulf Oil.

The Comanche is a mat-supported jackup designed for deep-well drilling operations. It features a cantilevered substructure and offers the capability of being able to position its drill floor over existing offshore production platforms in order to drill developmental wells or to rework existing wells.

On location, the Comanche will have a total variable load capac-

ity of four million pounds and handle hook or rotary plus setback loads of one million pounds on wells as far as 32 feet aft of the platform deck. The rig will have a maximum cantilever reach of 40 feet with a hook setback load capacity of 800,000 pounds at rig centerline.

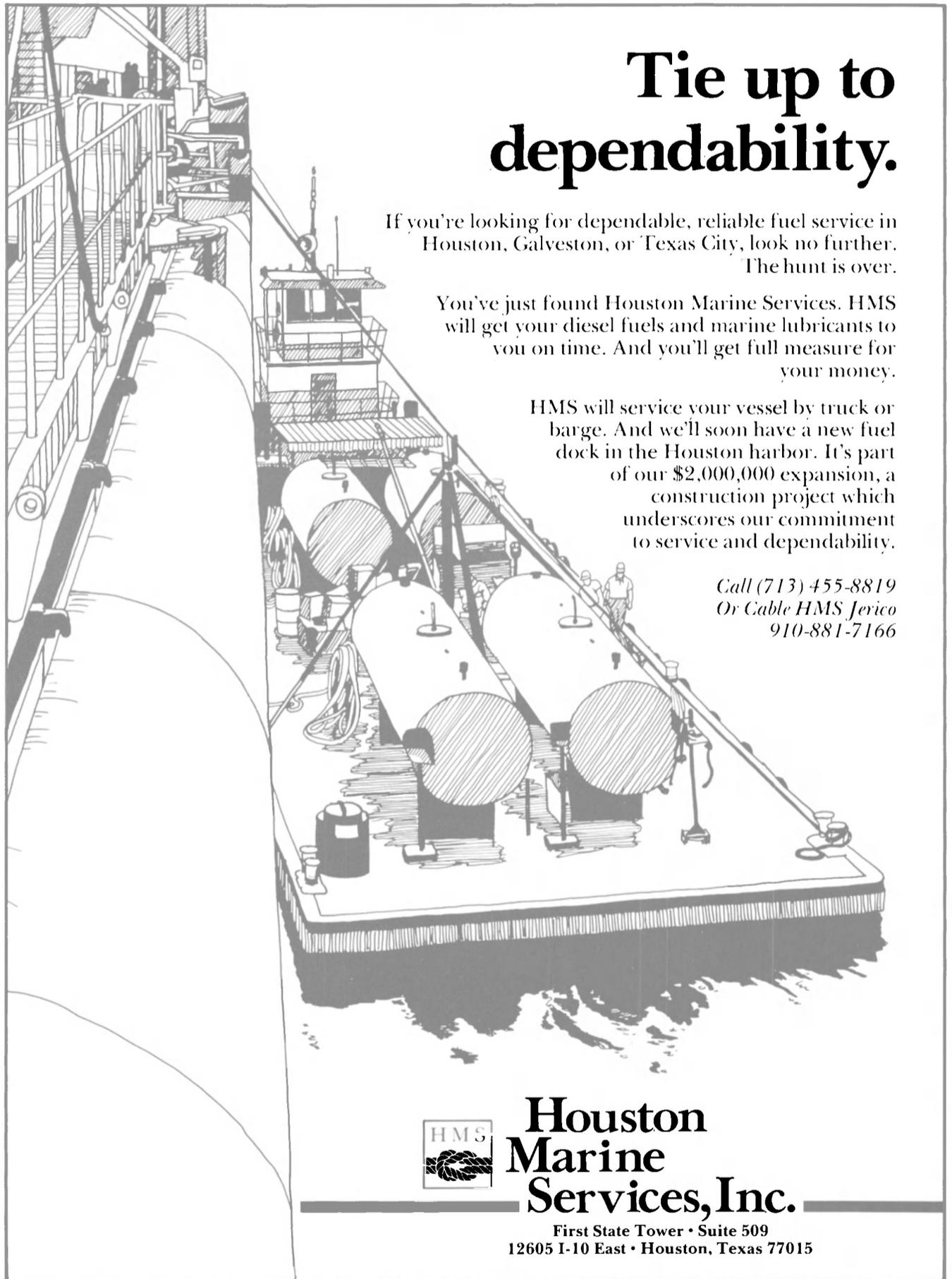
The Comanche was designed and built to comply with current safety standards of the U.S. Coast Guard plus the American Bureau

of Shipping standards for construction of offshore drilling units.

The rig consists of a platform measuring 157 feet by 120 feet supported by three 9-foot-diameter columns fixed to a mat that is 197 feet by 160 feet. Outfitted with deep-well drilling equipment, the rig will operate in waters of up to 150 feet. The Comanche contains onboard, air-conditioned living accommodations for 52 per-

sons, complete with sleeping quarters, galley, recreation area, and laundry rooms.

George L. Temple, president of Temple Drilling Company, earlier announced the signing of a contract with Bethlehem for construction of a 200-foot water depth rig, the Cheyenne, to be delivered in April 1982. The rig will be designed by Beaumont and built at Bethlehem's Sparrows Point, Md., shipyard.



Tie up to dependability.

If you're looking for dependable, reliable fuel service in Houston, Galveston, or Texas City, look no further. The hunt is over.

You've just found Houston Marine Services. HMS will get your diesel fuels and marine lubricants to you on time. And you'll get full measure for your money.

HMS will service your vessel by truck or barge. And we'll soon have a new fuel dock in the Houston harbor. It's part of our \$2,000,000 expansion, a construction project which underscores our commitment to service and dependability.

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First State Tower • Suite 509
12605 I-10 East • Houston, Texas 77015

**\$2,000 Gift From Texaco
For Fort Schuyler's
Scholarship Program**

The Maritime College at Fort Schuyler Foundation, Inc., has been presented with a \$2,000 unrestricted contribution from the Marine Department of Texaco Inc. The gift was presented by Charles J. Gay, assistant general manager of the Texaco Marine Sales Department, a graduate of

Maritime College himself, to Cadet Patrick J. Crowe, regimental commander, representing the Cadet Corps, and Adm. Sheldon H. Kinney, president of the Maritime College and the Foundation.

The Maritime College at Fort Schuyler Foundation was established in 1976 to assist the college in its academic scholarship programs. This was Texaco's second unrestricted gift to the college under a special \$4,000 grant program.

Remember the Arctic Wind?



You saw it first in Maritime Reporter

The only marine magazine published twice each month...MARITIME REPORTER delivers the most important marine information first...weeks before the slower monthlies.

MR is the best read marine magazine because it's the only current marine magazine. As a result, MR is requested, in writing, by thousands more buying influence readers than any other marine publication in the entire world.

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Tank barge Hannah 6301 makes big splash in Lake Michigan during recent launching at Bay Shipbuilding's Sturgeon Bay, Wis., yard. With a capacity of 63,000 barrels, the 407-foot vessel is largest in nine-barge fleet of Hannah Marine Corporation.

Bay Shipbuilding Launches Tank Barge For Hannah Marine

The tank barge Hannah 6301 was launched recently at Bay Shipbuilding Corporation, Sturgeon Bay, Wis. The launching was witnessed by a group of Hannah Marine Corporation personnel and customers and Bay Ship officials. The vessel was christened by Hannah's appointed sponsor for the occasion, Mrs. Georgianne Lamb, executive secretary to Donald C. Hannah, president of Hannah Marine.

At 407 by 60 by 21 feet, with a capacity of 63,000 barrels, the 6301 is currently the largest of Hannah's fleet of nine barges. It is expected to see light oil service on the Great Lakes.

This vessel, designed by naval architect George B. Drake Jr., is certified Full Ocean Loadline for Subchapter '0', Grade A and lower products, Type III hull. With 10 cargo tanks, she is double-skinned. The cargo tanks are

coated with a phenolic epoxy. Among the many features of the barge, it has three segregated piping systems with three Johnson deepwell cargo pumps rated at 3,500 barrels per hour each. The barge has four cargo cross-header locations, hose derricks, Beebe winches, and a nitrogen purge system. The ballast system consists of five inner bottom wing tanks, forward and aft rakes, with two ballast pumps at 500 gpm each. The barge is also equipped with a Bird-Johnson 350-hp bow thruster, a 30-kw generator, two 450-cfm diesel air compressors, and one 10-hp electric air compressor.

The 6301 features the Bludworth articulated linkage pushing system, is equipped to transit the St. Lawrence Seaway, and meets the height and width requirements for the Chicago River bridges.

Henschel Introduces New Ship's Bell Logger— Literature Available

Henschel Corporation of Amesbury, Mass., has introduced a new ship's bell logger to its extensive line of commercial ship control and interior communication equipment. The new 10-2550 series bell logger will accurately record and display ship's control parameters using existing shipboard signals. It is engineered for reliability, maintainability, and flexibility in a marine environment. According to Henschel, its use of existing shipboard signals makes retrofitting and use in new construction much easier than previous designs.

The 10-2550 series bell logger has a state-of-the-art microproc-

essor that provides increased performance and advanced logging capability. The use of microprocessor technology also simplifies customization for each application, thus ensuring optimum performance for the user.

The main features of the new bell logger are: internal micro-computer-based master clock with battery back-up; synchro inputs for engine order telegraphs; individual isolation amplifiers for each analog input; single line alphanumeric printout; full function front panel display; and automatic checking of programmed test inputs. In addition, the logger may be programmed to record virtually any user-defined input.

For further information and free Catalog Sheet 10-12,

Write 55 on Reader Service Card

Hitachi Zosen To Build Another Jackup Rig For National Drilling

Hitachi Zosen recently received an order from National Drilling Company (NDC), Abu Dhabi of the United Arab Emirates, to construct a cantilever type jackup offshore oil drilling rig. The rig is the fourth of the same kind to be constructed by Hitachi for NDC—a subsidiary of the state-run Abu Dhabi National Oil Company (ADNOC).

The former three rigs, two cantilever types and one slot type, were completed between December 1979 and April 1980. They were constructed at the Ariake Works.

The rig of this latest order will be constructed to almost exactly the same specifications as the other three rigs, except that it will be able to operate in water depths about 15 meters deeper than the others. It will be constructed at the Ariake Works also, for delivery in February 1982.

Second Paceco Container Crane Ordered For Brooklyn Terminal

Universal Maritime Services Corporation recently ordered a second Portainer® crane from Paceco, Inc., a subsidiary of Detroit-based Fruehauf Corporation. The Paceco Modified 'A' frame model dockside container handling crane will be used at the Marine Container Terminal in Red Hook, Brooklyn, N.Y., alongside the first Portainer ordered earlier and now being fabricated by Paceco.

With a lifting capability of 40 long tons, the Portainer crane will feature a box girder boom that has a 120-foot outreach. Other characteristics are a 30-foot back-reach, a quick change headblock, a telescopic spreader capable of handling 20/40-foot containers, and a 45-ton cargo beam. It will also have optional features for safety and operator comfort, such as hurricane tie-downs, air-conditioned cab, etc.

Paceco's Gulfport, Miss., manufacturing facility will fabricate the Portainer, and delivery is scheduled for late 1981 by barge.

DeJong Designs Biggest Voith Schneider Tug Built In United States

The biggest tug with Voith Schneider propulsion units to be built in the United States has been designed by the Jacksonville, Fla., firm of Norman N. DeJong and Associates, Inc., naval architects and marine engineers. Destined for ship-handling duties in the Panama Canal, the 105-foot "Water Tractor" is being built by Thunderbolt Marine Industries in Thunderbolt, Ga., for the Panama Canal Company. Delivery is slated for May 1981.

DeJong finished the design and submitted detailed drawings for the tug in November. The project is return business for the firm, it also having designed the multi-directional ship-handling tugs built by Thunderbolt for the Canal Company four years ago.

Utilizing unique cyclodial propellers for maximum maneuverability in ship handling, the tug is powered by two 10-cylinder Fairbanks Morse Model 38D 8½

diesel engines driving two Voith Schneider Model 2VSP 30 G II cyclodial propellers. The propellers will provide a bollard pull of 80,000 pounds ahead and astern, and 60,000 pounds sideways.

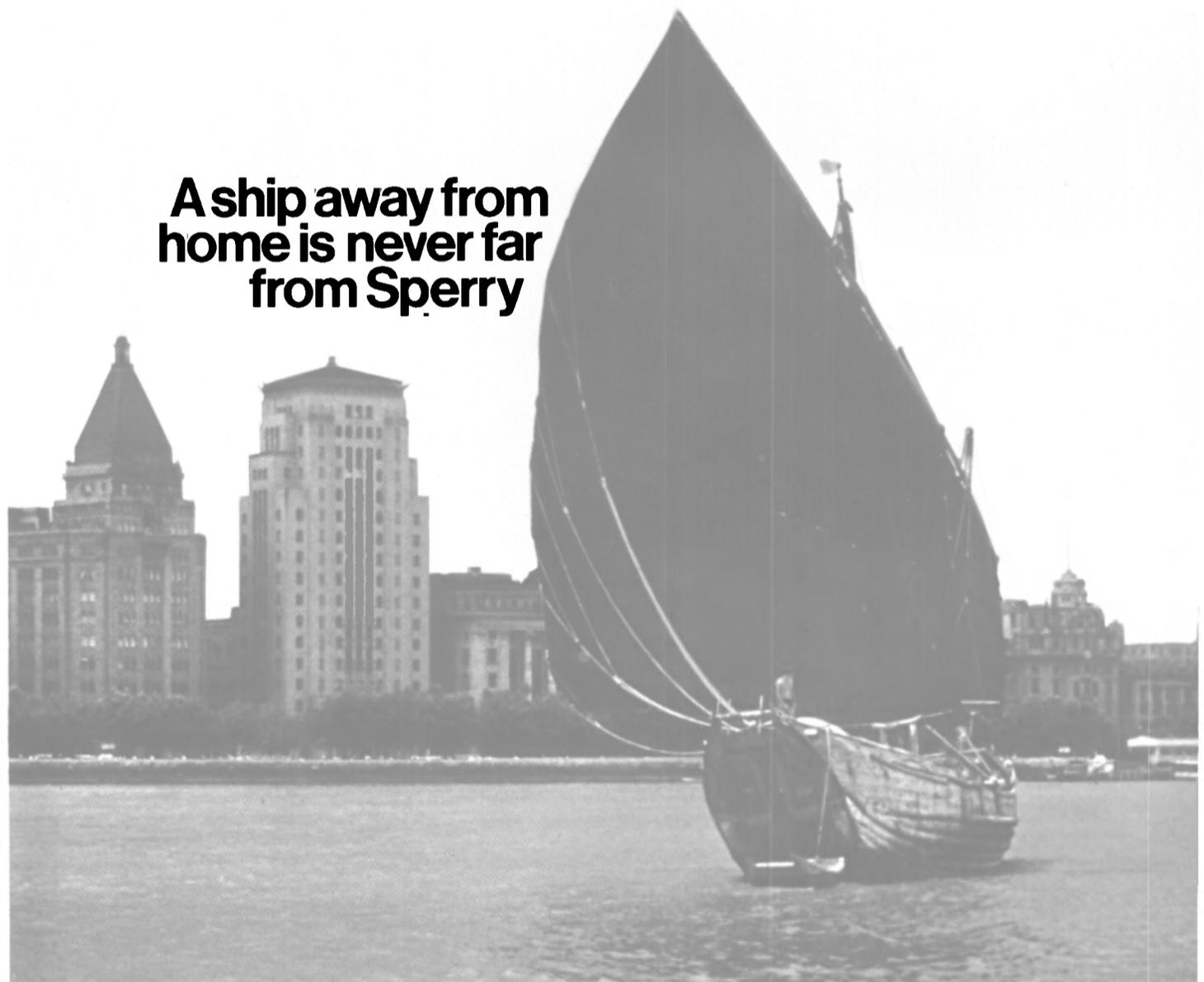
Other major equipment includes two GM Detroit Diesel 6-71/75-kw generators, GM Detroit Diesel 8V71 driven fire pump, Markey hydraulic capstans, and Consolect switchboard and engine room monitoring system. An extensive

engine room acoustical insulation system will keep the noise level in working areas under 80 decibels.

Building on its experience with the Voith Schneider system, DeJong and Associates is presently designing two 120-foot Voith Schneider propelled tugs as part of an integrated tug/barge project.

For more information, Write 46 on Reader Service Card

A ship away from home is never far from Sperry



No matter where in the world your ship is, it's probably not far from one of the more than 250 Sperry marine systems service facilities. Shanghai is the newest of these service centers.

Skilled personnel can provide you with the technical support you may need. That includes test and checkout, overhaul and repair services—all backed with the Sperry specialized equipment, tools and parts you expect.

As you'd also expect, we complement our service with a combination of classroom or shipboard training programs. Your personnel can qualify to operate and maintain Sperry equipment.

If you're interested in knowing about service training for your personnel, or about other centers in the Sperry network, send today for a free listing of our service facilities.

It's a list growing to meet your needs. Because at Sperry, we understand how important it is to listen. For details, see your Marine Systems representative or write Sperry Division Headquarters, Marine Systems, Great Neck, N.Y. 11020. (516) 574-3232.



The S.S. Letitia Lykes, the first U.S. flag vessel to reach China 30 years, being welcomed to Shanghai.

 **SPERRY**

SPERRY IS A DIVISION OF SPERRY CORPORATION

Write 34 on Reader Service Card ▶

National Marine Gets Title XI Approval On \$38.5-Million Orders

The Maritime Administration has approved in principle an application from National Marine Service, Inc., St. Louis, Mo., for a Title XI guarantee to aid in financing the construction of 46 double-skin, petroleum/chemical tank barges and five towboats.

The towboats, one built by Dravo Corporation and the others by Albert Ortes Boat Building, Inc., all have been delivered, as have 22 barges. The remaining 16 are scheduled for delivery during the first quarter of 1981, with dates not yet assigned for the others.

Hillman Barge and Construction Company was selected as the builder of 16 barges, Nashville

Bridge Company of 26, and Jeffboat Inc. of four. Eight of the barges are to be 297.5 feet in length, with molded beams of 54 feet. The others will be 195 feet long with 35-foot beams. One towboat is 140 feet by 42 feet and the others, 65 feet by 26 feet.

The total estimated depreciated cost of the vessels is \$38,481,765. The approved Title XI guarantee amount of \$32,396,000 represents

the total of 87.5 percent of the cost of the barges, plus 75 percent of the cost of the towboats.

Booker Joins Marinette Marine As Manager Of Steel Trades

James R. Derusha, vice president of operations, recently announced that **John Booker** has joined Marinette Marine Corporation as manager of steel trades. He came to Marinette Marine from the Key Highway Yard of Bethlehem Steel in Baltimore, Md., where he was ship superintendent.



John Booker

Mr. Booker's shipbuilding experience goes back to 1967, when he started at the General Dynamics-Electric Boat Division. His experience there was in areas of planning, production control, material control, and supervision.

At Marinette Marine, Mr. Booker is responsible for the direction, coordination and management of hull construction from the initial plate processing to hull completion.

Simrad Named Exclusive Market Representative For Taiyo Electronics

Simrad, Inc. of Armonk, N.Y., is now the exclusive marketing distributor for Taiyo Marine Electronics in the United States. Both firms, which have long been close associates in Europe, worked together to develop new concepts, creating a unique line of professional quality marine electronics for the U.S. fishing, workboat and yachting communities. Built for dependability as well as fast, easy use by busy skippers, the new line is said to be both economical and durable.

The new Simrad/Taiyo computer-controlled VHF and MF/HF automatic, digital, direction finders; Loran-C receivers and plotters, weather fax receivers, and radio buoys expand Simrad's established lines of echosounding, radar and sonar equipment to give U.S. customers profit-making electronics for every marine use. Serviced internationally, the new line is marketed in the United States under the Simrad/Taiyo label.

For further information on the Simrad/Taiyo line, Write 58 on Reader Service Card

WE DELIVER



Or should we say our boats deliver. A Hudship boat is built with a dependability recognized throughout the industry.

Pushing barges up river or hauling supplies to offshore drilling rigs is a demanding job for both crew and vessel.

It's up to you to supply the crew to meet the demands of the industry; it's up to us to build a dependable boat that can deliver.

WE DELIVER!

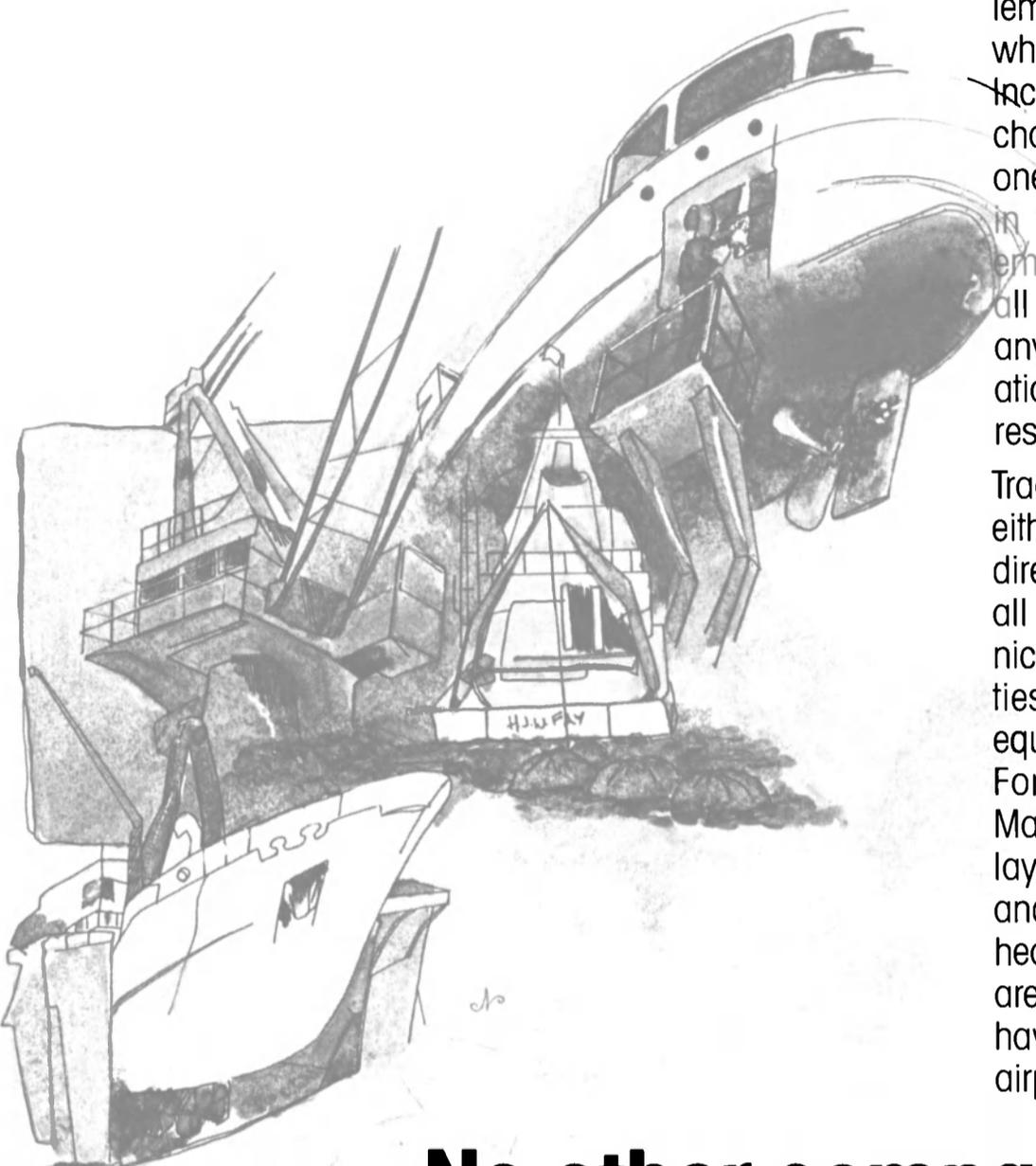


HUDSON SHIPBUILDERS INC.

3911 Cedar St., P.O. Box O, Pascagoula, MS 39567 601-762-4626 Nights 601-762-4571
Telex: Morgan City, La. 584-429

SEE US AT THE WORK BOAT SHOW, BOOTH NUMBER 1508

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Tracor Marine is one of the largest and most experienced technical service organizations for solving problems in the marine environment. As a wholly-owned subsidiary of Tracor, Inc., we own the largest commercial charter fleet of research ships and one of the top commercial shipyards in the Southeast United States. We employ hundreds of people who, with all the Tracor resources, can tackle any kind of technical marine operation, ship repair, ocean science or research project.

Tracor approaches your problem with either a turnkey operation or a client-directed program. You can hire any or all of the engineering services, technical manpower, total shipyard facilities with craft support, or project equipment and supplies you require. For your special projects, Tracor Marine vessels can be configured to lay cable, serve on oceanographic and geophysical surveys and make heavy array installations. While you are working with Tracor Marine, you have convenient access to hotels, airports and international banking.

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Tracor Marine





Impressive new trawler *Dona Genoveva* was completed recently by MARCO Seattle for owner/skipper **Walter Kuhr**. The 123-foot vessel is powered by Caterpillar diesel.

MARCO Seattle Christens New North Pacific Fishing Vessel

Bring together a highly experienced trawl skipper and one of the world's leading builders of fishing vessels and machinery and you have the makings for an impressive new boat. Such was the case when MARCO Seattle's new North Pacific fishing vessel *Dona Genoveva* was christened recently for **Walter Kuhr**.

Mr. **Kuhr** has been a fisherman for more than 30 years, starting at the age of 17 in his native Bremerhaven, Germany. He is known both for his substantial catches and for his trawl designs. The world has been Mr. **Kuhr's** fishing ground, from the North Atlantic to the South Pacific to the Bering Sea. Success has likewise followed him from Greenland to Chile to Alaska.

The veteran skipper will now

turn his attention again to the North Pacific with the *Dona Genoveva*. He has worked these fisheries before, from Oregon to Alaska, with his former vessels *Bold Lady* (a 78-foot trawler), *Pacific Surf* (an 85-foot trawler), and the *Sigried K*, a 97-foot crabber presently under the command of his son, **Walter Kuhr Jr.**, who is also a co-owner of the new vessel.

The *Dona Genoveva* was christened by **Mrs. Marta Kuhr**, who gave the vessel the name of her grandmother, *Lady Genoveva*. Sharing in the occasion were co-owners **Robert F. Allen** and **Charles R. Hart**, both officers of MARCO Seattle.

The new vessel is fully equipped for the North Pacific fisheries, with the emphasis clearly on trawling. Her trawl gear includes

DONA GENOVEVA

Main engine, Caterpillar D399TA diesel
Reverse/reduction gear, Caterpillar 7271
Propeller, Coolidge
Steering gear, Wagner
Generator, Caterpillar 3406 diesel/
MARCO hydraulic pump drive
DC48/KATO 155-kw generator
Generator, Caterpillar 3306TA diesel/
MARCO DC26 hydraulic pump
drive/KATO 155-kw generator
Emergency generator, Caterpillar
3304T diesel/KATO 90-kw
generator
Depth recorder, Furuno FW-6T22
Memoscope, Furuno ES-5
Back-up depth recorder, Furuno
FE-600A
Net recorder system, Furuno FNR-700
Weather facsimile recorder, Furuno
Radars (2), Furuno FR-1011
Radar target alarm, Radar Devices
Loran receivers/computers (2),
Northstar 7000
Loran position plotter/computer,
Epsco C-Plot II

VHF-FM radiotelephones, Motorola
55/75
SSB radiotelephones, Motorola (2)
SSB citizens band radio, Motorola
CM550
VHF automatic direction finder, Taiyo
TD-L77
General-purpose receiver, Yaesu
FRG-7000
Scanner/receiver, Bearcat 250
Flasher, Raytheon
Loudhailer, Raytheon RAY-350
Telescoping crane, Slattery 12-ton
Anchor, Baldt
Chain, Washington Chain & Supply
Anchor winch, MARCO A5031
Boom and crane picking winches (3),
Gearmatic 25
Topping winches (2), MARCO W0650
Trawl winches (2), MARCO WT224
Net reels (2), MARCO RT96S
Motors for above, Hydrostar 525
Bait chopper, Hansen
Pot rack, Hansen
Pot hauler, MARCO J0121 KingHauler
Mk. II
Line handler, MARCO J2111
KingCoiler

a pair of MARCO trawl winches, twin gallows, and double trawl reels by MARCO. Other deck machinery includes a MARCO King-Hauler Mk. II pot hauler, MARCO KingCoiler line handler, Hansen double-acting pot rack, Slattery deck crane, Wagner steering gear, MARCO anchor winch, Baldt anchor, and chain.

The design includes a double-bottom configuration that has been extended forward to include virtually the entire engine room area. The three-tank fish hold arrangement is insulated and employs a chilled sea water and spray brine refrigeration system.

Dona Genoveva features a full two-deck, aluminum pilothouse above the raised deck. The bridge deck provides a 360-degree field of view, and contains an aft-facing, hydraulic control console that includes trawl winch controls. The hydraulic system features a built-in protection system that automatically shuts down the hydraulic pumping equipment in the event of a potentially damaging situation, such as a drop in the oil tank level or engine overspeed.

Propulsion power comes from a 1,125-bhp at 1,225 rpm Caterpillar D399TA diesel, driving a 90-inch-diameter Coolidge stainless-steel propeller through a Caterpillar reverse/reduction gear. Auxiliary power is provided through Caterpillar diesel sets with KATO generators and MARCO HPD hydraulic pump drives. The HPDs feature air-clutch connections recently added to the MARCO line. Speed is 12 knots.

A comprehensive array of electronics and navigational aids is aboard, including a complete Furuno fish-finding system, with net sounder for mid-water and bottom trawling, plus two radars, two Lorans, a weather facsimile recorder, and a variety of communications gear.

The new trawler has an overall length of 123 feet 3 inches, maximum beam of 31 feet 10 inches, depth of 14 feet 4 inches, and full-load draft of 16 feet. Fuel capacity is 55,000 gallons, lube oil 1,900 gallons, and fresh water 4,200 gallons. The three fish holds have a total capacity of 9,000 cubic feet.

After the christening, the *Dona Genoveva* departed for Alaskan waters, and will then move on to trawling operations in the Bering Sea.

Magnavox Gets \$5.8-Million Navy Contract For Navigation System Models

Magnavox, Advanced Production Division, Torrance, Calif., has been awarded a \$5,816,142 cost plus-award-fee contract for engineering development models of a precise integrated navigation system. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-6105)

Brochure On Electrical Connectors Available From Joy Manufacturing

A new 12-page condensed catalog on its electrical connectors and push-button switches is now available from the Joy Manufacturing Company. The brochure covers a broad line of resilient molded to cable connectors that provide greater operation safety and other industrial environmental hazards. Also covered are elastomer covered push-button stations and switches. Included are dimensional drawings and complete ordering information for the various models and sizes.

For a free copy of the catalog, designated CC-100,
Write 52 on Reader Service Card

Dravo Corporation Seeking To Acquire Ryan-Walsh Companies

Dravo Corporation of Pittsburgh announced recently that negotiations are underway to acquire the Ryan-Walsh group of companies headquartered in Mobile, Ala. The acquisition, which is subject to approval by directors of both organizations, will be for an undisclosed number of shares of Dravo common stock.

Ryan-Walsh operates bulk terminals and is one of the largest cargo-handling firms on the Gulf and South Atlantic Coasts, with facilities in Mobile, New Orleans, and 10 other ports. It handles both bulk commodities and general cargoes and, through subsidiaries, is also engaged in container leasing and repair, crating, and steamship agency and barge fleet services. The company reported revenue of \$50.6 million in 1979.

Robert Dickey III, Dravo chairman and president, noted that Ryan-Walsh "is well positioned to benefit from the rapidly increasing export market for grain, coal, and other bulk commodities." Additional opportunities, he said, will be created by projected increases in commodity shipments through the Port of Mobile when the Tennessee-Tombigbee Waterway is opened. Ryan-Walsh is the largest independent cargo handler in Mobile.

Mr. **Dickey** noted that the acquisition of Ryan-Walsh "could lead to operating and marketing synergies with several other Dravo operations." In particular, he cited Dravo's activities in the design and construction of bulk terminal facilities and equipment, and in barge transportation.

Dravo, a highly diversified company with operations throughout the world, is engaged in engineering, construction, manufacturing, natural resources and transportation. Its revenue last year was \$992.3 million.

Some maritime cleaning no-how from Sea-Wash.

No cleaner like it.

Sea-Wash is a time-proven, job-tested cleaner capable of taking on the toughest heavy-duty maritime cleaning jobs without the hazards you usually face. There's no other cleaner available that gives you such positive results while eliminating the negative features of cleaners commonly used in the maritime industry. Here's just a brief summary of what you should know about Sea-Wash no-how:

No flash point.

Because Sea-Wash is a water-based liquid with no petroleum-based additives, it has no flash point. Your workers never have to worry about Sea-Wash burning under any circumstances.

No noxious fumes.

There are no smelly, noxious fumes, either. Workers can function in confined areas without fear of being overcome by fumes.

No down time.

All of which adds up to efficiency. Your workers can keep working, even under the most difficult circumstances. Welding repair can go on at the same time, in the same place, while you're cleaning. Man power is optimized. Cleaning down time is eliminated.

No residue.

Sea-Wash takes on the toughest grease, carbon or heavy oil cleaning jobs and cleans and degasses in one application without leaving any residue. So you can paint, weld or repair an area immediately.



Sea-Wash®

No milky, white emulsion.

When petroleum-based cleaners or dispersants are combined with water the common result is an obvious milky white emulsion. Not so with Sea-Wash. Mixed with water it remains clear.

No problems with biodegradability.

Sea-Wash is biodegradable. So problems with environmental contamination are drastically reduced.

No transportation hazards.

You can take Sea-Wash anywhere without worry about combustion.

No doubt about it.

Sea-Wash makes petroleum-based cleaners obsolete. It takes on the toughest, heavy-duty maritime cleaning jobs and really performs. We've got a file full of case histories to prove our point. Yet it's hazard-free. And, because it lets you work more efficiently, it makes incredible economic sense. It's available in 55 gallon drums and tank cars, and our handy 5 gallon pail can be a big help at sea.

Call us or write today and give us a chance to prove that there's no maritime cleaner like Sea-Wash. Environmental Chemicals, Inc., 487 Division Street, Boonton, N.J. 07005. (201) 335-2828.

ECI is now adding a few select companies to our distributor organization. If interested, contact the address above.

There's no maritime cleaner that beats Sea-Wash.

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Halter Delivers Two Crewboats For Service Offshore Brazil



Twin Detroit Diesel-powered crewboats *Capela* and *Atalaia* were delivered recently by Halter's Chalmette division to Jackson Bermuda, Ltd. Vessels will operate off the coast of Brazil.

The size of crewboats has lengthened considerably as the search for oil and gas moves farther offshore and into rougher waters. Halter Marine's standard long-deck, 101-foot crewboats like the *Capela* and *Atalaia* are distinctive examples of the new generation of large crewboats for the offshore energy industry.

Recently delivered to Jackson Bermuda, Ltd. for service off the coast of Brazil, the *Capela* and *Atalaia* can handle the chores of a crewboat and still haul 30 tons of cargo on the deck. Each Halter boat has seating for 55 passengers and an extra-long cargo area measuring 55 by 17 feet.

The triple-screw aluminum crewboats reached trial speeds of 24 mph with three GM Detroit Diesel 12V71TI diesel engines

turning through Twin Disc MG-514 reduction gears of 2:1 ratio. Each engine develops 510 horsepower at 2,100 rpm. The vessels have a 500-mile range with their 2,400-gallon fuel capacities.

The *Capela* and *Atalaia* each has a 21-foot beam, 10-foot depth and draws 5½ feet of water. A spacious engine room houses the main diesels as well as two GM Detroit Diesel 3-71 30-kw generators. Both vessels were outfitted with Decca 110 radars, Motorola VHF and SSB radios, and Danforth Constellation compasses. The boats have accommodations for up to six people in three staterooms.

The new crewboats were built by Halter's Chalmette, La., division, one of 10 shipyards owned and operated by Halter Marine in the Southeastern United States.

MSC Will Charter Sun Transport's New Product Carrier 'New York Sun'

Sun Transport, Inc. and the Military Sealift Command (MSC) recently signed a contract for MSC's five-year charter of Sun Transport's 34,400-dwt product tanker *New York Sun* (See December 1, 1980 issue MR/EN, page 28). The contract for MSC's charter of the newly constructed tanker in the worldwide trade was signed by Sun Transport president **Frederick P. Eisenbiegler** and Rear Adm. **Bruce Keener III** (Commander-MSC) during brief ceremonies at MSC's Washington, D.C., headquarters.

Commenting on the charter, Mr. Eisenbiegler said: "This signing brings to a successful conclusion our marketing efforts to find the right customer for the ship. Sun Transport faced stiff competition in bidding for this charter. Our vessel was selected because its modern features make it the right ship at the right time for MSC operations. The ship's fuel-conserving diesel power plant and a satellite navigation system that will enable it to pinpoint its position at any given time are two major operational features that certainly contributed to the MSC decision to charter the ship."

Specified modifications have been made to the tanker that will enable it to refuel U.S. Navy ships under way, as well as permit the transfer of personnel and light, dry cargo between itself and other ships while at sea. Features of the 612-foot-long vessel include automation, permitting control of engine speed and direc-



A HAPPY CUSTOMER—Sun Transport president F.P. Eisenbiegler signs contract for 5-year charter of product carrier *New York Sun* by Military Sealift Command as Rear Adm. Bruce Keener III (Commander-MSC) looks on.

tion from the bridge; air-conditioned crew quarters; and an elevator connecting four superstructure decks with the engine room. Six pumps are installed to discharge the tanker's 247,000-barrel cargo in 15 hours.

Other features of the *New York Sun* include segregated ballast, an oil/water separation system, a sewage storage and treatment system, and a collision avoidance system.

The Navy's Military Sealift Command provides for the oceanborne transport of Department of Defense cargo.

New Color Brochure On Escher Wyss Props Available At No Cost

Escher Wyss, Ravensburg (Federal Republic of Germany) has supplied a total of more than 1,400 controllable-pitch propellers, whose power ratings and diameters extend up to 33,800 kw (45,266 bhp) and 7.8 m respectively. The first hydraulically operated controllable-pitch propeller for marine application was put into service some 45 years ago.

A new informative 34-page, full-color brochure containing 100 illustrations and diagrams is now available at no cost from Escher Wyss. It considers the development as well as the advantages of the controllable-pitch propeller for the various types of ships in detail. The numerous diagrams reflect the benefits to be derived from controllable-pitch propellers under different operating conditions: increased towing power, reduced stopping time, improved operating behavior and the saving of fuel.

The particular features of the Escher Wyss design, e.g., accommodation of the control valve in the ship's interior, double and low-friction bearing arrangement for the propeller blades, large lever arm radii (providing precise pitch setting and low axial loads), own-choice propeller blades with bolted on or integrally cast trunnions, low maintenance and good accessibility to all the major components, are illustrated by means of large-size, three-dimensional pictorial representation.

For a free copy of the brochure on Escher Wyss propellers, Write 45 on Reader Service Card

Instant Relief from IMCO Radio Monitoring from Electro-Nav

... and it won't cost you a bundle.

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

EN 2182R is compact, rugged, reliable, real state of the art. And fully flexible. With normal and muted operation. Integral loudspeaker and built-in



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

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



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John Coulahan Elected President Of Interocean Shipping Company

The election of **John P. Coulahan** as president and director of Interocean Shipping Company, its subsidiaries Venoil and Venpet, Inc., and Steamship Service Corporation, has been announced by **Donald H. Trautlein**, chairman of Bethlehem Steel Corporation. He succeeds **Steven M. Moodie**, whose retirement has been announced.

Mr. Coulahan is advancing from his present position as manager of chartering, Steamship Service Corporation, with offices in New York City. He was first employed by Bethlehem Steel in 1952 as a junior clerk in the former Ore Steamship Corporation, New York. He became a senior transportation assistant in 1961, and was transferred to Sparrows Point, Md., in 1962. Mr. Coulahan held various operating positions with Bethlehem's water transportation subsidiaries there, and in 1972 he became general superintendent, marine personnel.

Mr. Coulahan was transferred back to the New York offices in 1975, and became manager of chartering in 1977, the position he held until this promotion.

Brochure Describing Hydranautics' Load-Moving Gear Available

A 28-page illustrated brochure, "Hydranautics Systems in Modern Shipbuilding," describes the company's three basic heavy-load moving systems — gripper jacks, Trans-Lifts, and chain jacks — and how they are used for mechanical translation in building docks, ship "extrusion" down slipways, launching onto floating drydocks, ship lifting, and constructing portable pontoon piers for cargo unloading. Photographs show actual field use of equipment, and drawings show sequence of operation.

For a free copy of this brochure,

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Belcher Towing To Add Powerful Docking Tug To Its Miami Fleet

Belcher Towing Company will add a 3,000-horsepower ship docking tug to its fleet in the Port of Miami, vice president **James Whitehouse** has announced. To be named the Belcher-Miami, the new tug is scheduled to go into service in Miami harbor by the fall of 1981. Belcher Towing, a subsidiary of Belcher Oil Company, presently operates four tugs and six ship-fueling barges in the harbor.

The new tug will be constructed

at Main Iron Works in Houma, La., Mr. Whitehouse said. She will be a 90-foot-long vessel, with a 32-foot beam and a 12-foot draft. The Belcher-Miami will be very similar to the tug Mary Belcher, a 3,000-bhp craft added to the harbor fleet in 1975.

"We believe the addition of the Belcher-Miami will greatly strengthen our ability to serve Miami's growing cruise and shipping industry," said Mr. White-

house. "Belcher is committed to sharing in the responsibilities which will insure the Port of Miami's preeminence."

The Belcher companies are units of The Coastal Corporation, Houston-based international energy supply company. The Belcher Towing fleet includes a total of 15 tugs and 26 barges in service throughout the Belcher system, which stretches from Maine to Florida, around the Gulf of

Mexico to Texas, and up the Mississippi to Memphis.

Other programs to expand the Belcher Towing fleet include construction of two oceangoing tugboats now nearing completion at Savannah, Ga., and two oceangoing barges constructed in Galveston, Texas. One of those barges is complete and the other will be launched early in 1981. These two projects will result in matched tug/barge units.

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 Please have a representative call me for a detailed cost estimate and scheduling plan.

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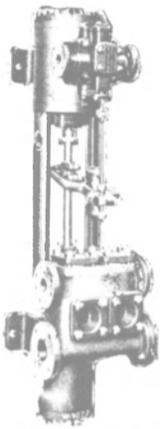
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MAIL TO: Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca. 92113 Attn: I. Maggay MR

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PUMPS

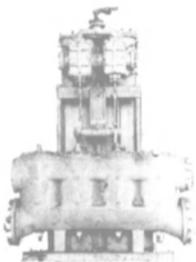
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



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

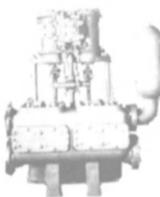
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WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



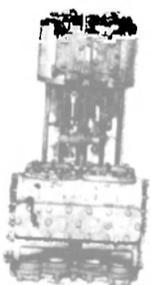
1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



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

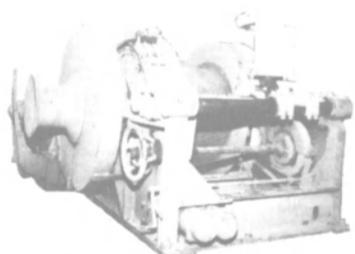
8" X 8" X 10" VERTICAL DUPLEX PUMP



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

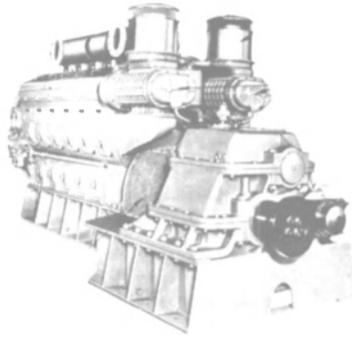
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NEW**

100,000 LB. ALMON JOHNSON Constant Tension Mooring Winches



In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

MATCHED PAIR GM 12-567A 900 HP DIESEL ENGINES with Falk reverse & reduction gear



ENGINE: GM 12-567A—8½X10—VEE type—2-cycle—747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse & reduction—2.48:1 forward—2.52:1 reverse.

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Starboard — 7' diameter — pitch constant 4.699; Bore tapers from 6⅞" to 4⅝¼". 14½" taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

RECONDITIONED—GUARANTEED DELAVAL PURIFIERS



LUBE OR FUEL OIL
225 G.P.H.

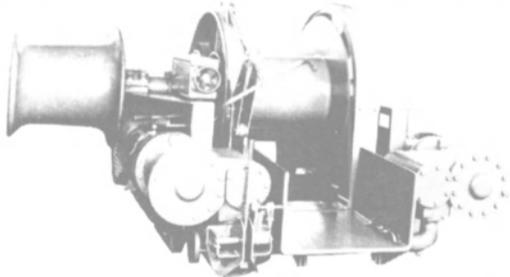
55N-13 (Lube Oil)
55N-23 (Fuel Oil)

300 G.P.H.

65N-13 (Lube Oil)
65N-23 (Fuel Oil)

2 HP — 440/3/60/1750 RPM —
Frame 224

STEAM MOORING WINCHES 12" x 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head 20,000 LBS @ 100 FPM—FIRST LAYER



**ALSO HANDLES 16,000 LBS @ 150 FPM
OR 50,000 LBS @ 8 FPM**

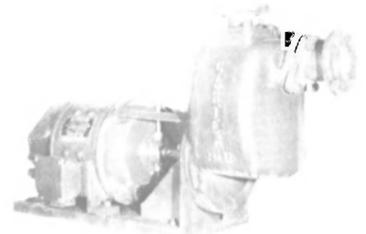
Drum will show 1500 ft of 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3½" — overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger".

ALSO IN STOCK

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

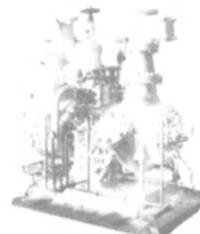
CARTER BRONZE SELF-PRIMING BILGE & GEN. SERVICE PUMP



85 GPM @ 50 lbs. — 3500 RPM — 2" X 2". 5 HP — 115 VDC — 1750 RPM motor.

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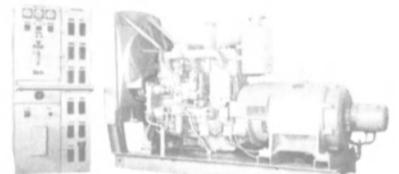
COFFIN FEED PUMPS — ALL SIZES — TYPE DE



**3 TYPE DE-2
540 GPM 1870' NET HEAD**

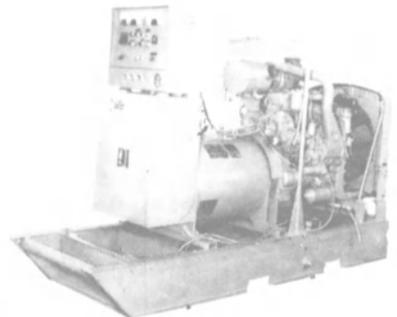
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

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440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

GM 4-71-T TURBO-CHARGED 100 KW 440/220/3/60 10 WIRE DIESEL GENERATOR SET ALL VOLTAGES POSSIBLE



100 KW 440/220/3/60 generator driven by GM 4-71-T radiator cooled turbo charged diesel. P.F. 0.80—for T-2, etc. 1800 RPM. With switchgear. Generator is 10 wire—all voltages possible.

WITH SWITCHGEAR / ALARMS / DISCONNECT

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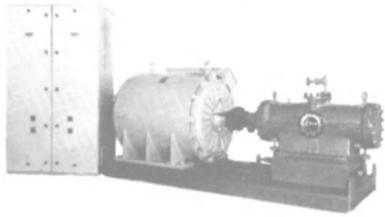
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NEW — UNUSED

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HORIZONTAL PUMPS
WITH 4-SPEED 440/3/60 MOTOR**

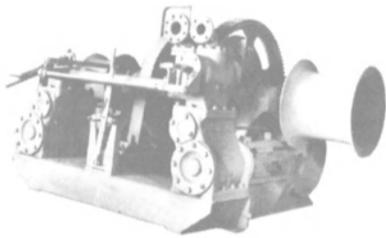


Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

**9X12 2-SPEED ALL-STEEL
STEAM WINCHES**

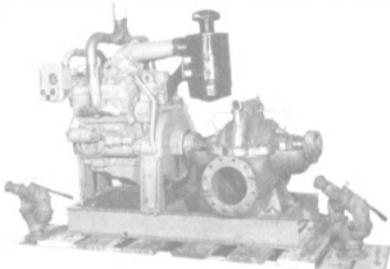
for use as General Service or
MOORING WINCHES

20,000 LBS @ 110 FPM—7,450 @ 250 FPM



DRUM CAPACITY: 1250' of 1" wire in 9 layers or 2200' of 3/4" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. DRUM BRAKE: Contracting band type — asbestos lining — foot operated. WINCH DIMENSIONS: 12' long—8' wide—5' 10" high. Reconditioned by U.S. Navy. Equal to new.

DIESEL DRIVEN FIRE PUMP



3510 GPM @ 350' HEAD or 161.7 PSI

Pump: 10" x 8" horiz. split case. Also 2000 GPM @ 110 PSI and 1450 RPM. Unused—all steel—will sell separately. Diesel: GM 6V-71 or 6-71 in-line, radiator or heat exchanger cooled.

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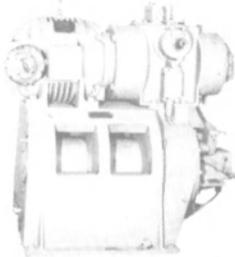
TWX 710-234-1637

DAVIT — WINCH

Mfg. by Skagit

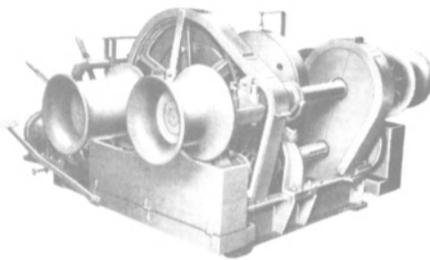
Rated 4000 lbs. @ 80 FPM

6500 LBS OF
BOAT & MAN
AT 40 F.P.M.



Motor: 13.5 HP — 440/3/60. Designed for 1/2" 6x37 wire rope. Divided drum with 2 spooling areas. Drum 8 1/2" wide — 4" flange — 10" diameter. Complete with level wind. Also capable of manual operation by crank in case of motor failure. Hand brake & speed limiting brake are provided for holding & lowering boat by gravity. Non-magnetic.

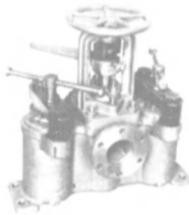
**7x12 10,000 LB AH&D
CARGO WINCH**



2-Speed — single drum — reverse throttle operation. LINE PULL: low gear 10,000 lbs — high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7/8" diam. rope — high gear 250 FPM based on 1st layer of 5/8" diam. rope. DRUM: 26" diam. — 20" long — 26" flange diam. Rope capacity of drum: 7/8" diam. rope in 6 layers — 650'; 5/8" diam. rope in 8 layers 1200'. Steam pressure at throttle 115 lbs. Operating weight 6450 lbs.

DUPLEX STRAINERS

4" and 6"

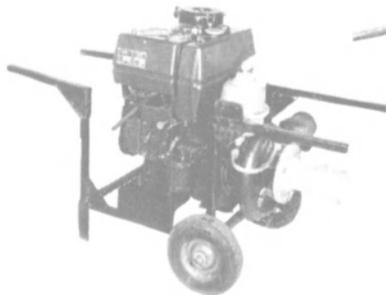


FOR
SALTWATER
OR
LUBE OIL

**PORTABLE - EMERGENCY
3" DIESEL GENERAL
SERVICE AND FIRE PUMP**

70 GPM @ 105 PSI

WITH HAND PRIMING



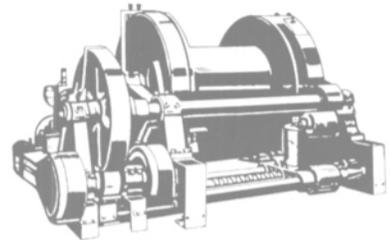
ENGINE: Mfg. by V.M.—air-cooled model HR192A — 13.5 HP — 3000 RPM — rope start (crank optional). PUMP: Hale—cast iron—3"—N.P.T.—hand priming—weight 410 lbs. Carrier mounted with 2 pneumatic tires for easy handling or 2-man hand carry. Ideal for oil barge, tankers, dockside, etc use.

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.

**T-2
EQUIPMENT**

Selected Items Listed

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

10 Stage — 435# — 720°T.T.

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

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538KW TURBINE ROTORS**

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GENERATOR EXCITER ARMATURE
400 KW REVOLVING FIELDS**

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110KW — 32KW — 5.5KW

110KW — 28KW — 5.5KW

**FOR G.E. 525 KW
T-2 TURBO GENS.**

• G.E. DORV-325M TURBINE ROTORS

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NEW STYLE—LY148

ABS-READY-TO-GO

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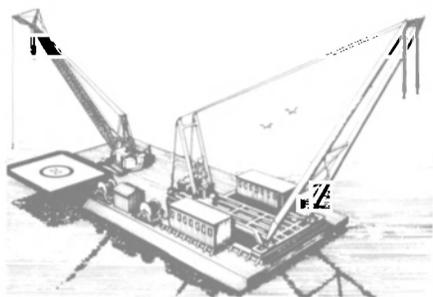
IMMEDIATE

DELIVERY

MAIN CIRCULATING PUMP

complete — Ingersoll-Rand 24CVM.
New certif. 1979 — completely rebuilt.

Heavy-Lift Derrick Barge Can Lift Up To 400 Tons



An innovative and versatile system using Lucker hydraulic pulling machines to operate a crane, to pull or tension as required, has been incorporated into the derrick barge Mr. "2" Hooks (shown in drawing above), recently outfitted by its owner, Portable Marine Structures, Inc. of Houston.

The heavy-lift barge was designed for medium offshore and heavy inshore work, at a reasonable daily cost. It features a 400-ton sheerleg derrick utilizing twin load lines. Also on the barge is a 150-ton auxiliary revolving crawler crane for general lifting and rigging requirements.

The barge will meet the demand for a unitized barge outfitted for heavy lift, pull or tensioning operations in marine salvage, demolition and marine construction. The 180-foot-long raked bow and square stern barge has a beam of 70 feet and a depth of 12 feet. It has crew quarters and a four-point mooring system.

Each of the load lines operates independently, each utilizing a 150-ton hydraulic machine. This is an important advantage in

compensating for uneven loads and reducing common sling and equalizing problems. Jibs and rigging can be attached to the 110-foot-long sheerleg to increase the crane's reach for other special jobs.

Ingalls Awarded Fourth Keyes Offshore Contract For Jackup Drilling Rig

Keyes Offshore, Inc. of Houston, a major drilling rig owner and contractor to the offshore industry, has contracted with Ingalls Shipbuilding of Pascagoula, Miss., to build another Friede & Goldman L-780, Mod 2 jackup drilling rig. This is the fourth rig that Keyes has awarded to Ingalls during 1980.

The rigs are designed to operate in 15 feet to 300 feet of water and drill up to 25,000 feet. The 5,500-ton mobile units are 180 feet long and 275 feet wide, and have accommodations for 56 personnel. This will bring the total rigs owned or operated by Keyes Offshore to seven.

Ingalls, a designer and builder of marine structures for commerce and defense since 1938, is the only North American contractor currently building the L-780 jackups under Friede & Goldman license. Ingalls, also a major overhauler and modifier of offshore drilling rigs and barges, is constructing the new rigs at its modern 800-acre facility in Pascagoula.

Ingalls has a total of 14 rigs presently under contract, including ten L-780 jackups, with deliveries extending to July 1982.

Jacksonville P.A. To Spend \$25.5 Million To Expand Blount Island Facility

The Jacksonville Port Authority has budgeted nearly \$34 million for capital improvement projects in the coming year, according to John R. Mackroth, Jacksonville Port Authority managing director. The planned expenditures are almost equally divided between the Marine and Aviation Divisions. However, operating revenue will fund the greater portion of the marine projects, while federal and state government grants, if available, will be used to pay for most of the aviation improvements.

"Scheduled for the Marine Division is a 1,150-foot extension of the marginal wharf and expansion of the container storage area at Blount Island," Mr. Mackroth said. "This work is expected to cost \$25.5 million and will take three years to complete. It will be financed in part with a \$25-million revenue bond issue, \$6.7 million of which will be spent in fiscal 1981."

Another \$9.9 million in operating funds will be used to pay for the remaining capital projects, he said. They include \$3.8 million to complete an import auto processing complex on Blount Island on which construction was begun in fiscal 1980, and construction of a security gate and truck inspection facility, utility plant improvements, and an equipment storage complex, all at Blount Island.

\$1.6 million is scheduled to be spent on land improvements to

provide additional paved open storage space. The closure wharf across Slip Two will be completed but the remainder of the project, including the filling in of Slip Two, is expected to take another two years.

W.H. Lockwood Named Vice President For Interocean Management



William H. Lockwood

William H. Lockwood has been elected vice president of Interocean Management Corporation, it was announced recently by George P. Steele, president of that Philadelphia-based vessel management firm. Vessels currently being managed by the company include, among others, two 400,000-dwt tankers, the largest built in the U.S.

Mr. Lockwood's main responsibility will be in special projects undertaken by the company, as well as the operations and engineering areas. He has been employed in various capacities within Interocean Management and predecessor companies since 1967. His duties have included operations superintendent, manager of ship construction, and most recently, assistant vice president in charge of a newly formed foreign operation.

Bench-Mounted Bender For Metric Tube Introduced By Voss

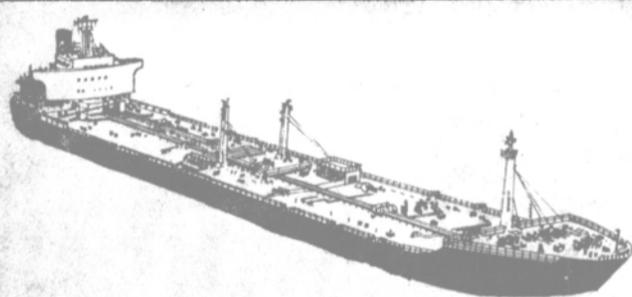
A portable hand tube bender designed for metrically dimensioned tube has been introduced by Voss, Incorporated, Columbus, Ohio. The bender mounts conveniently in any standard vise to bend steel, aluminum, and copper tubes with minimum effort.

Made of high grade, rust resistant carbon steel, the Voss bender uses lightweight die segments that can be changed quickly to accommodate tube sizes of 10, 12, 14, 15, 16, 18, 20, and 22-millimeter OD.

In addition to metric tube benders, Voss manufactures precision metric steel tube fittings, fully annealed seamless steel tubes in metric sizes, made-to-order hydraulic hose assemblies, and high-pressure ball valves.

For further information on Voss products,

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Wheelock Maritime Ltd. Orders Two Bulkers From China Corporation

The Wheelock Maritime International Limited of Hong Kong has placed an order with the China Corporation of Shipbuilding Industry of Beijing for the construction of two 27,000-dwt Lakes-fitted bulk carriers. These vessels will be built by CCSI's Dalian Shipyard and are due for delivery in 1983.

The contract between Wheelock Maritime and CCSI was channeled through International United Shipping and Investment Company Ltd., the joint venture shipping concern formed earlier in the year between The World-Wide Shipping Group and the China Corporation of Shipbuilding Industry and the China National Chartering Corporation to develop international shipping business.

A letter of intent for the deal was signed recently in a brief ceremony in the board room of The World-Wide Shipping Group between J.L. Marden, chairman of The Wheelock Group, and Sir Yue-Kong Pao, chairman of International United.

New Owners Take Over T. Smith & Son And Crescent Towing

James E. Smith, president and chief executive officer of T. Smith & Son, Inc., and New Orleans investor W.K. McWilliams Jr. recently announced that the sale of the New Orleans stevedoring firm T. Smith & Son, Inc., its principal affiliate, Crescent Towing & Salvage Company, Inc., and their affiliated port service companies have been concluded.

The purchaser is a private company owned by Mr. McWilliams, James R. Moffett, William A. Hines, John G. Amato, and their families. The execution of the agreement to purchase was previously announced. Mr. Smith will continue as chief executive officer of both companies.

Norwegian Firm Offers New Control Option For Ship-Handling System

Helitron A/S of Aalesund, Norway, has developed a significant improvement to its well established POSCON range of integrated ship maneuvering systems, a new option called CORC (for Center-of-Rotation Control). POSCON maneuvering systems provide simpler means of ship handling at zero or low velocities. The CORC option allows the captain to decide the center of rotation POSCON will use. A simple control commands POSCON to

turn the vessel around the bow or stern area, or an intermediate position.

The advantages of CORC have been proven in testing on over 40 vessels equipped with the POSCON system. Fitted with the CORC option, POSCON is even more functional and provides flexible adaptation to specific operational situations.

POSCON has found its appli-

cation on many types of ships, but the dominant market is twin-screw supply vessels without sternthruster. The system can be installed on new ships or those already in operation. A joystick with two degrees of freedom is used to control thrust from propellers, rudders, and thrusters. An automatic heading control keeps the vessel at the designated heading.

Sales of POSCON for new ships are handled through Helix A/S in Aalesund, Norway, while retrofits are handled by Helitron direct. Helitron, a wholly owned subsidiary of the c-p propeller manufacturer A.M. Liaaen A/S, specializes in electronic remote control systems and integrated maneuvering systems.

For further information,
Write 57 on Reader Service Card



The day it dropped to 36° in Savannah.

The man in the lightweight jacket is Herb Ussery, a super-professional head rigger.

The thermometer read a nippy but nice 36° when we snapped Herb's photo. It was taken on the coldest day of 1975 in Savannah.

But Savannah's coldest day didn't send Ussery or our other workers into hibernation. We did business as usual.

Our mild, year-round weather can be a real tonic for you as well as us. It means no costly delays. (We can work on days when others up North would be doing nothing but warming their fannies against the stove.)

Savannah Machine and Shipyard Company.

We do scheduled drydocking, voyage repairs, and major conversions. We do them for less than the high-overhead yards. We often do them faster.

And we do them without sending a chill up your spine.

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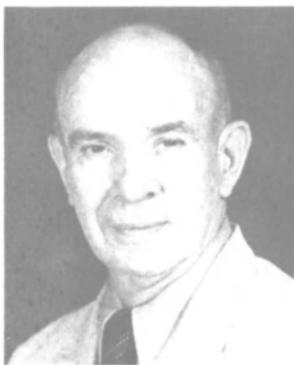
Ingalls Shipbuilding Promotes Three To Vice President Posts



Edwin B. Robbins



David B. Wright



Wayne D. Stinnett

Three senior management personnel at Ingalls Shipbuilding in Pascagoula, Miss., have been named vice presidents of the company. Leonard Erb, president of Ingalls and senior vice president of Litton Industries, has announced the promotion of Edwin B. Robbins, David B. Wright and Wayne D. Stinnett.

Mr. Robbins, who has been with Ingalls for 13 years, has been promoted to vice president of administration. After joining the company in 1967 as director, contracts administration, he advanced through several contracts management positions including director, DD-963 and LHA contracts, to director of administration in 1979.

Mr. Wright came to Ingalls in 1966 as a communication and control consultant to Litton. He joined Ingalls two years later as communication and control section manager on the FDL program. After advancing through several positions in both the DD-963 and LHA programs, Mr. Wright became DD-993 program manager in 1976. In mid-1979, he

moved to the newly formed Industrial Products Division as development director. He became director of industrial products later that year, before assuming his new position as vice president, railcar production.

Mr. Stinnett, employed with Ingalls since 1970, joined the company as systems engineering director for the LHA program. In 1971, he was appointed special assistant to the LHA program manager. He became director of quality engineering and systems in 1971, and assumed the job of quality assurance director in 1978. His new position is vice president, quality assurance.

New Searchlight Announced By Phoenix Products— Literature Available

A rugged new lever-operated "Super-Searchlight" is announced by the Super-Marine Division of Phoenix Products Company, Milwaukee, Wis.

Using a powerful, energy-saving halogen cycle sealed beam

lamp, the new fixture tilts 55 degrees above and 30 degrees below horizontal, and rotates 400 degrees to provide for safe passage under bridges, maneuvering near offshore rigs, pulling in trawls and nets, and other critical maritime operations. Designed for extremely rough conditions, Super-Searchlight has a patented lamp holder with floating shock-isolation diaphragm that insures extended (400 hours or more) lamp life.

Constructed entirely of corrosion-resistant material, the fixture carries the UL listing "595 Saltwater Service," and meets IEEE 45 and U.S. Coast Guard requirements. Other features include special nylon bearings throughout, moisture-proof roof seal, and quick-change relamping in port or underway.

For additional information and free literature on the Super-Searchlight,

Write 49 on Reader Service Card

McDermott Acquires Welding Equipment And Technology From Price

McDermott Incorporated has announced its acquisition of automatic pipeline welding equipment, technology, and related license rights from H.C. Price Company. Included were five automatic pipeline welding spreads that will be installed aboard McDermott pipelaying barges. Each of the five spreads can handle pipe ranging in size from 20-inch coating outside diameter to 62-inch coating outside diameter, and can weld and lay up to 230 joints a day. This equipment has been

used to lay more than 100 miles of pipe in various countries, including the Ninian Field in the North Sea, the Offshore Oil Port (LOOP) in Louisiana, and also on pipelines for Petroleos Mexicanos (PEMEX).

The systems use the gas metal arc (MIG) welding process at four to six welding stations. At each station, there are four weld heads which operate simultaneously and the system uses a narrow groove weld joint design.

The acquisition provides McDermott with the flexibility to offer its customers both its own proprietary system that utilizes the tungsten inert gas (TIG) welding process as well as the above gas metal arc (MIG) system.

MarAd Approves Title XI On GulfdriII Jackup Costing \$22.7 Million

The Maritime Administration has approved in principle an application by GulfdriII Limited I for a Title XI guarantee to aid in financing a mat-supported, jack-up drilling rig, GulfdriII I. The mobile rig was specially designed and equipped for exploration drilling on the continental shelf of the United States. It was built by Bethlehem Steel Corporation.

The estimated actual cost of the rig is \$22,695,400, with the approved guarantee to cover up to 75 percent of that amount, or \$17,021,000.

McNab Announces Fuel Management System— Literature Available

McNab, Inc., Mount Vernon, N.Y., has just introduced a computerized fuel management system as an answer to skyrocketing fuel costs. The McNab 63000 onboard system automatically receives instantaneous operating data on shaft horsepower and ship's speed. It calculates fuel consumption costs from these and other parameters, and utilizes fixed costs of the voyage and revenue from the voyage to give a continuously up-dated display of profit in dollars and in percent at various speeds in knots. Immediate decisions can be made from this data concerning the most economical steaming speed.

Each 63000 system is programmed by McNab for the ship's specific characteristics, such as draft forward and aft. The system is applicable to either diesel or steam-powered vessels. It comes self-contained with its own computer, or can use a ship's present onboard computer.

According to McNab, the 63000 fuel management system can pay for itself in as little as 90 days in fuel cost savings.

For further information and free literature on the 63000 system,

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NEW

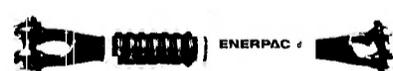
PULLPAC SAVES



10 Ton Pullpac with
Clevis Eyes
BRP-106C



10 Ton
Pullpack Cylinder
BRC-106



10 Ton Pullpac
with Links
BRP-106L

TIME AND LABOR

The NEW 10 TON PULLPAC from ENERPAC is designed to replace conventional turnbuckles and screw jacks to pull plates, subassemblies and other structural members together prior to welding. PULLPAC joins two sections of plates with speed and ease.

The lightweight and portable 10 ton PULLPAC has a 6" stroke and is available in three styles for specific applications. PULLPAC CYLINDERS also come in 30, 55 and 100 ton capacities.

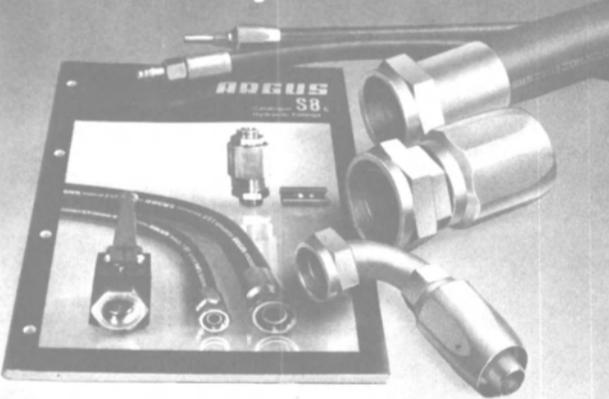
For specifications on all models, send for NEW Hydraulic Tool catalog. Write ENERPAC, Butler, WI 53007.

ENERPAC



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Hydraulic hose assemblies for metric systems



write for free catalog

Ready-made to your specifications or bulk hose & end components from stock. Argus hose assemblies are available with either permanent or reusable-type end fittings. Hoses are offered with single or double fiber braids, double wire braid, and four-ply spiral wire reinforcements in sizes from 5mm through 40mm hose I.D. Select from a wide variety of steel hose fittings in sizes from 6mm through 42mm tube O.D. Call or write today.

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Captain Ecker Named CO Of Coast Guard Inspection Office In New Orleans



Capt. William J. Ecker

Capt. William J. Ecker recently relieved Capt. John M. Duke as Commanding Officer, Marine Inspection Office, New Orleans. Captain Duke was reassigned to the Staff of the Commander, Eighth Coast Guard District, in the capacity of Chief of the Marine Safety Division.

Captain Duke served as Commanding Officer of the New Orleans Marine Inspection Office from September 1978 to November 1980. Captain Ecker served at the Marine Inspection Office, New Orleans, in the capacity of Executive Officer since July 1979 prior to being elevated to the position of Commanding Officer.

P.T. Wingerter Named VP-Marine Operations For Delta Queen Steamboat

Patrick T. Wingerter has been named vice president of marine operations for The Delta Queen Steamboat Company. He will be responsible for overseeing the navigational and engineering operations of the overnight paddle-wheel steamboats Delta Queen and Mississippi Queen, working out of the New Orleans office of the Cincinnati-based firm.

Most recently, Mr. Wingerter had served as the company's director of marine operations. He joined DQSC in 1975, as manager of maintenance and planning, at which time he oversaw the completion and entry into service of the Mississippi Queen.

Prior to joining the DQSC, he worked in maintenance and operations for Overseas National Airlines and served seven years in the U.S. Army as a helicopter pilot, achieving the rank of captain.

\$7.7 Million Authorized For Improvements At Newport News Terminal

The Virginia Port Authority has issued \$10.3 million in Newport News Terminal Revenue Bonds of 1980. The monies will be utilized to refinance the existing indebtedness on Piers B and C and to the City of Newport News, and to make several improvements to the terminal.

A portion of the \$10.3-million bond and \$3.9-million from a pre-

vious general obligation bond will provide more than \$7.7 million to be used to construct an extension to the existing container berth at Pier C, to construct a second container crane on the berth, and to create an additional 22 acres of open storage area.

The pier improvement involves constructing an extension of the present container berth to allow handling of the larger container-ships presently in use. The addi-

tion will add nine bays, each approximately 20-feet long, and will give the berth a new total length of 960 feet. The pier extension project has not as yet been submitted for bids.

The container crane is of general-purpose design and will handle containers primarily, but it will also have the capability of handling heavy lifts up to 200 short tons. The storage area improvements include installation of

a surface and subsurface storm drainage system, subgrade and base construction of roadways and storage areas, asphalt surfacing of roadways and storage areas, concrete crane runways, and concrete trailer landing strips. Completion of the crane is expected in January 1981; the storage area should be available for use in late May 1981; and the pier extension should be completed in June 1981.

The Raytheon "Big Tens." Because we all need reliable radar performance.

Ideal for workboats and fishing boats where space is at a premium, Model 6410 and Model 6425 are also superb back-up radars for large, high-seas vessels. Each features a big 10-inch display in an extremely compact unit that may be pedestal, bulkhead, table-top, or overhead mounted. A number of extra-performance options are available including gyro-stabilization now required on large ocean-going vessels.

River models are also available with statute-mile ranges, stern flasher, and off-centering.

Economical installations.

These Mariners Pathfinder® Radars have a combined scanner/transceiver for easy installation aloft. An optional below-deck transceiver is available. Model 6410 has a 10-kW output, Model 6425 a 25-kW output for extra long-range performance.

Big-ship features.

Standard features of both units include:

- Ten ranges from 1/4 to 64 miles for river, harbor, and high-seas navigation.
- Four pulse lengths and repetition rates for optimum target detection and definition on all ranges.

- Built-in variable range marker with three digit readout pinpoints target distances within 1/100th of a mile on short ranges, within 1/10th of a mile on long ranges.
- Choice of 4 or 6-foot antennas, each with 25° vertical beamwidth to compensate for vessel pitch and roll.
- Complete controls for tuning, gain, sea clutter and rain suppression, CRT

intensity, panel illumination, etc.

- Manually rotated parallel line cursor.
- High-persistence CRT for bright sharp pictures.

Extra performance.

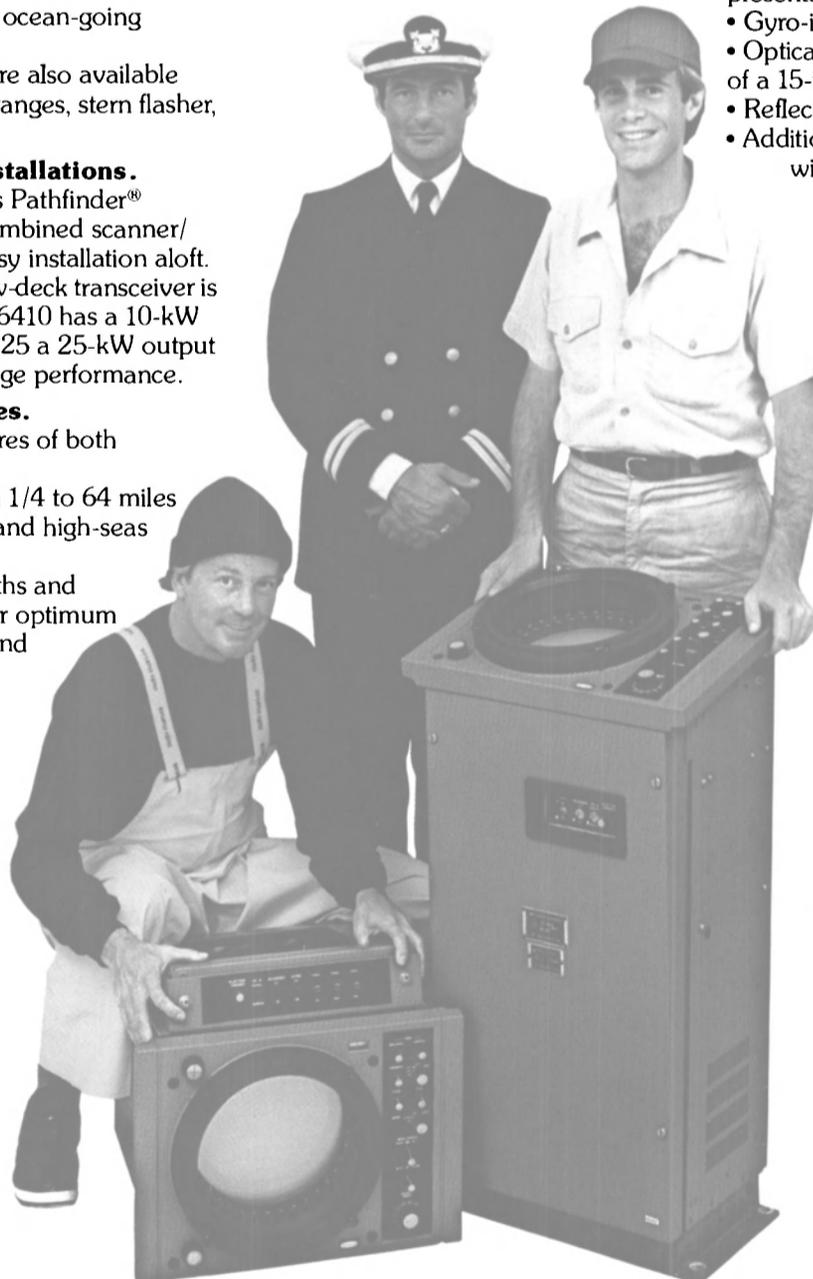
Economical options to meet specific operating requirements include:

- Off-centering kit.
- Gyro-stabilized north-up presentation kit.
- Gyro-interfaced true-bearing kit.
- Optical magnifier for the equivalent of a 15-inch picture.
- Reflection plotter.
- Additional variable range marker with digital readout.

Unmatched two-year warranty.

These Raytheon Marine products have a two-year limited parts warranty plus one-year free on-board service within 50 miles of any of our 210 U.S. dealers and worldwide service network in major ports everywhere.

RAYTHEON MARINE COMPANY
676 Island Pond Road
Manchester, New Hampshire 03103
Telephone: (603) 668-1600
Telex: 94-3459



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Worthington Establishes Pump Specialty Shop For Replacement Parts

The Worthington Group of the McGraw-Edison Company, Mountainside, N.J., has established a parts specialty shop that specializes in quick turnaround of orders for genuine OEM replacement parts for engineered pumps. Worthington's parts specialty

shop is located in a separate section of the firm's Harrison, N.J., pump manufacturing facility. The shop features toll-free 800-number service exclusively to customers nationwide, giving customers free and instantaneous access to the shop.

"Most industrial on-time performance reports today are written in terms of weeks, months, and in some industries, years," said **George Hoelzel**, manager of

the new shop. "We know, however, that pump users can't afford to deal in weeks or months. Therefore, in our Harrison Parts Specialty Shop, on-time performance is measured in terms of days. Our operation is geared for fast turnaround of customer parts orders.

"Plus," he added, "the genuine OEM pump parts that the customer receives are his best assurance that the reliability and

efficiency built into his original pump will be further maintained."

For further information on the Worthington Parts Specialty Shop,

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\$8.8-Million Navy Award To Raytheon Company For Radar Components

Raytheon Company, Equipment Division, Wayland, Mass., has been awarded a \$8,825,605 modification definitizing a previously awarded letter contract for the purchase of various quantities of AN/SPG-51 Radar Components and Ordnance Alterations (ORDALTS) as required for the DDG conversion program. Work will be performed at Wayland and Waltham, Mass. The Naval Sea Systems Command was the contracting activity. (N00024-79-C-5289)

Arnessen Now Stocking Replacement Parts For Sulzer Diesel Engines

From a shipowner's viewpoint, the inventorying of essential but high-priced spares in various geographic locations is most desirable, especially if the inventory capital does not come out of the shipowner's pocket. This fact has been recognized by Sulzer's principal U.K. licensee, Clark Hawthorn, Ltd., and the latter's exclusive U.S. representative, Arnessen Supply Corporation.

As a result, several container loads of regularly needed parts for Sulzer's principal main diesel engines have now been delivered by Clark Hawthorn for warehousing at Arnessen's New York warehouse. The parts involved range from cylinder liners and covers to delivery valve springs—all available for immediate shipment.

For further information and lists of parts that are available,
Write 54 on Reader Service Card

Thomas Dade Appointed Manager Of Seaward's Gulf Coast Office

Seaward International, Inc. has announced the appointment of **J. Thomas Dade** as manager of the company's new Gulf Coast office, located at 13231 Champion Forest Drive, Suite 110, Houston, Texas 77069; telephone (713) 893-7389. This additional office location will allow Seaward to better serve its customers in the Gulf Coast area.

Mr. Dade will be responsible for product engineering and sales of Seaward's entire line of marine products. He has over 10 years' experience in the offshore industry. Prior to joining Seaward International, he was with Amoco Production Company in their Offshore Facilities Group. He has also managed an offshore oil field service company's operations in the North Sea, and offshore construction operations in the United States Gulf.

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Arendal Yard Completes Jackup Drilling Rig For Swedish Owners

Gotaverken's Arendal yard in Sweden recently delivered a jack-up type drilling rig to a group of Swedish owners — Salen Energy, Salenia, and VBB. This is said to be the first rig of Friede and Goldman L-780 design ever built. It has been constructed to American Bureau of Shipping classification.

The new rig, named Salenergy V, will be towed to the Gulf of Mexico where it will be operated by Salen Offshore Drilling Company (SODOC) of Houston, starting in February 1981. A three-year charter contract has been signed with Atlantic Richfield Company (ARCO).

The Salenergy V is capable of drilling in water depths to 250 feet and has a drilling capability of 20,000 feet. It has an overall length of 180 feet and overall width of 175 feet; the legs are 352 feet long including spud cans.

Three similar rigs are under construction at the Arendal yard, two for Protexa of Mexico and one for Salen Energy; all three are scheduled for delivery during 1981.

Provo Named Sales Manager At Colmac Coil

Bob Provo has been named sales manager of Colmac Coil Manufacturing in Colville, Wash., by Roger McMillan, president. Mr. Provo brings 16 years' experience in sales of heating and air-conditioning to Colmac Coil.



Bob Provo

In 1964, he joined Westinghouse in San Francisco as a sales engineer in their heating and air-conditioning division. In 1969, he became Westinghouse territorial manager for southern California, Arizona, and Nevada. Ten years after joining Westinghouse, he was promoted to manager of customer service at the division headquarters in Norma, Okla. In 1976, he was promoted to head one of Westinghouse's two zones, the northern zone, headquartered in St. Louis. From this position, he joined Colmac Coil.

At Colmac, Mr. Provo will be in charge of all sales, with emphasis in establishing manufacturer's agents in the United States and Canada.

SSB Antenna Introduced By Phelps Dodge— Literature Available

A 2-30 MHz, single-sideband marine antenna recently introduced by Phelps Dodge Communications Company is described in new literature now available. The new Model PD-230 is presented as a major design break-

through that eliminates the need for traps and tuners required by conventional marine antennas now utilized for single-sideband, high-frequency applications. The elimination of traps and tuners is the result of the incorporation of a factory-sealed, impedance-correcting module in the base of the antenna. This module converts the highly reactive impedance of the radiating element to

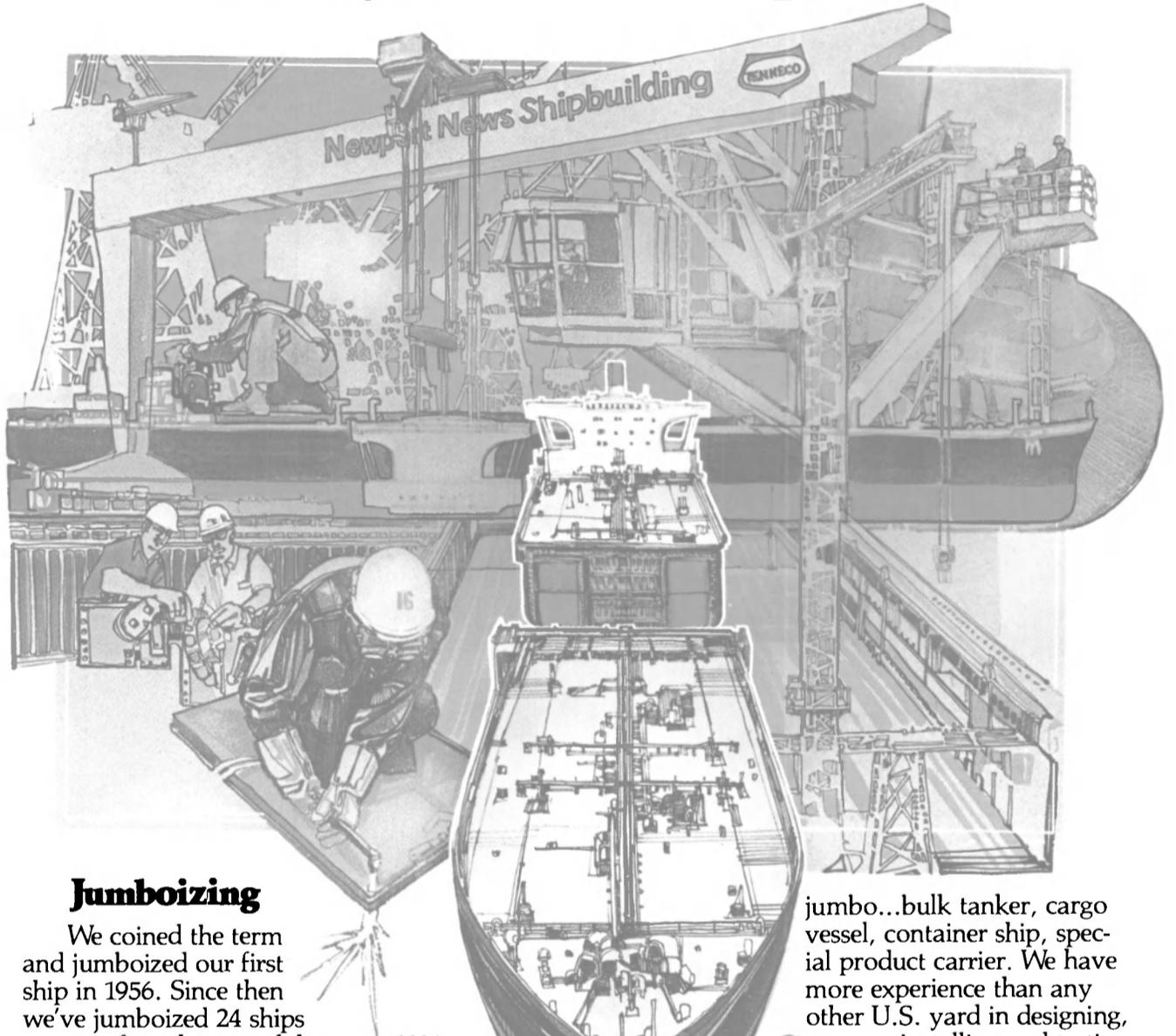
a nominal 50 ohm impedance at the antenna input connector.

Phelps Dodge Communications Company is one of the six operating units of Phelps Dodge Industries, Inc., the manufacturing subsidiary of Phelps Dodge Corporation, which is one of the largest producers of copper in the U.S.

For free copies of the PD-230 literature,

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jumbo...bulk tanker, cargo vessel, container ship, special product carrier. We have more experience than any other U.S. yard in designing, installing and testing inert gas systems, crude oil washing systems, segregated ballasts and other modifications to meet IMCO standards.

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A word from BRI Coverage Corp., The Independent Insurance Broker, on understanding risk today:

Risk Management Economics.

Risk used to be sort of an educated guessing game. You relied on insurance to provide “adequate protection”, paid a premium, and that was it.

Today, risk has to be calculated. To the letter. Reliance on insurance just won't suffice anymore. Because claims that were unheard of years ago are being brought forth every day and won. The number and variety of these claims are greater, with the cost of settlements escalating geometrically.

No one can afford to be casual about risk anymore. The outrageous costs have shed a new light on risk. Particularly in the way that it's being handled. Management has begun to see risk for what it is – an important cost affecting the profitability of the company.

In the past, the term “risk management” was nonexistent, because insurance was an administrative function. A policy was written and the premium came out of a book. Basically, a company had only three options to save money: to change brokers, to change insurers or to change both. That was about all “managing risk” entailed.

The dramatic rise in the cost of insurance has necessitated a more sophisticated and disciplined approach to the management of risk.

Risk must now be identified in advance. In order to protect yourself, you can't afford to speculate – you have to be aware of every possible exposure.

Once identified and quantified you can see how much risk can be sustained and how much should be transferred. For every exposure, management has three options: to consider the risk as insignificant and not insure it, to transfer the risk entirely, or to strike a balance between self-assumption and transfer. The balance between not insuring, self insurance and full-insurance is one answer to cost-effective risk management. It opens up a new set of variables in the economics of risk management – variables such as taxes, investments and cash flow. In effect, the economics of successful risk management are dependent upon the methods of funding or non-funding you choose – the goal is to find the optimum position for your own circumstances.

Risk management has changed the meaning and economics of insurance. Those who truly manage risk use insurance as a tool, not as solution in itself. The proper application is entirely different – so are the results.

BRI Coverage Corp., recognized as one of the most imagina-

tive brokers in the industry, knows this is the case. Rather than re-structure its present services and organization, BRI formed Risk Management Economics. Risk Management Economics consists of a select group of highly skilled financial and administrative experts. Experts who work in close cooperation to refine and re-define the role of risk management in your company's insurance program. In so doing, it is now possible to achieve maximum control of cash flow, tight supervision of claims and other risk expenses.

All this really means is that the system can work on your behalf. If you agree with the concepts, then you'll probably also agree with our approach. Find out firsthand. Call Risk Management Economics at (212) 233-7171.



Write 41 on Reader Service Card

Fred Eisenbiegler Named To Board Of Trustees At Webb Institute

Webb Institute of Naval Architecture, the oldest four-year naval architecture undergraduate institution in the U.S., recently announced the selection of a new trustee member — **Frederick P. Eisenbiegler**. **Frank J. Graziano**, chairman of the board of Webb Institute, stated that he is "delighted and pleased that Mr. Eisenbiegler will be joining the board of trustees. A man of his experience, knowledge and foresight will be an added dimension to our board. Webb's future is assured when concerned individuals, such as **Fred Eisenbiegler**, recognize our importance and participate in our work."

Mr. Eisenbiegler joined Sun Company in 1974 as vice president of Sun Ship's bulk ship product group. In 1977, he joined Sun International, Inc. as vice president and general manager of marine transport, and also became president of two Sun International subsidiaries, Sun Transport, Inc., and Sun Overseas Transport, Ltd., both headquartered at Claymont, Del. Sun Transport and Sun Overseas Transport, Ltd. are responsible for providing the marine transportation requirements of Sun Company as well as serving third party markets.

New Offshore Mooring System Under Development In Scotland



A new, unique mooring system that will keep a supply vessel permanently and safely moored to an oil rig at a pre-determined distance even in the worst sea conditions encountered in the North Sea is being developed in Scotland. A model of the Scomag Hydraulics Ltd. system is shown above being tested in the company's factory at Bellshill, Lanarkshire.

At present, most North Sea operators use a type of buffer system to limit tension on mooring lines, but if the sea is rough and the vessel is moving about, the rope is prone to sudden breakage. For supply boat crews and crane operators on the rigs, this can be a time-consuming, difficult, and often dangerous task.

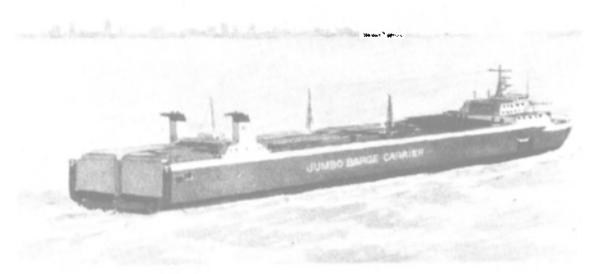
The Scomag system uses hydraulic winches that absorb the potentially dangerous energy released by waves, together with electronic controls to monitor and make adjustments when necessary to insure that the tension on the ropes is kept within well-defined limits.

January 15, 1981

Two winches are fixed on the platform approximately 12-15 meters (39-49 feet) apart. From each of these winches, a cable runs down the legs of the rig to sea level and then out to the stern of the vessel. A target position is then fed into the controls. Should the vessel move outwards from this target, the winches cut in, increasing tension on the ropes and pulling the vessel back. If the boat drifts too close to the rig, tension is released and the vessel moves away to the correct position. In the event of sudden deterioration in the weather, the supply boat skipper can move off to a safe distance with the ropes still attached. When it is safe to return, he drops the engine's revolutions allowing the system to pull him back to the target position.

For further information on the Scomag mooring system,

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NEW JUMBO BARGE CARRIER—Artist's impression of the new Jumbo Barge Carrier, evolved by Capt. Bengt Tornqvist and based on his advanced trapezoidal hull form. As planned, the JBC mother-ship will carry eight barges each of 12,500 dwt, and have an overall length of just over 400 meters (about 1,312 feet). Avanova International of Chester, England, is responsible for the further development and marketing of the Jumbo Barge Carrier project.

Rotating Beacon Light

U.S.C.G. ACCEPTANCE

The Hose-McCann Model RB-WT rotating beacon light is watertight and vapor tight, available in five voltages, five colors and two mounting configurations, voltage range makes the RB-WT adaptable to all marine applications.

Light fixtures can be either pendant (pipe) or ceiling (box) mounted. Colors are easily changed by replacing the dome with any of the five colors desired. The RB-WT has a high intensity beam that rotates 360°.



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Write for product data bulletin RB-WT containing complete specifications and parts diagrams.

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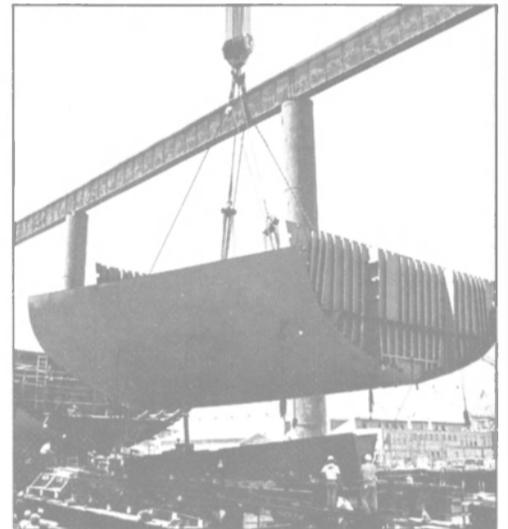
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ENGINEERING NEWS

\$180-Million Satellite Communications System Approved By INMARSAT

Future prospects for communications in the international maritime community, including the offshore industry, are now assured as a result of a \$180-million decision made by the International Maritime Satellite Orga-

nization (INMARSAT) in London recently.

This key decision involves the lease of new satellites to meet the growing international telecommunications needs of the world's shipping and offshore industry and the requirements of safety of life at sea during the 1980s. It means that the maritime community can count on the availability of efficient and im-

mediate satellite communication means on a worldwide basis, throughout the decade.

At the Sixth Session of the Council of INMARSAT, the decision was taken to proceed with a network of satellites involving contracts to three major suppliers worth \$180 million over the period 1982-89. These suppliers are the European Space Agency, based in Paris; INTELSAT, and

the COMSAT General Corporation, both based in Washington, D.C.

The system authorized for lease by INMARSAT comprises two dedicated European Space Agency satellites, MARECS A and MARECS B, as well as three INTELSAT V satellites with Maritime Communication Subsystem packages and one MARISAT satellite of COMSAT General Corporation.

This momentous decision by the INMARSAT Council will not only ensure global coverage of the Atlantic, Pacific and Indian Ocean areas, but also provide a follow-on system to the COMSAT General Corporation's MARISAT system. The transition from the MARISAT system to the INMARSAT system is expected to occur in the early 1982 time frame, so as to ensure the continuity of service to the present MARISAT user community.

Twin City Barge Moves To New Corporate Headquarters Building

Twin City Barge & Towing Co., St. Paul, Minn., has moved into its new corporate headquarters building at 222 West Grand Avenue in South St. Paul. Costing almost \$1 million, the structure consists of two floors, providing 18,900 square feet of space. Its eastern facade offers a commanding view of the Mississippi River.

TCB's offices had been located on St. Paul Port Authority property in the Red Rock Industrial Park and in the Drovers Bank Building in South St. Paul. The company's present office building in Red Rock Industrial Park will be remodeled to accommodate TCB's data processing center.

New Brochure On VHF/UHF Radios Available From RF Communications

Harris Corporation, RF Communications Division, Rochester, N.Y., announces the availability of a new brochure describing the firm's VHF and UHF worldwide short range radio communications product line. The feature product of this brochure is the new Alpha 2000 Series mobile telephone. This 128-channel synthesized radio, combined with the Alpha 40 control unit with its options and accessories, make Alpha Series an essential communications tool for the professional communicator.

Harris's digital paging systems, two-way radios, base stations, repeaters, and hand-held Portaphones are also presented in this brochure. Other Harris products include the digitally encrypted voice radio line which provides security in communications.

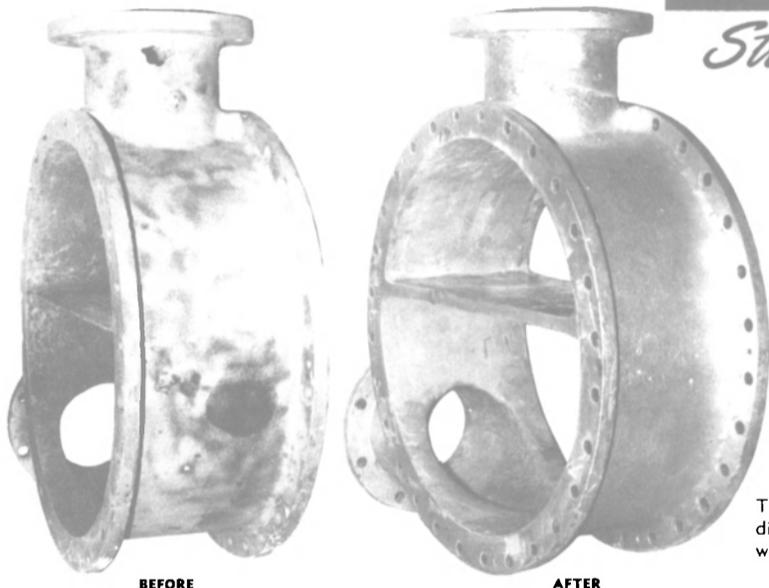
For a free copy of the new Harris brochure, Write 61 on Reader Service Card

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Write 214 on Reader Service Card

Maencor Adds New Management Personnel

George A. Gabriles, president of Maencor, Inc., a Freeport, Texas, maintenance and engineering contracting firm for the marine, offshore, and chemical industries, has announced the addition of three management employees. **Harry F. Koester Jr.** joins the firm as controller, **George H. Crook** becomes manager of Tuff-Kote, Inc., a joint venture that is a specialty coatings application company, and **Richard M. Frugia** has been appointed manager of sales and service for the Deutz Diesel Engine Division.

For the past three years Mr. Koester has been manager of Fred A. Krenske and Company of Lake Jackson, Texas. Prior to that he was with Creole Production Services, and Peat, Marwick, Mitchell and Company, both in Houston.

Mr. Crook joined the Texas Division of Dow Chemical Company in 1953, and advanced through various positions to assistant superintendent in the Varanol Department before early retirement in 1975. Before joining Maencor he was with Parson-Gilbane as site engineer at the Department of Energy Oil Storage Project.

Mr. Frugia has 35 years' experience with diesel engines and marine equipment of all kinds. He was formerly with Harley Industries, distributor of the Deutz air-cooled diesel line in Texas, Oklahoma, and sections of Louisiana. He is a licensed Marine Chief Engineer, and served in the U.S. Coast Guard for more than 20 years before joining private industry as chief engineer with several marine companies.

Senemar Announce New Mini-Computer Version Of FORAN System

A major new development in FORAN, the internationally recognized computer aided system for ship design and production, was announced recently by Senemar, a leading Spanish firm of naval architects and marine consultants. A new interactive version has been developed that allows FORAN not only to be used on main frame computers, as now, but also on mini-computers, which are rapidly being introduced by the world's shipyards.

This new version for mini-computers, which comes with graphic display units as a standard option, means that FORAN is now financially within the reach of small to medium yards for the first time. It also means that FORAN can be used by large yards, but on mini-computers as well as large main frame computers. The world's shipyards of today are increasingly decentralizing their data-processing structure and installing mini-computers in their technical and produc-

tion departments, thereby saving money and increasing efficiency.

The first contract for the new mini-computer version has already been signed. It is with ASCON, which is a medium to small Spanish yard at Vigo.

Major improvements have been introduced in both the design and production phases of FORAN in the new interactive version, in which the direct generation of lines becomes extremely powerful and flexible. The complete design of a new ship can now be accomplished in a few days.

When using mini-computers with the new version of FORAN, it is possible to arrange a turn-key contract for both hardware and software. This has been the case in the contract with ASCON, in which a Prime-450 computer is included.

Walworth Introduces New High-Strength Valves—Literature Available

Walworth Company, Valley Forge, Pa., recently introduced a line of high-strength, forged steel gate, globe, and check valves for marine, chemical, petroleum, power, and general industrial uses. They feature strong wedges of 500 Brinell hardness with stellite seats.

These Class 800 valves, with a 2,000 W.O.G. rating, are ¼ to 2 inches. They meet the standards and specifications of API 602, among other codes. They are available in screwed- and socket-end, and in Class 150, 300, and 600 flanged-end types.

For more information on Walworth Class 800 valves,

Write 64 on Reader Service Card

\$4-Million Navy Contract Awarded To York Division

Borg Warner Corporation, York Division, York, Pa., has been awarded a \$4,000,000 modification to a previously awarded, fixed-price escalation contract plus options for 125-ton and 250-ton air-conditioning units for DDG-2 Class, DDG-37 Class, CG-16 Class, and CG-26 Class modernization (DDG: guided missile destroyer/CG: guided missile cruiser). The Naval Sea Systems Command was the contracting activity. (N00024-80-C-4257)

Phillips Named Corporate Development Director For Henschel Corp.

Henschel Corporation, a unit of General Signal of Amesbury, Mass., has announced the promotion of William Rees Phillips to the newly created position of director, corporate development. In this new capacity, he reports directly to the president of Henschel, George E. Coorsen, and is responsible for growth planning and business development of Henschel operations in Amesbury, Tulsa, and Homer, La.

Mr. Phillips, a graduate of the U.S. Naval Academy, completed 22 years of commissioned naval service in 1973. From 1973 to 1977 he was a private consultant to the marine industry. Since 1977, he has been with Henschel as product development manager.

Marland Licensed To Build And Market New Oil/Water Separator

Bob Daniels, vice president of Marland Environmental Systems,

Inc., has announced the recent signing of a license agreement with Skimovex B.V., a Netherlands research and development company. Under the agreement, Marland received exclusive rights to manufacture and market the Inverto® oil/water separator for ships' bilge and ballast waters. Conceived as a major improvement on existing separators, the Inverto device fits well into Marland's growing line of high-reliability, advanced-technology products for the worldwide maritime industry.

Totally self-cleaning, the Inverto utilizes two independent beds of a special granular material to coalesce small droplets of oil into large globules that are easily separated by gravity. Also acting as filters for solids suspended in bilge waters, these beds are back-flushed periodically as the flow of influent is reversed. Although the unit is more compact than separators using conventional filtering techniques, its unique granular medium is said to permit far higher flow rates.

The Inverto is capable of providing an effluent with oil content far below 15 ppm, regardless of the degree of contamination of the influent. This places it comfortably within IMCO standards.

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Position requires in-depth knowledge of the materials management function, specifically purchasing and contracting. In addition, any background in Marine/Mechanical Engineering is highly desirable. BS in Engineering or the equivalent working experience is a must.

Responsibilities include providing materials management expertise/execution to various selected shipbuilding and vessel maintenance projects (both in office and on-site); direct impact on expenditure utilization efficiency in material and services procurement; the standardization of contract formats and procedures and the overall administration of major contracts through their lifetimes. 50% travel required; both domestic and international.

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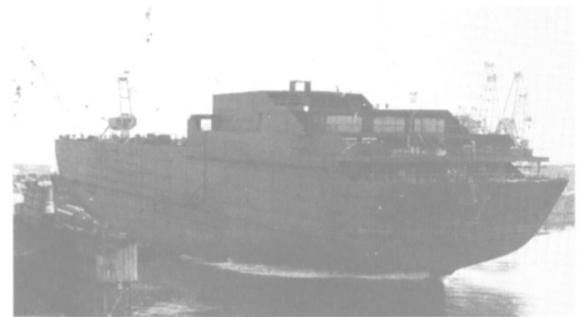
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CRUISE LINER LAUNCHED — Aalborg Vaerft in Denmark recently launched the 35,000-gt passenger ship **Tropicale**. Under construction for Festival Maritime Inc., the 656-foot liner will accommodate 1,420 passengers in 511 cabins. Propulsion machinery will consist of two Sulzer two-stroke, 7RND-68 diesel engines, each with an output of 13,300 bhp, direct-coupled to controllable-pitch propellers. Built to Lloyd's Register of Shipping Classification and SOLAS 1974 Requirements, the vessel is scheduled for delivery at the end of 1981.

Rados International To Design Purse Seiners For Mexico

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Principals at recent signing of contract between Rados and Mexican Government were (L to R): **Robert G. Rados**, president of Rados International; and Adm. **Humberto Martinez Najera**, director general of repair and Naval construction, Mexican Department of the Navy.

The contract marks the beginning of a new construction program in the Naval shipyards of Mexico. The advanced-design vessels will be financed by Mexico Banco Nacional Pesquero, and will be operated by Productos Pesqueros Mexicanos.

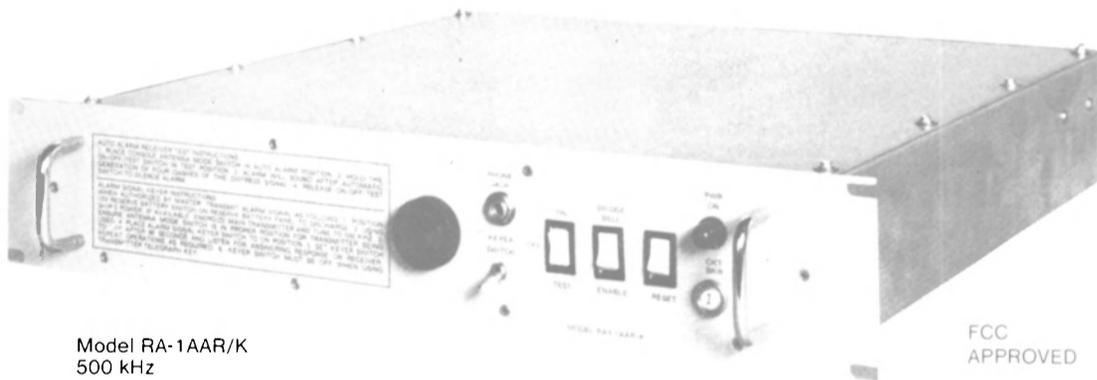
As part of the program, Rados International has agreed to act on behalf of the Secretaria de Marina as procurement agent in the purchase of the machinery and equipment for the vessels and, in addition, to

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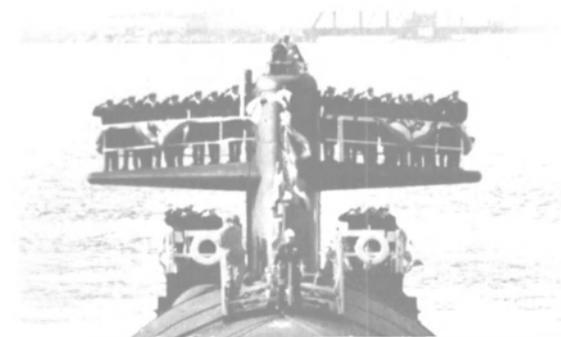
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Oceangoing Tank Barge Launched At FMC Yard



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Maencor Adds New Management Personnel

George A. Gabriles, president of Maencor, Inc., a Freeport, Texas, maintenance and engineering contracting firm for the marine, offshore, and chemical industries, has announced the addition of three management employees. Harry F. Koester Jr. joins the firm as controller, George H. Crook becomes manager of Tuff-Kote, Inc., a joint venture that is a specialty coatings application company, and Richard M. Frugia has been appointed manager of sales and service for the Deutz Diesel Engine Division.

For the past three years Mr. Koester has been manager of Fred A. Krenske and Company of Lake Jackson, Texas. Prior to that he was with Creole Production Services, and Peat, Marwick, Mitchell and Company, both in Houston.

Mr. Crook joined the Texas Division of Dow Chemical Company in 1953, and advanced through various positions to assistant superintendent in the Varanol Department before early retirement in 1975. Before joining Maencor he was with Parson-Gilbane as site engineer at the Department of Energy Oil Storage Project.

Mr. Frugia has 35 years' experience with diesel engines and marine equipment of all kinds. He was formerly with Harley Industries, distributor of the Deutz air-cooled diesel line in Texas, Oklahoma, and sections of Louisiana. He is a licensed Marine Chief Engineer, and served in the U.S. Coast Guard for more than 20 years before joining private industry as chief engineer with several marine companies.

Senemar Announce New Mini-Computer Version Of FORAN System

A major new development in FORAN, the internationally recognized computer aided system for ship design and production, was announced recently by Senemar, a leading Spanish firm of naval architects and marine consultants. A new interactive version has been developed that allows FORAN not only to be used on main frame computers, as now, but also on mini-computers, which are rapidly being introduced by the world's shipyards.

This new version for mini-computers, which comes with graphic display units as a standard option, means that FORAN is now financially within the reach of small to medium yards for the first time. It also means that FORAN can be used by large yards, but on mini-computers as well as large main frame computers. The world's shipyards of today are increasingly decentralizing their data-processing structure and installing mini-computers in their technical and produc-

tion departments, thereby saving money and increasing efficiency.

The first contract for the new mini-computer version has already been signed. It is with ASCON, which is a medium to small Spanish yard at Vigo.

Major improvements have been introduced in both the design and production phases of FORAN in the new interactive version, in which the direct generation of lines becomes extremely powerful and flexible. The complete design of a new ship can now be accomplished in a few days.

When using mini-computers with the new version of FORAN, it is possible to arrange a turn-key contract for both hardware and software. This has been the case in the contract with ASCON, in which a Prime-450 computer is included.

Walworth Introduces New High-Strength Valves—Literature Available

Walworth Company, Valley Forge, Pa., recently introduced a line of high-strength, forged steel gate, globe, and check valves for marine, chemical, petroleum, power, and general industrial uses. They feature strong wedges of 500 Brinell hardness with stellite seats.

These Class 800 valves, with a 2,000 W.O.G. rating, are 1/4 to 2 inches. They meet the standards and specifications of API 602, among other codes. They are available in screwed- and socket-end, and in Class 150, 300, and 600 flanged-end types.

For more information on Walworth Class 800 valves,

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\$4-Million Navy Contract Awarded To York Division

Borg Warner Corporation, York Division, York, Pa., has been awarded a \$4,000,000 modification to a previously awarded, fixed-price escalation contract plus options for 125-ton and 250-ton air-conditioning units for DDG-2 Class, DDG-37 Class, CG-16 Class, and CG-26 Class modernization (DDG: guided missile destroyer/CG: guided missile cruiser). The Naval Sea Systems Command was the contracting activity. (N00024-80-C-4257)

Phillips Named Corporate Development Director For Henschel Corp.

Henschel Corporation, a unit of General Signal of Amesbury, Mass., has announced the promotion of William Rees Phillips to the newly created position of director, corporate development. In this new capacity, he reports directly to the president of Henschel, George E. Coorssen, and is responsible for growth planning and business development of Henschel operations in Amesbury, Tulsa, and Homer, La.

Mr. Phillips, a graduate of the U.S. Naval Academy, completed 22 years of commissioned naval service in 1973. From 1973 to 1977 he was a private consultant to the marine industry. Since 1977, he has been with Henschel as product development manager.

Marland Licensed To Build And Market New Oil/Water Separator

Bob Daniels, vice president of Marland Environmental Systems,

Inc., has announced the recent signing of a license agreement with Skimovex B.V., a Netherlands research and development company. Under the agreement, Marland received exclusive rights to manufacture and market the Inverto® oil/water separator for ships' bilge and ballast waters. Conceived as a major improvement on existing separators, the Inverto device fits well into Marland's growing line of high-reliability, advanced-technology products for the worldwide maritime industry.

Totally self-cleaning, the Inverto utilizes two independent beds of a special granular material to coalesce small droplets of oil into large globules that are easily separated by gravity. Also acting as filters for solids suspended in bilge waters, these beds are back-flushed periodically as the flow of influent is reversed. Although the unit is more compact than separators using conventional filtering techniques, its unique granular medium is said to permit far higher flow rates.

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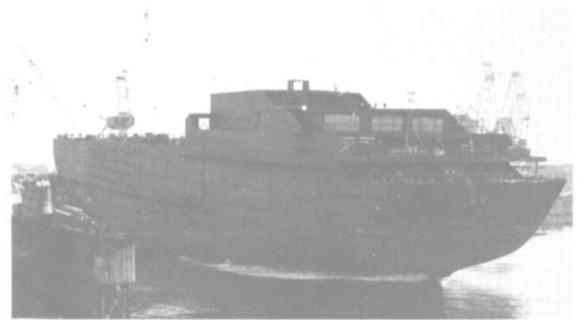
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Rados International To Design Purse Seiners For Mexico

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The contract marks the beginning of a new construction program in the Naval shipyards of Mexico. The advanced-design vessels will be financed by Mexico Banco Nacional Pesquero, and will be operated by Productos Pesqueros Mexicanos.

As part of the program, Rados International has agreed to act on behalf of the Secretaria de Marina as procurement agent in the purchase of the machinery and equipment for the vessels and, in addition, to provide a team of shipyard construction specialists to assist the Naval shipyards in construction of the fishing vessels.

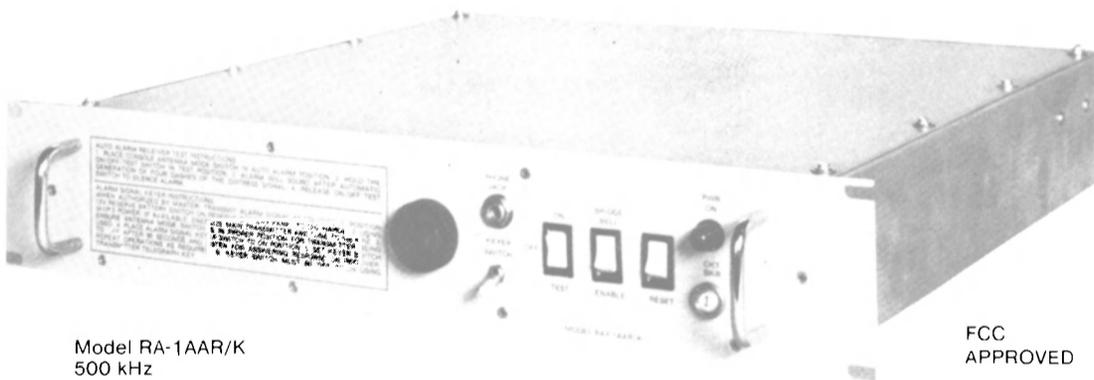
The fishing vessels will be built at the Naval shipyards located in Salina Cruz and Tampico. The newly designed vessels will be 230 feet in length, 42 feet in beam, 18 feet in draft, with a displacement of 2,650 long tons. They will carry 1,200 tons of frozen tuna.

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**Bay Shipbuilding Will Build
Oceangoing Bulk Cargo Barge
For Universal American**



At contract signing, **George K. Geiger**, vice president and general manager, Bay Shipbuilding (left), and **Karl L. Meyer**, president, Universal American Barge Corporation, seal with a handshake the signing of the contract to build a 550-foot cargo barge.

Bay Shipbuilding Corp. has announced the signing of a contract to build an oceangoing bulk cargo barge for Universal American Barge Corporation of Greenwich, Conn. This will be the first vessel built for Universal American Barge by Bay Ship.

The 550 by 78-foot tug notch barge will be used as a bulk cargo carrier handling coal and other bulk cargoes. Cargo capacity will be 33,000 short tons of coal. The stern will be fitted with a deep notch to accommodate a tug of 7,200 bhp. Two fixed skegs with adjustable flaps at the trailing edge will be provided to maintain directional stability under towing conditions. Bay Shipbuilding has responsibility for vessel design, and will deliver vessel to owner within nine and one-half months from contract signing.

This will be the fourth oceangoing tug notch barge recently built by Bay Shipbuilding, a subsidiary of The Manitowoc Company, Inc., located in Sturgeon Bay, Wis., on Lake Michigan.

**Bergeron Launches 100th
Vessel Built At Its
Mississippi Facility**



A significant event occurred recently at Bergeron Marine when the barge CMS-563 (shown above) slid down the launchways at the company's Port Bienville facility. The 120-foot by 30-foot by 7-foot steel deck barge built for Central Marine Service, Inc., New Orleans, was the 100th vessel constructed at the Mississippi yard.

Production began at the 40-acre site located in the sprawling Port Bienville Industrial Park near Pearlinton, Miss., in the spring of 1978. On April 14, 1978, Bergeron Marine launched its first vessel, the CMS-434, a 110-foot deck barge, also owned by Central Marine Service.

Initially, the company's operations at Port

Bienville were confined to new construction. In addition to the new construction of a wide range of barges, Bergeron Marine's facilities were expanded and now include a specialized LASH barge repair and renovation facility. This facility, now a very important part of Bergeron's Mississippi operation, is believed to be the finest of its kind in the United States for the repair and reconditioning of LASH barge fleets.

**General Ship Corporation
Yard Is Purchased By
Private Investors**

General Ship Corporation of East Boston, Mass., has been purchased by a group of private investors who will continue the ship repair and shipbuilding activities of the yard. Principals are **James Harvie**, president

and chief executive officer, and **Keith A. Brown**, executive vice president and treasurer.

Mr. Harvie was with Bath Iron Works Corporation for 21 years, and served as vice president-marketing at the time he left to acquire an interest in General Ship. **Mr. Brown** was with Bath for 12 years, and served as controller at the time he left. **Joseph Sanchez**, vice president and general manager, will remain with General Ship in the same capacity.

General Ship Corporation has operated a shipbuilding and ship repair yard for nearly 50 years on the site of the former Donald McKay Shipyard, where famous clipper ships were built. Most recently, the yard has specialized in repair of naval combatants, and currently is completing the overhaul of the USS Edson (DD-946).

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Oceangoing Tank Barge Launched At FMC Yard



FMC Corporation launched an oceangoing tank barge recently at the Marine and Rail Equipment Division in Portland, Ore. The vessel, named Barge 4506 (shown above), was christened by **Mrs. Roy D. Jurgensen**, wife of Crowley Maritime Corporation's senior vice president and general manager of the Northwest and Alaska Division of Crowley Maritime, the company that is purchasing the barge.

The giant barge, measuring 400 feet long by 99 feet 6 inches wide by 25 feet deep, is designed to carry a variety of petroleum products. It is the first of two sister barges under construction, with delivery of the second scheduled for February 1981.

FMC officials present at the launching were: FMC Corporation vice president **Charles H. Johnson**; **John E. Carroll Jr.**, FMC division president; and **William R. Galbraith**, division vice president, sales. Crowley officials on hand were executive vice president **Leo Collar** and **Mr. Jurgensen**.

Based in San Francisco, Crowley is a major international marine transportation firm. In recent years, FMC has built several barges for Crowley, including large oil barges and deck cargo barges. FMC Corporation, headquartered in Chicago, is a major international producer of machinery and chemicals for industry, agriculture and government, with 1979 sales of \$3.31 billion.

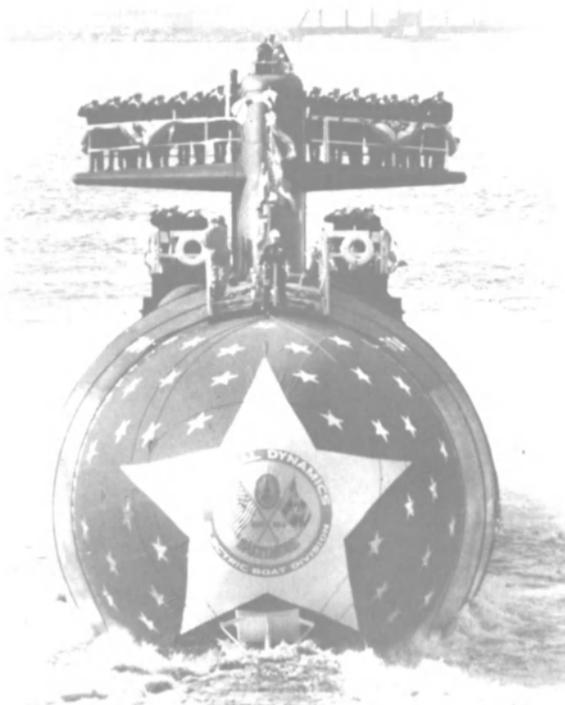
Electric Boat Launches Attack Submarine 'Baltimore'

Maryland's senior senator and dean of its Congressional delegation called today for a Navy "second to none." Speaking at launching ceremonies for the 688-Class fast attack submarine **Baltimore** (SSN-704) at General Dynamics' Electric Boat Division, Senator **Charles McC. Mathias** said: "As we send **Baltimore** down the ways, we send it to join a fleet dangerously short of ships and of personnel . . . into a world dangerously long on problems.

"Our lifelines are stretched to every corner of the globe," Senator **Mathias** continued, noting that the U.S. Navy is half the size it was 10 years ago. "It doesn't take much imagination," he went on, "to figure out what kind of shape we'd be in if those lifelines were cut. Obviously, today as never before, we depend on the sea for our security and our survival."

Later in the ceremony, Maryland Representative **Marjorie S. Holt** (R), a member of the House Armed Services Committee, christened the **Baltimore** by smashing the traditional bottle of champagne on the bow of the 360-foot, 6,900-ton vessel. Whistle blaring, the nuclear-powered submarine slid down the ways into the Thames River to the cheers of thousands of spectators.

Also participating in the ceremonies were Secretary of the Navy **Edward Hidalgo**; Baltimore Mayor **William D. Schaefer**; David



The fast attack submarine **Baltimore** (SSN-704) slides into Thames River at General Dynamics' Electric Boat Division in Groton, Conn. Representative **Marjorie S. Holt** of Maryland christened the 360-foot, 6,900-ton vessel, the 12th to be built at the shipyard. **Baltimore** will carry crew of 127.

S. Lewis, General Dynamics' chairman and chief executive officer; and **P. Takis Veliotis**, General Dynamics' executive vice president-marine and general manager of Electric Boat Division.

The launching was the third during 1980 at the shipyard. Last spring, Electric Boat launched a sister ship, **Boston** and **Michigan**, the second Trident ballistic missile submarine. Electric Boat has already delivered five of the fast attack submarines to the Navy and holds contracts for 15 more. The shipyard also has contracts for seven Trident ballistic missile submarines.



AWARD TO ADMIRAL KING—Rear Adm. **Thomas A. King**, USMS, superintendent of the U.S. Merchant Marine Academy in Kings Point, N.Y., was selected recently as "Marine Man of the Year" by a group of Academy alumni. This award is given annually by Kings Pointers who are members of The Society of Naval Architects and Marine Engineers. Recipients must be Academy graduates as well as members of SNAME, and must have contributed to the betterment of the maritime industry during their careers. Rear Admiral **King** was cited for his deep involvement with the merchant marine during 10 years as the Maritime Administration's East Region director. He accepted the award from the 1979 recipient **George Uberti** of National Steel and Shipbuilding Company.

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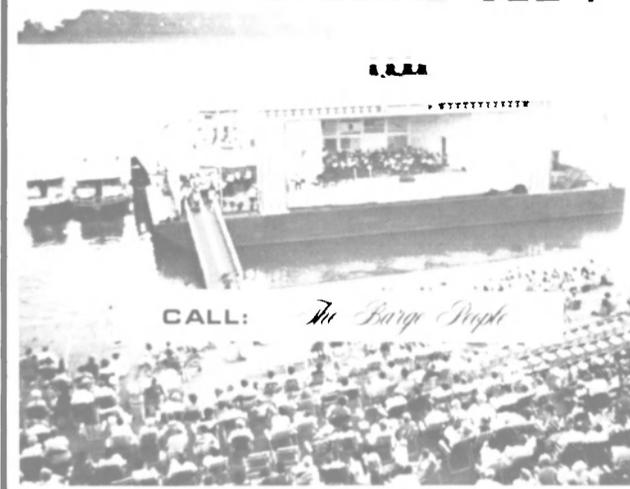
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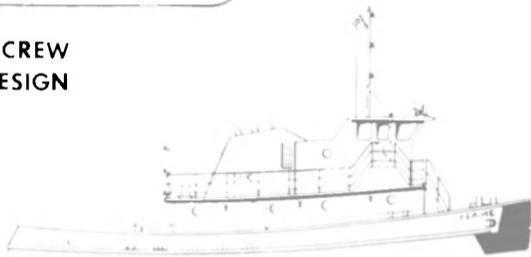
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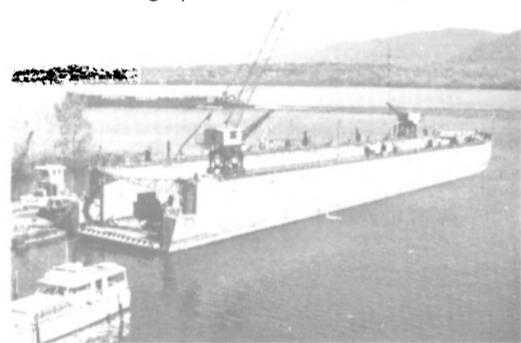
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- INGERSOLL-RAND, 35 UWC 441, Air, Winch S/N V369820
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w/50' Ladder Powered by 1275 HP CAT 398
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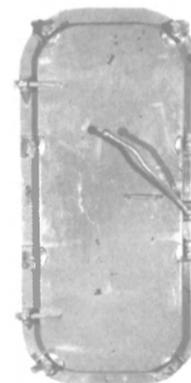
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4-150 HP-240 Volt DC Hoist Motors
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- 5) Steel plants

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AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW
230 DC.

200 HP DC Hoist Motor
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2-40 HP DC Gantry Travel Motors

Trolley Travel 275 F.P.M.
Gantry Travel 100 F.P.M.

Hoist Speed:
30 LT @85 F.P.M.
20 LT @100 F.P.M.
Empty Spreader 200 F.P.M.

32'0" Maximum Outstretch

Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

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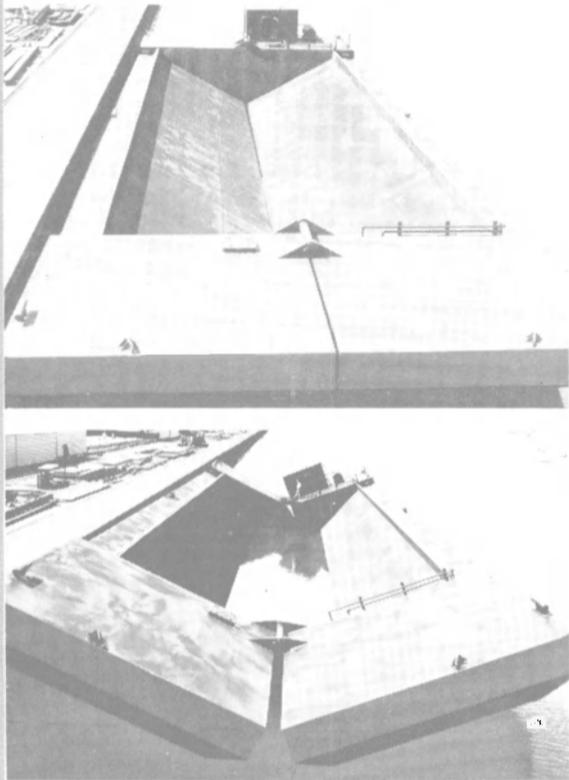
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SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (ML'D)	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"



American Crane Barge

BARGE DATA

Displacement Light	1,200 T.
Gross Tonnage	911
Net Tonnage	911
Length	151' - 6"
Beam	60' - 0"
Hull Depth	12' - 0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., 7/8" c - 6 x 36 I.P.S.
4 part standing standing bail	2,186 ft., 1 1/4" c - 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigg.)	
20 part rigging	3,250 ft., 1" c - 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., 7/8" c - 6 x 66 I.P.S.

Bulk Petroleum Barges

ZBO-260

Type: Ocean unmanned service - Grade "B" bulk cargo - Dunnaged deck for general cargo
 USCG: Documented with "Certificate of Registry" - Operating "oceans" - Official No.: 280390 - Net: 2045 - Gross: 2045 - Length: 260' - Breadth: 52.1' - Depth: 18.3

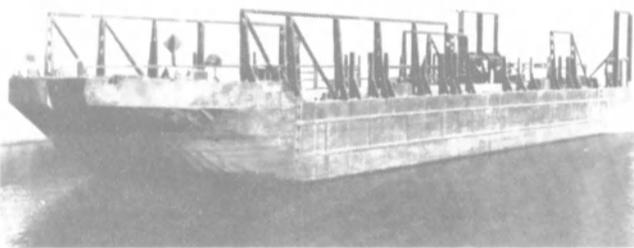
ABS: International Load Line (valid until 25 May 1983) Cert. No. 61-13,337-5

Aux. Machinery & Pumps: (1) Cornell deep well pump (6") starboard unit driven by one 6-71 G.M. diesel. (1) Fairbanks deep well pump. Port unit driven by one 3-71 diesel. (1) Hydraulic pump, alternator unit driven by one 3-71 G.M. diesel

Fill & Discharge Lines: 8" lines with 6" suction

Capacity: Eight tanks - 29,600 bbls

Deck Cargo Dwt. at Loadline: 4000 S.T



ZTB-601

Type: Ocean unmanned service - Grade "B" bulk cargo

USCG: Documented with "Consolidated Certificate of Enrollment and License" - Operating "oceans" - Official No.: 280356 - Net: 2286 - Gross: 2286 - Length: 257.5' - Breadth: 55.1' - Depth: 20.3

ABS: International Load Line (valid until 6 December 1984) Cert. No. 61-24, 479-2. Aux. Machinery & Pumps: (4) Bingham pumps - 8 x 14 VTX - 5 stage - cap. 600-1500 GPM - Type #F - 150 - driven by 4 GMC 6-71 diesels. (1) Diesel generator set - 5 K.W. - Lister - 2 cyl. - air cooled. Deck Derrick: (2) Booms & masts - one port and one starboard - rated 2240 lb. lift with two 2-ton winches. Fill & Discharge Lines: 6" fill and 6" discharge tying into 8" lateral lines. Aft Mast: (1) Stern loading and light mast. Capacity: 14 tanks - 38,900 bbls. (on USCG Certificate)



Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



ZPC-402 230' 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" ANSI 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:

Thomas A. Sherwood or
 Andy Canulette, Jr.



ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody Ave., Portland, Oregon 97201
 Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

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

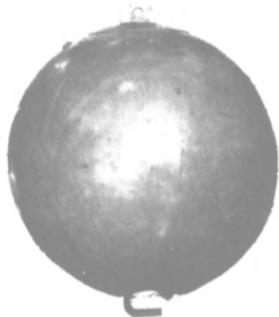
STANDARD STEAM WINCH CO., INC.
 Agents for The Crosby Group
 191 Van Vorst St., Jersey City, N.J. 07032 201/433-6974

ALUMINUM LIFEBOATS

50 Person—Oar Propelled—26' X 9' X 3' 10"
 23" Centers on hooks—empty wt 2740 lbs.—total wt with passengers 11,993. With ridge pole, spreader & cover. Mfg by Marine Safety Equipment Co. Maleco release gear. Type B-I. Simultaneous release both ends. USCG approved No. 160,033/52/0.

THE BOSTON METALS COMPANY

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



NEW — UNUSED SPHERICAL MOORING BUOYS

About 58" diam. With tieplates top & bottom. Est. wt 680 lbs each. 120 lbs submergence

CYLINDRICAL BUOYS

3 Available — 5 ft X 9 ft — with wood bumpers

THE BOSTON METALS COMPANY

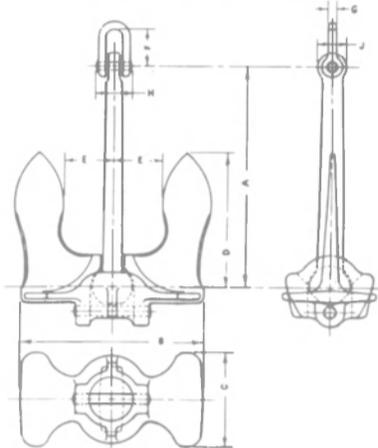
313 E. Baltimore St. Baltimore, Md. 21202
 Marine Warehouse (301) 752-1077

SYNCROLIFT DRYDOCKS AND TRANSFER SYSTEMS

Estimates at no cost or obligation
PEARLSON ENGINEERING CO., INC.
 P.O. BOX 8/MIAMI, FLA. 33156/(305) 271-5721
 TELEX: 051-9340/CABLE: SYNCROLIFT

ANCHORS — CHAIN

DETACHABLE LINKS
 PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
 3 EA. R.P. ANCHOR SHAX 3 7/8 STK, 3 7/8 PIN

NEW CHAIN

10 X 90 Ft. 3" DILOK CHAIN — ABS
 9 X 90 Ft. 2" DILOK CHAIN — ABS

NEW SWIVELS

3 EA. 2 5/8 — 3" E&E SWIVELS
 13 EA. 3 1/8 DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS

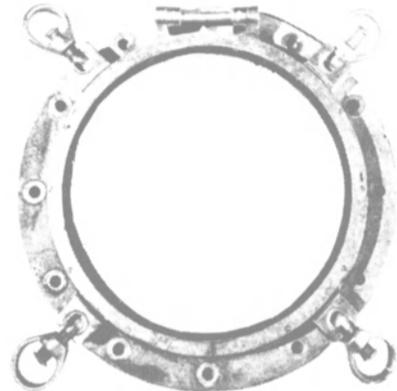
25 EA. #7 — 17 EA. #5

THE BOSTON METALS COMPANY

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

15 1/2" & 16" CLEAN BRASS 4-DOG MARINE PORTLIGHTS

15 1/2" CLEAR OPENING
 16" CLEAR OPENING



Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

THE BOSTON METALS COMPANY

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

250KW GM 12-V-71 DIESEL GENERATOR SETS

440/3/60/1800 — with free-standing switchgear. Generators manufactured by Electric Machinery Co. — E.M. Bemac — brushless — synchronized — keel cooled. CAN BE SEEN ABOARD ALCOA "SEAPROBE"

THE BOSTON METALS COMPANY

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

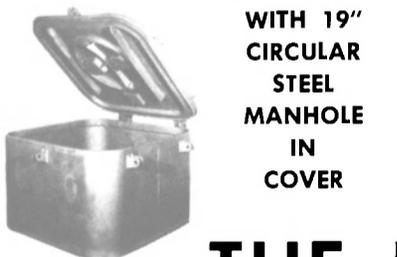
HATCHES, HATCHES and MORE HATCHES. WE'VE GOT' EM!



24" X 24" X 10"
 4-DOG



72" X 72" X 12"
 16-DOG



36" X 36" X 24"
 WITH 19" CIRCULAR STEEL MANHOLE IN COVER



NEW UNUSED FLUSH HATCHES

54" X 66"
 54" X 77"

14-Dog — operated from top side by T-key, with dogs marked to show open & closed positions.



24" X 30"
 30" X 30"

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



18" DIAM X 10" SCUTTLE



60" X 42" X 12"
 10-DOG



20" DIAM X 4" SPRING LOADED 4-DOG



42" X 42" X 9"
 7-DOG SPRING LOADED



24" X 24" ROUND QUICK-ACTING 4-DOG SCUTTLE



36" X 26" 7-DOG TANKER EXPANSION TRUNK

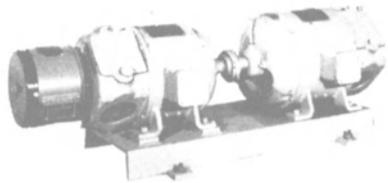
THE BOSTON METALS COMPANY

313 E. Baltimore St.

(301) 752-1077

Baltimore, Md. U.S.A. 21202

LOUIS-ALLIS M.G. SETS
2.5 KW — 115 Volts D.C. Input



2½ KW—115 volts—single phase A.C. output. GENERATOR: Type GNA—class 1G—Frame 28A—Form A—1800 RPM—5 KVA—2.5 KW 115 volts AC—60 cycle—50% PF—43.4 amps. MOTOR: Louis Allis—Type GNA—Class E—Frame 25A—Form A—1800 RPM—115 volts DC—32 amps—shunt wound (with attached Ward-Leonard speed reducer). Complete with Ward Leonard Controller S.O. 4227299—Serial No. 4227299-D12—frequency meter, volt meter, rheostat for motor and generator transfer switch.

ALSO WITH 230 VOLT D.C. MOTORS

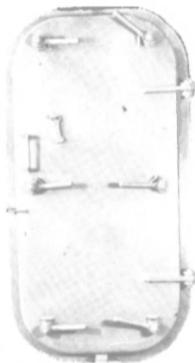
THE BOSTON METALS COMPANY

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

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.

SIZE

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

EACH DOOR

IMMEDIATE DELIVERY

NEW SMALL STEEL WATERTIGHT DOORS



24" X 36"

2-DOGS

5 Right Hand

2 Left Hand

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 27¼". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12" X 6½" PANAMA CHOCKS FOR SMALL VESSELS

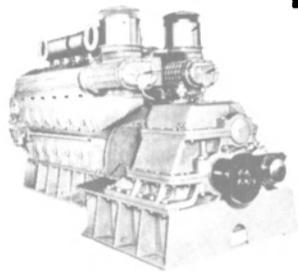


Closed chocks—12" X 6½" inside opening—23" overall outside—8" high—15" high—7" radius—weight 110 lbs. IN STOCK.

THE BOSTON METALS COMPANY

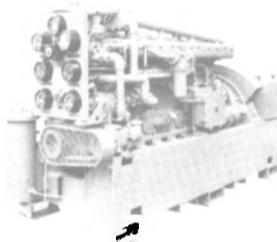
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Marine Warehouse (301) 752-1077

LST MACHINERY



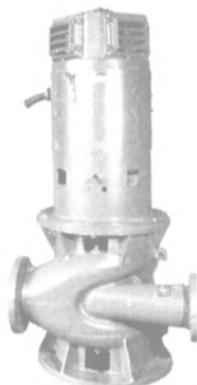
PORT & STARBOARD GM 12-567A 900 HP DIESEL ENGINES
with Falk reverse & reduction gears

ENGINE: GM 12-567A—8½X10—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.



100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl—5½X7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high—42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

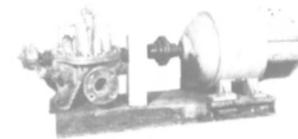


GARDNER-DENVER BALLAST PUMP

Bronze — 1500 GPM — 56' head or 25 lbs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40° T rise — stab. shunt — ballbearing — dripproof. Controls available.

TAILSHAFTS

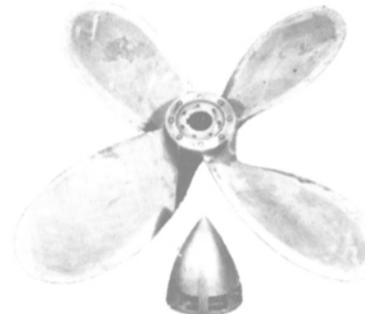
Diameter: 6 1/8" Length: 21' 2 5/8"



GOULD FIRE & BILGE PUMP

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

4-BLADE PROPELLERS
BRONZE — PORT & STARBOARD



7' Diameter—pitch constant 4.699. Bore tapers from 6 1/8" to 4 53/64". 14½" Taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2½ X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.

COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1½" X 1½")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1½") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40° C temp rise. Ball bearing.

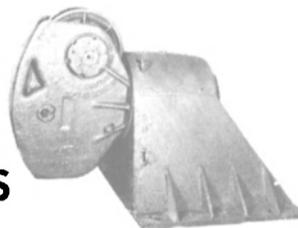
THE BOSTON METALS COMPANY

313 E. Baltimore St.

752-1077

Baltimore, Md. 21202

SURPLUS BERGER FAIRLEADS



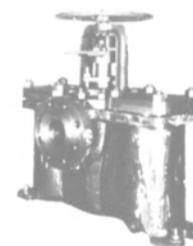
2 Model 620—for 1½" wire—20" sheave. Located San Francisco, Ca.

3 Model 614—for 1¼" wire—14" sheave. Located Panama City, Fla.

THE BOSTON METALS COMPANY

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

NEW-UNUSED 3" STEEL DUPLEX STRAINER



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

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Marine Warehouse (301) 752-1077

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R.W. Fernstrom & Company, 1716 Eleventh Avenue, Menominee, MI 49858
James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection

Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 1139KB), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44052
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment

Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
GMMC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205
Goff Corporation, One Pleasant Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning

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

BRAKES

Goodyear Aerospace (Industrial Brakes Division), Box 477, Berea, KY 40403

BROKERS

B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006
Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

BUNKERING SERVICE

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

CARGO TRANSFER & ACCESS EQUIPMENT

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

CHOCKING SYSTEMS

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

CLOCKS

Wempe Chronometerwerke Germany, Stubbenhuk 25 2000 Hamburg 11, Germany

CONTAINERS—Cargo Container Handling

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

CONTROL SYSTEMS—Monitoring

Arnesen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megsystems, Inc., 5909 West 130th Street, Cleveland, OH 44130
Seatronix Engineering & Mfg. Co., 1230 E. Joppa Rd., Towson, MD 21204
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS

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

CRANES—HOISTS—DERRICKS—WHIRLEYS

Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07037
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Pacoco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501

DECK MACHINERY—Cargo Handling Equipment

Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
Markey 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
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, KS 66115
Twin Disc, Incorporated, Racine, Wis. 53403

ELECTRICAL EQUIPMENT

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

EMULSIFICATION SYSTEMS

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

EQUIPMENT—Marine

ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P.O. Box 23602, New Orleans, La.
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Sudaimport, 5 Kalyevskaya, Moscow K-6, USSR
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

EVAPORATORS

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

EXPANDED METALS — METALS

Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974
Washington Iron Works, 1500 Sixth Avenue South, Seattle, WA 98134

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52
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 44052
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing

Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Salomon Brothers, One New York Plaza, New York, N.Y. 10004
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FURNITURE

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

GANGWAYS

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

HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment (Phocenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS

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

INERT GAS—Generators—Systems

ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Comar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredrikstad Mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022

INFORMATION—Marine

Maritime Data Network, 300 Broad Street, Stamford, CT 06901

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

JOINER—Watertight Doors—Paneling

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

KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44052

LADDERS

Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

LIFEBOATS & DAVITS

Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., 10-99 3901 North 29th Avenue, Hollywood, FL 33020
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

LNG CONTAINMENT

McDonnell Douglas Astronautics Co., 5301 Bolsa Ave., Huntington Beach, CA 92647

LUMBER

R.N. Templeman, Inc., 3000 Perdido St., New Orleans, LA 70119

MACHINE TOOLS

Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501
Republic-Lagun Machine Tool Co., 1020 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

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

MOORING SYSTEMS

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

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
Agemar, Avenida 3E No. 71 51, Edif. Acuario (Planta Baja) Apartado 1465, Maracaibo, Venezuela
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Jacksonville, Florida 32211
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

Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111

Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148

C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207

Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119

Designers & Planners, Inc., 82 Beaver Street, New York, NY 10005

Donhauser 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 Glaston Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104

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

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

Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505

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

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

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

James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133

Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460

Lucander Designs, P.O. Box 711, San Perla, TX 78590

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

MacClear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036

Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

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

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

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

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

Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403

Metricape, Inc., 33 Bradford Street, Concord, MA 01742

NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202

Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169

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

Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146

Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104

Ocean-Oil International Engineering Corporation, 3019 Mercedes 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

S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317

Pilotate 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.

Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130

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

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

Seaworthy Engine Systems, 36 Main Street, Essex, CT 05426

George G. Sharp, Inc., 103 Church St., New York, N.Y. 10007

T. W. Spetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2

R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235

Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963

Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320

Timco, 622 Azalea Road, Mobile, AL 36609

Corning Townsend III, 18 Church St., Georgetown, CT 06829

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

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

Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744

Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02051

Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126

XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT

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

Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746

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

Dantronics Company, P.O. Box 204, Boca Raton, FL 33432

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

EPSCO, Inc., 411 Providence Highway, Westwood, Mass. 02090

Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94060

Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801

Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610

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

Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631

ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, Palm Coast, FL 32037

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

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

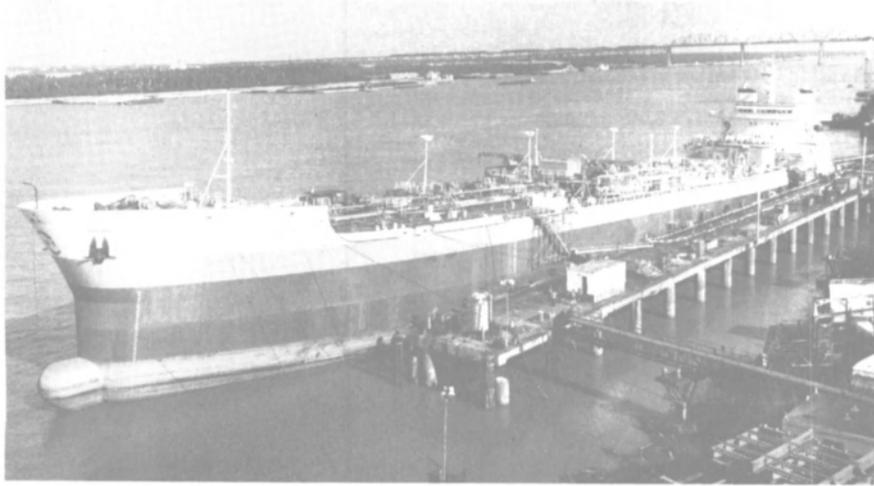
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401

Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729

Navidvne Corp., 11824 Fishing Point Drive, Newport News, VA 23606

- Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
- North American Phillips Communication Corp., 91 McKee Road, Mahwah, N.J. 07430
- RCA Service Co., Building 204-2, Camden, N.J. 08101
- 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
- Rockwell International, Collins Telecommunications Products Division, Cedar Rapids, IA 52405
- Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
- Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
- Texas Instruments Inc., P.O. Box 226080, M/S 3107, Dallas, TX 75265
- Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721
- OILS—Marine—Additives**
- B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
- Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
- Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
- Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
- Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015
- 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 Lindwood Avenue, Ft. Lee, NJ 07024
- Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
- Sigma Treatment Systems, 603 Dean St., Brooklyn, NY 11238
- PAINTS—COATINGS—CORROSION CONTROL**
- Belzona Molecular Metalite Inc., 224 7th Street, Garden City, NY 11530
- "CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
- Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
- Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
- International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
- Jotun-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21230
- Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
- The Skybryte Co., 3125 Perkins Ave., Cleveland, OH 44114
- PETROLEUM SUPPLIES**
- Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015
- Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
- PIPE—HOSE—Cargo Transfer, Clamps, Couplings**
- Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
- Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
- 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
- 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
- Alstom-Atlantique, 2 quai de Seine, 93203 Saint-Denis, France
- 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
- Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004
- Caterpillar Tractor Company, Engine Division, Peoria, IL 61629
- Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
- Combustion Engineering, Inc., Windsor, Connecticut 06095
- Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525
- Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644
- General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
- MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
- Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
- Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
- Motive Power Corp., P.O. Box 365, Mineola, NY 11501 70124
- Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
- Oosterhuis Industries, P.O. Box 30587, New Orleans, LA 70190
- Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
- Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
- Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
- Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
- Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073
- Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
- Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
- Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 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
- PUMPS—Repairs—Drives**
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- Transamerica DeLaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
- Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083
- REFRIGERATION—Refrigerant Valves**
- Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
- Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
- ROPE—Manila—Nylon—Hawsers—Fibers**
- American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
- Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
- Tubbs Cordage Company, Orange, CA 92668
- RUDDER ANGLE INDICATORS**
- Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
- Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
- Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
- Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
- SANITATION DEVICES—Pollution Control**
- Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
- Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford IL 61111
- Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
- Microphor, Inc., P.O. Box 490, Willits, CA 95490
- Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
- Research Products/Blankenship, 2639 Andjan, Dallas, Texas 75220
- St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
- Sigma Treatment Systems, 603 Dean Street, Brooklyn, NY 11238
- SCAFFOLDING EQUIPMENT—Work Platforms**
- Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024
- Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055
- Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707
- SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT**
- Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02031
- Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
- Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- SHIPBREAKING—Salvage**
- American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210
- The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
- Levin Metals Corporation, 1310 Canal Blvd., Richmond, CA 94807
- Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201
- SHIPBUILDING STEEL**
- 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.), Maatschappij 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 Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
- Astilleros Unidos de Veracruz, S.A., San Juan de Uluva S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
- Avondale Shipyards, Inc., P.O. Box 52030, New Orleans, La. 70150
- Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
- Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
- Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
- Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
- Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231
- Canterri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
- Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
- Centromar, One World Trade Center, Suite 3557, New York, N.Y. 10048
- China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
- Conrad Industries, P.O. Box 790, Morgan City, La. 70380
- Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
- Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004
- Delattre-Levivier, Tur Fiat, Cedex 16, 92084 Paris La Defense, France
- 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
- Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
- 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
- Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
- Havre de Grace, Havre de Grace, Md.
- Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
- Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
- Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
- Jackson/Engineering Company, Inc., 2945 Richmond Terrace, Staten Island, NY 10303
- Jeffboat, Inc., Jeffersonville, Ind. 47130
- Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4
- Kockums Shipyard, S.201, 10 Malmo 1, Sweden
- 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
- Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012
- Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
- Mattson Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
- Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
- Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701
- Monark Boat Co., P.O. Box 210, Manticello, Ark. 71655
- Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
- National Steel & Shipbuilding Corp., San Diego, Calif. 92112
- Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
- Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
- North American Hydraulics, P.O. Box 278, Brampton, Ontario Canada L6V 2L1
- O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
- Paceco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
- Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
- Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
- Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
- Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012
- Port of Portland, P.O. Box 3529, Portland, OR 97203
- Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
- S.E.B.N., Societa Esercizio Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy
- St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
- STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783
- Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
- Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175
- The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308
- Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal
- Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
- Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR
- Sun Ship Inc., Chester, PA 19013
- Swiftships Inc., P.O. Box 1903, Morgan City, LA 70380
- Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
- Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
- Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
- Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
- Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
- Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
- Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
- Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904
- Zigler Shipyards, P.O. Box 2607, Morgan City, La. 70380
- SHIP STABILIZERS**
- Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
- 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. Cracco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
- Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038
- TANK CLEANING**
- Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
- Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
- Salwico, Inc., 77 River St., Hoboken, N.J. 07030
- TANK LEVELING INDICATORS**
- Transamerica DeLaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032
- Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017
- Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042
- TECHNICAL MANUAL PREPARATION**
- Benhof, Inc., 2468 N. Jerusalem Road, N. Bellmore, NY 11710
- TERMINALS—Oil-Transfer**
- Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614
- Delong Corp., 29 Broadway, New York, N.Y. 10006
- Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottesville, VA 22903
- TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.**
- Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
- Chatin 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
- Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
- James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
- McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
- McDonough Marine Service, P.O. Box 26206, New Orleans, La.
- Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
- Ocean Salvors Company, One World Trade Center, New York, NY 10048
- Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
- Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305
- TRAINING SERVICES—Simulator**
- Ship Analytics, Park Circle, Centerport, NY 11721
- UNDERWATER SERVICES—Contracting**
- SeaTec International Ltd., Blackburn Industrial Center, Gloucester, MA 01930
- VALVES AND FITTINGS**
- 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
- Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
- Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208
- Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222
- Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
- Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
- Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
- Winel of America, Inc., 16014 Cowley Road, Grafton, OH 44044
- WATER PURIFIERS**
- Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
- WINCHES AND FAIRLEADERS**
- Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644
- Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027
- Gearmatic Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada
- Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
- Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134
- 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
- ZINC**
- Smith & McCracken, 153 Franklin St., New York, N.Y. 10013

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



Christening ceremonies were held recently at Avondale Shipyards for first of three integrated tug/barge units currently being built there. Named the *Oxy Trader*, the vessel is said to be first catamaran tug/barge for transocean trading.

First Of Three Catug/Barge Units Christened At Avondale Yard

Christening ceremonies were held recently at Avondale Shipyards near New Orleans for the first of three integrated catug/barge vessels currently under construction there for use by Occidental Petroleum Corporation. The *Oxy Trader* is designed to carry phosphoric acid and other liquid chemicals in six stainless-steel center tanks, and petroleum products in 10 wing tanks.

Mrs. Cynthia Dorgan, wife of John J. Dorgan, executive vice president-finance and administration of Occidental Petroleum, was the vessel's sponsor. Mrs. Barbara Culhane assisted as matron of honor; she is the wife of John H. Culhane, vice president-planning and business development for Occidental.

The *Oxy Trader* has an overall length of 677 feet 4 inches, beam of 99 feet, depth to main deck of 50 feet, and design draft of 36 feet. Deadweight at design

draft is approximately 39,500 long tons. The catug is powered by twin Colt-Pielstick PC2.5V400 diesel engines built by Fairbanks Morse, each with a maximum continuous rating of 9,100 bhp, driving two 20-foot-diameter propellers. Speed on sea trials at 85 percent of mcr was about 15.5 knots.

The new vessel is one of 10 Catug units currently under construction in the United States. Occidental Petroleum will use the *Oxy Trader* in its worldwide chemical and petroleum trade. Only two Catug units, the *Seabulk Challenger* and the *Seabulk Magnaches*, built in 1974 and 1976, respectively, for Seabulk Corporation, an affiliate of Hvide Shipping, Inc., have been in operation, serving the U.S. Gulf Coast.

The Catug system, developed by Hvide Shipping, which holds a license to patent rights on the



Principal participants at *Oxy Trader* christening were (L to R): Mrs. Barbara Culhane, matron of honor; Albert L. Bossier Jr., president of Avondale; Mrs. Cynthia Dorgan, sponsor; John J. Dorgan, executive vice president-finance and administration, Occidental Petroleum Corporation; the Honorable Lindy (Mrs. Hale) Boggs (D-La), House of Representatives; and M. Lee Rice, president and chief executive officer of Ogden Transportation, shipping subsidiary of Ogden Corporation.

design, is an integrated catamaran type tug and barge combination designed for efficiency, all-weather performance, and speed similar to conventional vessels. However, the combination of twin-screw, dual propulsion units substantially reduces operating costs and is more maneuverable than conventional vessels.

Other principals involved in the *Oxy Trader* christening ceremony included Albert L. Bossier Jr., president of Avondale Shipyards, Inc., who presided over the ceremony, and Mr. Dorgan, who delivered the principal address. Miss Dawn Stieffel, daughter of Mr. and Mrs. Kenneth Stieffel, served as flower girl. The position of flower girl is traditionally given to the daughter of an Avondale

employee. Miss Stieffel's father is employed in the Sheet Metal Shop at the Main Plant.

Avondale Shipyards, Inc. is a subsidiary of Ogden Corporation, which operates in the major markets of metals, transportation, and food. Although principally a shipbuilder, Avondale is a diversified company with facilities that include repair yards, a foundry, a special products division, steel sales, and a facility near the Gulf at Bayou Black, La., that builds offshore drilling rigs.

Occidental Petroleum is a major producer and distributor of chemicals for agricultural, consumer, and industrial markets. The multinational company is under the leadership of board chairman Armand Hammer.



Officers and authors at recent SNAME Pacific Northwest Section meeting (L to R): J. Butler, past Section chairman; C. Daley, coauthor; P. Noble, coauthor; B. Lundgaard, coauthor; T. Dyer, coauthor; R. Banning, sections committee; L. Coward, Section chairman; and C. Morris, assistant secretary-treasurer, B.C. area.

SNAME Pacific Northwest Section Holds Meeting In Canada

The Pacific Northwest Section of The Society of Naval Architects and Marine Engineers held its fall 1980 meeting at Harrison Hot Springs, British Columbia, Canada. The meeting introduced the new officers: Les Coward, CCS Marine Associates, Ltd. of Vancouver, chairman; Bruce H. Adey, University of Washington, secretary-treasurer; executive board consists of George Salisbury, John T. Mitchell, and Gerald Talbot. The vice presidents include: Thomas Dyer, Foss Shipyard, for Puget Sound Area; Ronald B. Thicke, R.B. Thicke Engineering, Ltd., for B.C. Area; and Donald R. Stevens, Northwest Marine Iron Works, for Columbia River Area.

The paper on "Safe Shipping in the Arctic," by P. Noble and E. Daley, Arctec Canada, Ltd., started by presenting the history of arctic shipping as being exploratory. Even up through the present this has not changed much, except the ships are get-

ting more sophisticated. With interest growing in arctic shipping, more problems have been encountered. Some of these include the properties of ice under different conditions; material deterioration due to the environment, and people working in arctic environment.

The paper on "Noise Control on Diesel Tugs," by T. Dyer, Foss Shipyard, and B. Lundgaard, DLI Engineering Corporation, reviewed basic noise control problems. The authors then went on to show how the present methods can be used. Construction techniques, arrangement, and materials can be used to reduce noise to personnel. An example of a backfit was shown for its improvements in noise control. Examples were also cited of new construction showing what noise levels can be maintained. Because of the design requirements of tugs, i.e., high horsepower in a small hull, noise control should be considered in the design.



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There's also something else you should know about HRD. We're a joint venture between Hitachi Zosen of Japan and Robin Shipyard (Pte.) Ltd. of Singapore. This means you benefit from Hitachi Zosen's world famous ship repair technology as well as from the convenience of the Singapore facility and location.

In addition, our 170,000 DWT and 300,000 DWT drydocks are presently

working at extreme efficiency. So we're not only more repair-ready now than ever, but we're also installing IGS and COW Systems to assist ship owners and operators in meeting the most recent IMCO regulations. Our technical expertise even allows us to build a number of tugs and barges for many overseas companies.

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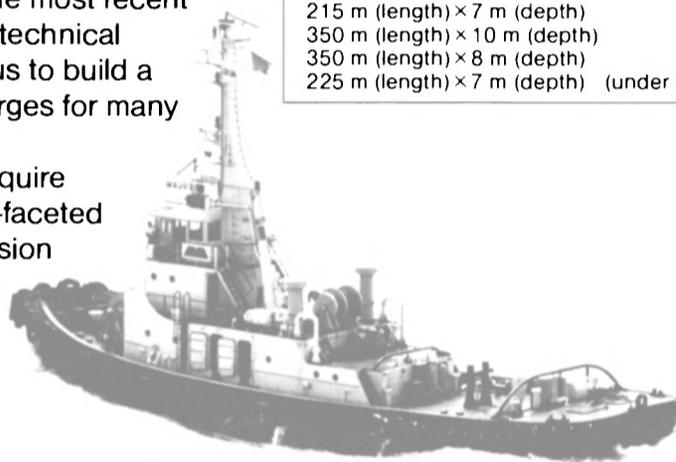
Drydocks:

No. 1 350 m (length) × 60 m (width) × 11.5 m (depth)
Maximum ship size 300,000 DWT

No. 2 300 m (length) × 60 m (width) × 11.5 m (depth)
Maximum ship size 170,000 DWT

Quays:

215 m (length) × 7 m (depth)
350 m (length) × 10 m (depth)
350 m (length) × 8 m (depth)
225 m (length) × 7 m (depth) (under planning)



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working at extreme efficiency. So we're not only more repair-ready now than ever, but we're also installing IGS and COW Systems to assist ship owners and operators in meeting the most recent IMCO regulations. Our technical expertise even allows us to build a number of tugs and barges for many overseas companies.

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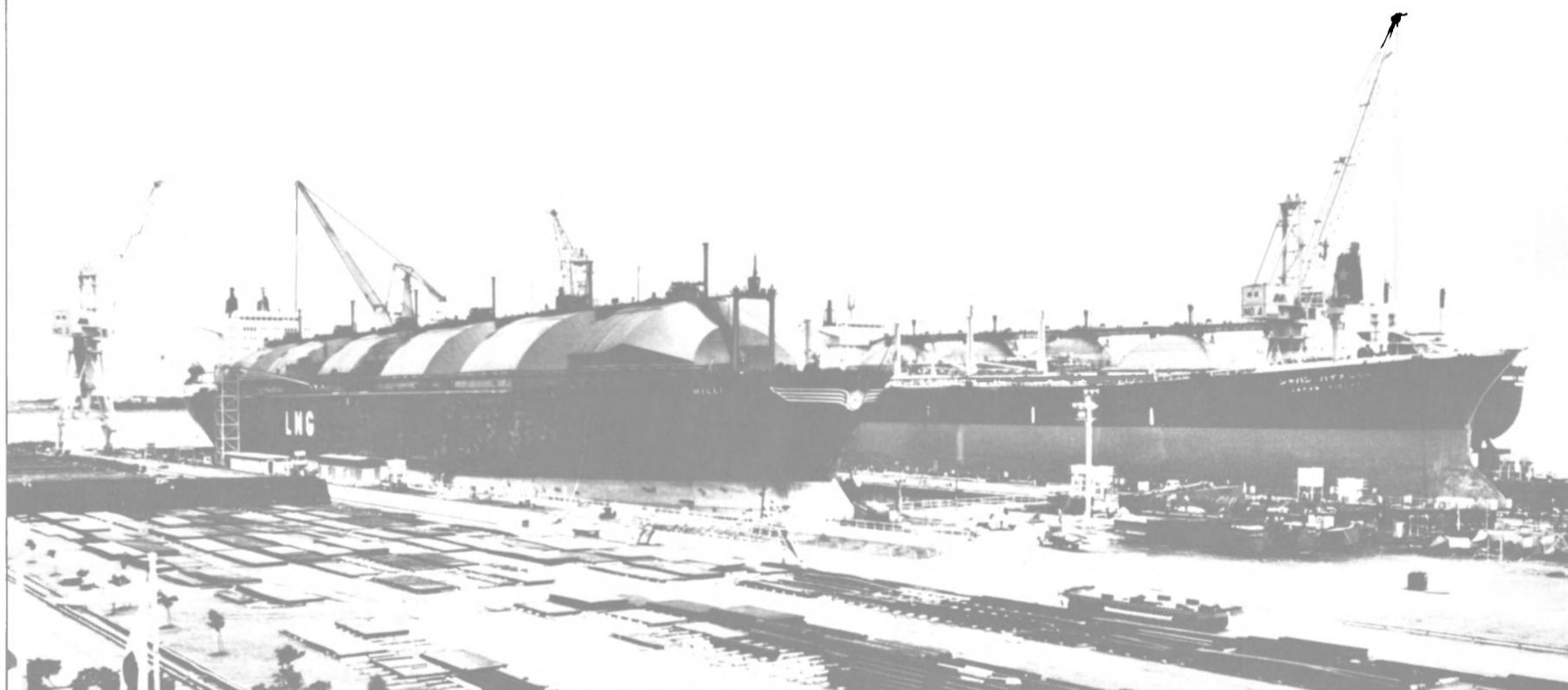
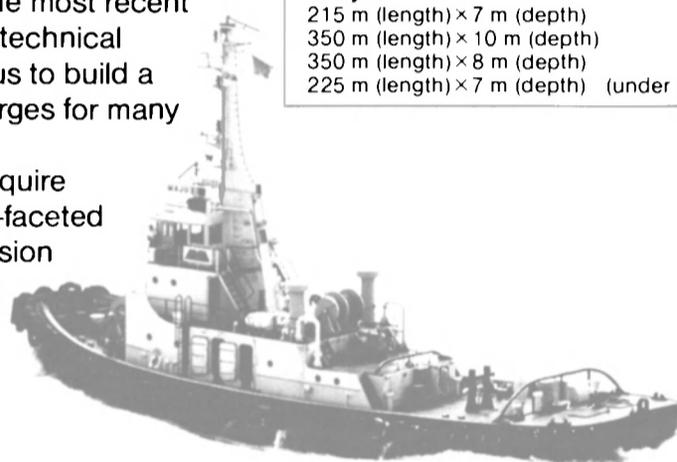
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Maximum ship size 300,000 DWT

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Quays:

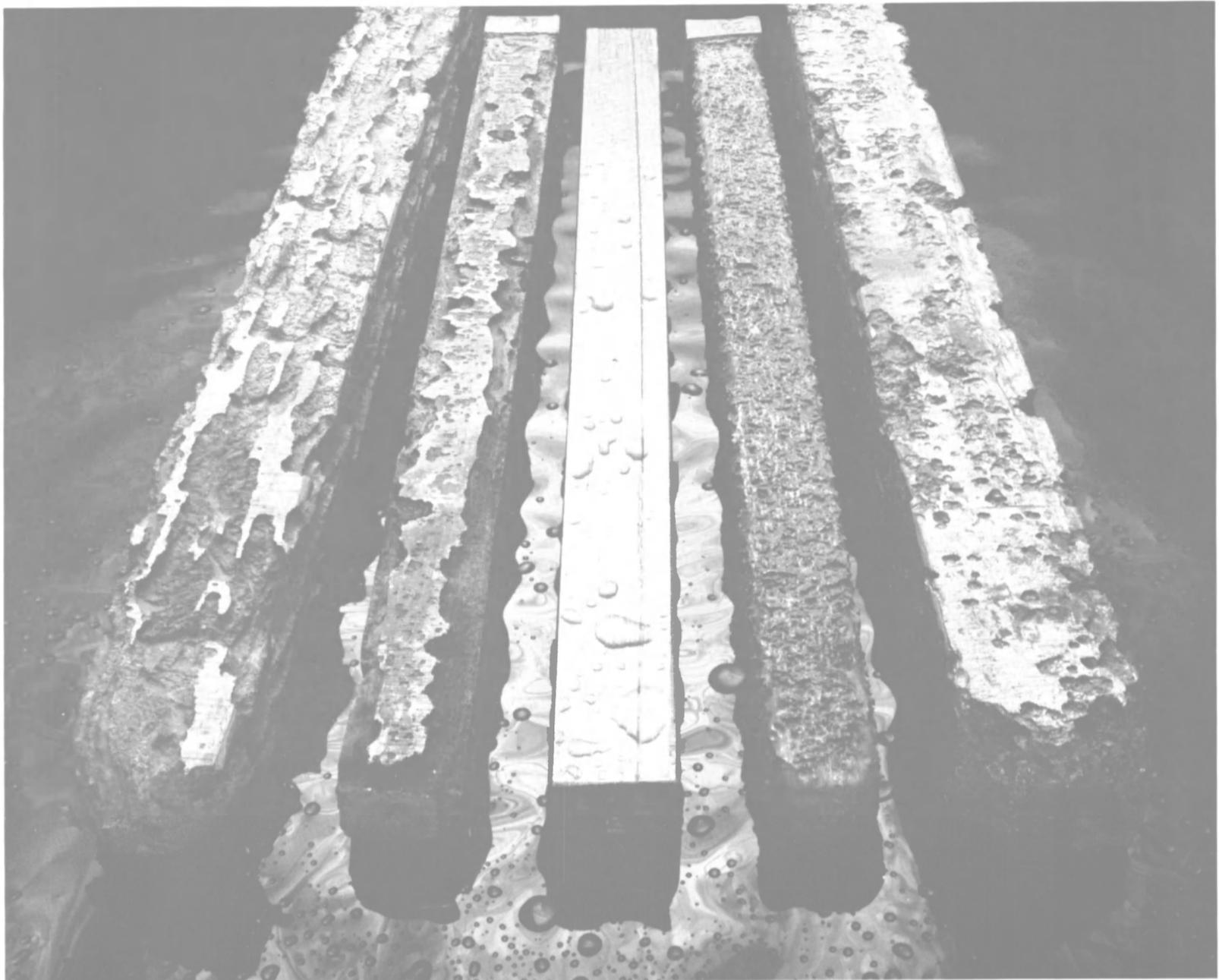
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