

MARITIME REPORTER

AND
ENGINEERING NEWS



Todd's New Dry Dock Under Tow

**Bender Delivers
14,400 Ton Dry Dock
To Todd Houston**

(SEE PAGE 4)

**A Preview
National Maritime
Show**

(SEE PAGE 4)

MARCH 1, 1983



Through hell and high water.

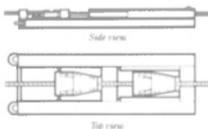
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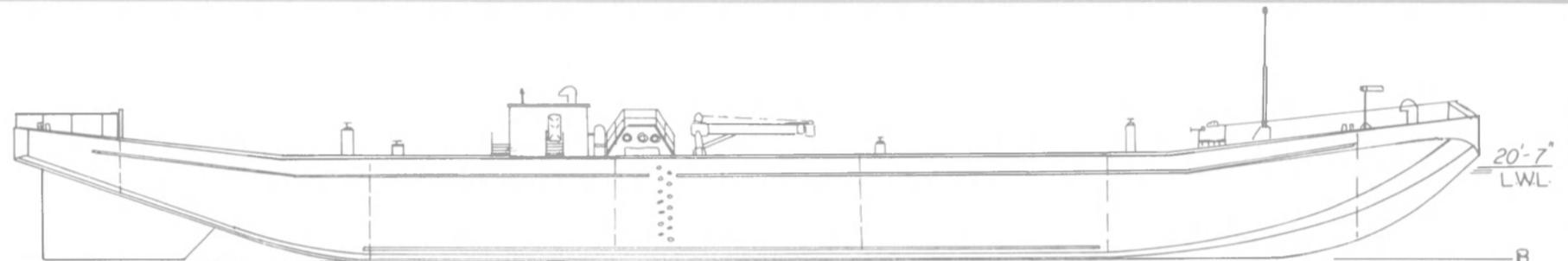


Marine/Energy Division

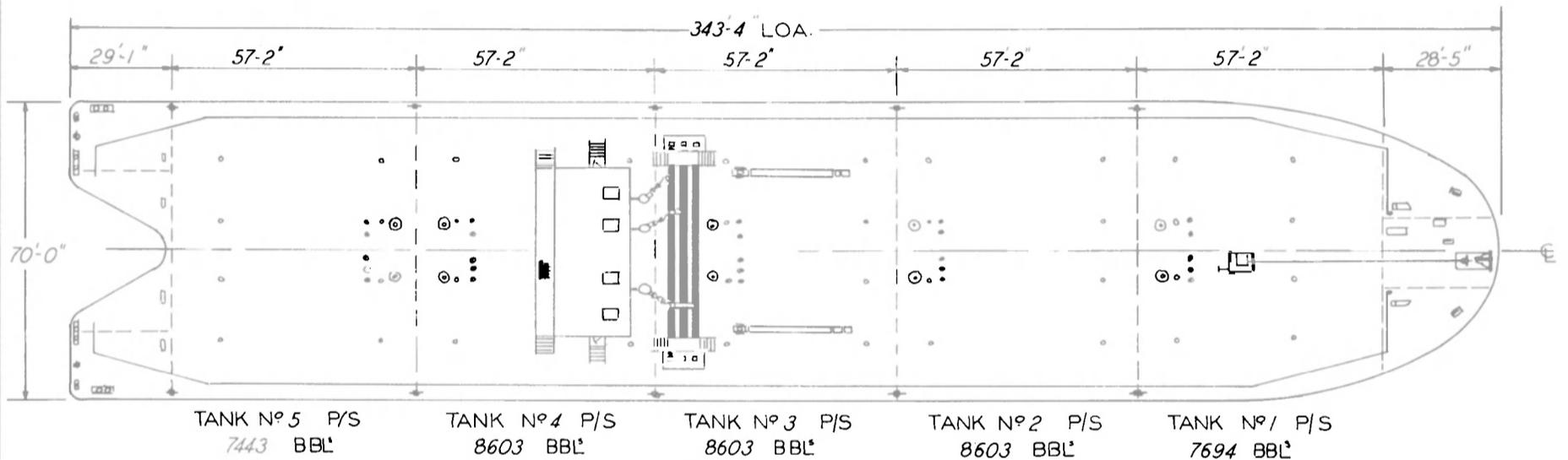
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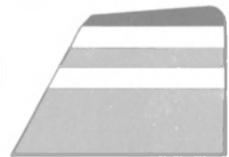
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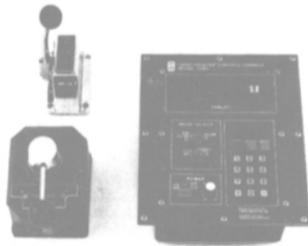
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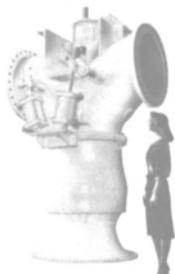
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ON THE COVER

Bender Delivers New Drydock To Todd Houston

(SEE PAGE 8)

— Preview — National Maritime Show

(PAGE 46)

\$117-Million Navy Contract For Second Fleet Oiler Awarded Avondale

Ogden Corporation announced recently that the U.S. Navy awarded a second fleet oiler (TAO) to Avondale Shipyards, Inc., an Ogden subsidiary, at a cost price of approximately \$117 million.

In November 1982, the Navy awarded the first TAO to Avondale and took an option through the fall of 1984 for up to four additional TAOs. The Navy retains its option on the remaining three ships.

Both vessels will be built at Avondale's main yard, near New Orleans, La., and construction of the two ships will begin in 1984, with the delivery of the first TAO scheduled for early 1986 and the second, four months later.

The contracts provide for escalation related to costs of labor and materials.

\$4.9-Million Increase To LCAC Support Contract Awarded To Bell Textron

Bell Aerospace Textron, New Orleans, La., has been awarded a \$4,908,760 face-value-increase to a previously awarded cost-plus-fixed-fee contract for a modification increasing the level effort for Navy systems trials support for the Jeff Craft in support of the Landing Craft Air Cushion (LCAC) program. Work will be performed at New Orleans (6 percent) and in Panama City, Fla. (94 percent). The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-81-C-2062).

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Editorial and Executive Offices
107 East 31st Street, New York, N.Y. 10016
(212) 689-3266
ITT Telex: 424768 MARINTI

PUBLISHERS

John E. O'Malley
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SALES OFFICES

New York, New York

Maritime Reporter & Engineering News
107 East 31st Street
New York, NY 10016
Telephone: (212) 689-3266

Houston, Texas

Robert Hawley
Gary Lindenberger
11777 Katy Freeway, Suite 155
Houston, TX 77079
Telephone: (713) 870-0470

Italy

Mr. Vittorio F. Negrone
Ediconsult Internazionale
Piazza Fontane Marose
3 - 16123 Genova, Italy
Telex: 211197 EDINT 1

Scandinavia

Mr. Stephan R G Orn
Ab Stephan R G Orn
Box 106, S-271 00 Ystad, Sweden
Telex: 33335 ORN S

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

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Telex: MARINTI 424768

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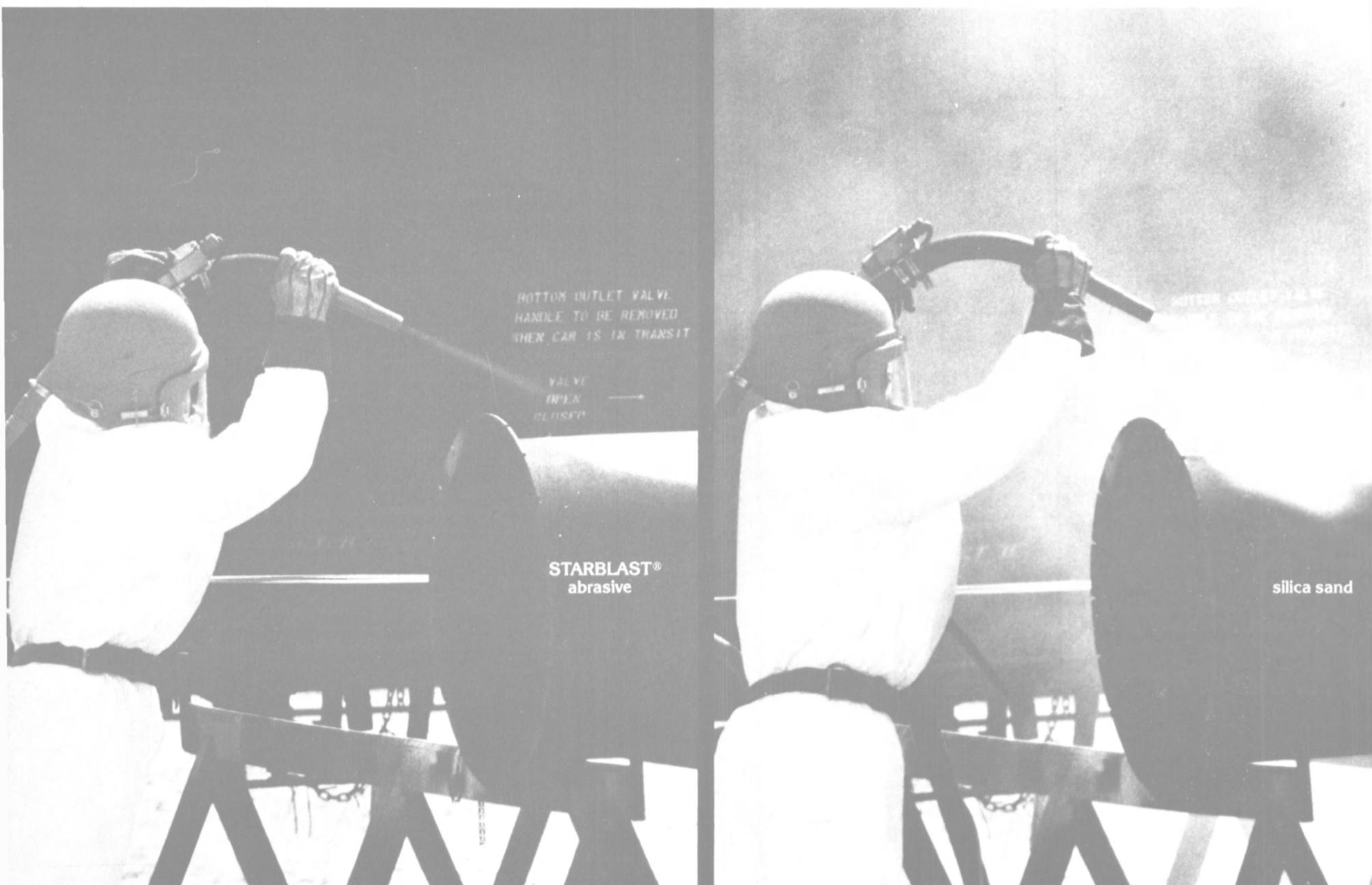
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No. 5

Volume 45

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MR

Rivera, Willis Join Staff Of Designers & Planners

Nicholas N. Rivera and James A. Willis recently joined the staff of Designers & Planners, Inc. (D&P), a firm of naval architects and marine engineers with headquarters in Washington, D.C., and offices in Philadelphia and San Diego. Ferd Serim, president of the company, announced the appointments.

Mr. Rivera will serve as director of electrical engineering. He will be responsible for the coordination and management of design projects, feasibility and evaluative studies, technical documentation, and all support work in electrical systems for Navy and commercial ships.

Mr. Rivera was previously head, submarine branch, submarine and systems analysis division, NAVSEA, where he was

responsible for supervising all electrical life cycle engineering for submarines. This included all phases of design, construction, and maintenance of submarine electrical systems.

Mr. Willis has been appointed assistant director of marine engineering at D&P. He will be responsible for technical management and design integration, involving propulsion, auxiliary, fluid, and deck systems. Mr.

Willis will report to Richard Carleton, D&P's director of marine engineering.

Mr. Willis has been employed for the past 16 years as a marine engineer with the Naval Sea Systems Command and its predecessor organizations. His most recent assignment was as section head of the machinery systems in the systems engineering division of the Ship Design Directorate.

\$238.6-Million Contract Modification To Ingalls For Aegis Cruisers

Ingalls Shipbuilding Division, Litton Systems Incorporated, Pascagoula, Miss., has been awarded a \$238,681,000 contract modification for long lead time material and equipment for FY-83 AEGIS cruisers. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-81-C-2049).

American Lohmann Offers Free Literature On Mobile Gearboxes

American Lohmann Corporation, Hillside, NJ, is offering free literature on their mobile gearboxes. These units are available with output torques to 3.7 million foot pounds with ratios to 500:1.

Track drives, swing gears and wheel motors used with hydraulic or electric motors are extremely compact. Available design options include brakes, dual inputs, right angle inputs, and choice of mountings.

Winch drives can be supplied with drum and supporting frame. Pump splitter boxes distribute power to several hydraulic pumps. Carburized, hardened precision-ground gears assure maximum strength and reliability.

For additional information and free literature on American Lohmann's mobile gearboxes,

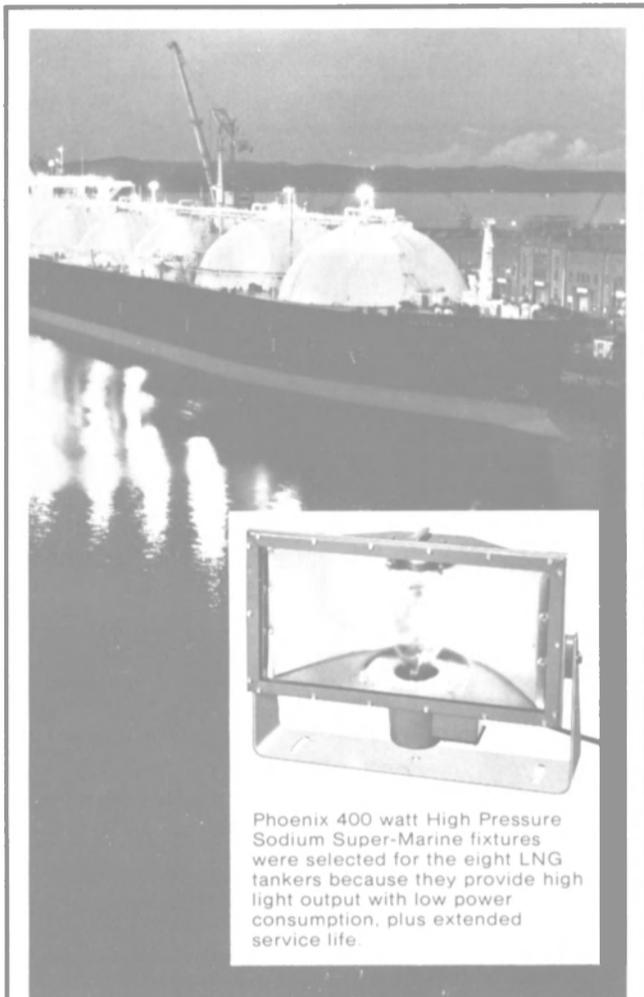
Write 39 on Reader Service Card

E-Systems Receives New Navy Orders—Valued At \$20.1-Million

E-Systems Incorporated, Communications Manufacturing Division, St. Petersburg, Fla., has received new U.S. Navy orders totaling \$20.1 million for continued production of AN/WSC-3 "whiskey-3" UHF shipboard communications terminals.

The order represents the fourth year's portion of a five-year contract awarded by the Naval Electronics Systems Command in early 1980. Total orders to date under the program are about \$70 million.

The terminals provide long-haul tactical communications through the Department of Defense Fleet Satellite Communications System and also provide line-of-sight communications capability with other ships and aircraft. Some units have only line-of-sight communications capability.



Phoenix 400 watt High Pressure Sodium Super-Marine fixtures were selected for the eight LNG tankers because they provide high light output with low power consumption, plus extended service life.

PHOENIX® SUPER-MARINE® Fixtures light up "ZODIAC" Fleet

The LNG *Taurus*, shown here, is a visual tribute to the joint efficiency of Phoenix's "CALL" (Computer Aided Lighting Layout) service and the Super-Marine fixtures used to implement it.

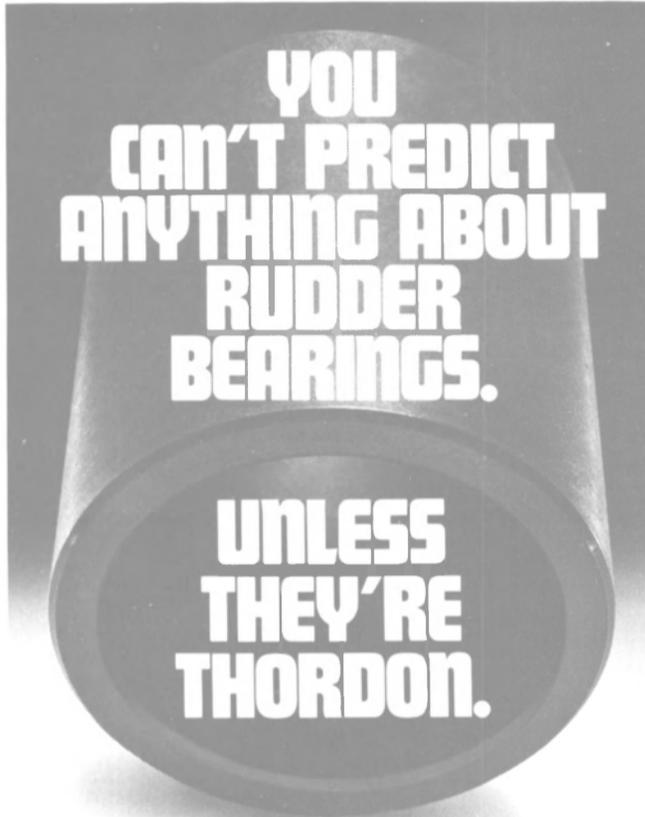
In addition to the *Taurus*, Phoenix has similarly retrofitted her seven sister ships plying the Far Eastern LNG trade, including the LNG *Aries*, *Aquarius*, *Gemini*, *Leo*, *Capricorn*, *Libra* and *Virgo*.

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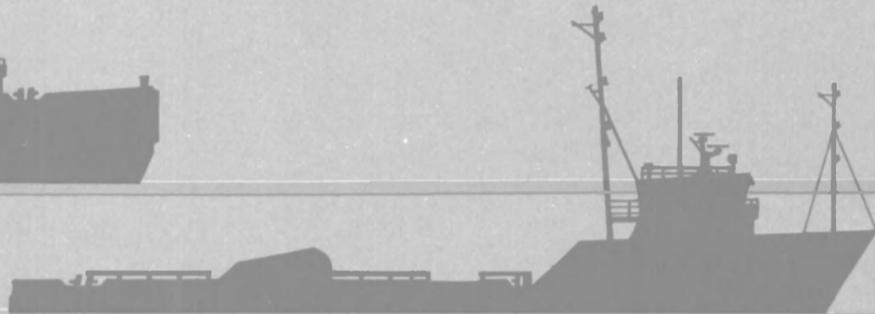
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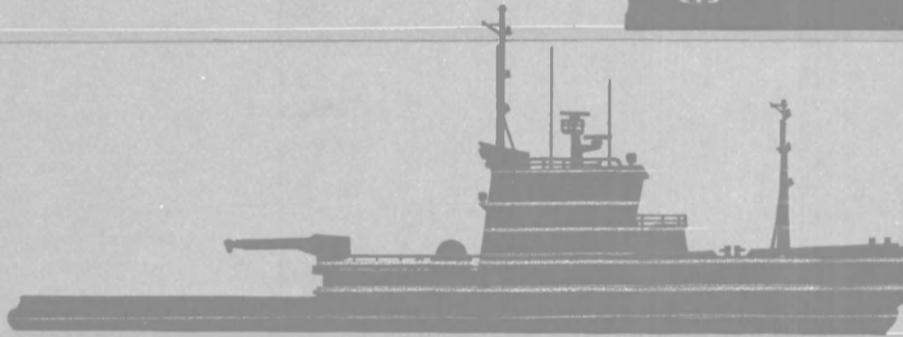
150' Tug



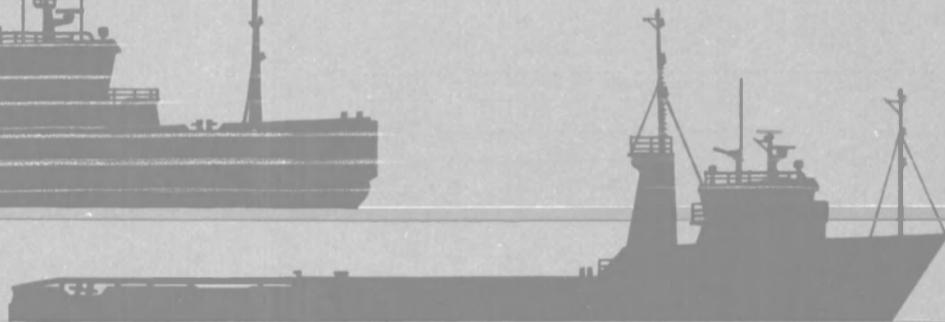
114' Utility-Supply



173' Supply



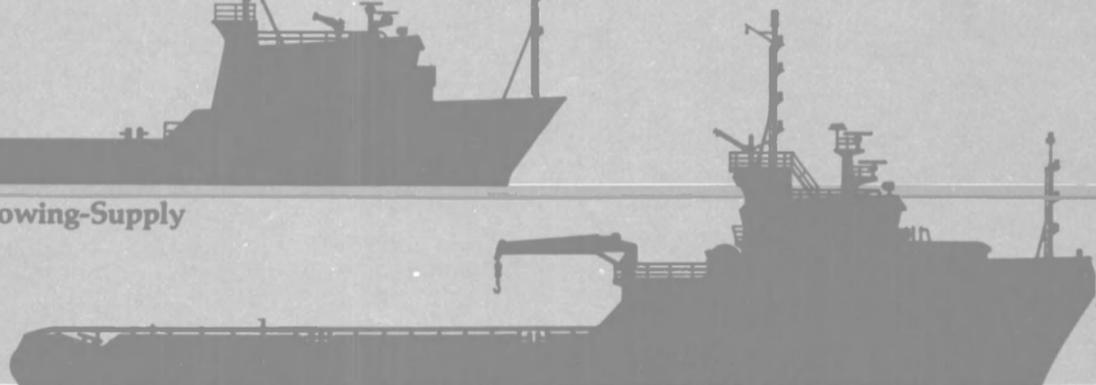
178' Tug



186' Towing-Supply



200' Towing-Supply



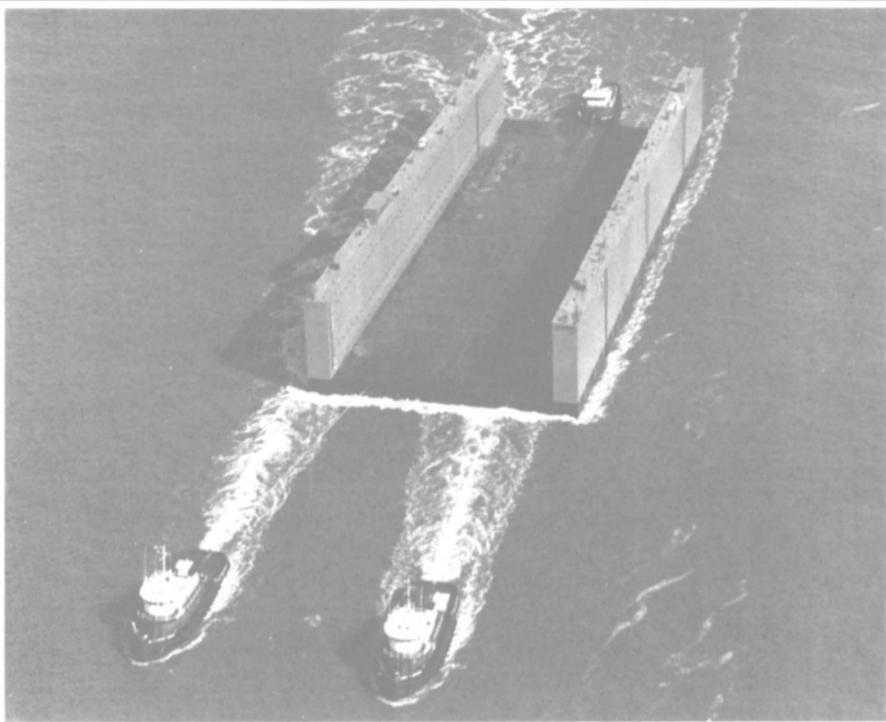
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ON THE COVER



Todd Houston Accepts Delivery Of New Drydock From Bender

Delivery of a new 14,000-ton-lifting-capacity drydock, built for Todd Shipyards Corporation, New York, N.Y., by Bender Shipbuilding and Repair Company, Mobile, Ala., was made recently during ceremonies at the builder's facility to Todd president **Hans K. Schaefer**.

The new drydock will be installed at Todd's Houston Division, strategically located on the Houston Ship Channel.

The new dock is one of the largest floating drydocks built in the United States in recent years, a design reflecting the latest state-of-the-art.

The 397-foot long, by 148-foot wide, by 59-foot, six-inch overall height, continuous wing sectional-pontoon dock was classed by the American Bureau of Shipping, and has an impressive lifting capacity of 14,400 long tons.

Tom Bender Jr., president of the shipbuilding company, notes "there are some distinct design characteristics of this dock worthy of mention. First, the dock is a 'Rennie type,' consisting of continuous wingwalls joined to four separate pontoons at the pontoon deck."

"Because of this sectional construction and excellent longitudinal rigidity, any individual pontoon may be disconnected and drydocked on the remaining sections, thus the dock is self-docking and capable of being maintained entirely at its location."

The entire dock is sectioned into 16 water ballast tanks which, through appropriate ballasting

allows the dry docking of vessels of a variety of sizes and shapes without exceeding ABS limits.

"In addition to this stability optimization, the dry dock features rapid de-ballasting through two pumps in each of the 16 tanks," explains Bender chief engineer, **John Cheek**, "and it's a very flexible, safe and efficient technique. Each tank also has a cross-connect valve which can be opened in the event of pump failure, allowing greater flexibility."

The drydock is also outfitted with a continuous water-tight safety deck along both wing walls. With all tanks filled to the vents, the dock will remain afloat with a suitable wingwall freeboard of five feet, six inches.

The ABS rated pontoon freeboard is 12 inches at the 14,400 long ton lift capacity noted the chief engineer. The ABS minimum freeboard is three inches at a 15,600 long ton lift capacity.

The drydock has King mercury manometer gauges for reading the water level in each tank and also the exterior draft at six places, port and starboard at midships and at each extreme end.

There is a dock deflection monitoring system on top of each wingwall to enable the dockmaster from over stressing the structure when loading the dock.

Four 24-inch capstans and two 16-inch capstans are installed for ship handling. Additionally, there are 30-inch cleats and 8-inch bits spaced along the top deck of the wingwalls.

Special "T" section mooring

spuds are fitted to enable the dock to be permanently moored at its berth in Houston.

The electrical system is shore power fed with a 1690 KVA capacity main and 200 KVA standby. A 100 kw emergency generator with automatic start on shore power failure is installed.

The dock has its own service piping systems consisting of fire-main, air, water, oxygen and gas. These systems are all shore supplied.

Interior communications consist of sound-powered phones, a separate internal phone system and a general alarm.

The drydock was accepted by the client, Todd Shipyards Corporation, at Bender's Mobile yard at the conclusion of a series of tests designed to simulate actual use. It was towed to Todd's Houston facility by Gulf International Marine of Houma, La. During the tests, the dock was flooded in such a way as to produce a deflection close to the maximum calculated value. "Seeing this test sure gave us a lot of firsthand confidence in the dock's strength," commented **Benny King**, Bender's dockmaster.

A 25-ton-capacity crane will be installed on the offshore wingwall. An additional crane is planned

for installation on the inboard wingwall at a later date. Necessary support facilities construction is proceeding to permit start of operation of this large drydock in the port of Houston as of this month.

At the delivery ceremonies **Mr. Schaefer** announced that Todd is already commencing the construction of an additional 100-foot section for this drydock, which will increase its lifting capacity to 17,500-tons, further stating that Todd is very optimistic regarding the future of its ship repair, barge, and offshore oil industry market opportunities.

The new Todd drydock provides the company with unmatched capability in the Gulf area, complementing Todd's other facilities at Galveston, Texas, and New Orleans. The new facility is part of a multimillion-dollar corporated-wide plant modernization and upgrading program.

From 1976 to March of this year, Todd will have invested about \$165 million in facilities expansion and improvements, and an additional \$52 million in work force training to improve productivity and competitive efficiency in construction.

Newport News Lifts 890-Metric-Ton Assembly Onto Carrier Roosevelt - Largest Ever For Naval Vessel

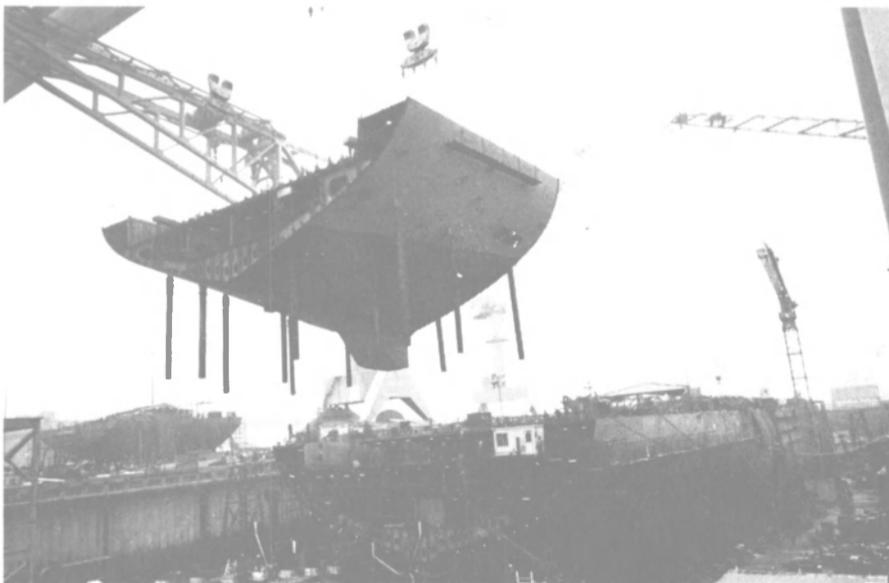
Newport News Shipbuilding of Newport News, Va., made history recently when it successfully lifted an 890-metric-ton assembly onto the aircraft carrier Theodore Roosevelt (CVN 70), under construction at the shipyard.

The assembly, weighing as much as 630 standard size American automobiles, was the largest ever lifted onto a naval vessel. Installed near the aft end of the ship, the five-deck assembly contained emergency diesel genera-

tors, pumps, and jet fuel tanks. During the construction of previous aircraft carriers, these components were installed aboard ship with much greater difficulty.

"Instead of making 25 lifts of structural assemblies and 15 to 20 lifts of components, we made just one super lift," **Bob Savage**, construction superintendent, said.

Construction on the Theodore Roosevelt is moving along at an unprecedented pace, according to (continued on page 10)



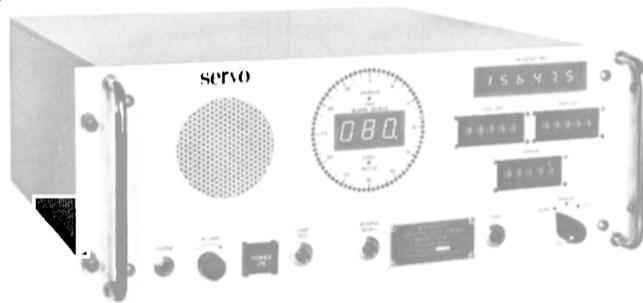
Newport News Shipbuilding made history when it successfully lifted an 890-metric-ton assembly onto the aircraft carrier Theodore Roosevelt (CVN 70) under construction at the shipyard with a 900-metric-ton-capacity Krupp crane.

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- "Ring-Of-Lights" LED vector display
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Newport News Lifts 890-Metric Ton Assembly

(continued from page 8)

project manager **W.B. Miffleton**. Since the ship's keel-laying in October 1981, the shipyard has laid more than 900 feet of ship and has erected steel up to the hanger deck. (A completed Nimitz-class aircraft carrier is 1,092 feet in length).

"We've made radical changes in our concept of building aircraft carriers," Mr. Miffleton said. The changes involve moving new carrier construction from its previous site at Shipway 11 with its 310-ton gantry crane to Shipway 12 with its modern 11-acre fabrication facility and 900-ton gantry crane, an area originally built in the 1970s for the series construction of commercial ships. The crane, manufactured by

Krupp, is the largest in the Western Hemisphere and enables construction crews to erect much larger, more fully outfitted assemblies.

Mr. Miffleton says there is no comparison between progress on the previous carrier, the USS Carl Vinson, and the Theodore Roosevelt.

"We weren't this far along on Vinson 2 1/2 years after the keel was laid," Mr. Miffleton, who was

project manager during most of the construction of Vinson, said. "But we're working with a compressed schedule on the Roosevelt, so we must have this kind of progress to meet our timetable."

Newport News is working toward a target delivery date of 1986, some 14 months before the contract delivery date of February 1988.

Newport News also has a construction contract for two more Nimitz-class aircraft carriers — CVN72 and CVN73. The keel on the first of those carriers is to be laid in 1984 and the second in 1986. The shipyard has delivered a total of 23 aircraft carriers since 1934, four of which have been nuclear powered.

Krupp MaK Diesel Moves To New Headquarters For North American Operations

Krupp MaK Diesel, Inc., one of the leading suppliers of medium-speed, four-stroke, heavy oil engines, has relocated its North American headquarters from Rosemont, to Glenview, Ill., to provide the latest state-of-the-art services to the U.S. and Canadian marine industry.

Since it was established in the fall of 1980, Krupp MaK Diesel, Inc., a subsidiary of Krupp MaK Maschinenbau GmbH, of Kiel, West Germany, has placed more than 160 engines in operation throughout North America.

MaK's new headquarters places the corporate offices and expanded warehouse facilities under one roof for optimum sales and after-sales services. Located within minutes of Chicago's O'Hare International Airport, MaK specialists provide immediate service or spare parts by land, air or water, depending on the requirements. In addition, MaK service centers are based in strategic areas throughout the U.S. and Canada.

New Failsafe Regulator Valve Featured In Free Brochure From Koomey

Koomey Inc., of Houston, Texas, is offering a four-page full-color brochure describing the capabilities of its new failsafe TR pressure reducing and regulator valve.

Over two years in development, the regulator incorporates a feature that allows it to maintain regulated pressure even if its pilot signal is lost. The brochure includes color-coded flow diagrams of systems employing the valve, photos of the unit which can be used on surface and sub-sea BOP control systems to control the annular (bag-type) blow-out preventer.

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The tug Arthur Foss features a Voith-Schneider cycloidal propulsion system powered by two EMD diesel engines.

Tacoma Boat Delivers Fourth Tractor Tug To Foss

The Arthur Foss, the fourth tractor tug for Foss Launch & Tug Co., was christened recently

in ceremonies at Foss Terminal in Seattle, Wash. Performing the christening

Transamerica Delaval twin "Enterprise" DMR 46 engines (each 3500 hp), mounted on Chockfast Orange*, power the rugged workboats of Biehl, Inc. Kuyper gears with cast-in-place Chockfast alignment also help to assure powerplant dependability.

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were co-sponsors Patricia Foss and Christine Foss, the daughters of Arthur Foss, a member of the Foss company founding family and for whom the vessel was named.

Born in 1885, Arthur Foss literally grew up in the tugboat business, and helped his father and two brothers build today's successful operation. He served as president of the Foss company in the early 1920s, and became chairman of the board in 1955. He died in 1964 at the age of 79.

Like the three tractor tugs previously commissioned, the 4,000-hp Arthur Foss features a cycloidal propulsion system that enables it to produce thrust in any desired direction without changing its heading. It can move sideward, turn a full circle in a tight space, and come to a complete stop within approximately its own length.

These capabilities allow the tug to escort tankers and assist ships and tows in a minimum of time while ensuring maximum safety.

The Arthur Foss, built by Tacoma Boat Building Co., of Tacoma, Wash., measures 106 feet long, with a breadth of 38 feet, and a draft of 17 feet 4 inches.

The vessel features two Voith-Schneider vertically oriented cycloidal propellers with a blade orbit diameter of 3,200 mm (126 inches). Both propellers have five blades, each of which measures 2,006 mm (79 inches) in length. The vessel is powered by General Motors diesel engines model EMD 16-645-E6, which develop a total of 4,000 bhp at 900 engine rpm.

The Voith-Schneider cycloidal



Arthur Foss is christened by Christine Foss, daughter of the late Arthur Foss for whom the vessel was named. Looking on is her daughter, Melia.

Main Propulsion	(2) EMD
Propellers	Voith-Schneider
Generator Engines	(2) Detroit Diesel
Engine Controls	Voith-Schneider
Steering	Voith-Schneider
Engine Monitors	Sea-Land Industries
Sanitation system	Red Fox
Radar	Furuno
VHF	(2) Raytheon
Winches	(2) Intercon
Fendering	Schuyler
Coatings	Int'l. Paint

unit was chosen after an in-depth, two-and-a-half year study because of its track record, reliability, and cost effectiveness in operations, said Steve Scalzo, Foss Launch & Tug Co. vice president for marine operations.

The Arthur Foss, based in Bellingham, will begin service immediately in ship assist and tanker escort, joining the 4,000-hp Andrew Foss christened in November. The 3,000-hp Wedell Foss, christened in July 1982, is based in Seattle, and the 3,000-hp Henry Foss, christened in September 1982, works out of Tacoma.

Southwest Marine Purchases Computerized Drydock And Major Shipyard

Southwest Marine, Inc. of San Diego, Calif., recently announced two major achievements in its more than \$40-million renovation project—the signing of a contract with Kawasaki Heavy Industries Ltd. of Japan to construct a new hi-tech computerized drydock, and the acquisition of a major West Coast shipyard, California Shipbuilding and Dry Dock Co. of San Pedro.

The new 22,000-ton end-transfer computerized floating drydock is the first of its kind, with delivery to San Diego expected in less than two years. The drydock is totally self-contained with its own electrical and sewage systems that eliminate any chance of waste entering San Diego's waterways.

According to Arthur Engel, Southwest Marine president, the drydock is the state-of-the-art in dry dock construction—"A First

of Its Kind." It not only has the normal up-and-down movements of all drydocks, but also has the capability to move horizontally and vertically. "This capability allows us to maneuver and work on three large vessels out of water at one time," stated Mr. Engel.

"With the addition of two short platforms we will be able to transfer two of the ships onto these platforms for repairs while the third is being maintained and repaired in the drydock." "In addition," said Mr. Engel, "we will be building two large concrete piers to accommodate three more large vessels for in-water repair work. This gives us the capability of working on six destroyer/cruiser-size ships at one time which literally will quadruple our present facility capability, and in the end will create over 1,550 new jobs in San Diego."

The 1,550 new job projection will bring with it \$60 million in new wages and \$2 million in tax revenue for San Diego.

The simultaneous announcement of Southwest Marine's acquisition of California Shipbuilding and Dry Dock Co. in San Pedro gives Southwest Marine six yards along California's coastline, with facilities in San Diego, National City, Chula Vista, San Francisco, and now two yards in San Pedro.

The new San Pedro facility has one 2,500-ton drydock, one 1,000-ton drydock and a 45-ton Gantry crane. The yard also has total ship capabilities to serve the entire repair needs of offshore support vessels and the tuna fleet. Southwest Marine now has six drydocks ranging from 1,000-ton to 22,000-ton lifting capacity, and is in the process of finalizing plans for drydock facilities in its San Francisco yard.

Southwest Marine's San Diego yard overall renovation plan, including the new drydock, calls for two large concrete piers, utility and parking lot improvements, two shore platforms, a 65-ton Gantry crane railway, and construction of all new shop facilities.

"We are preparing for the most modern, cost-effective, ship repair yard on the West Coast," said Mr. Engel. "We are in the process of reconstructing our yard into a state-of-the-art, innovative facility that, in our era of the 80s is being created for the 21st century."

New Puget Sound Section Of MTS Elects Officers

The Puget Sound Section of the Marine Technology Society elected officers at its first general meeting, held recently at the Seattle Aquarium. Nearly 200 persons attended the meeting and were given a behind-the-scenes tour of the aquarium.

Officers elected were: chairman — **Ken W. Mohn**, principal marketing representative for offshore operations within Honeywell's Marine Systems Division in Ballard. Mr. Mohn is involved in selling sophisticated equipment to the offshore petroleum industry; vice chairman — **B. Glenn Ledbetter**. Mr. Ledbetter has been included in various marine-related activities in the Pacific Northwest for 15 years. He was instrumental in reestablishing the Puget Sound Section of MTS; secretary — Comdr. **Frank Hughes**, executive officer at the Naval ROTC unit at the University of Washington. He is a 25-year Navy man with a doctorate in oceanography; and treasurer — **Richard B. Tripp**, manager of

technical services for the School of Oceanography at the University of Washington. Mr. Tripp has been involved with the School of Oceanography for 18 years.

MTS provides a medium for the exchange of marine-related science and technology for all interested individuals. For more information on the section, contact Commander **Hughes** at (205) 543-0170.

Orders Received For New Niigata-SEMT Engine —Literature Available

Niigata Company, the Japanese licensee of Societe D'Etudes De Machines Thermiques (SEMT) recently reported the receipt of three orders for the Pielstick diesel engine type 6PA5L.

The engine was introduced late

in 1982 and was jointly developed by SEMT and Niigata. One engine was ordered by Hamaya Suisan Co. Ltd. as main propulsion for a salmon trawler. The other two engines are for Abu Dhabi Enterprise Co. Ltd. for the propulsion plant of a new offshore support vessel.

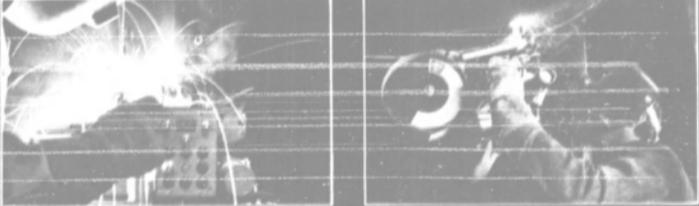
For more information on the Pielstick 6PA5L engine,

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Halter Marine Delivers Second Of Four Supply Boats To Point Express, Ltd.

Halter Marine, Inc. of New Orleans, La., recently delivered the Point Chaleur, the second of four 191-foot tug/supply boats to Point Express, Ltd., of Morgan City, La.

The Point Chaleur is 191 feet long with a 40-foot beam and a 14-foot depth. She is powered by two EMD 16-645C diesel engines developing 1,950 hp each at 900 rpm. They drive two, 90-inch-diameter four-blade propellers through Lufkin RHS 2120 reverse/reduction gears with a ratio of 3.0:1.

The vessel's six Smatco tanks each carry 1,000 cubic feet of bulk mud and four additional tanks carry 1,344 barrels of liquid mud. Dry mud is moved through the system by a Gardner Denver WCG air compressor and liquid muds are pumped by Mission Magnum pumps.

Some of the Point Chaleur's other capacities are: 61,000 gallons fuel oil; 1,824 gallons lube oil; 165,400 gallons ballast water; and 16,888 gallons of fresh water. Her aft deck has nearly 4,000 square feet of cargo space.

There are two Westinghouse equipped control stations aboard and a 56-point engine alarm system provided by EMI. The hydraulic steering system was manufactured by SSI and maneuverability is enhanced by a Bird-Johnson model 20 bow thruster driven by a Detroit Diesel 8V71 diesel engine through Capitol reverse/reduction gears.

The main switchboard and distribution panels were built by Continental Electric.

Auxiliary power is supplied by two Detroit Diesel 8V71-N diesel engines generating 125 kw. Two



The Point Chaleur is powered by two EMD 16-645C diesel engines.

Quincy model D325 air compressors provide compressed air for diesel engine starting, the pneu-

matic control system, air whistle, sea chest, and ship service.

Aurora pumps service bilge, ballast, fuel transfer, and the on-ship fire-fighting system while Viking pumps handle oily bilge and fuel oil standby. The fuel oil separator was manufactured by Westfalia. The sanitary water system contains a Deming pressure set with a vertical 82-gallon tank. Water closets drain into a Micropher MC-200 sewage-treatment system.

Satellite navigation is provided by a Magnavox MX4102 direction finder with interface to a Sperry gyrocompass. The VHF radio is a Sailor RT-144 and the SSB radio is a Stevens SEA 106-1. Two Raytheon model 6425-6UP radars are installed. The starboard radar has a Raytheon IBCAS anti-collision unit. The vessel is also equipped with a Raytheon depth sounder, Henschel rudder angle indicators, and a Henschel intercom.

Some of the deck equipment includes a Smatco 66 DAW 200 towing winch, a 5-foot by 8-foot Smatco stern roller, and an HBL electrohydraulic anchor windlass.

Living and working space is heated by Lennox electric strip heaters and cooled by 15 tons of Dunn and Bush water cooled air-conditioning. Seven staterooms provide berths for 20 persons.

The Point Chaleur is American Bureau of Shipping classed A1, Maltese Cross, full ocean towing, AMS, ice class "C", and carries a Panama Canal admeasurement certificate.

She was built at Halter's Lockport, La., division which will soon complete her sister ships, the Point Liberty and Point Normandy. The first in the series, the Point Bravo was delivered recently. (See MARITIME REPORTER, February 15, 1983 issue).

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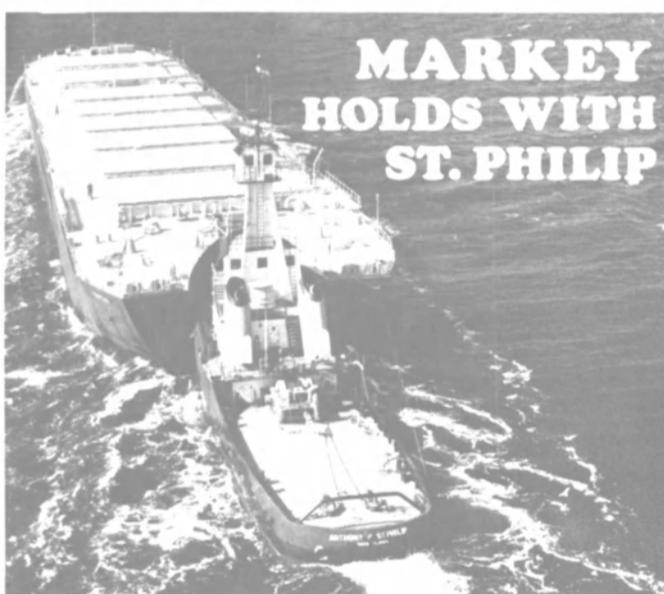
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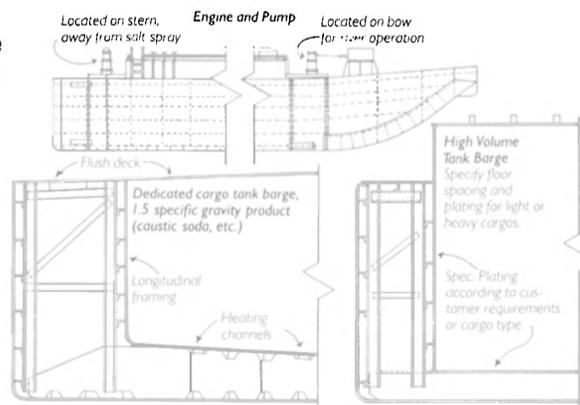
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\$121-Million Contract Awarded To Davie For Gulfspan-Class Ferry

A \$121-million contract for the construction of the first Gulfspan-class ferry for service between Port aux Basques, Newfoundland, and North Sydney, Nova Scotia, was signed recently by the presidents of CN Marine and Davie

Shipbuilding of Lauzon, Quebec, Canada.

The largest ship ever designed for the service, the new ferry will be 179 meters (574 feet) in overall length, with a loaded displacement of 15,300 tons. An installed horsepower of 28,000 will permit a maximum service speed of 22 knots. Combined with fast loading and unloading capability, this will allow the new ferry to

make two return crossings daily during peak traffic periods. For most of the year she will cruise at a more fuel-efficient 16 knots.

"This ship will offer a wide range of amenities to the traveling public," said CN Marine president **Rupert Tingley**. "It will feature improved seating and more sleeping accommodation. We will be introducing new concepts in catering, and offering new facil-

ities for entertainment and passenger convenience."

The vessel will have a capacity to comfortably accommodate 1,200 passengers in daytime service and 800 on night crossings. The vehicle decks will be able to take up to 350 automobiles or 93 tractor-trailers in varying combinations. Auto capacity could be increased as traffic warrants by the addition of mezzanine decks.

"The Gulfspan design represents the first new passenger ferry developed especially for the Gulf service in nearly 30 years," Mr. Tingley said.

Canadian naval architects German and Milne of Montreal developed the design, assisted by **Knud E. Hansen** of Copenhagen, Denmark. During the design process, consideration was given to the harbor at Port aux Basques. It is not large and, on occasion, experiences adverse wind conditions. A series of computer simulation tests at the Danish National Laboratory were arranged whereby a number of CN Marine captains performed docking maneuvers with this design under a variety of conditions.

The results demonstrated that, with the appropriate thrusters installed, the vessel would be able to dock in Port aux Basques as easily as the existing fleet.

The Gulfspan is designed with a bulbous bow, split stern, and large propellers to obtain maximum speed from minimum fuel.

A series of ice-tank tests were undertaken, using a one-fortieth scale model of the Gulfspan hull in ice of varying thicknesses. The object was to determine how the actual ship would perform in the conditions likely to be encountered in the Cabot Strait, and whether any potential modifications were needed to improve this, without compromising on the ship's efficiency in open water.

Gulfspan will be capable of a 45-minute turnaround, about three times as fast as the ferries now in service. It will require considerable change in the way things are done at the terminals. For example, larger fuel and water lines will be needed as well as instituting a container system to bring stores aboard, and refuse and laundry ashore. The biggest innovation will be the traffic handling and loading system.

Two levels will load simultaneously, with two lanes of traffic on each ramp. This will require the construction of a new dock and bi-level loading facility at North Sydney. The new dock at Port aux Basques was designed for the new ferry, and is to be equipped with an upper level loading ramp.

The Port aux Basques project also included a new and expanded traffic marshaling area, and a similar expansion is planned for North Sydney.

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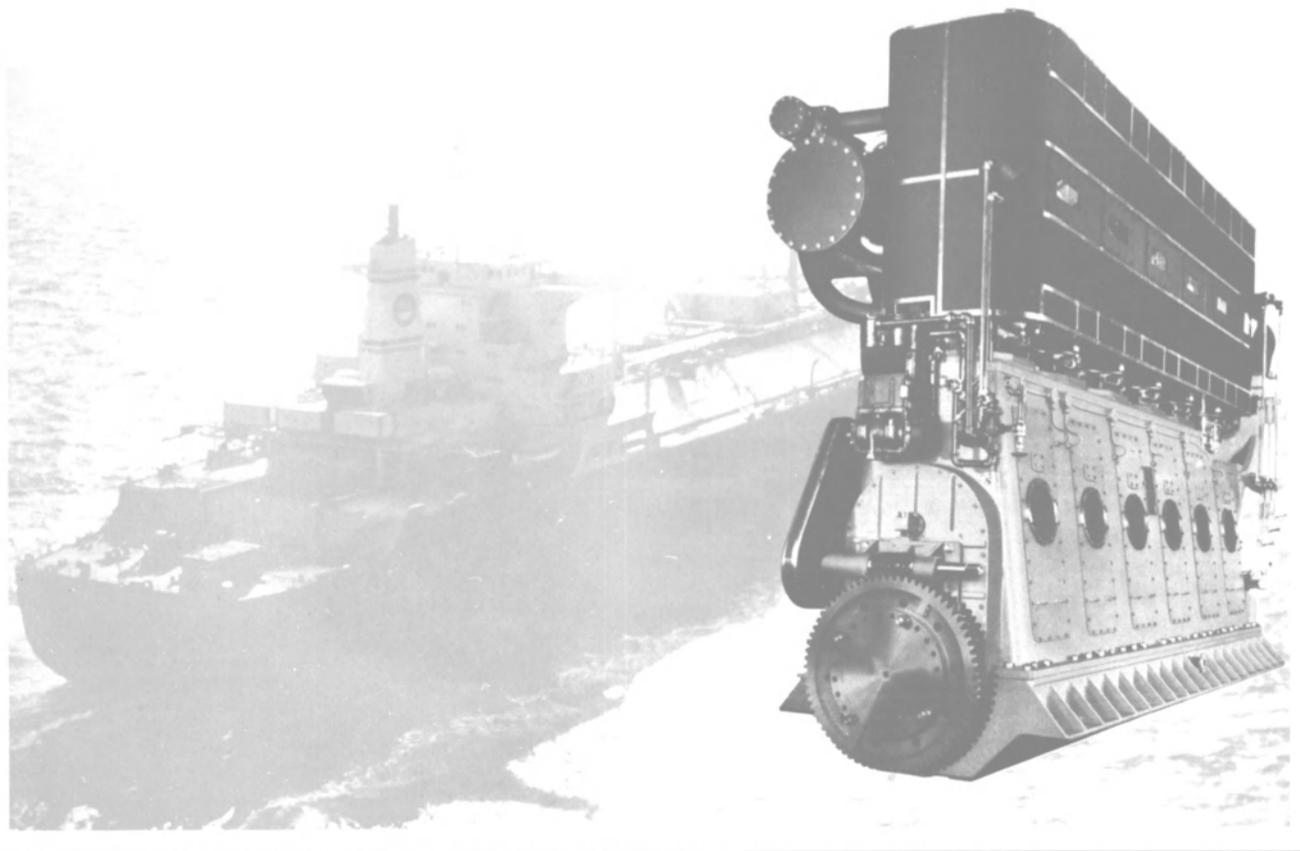
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Moore McCormack Completes Sale Of Cargo Liners

Moore McCormack Resources, Inc. of Stamford, Conn., announced recently that it has closed the previously announced sale of its cargo liner subsidiary, Moore McCormack Lines, Incorporated, to McLean Securities, Inc., the parent company of United States Lines, Inc.

At the closing, Moore McCormack Resources received \$30 million in cash and \$30 million par value of cumulative preferred stock of McLean, having a regular dividend rate of 11 percent per annum and to be redeemed over a five year period. In addition, the sale also reduced Resources' long-term debt by approximately \$50 million. As previously indicated, Resources expects to recognize a profit on the transaction in its first quarter 1983 results.

James R. Barker, chairman and chief executive officer of Moore McCormack Resources, commented: "The sale of Lines, our original business, is a very significant step. Conversion of Lines to a more highly containerized, intermodal operation, with broader trade routes and marketing network, has become increasingly necessary to maintain its efficiency and profitability. We feel that the sale to the parent of United States Lines, a substantial worldwide carrier, is the most appropriate way for Lines to continue its growth and progress."

\$5.5-Million Sub Planning Contract Awarded To Electric Boat Shipyard

General Dynamics Corporation, Electric Boat Division, Groton, Conn., has been awarded a \$5,586,261 cost-plus-fixed-fee contract for providing planning yard support for the deployment/operational phase of Ohio-class submarine life cycle program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-2000).

New Brochure Contains Raytheon Radar Comparison And Offer Of Free Life Vests

A new brochure is available from Raytheon Marine Company, Manchester, N.H., comparing features offered in their 1983 line of radars. Eight models are available, from Raytheon's compact 6-inch display 2600 MK III and 2800 MK II Mariners Pathfinder® Radars with new expanded ranges, to the top of the line 10-inch display 1010 Mariners Pathfinder Bright Display Radar.

With every purchase of a Raytheon radar, from February 1 to

June 30, 1983, purchasers can receive free lifevests, either three adult and two children Type III USCG-approved PFDs, or three commercial Type I USCG-approved PFDs.

"Raytheon has always provided the highest quality of a large selection of radars designed to suit every boatowner's needs," said Raytheon Marine Company's Stanley Clark. "Our free-lifevest offer this spring is one more expression of Raytheon's commit-

ment to helping boatmen maintain the greatest level of safety in all kinds of weather."

The brochure details Raytheon's new 1010 radar offering, for the first time, a 10-inch radar with digital bright display. This, and the many new and popular models are described.

The free lifevest offer is available through participating Raytheon dealers in the U.S. and Puerto Rico. Raytheon offers a

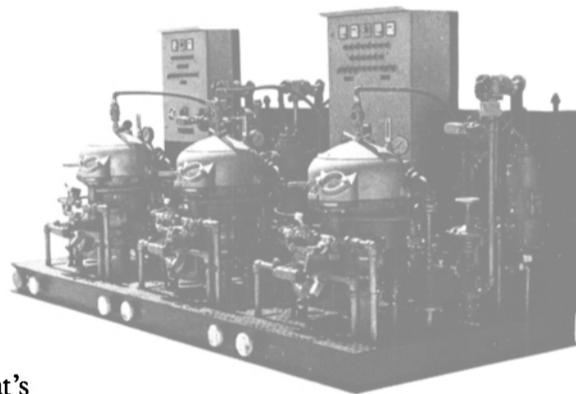
two-year limited parts warranty with one-year free onboard service from any of the company's U.S. dealers and worldwide service network.

The four-page Raytheon Radar Comparison Brochure includes model dimensions, ranges, suggested prices, a listing of participating dealer locations, and lifevest offer information.

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Bulkfleet chose Westfalia Oil Purifiers because of their reliability and

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fiers come with all accessory components mounted in place—pre-piped and pre-wired, ready for fast, easy installation.

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Bender To Offer New Ice-Class Anchor Handling Tug/Supply Vessel

Bender Shipbuilding and Repair of Mobile, Ala., recently entered into an agreement with Cleaver and Walkingshaw Ltd., naval architects of Vancouver, B.C., which permits the Gulf Coast yard to offer the proven "hostile" class design to the American Offshore Service indus-

try for construction at its Alabama facility.

The 11,200-hp anchor handling tug supply vessel design is a product of Arctic Offshore Design Ltd., a subsidiary of Cleaver and Walkingshaw.

The company specializes in designing vessels for the oil explo-

ration industry, with emphasis on the Eastern Canadian and Lower Arctic regions. Arctic Offshore has thus far designed hostile environment boats such as icebreakers, seismic research vessels, geotechnic vessels, and ice-class oil tankers. The company also has consulted on designs for companies such as Husky Oil Operations, Dome Petroleum, the Government of Chile, and Canadian Marine Drilling, Ltd.

However, the company is best known for its innovative design of the Arctic Class 3-4 research vessel Canmar Kigoriak.

Bender president **Tom Bender Jr.**, commented: "Cleaver and Walkingshaw is a company given to turning owners' requirements into realistic designs. In this particular instance, we are very excited about offering our American customers an outstanding 'hostile' environment vessel for which we see a substantial need in the not too distant future."

Arctic Offshore's "hostile" class design has several distinct features, such as: four-engine reliability and heavy fuel-burning capability; economical fuel consumption by using two engines for normal cruising speed; an approximate 123-long-ton bollard pull; three side thrusters — two bow at 800 bhp each and one in stern/skeg at 800 bhp; joystick control; FIFI II optional offshore firefighting equipment; wheelhouse control of cargo unloading; and no fuel against the side shell.

Other distinctive design features include: enclosed anchor handling winch and reels for protection from icing; deck cargo capacity of 1,230 long tons; maximum cargo deadweight of 2,460 long tons; optional survivor rescue package; and design compliance with the Arctic Waters Pol-

lution Prevention Act for Type A vessels.

Mr. Bender continued: "This forward-thinking design will yield an advanced, economical unit for the oil industry. Cleaver and Walkingshaw has met the challenge of a precarious frontier with innovation, cost-effective naval architecture and superior marine engineering.

"We at Bender Shipbuilding and Repair Company are pleased with our association with Cleaver and Walkingshaw, and feel confident that the 'hostile' class design enables us to offer one of the most economic and advanced ice-classed vessels to the industry."

The vessel is 235-feet long overall, with a beam of 52 feet 6 inches, a depth of 24 feet 6 inches, and a draft of 20 feet 6 inches. The cargo deck area is 124 feet 6 inches by 41 feet.

The design calls for two main propulsion engines producing 11,300 hp, driving two cp propellers set in nozzles. Two cp 800-bhp electric drive bow thrusters and one stern thruster are incorporated to aid in maneuvering. The vessel has a range of 25 days/9,000 nautical miles at 12 knots. Maximum speed is 16 knots.

The new design provides capacities of 264,000 U.S. gallons of fuel oil; 26,500 U.S. gallons potable water; 317,040 U.S. gallons ballast water; 1,900 barrels liquid mud; and 10,600 cubic feet dry mud. Accommodations are provided for 14 crew in single cabins and 8 passengers in two and four bunk cabins.

The deck machinery includes a hydraulic 275-ton enclosed towing anchor handling winch; a 6-foot 6-inch by 15-foot stern roller; two 15-ton capstans; two 10-ton tugger winches; and two 3.25-inch gypsies/chain lifters.

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For years Engelhard has been meeting the challenges of the sea head on. Its Capac[®] system provides reliable impressed current corrosion protection for thousands of vessels from tugs to VLCC's as well as for offshore rigs. The Chloropac[®] system, with its efficient modular design, provides continuous-fouling control through electrolytic hypochlorite generation from sea water.

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Model of the 235-foot-long ice-class offshore service vessel offered by Bender Shipbuilding.



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*Jane's Fighting Ships 1982-1983, ed. by Captain John Moore RN

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Brochure Offered On New Electrolytic Anti-Fouling System For Problem Areas

Major problems of accelerated fouling in cooling and sea water service systems on cruise ships traveling from cold to temperate waters, have been solved by the Norwegian Royal Viking Line, with the installation of a new

type of electrolytic anti-fouling and corrosion system. A brochure is available describing the process and recent applications.

The system, manufactured by Cathodic & Electrolytic Engineers Limited of Chesterfield, U.K., and marketed in the U.S. by A.M.T. Inc. of Miami, Fla., was first installed on the "Royal Viking Sea," a 21,000-grt vessel operating between San Francisco

and Alaska. Normal fouling problems created by the growth of bio-fouling in pipework, condensers, and sea water service equipment, were rapidly accelerated by the excessive changes in temperature from cold Alaskan to the temperate waters of the U.S. Pacific Coast.

Trials carried out on the Royal Viking Sea since the electrolytic system was first installed at the

end of 1981 have proved a complete success according to the manufacturer, with all traces of fouling eliminated. The process, known as C-2000, has been fitted on a second ship, the Royal Viking Sky, during the vessel's recent extension and re-fit in a West German shipyard.

For a free copy of the brochure, Write 23 on Reader Service Card

Brakey Named Director Of Corporate Facilities Engineering At Duramax



Michael W. Brakey

Michael W. Brakey has been appointed to the new post of corporate facilities engineering director of Duramax, Inc., parent company of The Johnson Rubber Company, its divisions and affiliated companies. His new duties will include general facility engineering, energy management, plus both marine and industrial product development.

Mr. Brakey joined The Johnson Rubber Co. in 1977 as chief engineer of the company's Duramax Marine Division. He has co-authored papers in the field of biomedical engineering, as well as papers on marine rubber fendering for ships and docks.

CRC Celebrates Its 50th Anniversary —Brochures Available

The year 1983 marks the 50th anniversary for the Pipeline Operations Group of Crutcher Resources Corporation (CRC). Formed in 1933, CRC began as a small company dedicated to serve the rapidly expanding pipeline construction industry.

CRC continues its dedication to meeting the challenges of the ever-changing pipeline industry through its operating divisions: CRC Pipeline Equipment, CRC Automatic Welding, CRC Supply Inc., CRC Welding Systems Inc., and CRC Bethany International Inc.

Literature is available describing CRC's services and capabilities, including their state-of-the-art construction equipment, automated welding systems, and pipeline automation specialists.

For full details and free literature on CRC's product lines and services,

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◀ Write 311 on Reader Service Card

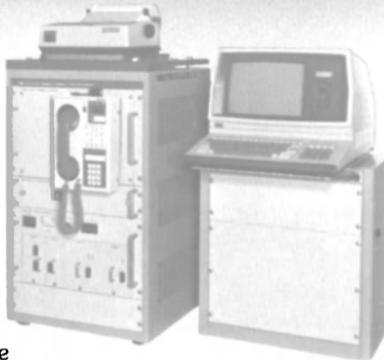
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field service data to improve product reliability and to ensure that the correct parts and quality service are immediately available when and where needed. Technical and Operational training programs will be provided upon request.

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Todd Reports Increase In Sales And Earnings

Todd Shipyards Corporation, New York, N.Y., recently reported higher sales and earnings for its third quarter and 39 weeks ended December 26, 1982, compared with the same periods a year ago.

John T. Gilbride, chairman, attributed the improved results to

increased revenues from continued construction of guided missile frigates (FFGs) for the U.S. Navy, which more than offset lower naval repair sales and a decline in commercial ship repair work reflecting reduced international and domestic shipping activity on all three coasts.

Sales in the third quarter of fiscal 1983 amounted to \$201.5 million, compared with sales of

\$180.9 million in the same fiscal 1982 period. Third quarter net income totaled \$8.8 million, or \$1.85 per share, compared with earnings of \$7.6 million, or \$1.46 per share, in the same 13-week period last year.

Sales for the first 39 weeks of fiscal 1983 were \$595.7 million, compared with \$536.8 million in the same period in fiscal 1982. Net income amounted to \$25.0

million, or \$5.09 per share, a gain of 9.9 percent over earnings of \$22.7 million, or \$4.26 per share, in the fiscal 1982 39-week period.

In the first nine months, Todd's ship construction revenues rose 22 percent over last year's figure as a result of the guided missile frigate (FFG) program. The company has received contracts for the construction of 30 FFGs, of which 15 have already been delivered. Five FFGs were delivered to date in fiscal 1983, the most recent of which, the Reid (FFG-30), was delivered on December 30, five weeks ahead of schedule and below budget. The company expects to deliver all 15 FFGs still under construction by its Los Angeles and Seattle divisions ahead of schedule and below budget.

Naval repair sales, although lower than in last year's first nine months, showed improvement in the third quarter as Todd continued to aggressively compete for new business to more fully utilize its expanded West Coast repair capacity. The newly acquired San Francisco facility has contributed a \$50-million shiprepair backlog since November 1982. "San Francisco's excellent facilities, featuring a mammoth 65,000 displacement ton drydock and those of Seattle and Los Angeles, put Todd in a strong competitive position to obtain additional naval work, which is expected to increase as the Navy's new homeporting dispersion policy is implemented in these three leading Pacific Coast ports," Mr. Gilbride noted.

The company's commercial ship repair revenues declined approximately 20 percent from last year's level, reflecting lower shipping activity.

Whitehall Awarded Sixth Marine Seismic System Order From China

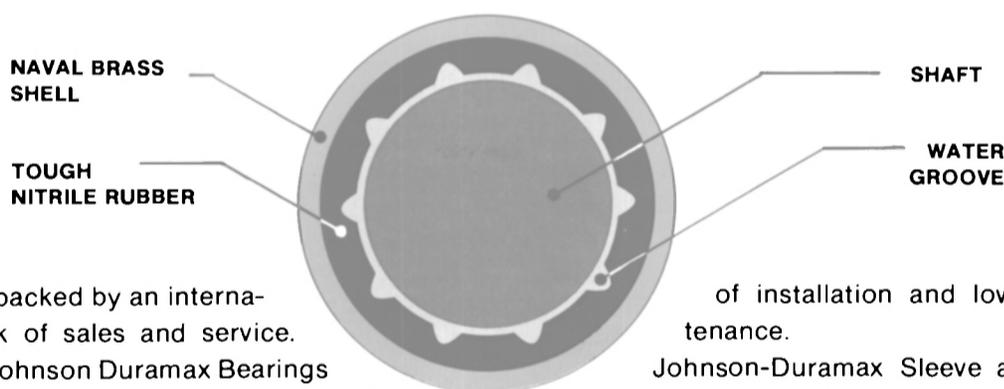
The Whitehall Corporation of Dallas, Texas, recently reported that its subsidiary, Seismic Engineering Company, has been awarded a contract by The Oriental Scientific Instruments Import and Export Corporation for the manufacture of the sixth marine seismic system to be delivered to the People's Republic of China.

Total dollar value of the six systems, the first of which was delivered in 1981, amounts to approximately \$3,300,000. The systems, utilized in offshore geophysical exploration, consist of a seismic streamer array using Seismic Engineering's patented Multidyne hydrophones for the detection of sound waves reflected from beneath the ocean floor, DSS-V electronic shipboard interface units, and automatic depth control systems. Delivery of the new order is scheduled in the third quarter of 1983.



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of installation and lowered maintenance.

Johnson-Duramax Sleeve and Flanged Bearings are available in a full range of shaft sizes from 3/4 inches through 15 inches. Flanged Bearings are also available in split styles. Bearings are also available with shells of Stainless Steel, Carbon Steel, Aluminum and Monel.

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Pearson Named Manager Of International Marketing At Navidyne Corporation



Lloyd Pearson

Lloyd Pearson has joined Navidyne Corporation, Newport News, Va., as manager, international marketing. Mr. Pearson was formerly vice president and director of marketing with Iotron Corporation of Bedford, Mass., where he had overall responsibility for marketing and sales of Iotron's line of radars and other marine electronic products.

At Navidyne, Mr. Pearson assumes responsibility for overseas marketing of Navidyne's marine navigation and communications equipment. Navidyne Corporation is a leading manufacturer of advanced marine electronics for the worldwide shipping and off-shore oil exploration industries.

Newport News Reports Fourth Year Of Higher Operating Income

Newport News Shipbuilding Co. reported recently that operating income increased 35 percent to \$111 million from \$82 million in 1981, the fourth year of higher operating income.

The shipyard had sales of \$1.3 billion, up 19 percent from 1981 sales of \$1.1 billion.

Including the December Navy contract of \$3.1 billion for two Nimitz-class nuclear-powered aircraft carriers, the shipyard had a year-end backlog of \$8.5 billion.

The carrier contract is the largest contract ever awarded by the Navy.

"We are pleased with our 1982 financial performance," said Edward Campbell, company president and chief executive officer. "Much of the credit goes to our employees, salaried and hourly paid, who have responded to the challenge of working smarter and increasing productivity."

The shipyard delivered three Navy ships and launched two submarines in 1982. The Nimitz-class carrier Carl Vinson and the Los Angeles-class nuclear-powered submarines Atlanta and Houston joined the fleet from the Newport News yard.

The Los Angeles-class submarines Buffalo and Salt Lake City were launched, and the yard

worked on the Nimitz-class carrier Theodore Roosevelt and nine nuclear-powered submarines.

Newport News Shipbuilding is a subsidiary of Tenneco Inc., a Houston-based conglomerate. Tenneco also announced this week that net income for 1982 and for the year's fourth quarter were up.

Tenneco chairman and chief executive officer James Ketelsen said 1982 income from continuing

operations was \$840 million, up 5 percent from \$798 million in 1981.

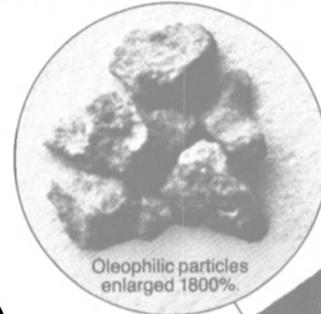
Mr. Ketelsen called the increase "a commendable achievement in a tough year." Tenneco sales and operating revenues in 1982 were \$15 billion, about the same as in 1981.

In the fourth quarter of 1982, income from continuing operations was \$278 million, up 9 percent from 1981.

Western Electric Awarded Installation Contract Valued At \$3.4-Million

Western Electric Company, Greensboro, N.C., has been awarded a \$3,484,221 cost-plus-fixed-fee contract to install communications equipment on 12 T-AGOS class ships. The Naval Electronic Systems Command, Washington, D.C., is the contracting activity (N00039-83-C-0210).

Oil/water separation made simple.



Chemically treated oleophilic particles are used for the exclusive integral, permanent filter bed.

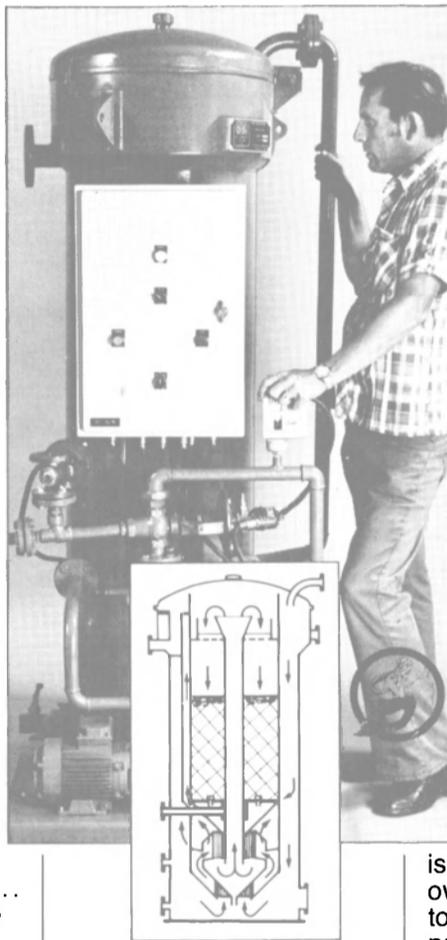
BUTTERWORTH® SFC BW separators feature a permanent filter bed (no dirty cartridges to change, no messy disposal). Automatic operation without attendance is available. U.S. Coast Guard approved.

Special Filtering Material.

One outstanding feature of SFC BW (Separator Filter Coalescer Bilge Water) Oil/Water Separators is the permanent final filter bed. Composed of specially treated oleophilic particles, it can be used over and over again. With heavy use, an annual topping of 5% to 15% is the only filter bed maintenance required. Moreover, treated water discharges are typically less than 2 parts per million of oil... well below the allowable 15 parts per million.

Unattended Operation with Automatic Option.

Because of the permanent final filter bed, SFC BW Separators ordered with the automatic option can operate unattended for weeks at a time. Whenever the filter bed reaches



sounds an alarm. After back-flushing, separation automatically starts again.

The 20-minute back-flush cycle occurs only once every 12 to 24 hours of operation, depending upon oil concentration.

Unique Compact Design.

Because of the permanent filter bed, which requires only limited access annually, SFC BW units are very compact. All processing takes place in a single vertical cylinder requiring a minimum of deck space. A 2 cubic metre per hour unit, for example, is only 2 feet in diameter.

Every SFC BW unit is equipped with its own pumps designed to meet a vessel's needs. They do not

rely on existing bilge pumps.

U.S.C.G. Approved.

In U.S. Coast Guard certification tests, BUTTERWORTH SFC BW Oil/Water Separators exceeded U.S.C.G. and IMCO A.393(X) requirements.

SFC BW Oil/Water Separators have also been approved in conformance with A.393(X) by France, Germany, Greece, Italy, Netherlands, Norway, Poland, Sweden, United Kingdom, and Yugoslavia.

Get All the Facts.

SFC BW Oil/Water Separators are available with capacities from 1/2 to 10 cubic metres per hour. Write or call for full details... and for a copy of "From A to X about Oil/Water Separators". This six-page report has facts on MARPOL, IMCO, and U.S. regulations for shipboard oil/water separators.

a pre-set degree of oil saturation, a very accurate vacuum-operated controller stops separation, initiates a cleansing back-flush cycle and



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The Blanche V is powered by twin Cummins KTA-1150M diesel engines.

Iowa Marine Delivers M/V Blanche V To Gibbons Marine

Iowa Marine Shipyard of Keokuk, Iowa, recently delivered the M/V Blanche V to Gibbons Marine of Beardstown, Ill.

The Blanche is an IM-60 class vessel, 60 feet by 24 feet by 8 feet with an operating draft of 6 feet. She is powered by twin Cummins KTA-1150M diesels developing 940 hp at 1,800 rpm, driving through Twin Disc MG-518 gears with 6:1 ratio. Power is supplied to the 64-inch by 50-inch Kahlenberg stainless-steel propellers.

Generators are 30-kw Lima-

Mac driven by John Deere 4219 diesels. Iowa Marine president **Tom Edwards** says: "One of the things we have always attempted to do is provide equipment that is easily serviceable, and this John Deere engine is an old line, widely used engine. Parts and service are available in just about every town where there is a John Deere dealer."

Steering is an Iowa Marine design, mechanical over hydraulic, full follow-up with each main engine driving a hydraulic gear pump. There are two steering and

four flanking rudders which give the vessel exceptional handling capabilities.

The bilge system is designed to allow any compartment on the vessel to be pumped and also allows for discharge overboard, to the slop tank, or to the stern ballast tanks. By utilizing the sea cock, the engine room and the entire exterior of the vessel can be washed down.

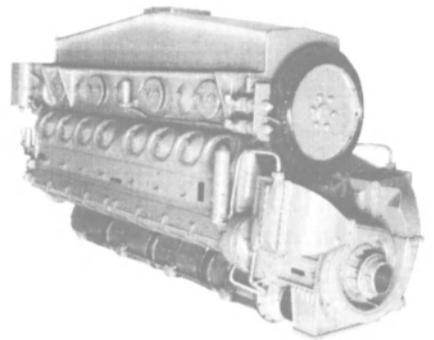
The pilothouse is equipped with a Regency MT-5500 all channel VHF radio, a Raytheon 400 Hailer-Intercom, two Carlisle Finch incandescent searchlights, full instrumentation and alarm systems.

Twin Nabrico 20-ton winches are enclosed in the forward deck locker for protection and to provide a large, clean front deck. She is equipped with a fleet deck for easy access to empty barges.

The vessel is also equipped with a 12-volt automatic Jabsco bilge pump which discharges the stuffing box drains directly overboard, a Humphrey sanitary system, and a Dayton air compressor. The hull is of 3/8-inch plate with 3/4-inch rounded corners and 1/2-inch over the stern sections.

Gibbons Marine is owned by Mr. and Mrs. **Don Gibbons** of Beardstown. The Blanche V joins the M/V Capt. Elmer in their operations and at present is being operated by Morris Harbor Service between St. Louis and Lemont on the Illinois River in the towing trade. She delivered nine barges to Grafton on her maiden voyage southbound. The Blanche V is named for **Mrs. Elmer Logsdon**, mother of **Mrs. Lee Gibbons**.

EMD Introduces New Fuel-Efficient Diesel —Brochure Available



The new Electro-Motive Division 645E7C diesel engine.

Electro-Motive Division of General Motors, LaGrange, Ill., recently introduced a new Series 645 engine. This engine will provide workboat owners a 3 percent reduction in fuel consumption over previous models. The improvements in this engine model are the latest in a series which has seen a fuel consumption reduction of more than 6 percent since 1977.

The new "EC" engine series combines innovative design features that ensure superior field performance, extended operating service, and enable the engine to withstand higher operating pressures, with state-of-the-art turbocharger technology.

"This new model," said **T.J. Lehman**, EMD marine sales manager, "represents the latest step in our continuing efforts to provide our customers with the most fuel-efficient diesel, while maintaining our historically high levels of reliability, interchangeability, and maintainability. We are very excited about this more fuel-efficient model. Further, we expect even more improvements in fuel efficiency in the future."

The "EC" engine turbocharger incorporates a newly designed impeller, compressor diffuser, and a change in the turbine nozzle. The resulting increase in compressor and turbine efficiency improves the overall fuel efficiency of the engine.

Previous key elements of the EMD turbocharger — the strengthened turbine wheel, high capacity planetary gearing, and spring drive gear — have been retained.

The new engine uses a 16:1 compression ratio fire ring piston. The increase in compression ratio from 14.5:1 produces the same power output with less fuel. The fire ring design further improves fuel efficiency by effectively providing a long power stroke. Also, the unit fuel injector features a large diameter .50-inch plunger and a low sac spray tip, which improve combustion efficiency.

Holding the cylinder and liner in place is an improved bolting



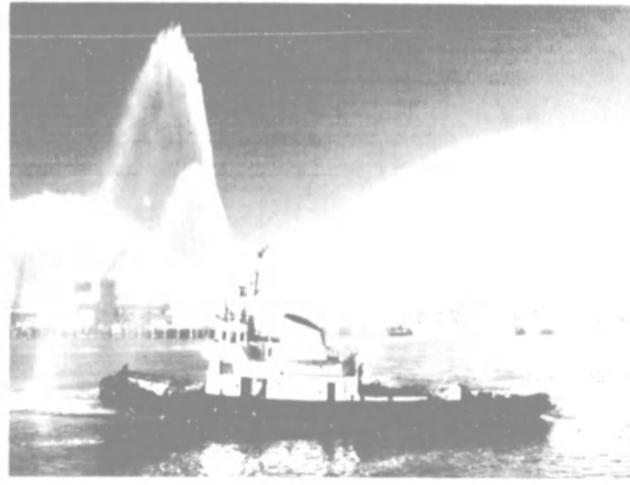
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output 1800 gal/min at 120 PSI
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system. The new design features a plate crab which extends the retorquing interval from 12 to 36 months.

Retained in this new model is the rocking pin piston. The rocking pin design incorporates multiple wrist pin surfaces separated by an eccentricity. This provides increased load bearing capacity for the higher peak firing pressures associated with improved fuel efficiency.

As with past EMD engine designs, this new model has been developed with retrofitability in mind. As a result, most turbocharged 645 models now in the field can be upgraded to take advantage of these fuel economy improvements.

For free literature on the new EMD 645 and a free copy of the 32-page "EMD 645 Engine and Blended Fuels — A Progress Report,"

Write 43 on Reader Service Card

Navy Awards \$6.3-Million Modification To Motorola Equipment Contract

Motorola Incorporated, Scottsdale, Ariz., has been awarded a \$6,331,922 modification to a previously awarded fixed-price contract for advance production material for FY-83 TD-1271 B/U multiplexer equipment requirements. This equipment is used aboard ships and at shore UHF satellite communications facilities enabling the user to time-share channels for more efficient UIIF satellite communications. The Naval Electronic Systems Command, Washington, D.C., is the contracting activity (N00039-82-C-0047).

Christensen Appointed General Manager Of Marine Services At Hanna Mining

William F. Christensen has been appointed general manager-marine services for The Hanna Mining Company, of Cleveland, Ohio, filling the position vacated by the death of John W. Manning on January 4, 1983. The announcement was made recently by James E. Courtney, executive vice president.

In his new position, Mr. Christensen will be responsible for all aspects of Hanna's dock and vessel operations. He formerly served as assistant general manager-marine services.

Mr. Christensen joined Hanna's dock operations in Ashtabula in 1951. In 1955 he was named dock dispatcher in Cleveland, and he served as purchasing agent from 1964 through 1972. He was appointed assistant manager-docks and vessels in 1973 and assistant general manager-marine services in 1979.

LeCompte Named General Manager Of Bethlehem's Great Lakes Division

The promotion, effective February 1, of Julien H. LeCompte to general manager, Great Lakes Steamship Division of Bethlehem Steel Corporation, was announced recently by William A. Rouse, vice president, transportation. Mr. LeCompte is succeeding Roy

F. Dobson, who retired following more than 35 years of company service.

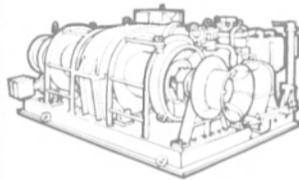
Mr. LeCompte joined Bethlehem Steel in 1958 as a member of the firm's management training program and was initially assigned to Los Angeles in the traffic (transportation) department. He was transferred to the company's home office as senior traffic assistant and three years later was named assistant dis-

trict traffic manager in San Francisco.

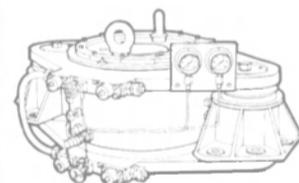
In 1970 Mr. LeCompte was assigned to Bethlehem's marine division at Sparrows Point, Md., as administrative assistant and two years later returned to the home office. He was named coordinator-water transportation in 1974 and the following year was promoted to assistant to vice president. Mr. LeCompte was named general manager-water transportation, in 1978.



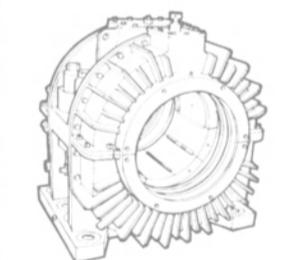
The Vickers Marine Engineering Division



JERED BROWN BROTHERS INC: Steering Gear-Deck Machinery - Aircraft, Personnel and Stores Elevators - Replacement Parts, Tooling, and Drawings Since the Turn of the Century.



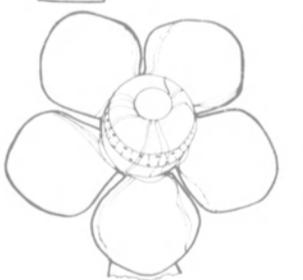
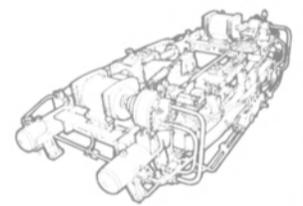
BROWN BROTHERS: Stabiliser Systems - Aircraft Catapults - Ship Motion Monitoring and Prediction - Heave Compensators and Tensioners for Offshore Industry - Control System Design and Engineering.



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MICHELL BEARINGS: Main Thrust Bearings, Journal Bearings - Thrust Meters and Resonance Changers.

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Wesley Wheeler Appointed U.S. Representatives For Hapag-Lloyd Shipyard

Hapag-Lloyd Shipyard, Bremerhaven, West Germany, recently appointed Wesley D. Wheeler Associates, Ltd., of New York, exclusive representatives for the U.S.

The Hapag-Lloyd shipyard deals primarily with the repair,

conversion, and fitting out of vessels of all types. Two drydocks with all associated facilities, workshops, and sufficient crane capacities are available to enable drydocking of vessels with drafts up to 11.5 meters and 90,000 dwt.

The yard employs a labor force and staff of 1,300 persons who, directed by experienced engineers and foremen, do any kind of repair and maintenance work and are especially suited to han-

dle complex jobs. They specialize in ship conversions, such as ro/ro's and passenger ships such as the Norway and Mikhail Lermontov.

Managing directors, Eckart Knoth and Dieter Haake, reported that Wesley D. Wheeler Associates, Ltd. was selected as the exclusive agent because of its technical expertise in the field of naval architecture and marine engineering.

For more information about Hapag-Lloyd,

Write 27 on Reader Service Card

\$1.1-Million Contract For VHF-FM Systems Awarded Rockwell-Collins Italiana

A \$1.1-million U.S. Navy contract for the production of URC-80 VHF-FM communications systems has been awarded to Defense Electronics Operations' Rockwell-Collins Italiana S.p.A., a wholly owned Rockwell International Corporation overseas subsidiary.

Under the firm, fixed-price agreement, Rockwell will furnish 15 systems, which provide line-of-sight communication for "bridge-to-bridge" ship operation. Each system includes a transceiver, control, handset, and antenna. The order also calls for 25 transceiver units.

In addition, the basic ordering agreement includes 424 modules, 159 control panels, and 500 miscellaneous spares, such as cables and loudspeakers, all of which correspond to approximately 55 transceivers. Delivery of equipment is scheduled from April to December 1983.

The U.S. Navy has a potential requirement for approximately 350 units over the next three years. Possible market for the MR-201, an international version of the radio, is estimated at several million dollars annually.

Petronas Commissions Its First Promet-Built Jackup

Petronas recently commissioned its first offshore jackup drilling rig built at Promet, Private, Ltd., Singapore.

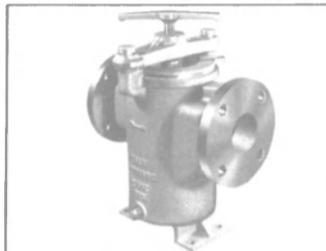
Witnessed by 400 guests, the commissioning ceremony for the Parameswara was performed by Tun Puan Suhailah, wife of Petronas adviser Tun Hussein Onn.

Worth US \$49 million, the Parameswara will undertake both exploration and development activities in Petronas Carigali's exploration block off the East Coast of Malaysia. The block measures 19,800 square kilometers. Initially, the rig will be located at the Duyong gas field.

Based on BMC-300 design, the 65 by 64 by 8-meter rig is capable of working in water depths of up to 91.4 meters and is able to drill to a maximum depth of 7,600 meters. It has three triangular open lattice truss legs, each 131 meters long.

Prominent features of the rig are a four-tier living quarters which can house 90 offshore men, three cranes with boom length of 30.48 meters each, a helideck, messroom, galleys, and a recreation room. The rig was built to ABS classification.

You Can Hardly Go To Sea... Without Something We Make!



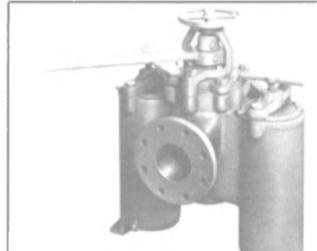
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SIMPLEX STRAINERS
SIZES: 3" - 16"
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STAINLESS STEEL

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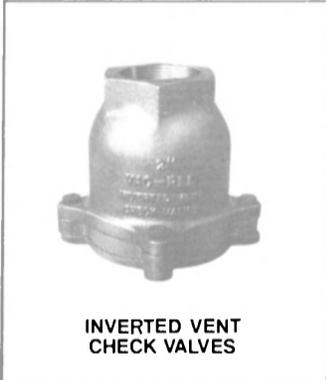


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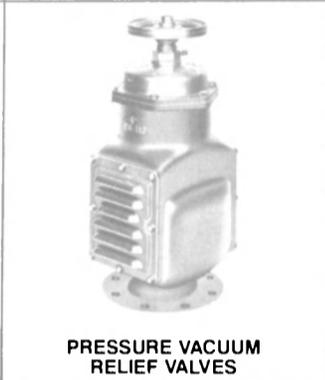
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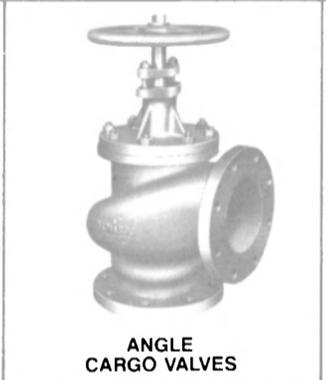
BASKET TYPE
DUPLEX STRAINERS
SIZES: 3" - 16"
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CAST STEEL,
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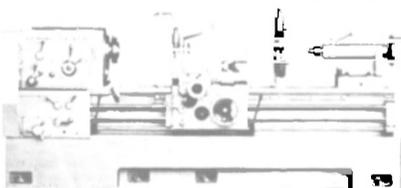
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- HEAVY DUTY LATHES



Swing over bed —
48" - 56" - 62"
*Distance between
centers from
80" up to 472"

Box

- ROLL TURNING LATHES



Swing over bed —
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centers from
80" up to 472"

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(*Distance between centers is in one piece bed.)

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NASSCO Awarded \$41.5-Million Contract Increase For SL-7 Conversions

National Steel and Shipbuilding Company, San Diego, Calif., has been awarded a \$41,556,693 face-value-increase to a previously awarded cost-plus-fixed-fee contract for Government Specified Equipment (GSE) (long lead time material) for conversion of two SL-7 ships to TAKR (fast logistic ship). This includes hatch covers, 35T and 50T cranes, side port hatches, portable ramps and platforms, fuel pumps and motors and fuel strainers, and watertight bulkhead doors. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-C-2234).

Castelvecchi Named Corporate Purchasing Agent At Ships Supply



Frank Castelvecchi

Frank Castelvecchi has been named corporate purchasing agent for Ships Supply Inc. of Jacksonville, Fla., by Michael C. Kenney, president of the company that supplies provisions, deck, and engine equipment to vessels and industrial plants.

Mr. Castelvecchi, who was associated with North Florida Shipyards as purchasing agent before joining Ships Supply, will recommend policy and assist in developing and administering policy on matters concerning corporate purchasing.

The new corporate purchasing agent will have control of an inventory numbering thousands of items that include anchors to engine parts to food supplies.

Ships Supply also maintains an office and warehouse in Tampa. The company serves Charleston, S.C.; Savannah and Brunswick, Ga.; and Cape Canaveral, Port Everglades and Miami, Fla. Other ports include Aruba, San Juan, Bahamas, and Curacao.

Honeywell Forms New Undersea Sensor Group

Honeywell Marine Systems Division, of Seattle, Wash., recently created a new group to expand development activities in underwater transducer technology. The Undersea Sensor Group draws

into one business unit the engineering, management, and laboratory resources necessary to support all of the division's acoustic sensor design and small-quantity manufacturing activities.

By concentrating these capabilities under one head, the new organization is designed to more efficiently meet projected future requirements for underwater acoustic equipment.

The new Honeywell group fits within the company's Seattle-based Marine Systems Division (MSD), a leader in naval acoustic equipment and ocean engineering services. Since 1951, MSD has developed and produced a wide spectrum of underwater sensor products for both government and commercial applications in the United States and abroad.

Commercial products generally related to acoustic positioning

systems such as beacons, transponders, and the corresponding shipboard equipment also are produced.

Head of the specialized undersea sensor team is Robert D. Isaak, most recently product line manager for advanced systems at MSD and former head of the Sonic Sonar and Countermeasures Division of the U.S. Naval Undersea Center, San Diego, Calif.

Save 10% to 30% on fuel costs.

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Introducing the Avicon Monitor 205 fuel management system.

What others promise, Avicon delivers.

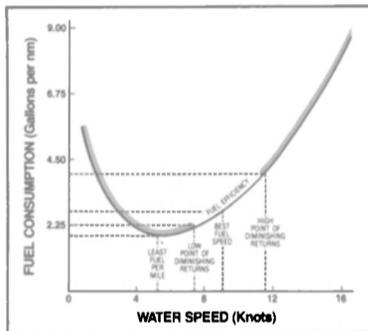
The Avicon Monitor 205 computer-based fuel management system has proved it sharply reduces vessel operating costs. Assures maximum engine performance and minimum fuel consumption. Gives early warning of hull fouling, engine and propeller troubles.

All the data needed for efficient fuel management. At the push of a button.

The Avicon Monitor 205 provides needed data quickly, easily, positively. Includes vessel speed, RPM, fuel flow, efficiency, fuel used, propeller slip, time and distance. Function input data includes fuel viscosity and density, fuel flow and RPM alarms, time periods for averaging, speed and fuel flow, and pitch of fixed propellers.

Continuous monitoring.

Once the Avicon Monitor 205 has quickly established fuel savings procedures, it helps ships' personnel carry them out. Effectively saves fuel at running speeds, low speeds, and idling. Makes en route fuel savings decisions routine. Increases crews' knowledge of fuel saving procedures. Provides positive proof of effectiveness. Provides positive



Performance curve chart.

motivation for crews to conserve fuel.

Effective, cost-saving fuel management becomes a reality.

The performance chart shown at left plots water speed in knots versus fuel-consumption-per-mile for a typical vessel. It shows that very low speeds do not necessarily result in better efficiency. Note

the speed at which any increase or decrease in power setting produces ever smaller increases in fuel efficiency (points of diminishing return).

Because the Avicon Monitor 205 automatically computes and displays fuel consumption at any water speed, it quickly generates the data needed for your own vessels' performance curves.

Doppler log needs no through-hull fitting.

While any log with a 200 ppm output can be used as a water speed sensor for the Monitor 205, the Avicon Sonilog™ Doppler Log is recommended. The Sonilog is easily installed inside steel hulls. Unlike other doppler logs, the Sonilog's transducer does not require through-hull installation.

Your R.O.I. is fast, significant.

The Avicon Monitor 205 provides a substantial Return On Investment—quickly pays for itself in months. Sometimes, only weeks!

Yes, we can prove it! The operator of one vessel had his investment returned in just 3 weeks. He saved \$75,000 on fuel during a 17-week voyage. Other ship operators' Returns On Investment are equally dramatic. Yours can be, too.

We warranty it.

Superb engineering design, use of the finest system components, rigorous quality control during manufacturing, and extensive reliability testing at sea allows Avicon to provide, with confidence, a 2-year warranty against defects in material and workmanship for the Monitor 205.

Don't let your profits go up in smoke! Order now.

Every day your vessels are without the Avicon Monitor 205, fuel is wasted, profits are lost—forever! Ask your dealer for complete information. Or contact Avicon direct.



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Charles Lynch Elected AIMS Board Chairman

Capt. Charles M. Lynch, president of Arco Marine, Inc. in Los Angeles, Calif., recently was elected chairman of the board of directors of the American Institute of Merchant Shipping (AIMS) for 1983. He succeeds J.J. Ervin, president of Trinidad Corporation, Philadelphia, Pa.,

following the association's annual meeting held in Washington, D.C.

Captain Lynch has been with Arco Marine since 1946 and was named president of the company in 1980. He assumes the leadership of a national association which represents American-flag ships and operators. AIMS' 29 member companies own or operate almost 12-million dwt of U.S.-

flag tankers and dry bulk vessels in U.S. domestic and foreign commerce.

The 1983 AIMS board members, in addition to Captain Lynch are W.H. Banks, president, Chevron Shipping Company, San Francisco; J.A. Cole Jr., vice president, Marine, Texaco Inc., New York; Richard T. du Moulin, vice president, Ogden Marine, Inc., New York; Ran

Hettena, president, OSG Bulk Ships, Inc., New York; Frank J. Iarossi, president, Exxon Shipping Company, Houston, Texas; John T. Jacobson, manager, Marine Transportation, Standard Oil Company (Ohio), Cleveland; T.D. Patrick, president, Sun Transport Inc., Aston, Pa.; and George P. Steele, president, Inter-ocean Management Corporation, Philadelphia, Pa.

AIMS officers re-elected by the board for the coming year are Rear Adm. W.M. Benkert, USCG (ret.), president, and Ernest J. Corrado, vice president. Roseann Pazak was re-elected AIMS treasurer and was also elected the association's secretary.

AIMS has completed its 14th year of service to the U.S.-flag merchant marine.

Areas targeted for AIMS involvement during 1983 include promoting the interests of U.S.-flag bulk carriers by closely appraising port development and Coast Guard user charge legislation, and seeking uniform federal, as opposed to state and local, regulation of vessel air emissions.

AIMS members expressed particular concern about the possible lifting of oil export controls—the exportation of Alaskan oil—and a Department of Transportation notice of proposed rule-making which would permit the total repayment of CDS and permanent vessel entry into the domestic trades.

Heerema Group Acquires Big Inch Marine Systems

The Heerema Group, headquartered in Geneva, Switzerland, which is involved worldwide in the design, fabrication, and installation of offshore structures and pipeline systems, recently announced the acquisition of Big Inch Marine Systems Inc. of Houston, Texas.

Big Inch Marine Systems provides manufacturing and service in subsea pipeline repairs and new construction. Its metal-to-metal products and services include the coldforging process flexiforge, the boltless flange, misalignment ball joint, locking slip joint, ball flange and load limiting connectors.

The acquisition of Big Inch broadens Heerema's diversification into sophisticated underwater equipment and services. With Heerema's support and facilities, Big Inch will increase its worldwide activities with immediate emphasis on the North Sea operating areas.

Big Inch will remain headquartered in Houston and relocate its European office to Heerema Engineering Service (UK)'s new facilities in London.

On any terrain...even rough... the smooth way up!

GROVE/MANLIFT Models SM31RT and SM42RT self-propelled aerial work platforms — the rugged, heavy-duty members of a team of highly-efficient machines for those demanding overhead jobs!

For the tough ground conditions found on most construction jobsites, either of these GROVE/MANLIFT models offer you the highest degree of mobility and maneuverability available in scissor lifts.

■ Powered by dependable 30 HP gas, diesel or propane engines, these no-nonsense machines cut overhead jobs down to size under the most grueling conditions.

■ With working heights of up to 42 feet (12.8 m) and a generous 75 sq. ft. (7 m²) platform, these husky scissor lifts will raise up to 2,000 lbs. (907 kgs) of personnel, tools and equipment with the utmost reliability.

■ With GROVE/MANLIFT Self-Propelled Aerial Work Platforms you get the working height, capacity and mobility to place your men and their gear right where the work is.

■ Whatever the job, you can depend on GROVE/MANLIFT for performance-proven design.



low maintenance and cost-cutting efficiency—which is what you'd expect from GROVE—world leaders in construction and industrial lifting equipment!

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Minority-Owned Shipyard Organized In Portland

Swan Island Shipyard, Inc., a minority-owned business enterprise conceived through privately funded studies arranged by Portland City Commissioner Charles Jordan and some members of the Portland Chamber of Commerce, has completed its formal corporate organization.

The announcement was made

recently by the corporation's president, Larry Jackson Sr. The studies were coordinated by local marine consultant James H. Sanders, and were based on projects originally suggested by William Plymale, the Port of Portland's former director of marine operations.

Although intended to address the need for more minority involvement in Portland's marine industry, Swan Island Shipyard is expected to have significant

impact nationally. Thanks to publically funded operating facilities provided by the Port of Portland, the new enterprise will be able to offer to those shipyard customers wishing to patronize certified minority vendors a service package built around 14 deepwater repair berths, with 16 traveling gantry-mounted cranes, a set of heavy launching ways, and 4 full-sized drydocks, including the third largest floating drydock in the world.

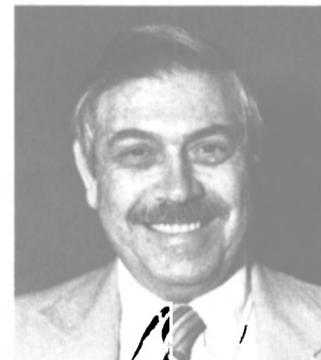
Swan Island Shipyard's use of the port's facilities will not be exclusive. In fact, marketing research indicates that its activities will complement rather than compete with those of the contractors currently operating at the port's facilities on Swan Island.

The new shipyard's administrative offices are located on Swan Island. Mail should be addressed to P.O. Box 4588, Portland, Ore. 97208. The phone number is 503/285-5391. Inquiries should be directed to project coordinator James H. Sanders, who will act as the new shipyard's chief engineer.

\$27.7-Million Contract Modification Awarded Draper For Trident Support

The Charles Stark Draper Laboratory, Cambridge, Mass., has been awarded a \$27,700,000 cost-plus-fixed-fee modification for engineering services in support of the Trident missile program. The Navy's Strategic Systems Project Office, Washington, D.C., is the contracting activity (N000-30-81-C-0133).

Allo International Rubber Appoints Robert Salter As Sales Manager



Robert A. Salter

Alex Lange, vice-president, and Louis P. Huyter, vice-president-sales of Allo International Rubber Ltd., Little Ferry, N.J., recently announced the appointment of Robert A. Salter as sales manager. Mr. Salter will be responsible for Allo International Rubber sales, reporting to Mr. Huyter.

Allo International Rubber is one of the foremost suppliers of marine packing and jointings. Allo also fabricates and distributes cargo and chemical hose, industrial hose assemblies, expansion joints, and connectors in stainless and rubber to marine and industrial markets worldwide.

Mr. Salter was formerly national sales manager of Unaflex Rubber Corp. and manager of the H.S. White Co., a wholly owned distributor of Unaflex. Mr. Salter was also with Uniroyal Inc. for 12 years.

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Eliminate on board welding with Coast Guard approved Model PS exhausts and ducts.

Model PS Exhaust and Duct Systems are accepted by both the U.S. and Canadian Coast Guard for use aboard Coast Guard inspected vessels.

Applications include main propulsion systems, auxiliary and emergency systems, and galley ventilation systems.

Model PS thermal and structural characteristics and limits have been defined through exhaustive in-house testing and by seven years of on-the-job performance on land based installations. And, Model PS systems satisfy the requirements of Chapter 4, Engine Exhaust Systems in NFPA 302, Standard on Fire Protection for Pleasure and Commercial Motor Craft.



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**New Raytheon
RAYPATH ARPA
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—Brochure Available**



A new four-color brochure describing Raytheon Marine Company's compact, low-cost RAYPATH Automatic Radar Plotting Aid (ARPA) is available. Unveiled recently at a Raytheon Worldwide High Seas Distributors' Conference in Copenhagen, Denmark, the new RAYPATH ARPA is low-cost, yet provides many outstanding features and meets all IMO requirements.

The RAYPATH uses the same 16-inch Bright Display Mariners Pathfinder® Radar which is built into the Raytheon RAYCAS, the ARPA currently used on ships throughout the world.

The RAYPATH scans to 64 miles and acquires and tracks up to 10 targets at once in a range of 1½ to 12 nautical miles. As the operator adds new targets, least-dangerous tracked targets automatically cancel. Dangerous targets are designated with flashing symbols, dots show target trails, and vector lines indicate target headings and speed. An auto detection provides warnings of targets entering a preset safety zone. To help eliminate target swap, RAYPATH's tracking window automatically shrinks to minimum size after it has made a target acquisition.

Raytheon's new "track-ball" mechanism makes target acquisition fast and precise. The rotating track-ball not only allows the operator to manually designate and cancel targets, move EBL, and place a "true mark," but also offset ownship up to 67 percent in any direction from the center of the CRT display, increasing viewing range to over 20 miles.

Targets are tracked up to a relative speed of 150 knots—even seaplanes on or near the surface can be monitored.

Raytheon reports operation of the RAYPATH is simple, with push-button program controls mounted directly above the display screen. The system's slim line makes it easy to install, even in small wheelhouses. Raytheon's

exclusive digital Bright Display provides uniform, very sharp electronic echo signals, which can be viewed simultaneously by several observers, even in daylight. The CRT display can be set for relative motion and true motion, and can be switched alternately from North-up to Course-up presentations.

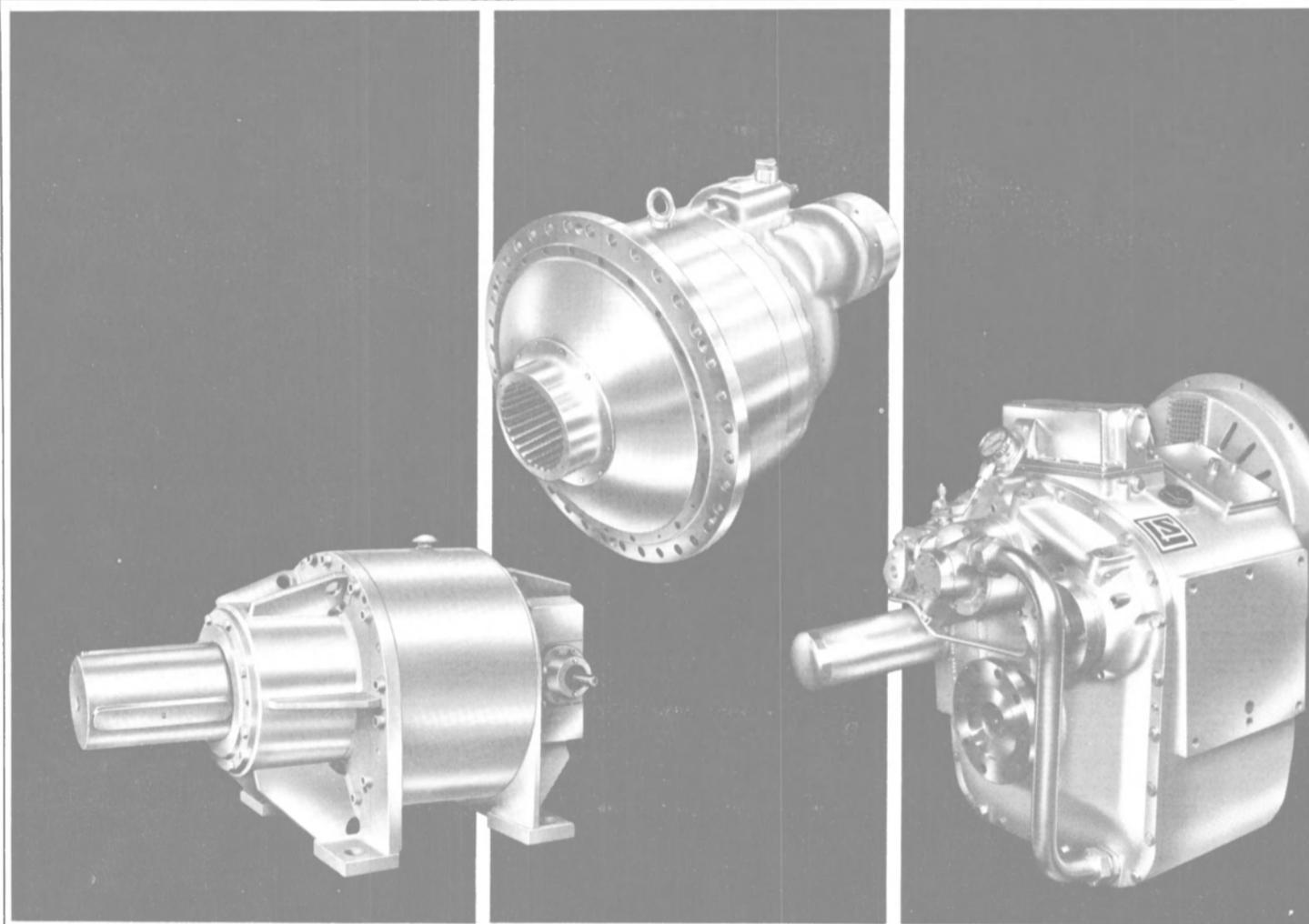
The Raytheon Interswitch permits any two models of Ray-

theon Bright Display Radars to be interswitched. For example, a single RAYPATH display can be interswitched to either X-band or S-band radars, whichever is appropriate for existing weather. The Raytheon Adaptive Interface Unit permits a RAYPATH display to be interfaced with other 12 and 16-inch displays, including Raytheon/Selenia, as well as those of other manufacturers.

Raytheon also provides a 12-inch radar display RAYPATH ARPA for ships not required to comply with IMO regulations.

The new RAYPATH ARPA, is a product of eight years of intensive Raytheon design and testing.

For a free copy of the new Raytheon ARPA color brochure, **Write 19 on Reader Service Card**



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Compact industrial gear units are available in 16 sizes for output torques of 2,500 to 750,000 foot pounds. Offset, concentric and right angle configurations with ratios to 2500:1 offer design flexibility to solve every drive problem.

Carburized, hardened and precision-ground gears result in maximum tooth strength and durability.

Compact design delivers maximum torque in minimum space with high efficiency and low noise levels. Applications include continuous casting machines, conveyor lines, bucket wheel drives, winch drives, stretch mills, mixers, mill drives and others.

MOBILE



Mobile gearboxes tailored to match special requirements of construction and mining machinery. Output torques to 3.7 million foot pounds; ratios to 500:1 available.

Track drives, swing gears and wheel motors used with hydraulic or electric motors are extremely compact. Available design options are brakes, dual inputs, right angle inputs and choice of mountings.

Winch drives can be supplied with drum and supporting frame.

Pump splitter boxes distribute power to several hydraulic pumps.

Carburized, hardened, precision-ground gears assure maximum strength and reliability.

MARINE



Marine gearboxes feature the advanced technology developed by Lohmann & Stolterfoht, West Germany. They offer the design flexibility needed to achieve top propulsion efficiency and significant fuel savings. Because these gearboxes are available in the wide range of 130HP to 100,000HP in reduction and reverse configurations with single or multiple inputs, you can create the ideal system for your vessel.

In addition, we provide highly elastic couplings and clutches, torsionally rigid clutches plus a selection of sleeve, thrust and shaft bearings for every design consideration.



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William Law Elected To Board Of Twin City Barge

William E. Law, president of Allied Marine Industries, Inc. of Norfolk, Va., has been elected to the board of directors of Twin City Barge, Inc. of South St. Paul, Minn., John W. Lambert, chairman of the board and chief executive officer, announced recently.

Twin City Barge and Allied

previously reported the signing of an agreement in principle for the merger of Allied into a wholly owned subsidiary of Twin City Barge. Allied operates on the inland waters of the East Coast, in coastal trade between Gulf and Atlantic ports, and in ocean transportation from Maine to Texas, including the Caribbean.

Mr. Law, as president of Allied, will continue to direct Allied op-

erations as Twin City Barge's East Coast profit center. He is the principal stockholder of Allied, and has been its chief executive officer for 26 years.

Twin City Barge is a diversified company engaged in river, coastal and ocean transportation. Its marine operations extend throughout most of the inland river system of the United States, the Gulf Coast, and the Pacific Coast, including Alaska.

American Lohmann Offers Free Literature On Marine Gearboxes

American Lohmann Corporation, Hillside, NJ, is offering free literature describing their marine gearboxes.

Featuring the advanced technology developed by Lohmann & Stolterfoht of West Germany, these marine gearboxes offer the design flexibility needed to achieve top propulsion efficiency and significant fuel savings.

American Lohmann marine gearboxes are available in a wide horsepower range (130 hp to 100,000 hp), in reduction and reverse configurations with single or multiple inputs.

Gearboxes are provided with highly elastic couplings and clutches, torsionally rigid clutches, plus a selection of sleeve, thrust and shaft bearings for every design consideration.

For free literature on American Lohmann's marine gearboxes, Write 40 on Reader Service Card

CAB Develops Portable Steel Grit Recovery System —Free Literature Offered



Complete Abrasive Blasting Systems, Inc. (CAB) of Kent, Wash., recently announced that the first portable manual air blast application of a skid-mounted steel grit recovery system for field use has been delivered and is in service successfully.

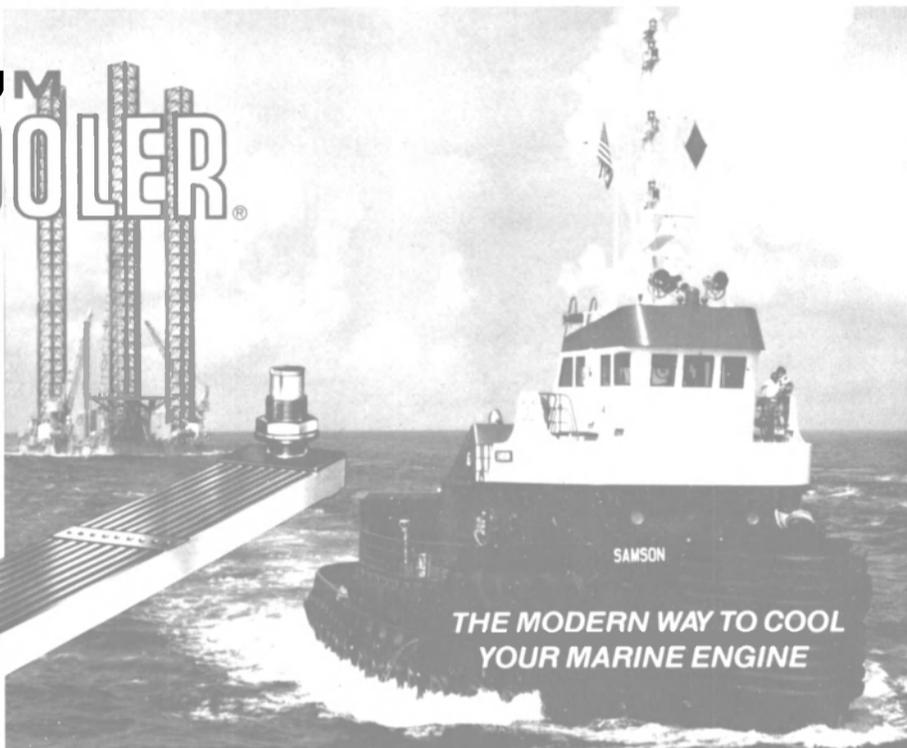
The equipment is being used for the blasting and coating of the intake gates and pit areas of the Chief Joseph Dam in Bridgeport, Wash. The work is being performed by Abhe & Svobada of Prior Lake, Minn., under an Army Corps of Engineers contract. The contract has stringent requirements for air pollution control and possible contamination due to surface preparation.

The CAB field system was designed and engineered by the firm at the request of Gale Svobada, company president, not only to fulfill the Corps contract, but also, with minor adjustments, to be suitable for other applications. The CAB system includes an MSA-6 automatic blast machine with 6 operator outlets and a 25-ton hopper; two 50-hp ARS-750 vacuum recovery systems; and two Auto Dumps on a special custom-built hopper con-

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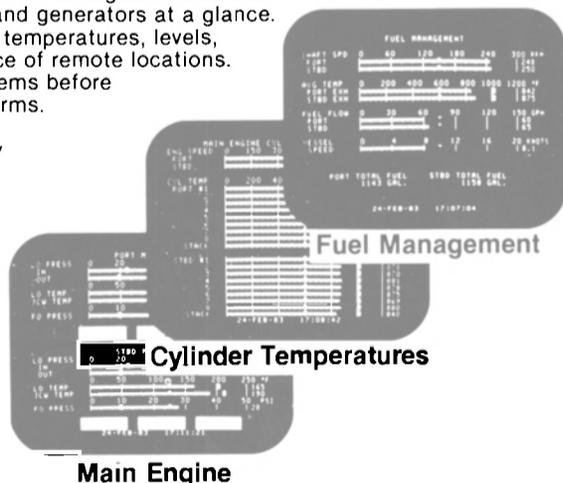
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 - DC power for uninterrupted operations

- Certified**
 - ABS ACCU
 - USCG NVC1-69
 - Lloyds UMS

nected to the end of the airlift conveyor/classifier — all skid-mounted.

CAB reports that Mr. Svobada anticipates a \$75,000 savings by the use of the recoverable steel grit over other nonrecyclable substances and a 50 percent increase in productivity due to lack of dust and improved visibility.

The system also can be mounted on a 40-foot trailer and used dockside for blasting ships' tanks and hulls. CAB developed a weathertight blasting capsule for side-mounting on the hull of a drydocked vessel which permits recovery and recycling of steel abrasives. Either the skid or trailer arrangement can be used for work on the interiors and exteriors of large industrial tanks.

For more information on the CAB system,

Write 17 on Reader Service Card

\$15.2-Million Increase Awarded Westinghouse For Nuclear Components

Westinghouse Electric Corporation, Plant Apparatus Division, Wilkins Township, Pa., has been awarded a \$15,209,000 face-value-increase to a previously awarded cost-plus-fixed fee contract for naval nuclear propulsion components. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-77-C-4002).

Proform To Supply 26 Sets Of Fiberglass Barge Covers —Brochure Available

Proform, Inc. of Minneapolis, Minn., manufacturer of structural fiberglass inland and ocean barge covers, recently received an order for 26 sets of inland lift-off covers from American Commercial Barge Lines, Jeffersonville, Ind. Company literature describes the fiberglass covers that result in added cargo tonnage, are one third the weight of steel covers, are noncorrosive, and easy to maintain.

For more information,
Write 25 on Reader Service Card

M.A.N. To Build Three Floating Cranes With Voith-Schneider Propulsion

The Saudi Ports Authority recently awarded M.A.N. in Nuremberg, West Germany, as general contractor, an order for three floating cranes with a lifting capacity of 200-tons each. The pontoons are being constructed by M.A.N.-GHH Dock and Shipbuilding Company. They measure: length 60 meters, breadth 21.7 meters, trial run draft 2.38 meters, with a displacement of about 2,150 tons.

Like the two 200-ton floating cranes Dammam and Jeddah that

are already in service, the new cranes are designed to operate without tug assistance. They will be equipped with Voith-Schneider propulsion systems.

The cranes are to be used in the ports of Jeddah, Jubail, and Gizan. Depending on the amount of work to be performed, it is planned to transfer the cranes from port to port without tug assistance. In view of the rela-

tively high free-running speed of about 8 knots, a three-propeller system was selected.

The total input power of each crane is 1,640 kw, distributed over two size 21 G II/135 propellers, each of 600 kw, and a size 18 G II/115 VS propeller of 440 kw.

The propellers are driven electrically by three-phase a.c. squir-

rel-cage motors. To utilize the installed power as ideally as possible for maneuvering and for the compensation of wind forces, the two larger propellers are arranged at the crane-mast end of the pontoon, i.e., near the center of the lateral windage area. These are located in recesses. The third propeller is installed freely in the raised pontoon bottom.

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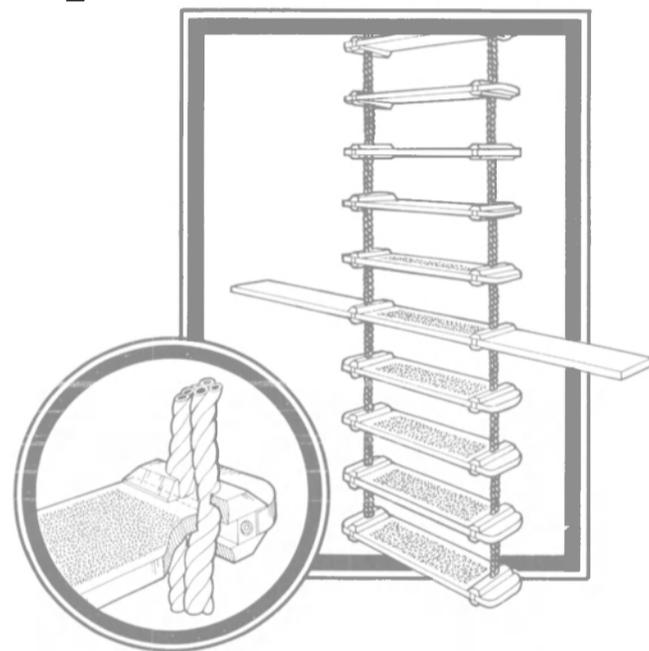
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Write 1491 on Reader Service Card

Daewoo Christens Two Jackup Rigs For Dual Drilling Co.

Two jackup drilling rigs were christened recently in a ceremony held at Daewoo's Okpo shipyard situated on the southern tip of the Korean peninsula.

The Friede & Goldman L-780 Mod II-type rigs, which were ordered by Dual Drilling Co. of the U.S. in September 1981, were named Dual Offshore Rig 38 and

DUAL OFFSHORE RIG 38
DUAL OFFSHORE RIG 42

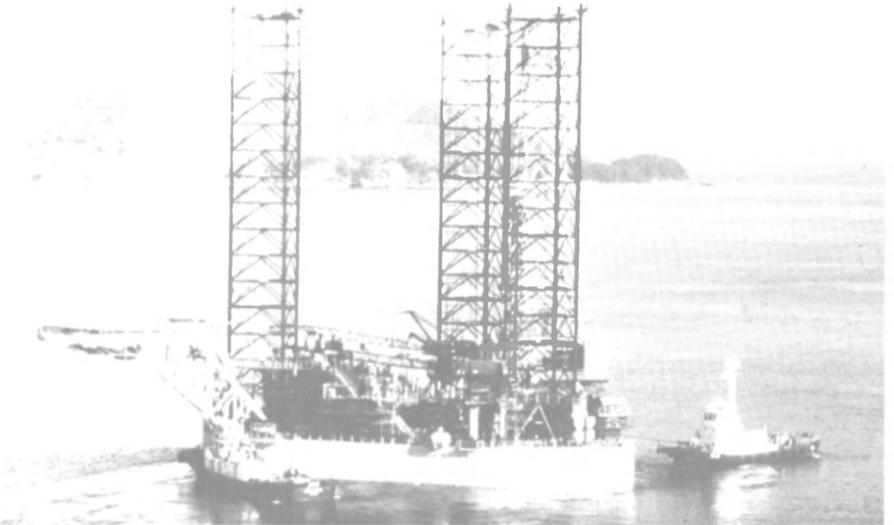
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Rack Chocks	Friede & Goldman
Electric Power	(3) EMD 16-645 E8
Electric Power Systems	Controls
Controls	Ross Hill
Cementing System	Halliburton

Dual Offshore Rig 42, respectively.

Each of the units has the principal dimensions of 180 feet in length, 175 feet in breadth, and 25 feet in hull depth, with a leg length of 416 feet 8 inches. The rigs each have accommodations for 92 men. The jackup drilling rigs are designed to drill to 20,000 feet at a water depth of 250 feet, and withstand winds up to 100 knots and wave heights of 57 feet.

Daewoo, which is now building the largest number of drilling rigs in Korea, constructed the drilling units in a record period of 11 months. The units were the first jackups to be built by a Korean shipyard. The first rig was delivered recently and the second is scheduled for delivery this month.



The jackup Dual Offshore Rig 38 is one of two being built by Daewoo Shipyard.

The drilling rigs are also the first jackups for Dual Drilling Co. They will be deployed in the West Java Sea off Indonesia, where they will be operated by ARCO Indonesia under a lease

contract, according to **R.T. Priddy**, chairman of Dual Drilling Co. Korean shipbuilders are now constructing 10 percent of the rigs presently on the world orderbook.

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FISH EXPO '83

October 26-29, 1983
Seattle Center, Seattle, Washington

*Fish Expo visitor statistics are certified by the Exhibition Validation Council of the Trade Show Bureau.

It was often called the "Sea of Darkness," this area beyond Cape Bojador on the west coast of Africa. And for centuries tales of it repelled the most courageous of navigators.

Some tales stated that the water steamed and boiled, the sand burned, and the entire area was inhabited by flesh-eating monsters.

Others claimed that beyond this cape nothing existed. No people. No fresh water. No vegetation of any kind. And miles from shore, the sea remained dangerously shallow.

But no matter how each description varied, all of them agreed on one thing: No one had ever sailed past Cape Bojador and returned to tell of the experience.

It was not until 1433 that Gil Eannes, a Portuguese explorer, resolved to cross this barrier and return home safely.

He succeeded. And by laying to rest man's fear of the area, he cleared the way for further exploration and discovery.

This story is one of a series, "Myths of the Sea," compliments of Gulf Oil Trading Company, a leading supplier of quality Veritas marine lubricants and fuels.

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AND MAN-EATING MONSTERS.



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Lykes Appoints Three In Central Atlantic Division

Three new appointments in the Central Atlantic division of Lykes Bros. Steamship Co., Inc., New Orleans, La., were announced recently.

William V. Brierre Jr. has been named assistant vice president, Central Atlantic division. Richard J. Lolich has been named director of traffic, and William

F. Aldridge has been named manager, sales.

Mr. Brierre joined Lykes in 1972 as a sales representative in the company's Dallas office and in 1975 was named district manager of that office. In 1978 he was transferred to the Central Atlantic division in Washington, D.C., as a special representative, and in 1980 was named general agent of that division, the position he held until the present.

Mr. Lolich joined the company in 1974 as a traffic representative in the Washington, D.C., Central Atlantic division office. In 1979 he was named assistant traffic manager and in 1981, traffic manager of that division, the position he held until this time.

Mr. Aldridge joined Lykes in 1979 as a management trainee at Lykes's New Orleans headquarters. Later that year he was transferred to the company's

New York office as a sales representative. In 1980 he became project sales representative, the position he held until the present. All three appointees will be located in Washington, D.C.

Drew's Corrosion Inhibitor Approved For EMD Engines —Brochure Available

Drew Marine Services, a unit of Drew Chemical Corporation, of Boonton, N.J., recently announced that its Maxigard diesel engine water treatment has been approved for use in EMD engines by the Electro-Motive Division of General Motors Corporation in LaGrange, Ill.

This nonchromate cooling water treatment is a multi-functional liquid designed to prevent general corrosion and mineral deposits as well as reduce corrosion due to cavitation. These capabilities make it well suited for use in medium to high-speed engines.

Maxigard is added on a slug dosage basis as required to maintain recommended concentrations. Details on the treatment are contained in a company brochure.

For a free copy,

Write 30 on Reader Service Card

Navy Awards \$3.8-Million Logistics Support Contract For Ohio-Class Subs

McAuto Systems Group Incorporated, Rockville, Md., has been awarded a \$3,802,122 cost-plus-fixed-fee contract for integrated logistic support for the Ohio-class submarine construction and maintenance programs. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-6049).

Lavalin Ocean Systems Formed In Canada To Provide Underwater Service

Lavalin Services, Inc. of Montreal (Quebec) Canada, and Solus Ocean Systems, Inc. of Houston, Texas, have agreed to form a jointly owned Canadian company to be called Lavalin Ocean Systems, Ltd. The company's headquarters will be located in Halifax, Nova Scotia.

Lavalin Ocean Systems, Ltd. will provide underwater marine services to the offshore oil industry in support of exploration, construction, and production facilities. Claude Rouleau has been appointed to represent Lavalin Services, Inc., and Edmund L. Dunn has been appointed to represent Solus Ocean Systems in this new venture.

The company will be located at Suite 1020, Cogswell Tower, 2000 Barryington Street, Halifax, Nova Scotia B3J 3K1.

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- ☆ Avondale has added a new large dry dock that can lift 20,000 tons and accommodate Panamax ships up to 775 feet in overall length. The dock is in service and will enable Avondale to more effectively and affirmatively respond to your requirements.
- ☆ The number of personnel has been doubled to support the new dock and provide fast efficient service.

- ☆ The New Construction Engineering Department is available for strenuous structural analyses, implementation of the latest fuel-saving innovations, and compliance with the Port and Tanker Safety Act of 1978.

- ☆ All of the new construction shops, machine tools, coating facilities, etc., are available for repair customers.

Avondale Shipyards

A SUBSIDIARY OF OGDEN CORPORATION
Post Office Box 50280 New Orleans, Louisiana 70150



**Brown & Root Elects
Three Vice Presidents
In Marine Operations**

Thomas J. Feehan, president of Brown & Root, Inc. of Houston, Texas, announced the election recently of three vice presidents in the company's Marine Operations Group. Brown & Root, a Halliburton company, is one of the world's largest engineering-construction companies.

Promoted to vice president, Western Hemisphere Pipeline Division, is **W. Kenneth Hicks** who has been division manager. He will office in Houston.

Larry H. Stewart becomes vice president, Western Hemisphere Marine Structures Division headquartered in Houston; and **Thad Smith III** was named vice president-construction, Europe/Africa area, officing in London.

Mr. Hicks has been with Brown & Root for 10 years and has 25 years' experience in the engineering, construction, and management of marine related activities. Thirteen years were spent overseas in Venezuela, Ecuador, England, Bahrain, and Holland.

Mr. Stewart joined Brown & Root in 1965 following a tour of duty with the U.S. Navy. He has 18 years' experience in offshore platform fabrication and installation, beginning his career as an estimator. He has managed the company's two Texas fabrication yards — the Greens Bayou Marine Yard in Houston and Harbor Island Fabrication Yard in Port Aransas. Mr. Stewart also worked in Scotland, Iran, England, Vietnam, and the Philippines with Brown & Root.

Mr. Smith has spent his 16-year career with Brown & Root overseas, specializing in international offshore construction. He began his career as a coating inspector in a pipe casting yard in Kuwait. Mr. Smith will continue the responsibilities he has had while serving as an officer in the London-based subsidiary of Brown & Root, Brown & Root (UK) Limited. Other countries in which he has worked for Brown & Root include Nigeria, Iran, Okinawa, and Norway.

**Proceedings Available
From Gastech '82**

The "Proceedings" of the Ninth International LNG/LPG Conference—Gastech '82—will be produced by a new quicker method. The publication is scheduled to be available by the end of February 1983. The "Proceedings" will contain 57 papers and related discussion from Gastech '82.

For information contact **Brian Singleton**, Director, Gastech Ltd., 2 Station Road, Rickmansworth, Herts, WD31QP, England. Tel. (09237) 76363. Telex: 924312 Gastech.

March 1, 1983

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<p>MAY 1 Advertising Closing Date April 11</p> <p>✓ ★</p> <ul style="list-style-type: none"> • LNG 7 — Jakarta, Indonesia May 14-19 • RO-RO '83 — Goteborg, Sweden May 17-19 	<p>MAY 15 Advertising Closing Date April 25</p> <p>✓ ★</p> <ul style="list-style-type: none"> • NOR-SHIPING '83 — Oslo, Norway June 6-11 • WORLD FISHING '83 — Copenhagen, Denmark June 18-22
<p>JUNE 1 Advertising Closing Date May 11</p> <p>Includes Special NAVY Coverage</p> <ul style="list-style-type: none"> • ANNUAL YEARBOOK ISSUE 1983 Exclusive reports authored by industry leaders on the current status and worldwide forecast for shipbuilding, shipping, navy, offshore drilling, inland waterways, including world shipbuilding tables, U.S. shipbuilding tables, and much more. 	<p>JUNE 15 Advertising Closing Date May 25</p> <ul style="list-style-type: none"> • MARINE COATINGS AND CORROSION CONTROL — A Special Report A review of the latest advances in coatings technology that can provide significant cost savings for vessel owners.
<p>JULY 1 Advertising Closing Date June 10</p> <ul style="list-style-type: none"> • NAVIGATION AND COMMUNICATIONS EQUIPMENT — A Review. Latest developments and innovations in navigation and communications equipment manufactured by the world's leading suppliers. 	<p>JULY 15 Advertising Closing Date June 24</p> <ul style="list-style-type: none"> • DIESEL POWER REVIEW An update on the recent developments in fuel-efficient diesel engines for marine propulsion and electric power generation.

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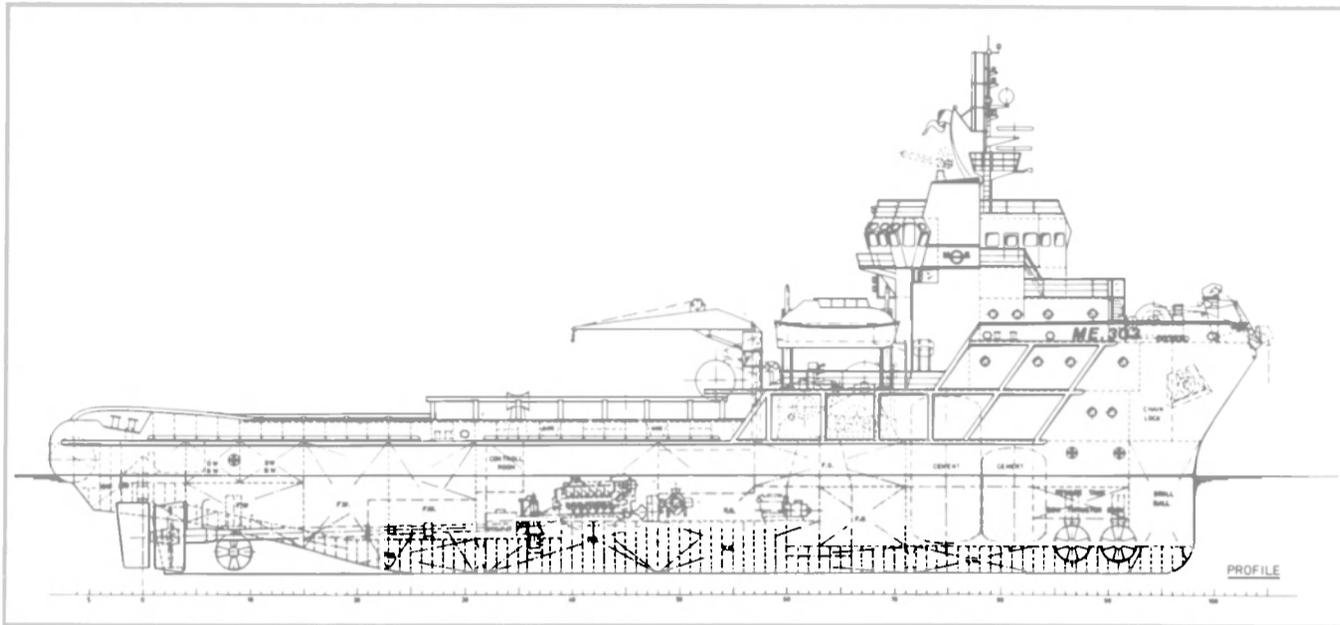
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Halter To Build Deepwater, ME 202s And ME 303s In The United States

Halter Marine, Inc., of New Orleans, La., and Maritime Engineering A.S., of Oslo, Norway, have signed an agreement granting Halter exclusive rights in the U.S. to build all of the ME series vessels in excess of 201 feet. Halter also has the license on a nonexclusive basis worldwide.

Maritime Engineering A/S is a well-known marine engineering and naval architecture firm with a successful history of designing a variety of vessels that serve offshore oil fields in some of the most hostile seas in the world.

In making the announcement, **R.J. Shopf**, president of Halter Marine said: "This agreement reflects our interest in offering a proven line of versatile vessels that can work in such areas as the North Sea, Beaufort Sea, North Atlantic, and just about any hostile weather area in the world. The Maritime Engineering vessels give us proven designs, backed by extensive cold

water experience coupled with the high-quality productivity of our six shipyards."

He added Halter will continue to offer its own line of vessels including its new 225-foot Sea Titan series, and indicated that even larger designs are on the Halter drawing boards now.

Two of the Maritime Engineering vessels that are available now from Halter are the ME 303 and ME 202. The ME 303 is a deepwater, anchor/handling, tug/supply boat designed to handle the anchors of the new generation of semisubmersible drilling rigs.

The 223-foot, 12,000-bhp vessel features large capacities and deadweight carrying capabilities, a sophisticated two drum anchor/handling winch with over 150-tons of winch pull, a carefully planned layout including allowances for fire fighting, and economical engines that allow for the use of heavy bunker fuel.

The ME 202 is a 220-foot, 6,000-kva, 7,200-bhp, diesel electric platform supply vessel. It is designed to carry a higher payload than normal supply boats while remaining within conventional size. Twin screw, independent spade type rudders with two bowthrusters forward and one aft make the vessel highly maneuverable.

Cargo discharge from the ME 202 should be possible in winds up to 40-knots and a 3-knot current without using anchors by use of a combination of 360-degree azimuthing main propulsion units, two 2,000-bhp, two 900-bhp bowthrusters, and joystick control.

The ME 202's high fuel economy is further enhanced by the design's allowance for the use of heavy bunker fuel.

For complete information and literature on the ME 303 and ME 202,

Write 16 on Reader Service Card

ME 303 DEEPWATER ANCHOR HANDLING TUG SUPPLY VESSEL

Principal Dimensions

Length overall . . . 68.00 m (223')
Breadth moulded . . . 15.60 m (51')
Depth moulded . . . 7.45 m (24' 5")
Speed 16.5 knots

Capacities

Drilling Water/Ballast W. . . 560 m³
(560 tons)
Potable Water . . . 970 m³ (970 tons)
Fuel Oil 1,080 m³ (900 tons)
Cement 226 m³ (8,000 cu. ft.)
in three tanks
Main deck cargo 1,150 tons

Propulsion Machinery

Twin screw total 2 x 6,000
bhp/12,000 bhp
Bowthrusters . . . 2 x 800 hp variable
pitch el. driven
Sternthruster . . . 1 x 800 hp variable
pitch el. driven
4 engines each 3,000 hp
Steering gear with independent operation of each rudder
Bollard pull . . . 2 x 70 tons—140 tons
Generator sets . . . 2 diesel driven
each 350 kva
2 shaft generators
each 1,600 kva

Navigation, Communications

Gyrocompass with autopilot
Magnetic compass
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Echosounder
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Decca Navigator Mk21
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6 UHF's
Speed log
Decca radar 1216/plotter
Decca radar-916
Direction finder

Alaskan Office Opened By Global Marine Divisions

Global Marine Development Inc., Newport Beach, Calif., (GMDI) and Oceanographic Services Inc. (OSI) Goleta, Calif., jointly announced the opening recently of their Anchorage liaison office in the newly constructed Frontier Building.

Manager of the new office is **Harold Ramsden** of Global Marine Development Inc. Mr. Ramsden was formerly manager of construction, estimating, and contract administration for Global Marine before becoming manager of sales in 1977.

The office was opened as a result of the increasing level of offshore oil activity in Alaska such as the recent Diapir Field lease sale.

Global Marine Development and Oceanographic Services are divisions of Global Marine Inc., a major international offshore drilling contractor. Global Marine Development Inc. is the development arm of Global Marine Inc. One of its principal activities is the design and development of specialized steel and concrete offshore structures for drilling in the Arctic.

Oceanographic Services Inc. has spent many years in developing and installing instrumentation and taking measurements of offshore Arctic ice, wave, and bathymetry conditions.

ME 202 PLATFORM SUPPLY VESSEL

Principal Dimensions

Length overall . . . 67.4m (220.4')
Breadth moulded . . . 16.8m (55.1')
Depth moulded . . . 7.1m (23.3')

Propulsion Machinery

Diesel electric system constructed for "periodically unattended machinery space"

4 main generator sets 4 x 1,200 kw
4 engines each 1,800 bhp
alternators 4 x 1,500 kva, 600v, 60 Hz

Harbour generator, diesel driven 150 kw

Azimuth thrusters:

2 x 2,000 bhp variable pitch, 360 de-

grees rotating el. driven, 2 x 24 tons thrust.

Bow thrusters:

2 x 900 hp, variable pitch, el. driven
2 x 10.6 tons thrust.

Speed: 12.5 knots cruising speed
13.5 knots trial speed

Capacities:

Max deck cargo: 1,650 tons with center of gravity 1 m above main deck.
Cement tanks: 14,000 cu. ft. in 5 tanks

Drilling water: 924 m³ (947 tons)
/1,893 m³ (1,893 tons)

Fresh water: 1,040 m³ (1,040 tons)

Fuel oil: 1,269 m³ (1,060 tons)

Navigation, Communications

2 Decca radars type RM1216C. With gyro stabilization, reflector platter, VRM.

1 SSB, 400-watt radio, fully transistorized

2 VHF's, 25 Watt

1 Decca Navigator

1 Echosounder

1 International direction finder

1 Gyrocompass with autopilot

1 Decca autopilot

1 Magnetic compass

1 Joystick interface with autopilot and gyrocompass

1 Speed log, Doppler type.

Robin Hood Fleeting Names Hines Vice President



Joseph R. Hines

Joseph R. Hines has been named vice president of Robin Hood Fleeting Services of Baton Rouge, La. Robin Hood Fleeting is a wholly owned subsidiary of Transload and Transport, Inc. (TTI), a wholly owned subsidiary of Twin City Barge, Inc. The announcement was made by Wayne Musgrove, TTI executive vice president.

Before joining Robin Hood Fleeting Services, Mr. Hines was sales manager for Ranger Marine, Inc. at Port Allen, La., as well as in top management positions with Dravo Mechling Corp., Alice Engine Corp., and Kenner Bend Fleet.

Robin Hood of Baton Rouge, located across from Port Allen locks, mile 228 on the left descending bank of the lower Mississippi River, is a newly organized company offering 24-hour shifting and fleeting services as well as topside repairs for both dry cargo and tank barges. The new company will also offer cleaning services for dry cargo barges. Mr. Hines's operations/management team will also be engaged in tramping and brokering operations along the inland waterway system.

Burrard Yarrows Awarded \$8-Million Contract To Modify Two Ferries

The Burrard Yarrows Corporation has been awarded a contract by British Columbia Ferry Corporation for modifications to the 130-meter-long vehicle/passenger ferries Queen of Vancouver and Queen of Victoria.

The modifications costing a total of \$8,066,000 (Can.) include the streamlining of the shipside sponsons fitted during the introduction of an additional car deck in 1981, the replacement of existing gearboxes, shafting, and propellers with Lohmann & Stolterfoht gearboxes and KaMe-Wa cp propellers, and the conversion of the existing 9-cylinder 450-mm bore MaK main engines to unidirectional drive.

Work on the Queen of Victoria will be carried out at BYC's Victoria Division and on the Queen of Vancouver at the Vancouver Division.

Russellstoll To Market Northern Rig Lites Products—Literature Available

The Russellstoll Division of the Midland-Ross Corporation, Livingston, N.J., recently assumed total sales and marketing responsibility for Northern Rig Lites, Inc., of Houston, Texas.

This product line is to be considered an additional Russellstoll product offering. All existing Russellstoll sales and marketing activities will be applied on a worldwide basis, with the exception of Canada.

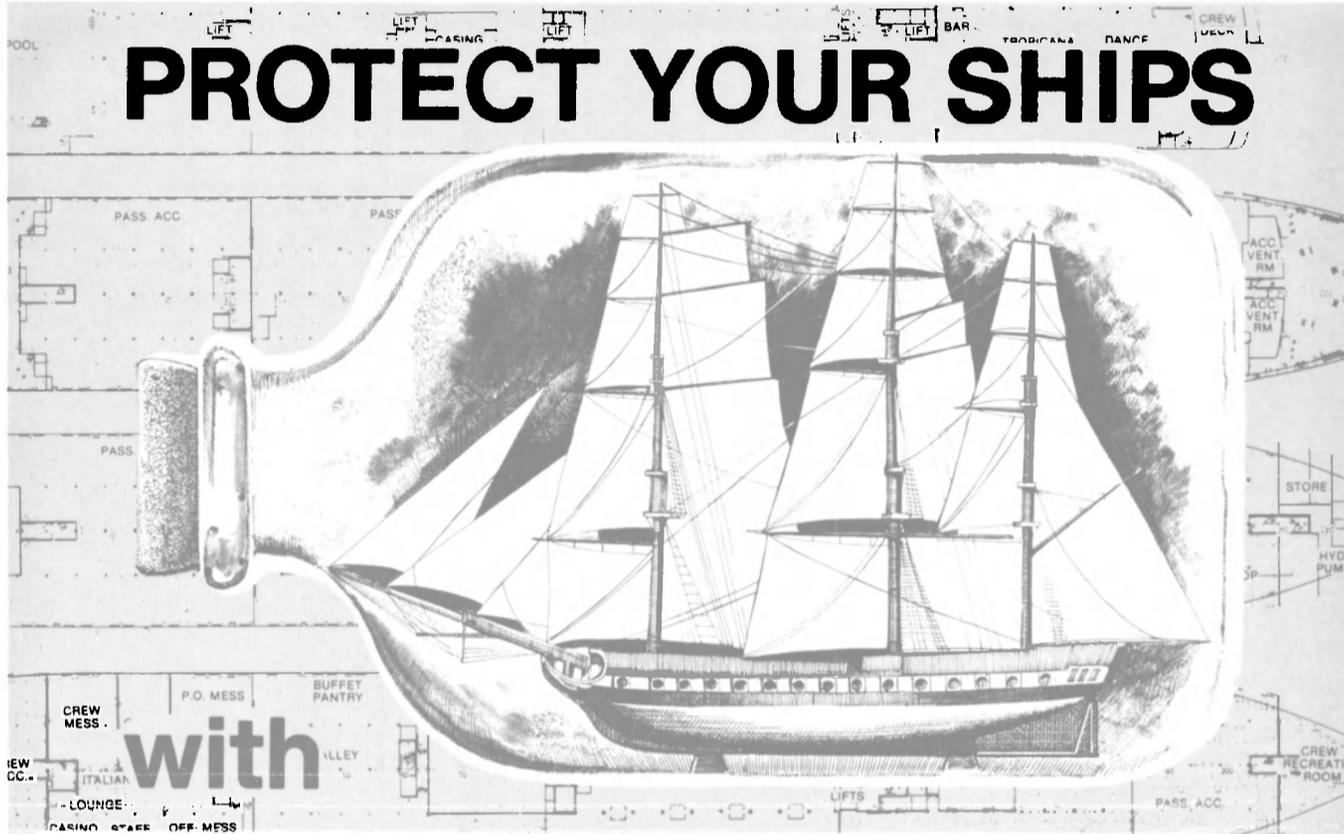
Northern Rig Lites, Inc. (NRL) originally founded in Canada, has maintained manufacturing facilities in Houston since 1981. It manufactures a complete line of

U.L. and C.S.A. marine lighting fixtures for offshore and land oil drilling rigs and for a broad base of industrial and marine applications. Russellstoll assumed NRL's line of marine lighting products in an effort to service the market with a complete line of electrical equipment.

For free literature on the full product line,

Write 21 on Reader Service Card

PROTECT YOUR SHIPS



Bestobell® Ultrasonic Level Controls ... offering automatic self-test, failsafe operation, long distance transmission and intrinsic safety,



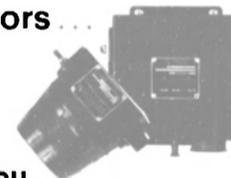
Bestobell® Magnetic Level Controls ... with isolated magnetic snap-action switching and high reliability due to inherent simplicity,



Omniguard® Temperature Monitors & RTD's ... which detect overheating in rotating machinery preventing catastrophic failure while allowing convenient scheduled overhaul,



Omniguard® U/V Fire Detectors ... which actually see fire and provide instantaneous alarm ... ideally suited to flash fire detection.



We have a representative in your area to help you. Call or write today for further information.

ARMTEC Industries, Inc.
Manchester, NH 03103
Phone: 603-669-0940
TWX 710 220 1747



Armtec is a Bestobell company.

Armtec manufactures temperature monitoring systems, resistance temperature detectors, U/V fire detectors and flame safeguards, doppler flowmeters and a full line of ultrasonic and magnetic level controls.

See us at the National Maritime Show - Booth 130

**NEW CHOCKS - CLEATS - BITTS
CAST STEEL**

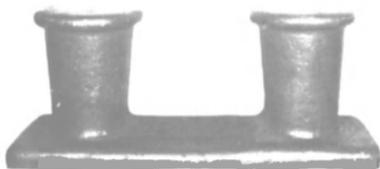


OPEN CHOCKS

Overall length 2' 3/4" — top opening 6" — width 9"

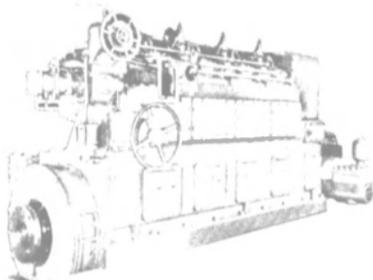


36" - 42" - 48" KEVEL CLEATS



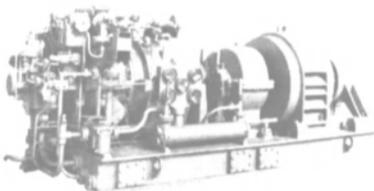
10" DOUBLE POLE BITTS

**NEW CLARK 500BHP DIESEL
4-CYL. — AIR STARTING**



500 BHP @ 400 RPM. 4-Cylinder straight inline type — 12 1/2" X 16" — 2-stroke single acting — liquid cooled — direct reversible — CW rotation. With standard shaft-connected starting air compressor. 46,000 lbs., net weight—228" long—98" wide—132" high. Designed for heavy duty, rugged use, its extreme simplicity will result in lower operating and maintenance costs.

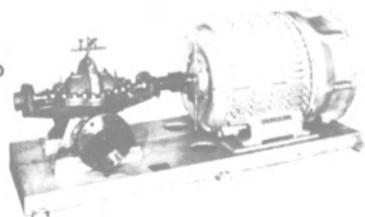
**LOW PRESSURE 450 KW
A.C. TURBO GENERATORS
suitable for waste heat
turbo generators on motor ships**



For motorship service. 175 PSIG — D&S — 27 1/2" vacuum. GENERATOR: Westinghouse 450 KW — 563 KVA — 450/3/60 — 1200 RPM. GEAR: 6097/1200 RPM. TURBINE: 175 lbs/D&S — 27 1/2" vacuum. Other pressures & temps: 250 lbs @ 40°C — 27 1/2" vacuum. Turbine serial #7801-7802. OAL 13' 1 3/8" — OAH 5' — OAW 5' 3/8". Total dry wt. 17,100 lbs. Plans on request.

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

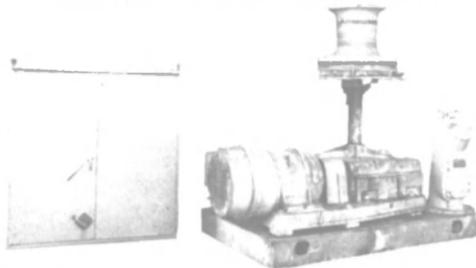
NEW
UNUSED



EX
U.S.N.

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

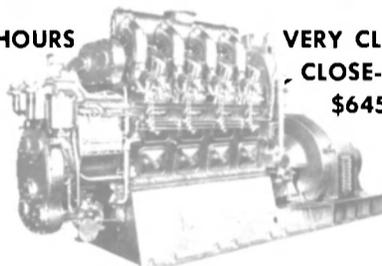
**30 HP—440/3/60—2-SPEED A.C.
MOTOR-DRIVEN CAPSTAN**



8500 lbs @ 90 FPM or 4250 lbs @ 180 FPM. Barrel size 15". Below-deck mounted motor — 31 HP — 440/3/60 — 42/38 amps — 820/1200 RPM. Squirrel cage — totally enclosed — watertight. Half hour duty 65°C. temp. rise. Base OAL 6'4". With magnetic brake, 2-speed control and master switch.

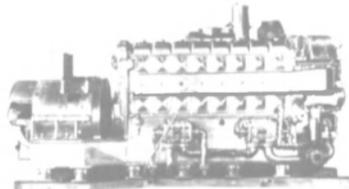
**3 GM 8-278 350KW 440/3/60
DIESEL GENERATOR SETS**

LOW HOURS VERY CLEAN
CLOSE-OUT
\$6450



GM 8-cyl engine — 8 1/2x10 — 2-cycle — Vee type driving 350 KW GE generator — 440/3/60 — 600 RPM — 430 KW 2 hours. Used by U.S.N. for standby service.

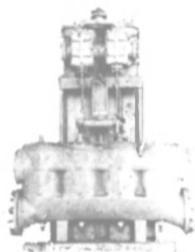
**300KW GM 8-268A 120/240 DC
DIESEL GENERATOR SET**



ENGINE: GM 8-268A — 6 1/2x7 — 1200 RPM. Heat exchanger cooled — equipped with heavy duty coolers. Just overhauled and can be seen running. Good condition.

Length Width Height Weight
IMMEDIATE DELIVERY

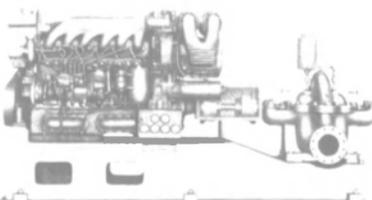
**WORTHINGTON 16" X 14" X 18"
VERTICAL DUPLEX STRIPPING PUMP**



1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2 1/2" steam — 4" exhaust. Overall width 6'8" — overall height 9'1 1/2" — depth 3'9 1/2". Wt. approx. 10,000 lbs.

RECONDITIONED 1980
ABS — READY TO GO

**SELF-PRIMING
1000 GPM ALLIS-CHALMERS
BRONZE FIRE PUMP
280' HEAD — 1800 RPM**



PUMP: Allis-Chalmers — 20' suction lift — 6" suction — 5" discharge. Complete with priming valve, Nash belt-driven priming pump and priming tank. DIESEL ENGINE: Hercules DWXDS — 4-stroke — 150 BHP — 6-cylinder — 4 3/4" x 4 3/4" — 1800 RPM. Complete with Roots supercharger — piston displacement 404 cubic inches. Heat exchanger cooled.

**MARINE VALVES . . . most
all carefully removed from Exxon Tank
GATE VALVES — GLOBE VALVES
MOST WITH**



**BIG
SAVING**

**GATE
VALVES**

150 LBS.
16" 14"
12" 8"
6" 5"
4" 3"

**ANGLE
VA**

150
16"
8"
4"

On globe valves and angle valves, we w
**DUCTILE IRON & C
O.S.Y. RISING STEM OR NON-**

**VACREL PRESSURE RELIEF
6" ALL BRONZE**



FIG. 120
Atmospheric venting—
3.0 PSI max. relief
setting. Pressure only.
Flanged connection.
Approx. wt. 140 lbs.

\$1195 Reconditioned

FIG.
Closed ven
lifting gea
connection.
settings: 3.0
sure—1.0
Approx. wt.

\$1195 Recc

BRONZE BA



**BRONZE HORIZONTAL
10HLV INGERSOLL-RAND
CARGO PUMP**



Ingersoll-Rand 10HLV — 14"x10". Bunker Fuel: 5150 GPM — 370' head — 1885 RPM. Sea Water: 6000 GPM — 352' head — 1885 RPM. Reduction Gears: G.E. type S-233 — Form AE — 700 HP — 6002/1685 RPM. TURBINE: G.E. D.P. 25 Class 4 — 700 HP — 6002 RPM — PSIG 775 lbs — 825 — inlet temp. 560° - 600° max. Exhaust pressure 179" Hg absolute.



THE BOSTON

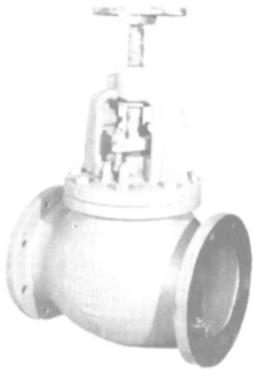
313 E. BALTIMORE

Main Office: (301) 55
CABLE: BOSIRON—BALTIMORE

with Teflon lined seats
 s when they increased cargo line sizes
ES - ANGLE GLOBE VALVES
CLEANOUTS



PRICED
RIGHT



**GLOBE
VALVES**

**GLOBE
VALVES**

150 LBS.

LBS.	14"	12"
12"	8"	6"
6"	5"	4"
3"	3"	

Will clean and water test at additional cost

CAST STEEL 150 LBS
RISING STEM WITH INDICATOR

VALVES

ASK FOR PRICES ON
RECONDITIONED VALVES

130

ng. With
Flanged
Max. relief
PSI Pres-
Vacuum.
285 lbs.
ditioned



RELIEF VALVES

8"
6"
6" ANGLE
2"

LAST PUMPS

Allis-Chalmers Model 402-432-501-12"x10"-6000 GPM
 - 180' head - 1225 RPM. Impeller diameter 19.75".
 TURBINE: GE Model 7DTPY125MR93 - 340 HP - 5000
 RPM. Steam pressure 775# - 835# max. - temp. 530°
 TT-600° max.-exhaust 53 PSIG. REDUCTION GEAR:
 Type S-233 Form AR - 340 HP - 4997/1225 RPM.
 Also Worthington Model 8LN-18-12" x 8"-1775 RPM -
 280' head.

**2 FIBERGLASS 52 PERSON
DIESEL POWERED
LIFEBOATS**



Built in Norway to Norwegian Veritas. 26' Long-8.33'
 beam-3.74' depth. Distance between hooks on release
 gear 21' 9 1/2". Tanks filled with polyurethane. ENGINES:
 SAAD 16HP diesels-air-cooled-type GA-with reversi-
 ble pitch propeller. Boats built by Bjarke-Batbyggeri,
 Rosendal, Norway. For tanker use. Serial #2313 and
 #2314. Typical Lifeboat illustrated.

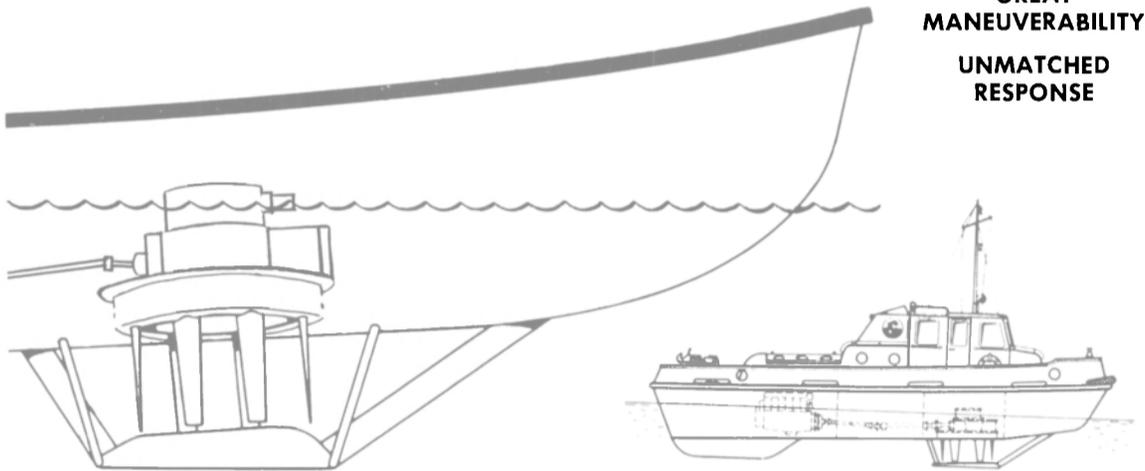
TWO 1,000 H.P.

VOITH-SCHNEIDER

**CYCLOIDAL CONTRA-ROTATING
OMNI-DIRECTIONAL PROPELLERS**

Can Be Located Side-By-Side, Fore and Aft,
 For Fast and Precise Movement Sideways and 360°
 On Axis Turns Make Them Ideal for Tugs, Ferries, Cranes, Etc.

**GREAT
MANEUVERABILITY
UNMATCHED
RESPONSE**



Serial Nos. NR-1783 and NR-1784. Unit size 24/E150. 6 Stainless steel blades each unit - 1500mm blade length -
 2400mm blade orbit diameter. PRESENT DRIVE with Voith AD40 reduction gears and heavy duty motor 800/1000 HP -
 440/3/60 - 1775 RPM - squirrel cage - 884 amps - frame 23153. Mfg. by Electric Machinery Co. Complete with
 "Cage Controls" & motor controls. Size 8 - Control volts 120 A.C. - line volts 450 - amps 941/3/60 OR DRIVE
 DIRECTLY WITH DIESEL ENGINE AND HYDRAULIC COUPLING ARRANGEMENT. UNIT BUILT 1970. COMPLETE WITH
 HYDRAULIC SERVO MOTORS FOR BRIDGE CONTROL AND 5 SPARE BLADES.

**IMMEDIATE
DELIVERY**



**24" I.D. MAN-WAY
3-DOG HATCHES**

18" Coaming. Available with T socket
 wrench or removable handwheel (can be
 welded in place) for top opening. Spring-
 loaded lid w/inside handwheel. Coaming
 12mm thick, top 11mm. Bosmet drawing
 #67/56



**21" I.D. MAN-WAY
3-DOG HATCHES**

10" Coaming. Available with T socket
 wrench or removable handwheel (can be
 welded in place) for top opening. Coaming
 12mm thick, top 11mm. Bosmet
 #64/55

**TANKER
EXPANSION TRUNK**

36" Diameter - 26" coaming - 7-Dog
 drop-bolts. Drawing #36/26



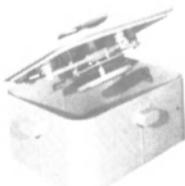
**20" ROUND
HATCH**

18" Coaming - 3 brass dog drop bolts.
 Coaming 12mm thick - top 11mm. Bosmet
 #68



CARGO HATCHES

72" x 74" x 12" 48" x 48" x 9"



**QUICK-ACTING
4-DOG HATCHES**

Heavily constructed. Handwheel operated.
 Handwheels top & bottom. Size A: 27" x
 21" w/12mm coaming & 11mm top. Size
 B: 31" x 31" w/12" coaming. For ocean-
 going barges, tugs, etc.



QUICK-OPENING HATCH

Handwheel top & bottom. 4 Dogs. 16" x
 24" with 5" coaming. Drawing #60-40



FLUSH HATCHES

24" x 30" 30" x 30"
 4 Dogs bottom - T-key top opener. 4"
 Maximum coaming. Coaming 8mm thick -
 top 7mm.



WATERTIGHT DOORS

24" x 36" - 3-DOG
 Right & Left Hand

ON METALS CO.

ST. • BALTIMORE, MD. 21202

19-1900 Marine Dept.: (301) 752-1077

MD. U.S.A. TWX 710-234-1637

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PLUS EXTRA BONUS DISTRIBUTION**

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by thousands more people with the titles listed below than any other
marine magazine in the entire world. Circulation statements prove it.

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PORT AUTHORITIES:** (Includes oil companies involved in offshore drilling, offshore
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managers, secretaries and treasurers, port engineers, superintendents; purchasing agents, port
captains, port stewards, naval architects and engineers shoreside

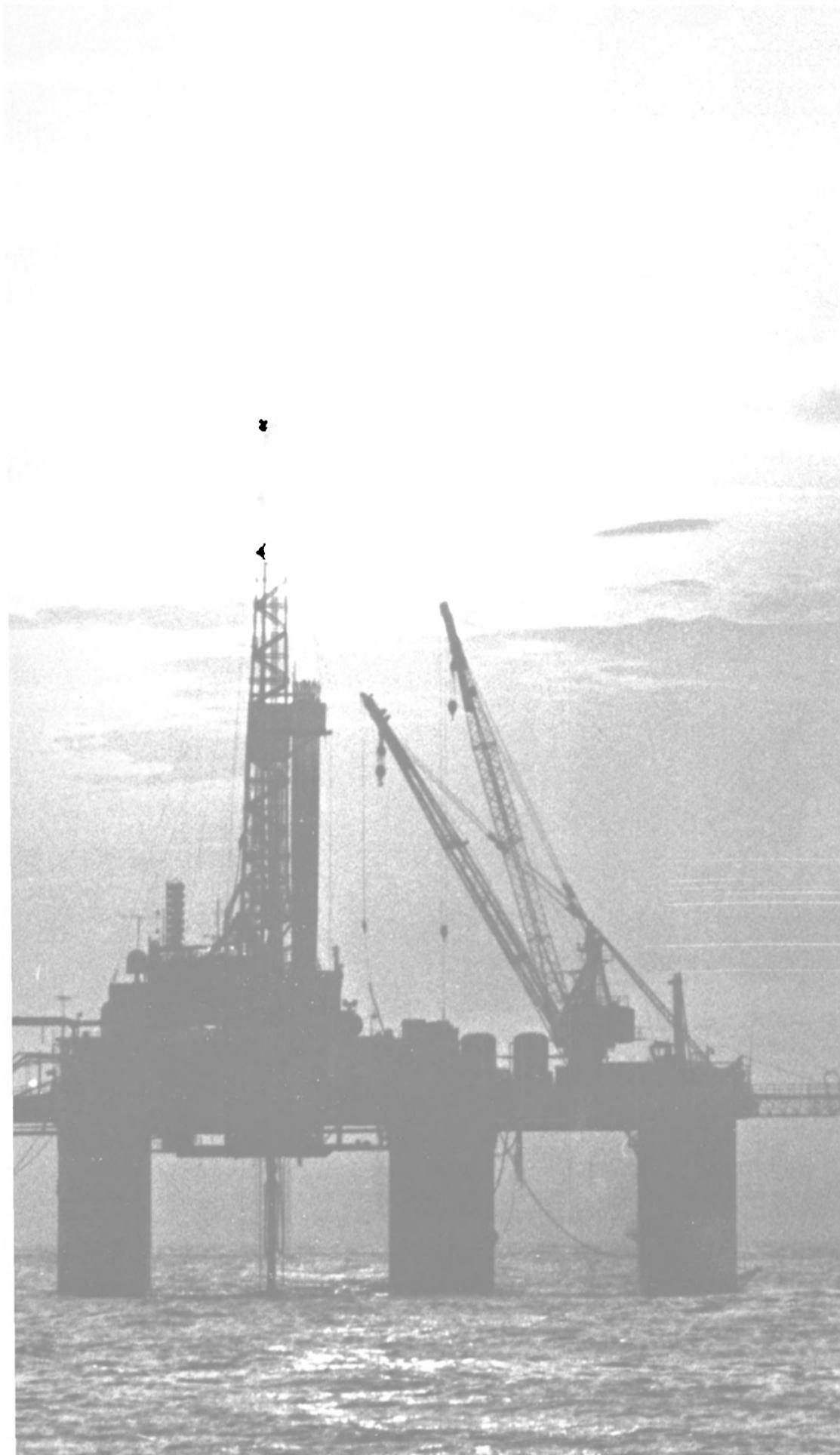
SHIPBUILDING, BOATBUILDING, DRILL RIG BUILDING & REPAIR:

(Commercial, U.S. Navy and U.S. Coast Guard) Directors, owners, presidents, vice presidents,
secretaries, treasurers, superintendents, managers and purchasing agents, naval architects,
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PROFESSIONAL:

Naval architects, engineers and consultants shoreside.

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L APRIL 1st

C '83

**EW ISSUE
OF
E REPORTER**

**LATION TO MARINE/OFFSHORE BUYERS *...
ION AT THE OFFSHORE TECHNOLOGY CONFERENCE**

This April 1st special issue will feature a full, multi-page preview feature article detailing the entire 1983 OFFSHORE TECHNOLOGY CONFERENCE PROGRAM . . . scheduled for May 2-5 in Houston, Texas.

Over 100,000 of the most important and influential individuals in the worldwide marine/offshore industry are expected to attend the Offshore Technology Conference this year. OTC attendance in Houston is expected to be greater than ever.

OTC is a maximum-interest event. MR's April 1st SPECIAL ISSUE will generate maximum reader interest . . . with an editorial environment sure to bring out the full sales-building potential of your advertising message.

This is a true preview issue. It will deliver the full OTC story . . . and your advertising . . . to MR's unequalled audience of marine/offshore buying-influence readers . . . thousands more than any other marine magazine . . . in their offices weeks before these buyers attend the conference.

In addition, the April 1st Special will receive extra bonus distribution at OTC in Houston, May 2-5.

Whether or not you plan to attend or exhibit . . . you can "be there" . . . at OTC with your advertising working for you in the April 1st Special Issue of Maritime Reporter.

REPORTER EXTRA DISTRIBUTION OTC ISSUE

ADVERTISING COPY CLOSING DATE FOR APRIL 1st ISSUE IS MARCH 11th



**ONLY
MARITIME REPORTER
GIVES YOUR ADVERTISING
THESE POWERFUL
SALES BUILDING ADVANTAGES**

- **WORLD'S LARGEST** circulation to buying-influence readers
- **LARGEST US** circulation to buyers
- **LARGEST INLAND/OFFSHORE** (Shallow-draft) circulation to buyers
- **100% REQUESTED CIRCULATION** . . . in writing . . . by each individual reader. MR is **WANTED**
- **CURRENT** . . . TWICE each month coverage of entire circulation
- **BEST READ** because it is **CURRENT** . . . weeks ahead of slower monthlies
- **UNEQUALLED PASS-ALONG READERSHIP** . . . 5 readers per single copy . . . over 200,000 monthly readership
- **FREE READER SERVICE CARD**
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- **DIRECT MAIL SERVICE**
- **DIRECT RESPONSE CARD MAILINGS**

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ADVERTISING LEADER**

MARITIME REPORTER is the most successful marine magazine . . . with a larger number of advertisers . . . and more pages of advertising in 1982 than the No. 2 magazine.



MARITIME REPORTER /Engineering News

107 East 31 Street New York, N.Y. 10016

(212) 689-3266



SECOND ANNUAL NATIONAL MARITIME SHOW

A PREVIEW

The Second Annual National Maritime Show and Maritime America Conference will be held at the Baltimore Convention Center on March 29-31, 1983.

Over 90 manufacturers and suppliers of marine-related equipment will display their range of products and services at the Baltimore facility. The convention center provides 115,000 square feet of unobstructed space for exhibitors as well as 23 meeting rooms — all under one roof.

The center is located in Baltimore's revitalized inner harbor. The area contains many restorations of buildings and is within convenient walking distance of restaurants, shopping areas, and major hotels.

The show is organized by Industrial Presentations, Inc., of Houston, Texas, one of the major independent show management concerns in the U.S. The compa-

ny is linked to the internationally renowned Europort Group which organizes shows such as Europort, Amsterdam; Asia Marine, Singapore; and Shipasia, Hong Kong.

A three-day conference will coincide with the exhibition.

Keynote speaker at the opening general session on the morning of Tuesday, March 29, will be Hon. **George A. Sawyer**, Assistant Secretary of the Navy-Shipbuilding and Logistics. This session on "How the Navy Buys Its Ships" will also be addressed by **Stuart Adamson**, vice president-technical marketing, Todd Pacific Shipyards; **Timothy J. Colton**, vice president-marketing, Pennsylvania Shipbuilding; and **James M. Temenak**, marketing manager-new construction, National Steel and Shipbuilding Company.

Lead speaker and moderator at the afternoon general session on March 29 will be **Edwin M. Hood**, president of the Shipbuilders Council of America. Mr. Hood is retiring from that post effective June 30 this year. Other speakers at this session, titled "Outlook for Shipbuilding and Shipping," will include **Harvey Fritter**, vice president-regulatory affairs, Trans Freight Line, Inc.; and **John Le Boffe**, president of INTSEA International Ltd.

Concurrent sessions will be held on Wednesday, March 30. A morning session, "Propulsions and Fuels I," will hear papers by **Eugene Pentimonti**, vice president-engineering, American President Lines Ltd.; **Dr. M.K. Eberle**, assistant vice president-research and development, Sulzer Brothers; and **Dr. Rolf Glasfeld**, manager, Advanced Engineering De-

partment, Quincy Shipbuilding Division, General Dynamics.

The other morning session on March 30, "Business Outlook: Future Demand for U.S.-Flag Tonnage," will be addressed by **Julian H. Singman**, president, Maritime Institute for Research and Industrial Development (MIRAID); **Peter Luciano**, executive director, Transportation Institute; and **Robert Lowen**, president, International Organization of Masters, Mates and Pilots.

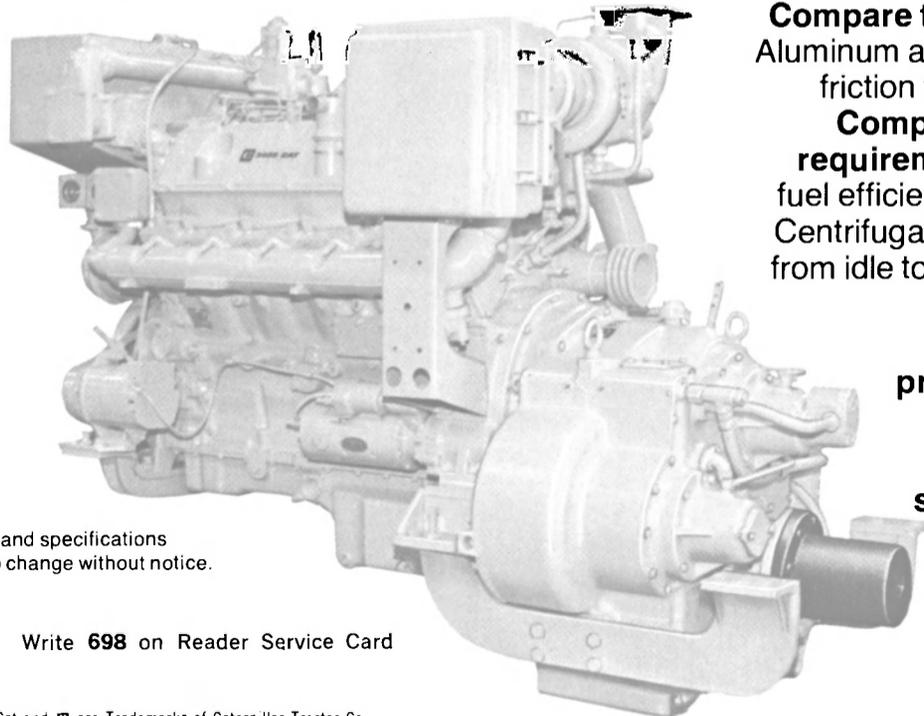
The "Propulsion and Fuels II" session on the afternoon of March 30 will feature presentations by **David Royle** of Det norske Veritas, Oslo; **Thomas N. Pratt**, Engine Design Section, Electro-Motive Division, General Motors Corporation; **David N. McArthur**, marine engineer, Skinner Engine Company; and **Michael E. Berg**, chief chemist, Ferrous Corporation.

(continued on page 48)

Tear this page out... and compare the lasting fuel efficient performance of Cat 3400 Series Engines

		3406 DITA		3408 DITA		3412 DITA	
		hp (kW)	gal/hr (ltr/hr)	hp (kW)	gal/hr (ltr/hr)	hp (kW)	gal/hr (ltr/hr)
Continuous	@ 1200 rpm	—	—	—	—	425 (317)	20.8 (78.6)
	@ 1800 rpm	322 (240)	16.2 (61.3)	402 (300)	20.0 (75.7)	624 (465)	30.7 (116.2)
Medium-Duty Commercial	@ 1200 rpm	—	—	—	—	475 (354)	23.3 (88.2)
	@ 1800 rpm	349 (260)	17.6 (66.5)	432 (322)	21.4 (81.0)	637 (475)	31.4 (118.9)
Light-Duty Commercial	@ 2100 rpm	402 (300)	20.5 (77.6)	470 (350)	24.2 (91.5)	697 (520)	35.7 (135.1)

Compare the fuel consumption of the Cat 3400 Series Marine Diesel Engines with competitive makes. Compare your fuel consumption records with those of 3400 Series owners... you'll see savings of up to 10%.



Materials and specifications
subject to change without notice.

Write 698 on Reader Service Card

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Compare the fuel-efficient design of the 3400 Series. Aluminum alloy 3-ring pistons provide low weight and low friction for high fuel efficiency and long operating life.

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National Maritime Show

(continued from page 46)

The parallel session on the afternoon of March 30 is titled "Business Outlook: Financing, Leasing and Insurance." Speakers will be **Donald J. Andrews**, vice president, Shipping Department, First Boston Corporation; **Randee Day Ammon**, vice presi-

dent, Shipping Department, Morgan Guaranty Trust Company; **Robert Lavinghouse**, marine finance manager, Armco Industrial Credit Corporation; and **Thomas A. Fain**, president, American Institute of Marine Underwriters.

One of the sessions on the morning of March 31 will be devoted to "Electronics: Communications and Ship Management." Speaking at this session will be

Charles Dorian, director, international liaison for maritime services, COMSAT Corporation; **James H. Keyte**, materials management specialist, Sun Transport Inc.; **John Dumbleton**, deputy program manager, Office of Advanced Ship Operations, Maritime Administration; and **Roger Drissel**, senior engineer, ARINC Research Corporation.

The other March 31 morning session is titled "Shipping Hazardous Cargoes." Addressing this session will be **Timothy Berkell**, vice president-fleet manager, Stolt-Nielsen, Inc.; **Capt. A.E. Henn**, USCG, chief, Marine Technical and Hazardous Materials Division, Office of Merchant Marine Safety; **Sam V. Trachina**, vice president, Great American Insurance Company; and a speaker to be announced from National Cargo Bureau, Inc.

The conference will conclude with a single session on the afternoon of Thursday, March 31. Speakers on the topic "Electronics: Navigation and Shipboard Computers" will include **Max Carpenter**, special projects director, Maritime Institute of Technology and Graduate Studies (MITAGS); Rear Adm. **Richard A. Bauman**, USCG, chief, Office of Navigation, U.S. Coast Guard; and **Peter Ebbutt**, president, Ocean Motions Company. Following this session conference delegates are invited on a tour of the MITAGS facilities at nearby Lithicum Heights, Md.

NATIONAL MARITIME SHOW CONFERENCE PROGRAM*

Tuesday, March 29, 9-11 a.m.
"HOW THE NAVY BUYS ITS SHIPS"

Hon. George A. Sawyer, Assistant Secretary of the Navy, Shipbuilding and Logistics, keynote speaker.

Stuart Adamson, VP-Technical Marketing, Todd Pacific Shipyards.

Timothy J.V. Colton, Vice President-Marketing, Pennsylvania Shipbuilding.

James M. Temenak, Marketing Manager-New Construction, National Steel and Shipbuilding Co.

Tuesday, March 29, 2-4 p.m.

"OUTLOOK FOR SHIPBUILDING AND SHIPPING"

Edwin M. Hood, President, Shipbuilders Council of America.

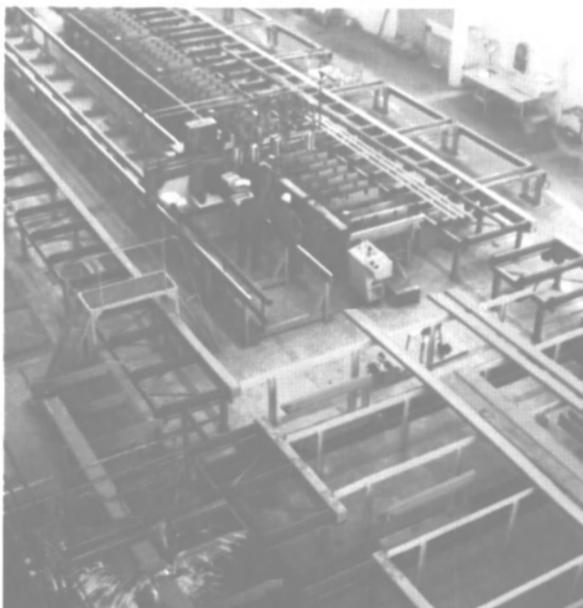
Harvey Fritter, VP-Regulatory Affairs, Trans-Freight Lines, Inc.

John LeBoffe, President, INT-SEA International, Inc., "Export Prospects for Smaller U.S. Shipyards."

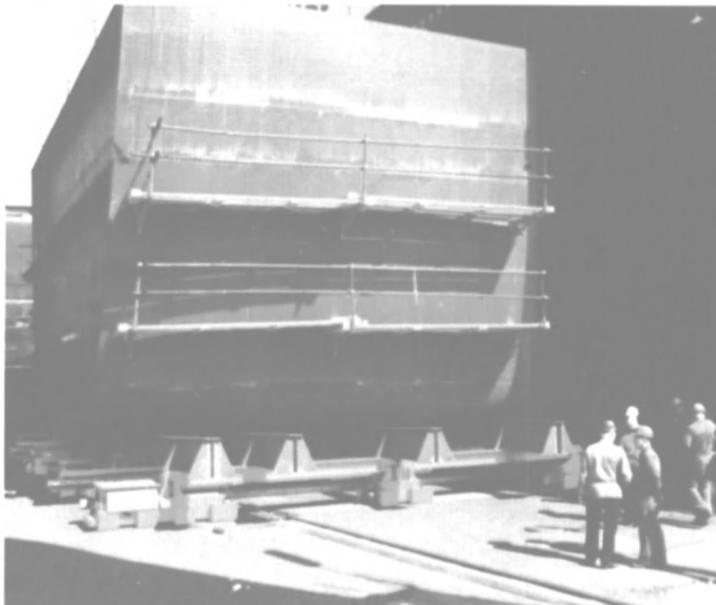
(continued on page 50)

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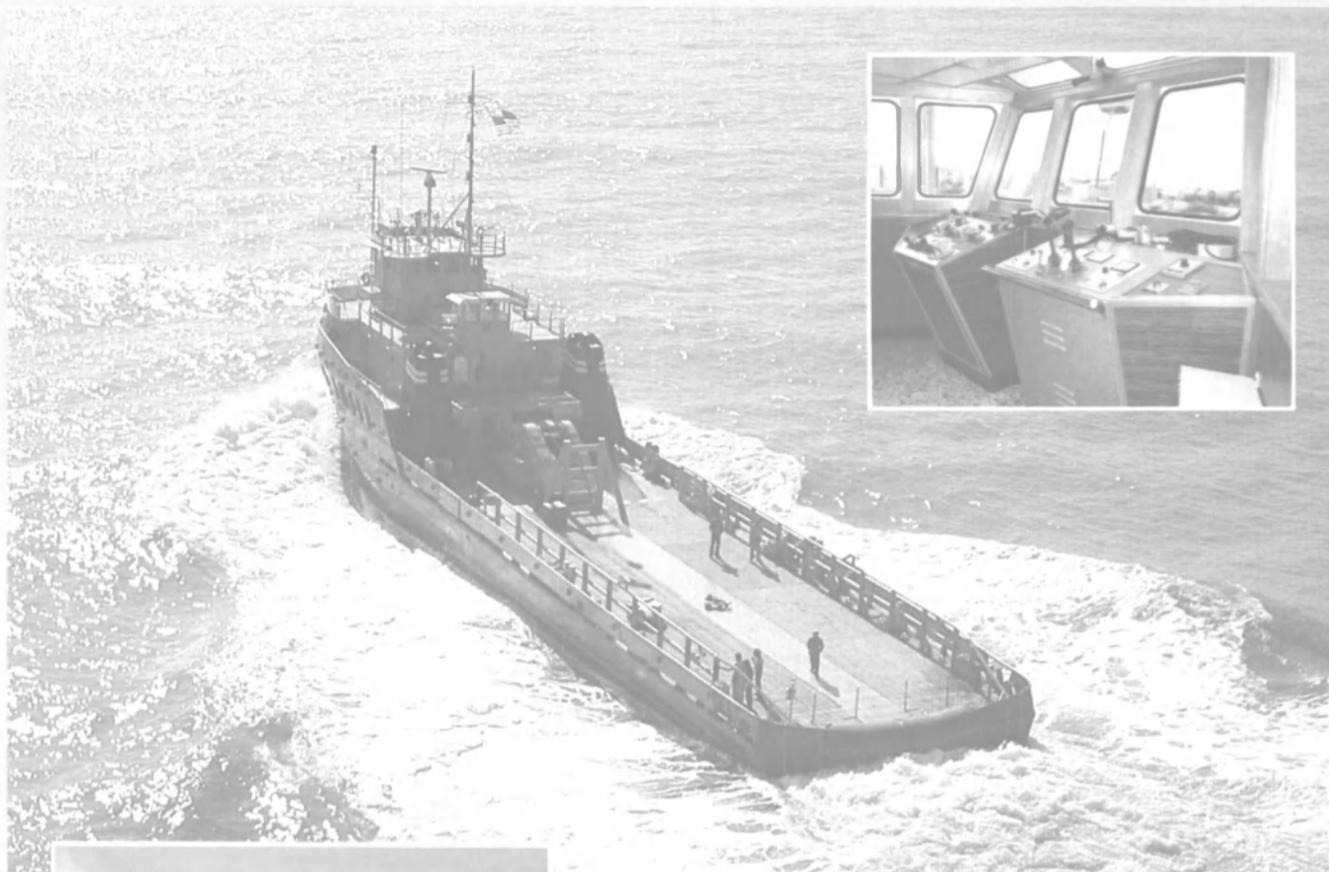
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National Maritime Show

(continued from page 48)

Wednesday, March 30, 10-12 a.m.

"PROPULSION & FUELS I"

Eugene Pentimonti, VP-Engineering, American President Lines.

Dr. M.K. Eberle, Sulzer Brothers, Winterthur, Switzerland.

Dr. Rolf Glasfeld, Manager, Advanced Engineering Dept., Quincy Shipbuilding, Div. General Dynamics.

Wednesday, March 30, 10-12 a.m. (concurrent session)

"BUSINESS OUTLOOK:

FUTURE DEMAND FOR U.S.-FLAG TONNAGE"

Julian H. Singmar, President, Maritime Institute for Research and Industrial Development.

Peter Luciano, Executive Director, Transportation Institution.

Robert Lowen, President, Masters, Mates and Pilots.

Wednesday, March 30, 2-4 p.m.

"PROPULSION & FUELS II"

David Royle, Det norske Veritas.

Thomas N. Pratt, Engine Design Sect., Electro-Motive Division, General Motors Corp.

David N. McArthur, Marine Engineer, Skinner Engine Co.

Dr. Michael E. Berg, Chief Chemist, Ferrous Corporation.

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"BUSINESS OUTLOOK: FINANCING, LEASING & INSURANCE"

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"ELECTRONICS: COMMUNICATIONS & SHIP MANAGEMENT"

Capt. Charles Dorian, Int'l. Liaison for Maritime Services, COMSAT Corp.

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John Dumbleton, Deputy Project Manager, Office Of Advanced Ship Operations MarAd.

Roger Drissel, Senior Engineer, ARINC Research Corp.

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Capt. A.E. Henn, USCG, Chief Marine Technical & Hazardous Materials Division, Office of Merchant Marine Safety.

Sam V. Tranchina, Vice President, Great American Insurance Co.

National Cargo Bureau (speaker to be announced).

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"ELECTRONICS: NAVIGATION & SHIPBOARD COMPUTERS"

Max Carpenter, Special Projects Director, MITAGS.

RADM. Richard A. Bauman, Chief, Office of Navigation, U.S. Coast Guard.

Peter Ebbott, Ocean Motions Co.

Tour of Maritime Institute of Technology and Graduate Studies.

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The TODD touch

Todd Shipyards Corporation, with its seven divisions, has been applying "The Todd Touch" to ships it has built, converted, overhauled or repaired for over 65 years. Even longer when you consider a predecessor company assisted in the construction of the "Monitor" of Civil War fame.

Today's highly sophisticated ships are still benefitting from "The Todd Touch". As an example, the Guided Missile Frigates (FFGs) being built at our Los Angeles and Seattle Divisions are being delivered ahead of or on time and within or under budget, saving millions of dollars for the U. S. Navy.

Todd is continually exploring better, more efficient ways to increase production, but, even today we are capable of producing the highest quality and most cost effective ships attainable.

We have invested millions of dollars in facility improvements, both in advanced construction techniques and equipment, including the acquisition recently of an entire shipyard. We're ready to serve the U. S. Navy as well as our commercial customers with expertise in just about any job in the ship construction/repair field.

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March 1, 1983

51

Tideland Signal Names Two New Vice Presidents

Two new vice presidents of Tideland Signal Corporation, the Houston, Texas-based designer, manufacturer and worldwide distributor of navigational aids and solar electric generators, have been announced by president S.N. Sprunt.

They are **Victor G. Taylor**, manager, East Coast area, Wilmington, N.C., and **Ronald D. Stenzel**, manager, Far East area, Singapore.

Mr. Taylor has been in charge of sales and service in the Atlantic Coast area, Bermuda, Bahamas, and the Caribbean Islands since 1954. He had worked for International Nickel Company's Marine Corrosion Testing Laboratory before joining Tide-



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Ronald D. Stenzel

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He served with the U.S. Coast Guard and was graduated from Officers Candidate School in 1956. He was selected for aviation training and later flew in support of USCG operations in Europe, Alaska, and the western Pacific. Before joining Tideland, he was assigned to the staff of Commander, Eighth Coast Guard District, in New Orleans, La.

First Of Five 20,000-Dwt Cargo Vessels Delivered By Valmet To V/O Sudoimport

The first of five 20,000-dwt Arctic multi-purpose ships contracted by V/O Sudoimport of Moscow for the Soviet Far East Shipping Company was delivered recently by Valmet Corporation, Helsinki Shipyard, Finland, about three months ahead of the contracted delivery time.



The Nizhneyansk is powered by two Sulzer diesel engines.

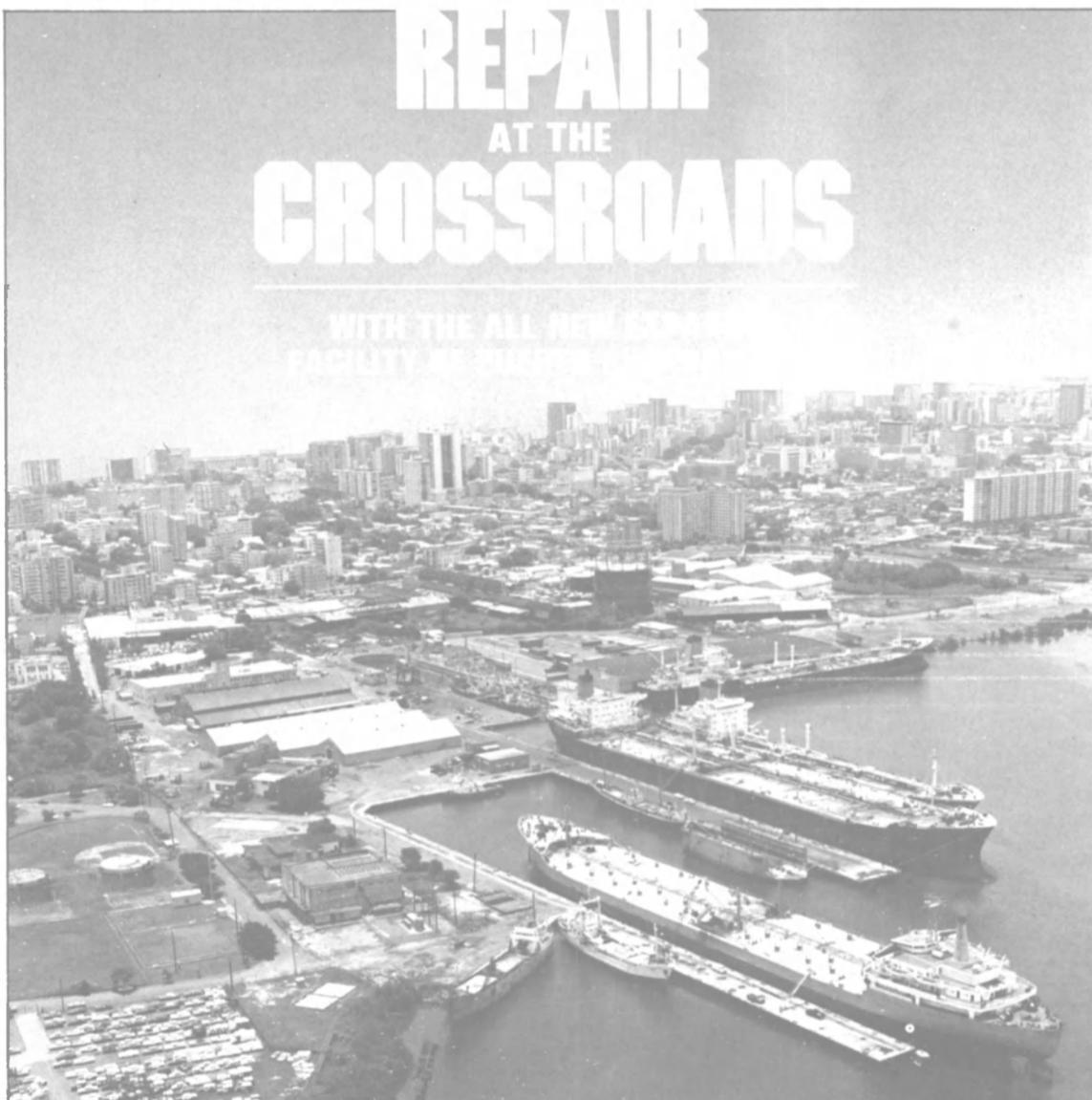
The Nizhneyansk is a dry cargo vessel with five cargo holds and a 'tweendeck, large hatch openings, and 40-ton deck cranes. Ro/ro cargo can also be loaded and unloaded to the 'tweendeck through the angled stern ramp (minimum width of driving lane 5.0 m) which is at a 55 degree angle to the ship's center line.

The vessel is intended for navigation in Arctic waters, even at a temperature of -50 degrees C. It is capable of breaking, independently, ice of about one-meter in thickness and, assisted by an icebreaker, can operate in more difficult ice conditions.

The output of the main propulsion machinery is 15,400 kw (21,000 hp) from two Sulzer 147 40/48 diesel engines. The engines are coupled by Voith hydrodynamic couplings and Valmet/Renk reduction gears to a KaMeWa cp propeller for a 17-knot service speed. Electricity is generated by four Wartsila/UASA 524TS diesel-driven alternators.

The Nizhneyansk is designed for the transport of general cargo in the Arctic regions; pallets, packaged goods, coal, ore, grain, heavy cargoes, explosives, sawn goods, and packaged timber. The total cargo hold capacity is 31,180 cubic meters. Wheeled machines, vehicles, and other ro/ro cargo can be carried on 'tweendeck. The total length of the ro/ro lane is about 800 meters.

The hatch covers are also equipped with container lashing equipment. The container capacity is 534 TEUs of which 50 can be refrigerated. Packaged timber also can be carried on the deck.



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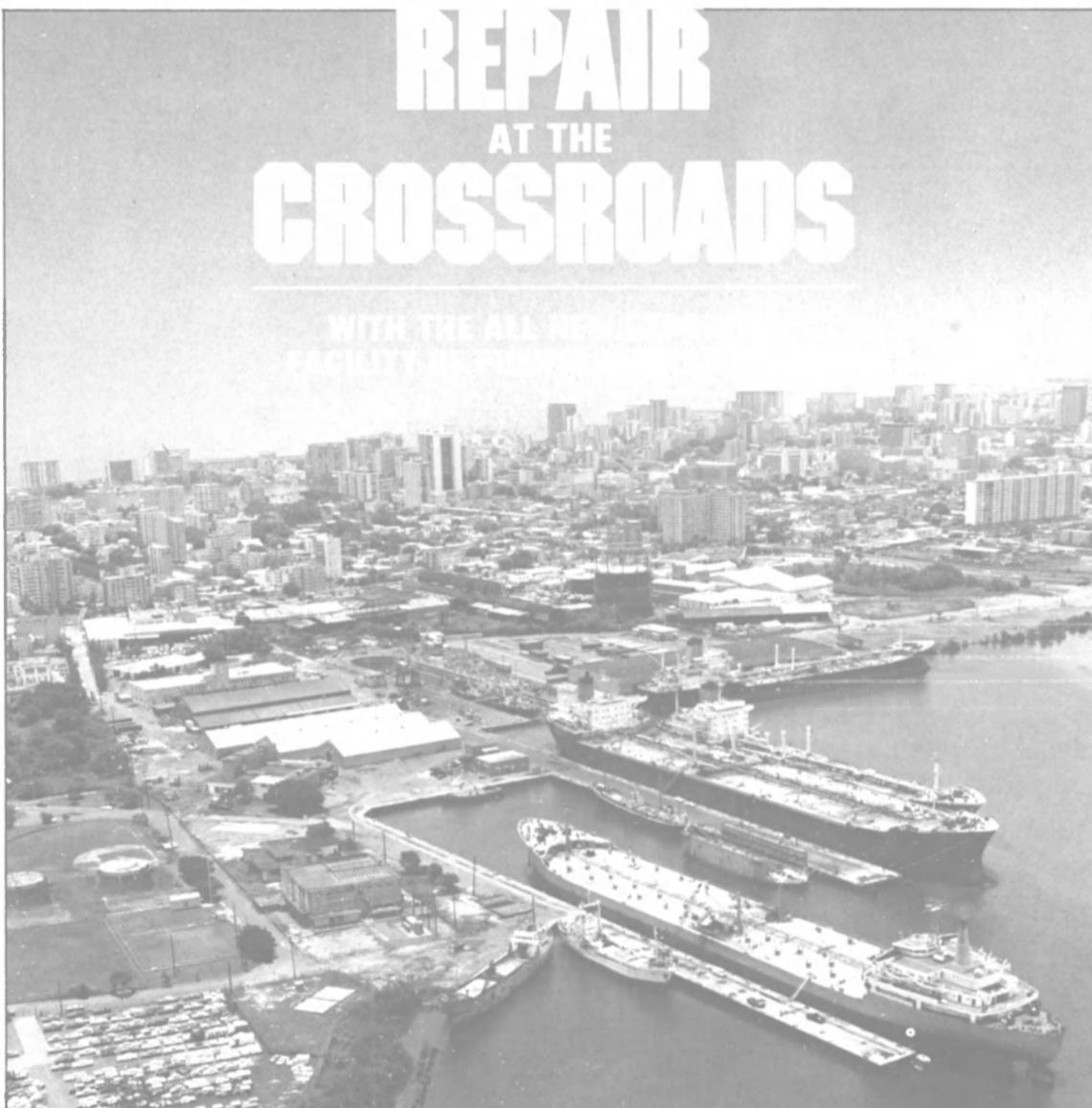
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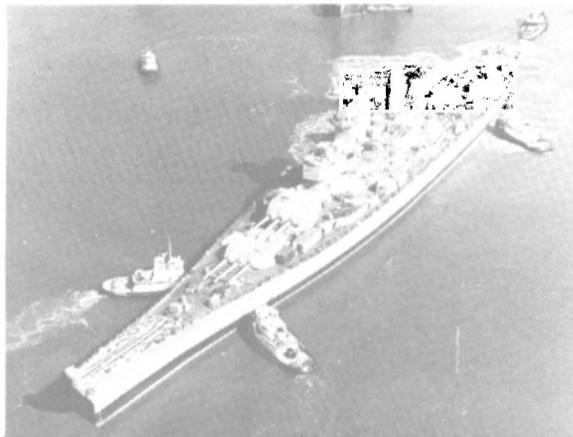
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**Battleship Iowa Enters Ingalls Yard
For Completion Of Reactivation
And Modernization Contract**



Tugs nudge the battleship Iowa (BB 61) into place at Ingalls Shipbuilding in Pascagoula, Miss. for completion of her modernization and reactivation.

The battleship Iowa (BB 61) arrived at Ingalls Shipbuilding division of Litton Industries in Pascagoula, Miss., recently for completion of her modernization and reactivation.

The 58,000-ton ship had been in New Orleans, La., since September 1982, where Avondale Shipyards Inc. performed dry-docking work and equipment removal under subcontract to Ingalls.

Ingalls recently received a finalized contract worth more than \$177-million for completion of the modernization and reactivation. The contract includes \$39.2-million previously awarded for planning and preparation, drydock and prefabrication work, and procurement of long-lead time material. The ship is scheduled for redelivery to the Navy in June 1984.

While at Ingalls, Iowa will be fitted with Tomahawk cruise missiles, Harpoon anti-ship missiles, Phalanx Close In Weapons Systems mounts for self-defense against aircraft and missiles, air and surface search radar systems; and helicopter launch and recovery facilities. The ship's nine 16-inch guns and 12 of 20 original 5-inch guns will remain.

While the Iowa contract will not increase employment at the shipyard, it will be an important factor in stabilizing current manpower levels. The work will employ some 1,500 people for about 18 months.

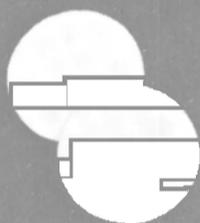
"Returning Iowa to our Navy's Fleet will be a challenging opportunity for our employees. The award of this contract reflects our company's reputation with the Navy for high quality work and schedule achievement," Leonard Erb, president of Ingalls and senior vice president of Litton Industries, said.

Ingalls will also overhaul the ship's eight boilers and four geared turbine engines of 53,000 hp, converting them from obsolete "black oil" fuel to the Navy's standard distillate fuel. Advanced electrical power and communications systems will be installed, sleeping and dining areas will be renovated, and air-conditioning will be installed aboard Iowa for the first time.

(See MARITIME REPORTER/Engineering News, April 15, 1982, November 1, 1982, November 15, 1982, and January 15, 1983 issues).

March 1, 1983

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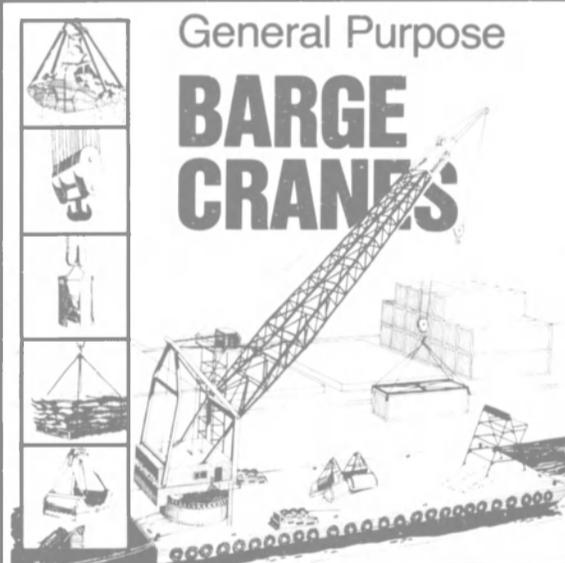
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Honeywell Names Holman Vice President & General Manager, Marine Division

Jerry L. Holman has been named vice president and general manager of Honeywell's Marine Systems Division (MSD) in Seattle, Wash., according to **Warde F. Wheaton**, executive vice president of Honeywell's Aerospace and Defense business.

He will report to **Richard J. Boyle**, vice president and group executive for the Defense and Marine Systems Group. Mr. Holman succeeds **Michael R. Bonsignore** who has been promoted to president of Honeywell's foreign subsidiary, Honeywell Europe S.A.

Mr. Holman will be responsible for MSD's two major business areas: naval acoustic equipment and offshore operations. He will direct the division's 1,500 em-

ployees in the design, development, and production of electronic systems for the offshore oil industry and military.

Since joining Honeywell in 1960, Mr. Holman has held several management positions. For the past two years he was director of operations at Marine Systems Operations and prior to that he was manager of operations for the Defense Electronics Division.

\$5-Million Sub Life Cycle Management Contract To Vitro Laboratories

Automation Industries Incorporated, Vitro Laboratories Division, Silver Spring, Md., has been awarded a \$5,039,000 cost-plus-fixed-fee contract for engineering and technical support for the Naval Sea Systems Command Submarine Life Cycle Management Program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-2006).

Korean Shipyard Increases Capacity Of Hydranautics Shiplift By 62 Percent

An increase of 62 percent in total lifting capacity has been made on the Hydranautics Shiplift installation at Korea Tacoma Marine Industries shipyard at Masan, Korea, according to **John Johnson**, director of shipyard systems of Hydranautics Hydraulic Systems, Goleta, Calif.

By preplanning the entire modification, it was possible to install additional lift points and two new platform sections with only four weeks downtime, Mr. Johnson stated.

The chain-jack Shiplift system was first installed at Masan in 1975 and had a maximum lifting capacity of 2,600 tons. The recently completed modifications increase this figure to 4,200 tons and meet all requirements for Lloyd's Registry certification.

The sale was made by Hydranautics in concert with the Mace Company, Hydranautics' representative in Korea.

For complete information on the Hydranautics systems,

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BIW Awarded \$7.6-Million Contract For PSA Work On Guided Missile Frigates

Bath Iron Works Corporation, Bath, Maine, has been awarded a \$7,600,000 cost-plus-fixed-fee contract for design and material for the accomplishment of the post shakedown availability of FFG-36, FFG-39, FFG-40 and FFG-42. The Supervisor of Shipbuilding, Conversion and Repair, Bath, Maine, is the contracting activity (N00024-80-G-2146).

\$3.8-Million Change Kit Contract To Louis Allis

Litton Industrial Products Incorporated, Louis Allis Division, Milwaukee, Wis., has been awarded a \$3,812,641 firm-fixed-price contract for 29 Louis Allis power supply engineering change kits, checkout services, engineering services, and associated support. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-C-6122).

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Savings Up To 30 Percent Detailed In Brochure On Avicon's New Fuel Monitor

A new Monitor 205 marine engine fuel-efficiency system brochure is available from Avicon Corporation of Scottsdale, Ariz., illustrating and describing features which can provide fuel savings up to 30 percent for vessel owners.

The four-color brochure defines user performance benefits of the Monitor 205 microprocessor display unit, sensors and optional printer, and analog display units. Digital display keyboard controls are captioned in an illustration shown across two pages so that every function can be clearly understood. A fuel-performance curve illustrates optimum fuel efficiency speeds. Information on dealer installation, operation re-

quirements, size, and power specifications are outlined.

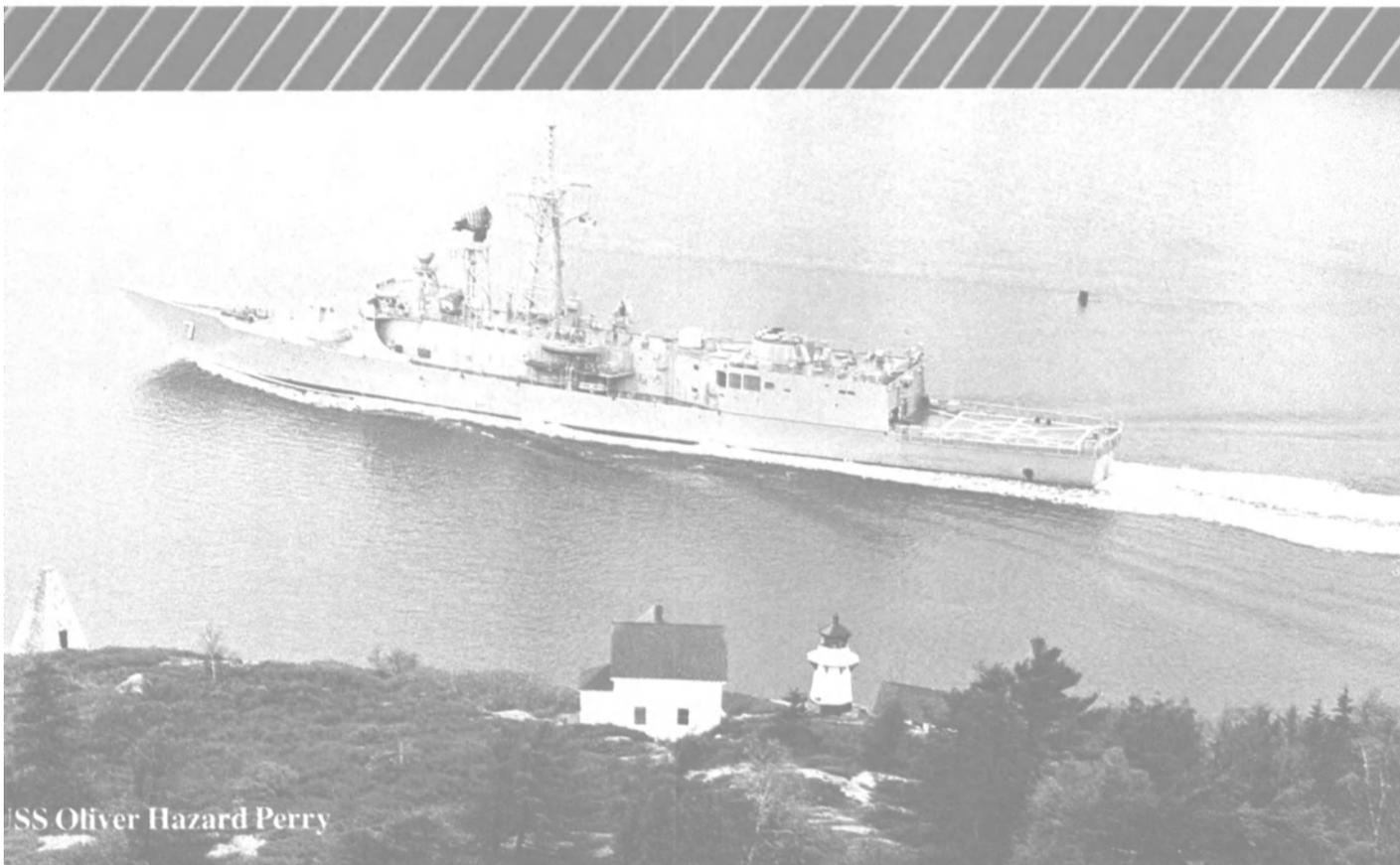
The Avicon Monitor 205 provides information on fuel flow, speed through water, RPM, propeller slip, time and distance to waypoint. After initial programming the Monitor 205 presents all the data needed for evaluating performance and for setting up fuel-saving procedures at the push of a button. Early warning alarms may also be programmed

for critical parameters of engine speed or fuel consumption and to provide easy detection of engine malfunctions which could require costly repair. Depending on vessel size and operation, Avicon reports this system can pay for itself in one month's time.

The Monitor 205 can be used for single or twin engine, diesel or steam, and with light and heavy fuel oils. A two-year limited warranty is provided.

For a free copy of the Avicon Monitor 205 brochure,

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SS Oliver Hazard Perry

JRC Opens Offices In Australia, Singapore

New area offices in Perth, Australia, and Singapore have been established by Jet Research Center (JRC) of Arlington, Texas. The facilities will provide the complete range of JRC explosive technology to the petroleum, marine construction, and dredging industries.

Ron Woods, area manager-business development, will headquarter in JRC's Perth location. Mr. Woods joined the company over two years ago and has experience in all phases of JRC's explosive capabilities. He is also a 25-year naval veteran as a demolition expert.

The Singapore office will be headed by Ray McManus, district manager. Mr. McManus's over three and a half years with JRC includes a year as manager of the company's Dubai operations. He is a demolition expert with 24 years in the Marine Corps.

Jet Research, one of the recognized leaders in explosive technology, is a subsidiary of Halliburton Company, Dallas, Texas.

Bremer Vulcan Delivers Multipurpose Cargo Ship

Bremer Vulcan AG shipyard, Bremen, West Germany, recently delivered the 75,590-dwt multipurpose carrier M/S Ariel to Partenerieriet Ariel/Skibs AS/Aino/Skibs AS Viva/Skibs AS Viator/Skibs AS Bonita.

The Ariel transports dry bulk cargo, containers, and large pipes and is also capable of carrying liquid cargoes such as crude oil, light heating oil, and petroleum products, or a combination of dry and liquid cargoes.

The vessel is powered by a Bremer Vulcan/M.A.N. type K8SZ 70150 CL diesel engine producing 16,520 bhp at 130 rpm. The Ariel is 243.46 meters long overall, has a 32.22-meter molded breadth, a 20.50-meter depth, and a 14.32-meter draft.

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The John Crane MX9

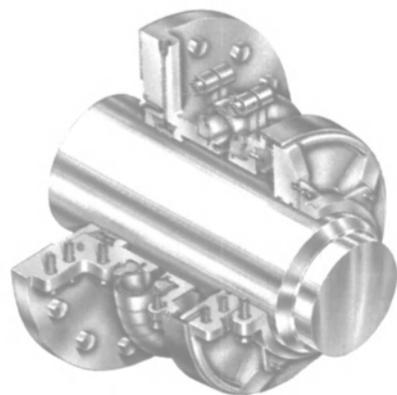
AT THE LEADING EDGE OF STERN TUBE SEALING TECHNOLOGY

offering an auxiliary packing provision enabling emergency shaft sealing are critical problems of fluid movement solved by the MX9 Stern Shaft Seal.

Fact: These are solutions that have led to U.S. Navy acceptance of the John Crane MX9 for Fourth-Flight new constructions and backfit under PSA and ROH on the FFG-7 Class.

Discover the diversity of experience in John Crane engineered sealing. That's proven performance aboard commercial and government vessels worldwide. John Crane means confidence and reliability. Put it to work for you.

For more information, contact a John Crane field engineer without obligation. Or request Bulletin M-100. John Crane, Marine and Government Division, 6400 Oakton Street, Morton Grove, IL 60053. 312/967-3873.

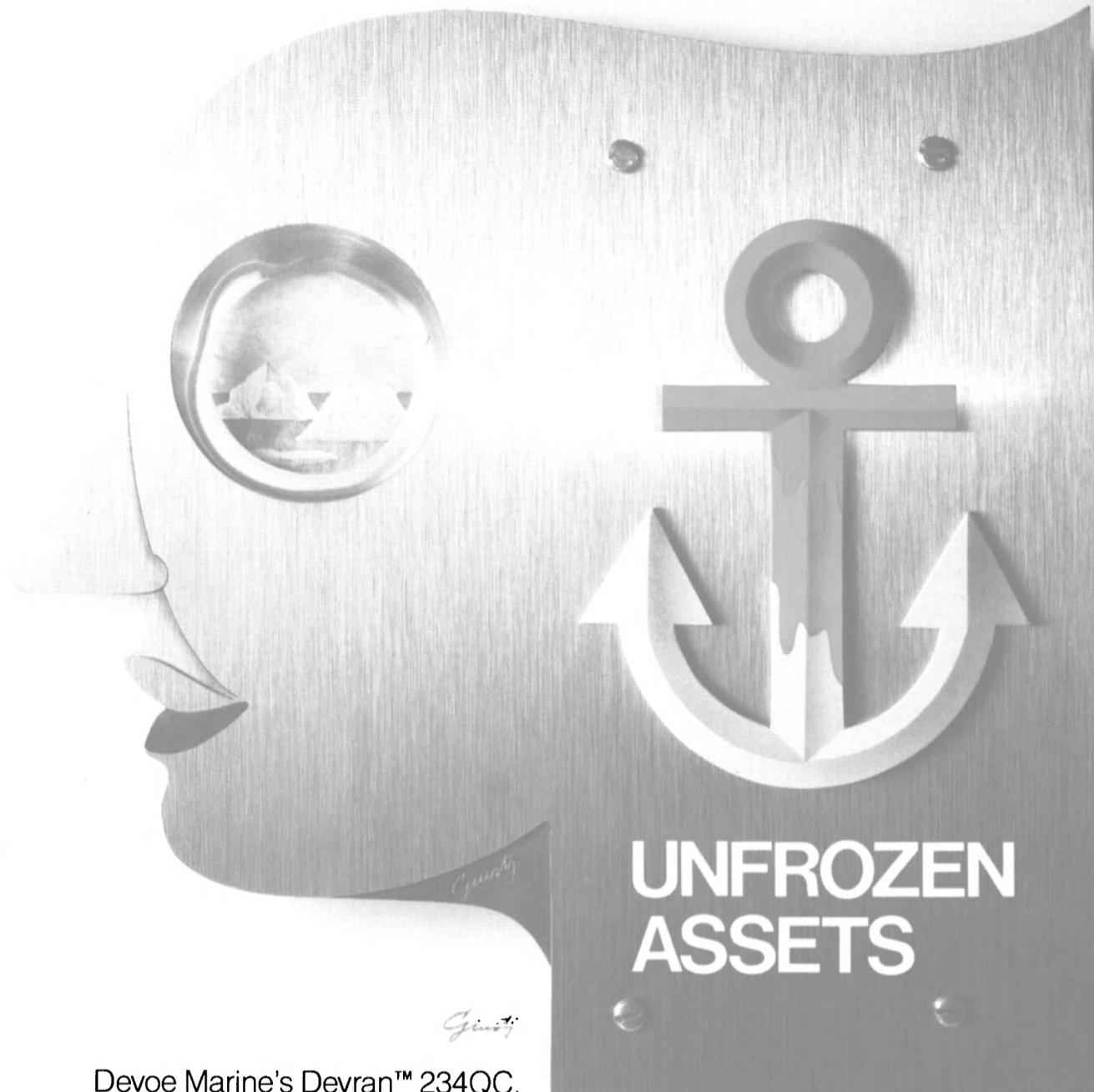


MX9 Stern Shaft Seal

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The John Crane MX9 represents state-of-the-art stern tube sealing technology. This innovative design—incorporating single convolution bellows and readily replaceable face wearing components—created a revolution in sealing design philosophy. And the MX9 represents a proven philosophy, successfully demonstrated at sea.

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Devoe Marine's Devran™ 234QC, the world's only high performance epoxy coating that cures at sub-freezing temperatures.

The more time a ship spends "frozen" in drydock, being re-painted, the less time it spends in the water, earning money. Until now, when the temperature dropped below 32°F shipyards had to rely on paint that required frequent re-application.

Devoe Marine has solved this costly problem by creating DEVRAN™ 234QC, the world's only high performance epoxy coating that cures at sub-freezing temperatures. The benefits of this remarkable coating are obvious: reduced drydock time, less frequent re-painting and increased profit potential. Innovations such as Devran 234QC explain why Devoe Marine coatings are found on large vessels and offshore oil rigs the world over.

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If you'd like to know more, write Grow Group, Inc., Pan Am Building, 200 Park Avenue, New York, N.Y. 10017, for a copy of our Annual Report. Or call Mr. Joseph Quinn, President, Devoe Marine Coatings, Inc. at 1-502-897-9881.

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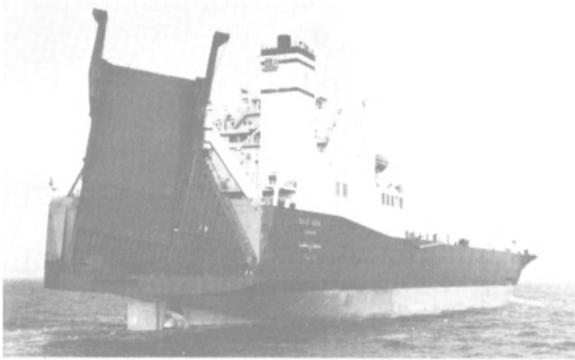
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FROM KOCKUMS — The Saudi Abha, the first of four 38,100-dwt ro/ro's built by Kockums Shipyard of Malmo, Sweden, for the National Shipping Company of Saudi Arabia, sails on her maiden voyage to Houston, Texas, and the U.S. East Coast. The ship was delivered over two months ahead of schedule. A sistership, Saudi Diriyah, is scheduled for delivery at the end of March, with the remaining two ships being delivered by the end of 1983.

Free 32-Page Report Details Test Results On New Fuel Efficient EMD Diesel

Electro-Motive Division of General Motors, LaGrange, Ill., has released a progress report which outlines the results of a three-year series of tests conducted by EMD on blended fuels. Contained in the report are what are believed to be among the first electron microscope photographs of catalyst fines.

The evaluation of low quality distillate, as well as low quality distillate-residual blends, has been the subject of in-house and field evaluation. EMD's study of blended fuel goes back 25 years. This study has been intensified in recent years. The studies have concentrated on the effects of poor quality distillates. More recent in-house studies have focused on the impact of today's poor quality residuals and their influence on relatively low viscosity blends in the 200 SR1 range.

Testing of blended fuels continues in the field, and new test facilities are to be operational later this year.

T.J. Lehman, EMD marine sales manager, said: "We recognize that as the leading supplier of medium-speed diesels to the marine market, we have an ongoing responsibility to our customers, so we have tried to provide them with a realistic view of blended fuels."

The report contains a full explanation of EMD blended fuel test procedures and includes a section completely describing the configuration of the new 645 engine.

Three tests were conducted, A, B and C. The report contains a description of each test and a detailed explanation of the results of all three tests. This includes graphs and photos illustrating the highlights of past test inspections and summaries of data analysis.

This very informative report concludes with a summary of all test results covering the areas of catalyst fines, vanadium carbon residue and sulphur content.

Recommendations are included on prospective fuel limits, use of different fuels, centrifuging/filtering, fuel systems, lubricating oils, and fuel terminology.

For a free copy of the 32-page report entitled "The EMD 645 Engine and Blended Fuels — A Progress Report,"

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ASNE-Puget Sound Discusses The Soviet Navy

The recent meeting of the Puget Sound Section of ASNE heard Capt. Timothy R. O'Keefe, USN, commanding officer, USS William H. Standley (CG-32), deliver an address entitled "The Soviet Navy: A Near-Term Capability."

An intelligence subspecialist with considerable related operational experience both ashore and at sea, Captain O'Keefe graphically illustrated the extraordinary progress made by the Soviets over the last decade in surface and subsurface combatant warship design and construction, highlighting such threats as the Typhoon and Delta submarines, Backfire Bomber, and the most recent developments in Soviet aircraft carriers.

Also of considerable interest to the section's civilian shipbuilding membership were slides showing the remarkably broad-based achievements of the Soviets in nonmilitary



Puget Sound Section chairman Pat McAllister (left) presents a plaque to guest speaker Capt. T.R. O'Keefe, USN.

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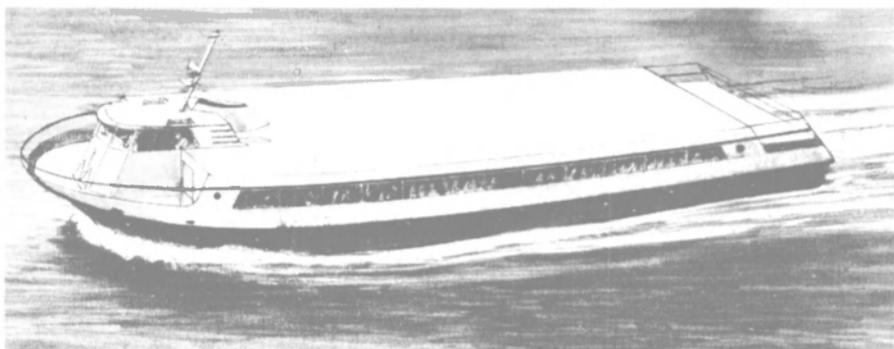
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Artist's rendering of the 75-foot, 149-passenger commuter boat featuring a new hull construction process. The boat will be powered by twin GM 12V71 diesels.

Blount Establishes Subsidiary To Build Super-Fast Commuter Boats

Hi Tech Boat, Inc., the new subsidiary of Blount Marine Corporation of Warren, R.I., recently entered into a contract with Fire Island Ferries of Bay Shore, L.I., N.Y., to supply a super-fast commuter boat of revolutionary new construction.

The vessel, to be delivered in July, will measure 75 feet by 21 feet. Its 75-foot hull is believed to be the lightest ever built for

its strength, and it will draw less than a foot although propulsion and anti-sliding devices will bring the total draft to about 26 inches.

Of composite sandwich construction, the vessel will be built around a skeleton of aluminum, stainless-steel, and foam material, with a hull skin of fiberglass. The vessel, in light ship condition powered by twin GM 12V71 diesels, will weigh a total

of only 22-tons compared to a lightly built 75-foot steel commuter weighing 46 tons.

The vessel will operate on a run between Bay Shore, L.I., and Fire Island, where extreme shallow draft and speed is important. Passenger capacity is 149, with aircraft-type seats for the entire passenger complement located in a modern passenger salon.

Speed of the new vessel is expected to exceed 30 miles an hour with less power than required by steel 20-mph commuter boats of which Blount has built a total of five over the last seven years.

To fulfill the need for a super-fast, light-duty workboat, Blount Marine has established a new division, Hi Tech Boat, Inc., that will build and market the new specially built craft based on the Blount patent. The project is the result of an invention developed and patented by Luther H. Blount in 1981.

In May 1982, the 40-foot experimental Island Express was built using the new method cited in the patent. Mrs. Clairborne Pell christened the craft at its

launching. The vessel's original design met all U.S. Coast Guard requirements for high-speed craft. It is now eligible for a certificate to carry 44 passengers.

Built under U.S. Coast Guard inspection, it has been tested for six months under extreme operating conditions and found to exceed all performance criteria.

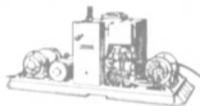
Hi Tech Boat, Inc., will commence construction operations in the south hull shop complex at Blount. Hi Tech will also license others interested in using the invention.

\$215.3-Million Increase Awarded GE For Nuclear Carrier Components

General Electric Company, Schenectady, N.Y., has been awarded a \$215,323,000 increase to a previously awarded cost-plus-fixed-fee contract for naval nuclear propulsion components for Nimitz-class aircraft carriers. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-C-4004).

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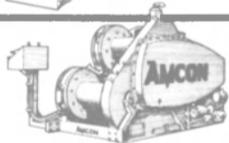
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Bill Stevens, President
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New Marine Impellers Described In Free Brochure

The Barco Corporation recently celebrated its third anniversary by moving into a new facility located in a new industrial park adjacent to the International Airport in Tampa, Fla.

Barco Corporation pioneered a new elastomer flexible impeller used in cooling pumps in marine engines as well as auxiliary pumps used on commercial and pleasure craft. Production has grown from 8 impellers per day in the beginning to over 150 per day in 11 different models.

The development of the impeller was done with the ultimate goal of providing the marine industry with an impeller that would have a dry-running capability of from 10 to 20 minutes without destroying the impeller. The second goal was to have a compound that would not swell nor deteriorate when subjected to petroleum products such as diesel fuel, lube oil, or gasoline. The Barco impeller is capable of doing both.

They operate successfully in temperatures that exceed the capabilities of rubber, nitrile, or neoprene impellers ranging from -35°F to 350°F.

A brochure is available describing the impellers.

For a free copy,

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Getty Plans Expansion Of California Marine Terminal Costing \$60 To \$100 Million

Getty Trading and Transportation Company of Denver, Colo., recently submitted proposed construction plans to the Santa Barbara Resources Department and the State Lands Commission seeking permits to expand the company's crude oil marine terminal near Gaviota, Calif. The plans also include construction of a supply facility for petroleum companies operating offshore.

The multipurpose project, estimated to cost between \$60 and \$100 million, would increase the Gaviota terminal's capacity to handle up to 300,000 barrels per day of crude oil production with an initial storage capacity of one million barrels. Storage capacity eventually would be expanded to two million barrels of crude oil.

The terminal, available to all companies, would be designed to handle offshore crude oil production from recent and anticipated discoveries in the Santa Barbara Channel and Santa Maria basin areas. The marine terminal expansion also would include construction of a mooring facility for crude oil tankers. The proposed supply facility would include warehouses, a pipe yard,

heliport, and a pier for supply boats.

Both the marine terminal expansion and supply facility will be located on a 178-acre tract of land near Gaviota, about 30 miles north of Santa Barbara. Existing capacity of Getty's marine terminal is 50,000 barrels per day of crude oil.

Getty's plans refer to a proposed crude oil pipeline from the Gaviota terminal east into the Bakersfield area where it would

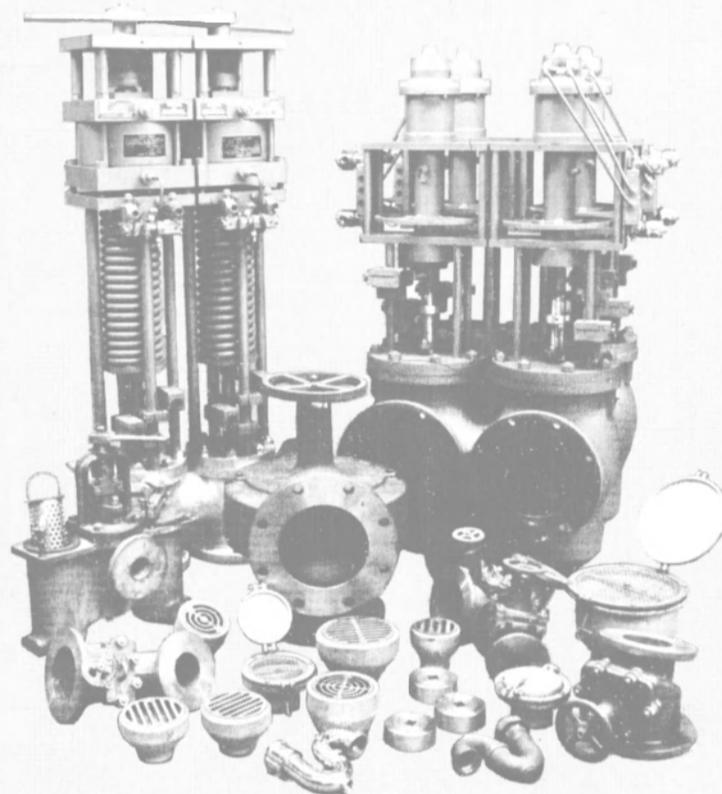
connect to existing and future crude pipeline systems. This would allow crude oil produced offshore California to move via pipeline.

Additionally, Getty plans to set aside storage space on land and make mooring facilities available for use by the "Clean Seas Group." This industry-funded organization provides expertise, equipment, vessels, and manpower in the event of an oil spill.

R.A. Griffith, vice president of

mainlines and terminals for Getty Trading and Transportation Company, said that once all permits are received, construction of the facilities would take about 20 months. Approximately 200 jobs will be created during the construction period.

Getty has retained Westec Services, Inc., a San Diego-based environmental consulting firm, and Marmec Systems Engineering of Long Beach, to assist in the permit application process.



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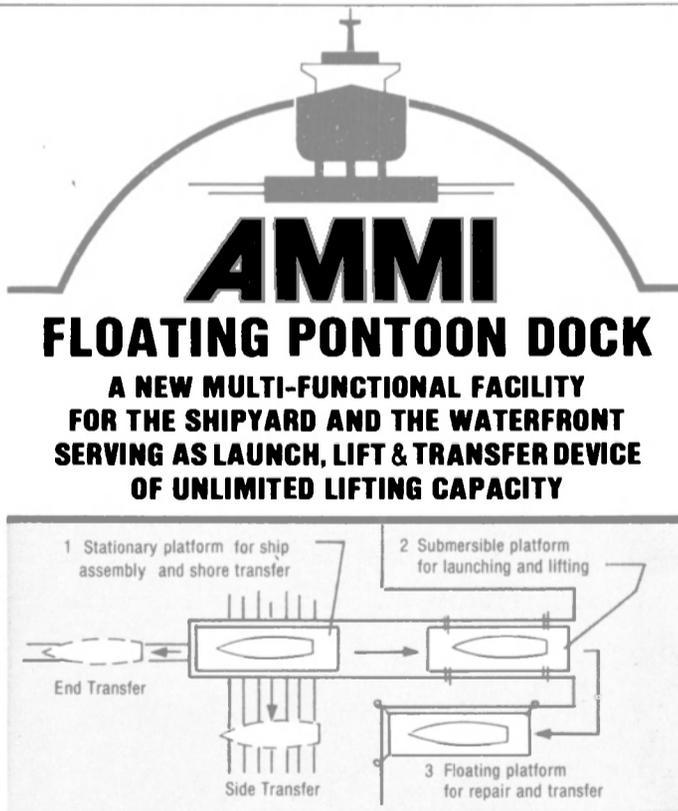
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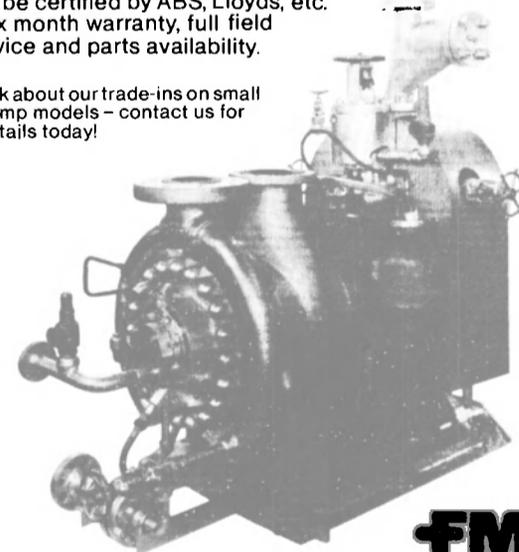
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Todd Delivers Frigate Ahead Of Schedule

Guided Missile Frigate USS Lewis B. Puller (FFG-23) was delivered to the Navy recently after completion of its Post Shakedown Availability (PSA) by the Los Angeles Division of Todd Pacific Shipyards Corporation, it was announced recently by **Len M. Thorell**, vice president and general manager.

Delivery of the Puller on sched-

ule was particularly noteworthy in that the Los Angeles Division was able to absorb a 26 percent increase in work scope identified during the PSA without extending the contract completion date, thereby allowing the ship to meet its schedule commitment as planned. The Puller represents the sixth consecutive frigate PSA to be completed on or ahead of contract schedule and significantly below estimated cost by the Los Angeles Division.

Seaward To Supply Buoys For Middle East Jackups —Literature Available

Seaward International, Inc., Falls Church, Va., supplied 16 Sea Float pendant buoys to a worldwide drilling company for use on four jackup rigs scheduled for service in the Middle East.

The buoys have a unique square cross section that minimizes the

hazard of their rolling around on the deck of the workboat during handling operations. The Sea Floats are being supplied with a 6-inch hawse pipe so that a wire rope can be passed through them.

Company literature describes the buoys as having 5,000 pounds net buoyancy. They can support 175 feet of 1.5-inch wire and are used as anchor marker buoys in water depths to 150 feet. The buoys have an overall height of 7 feet 9 inches and are 5 feet square at the water line.

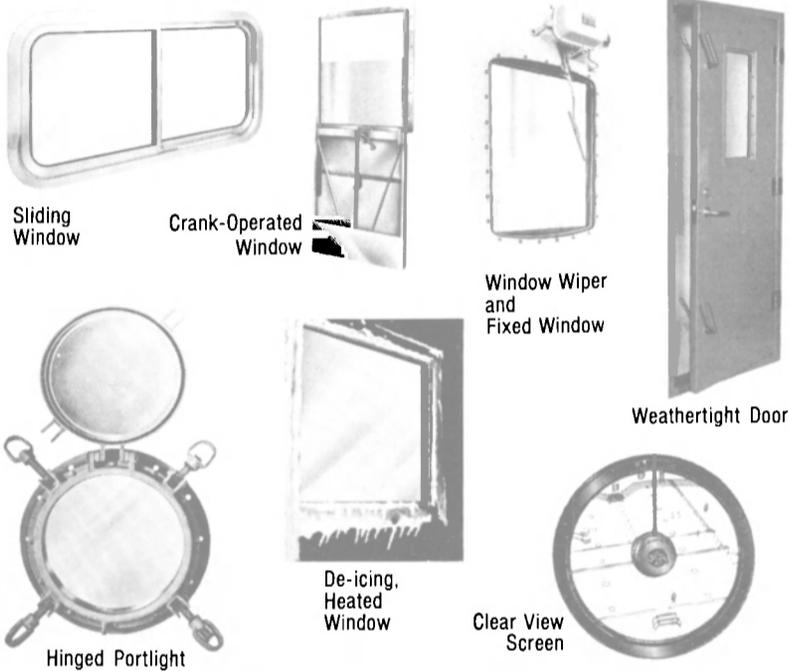
The buoys are constructed of the same closed-cell plastic foams as Seaward's other Sea Floats, with a steel interior frame for strength.

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Free Brochure Describes 48 Models Of Allied Hydraulic Marine Cranes

Allied Marine Crane of Portland, Ore., a division of Allied Systems Co., is offering a free product brochure covering its line of hydraulic marine cranes.

The brochure describes the features of the 48 standard models of both double tapered boom and telescopic boom cranes that are available in capacities from 6 to 90 tons. Representative photos, dimensional drawings, capacity tables, and optional equipment also are included.

The cranes are designed, manufactured, and distributed by Allied specifically for use in marine applications such as on ships, barges, at dock side, on offshore rigs and production platforms, and on workboats.

All models are engineered and constructed to provide trouble-free performance, low maintenance and longer marine life under the harshest, salt laden marine conditions.

Allied Marine Crane is an engineering intensive organization operating in a newly constructed 40,000-square-foot plant. Much of the production consists of cranes custom built for specific applications.

Other products being furnished to the marine industry are diesel/hydraulic and electro/hydraulic power packages and deck equipment such as mooring winches and davits.

Allied Marine Crane is an approved American Petroleum Institute manufacturer and can supply certification and approvals as required by American Bureau of Shipping, U.S. Coast Guard, Lloyd's Registry and other regulatory bodies.

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Maritime Reporter/Engineering News

Diaz Elected President Of Greater New Orleans Barge Fleeting Association

Captain **Ralph Diaz** was recently elected president of the Greater New Orleans Barge Fleeting Association at the association's recent meeting. The association represents 46 barge and fleet operations in the New Orleans area.

Captain **Diaz** is operations manager for towing and fleeting with T. Smith & Son, Inc., New Orleans' largest and oldest stevedoring firm.

Before joining T. Smith & Son, he was a captain in the Corps of Engineers, U.S. Army, and at present holds the rank of lieutenant colonel, Corps of Engineer Army Reserve. A graduate of the U.S. Army Command and General Staff College at Ft. Leavenworth, and a mechanical engineer, Captain **Diaz** holds an uninspected towing vessel license, unlimited tonnage, for Inland Waters and Western Rivers of the U.S.

Other officers of the association elected include: **Ed Haskell**, vice president (Jefferson Parish Fleet); **Richard Paquette**, secretary (Riverways Harbor Services, Inc.); **Scott Noble**, treasurer (Capital Marine, Inc.); directors: **Richard Cottingham** (Federal-Triangle, Inc.); **Steve Canone** (T. Smith & Son, Inc.), and **Bruce Hancock** (SCNO Terminal Corp.).

The Marine Society Of The City Of New York To Hold 213th Annual Dinner

The 213th annual dinner of The Marine Society of the City of New York will be held on Monday, April 11, 1983, at the Plaza Hotel, New York City. **John J. Farrell**, president of the International Terminal Operating Company, Inc., will be the honored guest and speaker. Reservations for the dinner, which will be held in the Grand Ballroom of the Plaza following a reception from 6:30 p.m. to 7:30 p.m., may be made by calling the secretary at The Marine Society office—(212) 425-0448. Capt. **Conrad P. Nilsen** is chairman of the dinner committee.

Navy Awards Tracor \$4.6-Million Contract For Submarine Program

Tracor, Inc., of Austin, Texas, announced recently that its Applied Sciences Group has received an initial \$4.6-million contract with a potential value in excess of \$9.9-million over the next two

years from the Naval Sea Systems Command. The contract is for continued engineering and technical support for the Navy's strategic and attack submarine fleet.

William C. Moyer, group vice president for Tracor Applied Sciences, said Tracor's effort is directed at providing the engineering disciplines and technology necessary for the development and implementation of dedicated

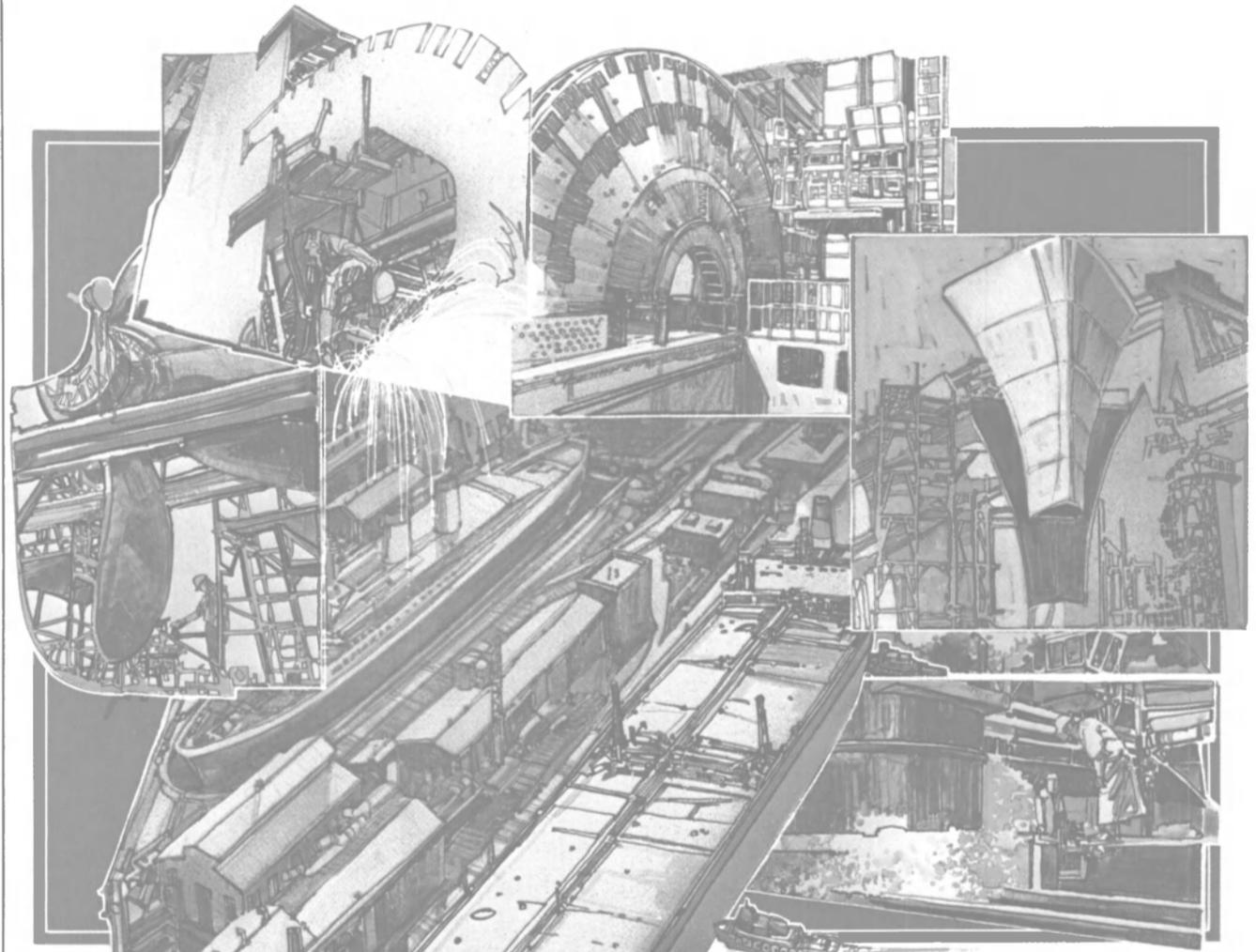
maintenance and modernization programs to support the submarine Extended Operating Cycle (EOC) concept. The submarine EOC program extends the interval between submarine overhauls to achieve a higher, stabilized level of deployed submarines and maintains a high state of readiness.

According to Mr. **Moyer**, Tracor has been providing engineering and technical support to the sub-

marine EOC program since its inception in 1974.

William M. Pugh, division vice president of the Systems Technology Division of Tracor Applied Sciences, announced that **D.L. Campbell** will continue as program manager for the contract. The work will be performed in Rockville, Md., under the direction of **L.B. Cable Jr.**, and in Groton, Conn., under the direction of **M.P. Hall**.

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Navy Awards Lockheed Contract To Construct Third Dock Landing Ship

The U.S. Navy has announced the award of a construction contract to Lockheed Shipbuilding and Construction Company, Seattle, Wash., to build the third ship of the Whidbey Island class dock landing ships. The ship, to be known as LSD-43, will be built

at Lockheed's Harbor Island shipyard in Seattle. Contract award value is \$271.4 million which includes \$62.8 million already awarded to Lockheed on October 29, 1982, for the purchase of Long Lead Time Materials (LLTM).

The LSD-43 construction contract signed by Lockheed Shipbuilding president L.A. Smith and U.S. Navy officials (Naval Sea Systems Command) in the na-

tion's capital, calls for Lockheed to launch LSD-43 in December 1985.

The 609-foot ship, which will not be named until it is launched, is the third of three U.S. Navy dock landing ships under contract to Lockheed. This contract, the third in less than two years, brings to almost \$1 billion the contract awards for the three ships.

LSD-41 and LSD-42 are now

under construction at Lockheed's Seattle shipyard. The LSD-41 (named Whidbey Island) is 50 percent complete, and will be launched June 10, 1983. The LSD-42 is approximately 10 percent built and will be launched in August 1984. LSD-42 will not be named until its launching.

The Navy's award of the construction contract for the LSD-43 will enable Lockheed Shipbuilding to maintain its current workforce of approximately 3,300 employees. Many craft employees now involved in extensive overhauls of Navy destroyers since February 1982, will be reassigned from Lockheed's overhaul facility to duties on LSD-43 construction when the final destroyer is delivered to the Navy in June 1983.

The Whidbey Island-class dock landing ships are amphibious assault ships designed to carry combat-ready U.S. Marines and their equipment to designated areas around the world. At those designated points, the Lockheed-built ships launch their 87-foot by 47-foot air cushion landing craft (LCACs) from the ship's 440-foot hollow wet well.

The ship lowers its stern gate, floods ballast tanks, lowers itself into the sea, and allows the LCACs — loaded with the Marines, tanks, and other equipment — to exit the ship. The troops are then carried onto and over the shoreline to tactical assault points ashore while the LSD-41/42/43 sits "over the horizon" to await the return of the LCACs and Marines.

The LCACs (Landing Craft, Air Cushion in Navy terminology) are being built for the Navy under a contract awarded to Bell Aerospace division of Textron Industries at Bell's New Orleans facility.

The Whidbey Island-class dock landing ships are designed to replace the aging Thomaston class (LSD-28) dock landing ships as that class of ships reaches the end of its 30-year service life. The first of those ships is scheduled to be removed from active fleet status coincidental with the commissioning of Whidbey Island (LSD-41) in late 1985.

Triboro Industries Names Forrest Vice President

Triboro Industries Inc., the engine service and rebuilding specialists headquartered in Bronx, New York, recently announced that J. Douglas Forrest has been appointed as vice president with primary responsibilities in marine and industrial divisions.

Mr. Forrest was formerly president of the container division, BFC Marine Services in Brooklyn, N.Y. Prior to joining that company, he was executive vice president of Arthur Tickle Engineering Works Inc. of New York.

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Talon Technology To Provide Satellite Communications Systems

Talon Technology Corporation, Richardson, Texas, was organized recently to provide mobile satellite data communications systems and consulting services to the petroleum, marine, and defense industries. **Lynn B. Heitman** is president of the new company, whose corporate headquarters are at 1819 Firman Drive, Suite 137 in Richardson.

Mr. Heitman formerly was manager of marine engineering for Geophysical Service Inc., petroleum exploration subsidiary of Texas Instruments Incorporated, of Dallas.

Other principals of the company are **Bruce C. Toal** and **Robert E. Bredehoft**, vice presidents, and **Terry McDonald**, chief engineer. All formerly served on the marine engineering staff of Geophysical Service Inc. and are highly experienced in various aspects of satellite data communications.

Mr. Heitman said the company will offer communications systems that will allow data to be transmitted at speeds up to 1.5 megabits per second via domestic or maritime satellites. The systems are designed for rough mobile environments such as are encountered in land and marine seismic and drilling operations.

For more information, and free literature,

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Thomas Hoback Named Marketing Director At Teco Transport

Thomas G. Hoback has been named director of marketing for Teco Transport & Trade Corporation, of Tampa, Fla., a water transportation holding company.

Mr. Hoback, previously director of coal marketing for Illinois Center Gulf Railroad in Chicago, will have responsibility for coordinating and directing Teco Transports' marketing program. He will be based in Teco's corporate headquarters in Tampa.

Teco Transport & Trade's operating companies include Electro-Coal Transfer, a bulk cargo transfer terminal on the lower Mississippi River at Davant, La., Mid-South Towing, which hauls commodities on the Mississippi, Ohio, and Arkansas Rivers; and Gulfcoast Transit, which operates tug/barge combinations linking the Mississippi River with ports on the Gulf of Mexico, Caribbean Sea, Central and South Americas, as well as the U.S. East and West Coasts and Hawaii.

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MES Awarded Contract To Build Semisubmersible For Sonat Offshore Drilling

Mitsui Engineering & Shipbuilding Co., Ltd. (MES), jointly with Mitsui & Co., Ltd. of Tokyo, Japan, recently received an order from Sonat Offshore Drilling Inc. of the U.S. to build a semisubmersible offshore oil drilling rig deliverable in July 1985.

The rig will be a semisubmersible unit newly designed to be able to endure severe sea conditions. It will have a fully watertight superstructure, and will be capable of accommodating 150 persons and bearing a load of about 5,000 metric tons.

It will be designed for mooring at a water depth of up to 2,000 feet, and will be equipped with a system which can automatically

maintain the position of the hull at a maximum water depth of 10,000 feet. The rig is intended to meet the requirements of the pertinent rules of the U.S., U.K., Canada, and Norway.

In late September 1982, MES delivered a semisubmersible rig, John Shaw, to the same owner.

This new order covers not only construction by MES but also the joint development of the rig with its owner.

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DuPont Marine Finishes also include tank lining coatings, bottom primers and anti-fouling paints, boot-topping paints, aluminum paints, thinners and other additives.

For further information and a color card, write on your letterhead to DuPont Company, Marine Finishes, Room X38616, Wilmington, DE 19898.



Scientific Management Associates Announces Acquisition By New Owners

The Philadelphia area based firm of Scientific Management Associates, Inc. (SMA) was acquired recently by two Washington, D.C., businessmen, **George W. Glatis** and **Louis T. Donatelli**,

who plan to move the headquarters to the Washington metropolitan area. Mr. Glatis is the former chairman of the board of Wheeler Industries, Inc. Mr. Donatelli has an extensive background in investment banking and real estate investment.

SMA is a multibillion-dollar international engineering corporation with offices in Washington,

D.C., New Jersey, Maryland, and Virginia, and a subsidiary in Australia. SMA was founded in 1964 to provide naval engineering, marine system design and project support services to governments and industries throughout the free world.

Under the new management, Mr. Glatis has assumed the position of president and chief executive officer. Mr. Donatelli has

been elected chairman of the board with additional responsibilities as vice president of corporate development. Other officers appointed under the new corporate structure are former SMA executives and include: **Thomas L. Bowe**, senior vp/international operations with responsibility for corporate activities in Australia; **Richard C. Fay**, vp/engineering; **William S. Hare**, vp/New Jersey operations; and **Thomas J. Graham**, vp/Washington operations.



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3.5

Planning Systems Awarded \$4.6-Million Engineering Support Contract

Planning Systems Incorporated, McLean, Va., has been awarded a \$4,680,057 cost-plus-fixed-fee, level-of-effort, indefinite quantity, delivery order type contract for engineering and scientific support in the areas of ship acoustics, acoustic intelligence, collection systems, sonar calibration, sonar performance, sonar self-noise, tuba, computer-assisted post-processing, acoustical signal processing and at-sea experimental design. David W. Taylor Naval Ship Research and Development Center, Bethesda, Md., is the contracting activity (N00167-83-D-0031).

Advanced Marine Appoints New Division Manager



Karl H. Farber

Advanced Marine Enterprises, Inc., a marine engineering and naval architectural firm headquartered in Washington, D.C., recently announced the appointment of **Karl H. Farber** to head its Systems Engineering Division.

Mr. Farber, a retired naval officer, brings to the company nearly 30 years of experience in the design, acquisition, and construction of naval and commercial ships.

Advanced Marine's Washington Division, under the direction of **John J. Nachtsheim**, who recently completed a two-year appointment as president of The Society of Naval Architects and Marine Engineers, welcomed Mr. Farber to their team of professionals.

Mr. Farber previously served with Tracor, Inc., where he held a similar position.

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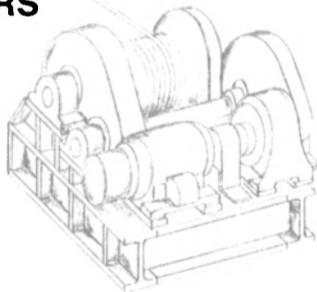
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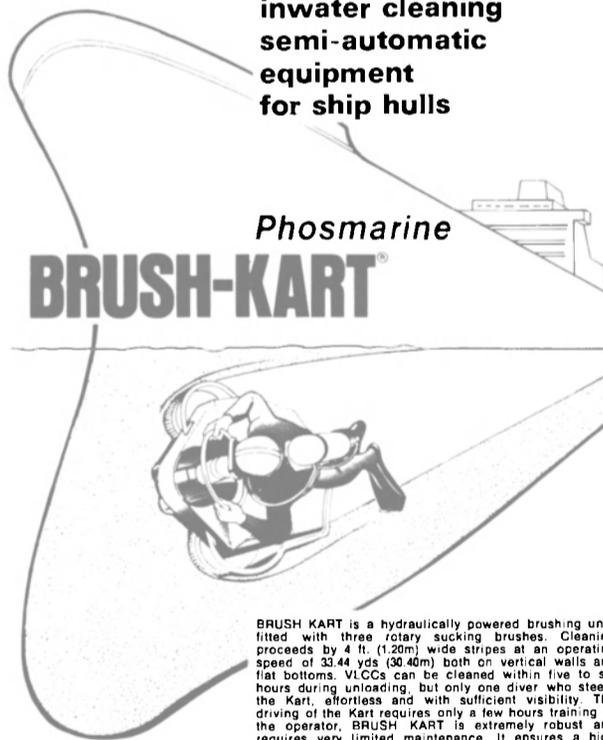


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Farrell Reports \$35-Million Turnaround — Sells Four Ships To U.S. Lines

Farrell Lines expects to record a modest net profit for 1982, Richard V. Parks, president and chief operating officer said recently.

This represents a \$35-million operating turn-around over the previous year.

Mr. Parks also predicted an operating profit for the 58 year old U.S. flag steamship line in 1983, basing his forecast on the sale recently of four 1,700 TEU containerships to United States Lines and a brighter outlook in Farrell's Mediterranean, West African and chartering divisions.

The four Farrell containerships sold to U.S. Lines have been deployed on the North American/Australian and New Zealand trade route. The sale to U.S. Lines will result in the suspension of Farrell Line's service to this region.

The total package for the four Farrell containerships totals approximately \$150 million, including debt, mortgages, and equity capital.

"The sale of these vessels will have a favorable impact on our balance sheet expediting the continuing turn-around of Farrell Lines. It will make Farrell Lines much more viable and stronger," Mr. Parks said.

Farrell Lines is suspending its Australian service mainly because of high operating costs on that trade route and declining cargo volume due to a softening of the region's economy. Farrell Lines will honor all current cargo commitments between North America and Australia and New Zealand with the four voyages in progress.

The company is optimistic about its Mediterranean and West African trade routes, where it holds a substantial cargo position. It believes it will further expand its market share in that region of the world due to anticipated economic growth and Farrell's position as a U.S.-flag carrier. The Line's charter division is also projected to do well in 1983.

Mr. Parks joined Farrell Lines in 1979 and was appointed president and chief operating officer in 1981. The company subsequently has reorganized its top management staff, instituting tight financial controls, trimming inefficiencies, emphasizing quality service and innovative approaches to customer needs.

The four vessels involved in the sale to U.S. Lines are the Austral Pioneer, Austral Puritan, Austral Envoy, and the Austral Entente.

Selesmar Of Italy Increases Capital Through Agreement With INI

Selesmar of Florence, Italy has announced the signing of an agreement with INI of Spain, in which INI has acquired 20 percent of the share capital of Selesmar. A leading manufacturer of marine radars and ARPA anti-collision systems, Selesmar had previously been fully con-

trolled by S.M.A. With the agreement the share capital of Selesmar has been increased from 2 billion lire to 2.5 billion lire. This is the second increase of capital since Selesmar was formed in August of 1980 and is indicative of the rapid and constant growth experienced by this firm since its inception.

Participation on the part of the new Spanish stockholder is considered particularly important because of a technical and com-

mercial agreement with the leading Spanish electronics equipment manufacturer EISA which is controlled by INI.

Selesmar reports its products have gained excellent acceptance through 1982 in the international marine market, and that sales had exceeded anticipated levels for the year.

For complete information and literature on Selesmar's radars and ARPA anti-collision systems,

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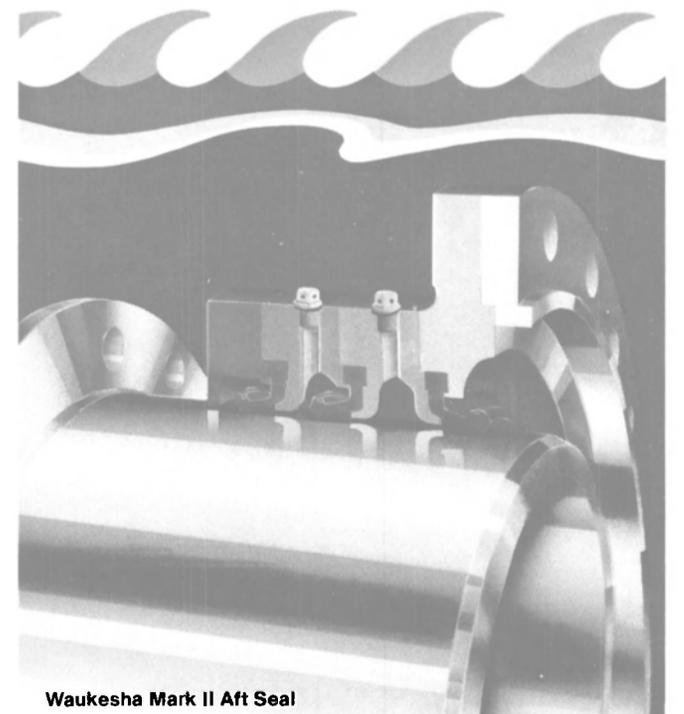
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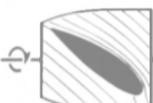
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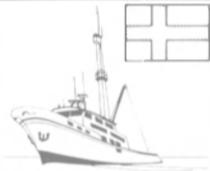
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Dubbed "CALM-PLUS," the terminal can accommodate tankers to 85,000 dwt during 10-foot waves, and can withstand a maximum wave of 28 feet.

The underbuoy hose system, a Sofec-designed "Modified Chinese Lantern" con-

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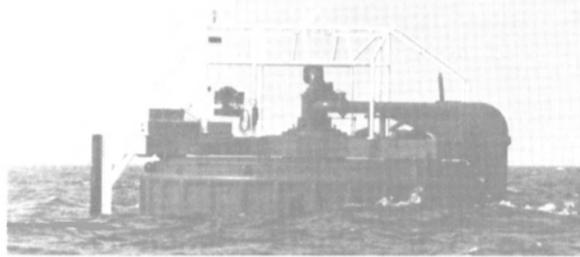
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Sofec's CALM terminal will be installed in 650 foot water depth off Trengganu, West Malaysia.

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The terminal is connected to shore by four 18-inch submarine lines, handling crude oil, ballast water, naphtha, fuel oil, kerosene, and/or diesel oil.

A major engineering effort went toward reducing maintenance and facilitating field repairs which may be periodically required. All inspection and lubrication ports are easily accessible. Other features include:

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— The product swivel assembly is completely segregated from mooring loads, does not require lubrication, and may be fully maintained on location.

— In addition, the chain stoppers are attached above water and do not require divers for attachment or inspection. The chains can be vertically tensioned.

Free literature is available completely describing the Sofec CALM marine terminal. For copies,

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Merchant Marine Academy Receives Texaco Grant



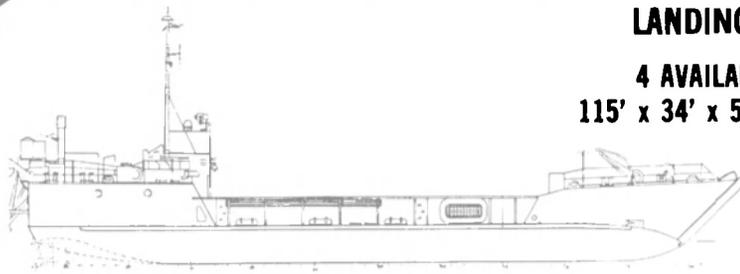
U.S. Merchant Marine Academy superintendent Rear Adm. Thomas King (right) accepts a \$2,000 grant from Capt. Thomas W. Merrell (center) of Texaco Inc. Capt. Charles Renick (left), director of the Academy's Office of External Affairs, looks on. The grant helps support midshipman activities which receive no federal funds.

The U.S. Merchant Marine Academy Foundation, Kings Point, N.Y., recently received a \$2,000 assistance grant from Texaco Inc.

The grant helps further midshipman programs and activities at the academy which are not federally funded. Among such programs are intercollegiate athletics, the sailing squadron, the band, a concert and lecture series, and a student loan program.

The check was presented to academy superintendent Rear Adm. Thomas A. King by Capt. Thomas W. Merrell, a 1947 academy graduate who is currently the superintendent of Texaco's marine operations department.

March 1, 1983



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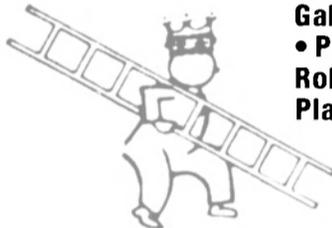
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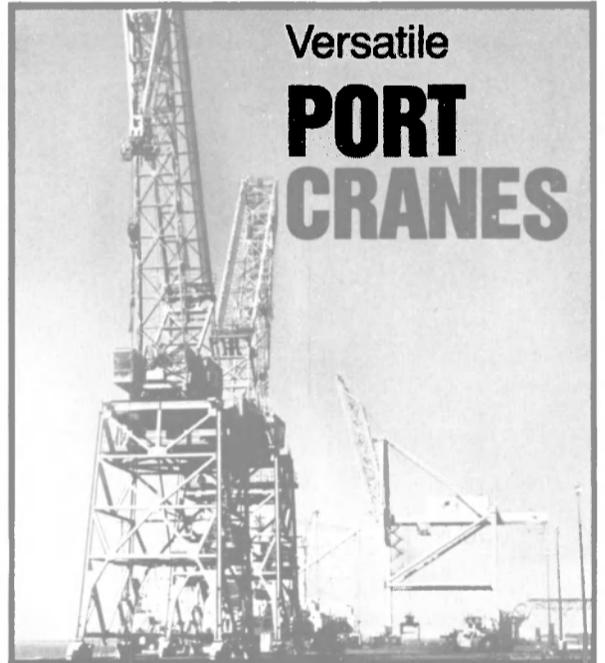
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For experienced loftsman who are knowledgeable in Steel Construction Practices.
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Similar 250' available in spring 1983.

210' x 60' x 13' 6", ABS Deck cargo-crane barge, 3000 ST cargo, 2300 PSF deck, 36" square spuds, fuel tank, 16 cpts.

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DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION GENERAL SERVICES DEPARTMENT

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and addressed to the Maryland Port Administration, The World Trade Center Baltimore, Baltimore, Maryland 21202, shall be received by the Director, General Services — Room 1807, The World Trade Center Baltimore, Baltimore, Maryland 21202, until, but not after 11:00 A.M. Eastern Time 4/29/83. No bids shall be considered received after this time and date. The bids shall be publicly opened 11:00 A.M. on date specified in Room 1807 located on the eighteenth (18th) floor at the above address. The award of the bid shall occur within sixty (60) days from the date of opening. The Maryland Port Administration reserves the right to reject any or all bids, and/or waive technical defects, if, in its judgment, the interests of the Maryland Port Administration so require. All bids must be submitted on the official bid form, with attachments, as furnished by the Maryland Port Administration's General Services Department. Such bid proposal forms, specifications and prints are available at no charge and upon request at the General Services Department, Room 1807, The World Trade Center Baltimore, Baltimore, Maryland 21202, (301) 659-4566.

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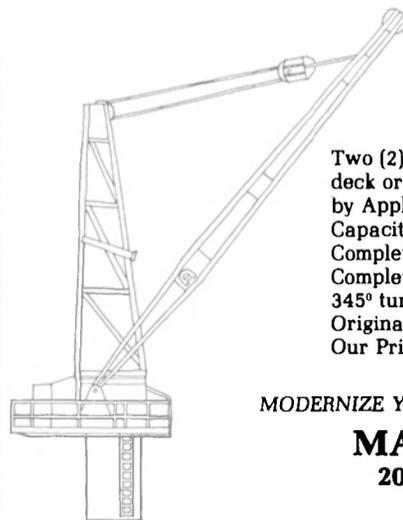
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Certificate

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

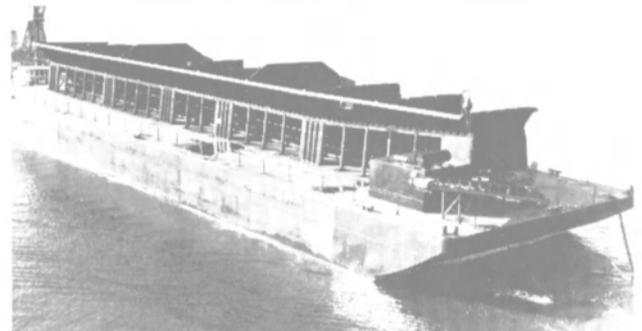
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Open Deck Area	37,886 S.F.
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Oil Cargo	148,500 BBLs
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Cargo Piping	14" Mains 10" Suctions

Self Unloading Aggregate Barge



ZAG-501

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

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

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Built 1979. For sale, long or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (MLD)	180' - 0"
Beam (MLD)	50' - 0"
Depth of Mid-Body (MLD)	14' - 0"
Hopper Length (MLD)	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
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Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120" Stroke

Plating	
Side	9/16"
Bottom	5/8"
Hopper	3/8"

Combination Deck Cargo & Tank Barge

Fully-Classed
Ocean Service



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

Length O.A.	230' - 0"
Beam	60' - 0"
Depth	15' - 6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Delevel IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8" 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"
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Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

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4-150 HP-240 Volt DC Hoist Motors
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Units Can Be Modified

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- 2) Dam Sites
- 3) Concrete Prefab plants
- 4) Railroad yards
- 5) Steel plants

Geared Track is also available at extra cost



American Crane Barge

BARGE DATA

Displacement Light	1,200T
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 rigging.)	
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.

FOUR 30-TON

Container Cranes 70-foot Track Span

NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACEO. Suitable for Ship, Barge or Land Use. Manufactured to ABS and MARAD requirements.

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 • 100 HP DC Trolley Motor • 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.

Hoist and Trolley not shown but are included.

Other areas of possible use:

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94' L.O.A.; 24' Beam; 13'-6" Depth; Welded Hull; Ice Reinforced Bow; 1000 SHP; 1200 HP 12-278A GM Engine; Built Defoe 1952; Bronze-line Shaft; Steel Propeller; Radiophone FM Modar Triton, 12 Channel; Radar; Gyro; Last docked June 1978; Cook and Sleep Facilities. Lying at Rogers City, Michigan, United States Steel. Contact

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Length over all	:	68.60 m.
Total breadth	:	14.10 m.
Registered tonnage	:	2558 tons
Built	:	1966
Capacity	:	300 passengers 40 cars
Hull	:	Steel, ice strengthened
Loading	:	Stern door, 4.6 m. clear opening
Main engine	:	British Polar (1) 1846 Kw.
Speed	:	13 knots
Classification Society	:	Lloyd's
Galley and restaurant	:	On passenger deck



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Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

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Units Can Be Modified

Possible other uses:

- 1) Moving heavy equipment
- 2) Dam Sites
- 3) Concrete Prefab plants
- 4) Railroad yards
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Geared Track is also available at extra cost



American Crane Barge

BARGE DATA	
Displacement Light	1,200T
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 3/4" 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.

FOUR 30-TON Container Cranes 70-foot Track Span

NEW 1970-72

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

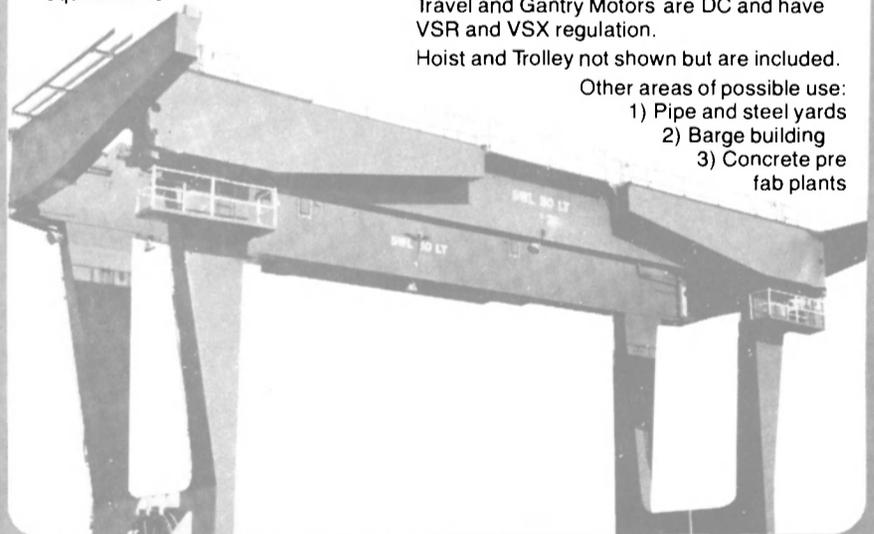
MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 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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M.V. SIEUR D'AMOURS

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Speed	:	13 knots
Classification Society	:	Lloyd's
Galley and restaurant	:	On passenger deck



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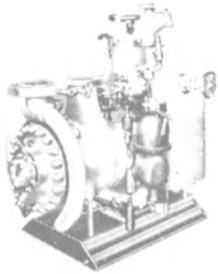
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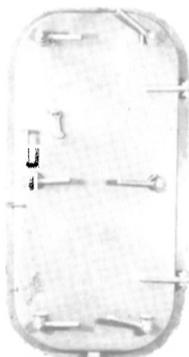
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26"x48" 26"x66"
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The offshore vessel Mortier is powered by two B&W Alpha diesel engines.

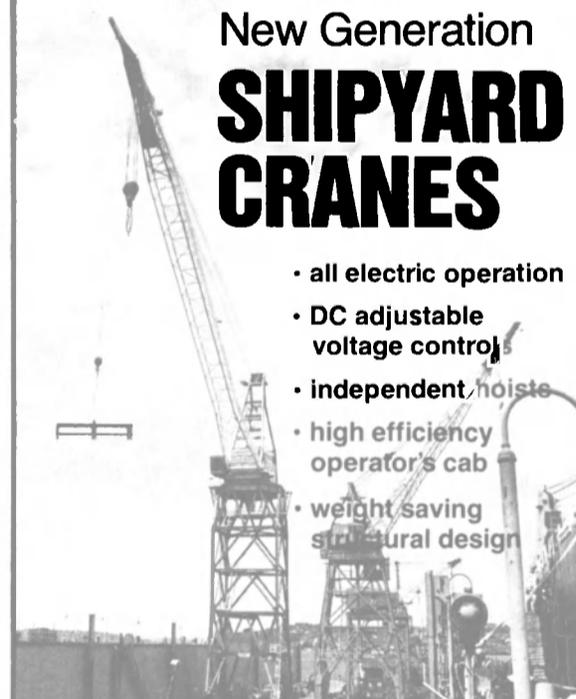
is a UT-704 design by Ulstein Trading A/S of Norway.

The Mortier is 211 feet in length, 45 feet in breadth, and has a draft of 19 feet. The main propulsion consists of 2 by 3,710-hp B & W Alpha diesel engines providing a speed of 14 knots. Her classification from Lloyd's Register is +100 A-1 Ice Class 3. She is fitted with four cement/mud tanks holding 1,500 cubic feet each.

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Major Suppliers**

Main Propulsion	B & W Diesel
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Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
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Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

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Aurand, 1270 Ellis Street, Cincinnati, OH 45223
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Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906
Salwica Inc., 5 Marine View Plaza, Hoboken, NJ 07030

INSULATION-Cloth, Fiberglass

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

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048

Assurance Foreningen Skuld, P.O. Box 1376 Viklo, Stortingagaten 18, N-OSLO 1, Norway
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER-Watertight Doors-Paneling

Masonite Commercial Division, Dover, OH 44622
Pioneer Industries, Division of CORE Industries Inc., 401 Washington Avenue, Carlstadt, NJ 07072
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

LIGHTING EQUIPMENT-Lamps, Fixtures, Searchlights

ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022
Browning Marine Inc., (Aqua Signal), 33W 480 Fabyan Parkway, Ste 105, West Chicago, IL 60185
Midland-Ross Corp., Russellstall Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

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, Inc., 4769 North 27th Street, Milwaukee, WI 53209

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

MACHINE TOOLS

Republic-Logun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749
Triboro Industries Inc., 173 Marine Street, New York, NY 10464

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
Granges Repair Service GmbH, Gutenberggring 64, 2000 Hamburg-Norderstedt 3, West Germany
Essex Machine Works, Essex, CT 06426
Jered Brown Brothers Inc., 56 S. Squirrel Road, Auburn Heights, MI 48057
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

Triboro Industries Inc., 173 Marine Street, Bronx, NY 10464

METALS

Bayou Steel Corp., P.O. Box 5000, Laplace, LA 70068
Inland Steel Company, 30 West Monroe Street, Chicago, IL 60603
International Grating, Inc., 7625 Parkhurst, Houston, TX 77028
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

MOORING SYSTEMS

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

NAME PLATES-BRONZE-ALUMINUM

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

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356
American Systems Engineering Corp., P.O. Box 4265, Virginia Beach, VA 23454
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Art Anderson Associates, 148 First St., Bremerton, WA 98310
B.C. Research, 3650 Wesbrook Mall, Vancouver, B.C., Canada V6S 2L2

The Borg/Luther Group, 876 Elm Ave., Carpinteria, CA 93013
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
Bretagne ACB Corp., 344 Camp St., Suite 1000, New Orleans, LA 70130

Cristalcomp, P.O. Box 450, Bristol, RI 02809
D.L.I. Marine Co., Regency East, Ste 222, 9951 Atlantic Blvd., Jacksonville, FL 32211

C.T. Marine, 18 Church Street, Georgetown, CT 06829
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

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

DLI Engineering Corp., 261 Madison Ave. South, Bainbridge Island, WA 98110
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202
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., 935 Gravier St., New Orleans, LA 70112

GEOD Corporation, 73 Oak Ridge Road, NJ 07438
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glasten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Marris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
I.J. Henry Co., Inc., Two World Trade Center-Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., P.O. Box 186, Glen Head, NY 11545
Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
Capt. Ernest James, 2849 Beavercrest Dr., Lorain, OH 44053
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Kragen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
Niels Lucander, 5307 N Pearl St., Tacoma, WA 98407
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
Maclear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401
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
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
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
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317

- Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
- M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
- Rothfuss Engineering Corp., P.O. Box 97, Columbia, MD 21045
- 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 06426
- Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004
- George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
- Simmons Associates, P.O. Box 760, Sarasota, FL 33578
- R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
- Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
- Timisco, 622 Azalea Road, Mobile, AL 36609
- Uhlig & Associates, Inc., 8295 SW 188th St., Miami, FL 33157
- Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
- Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744
- Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
- Yacht Design Institute, 9 Main St., Blue Hill, ME 04614
- NAVIGATION & COMMUNICATIONS EQUIPMENT**
- AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
- Alden Electronics, 1145 Washington St., Westborough, MA 01581
- American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
- Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
- Frank L. Beier Radio, P.O. Box 10307, Jefferson, LA 70181
- Dantronics Co., P.O. Box 204, Boca Raton, FL 33432
- DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
- Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
- Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
- EPSCO Marine, 550 Wholesalers Parkway, Harahan, LA 70123
- Fleet Marine, 1820 N.E. 146th Street, North Miami, FL 33181
- Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
- Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
- Harris Communications (RF Communications), 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 Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
- Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
- Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
- Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
- G.E. McKay Company (Dymek), 111 South College Avenue, Claremont, CA 91711
- Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
- Maritel, Inc., 8230-R Telegraph Road, Odenton, MD 21113
- Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
- Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
- Northern Radio Co., 14975 N.E. 40th, Redmond, WA 98052
- P. J. Plishner Marine, 2 Lake Ave. Ext., Danbury, CT 06810
- Racal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
- Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
- Radio-Holland USA, Inc., One Allen Center, Suite 1000, Houston, TX 77002
- 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
- Rivertronics, P.O. Box 247, Godfrey, IL 62035
- Robertson Auto Pilot, 135 Fort Lee Road, Leonia, NJ 07605
- Selesmar S.p.A., Casella Postale 9, 50020 Montagnana Val Di Pesa, Firenze, Italy
- Servo Corporation of America, 111 New South Road, Hicksville, NY 11802
- Simrad, Inc., 2215 NW Market St., Seattle, WA 98107
- Si-Tex Marine Electronics, P.O. Box 6700, Clearwater, FL 33518
- Sperry Corporation, Great Neck, NY 11020
- Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
- Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067
- Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721
- OILS—Marine—Additives**
- Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
- Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601
- Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
- Mobil Oil Corp., 150 East 42 Street, New York, NY 10017
- National Fluid Separators, Inc., 1239 Hanley Industrial Court, St. Louis, MO 63144
- Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
- Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017
- OIL/WATER SEPARATORS**
- Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
- Biospherics Incorporated, 5001 Forbes Blvd., Lanham, MD 20801
- Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
- Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
- From Industrial, P.O. Box 33210, Tulsa, OK 74135
- McTigue Industries Inc., 1615 Ninth Avenue, Suite 1 South, Bohemia, NY 11716
- Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425
- PAINTS—COATINGS—CORROSION CONTROL**
- American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
- Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
- Bywater Coatings, 1610 Engineers Road, Belle Chasse, LA 70037
- "CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S. Franklinton Rd., Baltimore, MD 21223
- Devco Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
- E.I. Dupont de Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
- Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080
- Farbail, 8200 Fischer Road, Baltimore, MD 21222
- Grow Group, Inc., 200 Park Ave., New York, NY 10017
- Hempel Marine Paints, Inc., 65 Broadway, New York, NY 10006; P.O. Box 41, So. Houston, TX 77587; P.O. Box 10265, New Orleans, LA 70181
- International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
- Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
- Magnus Maritac International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
- Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
- Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
- Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143
- PETROLEUM SUPPLIES**
- Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
- PIER REPAIRS**
- Aquatic Marine Systems, Inc., P.O. Box 326, Williamsville, NY 14221
- PIPE—HOSE—Cargo Transfer, Clamps, Couplings, Coatings**
- Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- Hydra-Craft, Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063
- Knights' Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567
- Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
- Metropolitan Plumbing Supply Corp., 5000 Second St., Long Island City, NY 11101
- Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
- Pioneer Valve & Fitting Co., Inc., 93 Seigel Street, Brooklyn, NY 11206
- Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
- Selkirk Metalbestos, Box 19000, Greensboro, NC 27419
- Stauff Corporation, 21-31 Industrial Park, Waldwick, NJ 07463
- PLAQUES—BRONZE—ALUMINUM**
- Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707
- PLASTICS—Marine Applications**
- Griffolyn Company, P.O. Box 33248, Houston, TX 77033
- 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
- American Lohmann Corp., 1415 Chestnut Ave., Hillside, NJ 07205
- 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
- Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629
- Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
- Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
- Combustion Engineering, Inc., Windsor, Connecticut 06095
- Cummins Engine Company, Inc., 40642, 1000 Fifth Street, Columbus, IN 47201
- Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
- Diesel Marine International, Ltd., c/o NORSHIPCO, P.O. Box 2100, Norfolk, VA 23501
- Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
- Escher Wyss GmbH, (Member Sulzer Group), Ravensburg, Germany
- General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
- General Motors, Electro-Motive Division, LaGrange, IL 60525
- George Engine Company, Inc., Lafayette, LA
- Jacuzzi Bros. Division, P.O. Box 3533, Little Rock, AR 72203
- Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
- M.A.N.-B&W Diesel, 2, Ostervej, DK-4960 Holeby, Denmark
- MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70203; 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington, VA 22209
- Mapeco Products, Inc., 20 Vesey St., New York, NY 10007
- Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
- Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
- National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037
- Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
- Penske GM Power, Inc., 180 Route 17 South, Lodi, NJ 07644
- Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
- Propulsion Systems, Inc., 21213 76th Ave. So., Kent, WA 98031
- SACM (Societe Alsacienne De Constructions Mechaniques De Mulhouse) 1, Rue De La Fonderie, Boite Postale 1210, 68054 Mulhouse Cedex, France
- Schattler of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
- Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
- Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
- Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
- Transamerica Delaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
- Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
- Tricon Corporation, P.O. Box 149, Redding, CT 06875
- Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Salina, KS 67401
- Voith Schneider America, 159 Great Neck Rd., Ste 200, Great Neck, NY 11021
- Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
- Waukesha Engine Division, Waukesha, WI 53187
- ZF of North America, Inc., 3225 Commercial Avenue, Northbrook, IL 60062
- ZF of North America, Inc. (Motive Power Corporation, P.O. Box 365, Mineola, NY 11501)
- PUMPS—Repairs—Drives**
- Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
- EMMI Corporation, P.O. Box 955, Flemington, NJ 08822
- FMC Corporation, Pump Division, 326 S. Dean Street, Englewood, NJ 07631
- Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
- Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
- Naniwa Pump, c/o Maritime Equipment Inc., P.O. Box 537, Flemington, NJ 08822
- Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
- Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
- Warren Pumps Division, Bridges Avenue, Warren, MA 01083
- Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324
- Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountaintop, NJ 07092
- REFRIGERATION—Refrigerant Valves**
- Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
- Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
- ROLLING SYSTEMS**
- Hilman, Inc., 2604 Atlantic Ave., Wall (Belmar), NJ 07719
- ROPE—Manila—Nylon—Hawsers—Fibers**
- American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
- Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
- Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
- Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666
- RUDDER ANGLE INDICATORS—STEERING**
- 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
- Wm. E. Hough Company, 1129 NW Bailard Way, Seattle, WA 98107
- Robertson, 135 Fort Lee Rd., Leonia, NJ 07605
- SAFETY EQUIPMENT**
- Datrex, 3795 N.W. 25th Street, Miami, FL 33142
- Elkhart Brass Manufacturing Co., Inc., P.O. Box 1127, Elkhart, IN 46515
- SANITATION DEVICES—Pollution Control**
- Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
- Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
- Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
- Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
- Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
- National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105
- St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
- SCAFFOLDING EQUIPMENT—Work Platforms**
- Patent Scaffolding Co., One Bridge Plaza, Fort Lee, NJ 07024
- Swiss Fabricating Inc., Camp Horne Rd., Emsworth, Pittsburgh, PA 15237
- Waco Ladder & Scaffolding Co., Inc., 4315 41 St., P.O. Box 126, Brentwood, MD 20722
- SHACKLES**
- West Footsroy Engineering Works P/L, 52 Cross Street, West Footsroy, Melbourne, Victoria, 30 12, Australia
- SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT**
- Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
- Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734
- Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
- Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
- Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
- SHIPBREAKING—Salvage**
- The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
- Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201
- SHIPBUILDING STEEL**
- Armo Steel Corp., 703 Curtis St., Middletown, Ohio 45042
- Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
- SHIPBUILDING—Repairs, Maintenance, Drydocking**
- A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
- Arsenale Triestino S. Marco, Passeggio S. Andrea 11, 34143 Trieste Italy
- Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.
- Astilleros Balboa, S.A., c/o Jackson Marine Corp., 17 Battery Place, New York, NY 10004
- Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
- Ateliers et Chantiers de Bretagne—ACB, 44040 Nantes Cedex, France
- Atlantic Dry Dock, P.O. Box 276, Ft. George Island, Jacksonville, FL 32226
- Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226
- Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
- Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 54235
- BFC Marine Services, Inc., 25 Fifth St., Brooklyn, NY 11231
- Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
- Bethlehem Steel Corp., Bethlehem, PA 18016
- Blom & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
- Bludworth Bond Shipyards Inc., P.O. Box 5065, Houston, TX 77012
- Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
- Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark
- Burrard Yarrow's Corporation, P.O. Box 86099, North Vancouver, B.C., Canada
- Burton Shipyards, Inc., P.O. Box 3636, Port Arthur, TX 77640
- Cadell Drydock & Repair Co., P.O. Box 327, Foot of Broadway, Staten Island, NY 10310
- Cantieri Navali Luigi Orlando, Piazza Mazzini, 92-57100 Livorno, Italy
- Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
- Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
- China Shipbuilding Corp., 6th Floor, 20 PA Teh Road, Sec. 3 Taipei, Taiwan (105) Republic of China
- Conrad Industries, P.O. Box 790, Morgan City, La. 70380
- Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
- Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO, Koje-Kun, Kyungnam, Korea
- Dorbyl Ltd., Military Sites, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
- Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
- Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401
- FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
- Faustug Marine Corporation, 601 Sawyer, Suite 201, Houston, TX 77007
- Golden Gulf Marine Operations, Inc., 814 Howard Avenue, New Orleans, LA 70151
- HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
- Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
- Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
- Havre de Grace, Havre de Grace, Md.
- Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
- Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
- Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea I.N.M.A. S.p.A., 19100 La Spezia, v. le S. Bartolomeo 362, Italy
- Jeffboat, Inc., Jeffersonville, Ind. 47130
- Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409
- Kings Craft, Inc., Industrial Park, Florence, AL 35630
- Koch Ellis Barge & Ship Service, P.O. Box 187, Westwego, LA 70094
- Leevac Corporation, P.O. Box 2607, Morgan City, LA 70381
- Lisnave Estaleiros Navais De Lisboa, P.O. Box 2138, Lisbon, Portugal
- Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
- McDermott, Incorporated, 1010 Common Street, New Orleans, LA 77227
- MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
- John Manly Shipyards, 2050 East Kent Ave., Vancouver, B.C. V5P 2T2, Canada
- Marathon LeTourneau Offshore Co., 1700 Marathon Bldg., 600 Jefferson, Houston, TX 77002
- Marinette Marine Corp., Ely St., Marinette, WI 54143
- Matton Shipyards Co., Inc., P.O. Box 645, Cohoes, New York 12047
- Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
- Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
- Moran Shipping Agencies, 10 Jefferson Blvd., Warwick, RI 02888
- Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552
- Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
- National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048
- National Steel & Shipbuilding Corp., San Diego, Calif. 92112
- Newpark Shipbuilding & Repair, Inc., 502 Cypress Street, Houston, TX 77012
- Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
- O.A.R.N. (Officine All'estimento-IPrazioni Navi), P.O. Box 1395, Genoa, Italy 16100
- Overseas Shipyards, Inc., 21 West St., New York, NY 10006
- Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
- Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
- Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
- Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
- Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
- Rauma-Repola, 26100 Rauma 10, Finland
- Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
- Southbay Boat Inc., P.O. Box 13308, San Diego, CA 92113
- Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
- Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
- Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
- Thomas Marine, 37 Bransford St., Patchogue, NY 11772
- Thunderbolt Marine, Inc., P.O. Box 5628, Savannah, GA 31404
- Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
- Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
- Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
- Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
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- Valmet Oy, Helsinki Shipyard, Laivanrakentajantie 2, P.O. Box 910 SF-00101 Helsinki 10, Finland

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 Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
 World Courier, Inc., 19 Rector Street, New York, NY 10006

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 Smith-Meeker Engineering Co., 157 Chambers Street, New York, NY 10007

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 Penco Division-Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
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 Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07605
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 McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
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 Midland Affiliated Co., 580 Walnut St., Cincinnati, OH 45201
 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
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 Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

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 Metropolitan Plumbing Supply Corp., 50-09 Second Street, Long Island City, NY 11101
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 Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

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 Drew Chemical Corporation, One Drew Chemical Plaza, Boonton, NJ 07005
 Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

WELDING
 CRC Automatic Welding, P.O. Box 3227, Houston, TX 77253-3227

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 CONMACO, Inc., 820 Kansas Ave., P.O. Box 5097, Kansas City, KS 66119
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 McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, W. Biloxi, MS 39531
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 Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880
 Timberland Equipment Ltd., Box 490, Woodstock, Ont. Canada N4S 7Z2.

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 Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
 Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
 Tri-Mark, Inc., 8585 Industry Park Drive, Piqua, OH 45356
 Universal Wire & Cable Co., 2930 N. Ashland Ave., Chicago, IL 60657

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 Armc Steel Corp., 703 Curtis St., Middletown, Ohio 45042
 Bethlehem Steel Corp., Bethlehem, PA 18016
 A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747
 I & I Sling Company, 2626 Market Street, Dept. D, Aston, PA

Coastal Iron Works Installs 2,500-Ton-Capacity Steel Floating Drydock 'Mr. Pat'



The 200-foot-long drydock 'Mr. Pat.'

Coastal Iron Works, Inc. of Corpus Christi, Texas, recently announced the christening of its new steel floating drydock. The drydock is named Mr. Pat after one of the founders of the company, E.J. Patterson. The drydock is now in service.

Mr. Pat is the largest drydock operating on the Gulf Coast south of the Galveston-Freeport area. It was built specifically to haul out the supply boats, tugs, crew and utility boats, and barges which service the offshore drilling industry in the Gulf of Mexico.

Rated at 2,500-tons lifting capacity, the drydock is 200 feet long, and 68 feet between the wingwalls. To insure rapid, high-quality repairs and maintenance, a slip 30 feet deep was dredged inland and bulk-headed. This enables cranes and equipment to work from three sides of the dock.

The ballast system is operated by one person using a sophisticated console in the

control house located on top of the port wingwall. The system includes 12 independent ballast tanks using six Framo hydrostatically driven, submersible, reversible pumps with a total capacity of 36,720 gpm. The ballast valves are 12-inch Hills-McCanna butterfly valves with Bettis subsea service actuators.

The new drydock is in addition to Coastal's 1,000-ton railway system and 100-ton syncrolift, and approximately 600 feet of wet dock. Coastal Iron Works, Inc. has been serving the marine field in and around Corpus Christi for more than 35 years. The officers are C. Burney, chairman of the board, J.R. Hubenak, president, T.L. Patterson, vice president and secretary, M.I. Smith, vice president, and C.H. Nelson, treasurer. J.C. Ardoin is shipyard superintendent.



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

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Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426

Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004

George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007

Simmons Associates, P.O. Box 760, Sarasota, FL 33578

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Yacht Design Institute, 9 Main St., Blue Hill, ME 04614

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Alden Electronics, 1145 Washington St., Westborough, MA 01581

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

Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080

Frank L. Beier Radio, P.O. Box 10307, Jefferson, LA 70181

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

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

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

EPSCO Marine, 550 Wholesalers Parkway, Harahan, LA 70123

Fleet Marine, 1820 N.E. 146th Street, North Miami, FL 33181

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

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

Harris Communications (RF Communications), 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 Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611

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Rivertronics, P.O. Box 247, Godfrey, IL 62035

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Simrad, Inc., 2215 NW Market St., Seattle, WA 98107

Si-Tex Marine Electronics, P.O. Box 6700, Clearwater, FL 33518

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Standard Communications, P.O. Box 92151, Los Angeles, CA 90009

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Mobil Oil Corp., 150 East 42 Street, New York, NY 10017

National Fluid Separators, Inc., 1239 Hanley Industrial Court, St. Louis, MO 63144

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OIL/WATER SEPARATORS

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George Engine Company, Inc., Lafayette, LA

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

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St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111

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Patent Scaffolding Co., One Bridge Plaza, Fort Lee, NJ 07024

Swiss Fabricating Inc., Camp Horne Rd., Emsworth, Pittsburgh, PA 15237

Waco Ladder & Scaffolding Co., Inc., 4315 41 St., P.O. Box 126, Brentwood, MD 20722

SHACKLES

West Footsroy Engineering Works P/L, 52 Cross Street, West Footsroy, Melbourne, Victoria, 30 12, Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081

Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142

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

Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002

SHIPBREAKING—Salvage

The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202

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

SHIPBUILDING STEEL

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Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland

Arsenale Triestino S. Marco, Passeggio S. Andrea 11, 34143 Trieste Italy

Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.

Astilleros Balboa, S.A., c/o Jackson Marine Corp., 17 Battery Place, New York, NY 10004

Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico

Ateliers et Chantiers de Bretagne—ACB, 44040 Nantes Cedex, France

Atlantic Dry Dock, P.O. Box 276, Ft. George Island, Jacksonville, FL 32226

Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150

Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 54235

BFC Marine Services, Inc., 25 Fifth St., Brooklyn, NY 11231

Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085

Bethlehem Steel Corp., Bethlehem, PA 18016

Blomh & Voss Company, 55 Morris Avenue, Springfield, NJ 07081

Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012

Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124

Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark

Burrard Yarrow Corporation, P.O. Box 86099, North Vancouver, B.C., Canada

Burton Shipyard, Inc., P.O. Box 3636, Port Arthur, TX 77640

Cadell Drydock & Repair Co., P.O. Box 327, Foot of Broadway, Staten Island, NY 10310

Cantieri Navali Luigi Orlando, Piazza Mazzini, 92-57100 Livorno, Italy

Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy

Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322

China Shipbuilding Corp., 6th Floor, 20 PA Teh Road, Sec. 3 Taipei, Taiwan (105) Republic of China

Conrad Industries, P.O. Box 790, Morgan City, La. 70380

Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004

Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO, Koje-Kun, Kyungnam, Korea

Darby 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

Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401

FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208

Faustug Marine Corporation, 601 Sawyer, Suite 201, Houston, TX 77007

Golden Gulf Marine Operations, Inc., 814 Howard Avenue, New Orleans, LA 70151

HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219

Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7

Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189

Havre de Grace, Havre de Grace, Md.

Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567

Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea I.N.M.A. S.p.A., 19100 La Spezia, v. le S. Bartolomeo 362, Italy

Jeffboat, Inc., Jeffersonville, Ind. 47130

Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409

Kings Craft, Inc., Industrial Park, Florence, AL 35630

Koch Ellis Barge & Ship Service, P.O. Box 187, Westwego, LA 70094

Leevac Corporation, P.O. Box 2607, Morgan City, LA 70381

Lisnave Estaleiros Navais De Lisboa, P.O. Box 2138, Lisbon, Portugal

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134

McDermott, Incorporated, 1010 Common Street, New Orleans, LA 77227

MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016

John Manly Shipyards, 2050 East Kent Ave., Vancouver, B.C. V5P 2T2, Canada

Marathon LeTourneau Offshore Co., 1700 Marathon Bldg., 600 Jefferson, Houston, TX 77002

Marinette Marine Corp., Ely St., Marinette, WI 54143

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

Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655

Moran Shipping Agencies, 10 Jefferson Blvd., Warwick, RI 02888

Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552

Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202

National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048

National Steel & Shipbuilding Corp., San Diego, Calif. 92112

Newpark Shipbuilding & Repair, Inc., 502 Cypress Street, Houston, TX 77012

Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607

O.A.R.N. (Officine All'estimento-IPrazioni Navi), P.O. Box 1395, Genoa, Italy 16100

Overseas Shipyards, Inc., 21 West St., New York, NY 10006

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

Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156

Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361

Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22

Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903

Rauma-Repola, 26100 Rauma 10, Finland

Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402

Southbay Boat Inc., P.O. Box 13308, San Diego, CA 92113

Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113

Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380

Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422

Thomas Marine, 37 Bransford St., Patchogue, NY 11772

Thunderbolt Marine, Inc., P.O. Box 5628, Savannah, GA 31404

Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606

Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway

Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316

Umpqua Marine Way, Inc., Port Industrial Park, Reedsport, OR 97467

Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087

Valmet Oy, Helsinki Shipyard, Laivanrakentajantie 2, P.O. Box 910 SF-00101 Helsinki 10, Finland

BUYERS DIRECTORY

(continued)

Waterman Supply Co., 2815 E. Anaheim St., P.O. Box 596, Wilmington, CA 90748
 West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2
 Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

SHIPPING—PACKING
 Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
 World Courier, Inc., 19 Rector Street, New York, NY 10006

SMOKE INDICATORS
 Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STEVEDORING
 Eller & Co., 701 E. 24th St., Ft. Lauderdale, FL 33316

STUFFING BOXES
 Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
 Smith-Meeker Engineering Co., 157 Chambers Street, New York, NY 10007

SURVEYORS AND CONSULTANTS
 Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
 Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038
 M.A. Stream Associates, Inc., 400 Second Ave. W., Seattle, WA 98119

TANK CLEANING
 Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
 Penco Division Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
 Sybron/Gamlen, 121 South Maple Avenue, South San Francisco, CA 94080

TANK LEVELING INDICATORS
 Kockumation AB, Box 1044, S-212 10 Malmo, Sweden
 Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07605
 Salwico Inc., 5 Marine View Plaza, Hoboken, NJ 07030
 Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

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 Atlantic Towing Ltd., 300 Union Pl., St. John, N.B., Canada E2L 1B6
 Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
 Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
 Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
 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.
 Midland Affiliated Co., 580 Walnut St., Cincinnati, OH 45201
 Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
 Ocean Salvors Company, One World Trade Center, New York, NY 10048
 Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
 Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
 Turecama Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

VALVES AND FITTINGS
 Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
 Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
 Litton Industrial Products, Inc. (Contromatic Division), 222 Roberts Street, East Hartford, CT 06108
 Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
 Metropolitan Plumbing Supply Corp., 50-09 Second Street, Long Island City, NY 11101
 Newmans Inc., 9 Joanna Court, East Brunswick, NJ 08816
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 Tate Temco, Inc., 1941 Lansdowne Road, Baltimore, MD 21227
 Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
 Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186
 William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101
 Winel, Inc., 34655 Mills Road, North Ridgeville, OH 44039
 Zidell Explorations, Inc. (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

VIDEO TRAINING FILMS
 Video Library Systems, 100 13th Ave., Ronkonkoma, NY 11779
 Videotel Marine International Ltd., 44 Great Marlborough Street, London W1V 1DB

WATER PURIFIERS
 Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
 Drew Chemical Corporation, One Drew Chemical Plaza, Boonton, NJ 07005
 Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

WELDING
 CRC Automatic Welding, P.O. Box 3227, Houston, TX 77253-3227

WINCHES AND FAIRLEADERS
 Appleton Machine Co., P.O. Box 2339, Appleton, WI 54911
 Beebe Brothers, Inc., 2724 6th Avenue South, Seattle, WA 98134
 CONMACO, Inc., 820 Kansas Ave., P.O. Box 5097, Kansas City, KS 66119
 Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
 McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, W. Biloxi, MS 39531
 Reel-O-Matic Systems, Inc., 418 Hellam Street, Wrightsville, PA 17368
 Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880
 Timberland Equipment Ltd., Box 490, Woodstock, Ont. Canada N4S 7Z2.

WINDOWS
 Kearfoot Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
 Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
 Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
 Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
 Tri-Mark, Inc., 8585 Industry Park Drive, Piqua, OH 45356
 Universal Wire & Cable Co., 2930 N. Ashland Ave., Chicago, IL 60657

WIRE ROPE—Slings
 Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
 Bethlehem Steel Corp., Bethlehem, PA 18016
 A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747
 I & J Sling Company, 2626 Market Street, Dept. D, Aston, PA 19014

ZINC
 Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

Coastal Iron Works Installs 2,500-Ton-Capacity Steel Floating Drydock 'Mr. Pat'



The 200-foot-long drydock 'Mr. Pat.'

Coastal Iron Works, Inc. of Corpus Christi, Texas, recently announced the christening of its new steel floating drydock. The drydock is named Mr. Pat after one of the founders of the company, E.J. Patterson. The drydock is now in service.

Mr. Pat is the largest drydock operating on the Gulf Coast south of the Galveston-Freepport area. It was built specifically to haul out the supply boats, tugs, crew and utility boats, and barges which service the offshore drilling industry in the Gulf of Mexico.

Rated at 2,500-tons lifting capacity, the drydock is 200 feet long, and 68 feet between the wingwalls. To insure rapid, high-quality repairs and maintenance, a slip 30 feet deep was dredged inland and bulk-headed. This enables cranes and equipment to work from three sides of the dock.

The ballast system is operated by one person using a sophisticated console in the

control house located on top of the port wingwall. The system includes 12 independent ballast tanks using six Framo hydrostatically driven, submersible, reversible pumps with a total capacity of 36,720 gpm. The ballast valves are 12-inch Hills-McCanna butterfly valves with Bettis subsea service actuators.

The new drydock is in addition to Coastal's 1,000-ton railway system and 100-ton syncrolift, and approximately 600 feet of wet dock. Coastal Iron Works, Inc. has been serving the marine field in and around Corpus Christi for more than 35 years. The officers are C. Burney, chairman of the board, J.R. Hubenak, president, T.L. Patterson, vice president and secretary, M.I. Smith, vice president, and C.H. Nelson, treasurer. J.C. Ardoin is shipyard superintendent.

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Marine Consultants Society Sets First Annual Meeting, Membership Reaches 100

Membership in the Society of Marine Consultants, organized in March 1982, has now reached 100 and the combined knowledge and experience of these members covers virtually the entire spectrum of marine expertise, J.C. Musser, executive director of the society, reported recently.

Captain Musser also reported that the rapid expansion in membership has resulted in the scheduling of the first annual meeting of all members to be held April 12, 1983, at the Whitehall Club in New York. The purpose of the meeting is to secure membership approval of the by-laws and rules and to elect an executive committee to govern the society.

The primary purposes of the society are to foster and advance the professionalism and integrity of its members and to provide to the marine industry a reliable source of professionally qualified consultants when required. The latter is achieved through the society's free referral service.

For more information,

Write 28 on Reader Service Card

Valad Awarded Contract For Heating Equipment For USCG Cutters

Dante Cecchini, president of Valad Electric Heating Corp., Tarrytown, N.Y., recently announced that Robert E. Derecktor Shipyard has awarded to Valad a contract for all ventilation duct heaters, solid state controllers, unit heaters, and convection heaters for nine shipsets for the USCG WMEC-class cutters. Valad is a manufacturer specializing in marine heating equipment.

Industrial Gear Units Featured In Literature From American Lohmann

American Lohmann Corporation, Hillside, NJ, is offering free literature on their compact industrial gear units.

These units are available in 16 sizes for output torques of 2,500 to 750,000 foot pounds. Offset, concentric and right angle configurations with ratios to 2500:1 offer design flexibility to solve every drive problem.

The gears are carburized, hardened and precision-ground resulting in maximum tooth strength and durability.

Their compact design delivers maximum torque in minimum space with high efficiency and low noise levels.

For a free copy of literature on American Lohmann's industrial gear units,

Write 38 on Reader Service Card

Microphor Europe GmbH Formed In Europe By Microphor And German Firm

Microphor, Inc., of Willits, Calif., and Thyssen Henrichshutte AG, of Hattingen, West Germany, have formed a jointly owned company, Microphor Europe GmbH, to manufacture and market Microphor marine and rail products in Europe, it was

announced recently by John M. Mayfield Jr., president of the U.S. firm, and Peter von Bargaen, managing director of Thyssen Henrichshutte AG.

The new company will be responsible for the manufacture and sale of Microphor railroad equipment on the European continent and the United Kingdom. The agreement licenses the company also to manufacture and

market Microphor marine equipment in West Germany. Ken J. Bassham, European area general manager for Microphor, Inc., and Horst Werner, sales manager for Thyssen, have been named managing directors of the joint firm. It will be headquartered in Hattingen.

The Microphor marine product line includes oily/water separators, marine sanitation devices, and automatic sump/pumps.

CONFERENCE



PROGRAMME

Session 1: World Ro-Ro Trades

Opening Address
Chairman: S. H. Salen, President, Salen Group, Stockholm and former Chairman, Swedish Shipowners' Association

Ro-Ro on the North Atlantic — the future years

Speaker: B. Koch, Managing Director, Atlantic Container Line Services Ltd, Southampton

Liner Shipping — Commercial and Technical Trends

Speaker: P. Carlsson, President-Elect, Rederi AB Transatlantic, Gothenburg

New ships for new routes

Speaker: Dr. A. M. Al-Turki, Managing Director, The National Shipping Company of Saudi Arabia, Riyadh

Ocean transport of cars and vehicles worldwide

Speaker: A. Koch, Managing Director, Wallenius Lines, Stockholm

Ro-Ro Developments in South America

Speaker: R. Klien, Managing Director, Transrol Navegacao S/A, Rio de Janeiro

Semi-bulk cargoes in the Ro-Ro trades — North Sea/Baltic/Mediterranean/Caribbean

Speaker: B. Aberg, Cargo Traffic Director, EFOA, The Finland Steamship Co. Ltd., Helsinki

Deployment of the Deepsea Container — Carrying Ro-Ro's

Speaker: Dr. R. Pearson, Marine Transport Centre, University of Liverpool

Session 2: Future Ro-Ro Ports and Terminals (parallel with Session 3)

Chairman: S. Gilman, Director, Marine Transport Centre, The University of Liverpool

Linkspans in the future

Speaker: J. Rose, Managing Director, Marine Development (Glasgow) Ltd., Glasgow

Totally mechanised handling of road trailers for coastal Ro-Ro traffic — tomorrow's system?

Speaker: G. Eframsson, Managing Director, MariTerm AB, Gothenburg

The Ro-Ro multi-purpose terminal of tomorrow

Speaker: F. E. Verkade, Managing Director, Seaport Terminals BV, Rotterdam

Session 3: Ship Design (Part I) (parallel with Session 2)

The contribution of Fin stabilisers to safety and economy in Ro-Ro operation

Speaker: W. L. S. Wallace, Sperry Marine Systems, UK

The control of air pollution in Ro-Ro cargo spaces — experiences and recommendations

Speaker: A. Adielson, Director, Swedish Shipbuilding Standard Centre, Gothenburg

The future development of Ro-Ro traffic — aspects and problems

Speaker: Prof. R. Schonknecht, Wilhelm-Pieck-Universität, Rostock, G.D.R.

Session 4: Defence Considerations of Ro-Ro Design

The deployment of Ro-Ro's and merchant vessels for defence needs — experiences in the South Atlantic

Speaker: Colonel J. R. Pitt, OBE, Ministry of Defence, UK

Considerations for a Ro-Ro/Lo-Lo containership with mobilisation capacity

Speaker: J. G. Brown, Managing Director, Seafarm Design, Scotland

Defence features for Ro-Ro vessels

Military Sealift Command, Washington DC
(speaker to be announced)

Session 5: Safety Considerations of Ro-Ro Design (parallel with Session 6)

Chairman: E. J. B. Pawsey, Director, Hart, Fenton & Co. Ltd., Consulting Naval Architects and Marine Engineers, London

Investigation into the survival capability of Ro-Ro vessels

Speakers: I. O. Endresen and B. O. Jansson, Research Engineers and P. O. Brett, Senior Research Engineer, Det norske Veritas, Norway

Damage Survivability of Ro-Ro Vessels

Speaker: R. D. Tagg, Naval Architect, Herbert Engineering Corp., San Francisco and Department of Naval Architecture, The University of Glasgow

Session 3: Ship Design (Part II) (parallel with Session 6)

Development of Hull Forms for Ro-Ro Ships and Ferries

Speaker: A. Williams, Head of Ship Projects Department, Swedish Maritime Research Centre, SSPA, Gothenburg

Session 6: Ferries and Ferry Ports (parallel with Sessions 5 and 3 (Part II))

Chairman: C. S. Paterson, Asst. General Manager, North Sea Ferries, Hull, UK

Operation of the 10-terminal ferry port Lübeck/Travemünde for both passenger and freight traffic

Speaker: U. von der Lippe, Managing Director, Lübecker Hafen-Gesellschaft mbH

Measures to make ferry trailer traffic more efficient — comparisons between trailer only/accompanied trailer/barges

Speaker: G. Schrewelius, TFK (Transport Research Commission), Stockholm

Railroad Barge Operations on the West Coast of North America

Speaker: G. C. Snyder, Chief of Consulting Services, Nickum & Spaulding Associates Inc., Seattle, USA

Evacuation of high density passenger ferries — new concepts and their application

Speaker: A. Flising, Chief Naval Architect, Stena Line AB, Gothenburg

Escape slides for Ro-Ro's and Ferries: regulatory recommendations mean different economics for either type of ship

Speaker: D. V. Edwards, Technical Director, RFD Ltd., Godalming, UK

Session 7: Ro-Ro Cargo Safety (parallel with Session 8)

Introduction by Chairman: International Safety Aspects

Chairman: S. Felding, Maritime Safety Division, Cargoes Section of IMO, London

Lashing of Ro-Ro trailers in a Ro-Ro ship — the latest findings and recommendations

Speaker: P. Andersson, Project Manager, MariTerm AB, Gothenburg

Ro-Ro Transport Problems in the North Sea and Mediterranean

Speaker: Dr. Bauer, Officer in Charge of Ro-Ro Problems, Bundesverband des Deutschen Güterfernverkehrs (BDF), Frankfurt and Member of Ad Hoc Group Trailer Ferry Traffic I.R.U. (Int. Transport Union), Switzerland

The practicalities of securing cargo for door-to-door transport

Speaker: D. W. B. Carr, SpanSet Marine Ltd., London

Damage and Loss Prevention of Ro-Ro Cargoes — methods, equipment and liabilities

Speakers: N.-Y. Danielsson, Managing Director, Atlantica Insurance Co. Ltd., Gothenburg and S.-A. Ulin, Chief Surveyor, Swedish Association of Marine Underwriters, Gothenburg

Session 8: Ro-Ro Handling (parallel with Session 7)

Chairman: U. Cramer, Chairman of the German Port Engineers' Association's Committee on Mobile Cargo Handling Equipment

A new side loader concept for container handling aboard and in dockside Ro-Ro Operations

Speaker: C. J. Mencil, President, RayGo Wagner Inc., Portland, Oregon

The Evolution of Front-lift truck design for Container Handling and Ro-Ro Operations

Speaker: G. N. Bowman-Shaw, Chairman, LancerBoss Ltd, UK

New Approaches to Safety and Environmental Demands with FLT Ro-Ro Handling

Speakers: L. Lindberg, Product Manager, Volvo Penta, Gothenburg, and O. Oesterlund, Marketing Director, Kalmar LMV, Ljungby, and Transconsultants AB, Gothenburg (speaker to be announced)

Ro-Ro shipboard equipment to maximise space utilisation and productivity — trailer and flatrack designs

Speaker: U. Cramer, Managing Director, Martec, Bremen

Session 9: Propulsion and Fuel Economy

Three leading engine designers will discuss propulsion systems for Ro-Ro ships and give their views on three areas of interest — monofuel Ro-Ro ships — their problems and advantages

— the operation of multi-engined ships at partial loads

— maintaining ferry machinery on a year-round basis with only a limited annual lay off

Speakers: P. Schneider, Head of Projects and Installation, Diesel Engine and Marine Department, Sulzer Bros., Winterthur, O. Grøne, M.A.N. — B & W Diesel, Copenhagen, S.E.M.T. Pielstick, France (Speaker to be announced)

A new concept of computerised control for total shipboard machinery

Speaker: T. K. Siirila, Head of Development, Rauma-Repola Oy, Finland

Session 10: Full Scale Demonstration of Ro-Ro Technologies at the Port of Gothenburg

(Arranged by Gothenburg Stevedoring Co. Ltd)

Coaches to the Skandia and Alvsborg Terminals Demonstrations of the latest equipment for handling containers, flats and paper: terminal tractors with roll trailers and trailers. The LUF system in action

The Organisers reserve the right to amend this programme if circumstances so require.

Exhibition

Complementing the Conference will be a comprehensive display of Ro-Ro technology and services. The exhibits will be mounted in areas adjoining the Conference Centre providing ready access for delegates and visitors.

REGISTRATION

We wish to make Conference Registration(s) for _____ delegate(s) and enclose our cheque for _____ made payable to BML Business Meetings Ltd.

Conference fee of £250 (\$kr 3200) per person includes conference documentation, lunches, coffee breaks and invitations to the Welcome Reception given by the City of Gothenburg and the official buffet evening by the Port of Gothenburg.

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The Next Generation: Business today faces a basic dilemma when it comes to selecting a tug—they're all the same. The conventional tug was a good idea when it was conceived 145 years ago. However, it wasn't designed to handle the large complex tows of today.

FAUSTUG Has A Solution: Tractor tugs, developed 30 years ago, are third generation tugs. They are proven and reliable. Their capability rivals tugs with higher horsepower. They perform precision towing jobs in less time, at less cost to you.

We offer technologically advanced tugs—tugs which offer improved performance over conventional tugs. Compare the differences and you'll see why TRACTUG should be your first choice in marine transportation.

Compare Utility: Our TRACTUGS are available for drilling rig, ship and barge moves throughout the Gulf coast, on the Pacific and Worldwide at competitive rates.

See For Yourself: For more information, call (800) 222-8008, Telex 172495 or write—

FAUSTUG MARINE CORPORATION
601 Sawyer, Suite 201,
Houston, TX 77007.

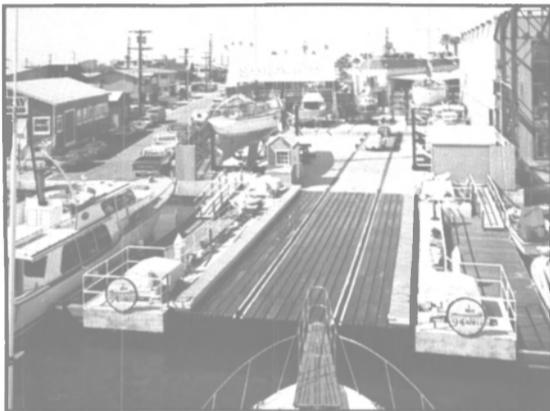
OPERATOR	FAUSTUG MARINE	TIDEWATER	GULF FLEET	LOUISIANA OFFSHORE
Type	Z-Poller Tractor Tug	Conventional Screw	Conventional Screw	Conventional Screw
PERFORMANCE FACTORS:				
Towing lever advantage (distance between propeller and winch)	7X	1X	1X	1X
360 Thrust	Yes	No	No	No
Propeller Cavitation	Minimal	Commonly Occurs	Commonly Occurs	Commonly Occurs
Dynamic positioning capability	Yes	No	No	No
Long tow capability	Yes	Yes	Yes	Yes
Sea-keeping ability	Dynamically Stable	Pitch Pound	Pitch Pound	Pitch Pound
COST FACTORS:				
Burns heavy fuel (1F180)	Yes	No	No	No
Rudder drag	No	Yes	Yes	Yes
Promotional benefits	No	Yes	Yes	Yes
ACCIDENT REDUCTION:				
Automated ABS-ACCU	Yes Highest Rating	No	No	No
Joy Stick Controls	Yes	No	No	No
Girting & Capsize Tendency	No	Yes	Yes	Yes
Response Time (360° Turn)	9/seconds	Slow	Slow	Slow



FAUSTUG



More than 150 shipyards, in 58 countries, (including 26 Navies) have selected Syncrolift shiplifts over all other drydocking systems.



Here are some of the reasons:

1. Fastest continuous lifting speed.
2. Simplicity of operating controls.
3. Low maintenance costs.
4. Choice of end or direct side transfer.
5. Pearlson's 29 years of experience in designing shiplifts.
6. Proven performance record of more than 200,000 vessels docked.
7. And, most important of all —

THE LOWEST COST FOR THE COMPLETE INSTALLATION.



We would welcome an opportunity to show you in detail how Syncrolift is superior to all other drydocking systems.

Top: Newport Beach, California, for pleasure yachts.
Left: Buenos Aires, Argentina, lifting platform 184.8 x 32 meters (606 feet by 105 feet).
Below: Hong Kong with direct side transfer off platform and single level transfer area.



Write 294 on Reader Service Card

Full service marine repair from McDermott Shipyards



Drydocks:

Location	Capacity	Distance between W/W
Morgan City	3,300-ton	80'
	6,700-ton	110'
New Iberia	1,500-ton	65'
	3,300-ton	80'
Gulfport	1,500-ton	65'



McDermott's full-service repair yards can get you back on the job in a hurry. Available are drydocks ranging from 1,500 tons to 6,700 tons displacement in three locations making multiple pickups possible for fleet work.

Normal hull repair services include: propeller rebuilding and repair, machinery overhaul and replacement, rudder repairs,

plate cropping, renewal of electrical systems, stern bearing and seal replacement, engine alignment, sandblasting, and painting. Also available is ABS-approved underminimum shaft repair.

Our three locations and experienced personnel make for quick turn-around to keep downtime to a minimum.

For more information, call McDermott Shipyards:

- P. O. Box 60035
New Orleans, LA 70160
(504) 587-5762
- P. O. Box 588
Amelia, LA 70340
(504) 631-2561
- P. O. Box 128
New Iberia, LA 70560
(318) 365-8121
- P. O. Box 2249
Gulfport, MS 39503
(601) 863-5691



**"No matter how the world
solves its energy problems,
McDermott is involved."**

McDermott Shipyards