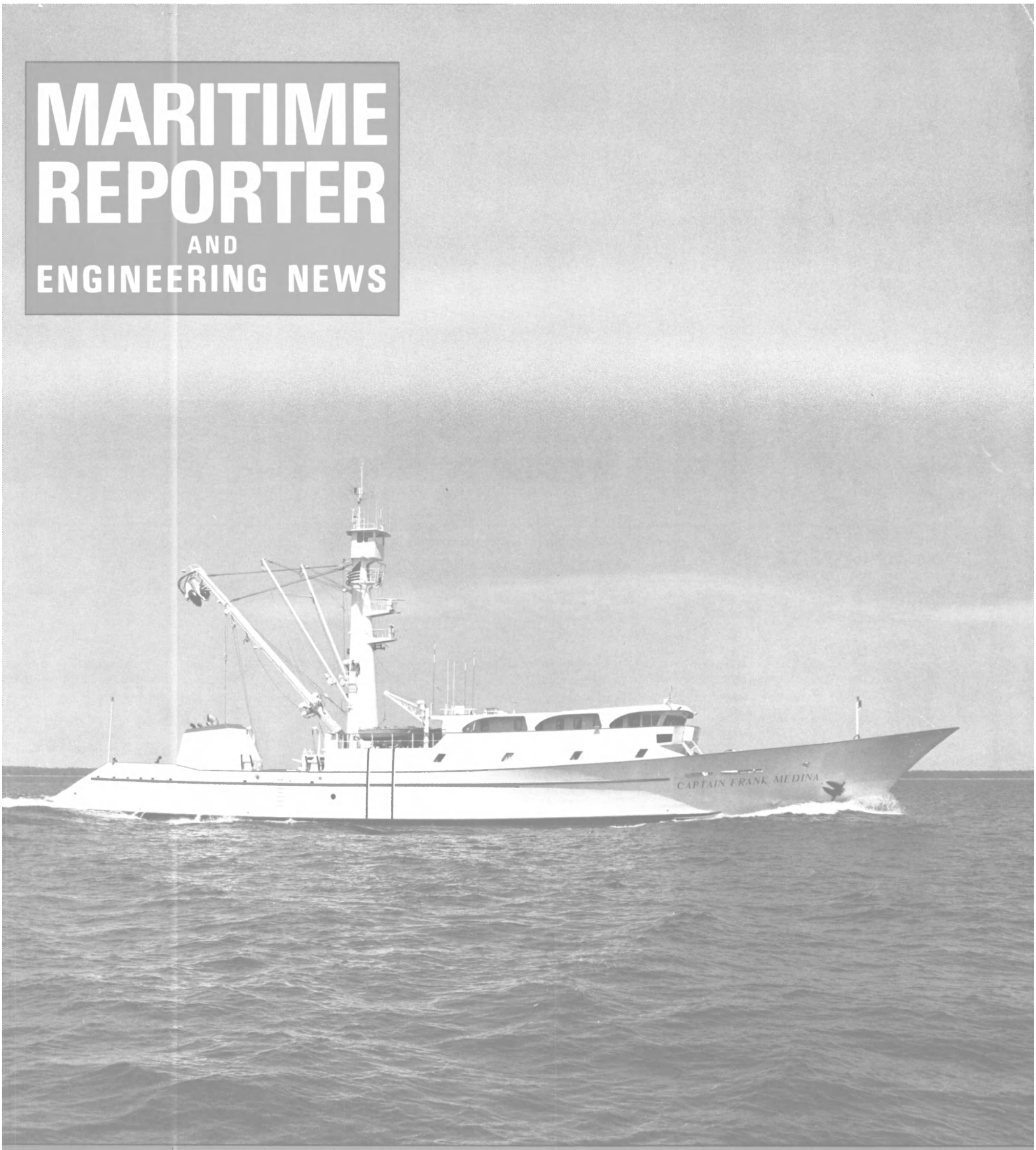
MARITIME
REPORTER
AND
ENGINEERING NEWS




Captain Frank Medina

## Peterson Builders Delivers 225' GM-Powered Tuna Seiner

(SEE PAGE 10)

AUGUST 1, 1980

# Simrad. A trusted name at sea.

## The Navigation Computer that started it all... from Simrad, naturally.


Simrad's CC-2 Navigation Computer gives complete position, steering and piloting information in an easy-to-use system. It is still the only separately packaged Loran C navigation computer, and can accept input data from any Simrad Loran C receiver.

The CC-2 can repeat Loran C time difference numbers, convert Loran C position to latitude/longitude, and will store up to nine "waypoints" or destinations. It continuously computes distance, time to destination and bearing from your present position to any of the nine selected destinations or waypoints. It also computes speed over the ground, course made good and off-course "cross track error" for steering adjustments. Lat/Long position is read out to tenths of seconds (ten feet) and off-track deviations can be read out in hundredths of a nautical mile. The computer is so flexible, you can even use it to solve separate time/course/distance problems while it continues to update actual navigation data internally.

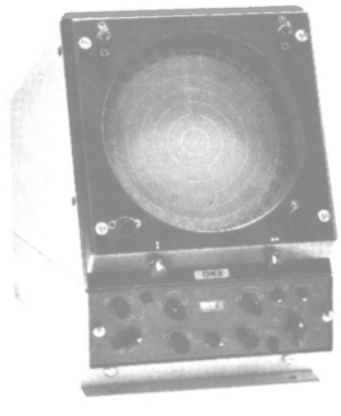
## New digital recording sounders meet IMCO requirements.

Simrad now offers two economical navigation recording echosounders that meet IMCO recommendations for merchant vessels. In addition to showing a well-defined bottom on recording paper, the systems have independent digital depth indicators and depth alarms. The Simrad ED-161 has four recording ranges from 0-25 to 550 fathoms. The ED-162 has 0-30, 0-75, and 0-150 foot recording ranges for navigating in shallower waters, plus a 0-1500 foot deep range. The optional IR 201 Remote Digital Analog Indicator displays depth in feet, meters and fathoms.


These systems are also designed as replacements for existing older systems. Due to Simrad's special engineering, some vessels can be retrofitted from *inside* the hull without having to dry dock.

## Ship's radar from Simrad.

Ten and twenty KW radar models from Simrad are building a reputation for extra fine resolution that you can count on. It is natural to think about long range use, and they do have six ranges from ¼ n.m. to 48 n.m., with an additional 30 to 78 n.m. setting on the 20 KW model. However, they really outperform competition at extremely close distances. At the ¼ n.m. range, they provide the unusual resolution you need to pick out small boats and channel markers in a dense fog. And that's the most critical test for any radar. Choice of four or six foot antenna. Variable range marker (VRM) with digital readout, and early warning target alarm options are available. For smaller vessels, Simrad's ONX-6 (5KW) with choice of 3 or 4 foot slotted array antenna, and all electronic scope sweep, is recommended.



# Loran C means Simrad.

Throughout the world, skippers have learned to trust Simrad's Loran C reliability and accuracy...and to rely on Simrad's sales, installation and service network in more than 450 ports throughout the world.

Our "New Generation" LC-123 now has many more advanced features, including signal integration that sets a new standard in readout accuracy. With its "touch pad" keyboard, our new LC-112 provides high performance at an economical price. Both models have been designed and manufactured to meet or exceed all Minimum Performance Standards (MPS) of the Radio Technical Commission for Marine Services (RTCM), adopted 12/20/77, including Addendum #1 dated 7/19/79, as endorsed by the U.S. Coast Guard for use aboard vessels over 1600 gross tons when calling at ports in the Continental U.S. This is a legal requirement for ship operation in U.S. waters.


Simrad's Loran was recently tested against eleven other receivers by an independent testing laboratory under contract to the Canadian Department of Fisheries and Oceans. Since the LC-112 had not been introduced yet, it couldn't be included in the test. However, in long range tracking tests, three units were judged superior... Simrad's LC-123, Simrad's older LC-204 and another manufacturer's receiver that costs over $2,000 more than an LC-123. Several competitors complimented Simrad by copying our LC-123, but evidently they still couldn't match Simrad's performance and reliability. Our ten years of experience in developing Loran C technology is important to you. A cheap loran could be costly.

**SIMRAD**

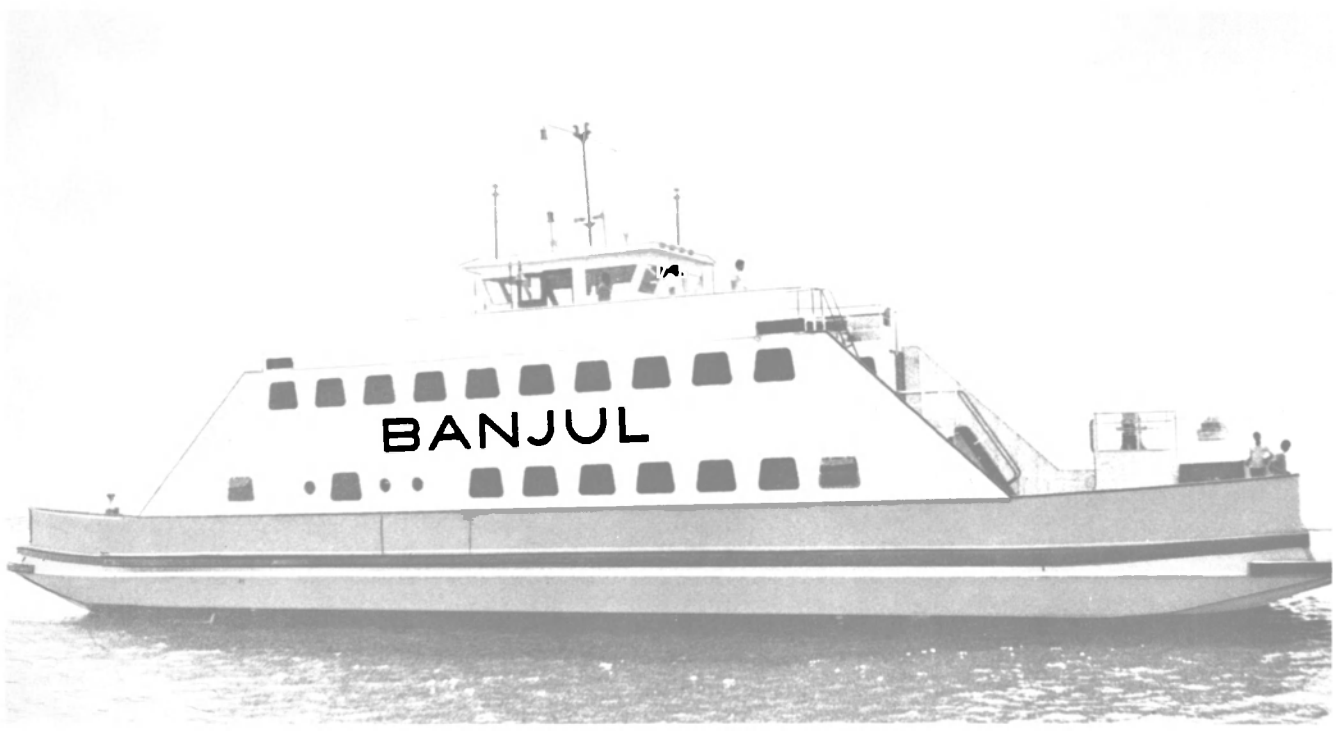
Simrad Inc., One Labriola Court,
Armonk, NY 10504 (914) 273-9410


Arietta Livanos, the largest tanker ever to come into the New York harbor, 285,000 dwt.

McAllister Brothers, Inc. Towing and transportation. 17 Battery Place,
**New York, N. Y.** 10004. (212) 269-3200
**Baltimore** (301) 547-8678 • **Norfolk** (804) 627-3651
**Philadelphia** (215) 922-6200 • **San Juan (809) 724-2360**

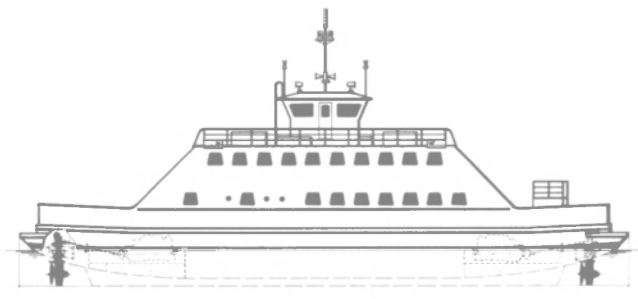
**McAllister**

# SCHOTTEL-System ensures Shuttle-System



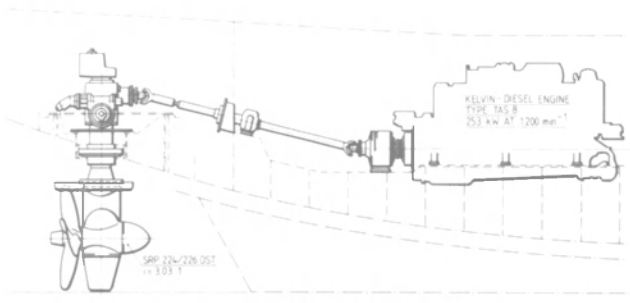

The ferry "BANJUL" was delivered by the Germersheim Shipyard on the Rhine in February 1978 to the Gambia Port Authority in Banjul, Republic of Gambia, West Africa. As a result of the outstanding performance of the "BANJUL", a sister ship "NIUMI" was ordered and put into service in July 1979. Classified as GL 100 A5 I + MC "Ferry Boat", with an overall length of 35.00 m, overall width of 10.35 m, and a depth of 2.95 m, they have a 2.00 m draught, loaded, and a displacement of 318 tons.

Designed to carry one heavy vehicle and six motor-cars, the vessels have two deckhouses, each with two decks capable of accommodating a total of 240 passengers. The deckhouses are situated on either side of the runway on the main deck and are connected to the pilot house by the bridge deck. The hull of the ship is divided into six watertight compartments, comprising the crew's quarters, store-rooms, the main fuel tank, two engine rooms, as well as space for the two propulsion and steering units.



These ferries run a 30-minute round-the-clock service between Banjul and Barra on the Gambia River. As manoeuvrability plays such a major role in this type of ferry service, each of the ships was fitted out with two SCHOTTEL-Rudderpropellers Type SRP 224/226 DST (diagonally installed) developing a total power of 253 kW (345 hp) at 1200 rpm. The SCHOTTEL-Rudderpropeller is a combined propulsion and steeering unit which transforms the engine power into optimum thrust using matched gears and a specially designed propeller which turns through a full 360° for simultaneous propulsion and steering. The ferries "BANJUL" and "NIUMI" have been equipped with a full follow-up electro-hydraulic SCHOTTEL-Steering System S 600. The SCHOTTEL units are installed in wells. Hatches in the main deck allow easy access for maintenance purposes and the units can be removed and re-installed unsing the facilities available on board while the vessel is still afloat.

For almost 30 years the SCHOTTEL-System has proved itself throughout the world. SCHOTTEL steering and propulsion units offer maximum manoeuvrability and optimum efficiency with propulsion steering in any direction both



ahead and astern. In addition the SCHOTTEL-System requires a minimum of maintenance, is economical and space-saving. Up to the present over 15,000 SCHOTTEL units with more than 4 million hp propulsion capacity have been delivered all over the world.

SCHOTTEL International:

The SCHOTTEL-Group, with its headquarters at Spay on the Rhine offers world-wide sales and service through SCHOTTEL-companies located at The Hague, London, Paris, Vienna, Hamburg, Basle, Miami, Buenos Aires, Rio de Janeiro, Singapore, Sydney and representatives throughout the world.

**SCHOTTEL-WERFT, D-5401 Spay/F.R.G., Tel. 0 26 28/6 11**
**SCHOTTEL OF AMERICA, INC., 8375 N.W. 56 Street, Miami/Florida 33166, Tel. (305) 592-7350**

## $4.75-Million Navy Contract Awarded To Rosenblatt Firm

M. Rosenblatt & Son, Inc., New York, has been awarded a $4,750,-507 negotiated cost-plus-fixed-fee contract for manhours of technical and management support to the Naval Sea Systems Command Habitability Improvement Self-Help Program. Work will be performed in Arlington, Va. The Naval Sea Systems Command is the contracting activity. (N00024-80-C-4232)

## Offshore Drilling Rig Market Holds Firm

At the end of June, U.S. shipbuilders held contracts for 49 offshore drilling rigs, valued at roughly $1.3 billion. This year, new orders for 22 units have been placed, including a total of 10 rigs awarded since May 1. The current orderbook looks like this:

Baker Marine Corporation, Ingleside, Texas—8 jackup rigs; Bethlehem Steel Corporation, Beaumont, Texas—12 jackup rigs; Bethlehem Steel Corporation, Sparrows Point, Md. — 2 jackup rigs; Ingalls Shipbuilding Division, Litton Industries, Pascagoula, Miss. — 4 jackup rigs, 2 submersible rigs; Levingston Shipbuilding Company, Orange, Texas—3 jackup rigs; Marathon LeTourneau, Brownsville, Texas —9 jackup rigs; and Marathon LeTourneau, Vicksburg, Miss., 9 jackup rigs.

## David Mackie Elected Senior Vice President Of El Paso LNG Company

**David F. Mackie** has been elected a senior vice president of El Paso LNG Company, Houston, a subsidiary of The El Paso Company.

He will be responsible for the commercial aspects, including customer affairs, of the company's Algeria LNG project. Under that project, El Paso provides the marine transportation for the movement of liquefied natural gas from Algeria to the United States.

Mr. **Mackie** joined El Paso Natural Gas Company in 1970 as an executive assistant, was named assistant vice president in 1975 and vice president in 1977. He was elected vice president of The El Paso Company in 1979.

MARITIME REPORTER AND ENGINEERING NEWS

(USPS 016-750)

No. 15 Volume 42

107 EAST 31st STREET
NEW YORK, N. Y. 10016
(212) 689-3266

ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc. Controlled Circulation postage paid at Waterbury, Connecticut 06701.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 107 East 31st Street, New York, N.Y. 10016.

ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

Member BPA
Business Publications Audit of Circulation, Inc.

## Tracor Offering Paper On Integrated Navigation Systems

Tracor Instruments is offering free copies of a paper entitled "Integrated Satellite/Omega Navigation Systems." Presented at the 1980 RTCM Assembly in Washington, D.C., the paper highlights the advantages of combining two unique, worldwide navigation systems.

Topics covered include the problems a navigator will experience when using only Transit or the Omega navigation system by itself. The paper discusses the tradeoffs of the various approaches available when integrating a Satellite Navigator with an Omega Navigator.

An integrated Satellite/Omega navigation system is one approach a shipowner may take to satisfy U.S. Coast Guard rule-making with respect to ships sailing into the United States Coastal Confluence Zone.

For a free copy of this informative paper, write to **John L. Hoerber**, Dept. MR, Tracor Instruments, 6500 Tracor Lane, Austin, Texas 78721.

## J.J. Bajor Will Head Newly Formed Keppel Marine Agencies Inc.

John J. Bajor

Keppel Shipyard Ltd. of Singapore has announced the appointment of **John J. Bajor** as president and director of the newly formed Keppel Marine Agencies Inc. This corporation, located at 26 Broadway, New York, will serve as Keppel Shipyard's exclusive agency in the United States and Canada.

Keppel Shipyard is the largest ship repair complex in Singapore, and the parent of affiliated companies with activities in most facets of ship and oil rig repair and construction, manufacturing, and vessel ownership and operation.

Mr. **Bajor** has had extensive marine experience in his academic, professional and naval reserve background. He began his maritime career as a mechanic at a ship repair company. Later he sailed as ordinary seaman on several Exxon tankers prior to attending the U.S. Merchant Marine Academy. Upon graduation, Mr. **Bajor** sailed in various engineering positions on most vessels in the Exxon U.S.A. fleet.

Coming ashore with Exxon International in 1972, he was appointed technical assistant, operations analyst, repair and maintenance planner, and lastly VLCC repair superintendent. In 1978, Mr. **Bajor** joined the Midland Marine Corporation and worked at the sales and promotion of shipyards worldwide, marine equipment sales, and vessel chartering.

## Electro-Motive Division Names The Hunt Company A Jobbing Contractor

General Motors Corporation's Electro-Motive Division has recently named The Hunt Company of Houston a jobbing contractor for its EMD power units. The agreement, signed by **George C. Mulick**, general sales manager for EMD, and **B.D. Richardson**, president of Hunt, places Hunt among a select group comprising the worldwide EMD network.

Under the agreement, The Hunt Company is authorized to sell EMD power equipment worldwide and will be responsible for proper installation, operator training, and all service work on the units they sell. The equipment will be primarily incorporated into power packages for the drilling industry.


# Our pitch is right in there

## because we've been in the game over 60 years


Our expertise in building ships of all types is known world-wide. We've turned out quality ship construction for decades; tankers, bulk cargo, drillships, pipelaying and a variety of naval vessels. Additionally, our ship repair and conversion capabilities are unexcelled. In short - we repair them all - big and small and that's not just a wild pitch. Our seven shipyards are on base day and night, with the facilities and skilled teams to give you fast, economical workmanship on three U.S. coasts at costs well in the ballpark.

## Team up with Todd for fast, competitive ship repair

TODD
SHIPYARDS CORPORATION
SHIPYARDS: BROOKLYN - NEW ORLEANS - GALVESTON
HOUSTON - SAN FRANCISCO

TODD
PACIFIC SHIPYARDS CORPORATION
SHIPYARDS: LOS ANGELES - SEATTLE
*A subsidiary of Todd Shipyards Corporation*

Executive offices: One State Street Plaza, New York, N.Y. 10004. (212) 344-6900. Cable: Robin New York

# Equitable Delivers Multipurpose Cargo Vessel M/V Amazonia

Equitable Shipyards, Inc., New Orleans, recently delivered the second of three breakbulk/reefer/container vessels, the M/V Amazonia, to American Atlantic Shipping, Inc. of New York City. American Atlantic, a part of the worldwide ocean transportation group of American Marine Industries, Inc., commenced service late last year to the Caribbean, Central America, and South America from U.S. East Coast and Gulf ports.

Said to be the most technologically advanced vessels of their size in the American-flag merchant fleet, the first of the series, the M/V America, was delivered in November 1979. The third, the M/V Antillia, is scheduled to be delivered before the end of this year.

Designed for calls at shallow-draft ports with limited facilities, the Amazonia is fully automated with Galbraith-Pilot equipment, and built for fast turnarounds and a high degree of cargo flexibility. She has high-productivity cargo gear for both breakbulk and heavy-lift cargoes, and lift-on/lift-off capability for both 20-foot and 40-foot containers. Substantial reefer space is provided in the hold, and reefer containers can be carried also.

The 2,000-dwt Amazonia has an overall length of 295 feet, beam of 45 feet, depth of 22 feet, and design draft of 14 feet.

**C.M. Keeney,** president and chief executive officer of Equitable Shipyards, hails the delivery of the Amazonia as a sign of economic growth and stability in the shipbuilding industry.


Multipurpose cargoliner **Amazonia** has been delivered by Equitable Shipyards to American Atlantic Shipping of New York. She is powered by a Fairbanks Morse diesel.

**M/V AMAZONIA SUPPLIERS**

Main engine, **Fairbanks Morse.**
Reduction gear, **Philadelphia Gear.**
Bow thruster, **Bird-Johnson.**
Stern tube bearing, **Waukesha.**
Pumps, **Crane Deming.**
D-O & L-O purifiers, **Alpha Laval.**
Distillers, **Triton.**
Sewage treatment plant, **Microphor.**
Oily water separators, **Velcon.**
Hatch covers & mooring fittings, **Avondale.**
Anchors & chain, **Baldt.**
Kingposts, **Boland Marine.**
Steering gear, **Propulsion Systems.**
Cargo winches, capstans & windlass, **New England Trawler.**
Cranes, **Hagglunds.**
Cathodic protection, **Engelhard.**
Lifeboats, **Marine Safety Equipment.**
Accommodation ladder, **Rampmaster.**
Windows & airports, **Singer Kearfott.**
Commissary equipment, joiner work, **Hopeman Bros.**
Generators, **Caterpillar.**
Motor controllers, **General Electric.**
Distribution panels, **Federal Pacific.**
Switchboards, **Anixter.**
Temperature controls, **Honeywell.**
Propeller rpm indicator, **Henschel.**
Air conditioning, **Adrick.**
Package air conditioner, **Carrier.**
Vent fans & motors, **Buffalo Forge.**
Searchlights, **Carlisle & Finch.**
Floodlights, **Crouse-Hinds.**
Navigation light panel, **Con-Select.**
Collision-avoidance radar, depth recorder, speed log, SSB radiotelephone, **Raytheon.**
Satellite navigation system, **Navidyne.**
Loran C, **Simrad.**
Gyrocompass, **Sperry.**
Radiotelephone, radio direction finder, **ITT Mackay.**
Marine band receiver, **Drake.**
Sound-powered telephones, **Hose-McCann.**
Public address system, **Marine Electric.**
Broadcast antenna, **RCA.**


SERVICE

GILLEN BACKS EVERY JOB
...with over 100 years of the best in service

Henry Gillen's Sons Lighterage, Inc.

21 WEST MAIN ST., OYSTER BAY, N.Y. 11771 • 212-895-8110

*Ed Miske, Barry Hall, Standing: Fred West, Dick Steiner, Duane Cozard, Bernie Logan, Fred Ramsden*

# "We're the guys who build 'em your way"

Building top quality into any design a customer demands, requires a special type of experienced craftsman. Fred Ramsden, 43 Year Employee:

"We custom design and build every barge to the customer's specifications and requirements. We don't limit them to preset standard designs and limited options.

"Knowing how to meet these different customer demands and their cargo handling needs, requires versatile experience, plus up-to-date construction knowledge and capabilities. You don't learn all that overnight.

"We know our trade, the latest developments in it, and take pride in our work. We know what makes a quality barge, and are always looking for better ways of giving the customers what they want.

"Our design experience and construction flexibility lets us build barges the customers' way that are competitively priced with barges built someone else's only way."

Experience, quality, value. HBC Barge builds barges in any size and configuration you need, for chemicals and other liquids, coal, grain and other commodities.

**Go beyond options and get what you want.**

For more information on getting your next barge fleet built to your specs, built to deliver years of service, contact:

**HBC Barge**

HBC Barge, Inc.
Formerly named Hillman Barge & Construction Company.

Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

## New Jackup Drill Rig Christened At Beaumont Yard Of Bethlehem Steel

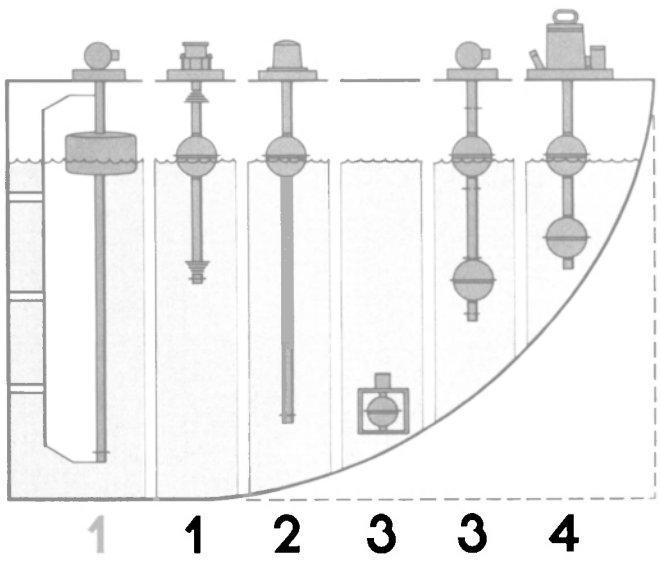
Bethlehem Steel Corporation's Beaumont, Texas, yard recently christened a new 200-foot water depth offshore drilling rig for Dixilyn-Field Drilling Company of Houston, a subsidiary of Panhandle Eastern Pipe Line Company. The rig is the second of two similar rigs built for Dixilyn-Field during the past year, and the fourth of nine multimillion-dollar rigs scheduled for delivery this year by the Beaumont yard.

The 200-foot rig, Dixilyn-Field 86, was commissioned during ceremonies in which **Mrs. Jess Johnson**, wife of the vice president and South Texas district manager of the Arco Oil & Gas Company, was the sponsor.

The jackup is mat-supported and features a cantilevered substructure. It consists of a platform 157 feet by 132 feet supported by three 11-foot-diameter columns fixed to a large stabilizing mat 220 feet by 185 feet. Outfitted with National drilling equipment, the new rig will be able to drill to 20,000 feet in waters to 200 feet. At a lesser water depth, it will withstand hurricane forces resulting from 100-knot winds and 60-foot seas. The rig will contain onboard, air-conditioned living accommodations for 60 persons, complete with sleeping quarters, galley, recreation room, and laundry facilities.

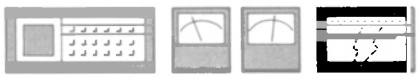
Upon leaving the shipyard, the rig will work in the Gulf of Mexico for the Arco Oil & Gas Company.


# The GEMS Solutions for 'Closed-Loading' Safety & Pollution Control.




With shipboard safety and pollution control of major concern, new federal regulations call for systems to provide this protection. As a leading supplier of intrinsically-safe liquid level sensors, GEMS can provide the solutions to many of today's 'closed-loading' problems.

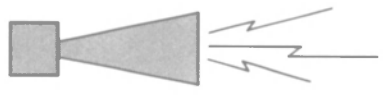
1. **Safe, accurate, continuous tank level indication.**
Level readout may be from meters or from display instruments which interface with GEMS transmitters. A GEMS "topping-off" unit may be used as a support system to provide additional operator safety.



2. **Solar-powered systems for use where conventional power is not available.**
Powered by sunlight or a flashlight beam. Ideal for use on shipboard or on barge applications where the use of conventional power is not practical or available.

3. **Level switches for alarm or automatic system control.**
Single or multi-station switches are designed for automatic level sensing requirements.


4. **Self-Checking multi-level switch provides system integrity before loading.**



Self-checking of systems may be performed before loading as required by regulations for specific cargoes. Provides high level integrity checking of sensors, lights, horns, etc. for maximum operator safety.

Contact GEMS for your 'closed-loading' level solutions.

Transamerica Delaval

GEMS SENSORS DIVISION,
Plainville, Connecticut 06062 (203) 677-1311


## Patrick Keene Named Director Of Operations At Ingalls Shipbuilding

**Patrick Keene**, director of machinery, test, and trials at Ingalls Shipbuilding Division of Litton Industries, Pascagoula, Miss., has been promoted to director of operations, **Len Erb**, senior vice president of Litton Industries and president of Ingalls Shipbuilding, has announced.

**Patrick Keene**

Mr. **Keene** began his career with Ingalls in 1966 as a shift test engineer in the submarine project, and has held increasingly responsible positions in the submarine, engineering, and operations divisions.

He is a graduate of the U.S. Merchant Marine Academy, and has sailed with steamship companies and holds a chief engineer's license for ships of unlimited horsepower. His career includes a year's service as Assistant Commandant of Midshipmen at the Merchant Marine Academy.

## Ron Hardy Promoted To Product Manager At Morrow Electronics

Morrow Electronics, Inc. has announced the promotion of **Ron Hardy** to the position of product manager. A 27-year veteran of the marine electronics field, he had been serving as Morrow's field service manager since 1978.

In his new capacity, Mr. **Hardy** will travel around the country talking with dealers and other marine industry people, and relay their comments and suggestions back to Morrow's engineering and marketing departments.

He will also manage the company's new research vessel program, collecting performance data from a nationwide cross section of marine electronics consumers.

## Strickland Appointed Director Of Salvage For Crowley Maritime

Capt. Ben Strickland

Capt. **Ben Strickland** has been appointed director of salvage operations for Crowley Maritime Corporation, according to a recent announcement by **Roy D. Jurgensen,** Seattle, CMC senior vice president and general manager of Crowley's Northwest and Alaska Division.

Mr. **Strickland** brings over 30 years' experience in marine and salvage operations to the post. His 23 years with Crowley include seven years in marine operations and 16 years as tugboat captain. In addition, he has served with other salvage and marine firms, and as marine surveyor for U.S. Salvage. Mr. **Strickland** is based in Seattle, home port for the company's new salvage vessel Arctic Salvor.

## Ewing Named Submarine Design Manager At Newport News Shipbuilding

**Hugh C. Ewing Jr.** has been appointed manager, submarine construction design project, for Newport News Shipbuilding. He is responsible for the completion of all design division responsibilities relating to the 688-Class submarine contracts.

Mr. **Ewing** is a 1948 graduate of the shipyard's Apprentice School, and also was graduated from Virginia Polytechnic Institute. Prior to this promotion, he held a number of engineering and design positions at Newport News, including the position of engineering project manager.

## Three Free Reports Available From Ship Structure Committee

The Ship Structure Committee has copies available of three new reports without cost.

SSC-291, "A Design Procedure for Minimizing Propeller-Induced Vibration in Hull Structural Elements," develops a flow diagram starting with the definition of the ship vibration specifications, continuing through the design and construction phases, until the actual vibration levels measured aboard ship during sea trials are compared with the specifications. The 27 separate design steps are presented in a logical sequence, which allows for iterations and feed-back at the appropriate stages of propeller and hull design and model testing.

SSC-292, "Report on Ship Vibration Symposium '78," is a summary of the Ship Vibration Symposium held in Arlington, Va., in October 1978. It succintly presents the state-of-the-art in shipboard vibration and noise, and offers key conclusions and recommendations reached at the symposium.

SSC-293, "Underwater Nondestructive Testing of Ship Hull Welds," is a state-of-the-art study of underwater inspection techniques. Radiography, ultrasonic inspection, and magnetic particle testing are particularly discussed, along with necessary modifications for underwater applications.

For free copies of these reports, an index of past reports, or further information, write to Comdr. **T.H. Robinson,** Secretary, Ship Structure Committee, U.S. Coast Guard Headquarters, G-MMT/13, Washington, D.C. 20593.


WHEREVER SHIPS GO
WHATEVER THEY DO
they're powered with...

SKINNER
MARINE UNAFLOW
STEAM ENGINES

RIVER & HARBOR
Freight Car,
Passenger,
and Automobile Ferries

PACIFIC SEAGOING
Passenger and Cargo Liners
Cable Ships

ATLANTIC SEAGOING
Train Ferries

ARCTIC SEAS
Icebreakers
Buoy and Lighthouse Tenders

GREAT LAKES
Bulk Ore Carriers
Self-unloaders
Bulk Cargo Carriers
Freight Car, Passenger, and
Automobile Ferries
Tankers

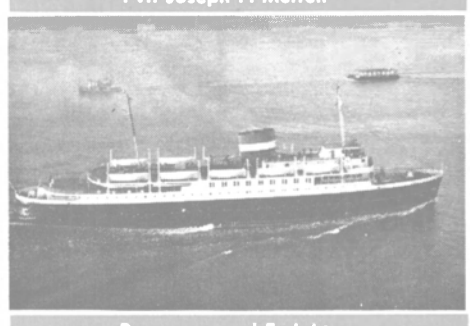
MEDITERRANEAN
Colliers

ATLANTIC, NORTH
& SOUTH AMERICA
Oceangoing Express Cargo Liners

SOUTH AMERICAN
LAKE & RIVER
Tankers
Hopper Dred

Passenger Ferryboat
"Pvt. Joseph F. Merrell"

Bulk Ore Carrier
"J. F. Schoellkopf, Jr."



Passenger and Freight
"Prince George"

Task Force Vessel
U.S.N.S. "Lindenwald"

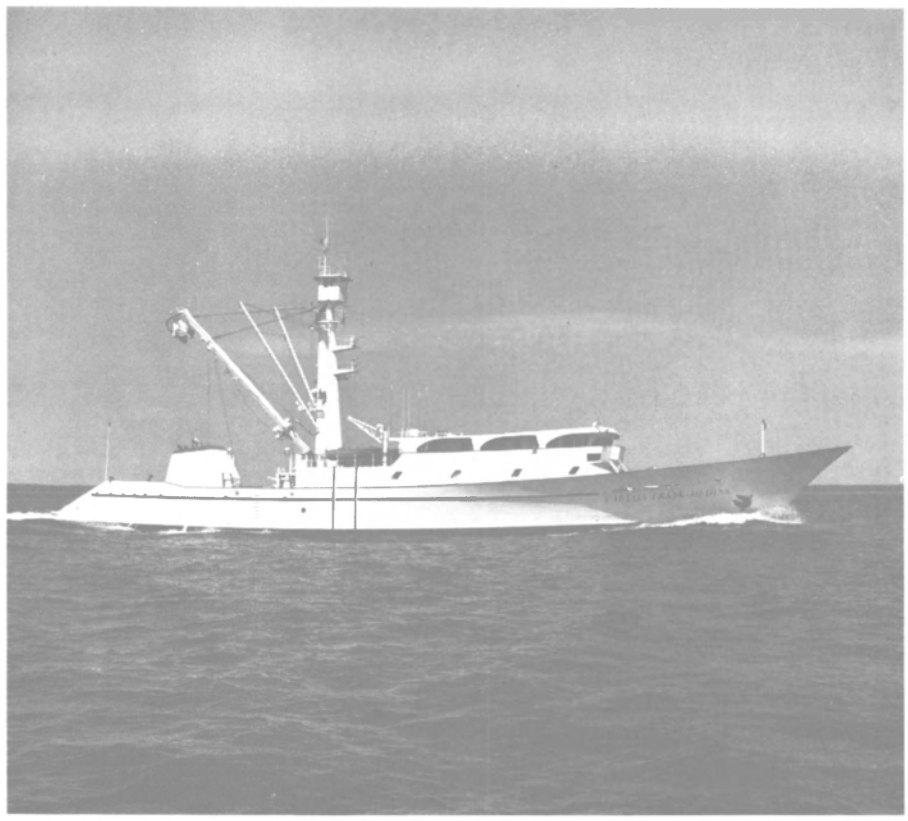
TRUE OR FALSE?

Obviously an exaggeration
today but very true when this ad appeared in 1958
during our 90th year of building steam engines.
With increasing shortages and rising prices of petroleum fuel, a
growing number of shipowners are considering the practicality of returning
to readily available coal...and that means steam engines by Skinner!
If you'd like to tap our 112 years of experience building steam engines for a wide
variety of ship and shore applications, call or write:

POWER DIVISION
SKINNER ENGINE COMPANY
A Subsidiary of Banner Industries, Inc.
Box No. 1149, Erie, Pennsylvania 16512 USA Phone 814 454-7103 Telex 91-4481

# ON THE COVER

## Peterson Delivers Big Tuna Seiner, Launches Another



Tuna seiner Captain Frank Medina was delivered recently by Peterson Builders. Vessel is owned by **Capt.** and **Mrs. Joe Medina Jr.** of San Diego.

A large contingent of the San Diego and San Pedro tuna fishing industry gathered in Sturgeon Bay, Wis., recently to witness the christening and delivery of the tuna seiner Captain Frank Medina, built for **Capt.** and **Mrs. Joe Medina Jr.** of San Diego; and the launching of the Jane for Venatun, S.A. of Caracas, Venezuela.

Sponsor of the Captain Frank Medina was **Miss Deborah Ann Medina,** daughter of the owners, assisted by **Mrs. Mary Ann Medina,** wife of **Steve Medina,** Captain **Joe's** son who will be navigator onboard the vessel. The boat was named for Captain **Joe's** uncle, a pioneer San Diego tuna fisherman.

The Jane was named for and sponsored by **Mrs. Jane Real,** wife of **John Real,** president of StarKist Foods Inc. of San Pedro, Calif. She was assisted by **Senora Concepcion Aramburu Villaneuva** of San Sebastian, Spain. The seiners will fish for StarKist and are being built under a contract signed in July 1978 between Peterson Builders, Inc., and Ocean Blazer, Inc.

The Captain Frank Medina departed Sturgeon Bay on her dilivery trip to Panama via the St. Lawrence Seaway. A high point of the trip was a stopover in Toronto where Captain **Medina** and the boat's namesake, Capt. **Frank Medina,** had the opportunity to display it to the sizeable Portugese community there, which includes relatives of the Medinas.

The Captain Frank Medina represents Peterson's latest development of a design prepared by **Ivo Zaninovich** of San Diego. She is 225 feet by 41 feet by 19 feet, and will pack 1,200 tons of tuna in 17 refrigerated wells. Her GM-Electro-Motive Division 20645E7 engine permits the craft to achieve speeds of up to 16 knots.

Electrical power is supplied by three Caterpillar D353 engines driving Kato 300-kw/480-volt generators. The Schottel 48-inch bow thruster is driven by a Detroit Diesel 12V-71N engine rated 400 bhp at 2,100 rpm. The bow thruster is interfaced with the Sperry autopilot system to permit automatic heading keeping with the main engine shut down.

The deck machinery hydraulic system was designed and furnished by MARCO Seattle, and is powered by a dedicated Caterpillar D353E engine rated 470 bhp at 1,225 rpm. A standby main hydraulic pump drive is installed on the forward end of the port auxiliary generator, while an 80-hp electric motor/pump unit provides power for the anchor windlass, forward deck Husky crane and speedboat davits. A MARCO WS444 Superseine winch and 54-inch power block with power grip

Venatun S.A. of Caracas, Venezuela, is owner of tuna seiner Jane, launched recently at Peterson yard. She will be delivered in the fall of 1980.

are principal features of the deck machinery complement.

The refrigeration system was furnished by Vilter Manufacturing Company of Milwaukee, and includes four eight-cylinder compressors circulating ammonia through approximately 26,000 feet of galvanized pipe coils in the wells.

The electronic complement is unusually complete and includes two Sperry MK126E radars, a Furuno 850B scanning sonar, Baymar recording depth indicator with Paragon digital readout, Taiyo marine band ADF and VHF automatic direction finders, two Hull single-sideband radios (one with Northern N541 1-kw linear amplifier), a Morrow model SSB-150 emergency SSB radio with programmable scanner and emergency tone generator, a King K195 aircraft band radio, two Kenwood two-meter VHF radios, two Hygain model 655 VHF-FM-radios, a Magnavox 1242 satellite receiver, Furuno weather facsimile receiver/printer, Yaesu all-band receiver, Regency VHF scanner, and a complete ham radio installation in the navigator's stateroom. The radio installation was engineered by Honor Marine Communications Inc. of San Diego and installed by Peterson Builders' technicians.

The craft is equipped to carry a Hughes 300 turbine-powered helicopter, which joined the ship en route. Twelve thousand gallons of turbine fuel is carried in double bottom tanks for the helicopter, and filtration and pumping is provided to supply the fuel to the helicopter deck.

Peterson Builders fabricated the two speedboat davits and bridge deck speedboat crane that permit rapid launching of all five aluminum chaseboats. They are equipped with Volvo Aquamatic inboard/outboard units. Three thousand nine hundred gallons of fuel is carried for the chaseboats.

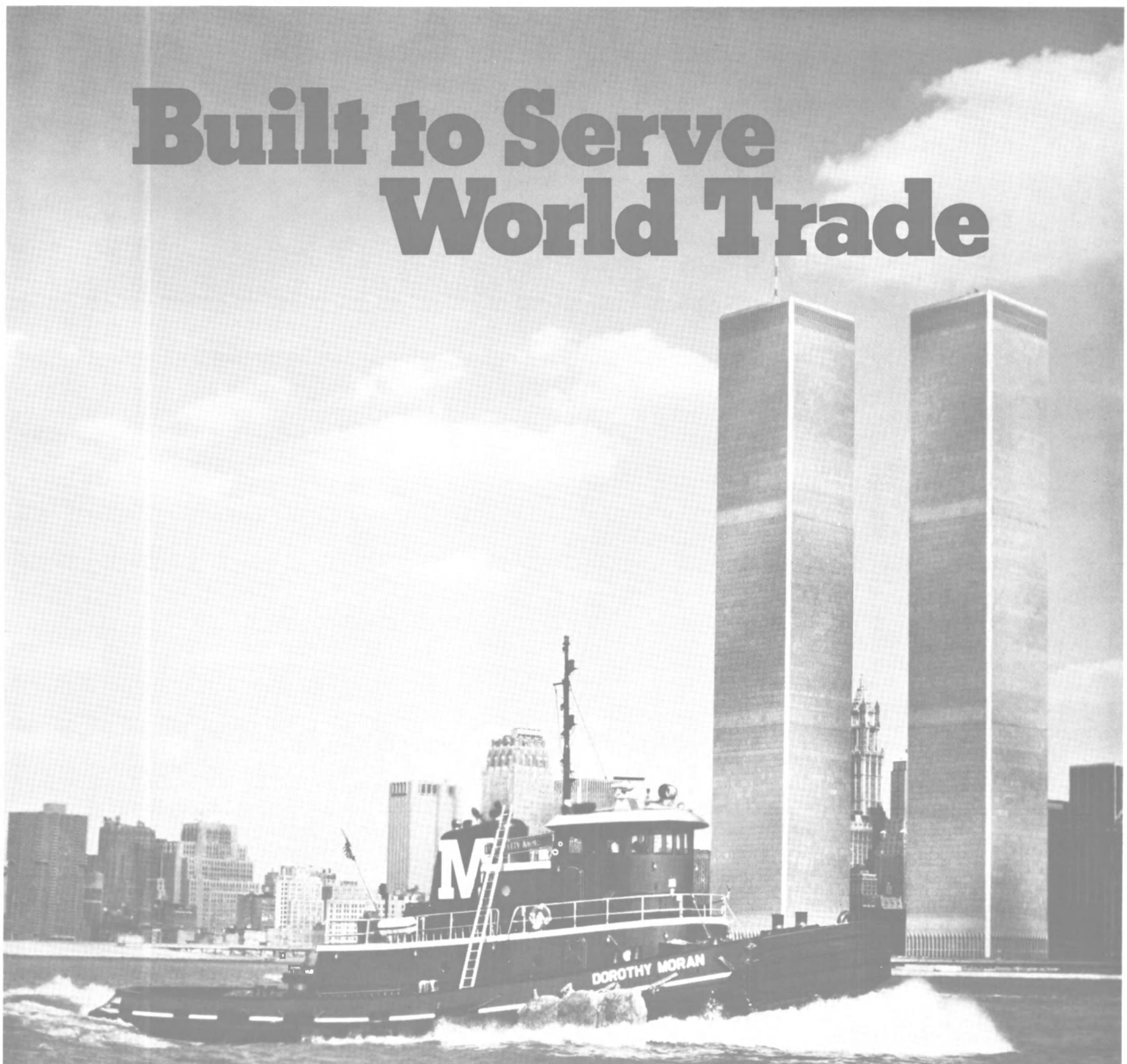
Special care was taken with the interior and accommodations of the vessel, which represent a new standard in habitability. **Mrs. Carolyn Medina** took a personal interest in and directed the interior decorations and appointments, working with Peterson Builders' design staff and carpenters.

Other major equipment installed on the vessel includes two Westphalia model OTA7B fuel oil centrifuges, Pacific Pumping brine circulating, transfer, bilge, condenser cooling and general service pumps; Buffalo Forge fans; Red Fox sewage treatment plant; Federal Pacific switchboard; Cutler Hammer controllers; Waukesha stern bearings and seals; Coolidge five-blade, stainless-steel propeller; Star Machinery electric cargo hoists; Crosby blocks and wire rope rigging and Marlite doors and paneling throughout. The vessel was painted with epoxy and urethane paints applied using a system developed and supplied by Pro-Line Inc. of San Diego.

The Jane will join the fleet of Venatun, Inc. in the fall of 1980, joining the highly successful Peterson-built Napoleon, which began fishing at the end of December 1979.

Peterson Builders' general manager **Joe Gagnon** announced that construction had begun on a series of three boats for delivery in 1981 to an undisclosed owner, affirming Peterson's establishment as a respected top-quality builder of tuna purse seiners. A formal announcement of the new contract is expected shortly.

# Built to Serve World Trade




Moran leads the way in New York harbor
with powerful and efficient tugs,
and a century of experience.

**Moran Towing & Transportation Co., Inc.**
"The Best in the Business"
One World Trade Center • Suite 5335 • New York, New York 10048

## G.F. Price Appointed VP Of Lykes Bros. Marine Division

Capt. **George F. Price Jr.**, a career member of the staff of Lykes Bros. Steamship Co., Inc., a subsidiary of The LTV Corporation, has been named vice president of the company's Marine Division, it was announced by Lykes chairman **Joseph T. Lykes Jr.** He succeeds Capt. **Ernest B. Hendrix**, who has retired.

A native of New Orleans, Captain **Price** graduated from the U.S. Merchant Marine Academy in 1945 and immediately joined the Lykes seagoing organization as a mate. He rose through the ranks and took command of his first ship, the Dick Lykes, in 1952.

Following other seagoing commands and assignments ashore as port captain, he was named assistant manager of the Marine Division in 1965 and moved up to manager of the division in 1972.

Captain **Hendrix** ends a 39-year association with Lykes. He also started with the seagoing group in 1941 and, like his successor, came ashore to fill shore assignments in Galveston and Houston until he was transferred to the New Orleans staff in 1964 as manager of the Marine Division. He became assistant vice president of the division in 1972 and was appointed vice president in 1974.

## MarAd Approves Title XI For Tug/Supply Vessel To Cost $3.4 Million

The Maritime Administration has approved in principle an application from Marsea Marine Five, Inc., New Orleans, for a Title XI guarantee to aid in financing the construction of a 2,560-horsepower tug/supply vessel to be used in offshore oil exploration in the U.S. Gulf of Mexico.

Halter Marine Service, Inc., Lockport, La., is the builder. The vessel will have an overall length of 180 feet, a molded beam of 40 feet, and a deadweight capacity of 968 long tons.

The requested guarantee would cover $2,966,000, or 87½ percent of the estimated actual cost of $3,390,231.

## Dillingham Maritime Announces Two Executive Appointments

**Harold Malterre**, president, Dillingham Maritime-Pacific Division, Honolulu, has announced two top-level management additions.

**Edwin L. Parker** assumes the post of manager for Dillingham Shipyard. He recently retired as a captain in the United States Coast Guard following a career in the field of shipyard operations, and vessel repair and construction. He served in Honolulu as naval engineer on the staff of the U.S. Coast Guard District Office from 1970 to 1974.

**Gregory Dela Cruz** has been named Pacific Division director of human relations. He joins Dillingham Maritime from the staff of Cornell University, following a number of years of teaching coupled with job assignments in the personnel and industrial relations field.

## Edwin Terry Named Vice President For State Boat Corporation

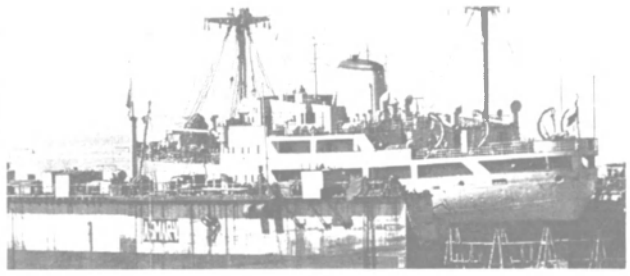
The board of directors of State Boat Corporation, an operator of tug/supply, supply, and utility vessels for the offshore oil industry, has announced the appointment of **Edwin Terry** as vice president.

Mr. **Terry** has had experience in marketing and sales during his eight years with the offshore oil industry. In addition, he served four years in the United States Coast Guard as a deck watch officer on an ocean station vessel, as well as serving in the Commandant's office in Washington, D.C.

Mr. **Terry** will be serving in the corporate office of State Boat, located in Houston.


# SHIP REPAIRS · CHILE
# ASMAR SHIPYARDS

**VALPARAISO - TALCAHUANO - PUNTA ARENAS**
**Dry Docks to 80,000 Dwt**


**Fully Integrated Shipyard Facilities - Work Force 4500 Skilled Employees**

**ASMAR Shipyards**
Astilleros y Maestranzas de la Armada
Prat 856, Piso 14 Castilla 150-V Valparaiso, Chile, S.A.
Tel. 59411-57129 Telex 30305

USA Representative
**JACKSON MARINE CORPORATION**
17 Battery Place New York, New York 10004
Tel. (212) 269-0937

'ROUND THE CLOCK 'ROUND THE WORLD

# GOLTENS
**DIESEL ENGINE REPAIR & PARTS**
**GET YOU GOING AND KEEP YOU GOING**

M·A·N SULZER B&W
KOCKUMS GOTAVERKEN
MKK KOBE DIESEL MaK
BERGEN DIESEL WÄRTSILÄ
Grandi Motori AKASAKA DIESELS

**GOLTEN MARINE CO., INC.**
Headquarters: 162 Van Brunt St., Brooklyn, N.Y. 11231
Phone (212) 855-7200 Telex: 22-2916 Cable: GOLTENS
330 Broad Ave., Wilmington, Calif. 90744
Phone: (213) 549-2550 TWX: 910-345-7480 Cable: GOLTENS
Repair services also at: Portland, Me.; Miami, Fla.; Oslo, Rotterdam; Hong Kong and Singapore

# MARINE INSURANCE SPECIALISTS
by Whitehall

Over 25 years successfully placing coverage
- Dry Cargo Vessels
- Tankers
- Ocean Cargo
- Tugs/Barge
- Floating Equipment
- Drydocks/Shipyards

and all types of Marine Special Coverages

- Property/Casualty
- Personal Lines
- Bonds
- Employee Benefits

- Professional Insurance Analysts
- Creativity
- World Markets
- Analysis and risk management on all types of insurance coverages required

**Whitehall Brokerage Inc.**
Insurance Brokers and Average Adjusters
17 Battery Place, New York, N.Y. 10004 - 212 425-0580
Telex 62204 - Cable Hallbrok, N.Y.
A Division of **TER BUSH & POWELL** Incorporated

# HUDSHIP Enters Export Market With Offshore Supply Vessel

Hudson Shipbuilders, Inc. (HUDSHIP), Pascagoula, Miss., marked its entry into the foreign market with the delivery of the 112-foot offshore supply vessel Grayscout to Gray MacKenzie Company, Ltd., Marine Division, Bahrain. The vessel departed from Pascagoula recently to join the already sizeable fleet now operated by Gray MacKenzie in the Arabian Gulf.

The design is HUDSHIP's standard 112-foot utility vessel hull, with some minor modifications to the owner's particular requirements. The house arrangement has been redesigned to accommodate 17 men in six cabins. The after deck, unchanged by the redesign, has a Scott ATO 7½-ton crane mounted at the center line to service the entire cargo deck, which is 60 feet long and 20 feet wide. To each side of the crane are Hydradyne hydraulic winches, giving the vessel a four-point mooring capability.

Grayscout is powered by twin GM-Detroit Diesel Allison 16V-92NA engines, each with a maximum continuous rating of 600 bhp at 1800 rpm, with Twin Disc 527 5:1 reduction gears. On sea trials the vessel exceeded 10 knots in a fully loaded condition and logged almost 13 knots lightly loaded. Auxiliary power is provided by two 50-kw Delco generators powered by GM-Detroit Diesel Allison 4-71 engines. Both main propulsion and auxiliary diesels were supplied by George Engine Company. Engines are monitored by a 21-point Marine Electrical Design system.

Among the special features of the Grayscout are built-in oil spill control disbursement tanks, fire-fighting capabilities, and a drill water supply system.

The pilothouse was arranged for maximum all-around visibility. It houses a variety of electronic equipment including Decca 914C radar, Sperry gyrocompass with repeater, Robertson autopilot, Sailor VHF RT144AB radiotelephone and SSB T126 radio, and Epsco Seafarer 3 depth indicator.

The vessel and all its systems are built and tested to American Bureau of Shipping Rules; she is classed A-1 All Ocean Service.

A sister vessel of the Grayscout, the Graysearch, is scheduled for delivery in August this year.

Offshore supply vessel **Grayscout** was delivered recently by Hudson Shipbuilders of Pascagoula, Miss., to Gray MacKenzie Company, Ltd., Marine Division, Bahrain.

**GRAYSCOUT SUPPLIERS**

Main engines (2), **GM-Detroit Diesel Allison** 16V92NA, each rated 600 bhp at 1,800 rpm.
Reduction gearing, **Twin Disc** 5:1.
Engine controls, **Kobelt (Perkinson).**
Generators (2), **GM-Delco** 50-kw driven by **GM-Detroit Diesel Allison** 4-71 engines.
Air compressors (2), **Quincy** 325.
Steering system, **Skipper Hydraulic.**
Main shaft bearings, stern bearings, **Lucian Q. Moffitt** Cutless.
Propeller, **Columbian Bronze.**
Sewage treatment system, **Red Fox** R-200M.
Sanitary system, **Ruthberry.**
Bilge, fire/ballast, and fuel transfer pumps, **Barnes.**
Fire monitor pump, **Hale.**
Anchor windlass, **HBL Industries** WDW-12E.
Deck crane, **Scott Midland** PM-15-350.
SSB radiotelephone, **Sailor** T-126/R-105.
VHF radiotelephone, **Sailor** RT-144AB/12-VDC.
Radar, **Decca** 914C.
Autopilot, **Robertson** AP-30.
Depth indicator, **Epsco** Seafarer 3.
Engine monitoring system, **Marine Electrical Design & Service.**
Gyrocompass, **Sperry** SR-130.
Magnetic compass, **Ritchie** B463.
Navigation lights, **Pauluhn.**
Liferafts (2), **B.F. Goodrich.**
Air horn, **Kahlenberg** D-2.

## Harold Eckmann Named Member Of Board For Todd Shipyards Corp.

**Harold A. Eckmann** was elected to the board of directors of Todd Shipyards Corporation at the recent annual meeting in New York, **John T. Gilbride,** chairman and chief executive officer, announced. Mr. **Eckmann** is chairman and chief executive officer of The Atlantic Companies, which comprise the Atlantic Mutual Insurance Company and Centennial Insurance Company. He is a director of W.R. Grace & Company, Home Life Insurance Company, and St. Francis Hospital, and a trustee of the Greenwich Savings Bank, the Insurance Institute of America, and the Insurance Company-Supported Organizations Pension Trust.

In commenting on the election, Mr. **Gilbride** said: "We know our shareholders will share with us in our great fortune in having a proven executive in the insurance field, such as Mr. **Eckmann,** join our board. His knowledge of national and international business will be of inestimable value to the corporation.

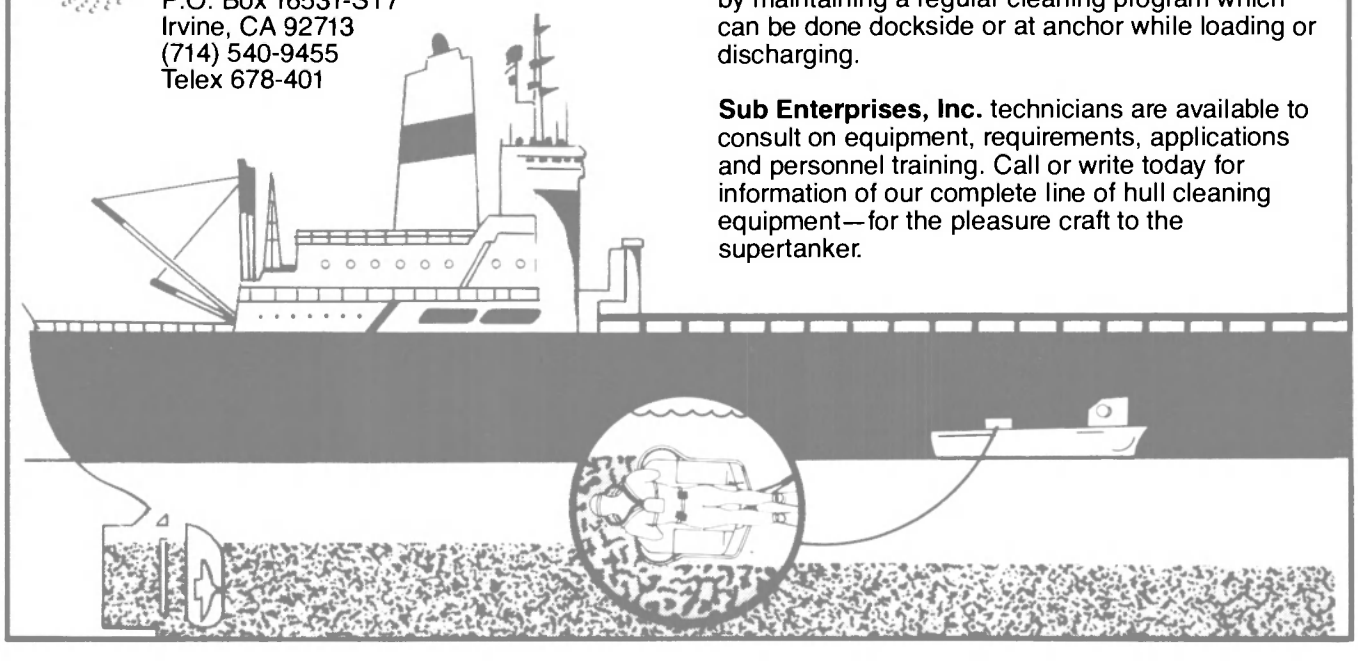

**Hull Cleaning Systems**

**SUB ENTERPRISES, INC.**
P.O. Box 16531-ST7
Irvine, CA 92713
(714) 540-9455
Telex 678-401

**Brush Sub®** Systems are the most modern systems available for under-water hull cleaning, with a capacity to clean up to 5000 square meters per hour. Hydraulically operated and available in three models, the **Brush Sub** is sold on a direct purchase basis with no royalties, fees or franchise costs.

Ship owners can now effectively reduce fuel costs by maintaining a regular cleaning program which can be done dockside or at anchor while loading or discharging.

**Sub Enterprises, Inc.** technicians are available to consult on equipment, requirements, applications and personnel training. Call or write today for information of our complete line of hull cleaning equipment—for the pleasure craft to the supertanker.



## Furuno Announces New Model Radar Alarm— Literature Available

Furuno U.S.A., Inc. recently announced availability of the new Model RA-24 radar alarm. Said to offer many unusual features, the RA-24 is fully compatible with all Furuno radars up to the FRJ-100 12-inch relative motion unit.

This low-cost, compact device provides collision warning by detecting any target entering an adjustable guard ring around the vessel. The range control sets the inner and outer edges of the guard zone anywhere from 0.5 to 24 miles, while a separate control enables a sector variable from 10 to 360 degrees to be set in any direction around the vessel. The guard sector may also be stabilized with north-up radars.

Both visual (LED) and audible alarms are provided. The function selector has a "marker" position which shows the guard zone on the radar CRT, a "test" position which sets off the audio alarm when the guarded zone is scanned and the "run" position for normal operations. A built-in interference rejector eliminates false triggering from other radars.

For additional information and literature on the new RA-24 radar alarm, write to **William Dupre**, Dept. MR 80, Furuno U.S.A., Inc., P.O. Box 2343, 271 Harbor Way, South San Francisco, Calif. 94080.

## Electric Boat Gets $24.4-Million Navy Award On Trident Subs

General Dynamics, Electric Boat Division, Groton, Conn., has been awarded a $24,410,461 modification to a previously awarded contract for additional long lead time material (LLTM) for Trident Hull No. 8 and certain items of LLTM for Trident Hull No. 10. The Naval Sea Systems Command is the contracting activity. N000-24-78-C-2453)

## Agri-Trans Announces Five Key Promotions In Management Staff

**Richard A. Wilson,** president and chief executive officer of Agri-Trans Corporation, a major transportation and barging company with offices in St. Louis and New Orleans, recently announced five promotions in the company's management staff.

Gary L. Roberts

Gary L. **Roberts** has been named vice president-finance and treasurer. He will be responsible for corporate financing, financial planning and reporting, budget and forecasting, accounting, and management information services functions. Mr. **Roberts** joined Agri-Trans in March 1979 as corporate controller. Before his recent promotion he was treasurer-controller.

**John S. Johnson** has been elected director-transportation services. His responsibilities will include the development and execution of marine equipment plans, and managing the freight merchandising program and traffic functions. He joined the company in 1976.

**George V. Finley** has been named director-employee relations. He will be responsible for all corporate employee relations, policies, and records, employee development and benefits, and matters relating to corporate office administration.

**James M. Reeder** has been promoted to manager-corporate planning, and **Terry J. Ruel** was named manager-market planning and traffic.

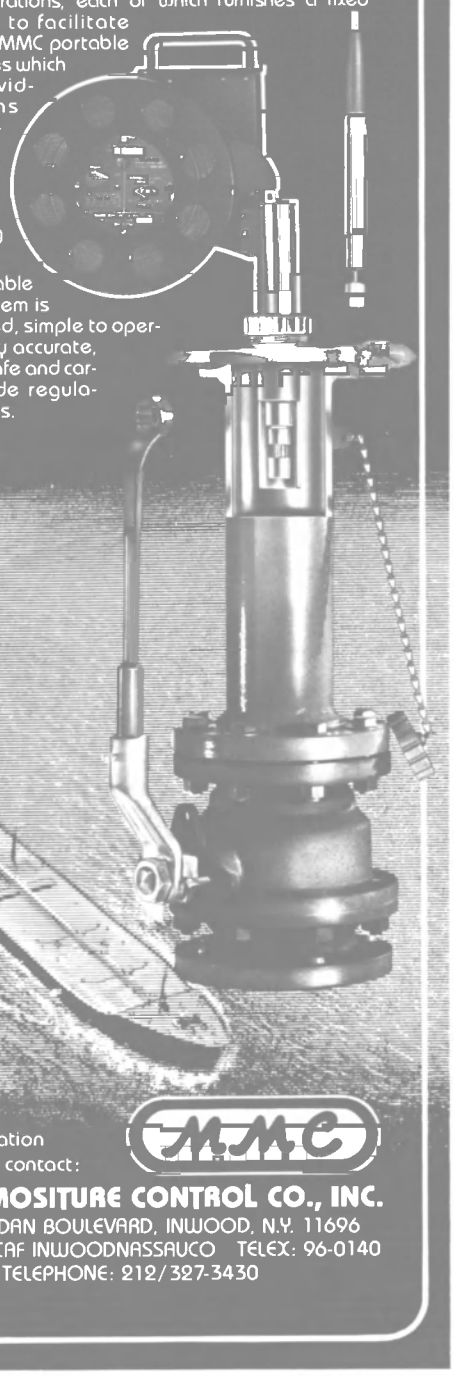

NEW...and NECESSARY

MMC CLOSED TANK PORTABLE GAUGING SYSTEM

In anticipation of new IMCO requirements for Inert Gas Marine Tank Measurement, MMC has designed and developed the versatile Closed Tank Portable Gauging System which will effectively and economically comply with present and anticipated IMCO standards.

The MMC Closed Tank Portable Gauging System consists of MMC Vapor Control Valves available in several different configurations, each of which furnishes a fixed datum point to facilitate reading, and MMC portable Gauging Tapes which provide individual functions such as reading tank ullage, ullage-interface, temperature, and sampling capabilities.

The MMC Portable Gauging System is easily installed, simple to operate, extremely accurate, intrinsically safe and carries worldwide regulatory approvals.



For full information and brochure, contact:

MMC

MARINE MOSITURE CONTROL CO., INC.
449 SHEAIDAN BOULEVARD, INWOOD, N.Y. 11696
CABLE: MAMCAF INWOODNASSAUCO TELEX: 96-0140
TELEPHONE: 212/327-3430



A square deal* from the land of the square nickel!

That's what you'll get from the Curacao Dry Dock Company... One of the largest and most complete dockyards in the Americas.

- Three drydocks up to 120.000 tons d.w.
- 6.000 feet of repair wharves fully equipped with key facilities.
- Cranes up to 140 tons.
- Rewinding of any size generators and motors.
- Complete repair & service of electronic and automated equipment.
- Round the clock service 7 days a week (no slow down because of bad weather... the sun shines practically all year long).
- Daily direct jet flights to the U.S., Latin America and Europe.
- Write for FREE 48 page detailed color booklet.

*Webster: "an honest and fair transaction or trade".

CDM

CURACAO DRYDOCK COMPANY INC.

P.O. Box 153, Curaçao
NETHERLANDS ANTILLES
Cables: SHIPYARD CURACAO
Telex 1107 CDM NA, Tel. 78333

REPRESENTATIVES: USA & CANADA
CURACAO DRYDOCK (USA) INC.
26 BROADWAY, NEW YORK, N.Y. 10004
Tel. (212) 943-0122
Telex: WU 640394 CDMNY ITT 420355 Drydock

## Improved Sales And Earnings Reported By Todd Shipyards—Has $1.5-Billion Backlog

Todd Shipyards Corporation has reported improved sales and earnings for the first quarter ended June 29, 1980. Todd currently has a backlog of $1.5 billion, and a good earnings trend is expected to continue, the company reported.

At its Annual Shareholders Meeting, held in New York recently, **John T. Gilbride,** chairman and chief executive officer, said that estimated sales for the quarter totaled $147.6 million, a 23-percent increase over $119.9 million the year before. Net income rose 31 percent to approximately $6.5 million, or $1.63 per share, compared with $5 million, or $1.90 per share, in 1979 which included an extraordinary item of $951,000, or $.43 per share, from the sale of land.

Income per share in the first quarter of 1980 was reduced compared with the same three months in 1979 by the dilutive effect of the sale of 600,000 shares of common stock and $25 million of 10½ percent convertible subordinated debentures (602,410 common share equivalents) sold in December 1979 and March 1980, respectively.

The Todd chairman told shareholders that several national issues should be considered crucial to the future of this nation. Citing increased U.S. dependence on foreign trade and raw materials, Mr. **Gilbride** said our nation is already involved in "a new kind of conflict: a non-shooting competion for the world's raw material resources. The antagonists are the free world and the Communist world, and the struggle is for survival." Soviet strategy has been to build up its seapower to be capable of challenging Western naval control of the sea lanes and disrupting the flow of materials from third world countries by political and military pressure, he contended.

Mr. **Gilbride** pointed out that maintenance of a healthy shipbuilding capability and a significant expansion of the U.S. Naval and maritime fleet are both achievable and desirable, at acceptable bottom line returns to the U.S. Treasury. "The U.S. shipbuilding industry is capable of supporting and implementing any Government policy aimed at strengthening our country's seapower, but we can no longer do it on a stop-and-start basis. We urgently need a firm decision in Washington to reverse the present trend of declining maritime strength by funding a U.S. merchant and Naval fleet of unquestioned superiority," Mr. **Gilbride** concluded.

Todd Shipyards Corporation, the nation's largest independent shipbuilding company, operates shipyards on three coasts in Los Angeles, Seattle, San Francisco, New Orleans, Galveston, Houston and Brooklyn. It is presently engaged in the construction of 23 guided missile frigates (FFGs) for the U.S. Navy.

## Blount Marine To Build $500,000 Excursion-Commuter Vessel

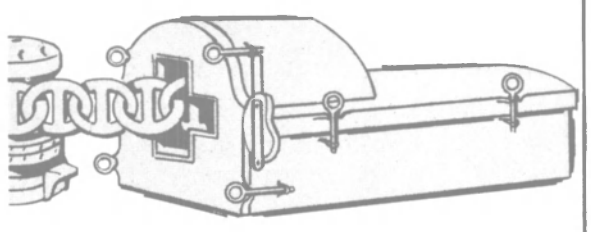
Blount Marine Corporation announces the signing of a contract with Bay State-Spray & Provincetown Steamship Company, Inc. of Boston, Mass., for the construction of an excursion-commuter vessel.

The 350-passenger, 97-foot vessel will be used in Boston Harbor. Power will be furnished by two 270-bhp diesel engines. Construction cost will be approximately $500,000. The new vessel will join four other Blount-built vessels operating in Boston Harbor.

**Luther Blount,** president of Blount Marine, made the announcement.


PREVENT FLOODED CHAIN LOCKERS

Lockstad Superior Chain Pipe Covers are Proven at Sea



Over 250 of the world's finest ships now use Lockstad equipment

American Export
American President Lines
Atlantic Richfield Co.
Burmah Oil Co.
Calmar Steamship
Central Gulf
Cities Service Oil Co.
Delta Steamship Lines
El Paso Natural Gas
Esso Standard Oil of Ohio
Isthmian Lines
Keystone Shipping Co.
Lykes Bros. Steamship
Margate
Maritime Overseas Co.
Marine Transport Lines
Mathiasen's Tanker Ind.
Matson
Military Sealift Command
Moore McCormack Lines
Pacific Far East Line
Pocahontas Fuel Co.
Prudential-Grace
Sea Land
Seatrain
South African Marine
States Marine Corp.
Trinidad Corp.
United Fruit Co.
U.S. Coast Guard
Waterman Steamship Co.

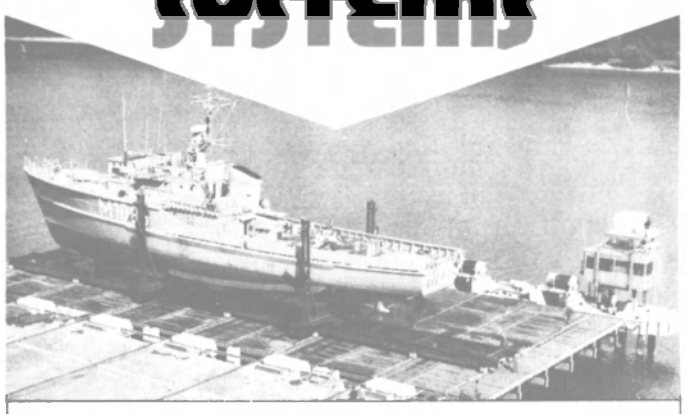
CHAIN PIPE COVERS

Now in use by all leading vessel operating companies. Prevent flooded chain lockers, eliminate hazardous and expensive methods of pouring concrete. Lockstad developed cover secures in place in matter of minutes and can be removed in seconds. Cover makes a complete thorough seal around the ring of the chain pipe. Used for vertical or caspen type windlasses. Our company will supervise each initial installation.

lockstad CO.INC.

R D 2 Burnett Road, Mendham, N.J. 07945 • (201) 543-7589

HYDRAULIC LIFTDOCKS & TRANSFER SYSTEMS



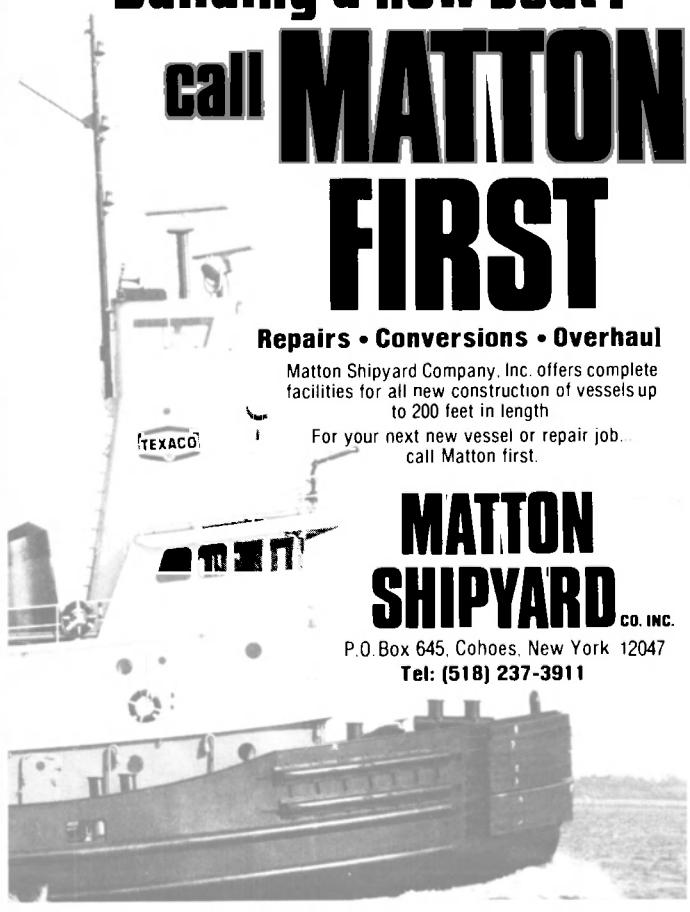
Excellence in Engineering

Safe ■ Reliable ■ Economical ■ Lift-Docks
Hydraulic Pullers ■ Winches ■ Lifting Equipment

NAH NORTH AMERICAN HYDRAULICS
A Division of Maple Engineering & Construction Co. Ltd
P O. Box 278 Brampton, Ontario, Canada L6V 2L1
Tel: 416-457-6444 Telex: 06-97830

Building a new boat?

call MATTON FIRST



Repairs • Conversions • Overhaul

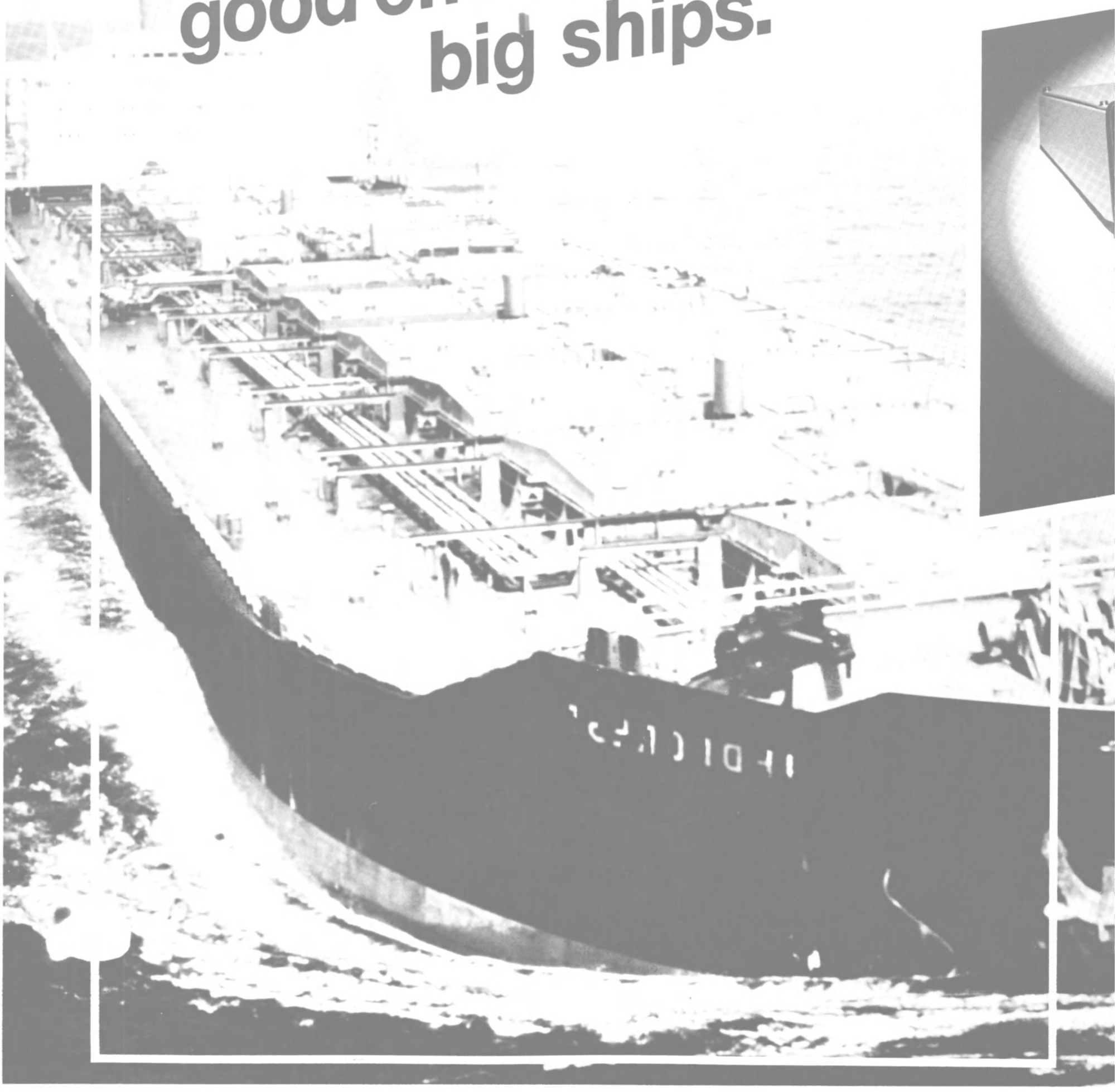
Matton Shipyard Company, Inc. offers complete facilities for all new construction of vessels up to 200 feet in length

For your next new vessel or repair job... call Matton first.

MATTON SHIPYARD CO. INC.

P.O.Box 645, Cohoes, New York 12047
Tel: (518) 237-3911

# Autopilot quality good enough for 14,000 big ships.



# Now available for smaller vessels!


For many years Decca® autopilots have been the standard for big ships around the world, with more in use today than any other brand. But until now Decca's pilots were too large and expensive for the typical fishboat, workboat or yacht.

Today, however, Decca has concentrated all that know-how on a small autopilot and have turned out a superb unit called the "DP 150".

**Size of boats:** How small? As a general guide, the DP 150 can fit into any boat large enough to carry an inboard engine. How large? Depending on hull form, rudder, etc., vessels as large as 150'-250' have very successful DP 150 installations.

## Main Features

**Outstanding Durability**—Decca pilots on big ships often last longer than the ship itself - 10 to 20 years is commonplace. Even 10 years means well over 60,000 hours of operation, or 20 voyages around the world! That's the kind of durability we designed into the DP 150.

**Non-Hunting Proportional Deadband Design**—A veteran boxer saves his energy by reacting only to real punches and ignoring the harmless feints. In the same way, the DP 150 *saves power* as well as *wear* and *tear* by responding only when the boat would really be thrown off course.

**Choice of Outstanding Compass/ Heading References**—No pilot can be better than its heading reference, so Decca offers a choice between two of the very best:

**The Decca Mark III magnetic compass**—Granted approval by the Admiralties of all major maritime nations, an honor previously achieved only by big ship units. The Mark III also serves double duty as the *best* possible *steering compass.*

**Decca's sensor compass, type 41F90**—While less expensive than the Mark III, this closed binnacle unit has been successfully used in military aircraft because of its instantaneous and rock-steady response to violently *fast changes in heading* - a real advantage for a *higher speed boat*. Further, the 41F90 sensor can also drive as many as four electronic repeaters (type 41F92, optional at extra cost).

**Electronic Analog Compass Repeater (41F92)**—This repeater compass is an excellent solution for magnetic-problem boats. Being non-magnetic and small (only 3.94 sq. in.), the repeater can be placed anywhere—for example, in a small wheelhouse or a center console fishing skiff, where tight-packed instruments (and an occasional beer can) give fits to a magnetic compass, making navigation a problem. Additional repeaters can be placed by the captain's bunk or wherever desired, without fear of magnetic influences. (Previously, repeaters were normally available only with a gyro compass system costing $10,000 and up.)

**Fuel Saving**—Nothing can steer a straighter course than a Decca pilot.

**Adaptable**—Compatible with both *mechanical* and *hydraulic* steering systems.

**Cost**—Obviously, the Decca DP 150 pilot is not priced down with the cheapest units that are best suited to light duty in undemanding missions. But we think you will be pleasantly surprised that the DP 150 autopilot system (sensor compass/heading reference, control unit with rudder translator) has a list price as low as $2,475.

See Decca's new DP 150 autopilot for yourself. Contact your nearest Decca dealer, or write us for more information. **ITT Decca Marine, Inc., P.O. Box "G", U.S. 1 & St. Joe Road, Palm Coast, Florida 32037. (904) 445-2400.**

DECCA

ITT DECCA MARINE

* Decca is a registered trademark of Decca Navigator Company, Ltd.

## $4.7-Million Contract Awarded By U.S. Navy To Savannah Machine

The Department of Defense has announced that the Navy's Military Sealift Command, Atlantic, Bayonne, N.J., has awarded a $4,776,000 fixed-price contract to Savannah Machine and Shipyard Company, Savannah, Ga. The contract is for drydocking, a special survey by the American Bureau of Shipping, and recertification by the United States Coast Guard of the USNS Southern Cross, a government-owned breakbulk cargo vessel recently obtained by MSC.

USNS Southern Cross, now part of the MSC-controlled fleet, is the former S/S Mormactrade. An ice-strengthened ship, Southern Cross will be used to fulfill military cargo requirements for support of Arctic and Antarctic bases. The ship was secured from the Maritime Administration by MSC and replaced the USNS Schuyler Otis Bland, which has been disposed of because of its age and general obsolescence.

The Military Sealift Command, which provides worldwide ocean transportation for the Army, Navy, Marine Corps, and Air Force, has awarded 23 million-dollar ship repair contracts totaling more than $87 million to U.S. commercial yards since the beginning of the current fiscal year on October 1, 1979.

## John V. Sylvester III Retiring As President Of ALCO Power Inc.

John V. Sylvester III

**John V. Sylvester III,** president of ALCO Power Inc., Auburn, N.Y., has announced that he will take early retirement effective August 31, 1980, after 27 years with the company. He will, however, serve as a consultant and continue to be a director of the company. His successor will be appointed by the board of directors at a later date.

Mr. Sylvester left the General Electric Company in 1953 to join ALCO as a regional manager. He spent most of his career in the Marketing and Sales Department, and was appointed president of an ALCO subsidiary company in Schenectady, N.Y. in 1968. He was appointed to the position of vice president-customer service of the parent company, ALCO Power Inc., in 1970, and was promoted to the presidency in 1971.

## $4-Million Contract From Newport News Awarded To Worthington Pump

McGraw-Edison Company announced that its Worthington Pump Division has been awarded an order in excess of $4 million for condensate and boiler feed pumps by Newport News Shipbuilding, Newport News, Va.

Newport News has ordered six main boiler feed pumps and 12 main condensate pumps from Worthington's Harrison, N.J., manufacturing facility for installation aboard the U.S. Navy's nuclear-powered aircraft carrier CVN-71. The pumps are scheduled for delivery in the first quarter of 1983.

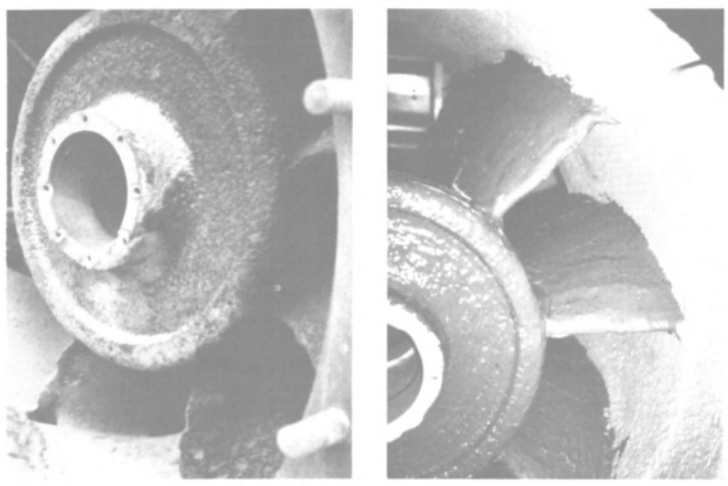
The CVN-71 is the fourth of its class. Its sister ships, Nimitz (CVN-68), Eisenhower (CVN-69), and Carl Vinson (CVN-70), are also equipped with Worthington pumps.


BELZONA MOLECULAR

# EROSION PROBLEMS?

BELZONA® MOLECULAR CERAMIC METAL is your best weapon in the war against Erosion/Corrosion attack. Applied as a cold, thixotropic compound, it reacts to create a hard, super abrasion resistant synthetic metal which is so tough it is virtually impossible to machine! Outstanding resistance to chemicals, thermal shock, impact and stress. A ton-and-a-half PSI adhesion and can even be applied under water!

**WE ARE THE WORLD'S LEADERS IN MOLECULAR MAINTENANCE TECHNOLOGY**



EROSION/CORROSION accelerated by impingement and entrainment nearly destroyed the guide vanes on this circulating water pump at a power plant in New Jersey. The guide vanes were quickly and economically rebuilt on site by the plant engineers using Belzona® Ceramic Metals. Belzona® Ceramic Metals can be used in every major fluid flow application where erosion/corrosion is your #1 enemy.

**BELZONA MOLECULAR INCORPORATED** 224 Seventh Street, Garden City, New York 11530 • (516) 746-7030 • Telex: 645549
**BELZONA MOLECULAR METALIFE LIMITED** Claro Road, Harrogate, HG14AY, North Yorks, England • (0423) 67641 • Telex: 57938

MISENER INDUSTRIES, INC.

New Construction Vessel Repair

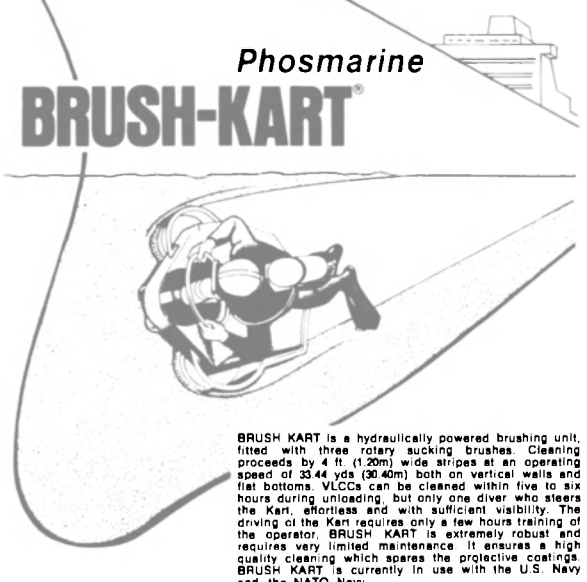
★ LAUNCHWAYS FOR 100′ WIDE UNITS ★
★ 500′ BERTH FOR 20′ DRAFT VESSELS ★
★ FOR SALE ★
120′ to 180′ Stock Deck Barges

**TELEPHONE:**
**(813) 837-8522**

**5353 TYSON AVE.**
**P.O. BOX 13625**
**TAMPA, FLA. 33681**

**A new line of inwater cleaning semi-automatic equipment for ship hulls**

*Phosmarine*
**BRUSH-KART®**



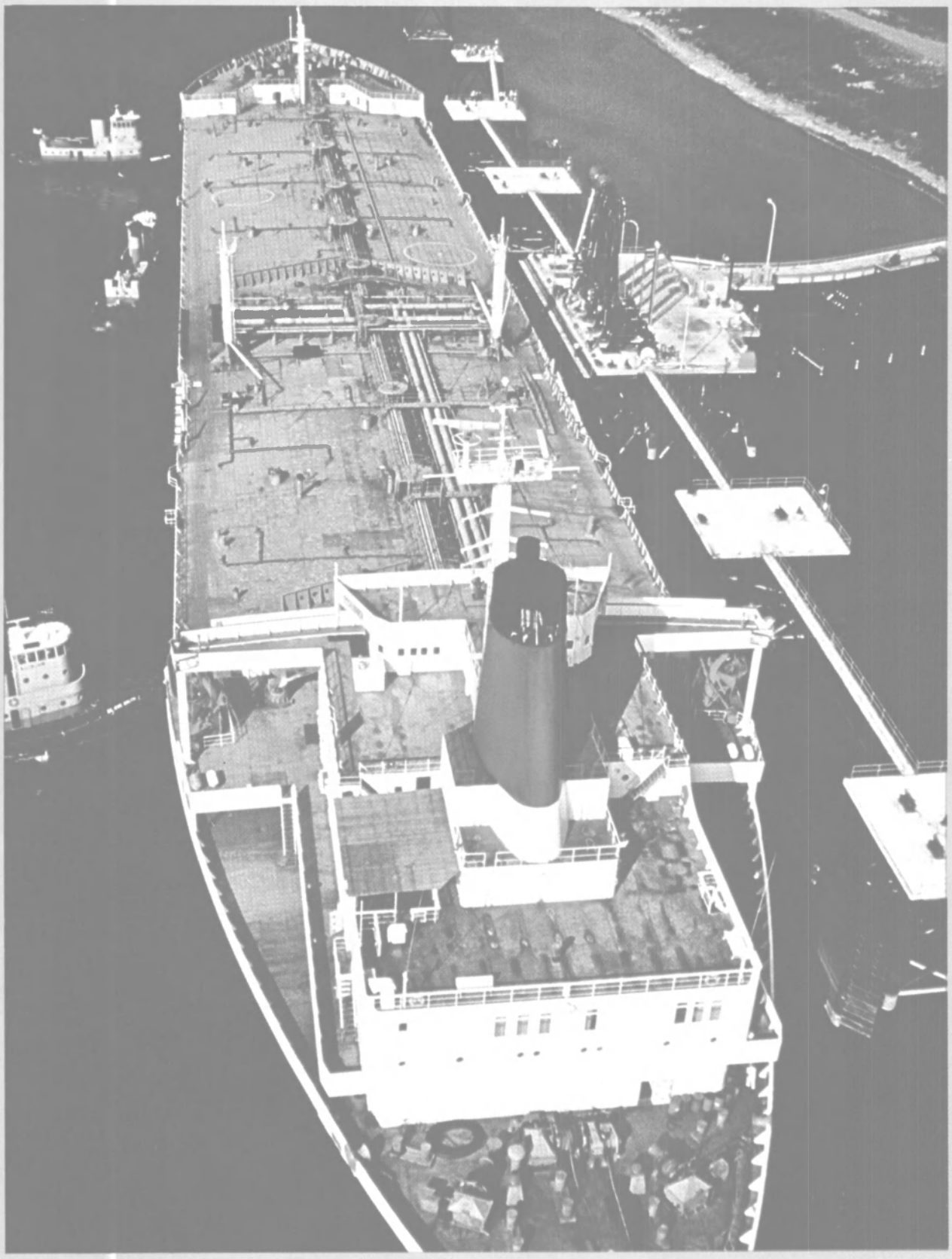
BRUSH KART is a hydraulically powered brushing unit, fitted with three rotary sucking brushes. Cleaning proceeds by 4 ft (1.20m) wide stripes at an operating speed of 33.44 yds (30.40m) both on vertical walls and flat bottoms. VLCCs can be cleaned within five to six hours during unloading, but only one diver who steers the Kart, effortless and with sufficient visibility. The driving of the Kart requires only a few hours training of the operator. BRUSH KART is extremely robust and requires very limited maintenance. It ensures a high quality cleaning which spares the protective coatings. BRUSH KART is currently in use with the U.S. Navy and the NATO Navy.

Every 'PHOSMARIN' equipment is manufactured in France only
FRANCE NORWAY GREECE HONG KONG BELGIUM GIBRALTAR SPAIN ITALY SINGAPORE PHILIPPINES U.S.A. NOVOROSSISK ODESSA SHARJAH DUBAI JAPAN CHILE CANARY ISLANDS

*FOR FURTHER INFORMATION PLEASE APPLY TO:*

PHOCEENNE S/MARINE SERVICE - PHOSMARIN EQUIPEMENT
21, BOUL DE PARIS - 13002 MARSEILLE (FRANCE) - TELEX 401826 PHOSMAR

# Argo...Parts, equipment, service...wherever you are.



## Argo...Distributor of quality products worldwide to the Marine Industry for these leading manufacturers:

Allis Chalmers
American Engineering
American Hoist & Derrick
Asco
Bussman
Chase Shawmut
Clear Water, Inc.
Darcova
Dean Brothers
Deming Pumps
Duro Instruments
Falk Corp.
Fireye (Electronics Corp. of America)
General Electric Co.
Goulds Pumps
Hotpoint
Hyde Windlass
Ingersoll Rand Co.
Insul 8
ITT Jabsco
ITT Marlow
Jered Sewage Systems
LaBour Pumps
Lake Shore
Marland Environmental Systems
Red Jacket Submersible Pumps
Sealol
Separation & Recovery Systems, Inc. (SRS)
Shinkokinzoku Industries
Siemans Electric
Tanabe Pneumatic Machinery
Taylor Instrument
Todd-C.E.A., Inc.
Tony Team Compactors
Ward-Leonard Electric Co.
Warren Pump
Weksler Instrument
Westco Pump
Wilden Pump & Engineering Co.
Worthington Compressors, Inc.
Worthington Pump Corp.
Wright Austin Co.

**Argo Marine**

DIVISION OF ARGO INTERNATIONAL CORPORATION

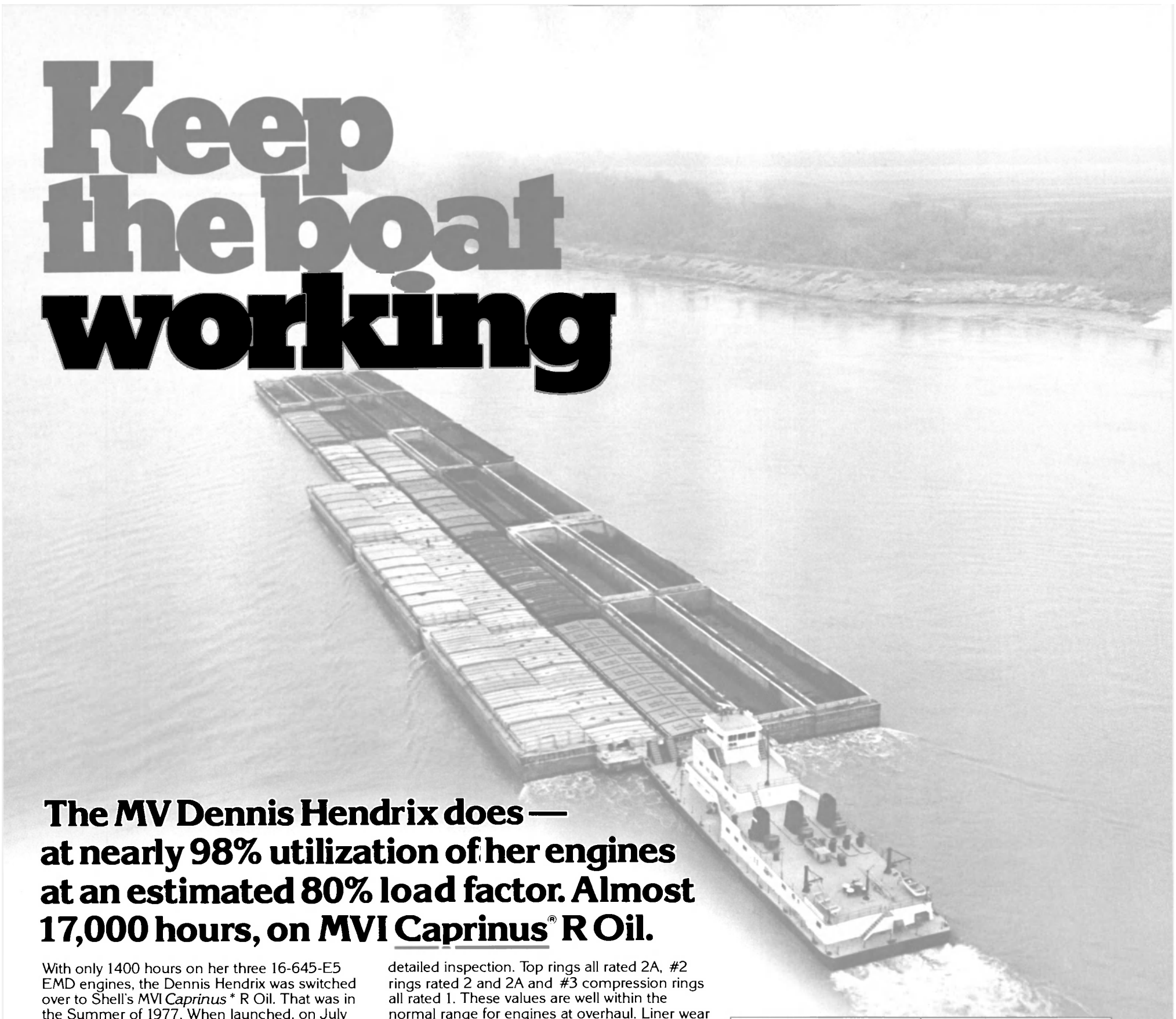
140 Franklin Street, New York, N.Y. 10013
Tel. (212) 334-1400
TWX: 710-5812262 ARGOMARSUP—NYK
TELEX: 235514 ARGO UR

**Branches:** Charlotte, N.C. • Cleveland, Ohio • Houston, Tex. • Los Angeles, Cal. • New Orleans, La. • Portland, Or. • San Francisco, Cal. • Seattle, Wash. • St. Louis, Mo.

Antwerp • Genoa • London • Milan • Oslo • Piraeus

**Subsidiary:** Delta Marine—New York • Houston • New Orleans Baltimore • Miami

# Keep the boat working



## The MV Dennis Hendrix does — at nearly 98% utilization of her engines at an estimated 80% load factor. Almost 17,000 hours, on MVI Caprinus® R Oil.

With only 1400 hours on her three 16-645-E5 EMD engines, the Dennis Hendrix was switched over to Shell's MVI *Caprinus* * R Oil. That was in the Summer of 1977. When launched, on July 16, 1977, the boat started working the Lower Mississippi pushing tows of up to 40 barges of 1500 tons each. On August 19, 1979, she was finally ready for her first scheduled overhaul. Total engine hours averaged 17,885. Individual engine hours were; port — 18,124, center — 17,421 and starboard — 18,110. Total *elapsed* time from the date of launch; 18,312 hours. And work on the Lower Mississippi usually means long runs with few interruptions. It was estimated that the load factor was averaging about 80% during these hours. In over two years, the engines averaged only 2.3% downtime.

The Dennis Hendrix was the first American Commercial Barge Line vessel to use *Caprinus* R. So, when the overhaul was scheduled, Shell went along to see the results. As is usual with *Caprinus* R oil, the engines were very clean, with relatively low deposit levels. Wear was low for the time and type of service. Used oil analysis showed that the premium MVI *Caprinus* R Oil had equilibrated at a TBN-E of 3.0, which means corrosion protection was adequate even though the engines were operated in 'no drain' service. Carbon deposits were as expected with an MVI oil, soft and flaky.

All three engines appeared about equal in appearance, and the port engine was selected for detailed inspection. Top rings all rated 2A, #2 rings rated 2 and 2A and #3 compression rings all rated 1. These values are well within the normal range for engines at overhaul. Liner wear was normal for the hours. All three engines had done their job well. The oil had done its job well. MVI *Caprinus* R oil had helped the Dennis Hendrix stay on the job with minimum downtime and maximum reliability.

MVI oils have been proven in almost half a century of operation in medium-speed diesels. Shell's MVI *Caprinus* R Oil maintains that reputation of MVI oil and uses a modern additive package to meet the latest engine service requirements.

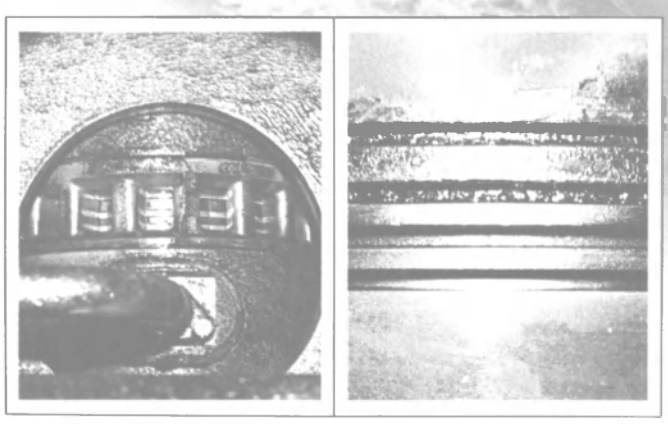
**Shell doubling MVI capacity**

Since Shell is *doubling* its MVI lube oil capacity, there is no need to switch to HVI oils, as suggested by some MVI-short suppliers. HVI oils form harder, denser carbon deposits that can block port areas and crowd rings in their grooves. With *Caprinus* R Oil, you can usually operate without changing oil in most engine types with good engine protection. A used oil analysis program can be the means to longer life and excellent engine protection with *Caprinus* R Oil.

For more information write Shell Oil Company, Manager, Commercial Communications, One Shell Plaza, Houston, Texas 77002.

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

**Come to Shell for answers**



The light carbon deposits in the airbox are typical of a premium MVI oil such as *Caprinus* R. Soft deposits will clean up rapidly, and even after 17,000 hours, are not blocking air flow.

Pistons had no scuffing or scoring. Ring groove fill and ring wear were normal for the time and type of engine service. Rings were free.

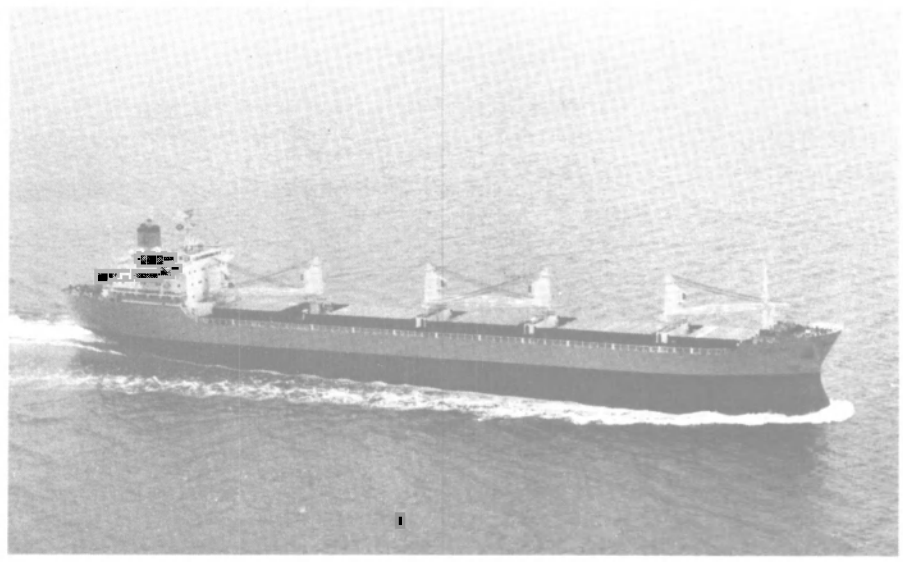
# Shell Marine Jobbers provide service, facilities and quality Shell products.

**ALABAMA**
**Bayou La Batre**
Deep Sea Marine Products
Location: West Bank, 500 Tram Avenue
Phone: (205) 824-4127
Radio: Ch 16, VHF
**Mobile**
Midstream Fuel Service, inc.
Location: Mobile River, Mile 1.5
Address: Fairhope 36532
Phone: (205) 433-4972
Radio: Ch 16, VHF
**ARKANSAS**
**Helena**
Helena Fuel & Harbor Service, Inc.
Location: Mississippi Service, Inc. Mississippi River, Mile 661 Riverfront & Bridge Road
Phone: (501) 338-8321
Radio: Ch 16
**CALIFORNIA**
**Oakland**
Bay Area Petroleum, Inc.
Location: 421 23rd Ave.
Phone: (415) 534-4517
**San Diego**
Tuna Clipper Marine
Location: San Diego Harbor Foot of Crosby Street
Phone: (714) 232-1838
**San Pedro**
San Pedro Marine, Inc.
Location: Berth 74
Phone (213) 832-1339
**FLORIDA**
**Jacksonville**
See Savannah Oil & Chemical Savannah, Ga.
**Port Everglades**
Belcher Oil Company
Location: Port Everglades 2401 Eisenhower Boulevard
Address: Fort Lauderdale
Phone: (305) 525-4261
**Tampa**
Belcher Oil Company
Location: Tampa Bay
Phone: (813) 247-4572, 247-4573
**West Palm Beach**
Belcher Oil Company
Location: Port of Palm Beach 1733 Hill Avenue
Phone: (305) 848-1495
**GEORGIA**
**Brunswick**
See Savannah Oil & Chemical Savannah, Ga.
**Savannah**
Belcher Oil Company
Location: Savannah River, Mile 17 Pier 50, Georgia Ports Authority
Phone: (912) 964-8821
**Savannah**
Savannah Oil & Chemical
Location: Savannah River 647 W. River Street
Phone: (912) 234-5402
**ILLINOIS**
**Hartford**
Ory Bros. Marine Service of America, Inc.
Location: Upper Mississippi River, Mile 197 Foot of Hawthorne Street
Phone: (618) 254-0626 (Illinois) (314) 741-2570 (Missouri)
Radio: Ch 16, KLC 791
**Wood River**
Hartford Fueling Service
Location: Upper Mississippi River, Mile 196
Phone: (618) 254-4333 (314) 741-3667
Radio: Ch 16 VHF KLG 280
**KENTUCKY**
**Louisville**
Wooten River Service
Location: Ohio River, Mile 603 2927 River Road
Phone: (502) 896-0317
**Paducah**
Molloy Marine Service, Inc.
Location: Ohio River, Mile 934 100 Husband
Phone: (502) 443-6456
**Paducah**
Walker Midstream Fuel and Service Co.
Location: Ohio River, Mile 934 532 South Second St.
Phone: (502) 442-2738
Radio: freq. 156
**LOUISIANA**
**Amelia**
Berwick Bay Oil Co., Inc.
Location: Bayou Boeuf Intracoastal Waterway 1/2 mile North 85 mile board
See Berwick listing under Morgan City, La.
**Baton Rouge**
Capital Marine Supply, Inc.
Location: Lower Mississippi, Mile 230 Foot of North Street
Phone: (504) 343-8379
Radio: Channels 16, 7a, 10, 66a VHF KFT 322.
**Baton Rouge**
Channel Fueling Service, Inc.
Location: Lower Mississippi, Mile 232 River Road
Phone: (504) 383-4691, 383-4814
Radio: freq. 156.8
**Belle Chasse**
Plaquemines Oil Sales Corp.
See Plaquemines Oil, Venice, La.
**Berwick**
Berwick Bay Oil Co., Inc.
Location: Atchafalaya River - 1/4 mile north of Hwy 90 bridge
See Berwick Oil Listing under Morgan City, La.
**Cameron**
Berwick Bay Oil Co., Inc.
Location: Calcasieu River
See Berwick Bay Oil listing, Morgan City, La.
**Cameron**
Cameron Marine Service, Inc.
Location: Calcasieu River
Phone: (318) 775-5206
**Dulac**
Berwick Bay Oil Co., Inc.
Location: Houma Navigation Channel 17 miles South of Houma
See Berwick Bay Oil listing, Morgan City, La.
**Gretna**
John W. Stone Oil Distributor, Inc.
Location: Lower Mississippi, Mile 96.5 87 First Street, Gretna Harvey 77059
Phone: (504) 366-3401
Radio: KGW 352
**Houma**
Houma Oil Company, Inc.
Location: Intracoastal Canal
Phone: (504) 872-0464
**Intracoastal City**
Berwick Bay Oil Co., Inc.
Location: Vermillion River - 1/4 mile north of Intracoastal Canal Mile 155
See Berwick Bay Oil listing, Morgan City, La.
**Lake Charles**
Channel Fueling Service, Inc.
See Channel Fueling Service, Sulphur, La.
**Morgan City**
Berwick Bay Oil Company, Inc.
Location: Young's Road
Phone: (504) 384-1610
Radio: Ch 16 VHF-KXR979
**New Orleans**
Gulf Outlet Fuel & Marine Supplies, Inc.
Location: Gulf Intracoastal Waterways Mile 8 East 3400 Jourdan Road
Phone: (504) 241-8680
Radio: KVF 893
**Port Allen**
Tri-State Marine Service Co.
Location: Lower Mississippi, Mile 227.5 River Road
Phone: (504) 749-3171
Radio: 156.8
**Sulphur**
Channel Fueling Service, Inc.
Location: Gulf Intracoastal Waterway West, Intersection of Calcasieu River
Phone: (318) 583-7215, 583-7384
Radio: 156.8
**Venice**
Plaquemines Oil Sales Corp.
Location: Mississippi River Mile 10.5 at Grand Pass Louisiana Hwy 23, Venice
Address: Belle Chasse
Phone: (504) 394-5555 (Belle Chasse) (504) 534-7403 (Venice)
Radio: WYZ 2375
**MASSACHUSETTS**
**Gloucester**
Progressive Oil Co., Inc.
Location: Gloucester
Address: 92 Grove St.
Phone: (617) 283-2000
**MINNESOTA**
**Winona**
Waterways - Winona, Inc.
Location: Upper Mississippi, Mile 725 376 East 2nd St.
Address: 455 North St. Fountain City, Wi.
Phone: (608) 687-6931 (Wisconsin) (507) 452-5252 (Minnesota)
Radio: Ch 16-12
**MISSISSIPPI**
**Biloxi**
Ship Services Corporation
Location: Gulfport State Port and Biloxi Back Bay, Beacon ;7
Phone: (601) 374-1000
**Greenville**
Waterways Marine of Greenville, Inc.
Location: Lower Mississippi, Mile 537 Warfield Point Road
Phone: (601) 335-2526
Radio: KWS 617
**Pascagoula**
Fuel Services, Inc.
Location: Bayou Casotte Ingalls Avenue
Phone: (601) 762-0636, 762-0640
Radio: Ch 16
**Vicksburg**
Vicksburg Mid-River Services, Inc.
Location: Lower Mississippi, Mile 437 Foot of Lee Street
Phone: (601) 636-4814, 636-7731
Radio: 156.8
**MISSOURI**
**St. Louis**
St. Louis Fuel & Supply Co., Inc.
Location: Upper Mississippi, Mile 179
Address: Foot of Gratiot Street
Phone: (314) 421-3960
Radio: Ch 16, VHR-KDO 722 Fort Guage
**NORTH CAROLINA**
**Elizabethtown**
Campbell Oil Company, Inc.
Location: 1010 West Broad Street
Phone: (919) 862-4107
**OREGON**
all ports
see Lilyblad Petroleum listing under Tacoma, Washington
**PENNSYLVANIA**
**Philadelphia**
River Associates, Inc.
Location: Delaware River Pier 9 North
Phone: (215) 463-8100
**SOUTH CAROLINA**
**Charleston**
Charleston Oil Co.
Location: Ashley and Cooper Rivers, 1553 King St. Extension
Phone: (803) 577-5600
**Charleston**
See Savannah Oil & Chemical, Savannah, Ga.
**Georgetown**
See Savannah Oil & Chemical Savannah, Ga.
**Port Royal**
See Savannah Oil & Chemical Savannah, Ga.
**TENNESSEE**
**Memphis**
Memphis Boat Refueling Service, Inc.
Location: Lower Mississippi, Mile 735 Foot of Illinois Street
Phone: (901) 775-3131
Radio: Ch 16
**Memphis**
Waterways Marine of Memphis, Inc.
Location: Lower Mississippi, Mile 736 Foot of Beale Street
Phone: (901) 525-5761
Radio: Ch 16, 156.6
**TEXAS**
**Corpus Christi**
Belcher Co. of Texas, Inc.
Address: 504 Navigation Corpus Christi, Tx. 78403
Phone: (512) 888-6311
**Galveston**
Grasso Marine Service, Inc.
Location: Galveston Ship Channel Pelican Island
Phone: (713) 744-2888 (dock) (713) 763-4343 (office)
**Houston**
Houston Marine Services, Inc.
Location: Beacon 126 Houston Ship Channel
Phone: Dock (713) 424-4502 Office (713) 455-8819
Radio: Channel 16
**Lake Jackson**
Channel Fueling Service, Inc.
Location: Gulf Intracoastal Waterway West, Mile 393 1400 Marlin Avenue
Phone: (713) 233-5321, 233-5322
Radio: 156.8
**Port Arthur**
Channel Fueling Service, Inc.
Location: Gulf Intracoastal Waterway West, Mile 282 5700 Proctor Street
Phone: (713) 962-5557
Radio: 156.8
**Rockport**
Berwick Bay Oil Co., Inc.
Location: Rockport Navigation Harbor, Intracoastal Canal, Mile 526
See Berwick Bay Oil Listing, Morgan City, La.
**VIRGINIA**
**Norfolk**
Marine Oil Service, Inc.
Location: Elizabeth River
Address: 71 Radar Street
Phone: (804) 622-0934, 622-3109
**WASHINGTON**
**Seattle**
Ballard Oil Co.
Location: Lake Washington Ship Canal
Phone: (206) 783-0241
**Tacoma**
Lilyblad Petroleum, Inc.
Location: Washington and Oregon - all ports
Phone: (206) 572-4402
Radio: KLB radio station Marysville, Wa.
**WASHINGTON**
all other ports see Lilyblad Petroleum above.
**WEST VIRGINIA**
**Pt. Pleasant**
City Ice & Fuel Co.
Location: Ohio River, Mile 265.3
Address: 224 First Street
Phone: (304) 675-2010

Shell Oil Company
Manager Commercial Communications
One Shell Plaza
Houston, TX. 77002

☐ Send me the Shell Shallow Draft Marine Products Guide (SOC: 95-79)
☐ Send me the Shell Marine Equipment Lubricants chart (SOC: 122-79)
☐ Send me the Shell Marine Jobber Directory (SOC: 127-79)
☐ Send me the *Caprinus* R Technical Bulletin (SOC: 17-77)
☐ Send me the *Caprinus* R brochure (SOC: 32-77)

Name _____
Title _____
Company/Vessel _____
Address _____
City _____ State _____ Zip _____

Bulk carrier **O Sole Mio** has been delivered by Hitachi Zosen's Maizuru shipyard to Stellar Shipping Corporation of Liberia. Ship is powered by Hitachi/B&W diesel.

## Two Hitachi Yards Deliver Bulker And Product Carrier

Hitachi Zosen and an affiliated yard recently completed two ships for Liberian owners.

Hitachi's Maizuru yard delivered the 27,916-dwt bulk carrier O Sole Mio to Stellar Shipping Corporation. She is designed to carry grain and/or lumber, as well as heavy cargoes like steel coils. For handling the heavy cargoes, the ship is equipped with five 25-ton deck cranes.

High-tensile steel was used in the construction of the upper deck, the double bottom, and part of the shell plating in order to reduce hull weight.

O Sole Mio has an overall length of 178.22 meters, beam of 23.10 meters, depth of 14.75 meters, and design draft (full load) of 10.57 meters (about 584.7 by 75.8 by 48.4 by 34.7 feet).

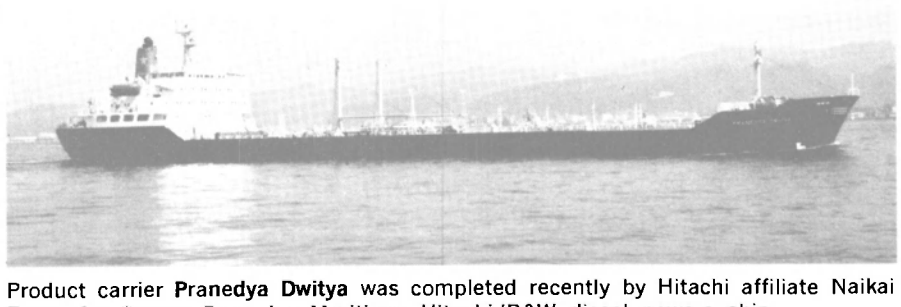
Propulsion is provided by a single Hitachi/B&W model 6L67GFC turbocharged diesel engine with maximum continuous output of 11,200 bhp (8,238 kw). Maximum trial speed was 17.83 knots; service speed fully loaded is 15.1 knots. The vessel is built to American Bureau of Shipping Classification.

The Sedota shipyard of Naikai Zosen, an affiliate of Hitachi, completed the 17,985-dwt product carrier Pranedya Dwitya for Scorpa Pranedya Maritime, Inc. She is the second of two ships built at the Sedota yard for transportation of refined petroleum products between Indonesian ports and harbors.

The vessel has an overall length of 158 meters, beam of 25.8 meters, depth of 10.8 meters, and full-load design draft of 7 meters (about 518.4 by 84.6 by 35.4 by 23 feet). She is classed by Lloyd's Register of Shipping.

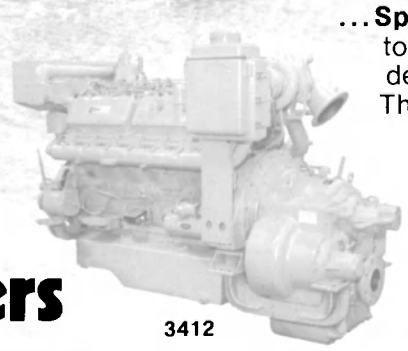
A single Hitachi/B&W 7L45-GFC diesel provides main propulsion power. Maximum continuous output is 6,160 bhp (4,531 kw), which gave a maximum trial speed of 14.058 knots.

Tank arrangement conforms to all Convention requirements for segregated ballast oil tankers for the prevention of water pollution. The interiors of the cargo tanks, including all the fittings inside the tanks, are coated with epoxy resin paint to prevent cargo contamination by rust or paint during voyages.

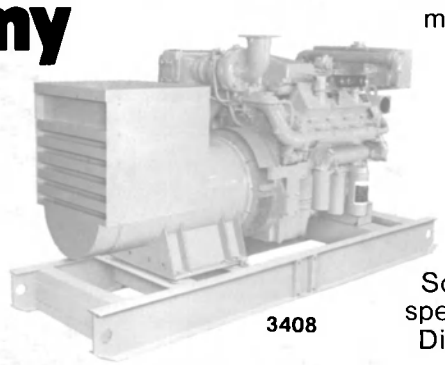


Product carrier **Pranedya Dwitya** was completed recently by Hitachi affiliate Naikai Zosen for Scorpa Pranedya Maritime. Hitachi/B&W diesel powers ship.

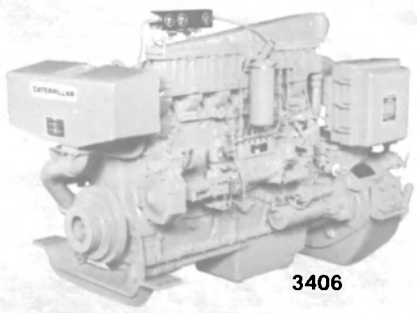
# For these proven answers to fuel economy ...and more



3412



3408



3406

*Pushboat "Gene M."*
*Serodino Inc., Chattanooga, TN*
*Two Cat 3408s, One Cat 3304*

**...Specify Cat 3400 Series Diesels**—from 250 to 520 hp (186 to 390 kW)—to answer your demand for fuel-efficient work boat power. The turbocharged-aftercooled 3408 V8, for example, converts just 18.3 fuel gallons per hour (69.3 liters) to 365 continuous horsepower. That's the best efficiency in its horsepower class.

What's more, all three 3400 Series models are proven in millions of hours on the water. Their big displacement, moderate rpm and 4-stroke cycle design means top performance and reliability.

Watercooling of turbochargers and exhaust manifolds cools exposed surfaces and makes for quieter operation. And with over 1,000 Cat Dealer outlets worldwide, you get fast parts availability and expert service all along the waterways—dockside in many areas.

So for repowering or new construction, specify a Cat 3412, 3408 or 3406 Marine Diesel. All three are proven answers to fuel economy... and much more.

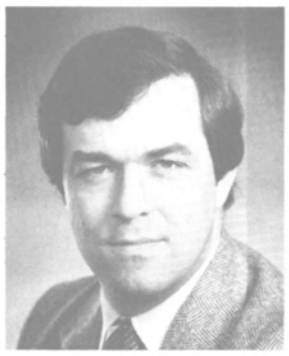
***Ask your local Caterpillar Dealer for 3400 Series Marine Engines, Form LECM 1587. For his name and telephone number, call (800) 447-4700. In Illinois, call (800) 322-4400.***

CATERPILLAR

Caterpillar, Cat and ⊡ are Trademarks of Caterpillar Tractor Co.

## French Appointed VP-Program Support At Sun Ship—Three Other Support Posts Filled

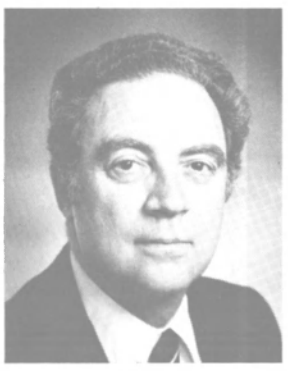
Sun Ship, Inc. has named **Spencer L. French** vice president, program support. In this post, Mr. **French** will report directly to Sun Ship president **Robert H. Campbell,** and will be responsible for all functions that support ship construction activities. These functions include planning, engineering, materials, quality assurance, program management, and contract administration.



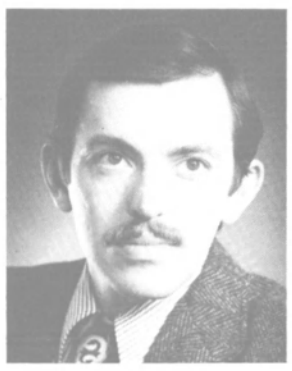
Spencer L. French

John B. Orem Jr.

Following his appointment, three other posts in program support were filled: **John B. Orem Jr.** was named vice president, engineering; **Gilbert L. Kraine** was named director, central planning; and **Bruce P. Murray** was named senior program manager, program management.



Gilbert L. Kraine



Bruce P. Murray

Previously named to posts in program support were **Cynthia A. LaCourse,** vice president, materials management; **William Taylor,** manager, quality assurance; **Robert W. Williams,** manager, contract administration; and **Larry F. Liddle,** assistant to vice president, program support.

Mr. **French** was an officer in the U.S. Navy from 1969 to 1973, when he joined the Engineering Department of Bath Iron Works in Bath, Maine. In 1976, he moved to Bath's Ship Repair Center, where he held a variety of positions leading to manager.

In 1979, Mr. **French** joined Sun Ship as a major program manager. He was named director of program management in November 1979. In February of this year, he was named acting vice president for program support.

## Navy And MarAd Jobs For Southwest Marine Total $6.5 Million

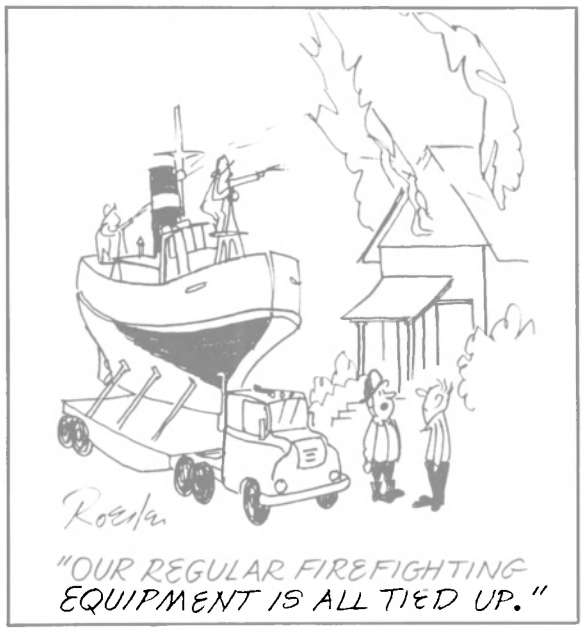
Southwest Marine of San Francisco, Inc. recently won contracts totaling some $6.5 million from the Supervisor of Shipbuilding, Conversion and Repair, San Francisco; the Military Sealift Command, Oakland, Calif.; and the Maritime Administration, San Francisco.

The Supships contracts include a $3.7-million major machinery package aboard the aircraft carrier USS Coral Sea (CV-43). The yard also was awarded a $2-million contract for general and specific repairs to the oxygen and nitrogen plants, and ship alterations aboard the same carrier.

The Military Sealift Command contract for $359,843 included miscellaneous repairs to the USNS Silas Bent (T-AGS-26).

The MarAd contract for $448,439 included activation, testing, and deck and sea trials for the Ex President Tyler.

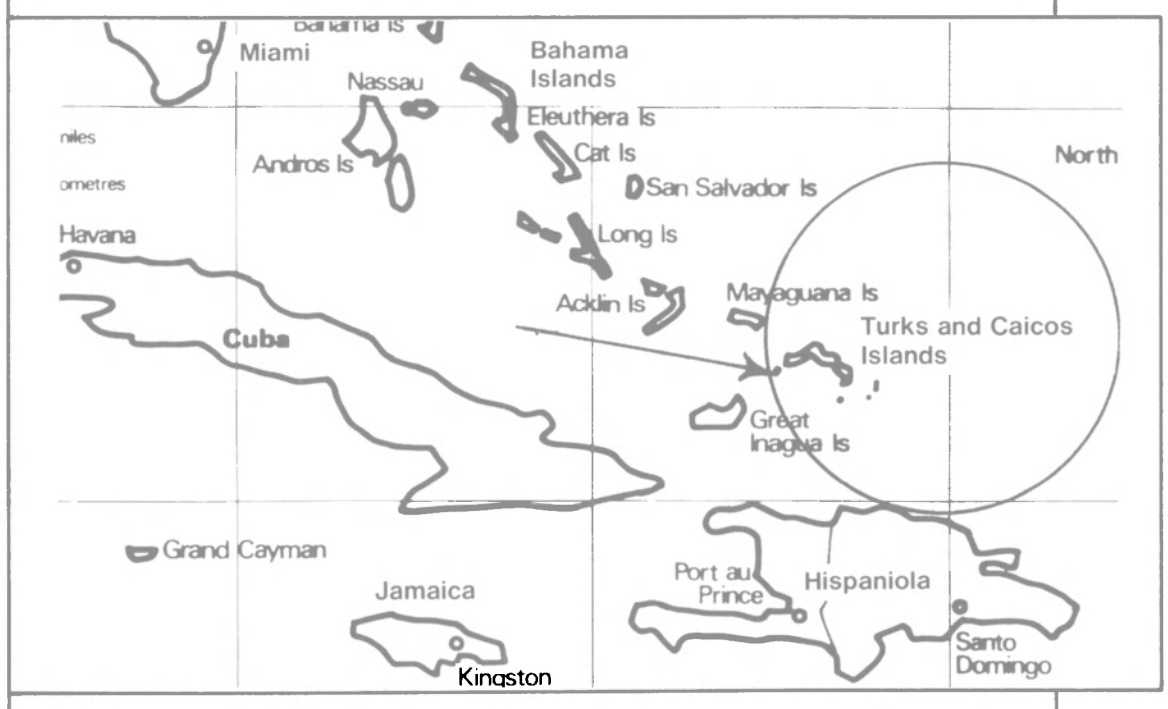
Southwest Marine is headquartered in San Diego at the foot of Sampson Street. The San Francisco division is located at Pier 28.





# CAICOS PETROLEUM SERVICES

**SHIP TO SHIP OIL TRANSFER SERVICE**
**YEAR ROUND - ALL WEATHER**




CONVENIENT TO BOTH EAST COAST AND GULF COAST PORTS.
LOCATION IN PROTECTED WATERS IN THE LEE OF WEST CAICOS AT 21°40'N, 72°30'W
PRIVATE AIRPLANE SERVICE TO NEARBY INTERNATIONAL AIRPORT
CLOSE TO MEDICAL SERVICES, HOTELS, SHIP STORES AND SPARE PARTS
LONG TERM, EXCLUSIVE FRANCHISE IN BRITISH CROWN COLONY

**U.S. AGENT - CAPT. J.O. KARSTROM, JR. -**
**TEL: CHICAGO #312- 276-4803 - TWIX - 910-221-6008**

**UK AGENCY - MARINE OIL CONSULTANTS, LTD. -**
**TEL: LONDON #01-248-1061 TELEX: 883817**

## Dieselcare 80 Seminar Scheduled In New York October 28-29, 1980

Experience gained by U.S. ship operators with diesel propulsion will form the main theme of a two-day seminar to be held in the New York Hilton Hotel on October 28-29, 1980.

Entitled Dieselcare 80, the seminar is being organized by Intec Press, Ltd. and will follow the pattern of Intec's successful Dieselcare 79 event. On each seminar day, six presentations featuring leading industry authorities are planned. They will deal with a number of important aspects of diesel selection, operation, and maintenance. Ample time will be allowed for discussion and questions from delegates. A cocktail reception on the evening of the first seminar day will present a further opportunity for contact between speakers and delegates.

The program for Dieselcare 80 is now being finalized. Speakers taking part will include **Ralmar Schwenke** of Mobil Shipping, Ltd., who will cover experience gained thus far with operating the dieselized VLCC Mobil Hawk. **A. Sinclair**, senior marine engineer with American President Lines, will be explaining some of the factors influencing shipowners to choose diesel propulsion. **Ernst Jung** of Sulzer Brothers will cover the subject of building slow-speed diesels in the U.S.

The program will open with an overview of present progress by U.S. shipowners in adopting diesel propulsion. In addition to the papers already mentioned, other topics to be covered will include training of shipboard personnel for diesel operation, condition monitoring and control of diesels, spares stocking and consumption, and a look from the repairer's view at some of the things that can go wrong with diesels and how they can be avoided or rectified.

The seminar will conclude with a panel discussion in which a number of experts will discuss how to overcome the problems presented in burning the new low grades of heavy fuel in the diesel.

More details of Dieselcare 80 are available from **M. Randolph Long**, Intec Press, Ltd., 310 East 46th Street, New York, N.Y. 10017; (212) 697-4893.


get the best

get TURECAMO on your side

The Turecamo fleet of modern, powerful tugs is available around-the-clock for the docking and undocking of ships of all sizes. Over the years, Turecamo tugs have also established an enviable record in all phases of sound, harbor, coastwise and canal towing. Put this experience to work for you.

*DOCKING • UNDOCKING—harbor, sound, coastwise, canal and lake towing*

TURECAMO COASTAL & HARBOR TOWING CORP.

P.O. BOX 201
OYSTER BAY, N.Y. 11771

ONE EDGEWATER STREET
STATEN ISLAND, N.Y. 10305

TEL: (212) 442-7400

MATTON TRANSPORTATION CO INC.
TURECAMO TRANSPORTATION CORP
MATTON SHIPYARD CO INC
TURECAMO TANKERS INC


## N.K. Richter Appointed Assistant Controller At Moore-McCormack Lines

**Robert E. O'Brien**, president and chief executive officer of Moore-McCormack Lines, Incorporated, has announced the appointment of **Norbert K. Richter** to the position of assistant controller with primary responsibility for the preparation of plans and forecasts. He will continue to head the budgeting and statistical section of the Controller's Department.

Mr. **Richter** joined Moore-McCormack in 1955. He was named assistant purchasing agent of the company's Robin Line division in 1957, supervisor of statistics in 1961, and manager of management information in 1967. Prior to his new appointment, he served as director of budgets and statistics.

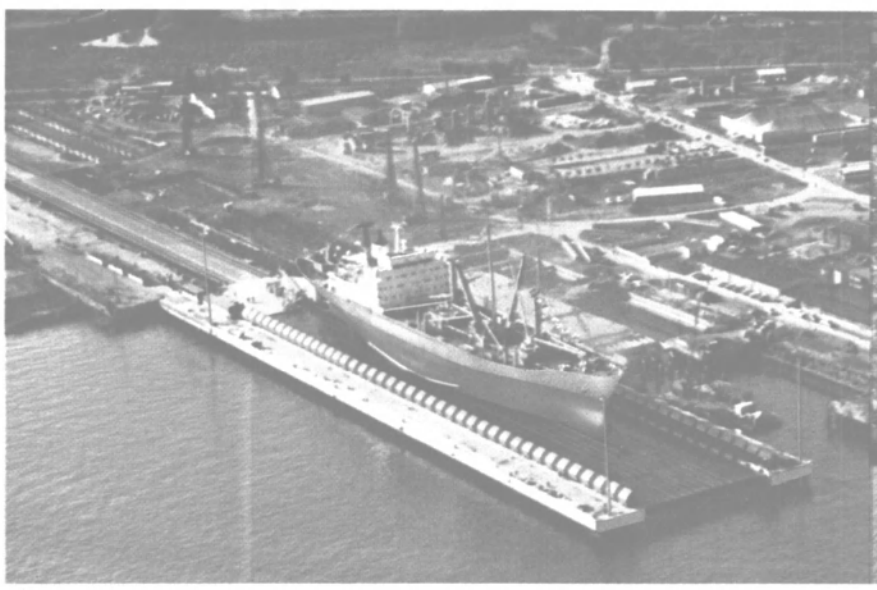
**'HMS SPEEDY' ENTERS SERVICE** — The Boeing Ocean Patrol Hydrofoil (OPH) **HMS Speedy** recently began North Sea patrol duty for the United Kingdom Royal Navy. She was launched in Seattle in July 1979. (See August 1, 1979 issue of Maritime Reporter.) Following engineering tests, the OPH was shipped to Vosper Thornycroft (UK) Ltd. at Portchester, England, in November 1979 for fitting out to RN specifications. (See Maritime Reporter Engineering News November 15, 1979 issue.) Returned to Boeing in May this year for sea trials, **Speedy** was commissioned on June 14. The craft is equipped with diesel engines for low-speed endurance operation and gas turbines for foilborne dash speeds of up to 50 knots. The OPH will be evaluated in a number of roles to establish whether hydrofoils can effectively undertake duties presently allocated to conventional vessels.

**We are proud to announce the inauguration of the**

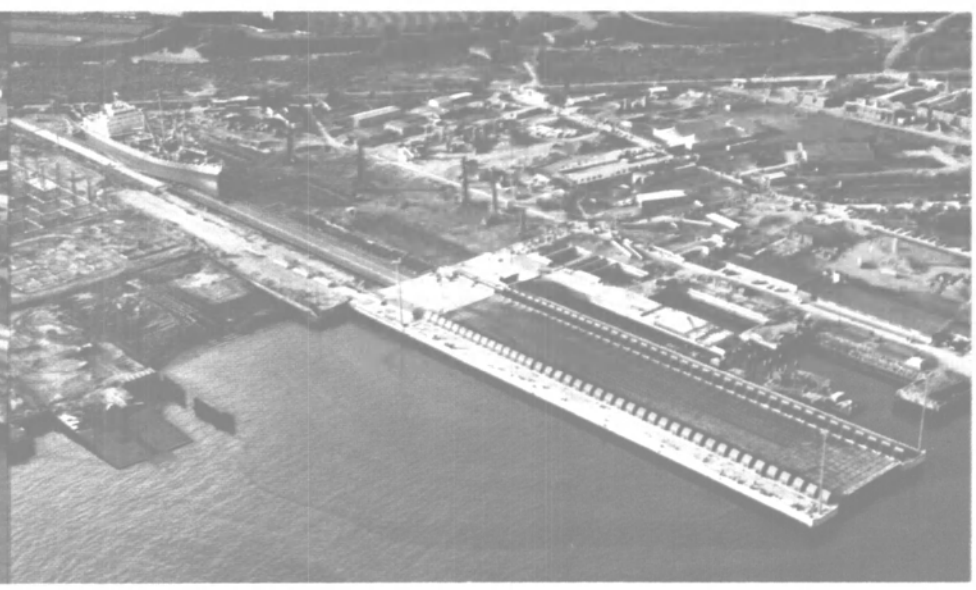
# WORLD'S LARGEST SHIPLIFT

Above: Artist rendering showing completed shipyard.
Left: Contraalmirante (RE) D. Juan Luis Poggi, President of Tandanor S.A., in the Syncrolift® Control Room.

A Syncrolift® 184 meters (604 feet) long, by 32 meters (105 feet) wide, completed only 18 months after contract signing at the shipyard of Tandanor, Buenos Aires, Argentina, for vessels up to 40,000 dead-weight tons.



25,000 DWT vessel on platform awaiting transfer.



Vessel 30 minutes later in extreme rear transfer area.

Water level view of 25,000 DWT vessel on platform.

**SYNCROLIFT® UPDATE:**

- There are now 138 Syncrolifts® in 57 countries of the world.
- The navies of 26 nations have purchased Syncrolifts®.
- The first Syncrolift® is now in its 22nd year of operation.
- Pearlson Engineering is the only company in the world whose exclusive product is shiplifts.
- Experienced engineers are always available for visits to your site from sales offices in Florida, California, London and Singapore.

LONDON
17 DEVONSHIRE STREET
LONDON W1N 1FS
ENGLAND
TELEPHONE: (01) 580-6536
TELEX: 23717

SYNCROLIFT®
SHIPLIFT & TRANSFER SYSTEMS

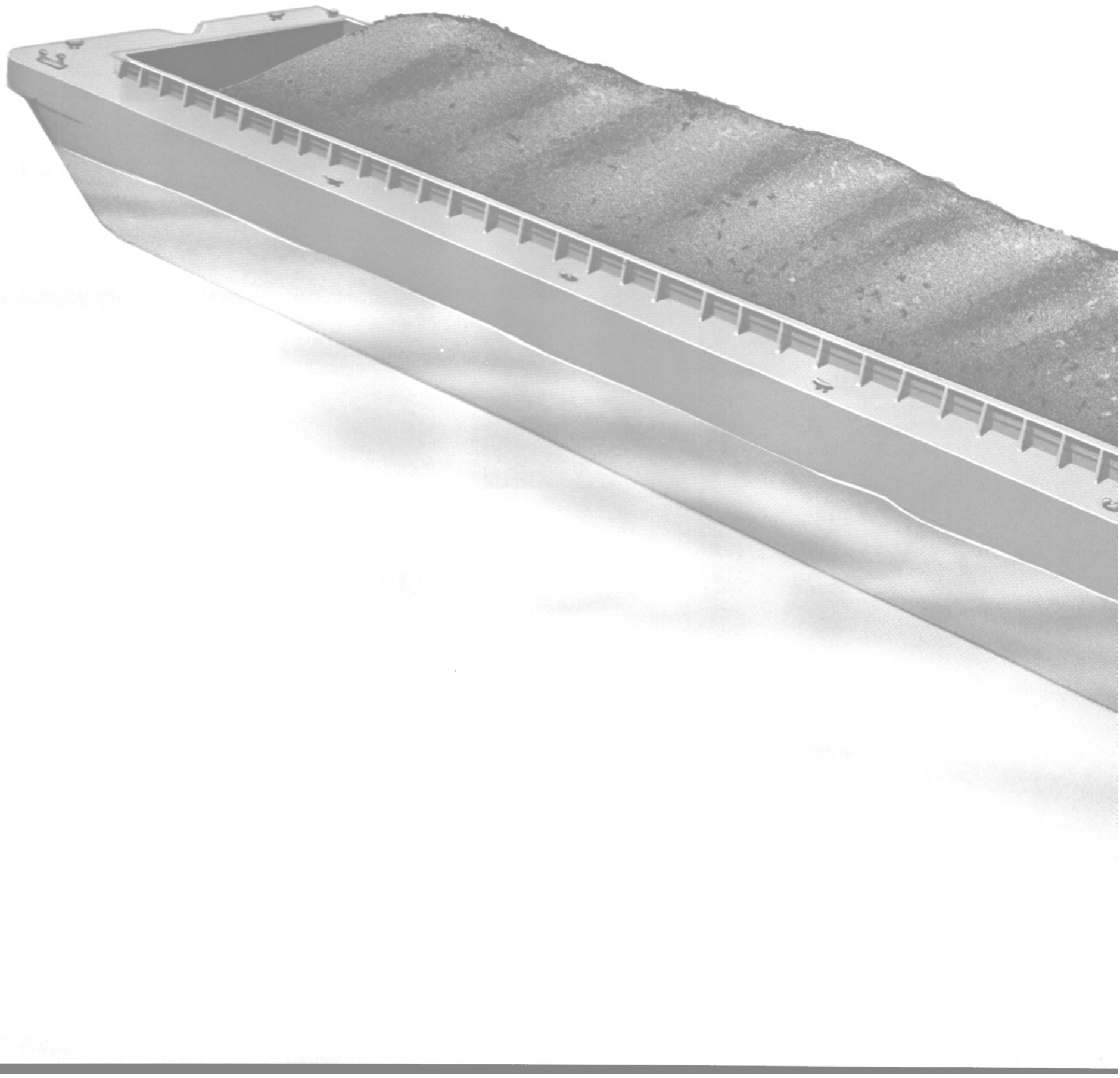
MIAMI
8970 S.W. 87th CT.
P.O. BOX 560008
MIAMI, FLORIDA 33156
PHONE: 305-271-5721
TELEX: 051-9340

A PRODUCT OF **PEARLSON ENGINEERING COMPANY, INC.** A MEMBER OF THE N.E.I. GROUP

*The Most Experienced Builder of Shiplift Systems In The World*

**R. PEARLSON LTD.** EXCLUSIVE REPRESENTATIVES

# Now, 100 railroad cars of coal in one barge.




It's Jeffboat's answer to the coal push. This new coal barge is big enough to hold an entire unit train of coal. We can custom build it to any width and/or length your company needs.

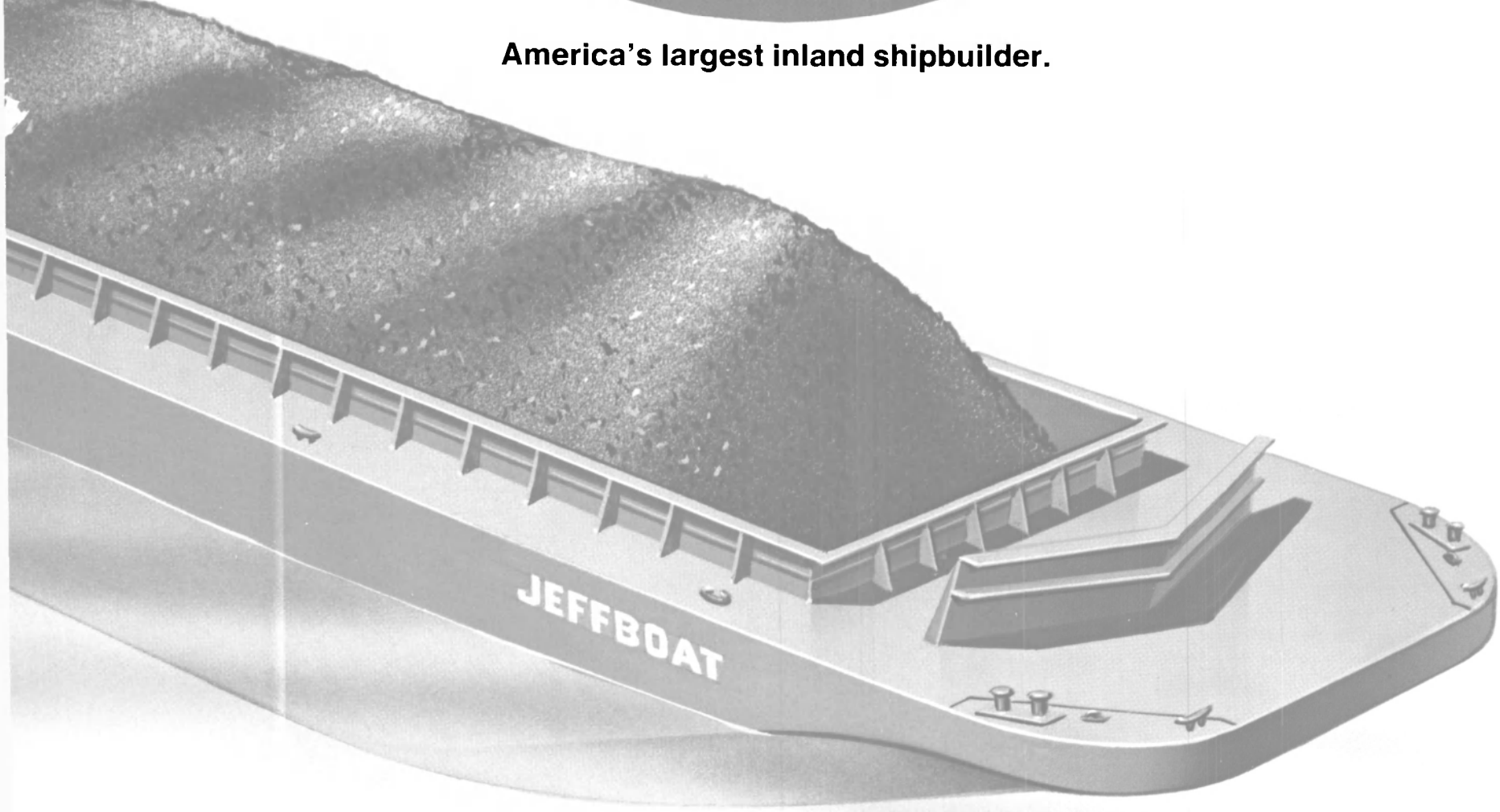
Think of it. Just the savings in transfer time and labor costs alone make this the best barge bargain afloat.

And all of these new barges are built to exacting Jeffboat standards for years of rugged, continuous, maintenance-free service. They're also built according to ABS rules for approved service on rivers and intracoastal waterways.

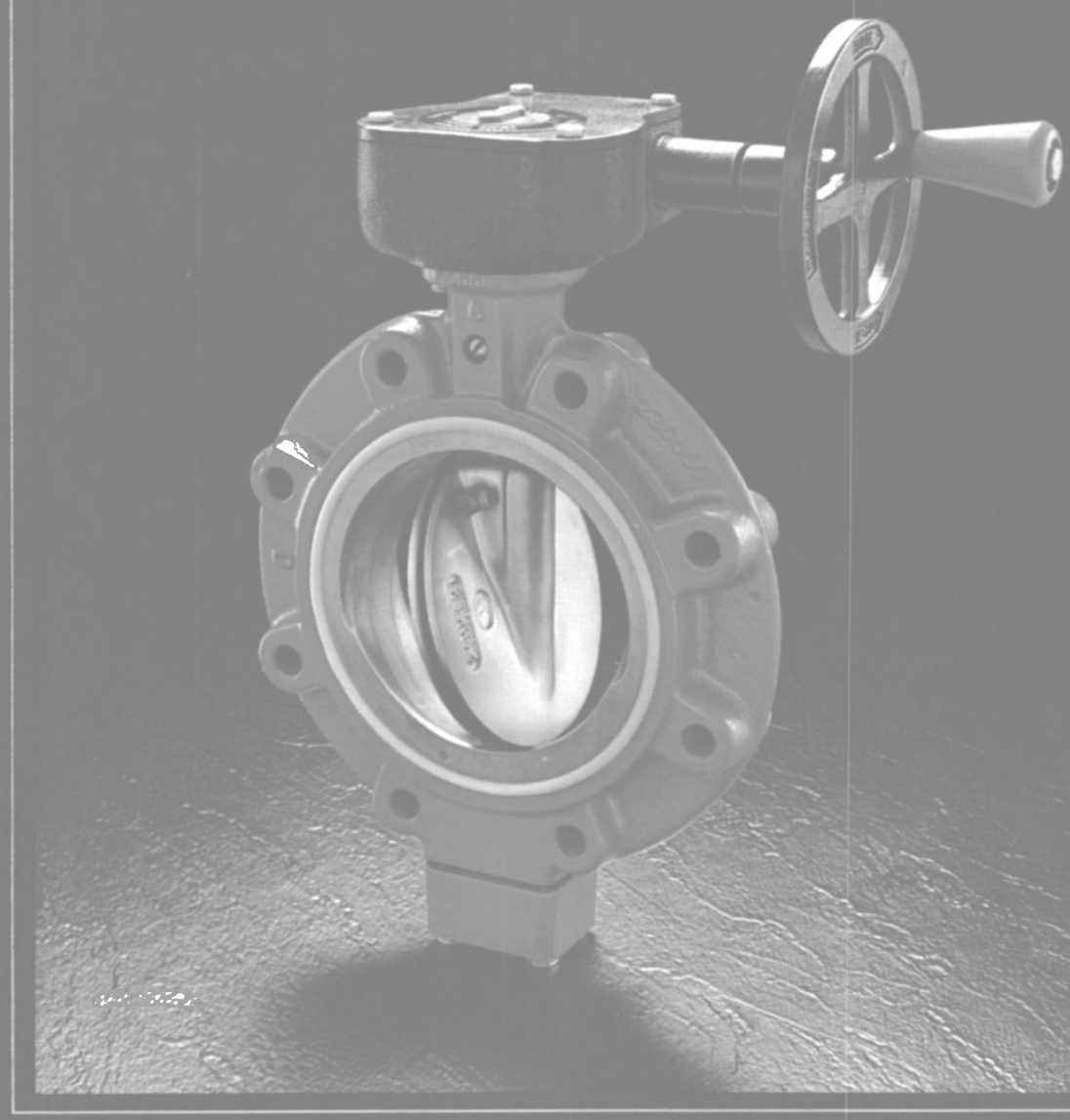
For a shipyard tour, call or write Jeffboat, Jeffersonville, Indiana 47130. (812) 288-0421.

**JEFFBOAT**

**America's largest inland shipbuilder.**



# Norris Metal-lined ANSI Rated Valve...



## Positive shutoff & long life in destructive media!

**For handling hydrocarbons, corrosive media, and other difficult applications,** specify Norris M285 (*) positive-shutoff butterfly valves. They meet or exceed ANSI B16.5 pressure and temperature ratings for Class 150 flanges.

**Disc O-ring seals against field-replaceable metal liner.** Flowstream never touches the valve body, no costly high-alloy body needed.

**Materials available: Metal discs & liners:** Inconel, Titanium, Monel, Stainless, Aluminum Bronze • **Disc O-ring seals:** Kalrez, Viton, Hypalon, Nordel, ECO, Buna N

• **Bodies:** Heat treated ductile iron or cast steel.

**Bi-directional flow with no loss of flow efficiency.** Upstream or downstream, flow coefficients for Norris valves are the same. They are consistently higher than Cv's for conventional "high performance" valves with offset discs. • 285 psi wp with reserve strength to handle sudden differential pressure surges • 3"-36" single-flange lug and wafer styles.

NORRIS BUTTERFLY VALVES

**FOR DETAILS CALL GEORGE LITTLE 1-800-331-4468. IN OKLAHOMA CALL 918/584-4241**

DOVER **CORPORATION / NORRIS DIVISION** P.O. Box 1739, Tulsa, Oklahoma 74101

*Pat. Applied For Trademarks. E. I. Du Pont de Nemours & Company Inc.

## Bath Iron Works Names Edward F. Burke Vice President-Finance

Edward F. Burke

President **John F. Sullivan Jr.** of Bath Iron Works has appointed **Edward F. Burke** as vice president of finance, responsible for all financial and data processing management at the Maine shipyard. He joined BIW from the Raytheon Company, where for nearly 22 years he held senior financial positions ranging from division controller to consultant in corporate headquarters. Previously, he had served two years as a senior systems analyst with Sylvania Corporation.

Mr. **Burke** served with the U.S. Army during the Korean War, then taught accounting and cost accounting at Orange County Community College, Middletown, N.Y., before entering corporate finance.

## Literature Available On Skinner Engine Turbines

The Power Division of Skinner Engine Company is offering Bulletin T-807 containing extensive data on its S-Series single wheel re-entry type steam or gas expanding mechanical drive turbines for petrochemical, marine and industrial use.

Designed for driving constant-speed rotating equipment from 1 hp to 1,500 hp, the units are available for horizontal or vertical mounting, and meet API, NEMA, and appropriate military specifications.

The Bulletin may be obtained by writing to **C. Douglas Herrick**, Skinner Engine Company, Dept. MR 80, P.O. Box 1149, Erie, Pa. 16512.

## New Report Confirms Fuel Efficiency In All Transport Modes

**John M. Donnelly Jr.**, chairman of The American Waterways Operators, Inc. (AWO), has announced the release of a new comparative energy efficiency report for freight transportation by truck, railroad, and inland barge.

The AWO chairman said that the study, while confirming with new data previous conclusions on the superior efficiency of barging, finds that "all bulk transportation modes make a significant contribution to the nation's distribution system in a fuel-efficient manner, and all are deserving of full recognition as energy savers and energy movers."

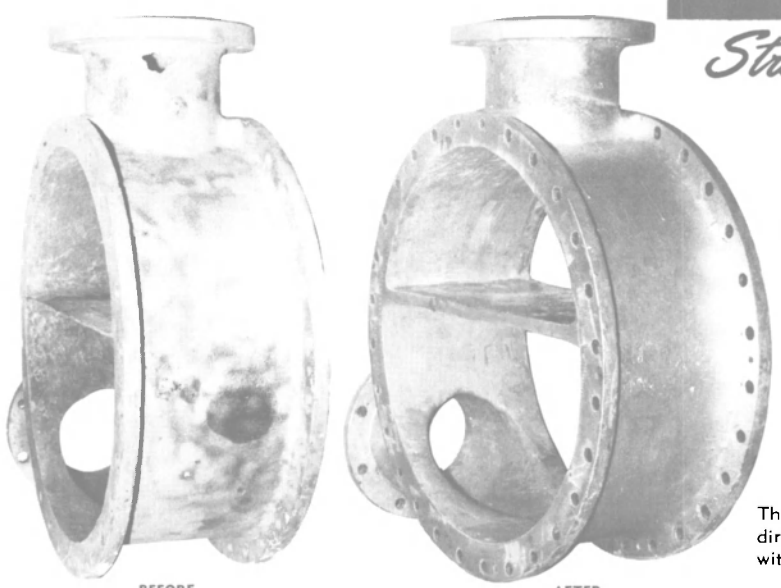
The study was commissioned jointly by the AWO and the Water Transportation Association of New York, and was done by **Samuel E. Eastman**, lawyer, economist, and former director, Office of Policy Review, U.S. Department of Transportation.

Mr. **Donnelly**, addressing the National Press Club Transportation Table in Washington recently, said, "The vital task of distributing the products of the nation's farms and factories is accomplished with a fraction of the nation's total fuel supply. Trucks, railroads, and water carriers in 1978 consumed less than 3 percent of the nation's fuel supply to perform 76 percent of all intercity freight transportation. Barging alone consumed three-tenths of one percent."

For a free copy of the report, write to The American Waterways Operators, Inc., Dept. MR, 1600 Wilson Boulevard, Suite 1101, Arlington, Va. 22209.


THOUSANDS OF REPAIR JOBS HAVE BEEN COMPLETED QUICKLY AND ECONOMICALLY with CORDOBOND®

*Strong-Back Materials*



BEFORE AFTER

First proven under the most difficult conditions by the Navy, the Cordobond Strong-Back Method offers a fast and easy method of repair both aboard ship and ashore. Applied quickly by ship or maintenance personnel, Cordobond Strong-Back products are used extensively for repairing and lining:

| | |
|---|---|
| Water Boxes | Ventilators |
| Machinery Castings | Stacks |
| Ducts | Pumps |
| Pipes | Sea Valves and Chests |
| Condenser Covers | Tanks, Bulkheads and Decks |
| Cooler Heads | Shell Plating Etc. |
| Tail Shafts | Frozen Pipes, etc. |

The Cordobond Strong-Back Components, when used according to directions, will repair anything from a pin hole to a complete break with a patch of great strength that clings tenaciously and lastingly.

*MARINE REPAIR KITS*

STANDARD KIT For Ocean Going Vessels JUNIOR KIT For Harbor Craft

CORDOBOND REPAIR KITS CONTAIN ALL THE COMPONENTS AND ACCESSORIES FOR MAKING EMERGENCY REPAIRS AT SEA

Packed in sturdy Navy type refillable metal containers.

SEND FOR LIST OF CONTENTS AND LITERATURE

Over 6000 ocean going vessels carry our standard repair kits. Cordobond is not affected by water, oil, gasoline, etc. It does not corrode. It eliminates costly gas freeing. Cordobond is self curing, no applied heat necessary.

ALABAMA—Mobile
Kamil Ship Supply
CALIFORNIA—San Francisco
Cordes Bros.
—Wilmington
J.M. Costello Supply Co., Inc.
FLORIDA—Tampa
Bonanni Ship Supply, Inc.
—Miami
Ocean Ship Supply
—Jacksonville
Weedon Engineering Co.
GEORGIA—Savannah
Southern Marine Supply Co., Inc.
LOUISIANA—New Orleans
Marine Sales, Inc.
MAINE—Portland
Chase Leavitt & Co., Inc.
MARYLAND—Baltimore
Tate Engineering, Inc.
MASSACHUSETTS—Boston
Klausen Gestby Co
NEW JERSEY—Linden
Beacon Packing & Equipment Co., Ltd.
OREGON—Portland
American Pacific Corporation
PENNSYLVANIA—Philadelphia
Philadelphia Ship Maintenance Co., Inc.
SOUTH CAROLINA—Charleston
Southeastern Supply Co., Inc.
TEXAS—Corpus Christi
Gunderland Marine Supply, Inc.
—Houston
Texas Marine & Industrial Supply Co.
VIRGINIA—Norfolk
Peltz Brothers, Inc.

CORDOBOND STRONG-BACK PRODUCTS

Standard Resin Leveling Compound Strong-Back Putty Strong-Back Sealer Steel Putty

HUBEVA MARINE PLASTICS, INC.

SOLE DISTRIBUTORS OF CORDOBOND STRONG-BACK PRODUCTS

382 Hamilton Avenue Brooklyn, New York 11231

Phone: 212-875-6178 or your local agent Telex: HUBEVA 427511

*Agents throughout the world*

WASHINGTON—Seattle
May & Smith Co.
ARABIAN GULF—Kuwait
Industrial Services & Supplies Co. W.L.L.
AUSTRALIA—South Fremantle
I.M.E.S. Industrial & Marine Engineering Supplies
BELGIUM—Antwerpen
Verfaillie Elsig
CANADA—Markham
Air Industrial Equipment & Supply Ltd.
CANADA—Halifax
Hubeva Marine Plastics, Halifax

FRANCE—Dunkirk
M. & R. Dekyspotter & Sons
—Marseilles
Sogeric
GREECE—Piraeus
Marine Technical Bureau
HOLLAND—Rotterdam
Van Lessen & Punt N.V.
HONG KONG—Kowloon
Marine Supply Company
ITALY—Genova
Coger S.A.S.
JAPAN—Yokohama
Inouye & Company, Ltd.
MALAYA—Singapore
Wah Hong & Company, Ltd.
NORWAY—Stabekk
Norus-Morch A/S
PORTUGAL—Lisboa
Valadas LDA
SOUTH AFRICA—Durban
James Brown & Hamer, Ltd.
—Woodstock, Capetown
Globe Engineering Works, Ltd.
SPAIN—Cadiz
Consulmar
—Bilbao
Indame, S.A.
THAILAND—Bangkok
Kiart Hiran Engineering Ltd., Partnership
VIRGIN ISLANDS—St. Croix
Virgin Islands Marketing Corporation
WEST GERMANY—Hamburg
Van Lessen & Punt Gmbh
WEST INDIES—Trinidad
R. Landry & Company, Ltd.

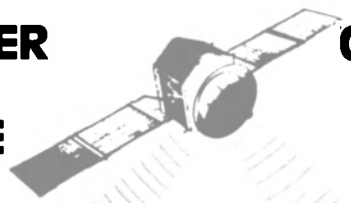
## Robert Johnson Joins Todd As Engineering And Planning Director

**Robert M. Johnson** has joined Todd Shipyards Corporation's Galveston Division as director, engineering and planning.

From 1957 to 1974 he was employed at Ingalls Shipbuilding in Pascagoula, Miss., where his positions included two years as nuclear shift engineer, two years as assistant nuclear superintendent, five years as submarine ship superintendent, five years as chief hull engineer, and two years as manager of naval architecture.

Mr. **Johnson's** most recent assignment, from 1974 to 1980, has been as director of engineering at Alabama Dry Dock and Shipbuilding Company in Mobile, where he supervised a staff of about 35 engineers and draftsmen on a wide variety of both new construction and ship repair contracts.


**NO MATTER WHERE YOU ARE**

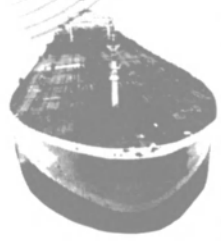


**OR WHERE YOUR SHIP IS**

You know that satellite communications makes instant ship/shore contact possible. And that it can save you a lot of money on quick diversions, lower message costs, and more.

**SATURN CAN DO IT BETTER**

- easiest, least expensive system to install.
- simple to operate, no radio officer required.
- 3rd generation microprocessor gives you outstanding audio fidelity.
- handles all modes, without preselection
- the only satcom terminal fully compatible with all present and future earth stations.
- fits right into your radioroom console. No clutter.
- real money-saving leasing arrangement available.
- one of the world's largest service networks, hundreds of convenient locations.



**Electro-Nav** *Start your saving program today. Call Electro-Nav*

"ELEKTRISK BUREAU
UME DIVISION
P.O.Box 98, N-1360 NESBRU, NORWAY
Phone 47 2 78 80 60 Telex 11721 umeb n

1201 Corbin St., Elizabeth Marine Terminal, ELIZABETH, N.J. 07201
Tel: (201) 527-0099; Telex 13-9381 NAVELECTR ELBT
750 Kennedy Street, OAKLAND, CA 94606
Tel: (415) 533-1840, Telex: 338509
Bowen Building, 815 - 15th Street NW, WASHINGTON, DC 20005
Tel: (202) 347-8231


Artist's rendering of ice-breaking, multipurpose cargo vessel that Wartsila will build for Soviet Ministry of Shipping. Each of six ships will be powered by two Wartsila/Sulzer 14 ZV 40/48 diesel engines with total output per ship of 21,000 bhp.

## $278-Million Contract Awarded To Wartsila By V/O Sudoimport

A contract to construct six ice-breaking, multi-purpose cargo vessels of 20,000 dwt has been signed by Wartsila's Turku Shipyard and V/O Sudoimport of the U.S.S.R. Designed in cooperation with the Soviet Ministry of Shipping, their future operator, the ships will be capable of operating independently in difficult Arctic ice conditions.

The value of the order exceeds one billion Finnish marks (about $278 million) and is the biggest ever received by a single Finnish industrial enterprise. This latest contract increases Wartsila's total orderbook to almost 5.5 billion marks ($1.5 billion), and books the capacity of the Turku and Helsinki shipyards for the next three years.

Scheduled for delivery during 1982 and 1983, the ships will have an overall length of 174 meters, beam of 24.5 meters, and depth to upper deck of 15.2 meters (571 by 80 by 50 feet). Draft at an Arctic deadweight of 14,700 dwt will be 9 meters (29.5 feet).

Each ship will be powered by two Wartsila/Sulzer 14 ZV 40/48 diesels providing a total output per ship of 21,000 bhp (15,400 kw) and an open-water speed of 17 knots. The engines will drive a controllable-pitch propeller through reduction gears and hydraulic coupling; the latter reduces ice shocks to protect the machinery.

Five Wartsila/Vasa 524TS diesels will be installed in each ship as auxiliaries. Most of the navigation equipment will be of Soviet manufacture.

The Arctic conditions in which these vessels will operate require many special considerations. The hull will be fabricated of cold-resistant steel, and the winches, cargo hatches, and hydraulic systems will be specially constructed to withstand the severe environment.

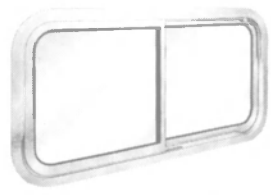
Both the engine room and deck house are located aft. The ship has individual cabins for the crew of 39, two cabins for pilots, and six double passenger cabins. Crew amenities include a gymnasium, swimming pool, sauna, movie theater, photographic laboratory, library, and hobby room. The ship also has a passenger saloon.

The ships have two decks, five cargo holds, and forecastle. On the 'tweendeck, rolling cargoes can be loaded and unloaded through the stern port.

The multi-purpose vessels are designed for operation in the Soviet Arctic areas. They can be used for transporting general cargoes, rolling cargoes, containers,

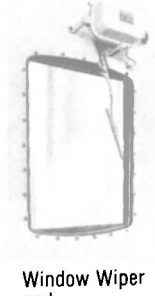

**Proved Engineering and Dependability**

**stand behind the world's finest shipboard windows, windshield wipers and doors by...**



Sliding Window

Crank-Operated Window



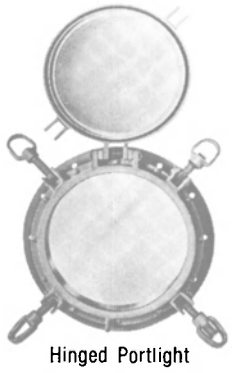
Window Wiper and Fixed Window

Weathertight Door

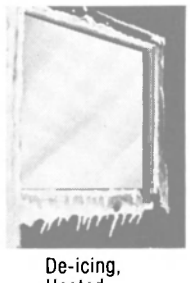
Kearfott products are quality constructed to meet requirements of A.B.S., U.S.C.G. and Navy standards.

Kearfott windows and doors can be manufactured in various sizes, shapes and materials.

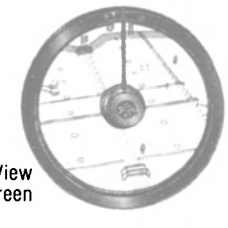
Catalog showing complete line of marine products furnished upon request.



Hinged Portlight



De-icing, Heated Window



Clear View Screen

**Kearfott**

a division of The **SINGER** Company

550 S. Fulton Ave., Mount Vernon, N.Y. 10550
Phone 914-664-6033

grain, coal, or ore. In the development of the hull lines, special experiments were carried out in the ice-breaking laboratory at Wartsila's Helsinki shipyard. To reduce ice resistance, the ships will be fitted with air-bubbling systems developed and patented by Wartsila.

The ships will be built to the highest Ice Class of the U.S.S.R. Register of Shipping. They will also meet the latest international requirements for safety and environmental protection, as well as Soviet sanitary requirements.

## PSI Announces Contracts For ACOE Dredges

Propulsion Systems, Inc., Kent, Wash., has been awarded a series of major contracts to furnish controllable-pitch propellers, bow thrusters, and rotary vane steering gear on the large and medium class dredges being built for the Army Corps of Engineers.

Both the large and medium class dredges being built at Avondale Shipyards and Sun Shipbuilding, respectively, will be equipped with PSI/Liaaen E 105 four-bladed controllable-pitch propellers in nickel-aluminum-bronze.

The controllable-pitch propellers for the large dredge will be 12 feet 6 inches in diameter and capable of absorbing 5,200 bhp per shaft line at 170 rpm, while the 12-foot 6-inch-diameter propellers for the medium class dredge will be capable of absorbing 3,600 bhp per shaft line at 155 rpm.

Both controllable-pitch propeller systems will be furnished with micro-processor based electronic controls designed and manufactured by PSI.

In addition to the controllable-pitch propellers, the large dredge will also be equipped with PSI/Frydenbo HS 180 rotary vane steering gear with PE-type power units.

The steering gear is capable of developing 260,000 ft/lbs of torque per rudder at low operating pressures which provides safe and reliable operation of the steering system. Lock valves which are integral with each steering motor further enhance the system's safety and reliability in preventing fluid loss from the rotary actuator in the event of a burst pipeline.

The PSI/Brunvoll SPX-VP 600-hp controllable-pitch bow thruster will be supplied on the medium class dredge to aid in maneuverability. PSI has supplied over 300 Brunvoll thrusters in the U.S.A.

Propulsion Systems, Inc. is the exclusive U.S. licensee for AM Liaaen Controllable Pitch Propellers and Frydenbo Rotary Vane Steering Gears, as well as the exclusive U.S. sales agent for Brunvoll Bow and Stern Thrusters.

## Maritime Association Names Parkhill New President, Buckley, VP

**Charles B. Parkhill,** president and chief executive officer of South African Marine Corporation (U.S.A.) has been elected president of The Maritime Association of the Port of New York. He succeeds **Charles T. O'Neill,** president of Jaton Environ, Inc. **N. Nick Cretan** was reelected executive director.

**Robert M. Buckley,** a partner of Simpson, Spence and Young, was elected vice president and director, and **Thomas A. Fain,** president of the American Institute of Marine Underwriters, was named treasurer and director.

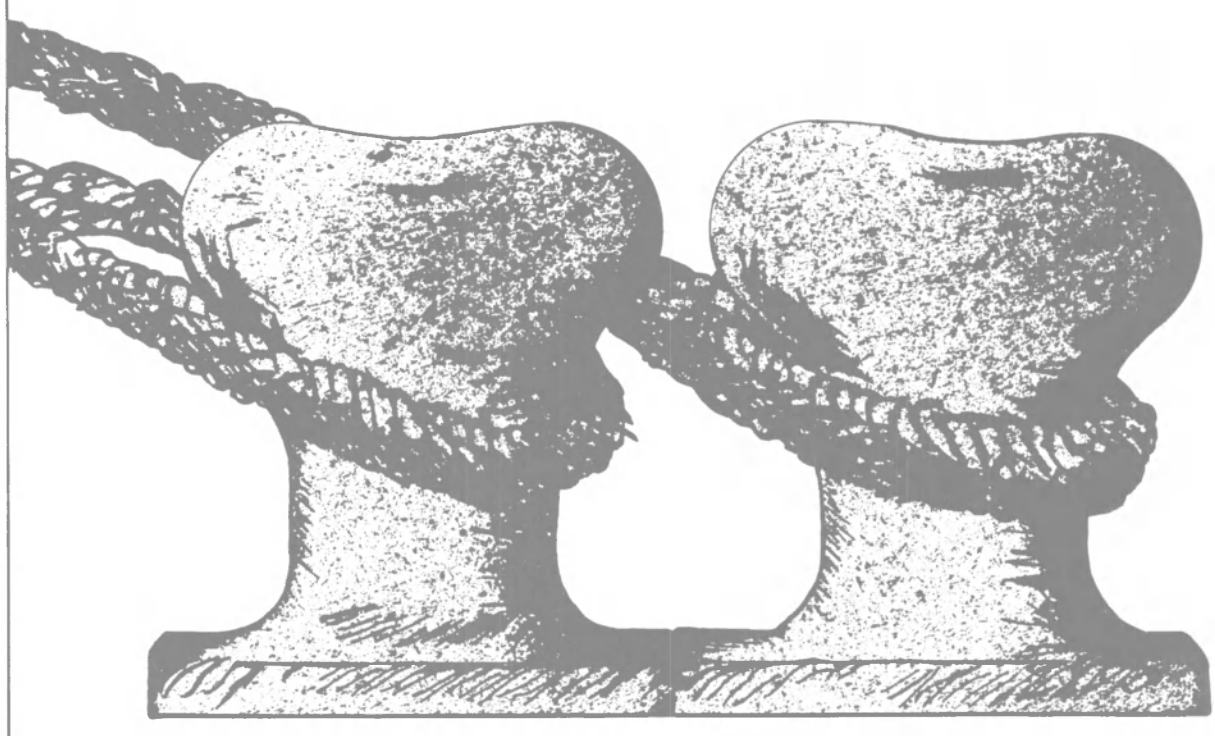
Directors elected for three-year terms were: **Donald G. Aldridge,** Delta Steamship Lines; **Kenneth W. Gundling,** United States Lines; **William N. Johnston,** American Bureau of Shipping; **Neill A. McAllister,** McAllister Brothers, Inc.; **William R. Petersen,** New York Sandy Hook Pilots; and **Robert H. Pouch,** Barber Steamship Lines.


IT TAKES
KNOWING THE ROPES TO BE
A WINNER ON THE WATERFRONT.
IT TAKES MIDLAND.

Midland's high level of experience as *the* insuror in complex and specialized Maritime waterfront operations means you have access to the expertise needed to plan the specific coverage that's right for you.

If you're in stevedoring, ship repair, dredging, terminal operations—in short, if you're on the waterfront—call Midland.
*We know the ropes.*

**Midland Insurance Company**
The Decisive Specialists
160 Water Street, New York, New York 10038
Telephone (212) 248-1130



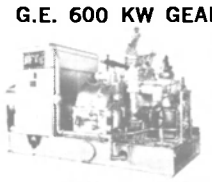
# TURBO GENERATOR SETS

### G.E. 1500 KW A.C. TURBO GENERATORS

1 

1500 KW — 450/3/1200 RPM —0.8 P.F.—2450 amps—525 PSI—850°TT—8145 RPM—11-stage geared 8145/1200—type FN4 — 3½" steam inlet. Unit will deliver full power at 440 lbs & 760°TT. OAL 16' 3-3/8"—OAW 6'6"—OAH 7'5¼"—wt. 36000 lbs. Almost equal to new. Very little use. With ABS or Lloyds.

### G.E. 600 KW GEARED TURBO GENERATORS

2 

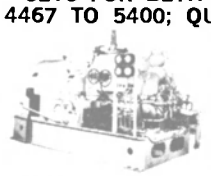
450/3/60/1200 RPM — 961 amps — type ATI — 0.8 PF. TURBINE: FSN-FN-20 6-stage—525 lbs/825°F — superheat 355°/371°F. GEAR: 10033/1200 — RPM 10033 — total—6390 lbs. steam/hr. steam flow.

### G.E. 400 KW TURBO GENERATORS

3 

450/3/60/1200—0.8 PF—641 amps. TURBINE: 6-stage — 10059 RPM—525 lbs/825°TT — type GE 618N. Steam rate 5100 lbs/hr. — OAL 10' 10½" — OAW 4' 10½" — OAH 5' 5¼" — wt. 14,855 lbs.

### 400 KW WESTINGHOUSE TURBO GENERATOR SETS FOR BETH-SPARROWS POINT HULLS 4467 TO 5400; QUINCY HULLS 1600 SERIES

4 

400 KW (500 KVA) — 0.8 PF — 1200 RPM — 450/3/60. TURBINE: 585 lbs—840°TT—28½" vacuum—9018 RPM—serial 10A4462-3 & 10A4462-4. GEAR: 9018/1200 RPM. A.C. GENERATOR: 500 KVA — 400 KW—450 volts—641 amps—0.8 PF—3-phase 60-cycle—1200 RPM—CR 40°—excitation amps 41 — excitation voltage 120. Instruction book 5442. Switchgear available.

### UNUSED WESTINGHOUSE 60 KW 120 VDC M-20-EH

5 

120 VDC — 1800 RPM. TURBINE: M-20-EH — 20 lbs dry & saturated — 25" vacuum. 7283 RPM. GEAR: 7283/1800. GENERATOR: 60 KW — 120 VDC — 500 amps — SK — stab. shunt wound.

### UNUSED 500 KW DELAVAL-WESTINGHOUSE GEARED TURBO GENERATOR

6 

GENERATOR: Westinghouse 500 KW — 120/240 volts DC — 2080 amps — 1200 RPM — stab. shunt. TURBINE: DeLaval — 730 HP — 440 PSI working pressure condensing. Temperature 740° — 9977 RPM. HELICAL GEAR: 9977/1200 RPM. Serial # of turbine 245204 — weight 22,000 lbs.

# TURBINES & ROTORS

### BETH-SPARROWS POINT, QUINCY HULLS

7
1 HP Turbine or rotor — Bethlehem
1 400 KW Stator only — Westinghouse
1 HP turbine casing only — Bethlehem
1 Complete Westinghouse 400 KW turbo generator set
1 Forced draft motor fan
1 Anchor windlass — 2 11/16"
Steering gear motors — 15 HP
Forced draft fan impeller

### WESTINGHOUSE C-25 CARGO PUMP TURBINE ROTOR

### VICTORY-AP2 MAIN PROPULSION

8 Westinghouse AP2 19-stage HP rotor for 6000 HP Victory — serial #4A-2079 — equal to new.
Unused surplus AP2 — Victory Ship complete HP & LP turbines
Allis-Chalmers HP & LP
Westinghouse LP AP2 with throttle valve
G.E. HP & LP with throttle valve

### VICTORY-AP3 MAIN PROPULSION NEW 8500 HP G.E. TURBINES

9 Large Victory or C-3
HP #72271 LP #72272
10 Boxes spare parts, tools & fittings. With maneuvering valves.

### 8500 HP G.E. — C-3 OR VICTORY

10 H.P. — 8-stage — 6159 RPM — serial 62043
L.P. — 8-stage — 3509 RPM — serial 62042
G.E.I. 16263

### VICTORY SHIP AUXILIARY TURBO GENERATOR SET ROTORS

11 300 KW 5965 RPM JOSHUA HENDY

| | |
|---|---|
| Turbine — 3H-69 | Gear — 52269 |
| Turbine — 3H-52 | Gear — 52252 |
| Turbine — 3H-62 | Gear — 52262 |

ALSO WESTINGHOUSE 2A & 5A SERIES

# – FOR T-2 VESSELS –

12 

TURBINE: DORV-325M — 525 KW — 5645 RPM — 435 PSIG — 28" exhaust. REDUCTION GEAR: S-162 — form D — 5641/1200. A.C. GENERATOR: 500 KVA — 400 KW — 440/3/60 — 1200 RPM — 0.8 PF. D.C. EXCITATION GENERATORS: 75/55 KW — form AL — 110 volts DC. With new type amplydines.

### 538 KW WESTINGHOUSE T-2 AUXILIARY GENERATOR — COMPLETE

13 TURBINE: 538 KW @ 5010 RPM — 438 PSIG — 750°TT — 28½" vacuum. GEAR: 5010/1200 RPM. A.C. GENERATOR: 400 KW—450/3/60/1200—0.8 PF. DC EXCITER: 32.5 KW — 120 volts (variable voltage) — shunt — 4-pole — DC excitation 5 KW. ALWAYS WELL MAINTAINED BY MAJOR OIL CO.

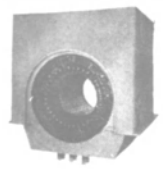
### T-2 UNUSED G.E. MAIN PROPULSION STEAM TURBINE WITH ROTOR

14 10-Stage — 435# — 720°TT — turbine complete with rotor — serial #109166 — 4925/5400 KW — 3600/3720 RPM — 28.5" vacuum.

### WESTINGHOUSE MAIN PROPULSION STEAM TURBINE WITH ROTOR

15 EX-CHEVRON VESSEL "MACGAREGILL"
Shrouded—like-new condition. Will sell rotor separately.
WESTINGHOUSE MAIN PROPULSION TURBINE
Ex"Pecos" — unshrouded — serial 2A-7733-2 type A

### UNUSED G.E. MAIN PROPULSION STATOR

16 

Type ATB-2—serial #6978272. 2300/2370 volts — 60/62 cycles — 3-phase — 3600/3720 RPM — armature amps 1237/1315 — 4925/5400 KW — 1.0 PF.
Westinghouse stator — from Ex "Pecos"

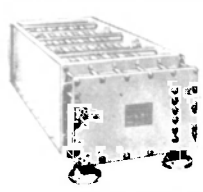
### WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE

17 

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

## 18 538 KW WESTINGHOUSE AUXILIARY TURBINE ROTORS

### WESTINGHOUSE T-2 TANKER MAIN GENERATOR COOLERS & MAIN MOTOR COOLERS

19 

Reconditioned — with A.B.S. Units all ready to ship.
Also G.E. Main Generator Coolers

### G.E. 525 KW AUX. GENERATOR EXCITER ARMATURE

20 

75-55 KW

### NEW STYLE AMPLIDYNE

21 

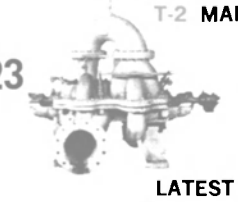
5LY148A2 — type A.M. — frame 605

### AUXILIARY GENERATOR ROTORS

22 

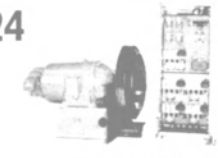
G.E. aux. generator rotors — DORV-325M — for 525 KW turbo generator sets

### T-2 MAIN CARGO PUMPS

23 

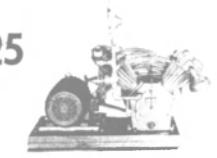
Ingersoll-Rand 6GT — 2-stage — bronze — 2000 GPM — 280' head

### LATEST DESIGN 5-SPEED FORCED DRAFT FAN MOTORS

24 

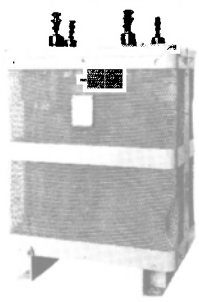
G.E. Model 5M505FE-1 — frame 5055—type M—440/3/60 — serial S.E.6731807. Controller available. (Complete with fan impeller)

### T-2 SHIPS SERVICE AIR COMPRESSORS

25 

Worthington—5½x3½x3½—VA2—20 C.F.M. — 100 lbs.—5 H.P. Motors—440/3/60 — 1750 RPM.

### WESTINGHOUSE DRY TYPE T-2 CARGO PUMP TRANSFORMERS

26 

200 KVA — single phase — 60 cycle 2300/450 volts—weight 3720 lbs. each. 4 available.

### G.E. PYRONOL OIL COOLED TRANSFORMERS

27 200 KVA — single phase — 60 cycles — 2300/450 volts — 3 available.

### MISCELLANEOUS DRY-TYPE TRANSFORMERS

28 Lighting Transformers—15 KW— 450/120 volts
Galley Power Transformers—15 KW—450/220 volts

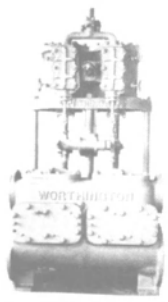
### INGERSOLL-RAND 14,000 GPM MAIN CIRCULATOR

29 

14,000 GPM @ 25' head — model 24UCM — bronze — with 125 HP 440/3/60 580 RPM motor. 26" suction — 24" discharge. Can furnish with Westinghouse type CS frame B-876C or GE type KF vertical motors.

# PUMPS

### BRONZE T-2 TANKER STRIPPING PUMPS

30 

14x14x12 — 700 GPM at 100 lbs. Same pump available in steel for fuel oil transfer, etc.

## 31 WESTINGHOUSE 200 H.P. CARGO PUMP MOTORS

440/3/60 1750 RPM — 40°

### MISSION TANKER T2SEA2 CIRCULATING PUMP MOTOR

32 150 HP — 440/3/60/590 RPM. Frame 6335 — type KF — 204 amps

### T-2 MAIN ROTOR

33 

LARGE G.E. MAIN PROPULSION SCHENECTADY TURBINE ROTOR

Turbine serial 77418 — reconditioned with certificate. Just out of Beth shop 1970

### T-2 MISCELLANEOUS, PUMPS ETC.

34 10 HP Labour Self-Priming Bilge Pumps • Rudder 13½" Rudder Stocks • Main Injection 3-Way Valve Main Condensate Pumps • Fuel Oil Service Pumps Magnablast Breaker • 1 Set New Bull Gear & Pinion for G.E. 525 K.W. Diesel Gen Model S-162 • 32", 24", 15" Rubber Expansion Joints • Mission Tanker Steering Gear Pumps

### TURBINE FIRE PUMPS — BRONZE

35 Worthington turbine — 440# — 448° — 3500 RPM — 75 HP — 15# back pressure — 750 GPM @ 125 lbs — 6" suction — 4" discharge.

KNOWN 'ROUND THE WORLD
THE BOST
313 E. BALTIMO
Marir

**NEW BLACKMER FUEL OIL TRANSFER PUMP**

36

Rotary — 50 GPM — 50 lbs. — 2" — 5 HP — 440/3/60 — with starter & spares

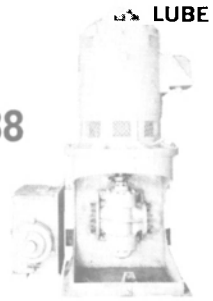
37

**UNUSED BRONZE FEED-WATER BOOSTER PUMPS**

220/237 GPM @ 144′ head — 2-stage — 1750 RPM with 30 HP 440/3/60 motor control & spares. Built for USN

**LUBE OIL SERVICE PUMP**

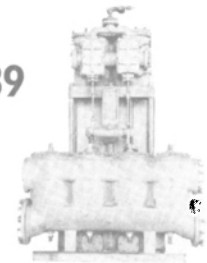
38



Quimby-Rotex — size 6D — 500 GPM @ 70 lbs — 6"x6" flange — 720 RPM. MOTOR: Allis-Chalmers — 40 HP — 230 VDC — type EBV-147S — stab. shunt — 148 amps. Complete with starter and rheostat — designed originally for C-1MAV-1 vessels.

**WORTHINGTON 16"x14"x18" VERTICAL DUPLEX STRIPPING PUMP**

39



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

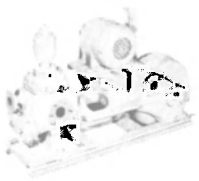
**NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP**

40

For emergency use on passenger ships, etc. PUMP: JAS — 264 GPM — 171′ head — two 6" inlets — one 5" outlet. MOTOR: 40 HP — 230 VDC — 149 amps.

**MOTOR-DRIVEN GARDNER-DENVER RECIPROCATING BILGE PUMP**

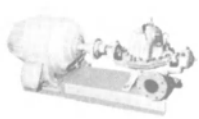
41



50 GPM — 150 PSI — Model ALAXE — serial #106335. 3¾" bore — 4" stroke — 2½" suction — 2" discharge. 51" long — 21" wide — 21" high — weight 750 lbs. MOTOR: Diehl — 2.5 HP — 440/3/60 — 1750 RPM — 3.53 amps.

**GOULD FIRE AND BILGE PUMP**

42



Ex-LST — horizontal centrifugal — bronze — 4" suction — 3" discharge — 250 GPM @ 100 PSI — 2200 RPM. MOTOR: 30 HP — 230 VDC with magnetic starter.

**AURORA HEAVY DUTY BRONZE FIRE SERVICE PUMP**

43

Single stage — 2½" suction — 2" discharge. 3000 RPM — 250 GPM. 100 lb. head. Impeller diameter 9½". MOTOR: Air cooled heavy duty 25 HP Reliance T type ON-2S-2½ 230 VDC — 110 amps — stab. shunt.


n METALS CO.

ST. • BALTIMORE, MD. 21202

arehouse (301) 752-1077


## DIESEL GENERATOR SETS

44

**410 KW ENTERPRISE DIESEL GENERATOR SET**

Enterprise DSG-6 6-cylinder diesel engine driving Westinghouse generator. 250 volts DC — 1640 amps — 650 RPM — shunt wound.

**AUTOMATIC TENSIONING 12X14 STEAM WINCH**

45

American Engineering. Drum diameter 24". Will stow 1500 ft of 1½" in 8 layers. Capacity 1st layer: 20,000 lbs/100 FPM — 16,000 lbs/50 FPM. Drum width 2′ 6¾". Steam inlet 3"—exhaust 4". 8′ 4½" wide over cylinders. Base 6′ x 6′ 3½".

## MISCELLANEOUS

46

**16" BRASS PORTLIGHTS**

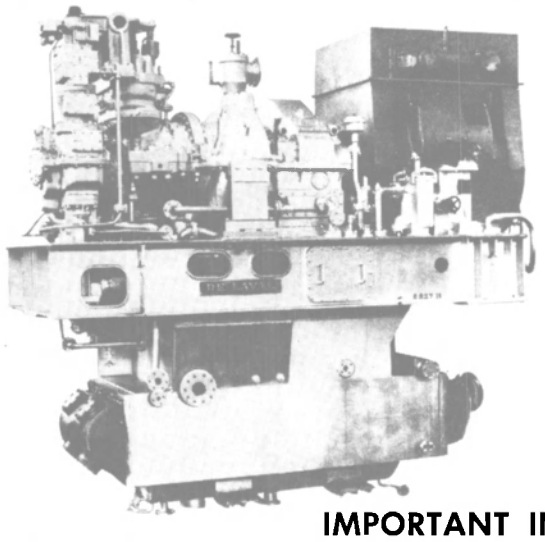
15" and 16" brass portlights. 16" portlights are 3-dog type.

47

# IF YOU'RE GOING TO JUMBO-IZE YOU CAN ECONOMIZE WITH THESE

# ALLIS-CHALMERS — DELAVAL 1000 KW GEARED MARINE TURBO-GENERATORS

**If you are contemplating the new construction of TANKERS, ORE CARRIERS, CONTAINER VESSELS, ETC.**



## YOU CAN SAVE THOUSANDS OF DOLLARS

with these modern, practically new units — built to highest Navy standards. Send for our free descriptive brochure. You'll be glad you did.... and money ahead!

**IMPORTANT INFORMATION**

DELAVAL TURBINE: 1442 HP — 10019 RPM — Class GJ-N — 9-stage — 10,000 RPM — 1050 PSI — 950°TT — condensing steam rate 10.30 lbs. Typical serial number 652468. DELAVAL DOUBLE HELICAL GEAR: 10000/1200 RPM—Allis-Chalmers—1000 KW—450 volts—3-phase—60 cycle—1200 RPM—0.8 PF—static excitation—totally enclosed air-to-water cooling—temperature rise: Stator 130°C—Rotor 110°C—class H insulation—typical serial number 160615—type M.A.K.G. Complete with 525 sq.ft. condenser—190 lbs/hr air ejector—oil coolers—strainer—piping & valves—generator switchgear—static excitation control—voltage regulator. Total weight of unit 40,300 lbs. OAL 12′ 9"—OAW 6′. Turbo-generator height 5′ 8"—total height of turbo-generator & condenser 12′ 8". UNITS IN EQUAL-TO-NEW CONDITION. Originally designed for DLG Guided Missile Frigate Program. Installed only about 2 years, then removed and carefully re-boxed by U.S.N. at Bath Iron Works 1964-65. Navy installed larger units due to increased load requirements.

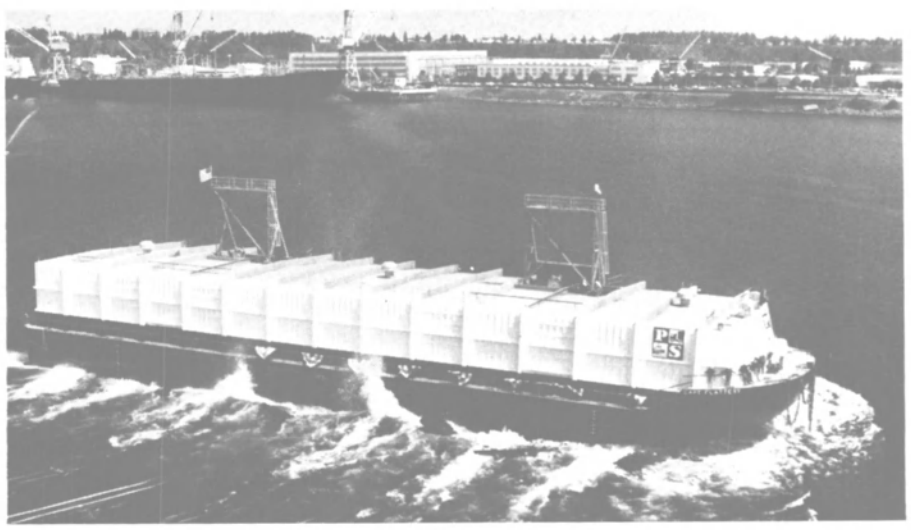
**PLEASE NOTE!**

**EFFECTIVE IMMEDIATELY**

**Our Marine Department and Warehouse is now located at**

**250 Scott St. at McHenry – Baltimore, Md. 21230**

**OUR NEW PHONE NO. IS (301) 752-1077**



Covered deck barge Cape Flattery, built by FMC Corporation, hits the waters of Willamette River. The barge was built for Puget Sound Freight Lines of Seattle.

## FMC Launches Big Deck Barge For Puget Sound Freight Lines

The Marine and Rail Equipment Division of FMC Corporation, Portland, Ore., launched the barge Cape Flattery at their side launch ways on the Willamette river recently. The 253-foot covered deck barge, built for Puget Sound Freight Lines of Seattle, has a 4,400-ton cargo capacity.

"This barge, plus others currently under construction, are an important part of our business during increasingly tough economic conditions," explained **John E. Carroll Jr.**, FMC's division president.

FMC built the barge to ocean service rules of the American Bureau of Shipping and the U.S. Coast Guard. Naval architects were L.R. Glosten and Associates, Inc. of Seattle.

"Construction time on the ways was only 2½ months," added Mr. **Carroll**, "and after final outfitting and testing, the Cape Flattery was delivered to her owners in mid-July.

According to **Howard Lovejoy**, chairman and president of Puget Sound Freight Lines, all Puget Sound barges are named after shoreline landmarks, such as Cape Flattery, which is located on the extreme northwest corner of Washington State on the Strait of Juan de Fuca. "This (barge) goes into service as the largest and finest of our fleet," added Mr. **Lovejoy**.

The Marine and Rail Equipment Division of FMC is a manufacturer of two types of transportation equipment in Portland: marine vessels and railroad freight cars. FMC Corporation, headquartered in Chicago, is a major international producer of machinery and chemicals for industry, agriculture, and government, with 1979 sales of $3.31 billion. Worldwide, the company has more than 46,000 employees located at 143 manufacturing facilities in 34 states in the United States, and 14 other nations.

## Joy Manufacturing Has Literature Available On New Clutch Assembly

An air-applied and spring-released clutch assembly for its line of large and medium size air winches and hoists has been announced by the Joy Manufacturing Company, Pittsburgh. The clutch allows controlled free spooling of wire cable off the drum. This capability adds to the safety and versatility of the winch in many applications.

Where two winches are used to control the movement of a piece of equipment located between them, the object can be precisely positioned by a single operator. While one winch pulls, the other smoothly unspools cable.

In operations where the object being pulled or lifted by the hoist or winch may be subjected to sudden uncontrollable forces, the clutch minimizes the danger of hazardous cable breaks.

In applications where the hoist or winch is used as a tensioning device — anchor cables on an offshore drilling rig, for example — the cable will pull off the drum when tension passes the clutch set point rather than break under the strain or cause damage to the winch.

Air hoists and winches are ideal for many applications including petroleum refineries, foundries, offshore drilling, construction, and marine. They can't be overloaded. They will stay in a stalled condition indefinitely without damage, and are not damaged by continuous operations or unlimited reversals. They start and stop instantaneously, and have infinitely variable control of speed and pull. They can be used in hazardous atmospheres as they create no electrical sparks or heat.

The clutch assemblies may be ordered with winches and hoists rated from 6,000 to 20,000 pounds line pull. They can also be retrofitted to winches and hoists in the field.

Full free literature containing additional information on the new clutch assemblies is available by writing **Gene Bayer**, Joy Manufacturing Company, Dept. MR, River Road, Claremont, N.H. 03743.

## Brochure Available On JLG Industries' Aerial Work Platforms

JLG Industries, McConnellsburg, Pa., has published a new 16-page, accordion-fold illustrated brochure describing the complete line of JLG Lift® hydraulic-boom aerial work platforms, with working heights ranging from 26 feet to 86 feet.

JLG Lifts, with capacities of 1,000 pounds, transport workers and tools smoothly and efficiently to overhead work sites in a matter of minutes. All movements of the lift, on the ground and in the air, are controlled by one person from the work platform, including travel on the ground, lift telescope and 360-degree work platform rotation. Auxiliary boom controls are located at ground level.

The brochure covers machine options, features and advantages of the JLG Lift line, in addition to showing practical applications of the equipment in action.

For a free copy, write to **Chuck L. Butler**, Dept. MR, JLG Industries, Inc., McConnellsburg, Pa. 17233.



**Find out how much you can save on exceptionally reliable HF-SSB maritime communications.**

Find out about one of today's most sophisticated technologies: an advanced synthesized (transmitter/receiver) automatic error correcting (ARQ) radio teletypewriter system from Harris that provides virtually error-free data transmission at substantial savings as compared to a satellite system.

In terms of signal quality and error correcting capabilities, the new RF-2330 Channelized ARQ System is unsurpassed.

In dollar terms, it is exceedingly cost effective compared to a satellite system:

- **The initial investment is far less.**
- **Recurring operation costs are far less.**
- **Your present investment is protected because the RF-2330 complements existing radio telephone equipment.**

If you compare the RF-2330 to competitive ARQ systems, you'll discover additional advantages. With Harris' unique high-speed switch, on-board self-interference problems caused by two separate antennas (transmit and receive) are eliminated. And because you need only one antenna rather than two, you'll save on installation costs.

Ask us for complete details on the economics, performance and reliability of the RF-2330. We think you'll agree it's the most cost effective error-correcting communications system available today.

For further information, please contact:
HARRIS CORPORATION,
RF Communications Division,
National Marketing Department,
1680 University Avenue, Rochester, N.Y. 14610.
Tel: 716-244-5830. Telex 978464

HARRIS
COMMUNICATION AND INFORMATION PROCESSING

## Worthington Awarded $7-Million Pump Order

The McGraw-Edison Company, Rolling Meadows, Ill., announced recently that its Worthington Pump Division has been awarded a $7-million order for fire pumps by Petroleo Brasileiro S.A. (Petrobras), Rio de Janeiro, Brazil.

Petrobras has ordered nine diesel-driven vertical turbine fire pumps of sophisticated metallurgy for installation on three offshore production platforms (three each) located off the southern coast of Brazil. The pumps will be suspended from newly erected drilling platforms and will operate in water depths of over 60 feet. The order also includes column piping for each pump and ancillary equipment. All equipment will be sourced from Worthington Pump's Rio de Janeiro manufacturing facility. McGraw-Edison said the pumps are scheduled for delivery in the last quarter of 1981.

## Haggerty Joins APL As Managing Director Of Atlantic Region

**John J. Haggerty** has joined American President Lines as managing director, Atlantic Region. The announcement was made by **B.I. Henriksen,** vice president, North America. Mr. **Haggerty's** responsibilities will encompass all marketing, sales, operational, and administrative functions of APL in the mid-Atlantic states, with headquarters in New York City.

A graduate of the U.S. Merchant Marine Academy, he brings to the position nearly 30 years of experience in all facets of ocean and intermodal transportation. Most recently a vice president of a New York-based steamship agency, Mr. **Haggerty** has also headed intermodal, marketing, and traffic departments for major U.S. ocean carriers.

He succeeds **Eugene A. Gollub,** acting managing director, who has resumed his key responsibilities as regional sales manager for the mid-Atlantic states.

APL's regional headquarters is located at 61 Broadway, New York, N.Y. 10006.

## Bill Wanke Joins Louisiana Dock Company As Expediter

**Bill Wanke** has joined Louisiana Dock Company, Inc. of Jeffersonville, Ind., as sales and service expediter. His responsibilities will include requisition and coordination of all orders from Louisiana Dock's sister company, Jeffboat, Incorporated, and from all outside customers, so as to provide timely response to customer requirements.

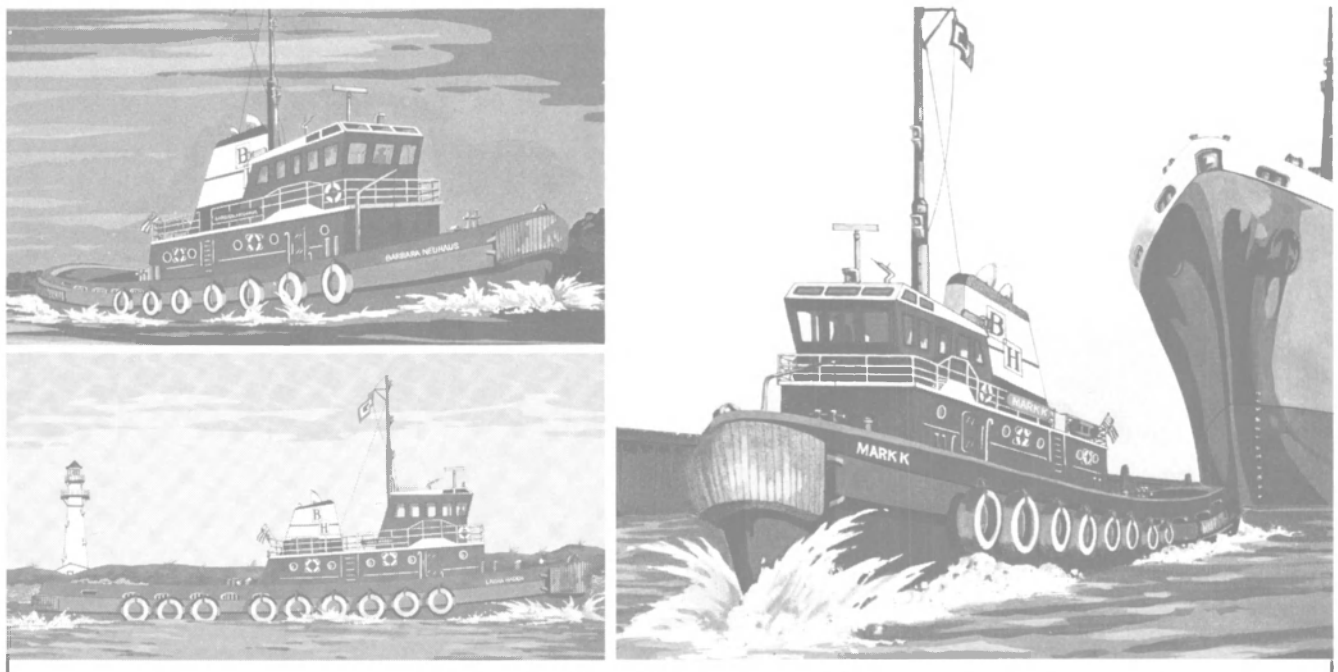
Mr. **Wanke** was previously associated with Jeffboat, and gained other experience in retail sales management and estimating.

Louisiana Dock is the marine services branch of American Commercial Barge Line Company (ACBL). It performs engine and hull repairs for both the company and the public, and serves as a major parts distributor. Louisiana Dock, ACBL, and Jeffboat are all units in the Inland Waterways Services Division of Texas Gas.

## Two Navy Contracts For Newport News Total $69 Million

Newport News Shipbuilding, Newport News, Va., has been awarded a $63,378,489 modification to a previously awarded contract for the overhaul and refueling of the fleet ballistic missile submarine USS Casimir Pulaski (SSBN-633). The Naval Sea Systems Command is the contracting activity. (N00024-79-C-2654)

The yard also was awarded a $6,000,000 negotiated cost-plus-fixed-fee contract modification for the design and development of a ship service motor generator and data. The Naval Sea Systems Command is the contracting activity. (N00024-80-C-4088)


# Three new tugs join the Bay-Houston family.

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

BAY-HOUSTON TOWING CO.
HARBOR AND COASTWISE TOWING
Houston • Galveston • Corpus Christi • Freeport • Texas City

# THE MULTI-CLAMP SYSTEM

NO SHOCK, NO VIBRATION, LOW NOISE
tube and pipe support.

Multi-Clamp provides a total system of planning, installing and retaining pipes, hoses and tubing on machine tools, in plants, on process machinery, in vehicles—anywhere line runs are required for hydraulic or pneumatic, cooling, lubrication, refrigeration, fuel, etc.

Supports tube and pipe in singular or multiple rows, and stacks in "Building-Block" type construction.

- Off the shelf delivery in sizes 3/16" thru 6" O.D.
- Provides for simplified installation.

A true "do-it-yourself" system.

OTHER HYDROCRAFT ACCESSORIES AVAILABLE INCLUDE:

- Suction line filters
- Filler assemblies
- Reservoir end covers
- Flange kits
- Weld risers
- Glycerin Gauges

Carefully crafted, quality controlled products from the designers of Hydro-Craft Hydraulic reservoirs and Accessories

hydro-craft inc.

4223 EDGELAND, ROYAL OAK, MICH. 48073 phone (313) 576-1101

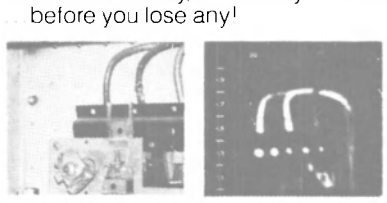
# CHECK INTO MARINE INFRARED INSPECTIONS

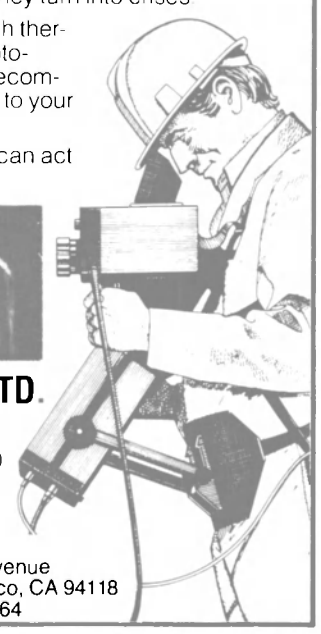
They Find Trouble Spots Before the Trouble Develops

It's well known: electrical and thermo-mechanical components tend to radiate excessive heat before they actually start to malfunction. In one day, ThermoTest engineers can perform a thermographic infrared survey of your ship from stem to stern, locating symptoms long before they become problems and problems before they turn into crises

**You receive:** a written report, with thermograms, temperature rises photographs analysis and corrective recommendations. A formal copy goes to your home office

**You save:** Money, because you can act ... before you lose any!



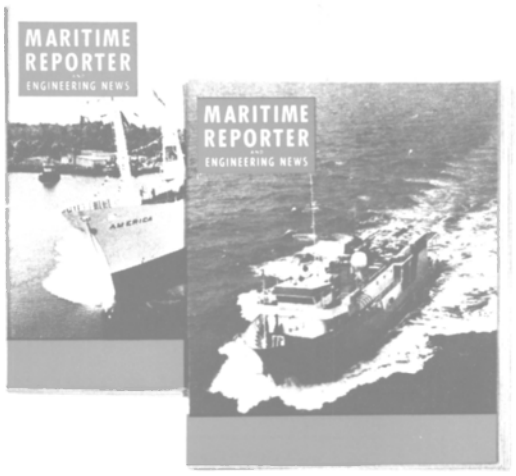


A.L. BURBANK & CO., LTD.
Marine ThermoTest Department
Suite 2811, One World Trade Center
New York, NY 10048 (212) 432-0700
Sole Agents For
Marine ThermoTest™

6 Redington Street
Bay Shore, NY 11706
(516) 665-3345

Suite 204
28 Parker Avenue
San Francisco, CA 94118
(415) 387-2964

**Shown below is the commercial marine publication with more readers than any other marine magazine in the world**




**Twice each month**

**Best Read Because It's current**

**Total MR primary audited circulation each issue 20,324**

**Total readership per issue over 100,000**

**Two issues per month—total monthly readership over 200,000**

(Based on pass-along readership study showing 5 readers average per single copy of MR.)

**Get more sales from your September advertising in**

# MARITIME REPORTER'S SPECIAL PREVIEW SEPTEMRER 1st ISSUE

**featuring both the**

## RIG, IMPORTANT 1988 SMM EXHIBITION

**Hamburg, Germany—September 23-27**

**and the**

## A.S.N.E. SHIP SYSTEMS SYMPOSIUM

**Cherry Hill, New Jersey—October 2-3**

The September 1st, 1980 issue of MARITIME REPORTER will contain two big pre-exhibition feature articles . . . one covering the "Ship, Machinery, Marine Technology International" Exhibition and Congress (SMM '80) to be held in Hamburg, Germany . . . and another covering the American Society of Naval Engineers (A.S.N.E.) Ship Systems Symposium to be held at Cherry Hill, New Jersey.

These features will be true preview articles . . . providing complete and advance coverage of both of these important marine industry conferences.

Whether you plan to attend or exhibit at either of these meetings, this special issue should be a must for your advertising schedule. It is ideally timed to reach MARITIME REPORTER's audience of over 20,000 influential readers just weeks before the meetings take place.

Extra copies of this September 1st special will also be distributed at both conferences.

Don't miss this opportunity to increase your marine sales . . . "be there" in force with an advertisement in MARITIME REPORTER's September 1st Preview.

Last closing date for advertising copy for the September 1, 1980 issue is August 12.

**NUMBER ONE**
**with marine advertisers**
**and buying power readers**

**MARITIME REPORTER**
AND
ENGINEERING NEWS

**107 East 31 Street**
**New York, NY 10016**
**212/689-3266**

## IHI Awarded Contract To Build Two VLCCs For Kuwait Government

Ishikawajima-Harima Heavy Industries Company, Ltd. (IHI), Japan, has received an order for two 290,300-dwt tankers from the Kuwait Oil Tanker Company S.A.K., a Government-owned enterprise in Kuwait.

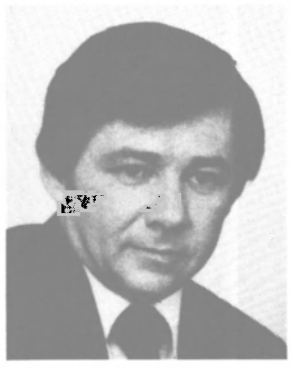
The formal contract was signed in Kuwait recently by **Faisal T. Al.Ghanim**, president of Kuwait Oil Tanker, and **Hirotaro Nemoto**, managing director of IHI. The price for the two very large crude carriers is approximately 34,000 million yen (about $155 million) payable in cash on a yen basis.

Each of the two tankers will be 336 meters in overall length, with a beam of 60 meters, depth of 29.5 meters, and maximum draft of 20.62 meters (1,102 x 197 x 97 x 68 feet). Main propulsion machinery will be a single IHI/Sulzer 10RLA90 type diesel with an output of 34,000 bhp, giving a service speed of 14.4 knots.

To be constructed at IHI's Kure Shipyard, the two ships will be delivered in December 1982 and April 1983, respectively.

## Gillen's Names Three To New Executive Posts

Henry Gillen's Sons Lighterage, Inc., a leading New York-based towing and lighterage firm, recently announced three new executive appointments. The announcement was made by **Alice A. Gillen**, treasurer and comptroller of the company.



John P. Marshall

William J. Lombardi

**John P. Marshall**, formerly vice president and operations manager, has been elected president; **Ann C. Gillen** has been named vice president/secretary; and **William J. Lombardi** has been appointed general manager of operations.

Mr. **Marshall** joined Gillen Lighterage in 1961 after a career in the U.S. Navy. He served aboard company tugs before moving shoreside, where he advanced through the management positions of port engineer and port superintendent to the position of vice president and operations manager before his recent election to president.

Founded in 1865, the Gillen organization currently operates 11 vessels, including tugboats, barges, floating cranes, and a derrick lighter. It engages in towing, barging, and lighterage operations in the New York and surrounding areas, as well as coastal towing along the Northeast Coast. Companies included in the Gillen group are Henry Gillen's Sons Lighterage, Inc., Nassau Towing Corporation, and Dailey Lighterage Company, Inc.

## Raymond To Join In Building $30-Million Yard In Malaysia

Raymond International Inc. of Houston recently announced that a subsidiary has signed a memorandum of understanding to participate in the building of a $30-million fabricating yard in Malaysia.

**Henry F. LeMieux**, chairman and chief executive officer, said the agreement was between its wholly owned subsidiary, Raymond Offshore Constructors of Delaware; Sabah Shipbuilding and Repairing and Engineering Sdn. Bhd.; and Permodalan Bumiputra Sabah. As agents for the Malaysian Government, Sabah Shipbuilding and Permodalan Bumiputra will have a minimum of 51 percent equity ownership in the joint venture.

The fabricating yard will be constructed off the coast of Sabah (formerly North Borneo) on the Labuan Island. About 300 persons will be employed at the yard when it becomes fully operational. The complex will have the ability to fabricate offshore platforms and rigs, and will include facilities that could provide marine engineering and construction services throughout Southeast Asia.

The project is scheduled to begin at the conclusion of further economic confirmation studies, probably early in 1981.


**sebn**

For the finest Ship Repair in the Mediterranean


Well established. S.E.B.N. offers three graving and two floating docks for vessels up to 100,00 DWT. All repair shops and offices have been recently modernized to provide for the requirements of the modern high powered merchant or naval vessels. Turbine rotors 2500 mm in diameter and weighing 13 tons can be rebladed, machined and dynamically balanced while tailshafts of up to 60 tons can be machined. An exclusive automatic submerged arc welding process for reconditioning tailshafts, rudder pintles, etc., is also a feature of the machine shops.

**Contact S.E.B.N. for details on the full range of repair services available**

**Societa Esercizio Bacini Napoletani**
Via Marinella, Varco N. 6 (80133) Naples-Italy
Telex: 710040 SEBN I ■ Telephone: 221512 (10 Lines)
Cables: Carenaggio, Naples

Sole U.S. Agent
**Marepcon Corporation International**
Frederick A. Ganter
65 Broadway, New York, N.Y. 10006
Telephone (212) 269-3170 ■ Telex 129247

## K.J. Funk Named VP-Sales, E.F. Carrigan Sales Director For Jeffboat

**Kelmar J. Funk** has been appointed vice president of sales for Jeffboat, Inc., and **Eugene F. (Gene) Carrigan** has been named director of sales. The men previously held the positions of director of sales and sales representative, respectively.

Jeffboat, a major builder of barges and towboats for the inland waterways shipping industry, is a unit in the Inland Waterways Services Division of Texas Gas Transmission Corporation. Its shipyard is located on the Ohio River at Jeffersonville, Ind.

Mr. **Funk** joined Jeffboat in 1956, working in production until becoming a sales representative in 1974. He was named director of sales in 1976. Production-related positions he held include planning manager, production control supervisor, production manager, and production analyst.

Mr. **Carrigan**, who also has had a substantial amount of production experience at the shipyard, joined Jeffboat in 1968 as marine repair superintendent. He advanced to the position of marine repair manager in 1971, serving in that capacity until becoming sales representative in 1977.


# Belcher Bunkers get you turned around fast!

**Bunkering—Fuel Oils—Lubricants**

Belcher

The Energy People

**Main Office**/8700 West Flagler, P.O. Box 525500, Miami, Florida 33152 — Phone (305) 551-5200, Telex Marine Sales, Towing and Supply — 51-9452, Cable/BelOilCo/Miami, Florida **Marketing Offices and/or Terminals:** AL-Mobile. AR-Helena, West Memphis. FL-Cape Canaveral, W. Palm Beach, Port Everglades, Miami, Port Manatee, Tampa, Pensacola, Tallahassee, Port St. Joe, St. Marks. GA-Savannah. MA-Boston. NJ-Bayonne. NY-New York. TN-Memphis. TX-Corpus Christi. **Bunkering Ports:** EAST COAST-Boston, New York, Port Canaveral, W. Palm Beach, Port Everglades, Miami. GULF COAST-Port Manatee, Tampa, Pensacola, Mobile, Pascagoula, Gulfport, New Orleans, Lake Charles, Port Arthur, Beaumont, Houston, Galveston/Texas City, Point Comfort, Corpus Christi, Brownsville.

*Units of The Coastal Corporation*


## Thomas A. King Named New Superintendent Of Merchant Marine Academy

Capt. **Thomas A. King** has been appointed superintendent of the U.S. Merchant Marine Academy at Kings Point, N.Y. The announcement was made by **Samuel B. Nemirow**, Assistant Secretary of Commerce for Maritime Affairs. He succeeds **Howard F. Casey**, who has served as acting superintendent since October 1979.

**Capt. Thomas A. King**

Captain **King**, a 1942 graduate of the Academy, served in the merchant marine during World War II. He earned his master's license in 1945, becoming one of the youngest officers to command a merchant ship. He came ashore in 1949 to join the Maritime Administration.

Since 1970 Captain **King** has served as MarAd's Eastern Region director, based in New York City. In this capacity he administered Federal programs that assist the U.S. shipping, shipbuilding, and port industries in a 17-state region stretching from Maine to Florida. He also was responsible for maintenance of the National Defense Reserve Fleet in the James River at Fort Eustis, Va.

## New Guide On Repair Of Shafts And Other Machinery Components Published By ABS

The American Bureau of Shipping (ABS) has published the 1980 edition of the *Guide for Repair and Cladding of Shafts*. This Guide, which supersedes the 1975 edition, contains ABS recommendations for the repair, welding, and cladding of tailshafts and stern tube shafts.

The procedures outlined in the Guide are also considered applicable to the welding and cladding of lineshafts, rudder stocks, pintles, and other hull and machinery components.

The cost of the *Guide for Repair and Cladding of Shafts* is $4 in the United States and $5 elsewhere. Copies can be ordered from the Book Order Section, American Bureau of Shipping, 65 Broadway, New York, N.Y. 10006, or from other ABS offices. Sales and other local taxes should be added to the cost of the Guide where required.

## C.A. Tomassoni Joins Designers & Planners In Design/Economics Post

Carlos A. Tomassoni

**Carlos A. Tomassoni** has joined Designers & Planners, Inc. as director, ship design and marine economics. The announcement was made recently by **Ferd Serim**, president of the company. Designers & Planners is a firm of naval architects and marine engineers with offices in New York, Washington, and Galveston.

In this new capacity, Mr. **Tomassoni** will be responsible for early stages in ship design and marine economics activities for both commercial and naval vessels. He reports to **Wolfgang Reuter**, executive vice president.

Mr. **Tomassoni** is a naval architect with 18 years of experience in ship design. Prior to joining Designers & Planners, Inc., he was employed by John J. McMullen Associates, the Advanced Marine Technology Division of Litton Industries, and most recently with HYDRONAUTICS, Inc., where he reached the position of head, Naval Architecture Division.

## Garlock Introduces Asbestos-Free Packing —Literature Available

A new illustrated Bulletin CMP-134, just published by Garlock Inc. introduces Style #5050 pump packing as an economical, dust-free alternative to asbestos for industries pumping slurries and other abrasive media and for applications where recovery from shaft deflection is important.

Said to be ideal for reciprocating and slow rotary motion as well as for use as a groove packing, the Style #5050 features a resilient EPDM core with an outer jacket of high-tensile, abrasion-resistant, yellow KEVLAR IT® aramid fibers. It operates in a pH range of 3-11, functions at speeds to 1,000 fpm, and handles line temperatures from −251 C (−420 F) to +260 C (+500 F).

For a free copy of Bulletin CMP-134, write to **William V. Rhodes**, Garlock Inc., Mechanical Packing Division, Palmyra, N.Y. 14522.

## Hamburg To Host World's First Trade Fair On Port Planning/Operations

Portex '81, said to be the world's first comprehensive international trade fair and convention, will take place in Hamburg, West Germany, May 26 through 30, 1981. Hosted by Germany's largest port city, Portex '81 will cover all aspects of the planning and construction of modern port facilities, as well as demonstrate advanced cargo-handling equipment, harbor operations and maintenance, transshipment, and related services.

Filling an important gap, the event is seen as a much-needed forum and marketplace for all industries that provide or use port facilities.

The event will focus on six major topics: harbor planning, port construction, communications and signal equipment, cargo-handling gear, storage and packaging facilities, and related services and equipment.

For additional information on Portex '81 write to **Hans J. Rathje,** Dept. MR, The Hamburg Group, 545 Madison Avenue, New York, NY 10022.


After a lot of hard thought about marine insurance, Adams & Porter becomes your obvious answer.

We think that you should think very hard about your marine insurance. More, we invite you to actively check out the brokers available to you. Ask about their personal concern and service, about their ability to place the proper coverage for you, about their honest attention to settling claims quickly. You'll find that Adams & Porter has the track record. The experience. The professional, all-around capabilities. And the care. Call or write for a full-color brochure of our services, and let us work up an individualized proposal for your coverage.

ADAMS & PORTER ASSOCIATES, INC.
1819 St. James Place
Houston, Texas 77056
Telephone: (713) 960-9990
Also in New York
and Bermuda

QUALITY CREWBOATS FROM SWIFTSHIPS.

# THEY'RE MAKING A WORLD OF DIFFERENCE.

The Swiftships crewboat has gained a reputation as the world's finest.
**Here's why.**
In sizes 42' to 125', or to order, the Swiftships crewboat is specifically designed to carry large quantities of personnel, equipment and supplies. The entire construction is first class—geared for a variety of conditions and developed in tune with the offshore industry's trend to operate farther out to sea in deeper water.

While combinations of GM, MTU or Caterpillar engines provide top speeds and maximum maneuverability, fully outfitted, air conditioned crew quarters and galley provide year 'round comfort in any climate. When time means money, there's no better vessel available today.
**Swiftships is proud of its reputation.** And we're equally proud of the way in which we work with our customers. From initial contact through approval of design, operational training for customer personnel, construction and delivery—each step is closely coordinated with our customers. When you buy from Swiftships, you not only buy a quality product, but a quality company as well.

**And we can make a world of difference for you.**
Crewboats, patrol boats, supply boats and utility vessels—built right, priced right.
Write or call for more information regarding quotes, specifications and fast delivery. P. O. Box 1908, Morgan City, Louisiana 70380 U.S.A. 504/384-1700 Telex 58-6453

swiftships inc.

**FINAL SPRUANCE DD JOINS FLEET** — The 30th and final ship in the original series of jet-powered, multimission Spruance-class destroyers, designed and built by Ingalls Shipbuilding Division of Litton Industries in Pascagoula, Miss., officially entered the U.S. Navy Fleet in commissioning ceremonies July 12. Fletcher (DD-992) will join 14 other ships of the DD-963 class operating with the Pacific Fleet, and will be homeported in San Diego. Fifteen more of the 7,800-ton, 563-foot-long ships are now operating with the Atlantic Fleet. Comdr. **Steven C. Saulnier** accepted command of the Fletcher. Adm. **Harry D. Train II,** Commander in Chief, and Supreme Allied Commander, Atlantic, was the principal speaker. Rear Adm. **Robert B. McClinton,** Commandant, Sixth Naval District, placed the ship in commission. Fletcher is named for Adm. **Frank J. Fletcher.** a distinguished World War II carrier force commander who received the Navy's three highest awards and acclaim as a brilliant naval strategist in three of the great carrier air and sea battles of World War II. The Spruance-class ships, largest U.S. destroyers ever built, are designed primarily for antisubmarine warfare. Fast, highly maneuverable and extremely quiet, they are the first major U.S. combat ships to be powered by gas turbine engines. Four marine jet engines produce more than 80,000 shaft horsepower to drive the ships at speeds in excess of 30 knots.


"MAY I SAY, YOU RUN A VERY TIGHT LOCK!"

## $79-Million Jackup Rig Ordered By Nedlloyd From Hitachi Zosen

A contract valued at about $79 million for construction of a jackup type drilling rig has been awarded to Hitachi Zosen's Osaka yard by the Dutch shipping group Royal Nedlloyd. Nedlloyd claims that the rig, which will have four legs for extra stability instead of the usual three, will be the biggest of its type in the world. Much of the design work for the rig was performed by the Nedlloyd group.

The rig will be capable of drilling in water depths up to 164 feet (50 meters), and is designed to withstand waves up to 75 feet (23 meters) high. It will accommodate a crew of about 80 and carry more than 3,000 tons of equipment.

Nederlandse Aardolie Mij, a joint venture of Royal Dutch Shell and Exxon, will take a 15-year charter on the rig for work in the Dutch sector of the North Sea up to the 56th parallel.

The rig is scheduled for delivery in late 1981, with operation expected to begin in May 1982.

SHIP REPAIR OARN

Specialists in main and auxiliary engine repair in all types of steam, diesel and electric.

Expert personnel closely coordinate on every repair job insuring superior work with minimum down time.

Offers the finest in all types of ship repairs, overhauls and conversions ... up to 350,000 DWT.

**OFFICINE ALLESTIMENTO E RIPARAZIONI NAVI LTD.**
**SHIP REPAIRS • GENOA ITALY (Fincantieri Group)**

*On your next repair job contact...*

OARN P.O. Box N 1395 Genoa Italy 16100
Cable Mologiano Genoa Telex 270090 OARN
Telephone 283801

U.S.A. Correspondent
CONTINENTAL MARINE AGENCY, INC.
(James R. Porter) 250 Park Ave., Suite 815, N.Y., N.Y. 10017
Telephone Code 212-986-2278 • Telex 421474 Porter

## Will Ships Use An Abundant Fuel In The 1980s?

# Coal-Fired Marine Boilers

### A Coal-Fired Marine Steam Plant Can Be Offered Today Which Will Provide The Same High Traditional Reliability.

Carl F. Horlitz Jr. and Steven E. Sabo*

The origin of the steam boiler can be directly related to the invention of the steam engine, and its development has been a vital element in the successful generation of power by steam.

The earliest types of marine boilers consisted of large pressure vessels filled with water with external furnaces located underneath and were fired with solid fuels; initially wood and then coal. Eventually the well-known Scotch marine boiler evolved and was readily accepted by marine engineers.

As the demand for larger and faster vessels grew, power demands also increased. At the end of the nineteenth century, the development of the steam turbine by Sir Charles Parsons prompted even further demands on the boiler designer. Improved materials led to increased capacities, pressures, and temperatures. Stiff commercial as well as naval competition urged the development of newer boiler designs. Various types of water-tube boilers were initially adopted because of their ability to fit into restricted spaces.

Oil firing of marine boilers began to appear around the turn of the century. Although not readily accepted initially, the advantages of firing oil gradually became more apparent and it eventually became the standard for most vessels. Oil not only proved more convenient to handle, store, bunker, and burn; but it also proved more convenient from a manpower utilization standpoint. By the end of World War II, coal firing was essentially phased out of most vessels. One area of exception was the Great Lakes. Because of the longevity of these vessels, their somewhat limited trade routes, and their easy access to coal, many of these vessels continued to operate on coal.

During the 1960s and early 1970s, there was a great demand for increased speed. Fuel oil was relatively inexpensive and readily available. Larger and faster merchant vessels were constructed, and more advanced plants utilizing higher temperatures and pressures were adopted.

In 1973, the Arab oil embargo created conditions which required a complete re-evaluation of vessel operation and design. Throughout the remainder of the 1970s, the price of crude oil continued to rise at unprecedented rates. Also during the latter part of the 1970s, political unrest in the Middle East made the availability of crude oil uncertain.

Concern over meeting energy demands became paramount. Both government and industry began to investigate alternate energy sources and their possible application to particular energy demands. Although there appear to be many alternate energy sources which can assist in solving this problem in the future, such as synfuels, solar power, fusion, etc., these will be of little assistance to the marine operator in the near future.

One alternate fuel that is readily available, and is suitable for marine applications, particularly in light of the economic and political factors which are currently affecting oil, is coal.

Therefore, in evaluating any powerplant for a vessel today, an operator must consider the future availability of his fuel source, its quality, and the effect its price might have on the operation of the vessel. In such an evaluation, the economics for certain types of vessels appear to justify considering coal-fired steam plants.

#### Methods Of Coal Firing

Three methods of coal firing are presently available to the marine boiler designer for his consideration: pulverized firing, fluidized bed combustion and stoker firing. The use of coal-oil slurries may be considered as a fourth alternate, however, this method of firing requires many of the ancillary components indigenous to the coal-fired plants such as ash handling equipment, coal pulverizers and stack-gas cleanup equipment, as well as a rather large furnace. Due to the large quantity of oil (50 percent to 60 percent) required in the slurry, the same economics associated with full coal firing cannot be realized. This method of firing is currently in use to a small extent in the utility and industrial section as a retrofit for plants originally designed to fire oil. The capacity of these plants retrofitted for slurry firing would be approximately 40 percent less than with oil firing.

Pulverized firing involves the suspension firing of coal which has been reduced in size by a bowl mill or other form of coal pulverizer to a powder consistency. This method of firing is a virtual necessity for plants designed to produce more than 300,000 pounds of steam per hour, since a stoker for this application would be impractical due to its large size. The pulverized system requires a significantly greater volume for a given machinery installation due to additional fuel preparation and transport equipment as well as a 20 percent larger furnace volume than for stoker firing.

Fluidized bed combustion, wherein fuel is introduced into an aerated bed of limestone, sand or suitable material and burned at temperatures usually in the range of 1,600°F, may ultimately have application in the marine sector. The principal advantage would be its somewhat compact

(continued on page 44)

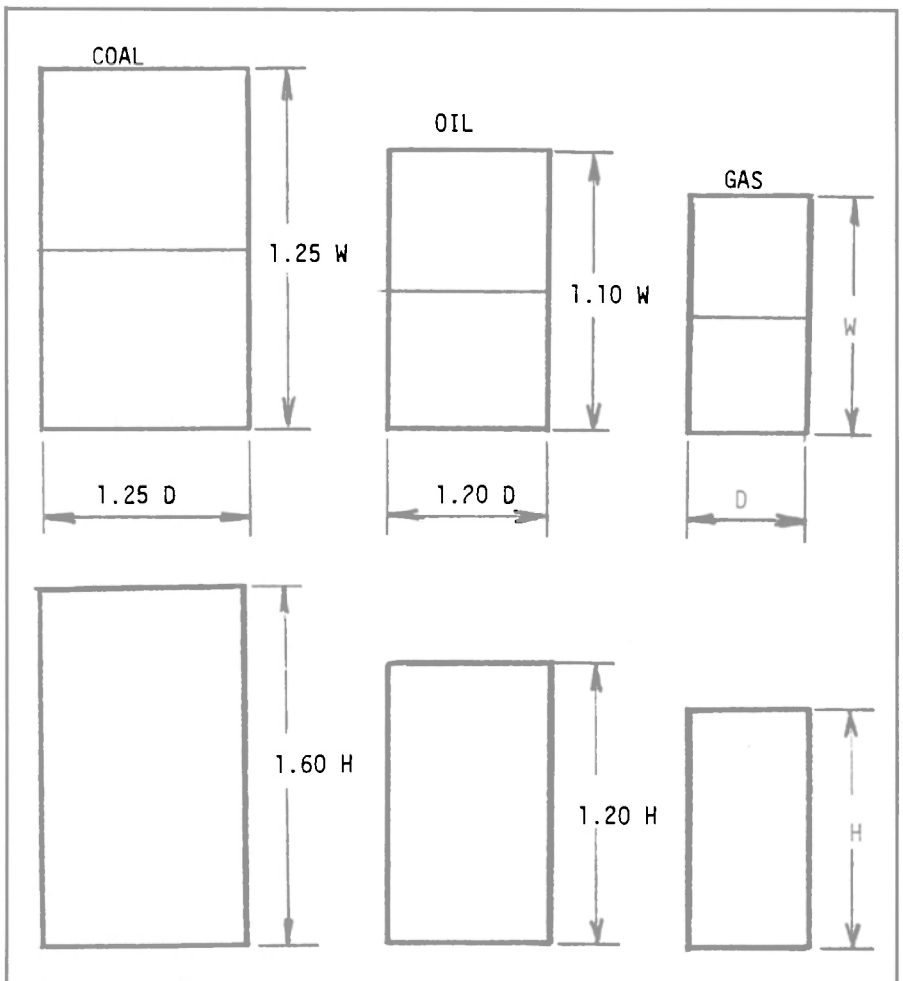



Figure 1 — Comparison of furnace sizes for coal, oil and gas-fired boilers.

*Mr. Horlitz and Mr. Sabo, C-E Marine Power Systems, Combustion Engineering, Inc., Windsor, Conn., presented the paper abstracted here before a recent meeting of the Great Lakes and Great Rivers Section of The Society of Naval Architects and Marine Engineers.

# RAYCAS.
# Because safety at sea is no accident.

**The world's finest Collision Avoidance system is also the most economical.**

Will you collide? RAYCAS (Raytheon Collision Avoidance System) provides the answer in seconds, and helps you select the best evasive action.

RAYCAS combines a compact computer module with a Mariners Pathfinder® 16-inch Bright Display radar. This provides three unique installation options:

1. add only the RAYCAS module to an existing Raytheon 16-inch Bright Display radar;
2. add the RAYCAS module and 16-inch Bright Display plus adaptive interface to existing Decca, Sperry, or Selenia radar systems;
3. install the complete RAYCAS/Raytheon Bright Display Radar System.

*Whichever you choose, you get a proven Collision Avoidance System that exceeds existing requirements . . . and cost less than other units.*

**Unmatched radar performance.**

The Raytheon Bright Display presentation helps make RAYCAS the most effective Collision Avoidance System in the world.

In addition to direct daylight viewing, it features two-level video and automatic interference rejection. This provides the clutter suppression and noise-free picture so essential for reliable target acquisition and tracking. Proven 3 and 10-cm interswitch capability assures compliance with MARAD requirements for dual installations.

**User-oriented presentation.**

RAYCAS uses basic radar system video as input for the computer. The computer-generated collision avoidance symbols are then electronically superimposed directly on the Bright Display radar picture. As a result, observers can use familiar radar procedures assisted by target vectors, points of potential collision and other anti-collision data.

**RAYCAS features.**

- *Relative-motion Display:* Centered or 70% off-centered with course-up or north-up.
- *True-motion Display:* Own ship moving across scope with course-up or north-up.
- *Target Acquisition:* Manual or automatic with fixed and adjustable guard zones.
- *Tracked Targets:* Up to the 20 most dangerous targets.
- *Target Vectors:* Indicate true or relative courses and speeds; adjustable time base helps predict future position.
- *Target Trails:* Indicate target's past position and course.
- *Dangerous Targets:* Automatically selected by pre-set CPA (Closest Point of Approach) and TCPA (Time to CPA).
- *Points of Potential Collision:* Automatically displayed.
- *Digitally Displayed Data:* CPA and TCPA; own ship's speed and course; target's range, bearing, speed, and true course; own vector length; vector time; BCR (Bow Crossing Range) and BCT (Bow Crossing Time).
- *Trial Maneuver:* Scope displays results of own ship's trial course and speed changes.
- *Visual and Audible Warnings:* Dangerous target, target in guard zone, equipment fault, trial maneuver, and target lost.
- *Automatic Drift Correction:* Computed by tracking on fixed navigation aid.
- *Navigation Lines:* Scope presentation of 8 lines for fairways.
- *Brightness Controls:* Separate adjustments for radar and computer video.
- *Performance Monitor:* Manual or automatic monitoring of radar performance.

**Two-year warranty.**

The American made RAYCAS, like the more than 5000 Raytheon Dual 3 and 10-cm Radars now in service, is already a proven performer. Installations have been made on all types of vessels from coastal ships to VLCC'S.

RAYCAS has a two year limited parts warranty. On board service is free for one year within a fifty-mile radius of any of our U.S. Dealers and worldwide service network in major ports everywhere.

For more detailed information contact the Raytheon Marine Company office nearest you.


**Raytheon Marine Company**
676 Island Pond Road
Manchester, New Hampshire 03103 U.S.A.
Telephone: (603) 668-1600
Telex: 94-34-59

**Raytheon Marine Sales And Service Company**
Siljangade 6
DK-2300 Copenhagen S
Denmark
Telephone: (451) 57-06-11
Telex: 31473 RAYCO DK

**Raytheon Marine Sales And Services Company**
Mianto-Ise Bldg. 3F
3-12-1, Kaigan-Dori
Naha-Ku, Yohoham, Japan 231
Telephone: (045) 212-3633

**Raytheon Marine And Service Company**
Millard House
5 Exchange Building
Cutler Street
London E1
Telephone: 01-623-4451/2
Telex: 8954198


RAYTHEON

## Coal Fired Marine Boilers

(continued from page 42)

furnace size relative to either stoker or pulverized-coal firing as well as pollution control potential. At the present time, this concept is largely experimental in nature with only a few demonstration plants of relatively low capacity in actual operation.

Stokers are mechanical devices used to burn solid fuels. They perform the primary function of converting chemical energy in the fuel to thermal energy which is absorbed by the boiler surfaces to generate steam.

The ability of the stoker to handle a wide range of coals makes it particularly attractive for marine application since coal analyses will vary widely at the bunkering ports. Furthermore, since a stoker requires a relatively coarse fuel mixture, fuel preparation equipment onboard a ship may be non-existent or, at the most, consist of a simple coal crusher. These points, as well as the inherent ruggedness and simplicity of the stoker, make it ideal for marine application.

### Boiler Design

The most basic design consideration for any steam-generating unit is the fuel to be burned. Furnace size, fuel burning and preparation equipment, heating surface qantity and placement, heat-recover equipment and air-pollution control devices vary considerably among units, depending on the kind of fuel being used. The major differences between coal firing and oil or natural-gas firing steam generators are a result of the solid form of coal prior to burning and the ash contained in the products of combustion. The products of combustion from burning oil contain relatively small amounts of ash, and natural gas produces no ash. Coal must be stored, conveyed, and pulverized or crushed before being introduced into the furnace, whereas oil and gas, by comparison, require very little preparation.

Coal-fired steam generators, because of the time required for burnout of the solid coal particles, must have much larger furnaces than oil or gas-fired steam generators for a given output. Figure 1 dramatizes the general differences in furnace size required between coal-fired design and oil or gas fired design for the same steaming capacity.

Because of the ash present, velocities of the products of combustion as they pass through the steam generator heating surfaces must be lower for coal-fired units than oil-fired units, thereby requiring significantly greater clearances between tubes. Coal-fired steam generators also require ash-handling equipment and may require stack-gas cleanup equipment not normally required for an oil or gas-fired unit.

Since there are many different types of coals available, the design and operation of a steam-generating unit is significantly influenced by various coal properties. An examination of the coal properties from many different parts of the U.S. indicates the wide variation in heating values, moisture content, and consequently the pounds of fuel that must be fired to generate the same power.

The heating values range from 12,000 Btu/pound for an Eastern bituminous coal to 6,800 Btu/pound for Northern Plains lignite. There are also coals in the U.S. that range down below 4,000 Btu/pound. Moisture content ranges from six percent for Eastern bituminous to 37 percent for the Northern Plains lignite. The related moisture per million Btu's for this range varies from five to 54 pounds. The indicated range of coal-firing rates (16,700 to 30,600) to yield comparable heat inputs for a nominal unit provides a comparison of the coal storage and handling equipment requirements for the various coals.

In evaluating various design configurations for marine applications, it was the authors' company's philosophy to utilize service-proven components, where available, which would result in a modern reliable coal-fired boiler suitable for marine application. The outcome of this evaluation is the C-E V2M9S ("S" for stoker) boiler design as shown in Figure 2.

The oil-fired version of this boiler design was developed by C-E in the mid-1960s for use aboard large crude carriers with power requirements of 28,000 shp per boiler and above. The V2M9S is similar to the oil-fired unit except that it has been suitably modified to fire coal and physically is significantly larger for any given horsepower than its oil-fired counterpart.

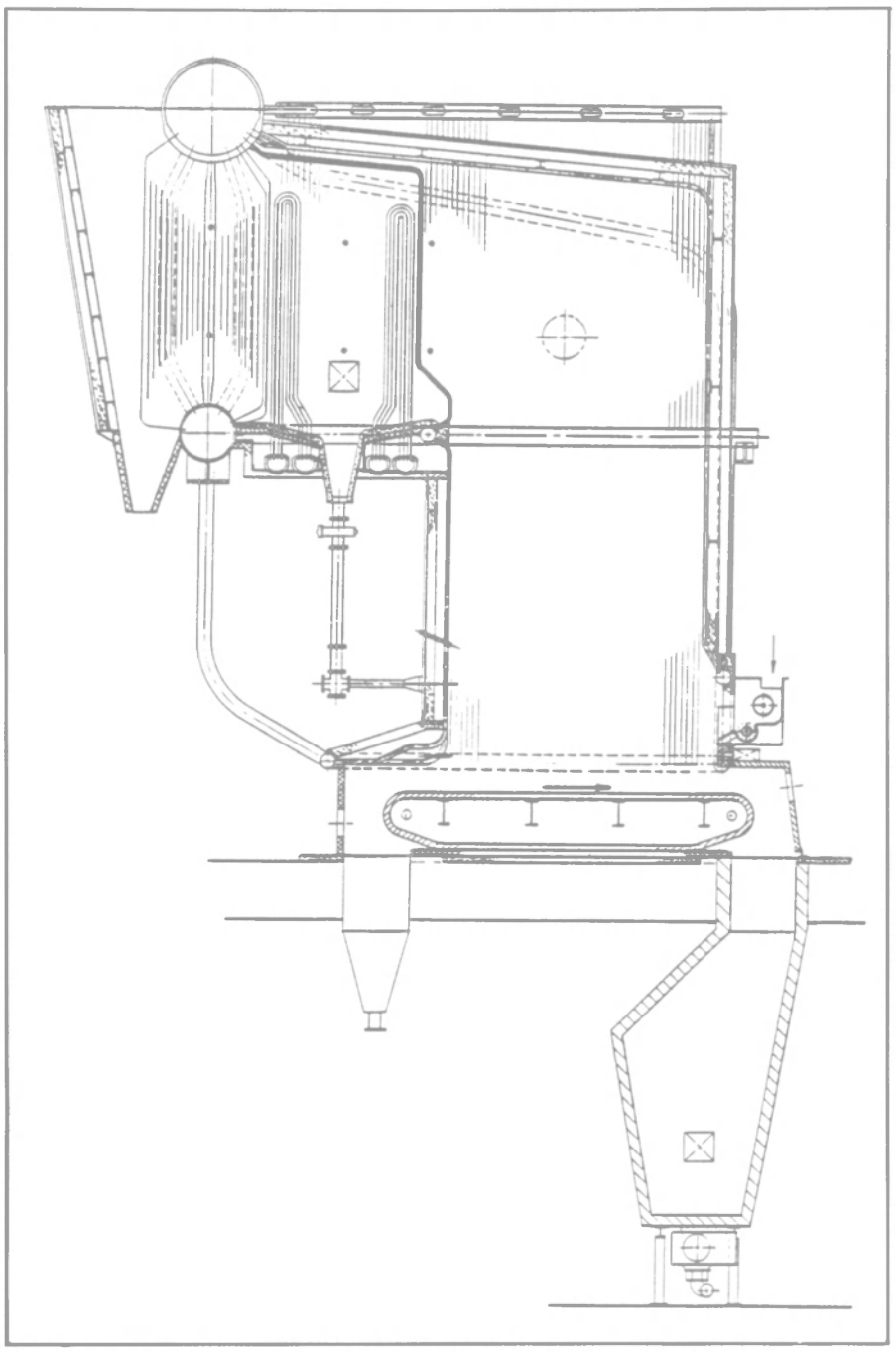


Figure 2 — V2M9S spreader-stoker fired marine boiler.

### Supplementary Oil Firing

Depending upon the operating profile of the vessel and projected trade route, it may be desirable to have a supplementary oil-firing capability. This can readily be accommodated by installing a conventional oil-fired burner register(s) in the upper furnace section. As long as a two or three-inch protective layer of ash remains on the grate and a small amount of cooling air is supplied to the underside of the grate (supplied by the forced-draft blower), oil firing may be continued indefinitely. The combustion air is supplied by the same forced-draft blower that supplies air to the grate for coal firing. The induced draft fan is also utilized during oil firing, however, the overfire air system is secured.

The decision to install supplementary oil-firing capability should be carefully considered since it substantially increases the complexity of the boiler-control system by requiring the installation of a burner-management system as well as increasing the complexity of the combustion-air ductwork.

### Conclusion

With the current economic and political situation relative to fuel oil, not to mention its projected future degraded quality, alternate energy sources must be considered both ashore and afloat. One such fuel which will again be considered for ship use is coal. Large reserves are available in many areas of the world and could again be made readily available for vessel bunkering. Many existing shoreside utility plants which were originally designed to burn coal but were converted to burn oil, are currently switching back to coal. Many countries throughout the world who depend on oil as their major source of energy, are planning to construct a significant number of new coal-fired generating stations and importing the coal to be fired by constructing many new coal-fired bulk carriers.

The purpose of this paper was to show that modern coal-fired marine boiler designs are currently available. By utilizing conservative furnace ratings, reasonable superheater design temperatures, wide tube spacing, and coal-firing equipment based upon many years of development and operation in shoreside exeprience, as well as utilizing proven modern marine boiler designs, a coal-fired marine steam plant can be offered today which will provide the same high reliability traditionally associated with steam plants. Coal firing will present new challenges to vessel designers, particularly coal storage and forwarding systems. However, this technology is readily available from shoreside installations.

Although this paper has not attempted to develop any economic comparison, the results of several independent studies have already been published which confirm that coal-fired marine plants are economically viable, and we expect that coal-fired steam vessels will again appear on the oceans of the world in the 1980s.

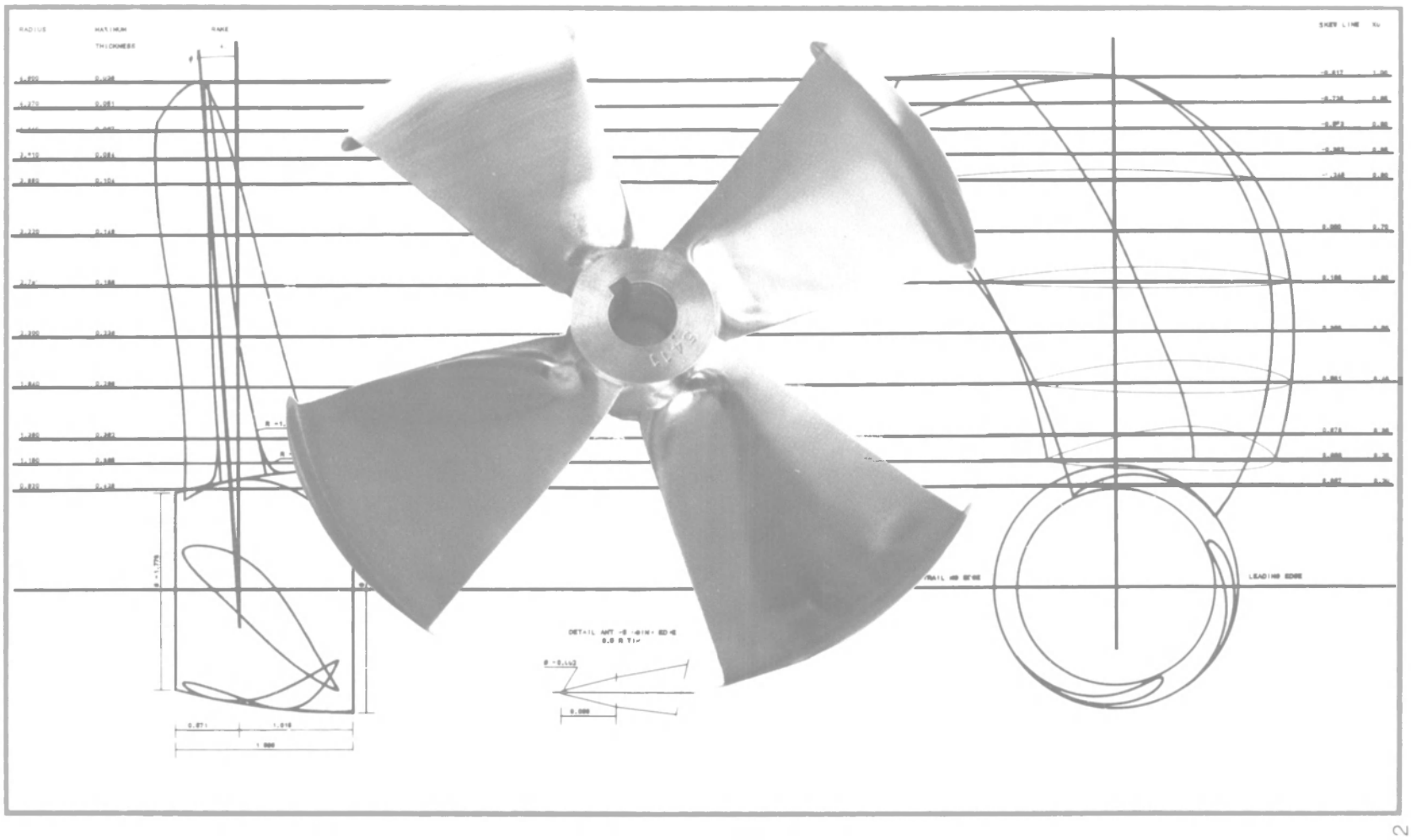
# TVF PROPELLERS (*)

## REDUCE FURTHER THE FUEL CONSUMPTION OF SHIPS, BY 12~35%

TVF (Tip Vortex Free) propellers have been developed by ASTILLEROS ESPAÑOLES, S.A. by means of a new lifting line theory and the corresponding computer programs, which have demonstrated to be an excellent tool for the desing of propellers of an extremely high efficiency.

The theoretical findings have already been fully confirmed in the experimental field through extensive model tests carried out in collaboration with the NEDERLANDS SHIP MODEL BASIN at Wageningen (Holland).

Many ships equipped with this revolutionary propulsion system will soon ride the seas of the planet, and save large amounts of precious energy, that energy which is becoming nowadays so scarce and so expensive...



212


**ASTILLEROS ESPAÑOLES, S.A.**

17, Padilla St., Madrid-6 Spain

Telex: 27690 & 27648 ASTIL E
Phone: 34.1.2252100 to 09
Cable: "Astilleros" - Madrid


(*) Patents pending worlwide

# PROFESSIONAL

**advanced marine enterprises, incorporated**
SUITE 300
2341 JEFFERSON DAVIS HWY
ARLINGTON, VA 22202
(703) 979-9200

NAVAL ARCHITECTURE • MARINE & OCEAN ENGINEERING • MANAGEMENT SCIENCES

SAN DIEGO, CALIFORNIA — VIRGINIA BEACH, VIRGINIA

---

**AMERICAN STANDARDS TESTING BUREAU, INC.**

*The Most Experienced Consulting Service to Maritime Industry Worldwide*

Surveys • Failure Analysis • NDT • QC • Prototype R&D • Operations Research, Field Engineering, Consulting, Testing, Sea-River Trials, Analysis, Corrosion, Antifouling Agents, Paints, Coatings, Lubricants, Charter Party Agreements and Disputes, Labor Relations Disputes and Arbitration, Litigation and Arbitration Consultation, Claim Evaluation and Subrogation, Vessel/Cargo/Injury Loss and Prevention Studies

40 Water Street, New York, N.Y. 10004
Phones: (212) 943-3156 Cables: AMSTATEBUR

---

**AMIRIKIAN ENGINEERING CO.**
HARBOR AND DRYDOCKING FACILITIES
SPECIAL SHORE AND FLOATING STRUCTURES
CONCEPTS, DESIGN, INVESTIGATIONS
Chevy Chase Center Office Bldg.
Suite 505, 35 Wisconsin Circle
Chevy Chase, Md. 20015 (301) 652-6903

---

***Captain Astad Company, Inc.***
***Complete Marine Services - Full Broker Service***
***Owners Representative Service***
***Purchase & Sale of All Types of Vessels***
CAPTAIN A. J. ASTAD, President
P.O. BOX 53434
NEW ORLEANS, LA 70153
PHONE (504) 529-4171 (24 HRS.)

---

J. L. BLUDWORTH
MARINE DESIGN & CONSULTANT
TUGS, TOWBOATS, PROPELLERS
8207 GLEN LOCH
HOUSTON, TEXAS 77061 713-644-9798

---

**DEL BREIT INC.**
MARINE ENGINEERING CONSULTANT
326 Picayune Place, New Orleans, La. 70130
Suite 201 (504) 523-2801

---

**CCS MARINE ASSOCIATES LTD.**
2784 CRESCENTVIEW DRIVE, NORTH VANCOUVER, B.C.
CANADA V7R 2V1
L. COWARD, president
MANAGEMENT CONSULTANT:
SHIPBUILDING — SHIPYARD CONSTRUCTION
SHIP REPAIR — SHIP OPERATION
PHONES: (604) 988-8290; 980-7654 TELEX: 04-352 747

---

**CDI MARINE COMPANY**
MARINE ENGINEERS
NAVAL ARCHITECTS
JACKSONVILLE, FL (904) 724-9700
PHILADELPHIA, PA (609) 772-0800
NORFOLK, VA (804) 627-4384
BOSTON, MA (617) 878-8340
SAN DIEGO, CA (714) 474-3317
CHARLESTON, SC (803) 554-5580

---

**CTS CAPTAIN TOM SMITH & ASSOCIATES**
Surveyors • Engineers • Appraisers
Hull • Cargo-Machinery • Yachts
Classification Approved Ultrasonic Technicians
• Computerized Reports
11320 S.W. 108 Court (305) 238-0202
Miami, Florida 33176 or 238-5300

---

**CADCOM®**
a division of ManTech International Corp.
*COMPUTER-AIDED DESIGN AND CONSTRUCTION ENGINEERING SERVICES AND SYSTEMS*
107 Ridgely Avenue, Annapolis, Maryland 21401
(301) 268-9010 or (Wash.) 261-1070

---

**CHILDS ENGINEERING CORPORATION**
*Waterfront & Structural Engineering • Diving Inspection*
Box 333/Medfield/MA 02052
(617) 359-8945

---

MARINE ENGINEERS and SURVEYORS
**John P. Colletti and Associates Inc**
P.O. Box 13378
Pittsburgh, PA 15243
Bus. 412-561-6000
Res. 412-746-1534

Cargo Appraisals
Preliminary Plans
New Construction Surveys
Hull and Machinery Surveys
Transportation Consulting
Accredited Crane and Derrick Certification 29CFR Part 1919

---

**COLUMBIA-SENTINEL ENGINEERS WESTERN, INC.**
NAVAL ARCHITECTS & MARINE ENGINEERS
• Vessel Design & Operations • Production Consultants
914 Second Ave., Seattle, WA 98104
(206) 623-0384

---

**CRANDALL**
DRY DOCK ENGINEERS, INC.
Railway and Floating Dry Docks; Waterfront Structures
Consulting • Design • Inspection
Dry Dock Hardware and Equipment
21 Pottery Lane Dedham, Mass. 02026

---

**crane consultants Inc.**
15301 1st Ave. So. Seattle, Washington 98148
(206) 246-7962 TWX 910-444-2085
Crane, hoist, materials handling specialists.

---

**FRANCIS B. CROCCO, INC.**
Marine Consultants, Marine & Cargo Surveyors
"Forty years of Surveying Experience in the Caribbean" Phone: (809) 723-0769
BOX 1411, SAN JUAN, PUERTO RICO 00903
Telex RCA 325 2634 PRCA 385 9005

---

**C. R. CUSHING & CO., INC.**
NAVAL ARCHITECTS, MARINE ENGINEERS
& TRANSPORTATION CONSULTANTS
ONE WORLD TRADE CENTER
NEW YORK, N. Y. 10048
TEL: (212) 432-0033 CABLE: CUSHINGCO

---

NAVAL ARCHITECTS MARINE ENGINEERS
NORMAN N. DeJONG AND ASSOCIATES, INC.
TEL. 904/399-3673 1734 Emerson Street
TWX 810/827-5026 Jacksonville, Fla. 32207

---

**DESIGN ASSOCIATES, INC.**
M. KAWASAKI
14360 Chef Menteur Highway
New Orleans, Louisiana 70129
Naval Architects Marine Engineers
Marine Management Transportation Consultants
Phone: (504) 254-2012 TWX 810-951-5317

---

**DESIGNERS & PLANNERS, INC.**
NAVAL ARCHITECTS • MARINE ENGINEERS
ONE STATE STREET PLAZA
NEW YORK, N.Y. 10004
(212) 248-2250
P.O. BOX 1080 GALVESTON, TEX. 77550 (713) 762-1002
2341 JEFF. DAVIS HGWY ARLINGTON, VA. 22202 (703) 892-5900

---

**PARKER C. EMERSON & ASSOCIATES**
• NAVAL ARCHITECTS
• MARINE ENGINEERS
• MARINE SURVEYORS
17935 Cardinal Dr., Lake Oswego, Ore. 97034 (503) 638-7286

---

**Failure Analysis Associates**
ENGINEERING AND METALLURGICAL CONSULTANTS
PALO ALTO LOS ANGELES HOUSTON
(415) 326-6821

---

**CHRISTOPHER J. FOSTER, INC.**
WORLD-WIDE EXPERIENCE AS DESIGNERS OF
GRAVING DOCKS • MARINE STRUCTURES
SHIPYARDS • MODERNIZATION • PORT FACILITIES
OFFSHORE TERMINALS • FLOATING DRYDOCKS
MARINE ENGINEERS • NAVAL ARCHITECTS
CONSULTING ENGINEERS
PORT WASHINGTON NEW YORK 11050
(516) 883-2830 TELEX 14-4674 CABLE: "CEFOSTA"

---

FRIEDE AND GOLDMAN, LTD.
Naval Architects & Marine Engineers
SUITE 1414, 225 BARONNE STREET
NEW ORLEANS, LA. 70112
523-4621

---

**GIBBS & COX INC**
NAVAL ARCHITECTS & MARINE ENGINEERS
40 Rector Street • New York, N.Y. 10006
(212) 487-2800

---

**JOHN W. GILBERT ASSOCIATES, INC.**
*Naval Architects* *Marine Engineers*
*Brokerage*
58 COMMERCIAL WHARF BOSTON, MASS. 02110
(617) 523-8370

---

**L. R. GLOSTEN & ASSOCIATES, INC.**
NAVAL ARCHITECTS · MARINE ENGINEERS
OCEAN ENGINEERS
610 COLMAN BUILDING PHONE: 206-624-7850
811 FIRST AVENUE CABLE: GLOSTEN
SEATTLE, WASHINGTON 98104 TELEX: 32-1226

---

*Phillip Gresser Associates Ltd.*
NAVAL ARCHITECTS — MARINE ENGINEERS
CONSULTANTS & SURVEYORS
3250 SOUTH OCEAN BLVD.
PALM BEACH FLORIDA 33480 TEL: (305) 586-0813

---

**MORRIS GURALNICK ASSOCIATES, INC.**
Naval Architects and Marine Engineers
San Francisco, California
(415) 543-8650

---

**HER**
119 E. LITTLE CREEK RD
NORFOLK, VA.
804-480-1960
HAMPTON ROADS ENGINEERING, INC.
NAVAL ARCHITECTS • MARINE ENGINEERS
CIVIL ENGINEERS

---

**·J·J·HENRY·CO·INC·**
naval architects • marine engineers • marine consultants
New York
Two World Trade Center
Suite 9528
N.Y., N.Y. 10048
(212) 938-2100
Area offices in:
Philadelphia (609) 234-3880
Washington, D.C. (703) 920-3435
Boston (617) 383-9200
Norfolk (804) 399-4097

## HYDRONAUTICS INCORPORATED

INTEGRATED ENGINEERING SERVICES
FOR THE MARINE INDUSTRY

RESEARCH • DEVELOPMENT
DESIGN • TESTING

HYDRONAUTICS SHIP MODEL BASIN

7210 Pindell School Road, Laurel, Maryland 20810 Telephone: (301) 776-7454

---

## Jantzen Engineering Co., Inc.

*Consulting Engineers*
*Ocean Mining and Dredging*

(301) 796-8585

6655 Amberton Dr. Baltimore, Md.

---

## JAMES S. KROGEN & CO., INC.

NAVAL ARCHITECTS & MARINE ENGINEERS

Tel. (305) 448-8169

3333 Rice Street, Miami, Fla. 33133

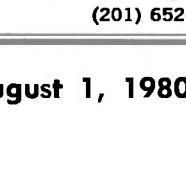
---

## Littleton Research and Engineering Corp.

Consulting and Contract Research in Applied Mechanics
Hull Vibration and Shock — Noise Control
Structural Analysis — Hydrodynamics

*95 Russell Street, Littleton, Massachusetts 01460*
*Telephone 486-3526 area code 617*

---



Nils Lucander

## LUCANDER DESIGNS

P.O. Box 711
San Perlita, Texas 78590, U.S.A.
Tel: (512) 248-5209

---

## ALAN C. McCLURE ASSOCIATES, INC.

NAVAL ARCHITECTS • ENGINEERS

2600 South Gessner • Suite 504 • Houston, Texas 77063
(713) 789-1840 • Telex 775027

---

## JOHN J. McMULLEN ASSOCIATES, INC.

NAVAL ARCHITECTS / MARINE ENGINEERS / TRANSPORTATION CONSULTANTS
ONE WORLD TRADE CENTER
SUITE 3000, NEW YORK, NEW YORK 10048
WASHINGTON DC / HAMPTON VA / OXNARD CA / LONDON / MADRID

---

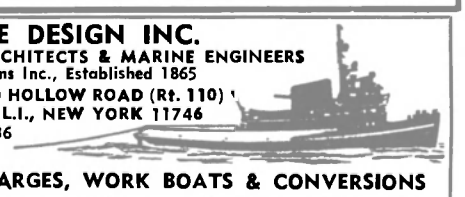
## MacLEAR & HARRIS, INC.

28 WEST 44 ST.
NEW YORK, N. Y. 10036
212-869-3443
NA & ME FAST BOATS

---

## MARINE DESIGN INC.

NAVAL ARCHITECTS & MARINE ENGINEERS
Formerly Tams Inc., Established 1865
401 BROAD HOLLOW ROAD (Rt. 110)
MELVILLE, L.I., NEW YORK 11746
516 293-4336



TUGS, BARGES, WORK BOATS & CONVERSIONS

---

## Marine Technical Associates, Inc.

MARINE ENGINEERS/ELECTRICAL CONSULTANTS
USCG AND IMCO REGULATIONS

Phone (201) 785-0006 — 195 Paterson Avenue
TWX 710 988 5738 — Little Falls, N. J. 07424

---

## MECHANICAL RESOURCES, INC.

Industrial/Marine
Refrigeration • Air Conditioning
24 Hour Service • Parts • Surveys
191 Cambridge Ave., Jersey City, N.J. 07307
(201) 652-1723 • (201) 653-0982

---

## RUDOLPH F. MATZER & ASSOCIATES, INC.

NAVAL ARCHITECTS
•
MARINE ENGINEERS
•
CONSULTANTS
•
SURVEYORS

13891 ATLANTIC BOULEVARD
JACKSONVILLE, FLORIDA 32225
(904) 246-6438 TWX 810-828-6094

---

## GEORGE E. MEESE

NAVAL ARCHITECTS • MARINE ENGINEERS
CONSULTANTS • SURVEYORS
DESIGNS FOR YACHTS AND COMMERCIAL VESSELS
WOOD—ALUMINUM—STEEL—PLASTIC

TELEPHONE COLONIAL 3-4054 — 194 ACTION ROAD ANNAPOLIS, MARYLAND

---

## METRITAPE, INC.

Designer of Marine Level Gauging for:
• CARGO • BALLAST • FUEL OIL • DRAFT • TIDE & WAVE
• Remote Reading • Analog/Digital • Indep. of Sp. Gr.
33 Bradford St., Concord, MA 01742, U.S.A.
Ph: (617) 369-7500 Tlx: 92-3492

---

## NELSON & ASSOCIATES, INC.

MARINE
SURVEYORS — CONSULTANTS
ENGINEERS — APPRAISERS

1405 N.W. 167 St., Miami, Fla. 33169 (305) 625-1043
Telex: 51-5704 Cable: NELSURVEY

---

## NICKUM & SPAULDING ASSOCIATES, INC.

Naval Architects and Marine Engineers

911 Western Avenue, Seattle, Wash. 98104

(206) 382-4444

---

## ROBERT B. NIEDERBERGER, P.E.

*Consultant*
*Metallurgy & Marine Corrosion*

507 EVERGREEN ROAD
SEVERNA PARK, MARYLAND 21146
(301) 647-1283
WASH DC: 261-2953

---

## NORGAARD & CLARK

CONSULTING NAVAL ARCHITECTS

SAN FRANCISCO, CALIFORNIA (415) 398-2202

---

## OCEAN-OIL INTERNATIONAL ENGINEERING CORPORATION

3019 Mercedes Blvd., New Orleans, Louisiana 70114, U.S.A.
NAVAL ARCHITECTS • MARINE SURVEYORS
SALVAGE ENGINEERS
Hector V. Pazos, P.E.
504/367-4072

---

## PRC Guralnick

NAVAL ARCHITECTS & MARINE ENGINEERS
5252 Balboa Avenue, San Diego, California 92117
Telephone (714) 292-9102

---

## SYNCROLIFT® DRYDOCKS AND TRANSFER SYSTEMS

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

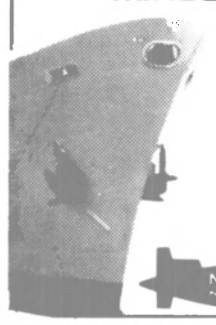
---

## SARGENT & HERKES, INC.

NAVAL ARCHITECTS • MARINE ENGINEERS
CONSULTANTS • SURVEYORS
607 INTERNATIONAL BLDG., 611 GRAVIER ST.
NEW ORLEANS, LA. 70130
(504) 524-1612

---

## M. ROSENBLATT & SON, INC.



NAVAL ARCHITECTS AND MARINE ENGINEERS

**New York City**
350 Broadway
(212) 431-6900

**San Diego**
1007 Fifth Avenue
(714) 238-1300

**San Francisco**
657 Mission Street
(415) 777-0500

**Charleston Heights, S. C.**
3370 Rivers Avenue
(803) 744-1686

**Arlington, Va.**
2341 Jefferson Davis Highway
(703) 892-5680

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

---

## SCHMAHL and SCHMAHL, INC.

Surveyors-Engineers-Average Adjusters

Germanischer Lloyd (Florida and Bahamas)—Hellenic Register
Japanese Marine Corp., Liberian Bureau of Maritime Affairs—
Bahamas Ministry of Transportation

SCHMAHL BUILDING

1209 S.E. Third Av., Fort Lauderdale, Fl. 33316
(305) 522-0689 - Miami (305) 944-4512
Toll Free FL Line: 800-432-0656 - Telex: 51-4489

TAMPA - MIAMI - JACKSONVILLE - HOUSTON
HAMBURG

---

## *Seaworthy Engine Systems, Inc.*

MARINE ENGINEERS

MAIN STREET
ESSEX, CONNECTICUT
06426

203/767-0937
TWX 7104580271

---

## GEORGE G. SHARP, INC.

MARINE ENGINEERS
NAVAL ARCHITECTS

SYSTEMS ANALYSTS
MARINE SURVEYORS

100 Church Street
New York, N.Y. 10007
(212) 732-2800

Arlington, Virginia 22202
(703) 892-4000
Virginia Beach, Va. 23462
(804) 499-4125

---

## R. A. STEARN INC.

NAVAL ARCHITECTS & MARINE ENGINEERS
253 N. 1st Avenue
Sturgeon Bay, WI 54235
Phone (414) 743-8282 TWX 910-270-1375

---

## SEACOR

SYSTEMS ENGINEERING
ASSOCIATES CORPORATION

*Naval Architects*
*Marine Engineering*
*Systems Analysis*
*Combat Systems Training*
*Engineering Department Training*
*Total Ship Testing*

CHERRY HILL
NEW JERSEY
(609) 429-7050

ARLINGTON
VIRGINIA
(703) 521-2977

VIRGINIA BEACH
VIRGINIA
(804) 425-3010

CHULA VISTA
CALIFORNIA
(714) 426-9538

DOVER
NEW HAMPSHIRE
(603) 742-8770

CALL FOR FREE BROCHURE TO ANY OF THE ABOVE OFFICES

---

## RICHARD R. TAUBLER, INC.

NAVAL ARCHITECTS & MARINE ENGINEERS
8 COLUMBIA ST. MILFORD, DEL. 19963

(302) 422-3371

---

## THAMES ENGINEERING CONSULTANTS, INC.

CONSULTANTS TO THE MARINE INDUSTRY

P.O. BOX 589
(203) 443-1588 NEW LONDON, CONN. 06320

---

## *Trans-International Marine Services Corp.*

TIMSCO
MAINTENANCE MONITORING SYSTEMS
INVENTORY CONTROL SYSTEMS
622 Azalea Road
Mobile, Alabama 36609 205/438-1534

CORNING TOWNSEND III
Marine Consultants
BARGES • TUGS • TOWBOATS
18 Church St., Georgetown, Ct. 06829
Tel. 203-544-8110

WINK, Incorporated
CONSULTING ENGINEERS
Dock Damage Surveys
And
Design Of Marine Facilities
504/246-7924
8020 Mayo Blvd.
New Orleans, La. 70126

WESLEY D. WHEELER ASSOCIATES, LTD.
INTERNATIONAL MARITIME CONSULTANTS
104 EAST 40 STREET, SUITE 207
NEW YORK, N. Y. 10016
CABLES WESWHEELER
126476 WHEELER NYK
ITT-WDWNY 426040
RCA 236922 WDW
212-867-4760
DIPLOMATE IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

TOTAL EXPLOSIVE ENGINEERING
Professionals who use explosives with the velvet touch anywhere, anytime to separate cement or metals. Buildings, dams, bridges, grain elevators, industrial structures, foundations, and stacks dropped or disintegrated as they stand or directionalized falls. Offshore platforms and well removal, marine consultants, ship salvage or wrecking, diving, mining and trenching.
XPLO CORPORATION, 229 Fifth Street
P.O. Box 492, Gretna, Louisiana
(504) 362-8994 / TWX 810-951-6366.
A Tidewater Company

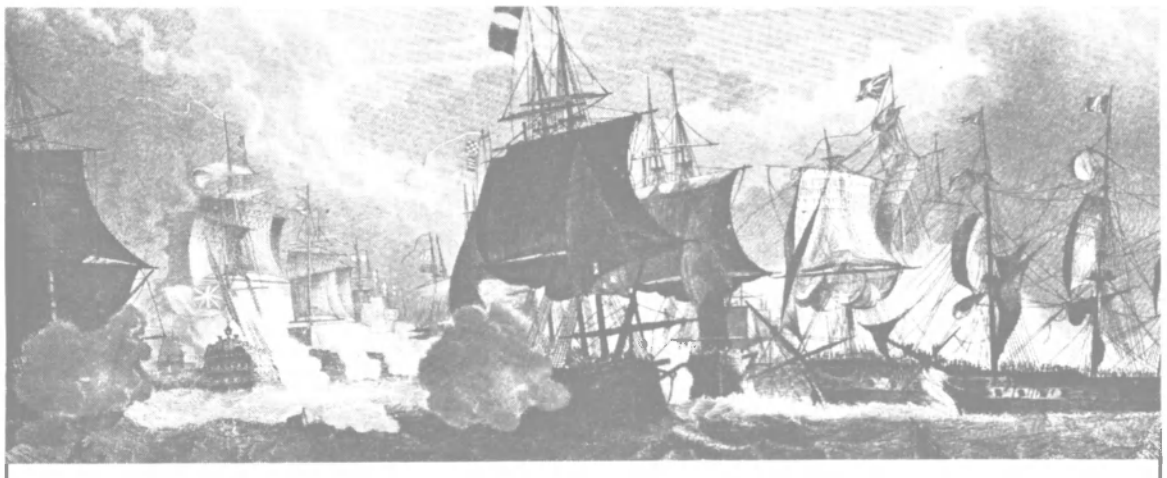
THOMAS B. WILSON
NAVAL ARCHITECT & MARINE ENGINEER
920 North Avalon Blvd.
Wilmington, Ca. 90744 213/518-0940

ASTILLEROS UNIDOS DE VERACRUZ, S.A. MEXICO

AUVER 374,000 sq.m. ship repair center on the Gulf of Mexico coast line combines the established skills of the workforce with modern machinery, equipment and methods to offer highest efficiency and quality in all ship repair work.

AUVER FACILITIES
- Two drydocks up to 10,000 dwt. cap.
- One floating dock up to 45,000 dwt. cap.
- Dockside and floating cranes up to 45 tons lift.
- 26,000 sq.m. of covered workshops Steel, Machine, Mechanical, etc.

SAN JUAN DE ULUA VERACRUZ VER. MEXICO
TEL. (293) 4 53 89, 4 59 67/TLX: 015-849 AVSAME
AUVER



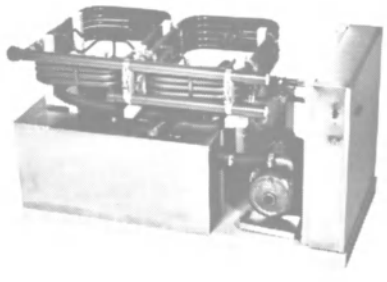
Keep your cool.

Our marine air conditioning wasn't around during this scene. But if it was, many ships might not have gone down with men.

James D. Nall marine air conditioning keeps you cool on seagoing vessels...from the largest tanker to your weekend runabout.

Our expertise and over 36 years serving the marine industry insures cool comfort in the tightest, hottest seafaring situations.

Write today for our free booklet. Or call to talk about your individual marine air conditioning application. For cooler men who go down to the sea in ships.



JAMES D. NALL COMPANY, INC.
marine air conditioning
3195 NW 20th Street
Miami, FL. 33142
(305) 633-6040

AQUAIR
marine air conditioning

Launch of the M/V Ambassador, a 9,000-dwt roll-on/ roll-off trailership at the Jos. L. Meyer Shipyard in Papenburg, West Germany.

## German Yard Launches U.S.-Flag Trailership

The M/V Ambassador, a 9,000-dwt roll-on/ roll-off trailership on order to a subsidiary of Transway International Corporation, was launched recently at the Jos. L. Meyer Shipyard, Papenburg, West Germany.

The Ambassador was christened by **Mrs. John W. Wolcott,** wife of Transway's president and chief executive officer. The ship will be registered under U.S. flag and placed in operation by Coordinated Caribbean Transport, Inc. (CCT), which provides roll-on/ roll-off trailership service between its home port of Miami and Central America, Panama and Ecuador.

CCT, which ordered the ship for $19.5 million in July 1979, expects delivery in late August, and plans to place it in service between Miami and Ecuador in September. The Ambassador is destined to become the only U.S.-flag ship with a home port of Miami, according to CCT.

The Ambassador is 554 feet long and 71 feet wide, with a 21-foot draft, and is designed to operate at a speed of 17 knots. Cargo capacity is 160 highway trailers and 125 automobiles carried on four decks.

CCT currently operates four specialized roll-on/roll-off trailerships with 13 sailings per month from Miami.

**LAUNCH IN FRANCE** — Hull No. 308, the **Ro-Ro Manhattan,** was launched recently at the French shipyard Chantiers de France-Dunkerque. The 12,640-dwt ship has a length of 170 meters and beam of 25 meters (558 by 82 feet). She is designed to carry containers, trailers, platforms, motor cars, and heavy lifts loaded as roll-on/roll-off cargoes. She will carry 684 TEUs. The ship was ordered by a subsidiary of the shipbuilder, Societe Dunkerquoise d'Armement.

**DRAVO LAUNCHES VIKING** — The towboat Bonnie Verona was launched recently into the Ohio River from Dravo Corporation's Neville Island shipyard near Pittsburgh. The 5,600-hp towboat, the 51st of Dravo's Viking class, is owned and operated by American Barge Lines of Greenville, Miss., and is named for the wife of a company owner. The vessel is 168 by 42 feet with an 11-foot draft, and is powered by two fuel-efficient 2,800-bhp Electro-Motive Division 16-645E7B General Motors diesel engines.

## New Brochure On Vent Fans Available From Joy Manufacturing

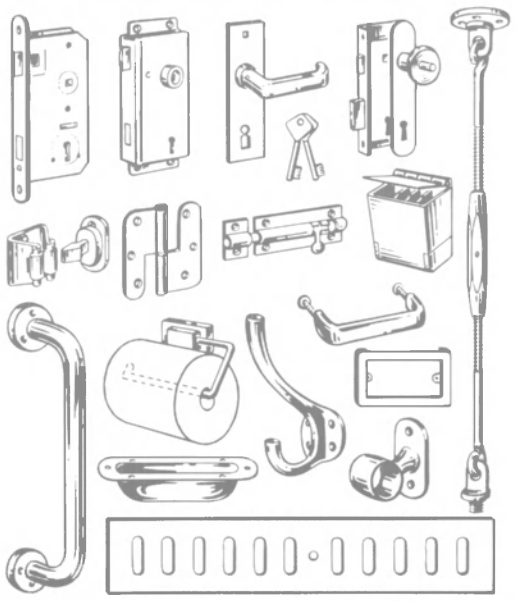
A new eight-page brochure on its Navy and maritime ventilation fans is now available from the Joy Manufacturing Company, Pittsburgh.

The booklet includes photographs, extensive performance data, and detailed specification drawings on Navy axial and centrifugal fans, maritime axial and centrifugal fans, maritime propeller fans, and the "Super Quiet" axial fan.

For a free copy of the brochure, designated J-680, write to **Gene Bayer,** Joy Manufacturing Company, Dept. MR, New Philadelphia, Ohio 44663.


U.S. REPRESENTATIVES WANTED

WE PRODUCE THEM



CONTACT
SCHWEPPER
—100 years experience
— actual design

SHIPYARDS, NAVAL ARCHITECTS SHIP DOOR MANUFACTURERS AND OUTFITTERS ARE OUR CLIENTS. WHO WANTS TO REPRESENT US IN THE UNITED STATES?

SCHWEPPER BESCHLAG GmbH
P.O.B. 101110 · D-5620 VELBERT 1
WESTERN GERMANY


## IMTEK Named Marine Distributor For Grove —Literature Available

IMTEK, Incorporated, Arlington, Va., the applications engineering and marine market consulting division of Integrated Marine Technology, Incorporated, has been named a distributor for Grove International Corporation, **Lowell E. Peterson,** president of IMTEK, announced.

IMTEK will have the responsibility for introducing a comprehensive line of Grove mobile hydraulic cranes, Manlift aerial work platforms, and National articulating booms to the worldwide maritime industries.

In addition to marketing responsibilities, IMTEK, working with the requirements of potential users, will assist Grove and its subsidiaries in the engineering, design, and development of products intended specifically for marine applications.

Previously, IMTEK has assisted Grove in the development of RT Series cranes that are specially engineered and equipped to meet the ship-towing and lateral-transfer requirements of Syncrolift® drydocking operations.

Currently, IMTEK is involved in the development of Manlift aerial work platforms with extended reach capabilities that incorporate features to enhance safety and resist the debilitating effects resulting from use in hull washing, sandblasting and painting operations. Also under study by IMTEK, are modifications to National articulating booms that will make them suitable for use as dock arms, ship access devices, or for mounting hull washing, blasting and spray equipment.

Free literature describing the Grove equipment line is available by writing to **Lowell E. Peterson,** IMTEK, Inc., 1730 North Lynn Street, Suite 400, Arlington, Va. 22209.


Dravo SteelShip

INLAND and OFFSHORE

WE BUILD THE BEST STEEL AND ALUMINUM WORK BOATS.

WRITE RT. 4, BOX 76, PINE BLUFF, ARKANSAS 71602; OR TELEPHONE 501-536-0362.

SUBSIDIARY OF DRAVO CORPORATION

## IMODCO Gets $14-Million Mooring Terminal Job Offshore Abu Dhabi

Zakum Development Company, operating for the National Oil Company of Abu Dhabi, has awarded IMODCO of Los Angeles, a pioneer offshore marine terminal builder, a contract in excess of $14 million for the engineering, construction, and installation of two Single Point Mooring systems.

To be used for exporting crude oil and delivering bunker fuels, the terminals will be installed in 88½ feet of water approximately 9.3 miles north of Zirku Island for operation in the upper Zakum Field Development Project. This new field is one of the biggest oil development projects in the Middle East.

Each terminal will be capable of mooring tankers ranging from 30,000 to 350,000 dwt. The units will measure 41 feet by 14 feet, and consist of three 20-inch pipe runs — two for crude oil, one for bunker fuel — as well as a three-grade Multiple Product Distribution Unit. The MPDUs will incorporate electrical slip ring assemblies for transmitting data signals and valve actuation commands.

Completion and installation of the two terminals is scheduled for May 1981.

IMODCO is a unit of AMCA International Corporation, a diversified group of heavy industrial, engineering, manufacturing, and construction companies whose products and services are sold worldwide.

## York Gets $8-Million Navy Contract For Air Conditioning Units

Borg Warner Corporation's York Division, York, Pa., has been awarded a fixed-price/escalation contract worth $8,115,747 for 125-ton and 250-ton air-conditioning units. They will be installed in guided-missile destroyers of the DDG-2 and DDG-37 classes, and in CG-16 class and CG-26 class guided-missile cruisers. The Naval Sea Systems Command is the contracting activity. (N00024-80-C-4257)

## Bianco International Inc. Moves To New Offices

**Alex White,** president of Bianco International, Inc., recently announced that the company has moved their offices to 100 Mariner's Boulevard, Suite BB, Mandeville, La. 70448; telephones: New Orleans (504) 524-8607; Mandeville (504) 626-4424.

Bianco International recruits professional marine personnel for vessel operations, repair and new vessel construction, marine transportation and other marine-related companies.

## Worthington Unit Gets $4.4-Million Navy Contract For Air Compressors

McGraw-Edison Company announced that its Worthington Process and Gas Compressors unit has been awarded a $4.4-million contract by the Naval Sea Systems Command for 33 advanced-design, oil-free air compressors.

The company said that the 4,500-psi and 3,000-psi oil-free air compressors, which will be built at Worthington Compressors' Buffalo, N.Y., facility, will be used by the Navy to retrofit existing ships. McGraw-Edison said that this contract is the latest in a continuing program to provide advanced Worthington compressors as part of an expanded Navy program to upgrade existing shipboard air systems.

The Worthington Compressors operations in Buffalo is a major producer of process and gas compressors used in worldwide petroleum refinery, petrochemical, gas field, and marine applications.


NAV-COM™

IF NAV-COM ISN'T DOING YOUR ELECTRONIC WORK, YOU MAY NOT BE GETTING WHAT YOU'RE PAYING FOR!

Nav-Com provides sales engineering and service support of electronic communications and navigation equipment for the commercial marine industry.

Our products include HF/SSB, Sitor/Radiotelex systems, Sat/Nav, Marisat Communication Terminals, Loran-C, Omega, radar, VHF radio-telephones, depth finders and related accessories.

We work for the top names in the marine industry on tankers, freighters, tugs, container vessels, offshore oil rigs, etc. We travel wherever our customers need us.....worldwide! Our Field Service personnel are professionals—engineering caliber men who are FCC licensed and factory trained—men who enjoy what they do and take pride in their work!

Nav-Com is a factory authorized dealer for the most prominent names in the marine industry—names like CAI, Digital Marine, Furuno, Intech, ITT Decca Marine, Lorain Electronics, Magnavox, Modar, North American Philips Communications, Raytheon, RF Communications, Simrad, Standard, Stephens Engineering, and Texas Instruments.

For your next requirement, let Nav-Com prepare a professional, engineering level systems proposal at no cost or obligation to you.

**NAV-COM Inc., 711 Grand Blvd., Deer Park, NY 11729**
For more information call
**(516) 667-7710** TELEX: 645 744 "NAVCOM NY DEER"

*Large Modern Fleet*

**BARGES FOR RENT**

*Deck Barges · Inland All Ocean*
*Material and Oil Barges*
*Spud Crane Barges*

***24-HOUR SERVICE***
**504/581-2424**
***Call Central Marine day or night for total barge rental service***

CMS *CENTRAL MARINE SERVICE, INC.*
*835 Union Street, New Orleans, LA 70112*

C. B. DARCY
**MARINE SALES**
*REPRESENTING*
Johnsa *Johnson Rubber Co.*

Rubber Sleeve or Flange Bearings
Stuffing Boxes and Keel Coolers
Heavy Duty Fendering

**WESTERN BRANCH METALS**
Armco Stainless Shafting Systems
Machining — Propeller Nuts

**DAMAN INDUSTRIES**
Ceramaloy Coatings
Propeller Shaft Liners
Dredge Pump Sleeves and Shafts

**FNT INDUSTRIES, INC.**
Commercial Fishing Supplies
Netting — Rope — Twine

**KAHLENBERG BROS.**
Air Horns — S/S Propellers

**P.O. Box 33, Glenhead, N.Y. 11545**
**516-676-3738**

## Foss Shipyard Will Service And Repair Wartsila Vasa Diesels

Foss Launch and Tug Company of Seattle, a Dillingham Company, and Wartsila Oy of Finland have entered into an agreement whereby the Foss Shipyard in Seattle will service and supply spare parts of the diesel engines manufactured at Wartsila's Vasa factory. The announcement was made by Carsten Diesel of Seattle, a Wartsila subsidiary that markets the Vasa engines on the West Coast.

Working out of the Seattle yard, Foss personnel will repair and maintain Vasa diesels, which range from 600 to 7,800 bhp, from Seattle to Alaska.

For additional information on the new service write to **Terje Wiik**, Carsten Corporation, 2221 NW Market Street, Seattle, Wash. 98107.

## Red Fox To Build Drilling Barge For Kaneb Services

Kaneb Services, Inc.'s offshore drilling subsidiary Diamond M Company, Houston, Texas, signed construction agreements recently with Red Fox Industries, Inc. of New Iberia, La., for a posted barge drilling unit. The announcement was made by **James W. Hunt**, Diamond M president and chief executive officer.

The new rig, to be named Diamond M Rig 47, will drill in up to 20 feet of water to a depth of 25,000 feet. The rig is 209 feet in length, 54 feet wide, with a 14-foot hull depth and 14-foot post, and provides living quarters for 44 persons.

Diamond M is a Houston-based drilling contractor with a diverse fleet of 30 drilling rigs, including four semisubmersibles, five jackups, nine barge rigs, five posted barges, six self-contained platform rigs, and one drillship.

## Japan's NKK To Build $38-Million Offshore Rig For U.S. Firm

NKK (Nippon Kokan) has been awarded a $38-million contract by JFP Well Service Incorporated to build an NKK/BMC 300 offshore drilling rig. According to NKK officials in New York, this is the first time the company has received an order for this type of rig.

The self-propelled rig will be equipped with a 45-degree-angle drilling system capable of operating in water depths down to 350 feet. Each of the three truss-type legs will measure 130.9 meters long (430 feet). The platform will measure 64.6 meters long, 64.0 meters wide and will have a depth of 7.9 meters (212 by 210 by 26 feet).

The rig will be constructed at NKK's Tsu Works and will be delivered in January 1982.

## Brochure Available On Six Operating Divisions Of Grinnell Valve

A capabilities brochure covering the six operating divisions of ITT Grinnell Valve Company, Inc. is now available.

A subsidiary of ITT Grinnell Corporation, the Valve Company manufactures and distributes a full line of valves from rugged fire hydrants to sophisticated, high technology control valves in sizes from ¼-inch to 12 feet in diameter, utilizing a range of materials from titanium alloys to basic castings of gray iron.

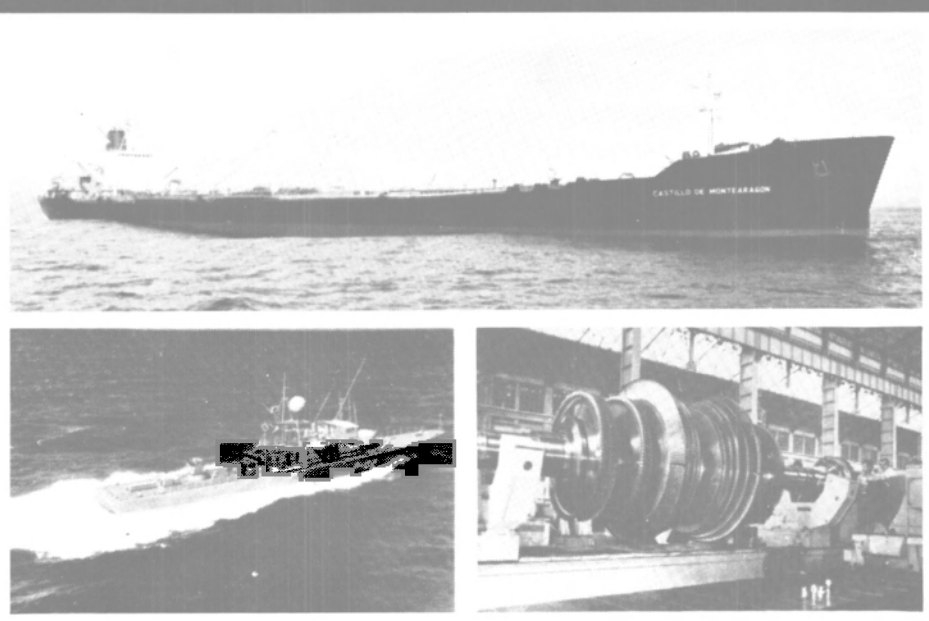
The company's products are available at more than 40 company-owned warehouses, over 130 independent stocking distributors, and 75 specialized manufacturers' agents.

The company's divisions are Dia-Flo of Lancaster, Pa.; Hammel Dahl of Warwick, R.I.; Kennedy Valve of Elmira, N.Y.; Fabri-Valve of Portland, Ore.; and Henze Service of Mobile, Ala. Headquarters of the company's International Operations is in Houston, Texas.

For a free copy of the new four-color brochure write to **Michael G. Crissan**, Dept. MR, 260 West Exchange Street, Providence, R.I. 02901.


EMPRESA NACIONAL

"BAZAN"



■ CONSTRUCTION OF ALL TYPES OF NAVAL AND MERCHANT VESSELS.

■ GENERAL SHIP REPAIR WORKS.

* STEAM TURBINES AND DIESEL MOTORS FOR PROPULSION. TURBINES FOR CONVENTIONAL AND NUCLEAR POWER STATIONS
* MARINE AND LAND BASED BOILERS
* NAVAL ORDNANCE AND AMMUNITIONS
* AUXILIARY MACHINERY, MARINE CRAFTS, MOBILE CRANES, PROPELLERS, CASTINGS, AGRICULTURAL MACHINERY, ETC.

SHIPYARDS AT:
EL FERROL DEL CAUDILLO
CARTAGENA
SAN FERNANDO (CADIZ)

ORDNANCE FACTORIES AT:
SAN FERNANDO (CADIZ)
CARTAGENA

DRY AND FLOATING DOCKS

Bazan

403

HEAD OFFICE:
65 CASTELLANA, MADRID-1 · SPAIN
PHONE 4415100 · TELEX 27480
CABLE ADDRESS: BAZAN

## Unique Supply Lighter Launched By MARCO Seattle

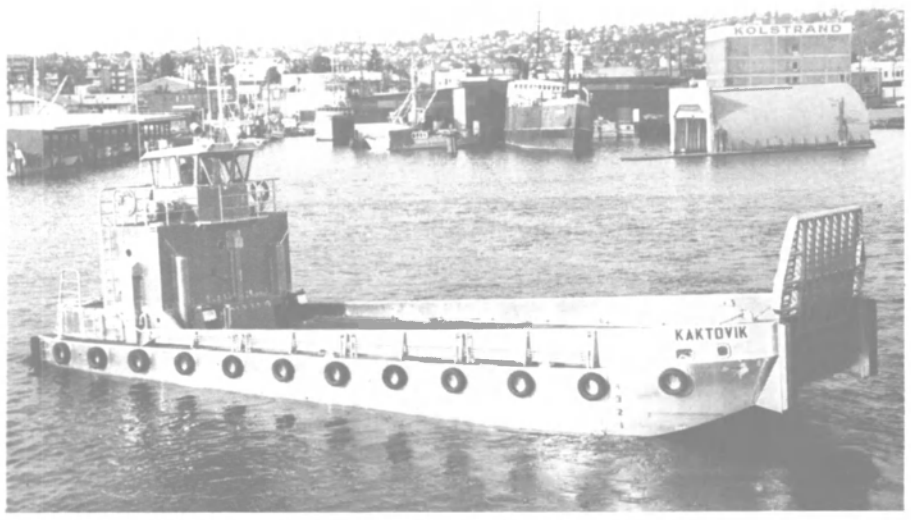
Remote areas of Alaska gained a new supply link recently when the 80-foot lighter Kaktovik was launched by MARCO Seattle. The all-aluminum craft is the second of her type built by MARCO for Crowley Maritime Corporation from a design by L.R. Gloston & Associates, Inc. of Seattle.

**Roy Jurgensen,** senior vice president and manager of Crowley's Northwest and Alaska Division, accepted the vessel on behalf of the owners. His wife, **Mrs. Beth Jurgensen**, served as sponsor and christened the vessel.

The Kaktovik is 80 feet long, with a beam of 24 feet and a depth of 5½ feet. She will join her sister ship Koyuk, built by MARCO in 1966, in charter to Alaska-Puget-United Transportation Companies. One of their major tasks is to resupply DEW Line installations under a Department of Defense contract. Both craft also will be used commercially to supply cargo to remote Alaska towns.

The MARCO lighters are ideal for such operations, as their minimal draft and large carrying capacity enable them to handle heavy cargo in the region's shallow waters. Cargo is shuttled directly from oceangoing barges onto the beach, offloading via a bow ramp much like those on military landing craft. For transit from site to site, the lightweight vessels are readily carried aboard specially designed line-haul barges.

Propulsion for the Kaktovik is provided by three Detroit Diesel 6-71N engines, each rated at 174 continuous bhp, driving Coolidge stainless-steel propellers. Perkins diesels coupled with 20-kw generators provide auxiliary power, and a Hough-Wagner hydraulic steering system operates the three rudders.



Aluminum self-propelled lighter **Kaktovik** was launched recently by MARCO Seattle. Built for Crowley Maritime, vessel is powered by three Detroit Diesel engines.

For navigation in the far North, the Kaktovik is outfitted with a Sperry gyrocompass in addition to her radar, depth sounder, and other communication/navigation electronics equipment.

Winches aboard the vessel include a MARCO W2000 that operates the bow ramp and two Beebe 40 connector winches used to join the lighter with barges it may be towing. Other components include complete electrical installations by Harris Electric, and rubber fendering fore and aft by Schuyler Engineered Products, both of Seattle.


# MARINE ENGINEERS, NAVAL ARCHITECTS

**More job challenge, more vacation, and up to 40 percent more pay. Expect them all with Aramco in Saudi Arabia.**

Aramco needs outstanding people on the energy frontier in Saudi Arabia. We're offering outstanding incentives to get them: up to 40 percent pay premium, 40 days' vacation every 12½ months, and a chance to work on vast and challenging projects with the world's largest oil-producing company.

If you have the qualifications, we have the following openings now for marine engineers and naval architects.

We are seeking project-oriented individuals to assist Project Management in Saudi Arabia in designing and preparing new building specifications for offshore marine craft, such as tugs, supply vessels, workboats, crew/pilot boats, and also small jack-ups. You will also supervise all aspects of the construction phase of new vessels at the shipyard.

*Requirements:* Degree in naval architectural and/or marine engineering. 3-5 years' project management experience and a minimum of 10-12 years of directly applicable experience in shipyards.

**Unsurpassed compensation and benefits**

The Aramco salary is competitive and a cost-of-living differential increases it even further. In addition, Aramco people in Saudi Arabia receive a tax-protected premium for overseas employment which can amount to as much as 40 percent of the base salary.

When a new employee hires on, there is an additional one-time Overseas Employment Bonus. There is also a special new temporary "bachelor" status benefits program for married employees.

Money aside, Aramco offers an outstanding combination of benefits including long vacations, comfortable housing, abundant recreation, and an excellent American school system for children.

**Interested?** Send your resume, in confidence, to: Aramco Services Company, Department MRE080180NNBA, 1100 Milam Building, Houston, Texas 77002.

CHALLENGE BY CHOICE

ARAMCO
SERVICES COMPANY


## New Zapata Tug Tows Crewboat To West Africa

New mooring tug **Mooring Service,** built by Halter for Zapata Marine Service, has collapsible mast to facilitate line handling.

A 7,500-mile tow from the Gulf of Mexico to West Africa marked the maiden voyage of Zapata Marine Service's new 82-foot steel mooring tug recently delivered by Halter Marine, Inc., New Orleans, La.

The tug Mooring Service is now operating in West Africa, after her 53-day tow of the new 65-foot crewboat Express Service. The crewboat was also built by Halter Marine for Zapata.

The Mooring Service is powered by two GM-Detroit Diesel 16V92N engines each developing 600 bhp at 1,800 rpm. The twin four-bladed propellers are mounted on stainless-steel shafts and turn through Twin Disc MG-527 reverse/reduction gears with a 5:1 ratio. The 22-foot-wide and 10-foot-deep tug has a bollard pull of 8 tons.

The vessel was designed with a collapsible mast to facilitate line handling while mooring large ships. Mounted on the deck are two 8,000-pound line pull, hydraulic vertical capstans by Skipper.

The Mooring Service has a fuel oil capacity of 17,000 gallons and a potable water capacity of 3,200 gallons. Electrical service is provided by two GM-Detroit Diesel 3-71 30-kw generator sets. Wheelhouse electronics include a Decca 110 36-mile radar, a SBA-301 SSB radio, Intech V-110 VHF radio, and Raytheon R-2460W depth indicator.

The tug is ABS classed Maltese Cross, A-1, Full Ocean Service. She was built by Halter's Chickasaw, Ala., division.

## I.C. Kizilkaya And John Slager Have Joined Designers & Planners, Inc.

I.C. Kizilkaya

John Slager

**I.C. Kizilkaya** has joined Designers & Planners, Inc. as assistant vice president and director, hull and machinery design, and **John Slager** as director, hydrodynamics design. The announcement was made recently by **Ferd Serim,** president of the company. Designers & Planners is a firm of naval architects and marine engineers with offices in New York, Washington, and Galveston.

Mr. **Kizilkaya** will be responsible for the management of all technical work being performed in the Washington office, where he reports to **Wolfgang Reuter,** executive vice president.

Mr. **Kizilkaya** is a naval architect with 20 years of experience in commercial and naval ship design. Prior to joining Designers & Planners, he was employed by Advanced Marine Technology Division of Litton Ship Systems, Harco Engineering, J.J. Henry Company, and most recently with Advanced Marine Enterprises, Inc., where he was chief naval architect.

Mr. **Slager** will be responsible for hull form development and hydrodynamic performance studies for commercial and naval ships. He also reports to Mr. **Reuter.**

Mr. **Slager** is a naval architect with 31 years of ship design experience. Beginning in 1949, he was employed for more than 15 years by the Bureau of Ships of the U.S. Navy Department, where he was active in the development of conceptual and preliminary designs for all types of Naval ships. In 1964, he joined the firm of Hydronautics, Inc., where he served as senior naval architect. In this capacity, he participated in the development of the hull form designs for many of the recent classes of U.S. Navy ships.

## Propeller Club Port Of Golden Gate Elects New Officers

**J.A. (Tony) Hanley** of Matson Navigation Company has been installed as president of The Propeller Club of the United States, Port of the Golden Gate, for 1980-81.

Other new officers are **Gayne Y. Marriner,** Bethlehem Steel Corporation, first vice president, and **David B. Luce,** Delta Steamship Lines, Inc., second vice president.

Elected to the board of directors were: **Clarence E. Briggs,** Pacific Coast Metal Trades District Council; **Gary J. North,** United States Lines, Inc.; and **Philip Steinberg,** Pacific Merchant Shipping Association.

**Lyle F. Hughes** of Matson was reelected treasurer, and **Barney Evans** of Barney Evans Public Relations was reelected secretary.

# CLASSIFIED ADVERTISING


*Career Associates, inc.*

**Maritime Personnel Consultants**

Nationwide professional placement, recruiting & search services. Our computer based data retrieval system assures rapid, effective matching of job requirements and available talent.

**ACT NOW!**

- VP MARKETING (MARINE VALVES) ..... to 70K
- MGR, FLT MAINT SUPP (TANKER; OCEAN TUG/BARGE) ..... to 45K
- PORT CAPTAINS/MARINE SUPTS (TANKER & BULK) ..... to 40K
- PORTS & MARINE TRANSP SYST PLANNERS to 40K
- SALES ENGINEERS (MARINE COATINGS) .... to 30K
- SALES ENGINEERS (MARINE CHEMICALS) .. to 30K
- MANY OTHER OPPORTUNITIES AVAILABLE

Call collect and/or mail job requirements/resumes to:
**BOB SLEIERTIN**
**P.O. BOX 86-A (583 State Road)**
**No. Dartmouth, Mass. 02747**
**(617) 997-3311**



*L-V Marine Consultants Can Find The Key Personnel You Need!*

Through our coast-to-coast contacts within the marine industry, we will find the specialists you are searching for. We work with senior and middle management, sales, estimators, engineers, dockmasters, planners, ship's superintendents etc

Our fees are competitive and we are only paid when we are successful. For more information, call Larry Victor at (713) 461-8672

**L-V MARINE CONSULTANTS**
12633 MEMORIAL DRIVE, SUITE #40 HOUSTON, TEXAS 77024
(713) 461-8672



B I I

**Professional Marine Recruiting Service**

**BIANCO International, Inc.**
**100 Mariner's Blvd. Suite BB**
**Mandeville, LA 70448 504/524-8607**



**LICENSED OFFICERS**

are sought (deck &/or engine), preferably with tank &/or gas carrier experience to design, develop and operate training programs. Existing courses utilize shiphandling and LNG cargo system simulators. Radar, collision avoidance, and engine room simulators are planned. Full time and seasonal positions available.

Send resume to:

OFFICE OF THE DIRECTOR, MARINESAFETY INTERNATIONAL MARINE AIR TERMINAL, LAGUARDIA AIRPORT, NEW YORK, NEW YORK 11371, USA



**OPERATIONS ANALYST**

Direct and coordinate activities of ships managed by company. Prepare for management evaluation, recommend design to increase efficiency and lower cost. Negotiate charter contracts. Handle Middle East and Near East Accounts. Min. req. 5 years or 5 years in shipping management. Masters License. $20,000/yr.; 40 hr/wk. Send resume to:

**Mr. Lane**
**All Seas Shipping Company**
**Suite 700, Melrose Bldg. 1121 Walker**
**Houston, Texas 77002**



SOHIO

**Marine Engineers — Profit from your engineering experience... Join Sohio!**

Sohio, a Fortune 50 company, is rapidly advancing on new industrial fronts – petroleum exploration, production refining, chemicals, new businesses. Our Alaskan pipeline venture and expansion of our transportation network in the lower 48 states have created challenging and profitable positions for qualified engineers.

Your B.S. degree in Naval Architecture or Mechanical Engineering, 5-10 years proven experience in construction and/or maintenance of oil tankers and chemical barges, and project engineering abilities have qualified you to assume the responsibilities for the design and application of boilers, turbines, generators, pumps, piping and other duties.

If you are the type of person who wants to make a difference – make a contribution to a vital national need – make a place for yourself within your profession, you owe it to yourself to contact us.

We offer exceptional career growth possibilities and a total compensation plan including comprehensive benefits. Our relocation package for qualified new hires includes a mortgage interest differential allowance, third party home purchase options, and other features normally restricted to internal transfers. Start now by sending me your resume, in confidence to:

Rodney Butler, Executive Recruitment
**THE STANDARD OIL COMPANY** (Ohio)
1424 Midland Building – 069 • Cleveland, Ohio 44115
An Equal Opportunity Employer M/F

**"Help us Help to Assure America's Energy Future"**

**MARINE**
**RECRUITING DIVISION**
**Professional Staffing, Inc.**

Professional and Confidential
Recruitment and Placement
of Marine Personnel

Contact
Lenny Morgan, Marine Recruiter
1250 POYDRAS STREET
SUITE 820
NEW ORLEANS, LA 70112
PH. (504) 524-6095

Managers
Naval Architects
Proj. Managers
Engineers
Superintendents
Estimators, Planners
and other
Shore-based
Professionals
in Marine,
Shipbuilding
and Offshore
Industries

---

# Agents

# or

# Representatives

We require experienced commission agents or representatives in key U.S. and Canadian cities to market our 360 degree steerable propulsion units and bowthrusters.

Interested companies please write to:

**Schottel of America, Inc.**
**8375 N.W. 56 Street**
**Miami, Florida 33166**

---

**NEW YORK AREA — POSITION AVAILABLE:**

Sales Engineer for Inter'l Engineering and Marine equipment supplier based in N.Y. Remuneration and incentives negotiable. Minimum of 4 years marine sales experience preferable. Write to:

Box 801 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

---

**ExecuSearch**
Professional Recruiters
Specializing in
**MARINE • SHIPPING • TRANSPORTATION**

*We are specialists who know YOUR business*

ExecuSearch
Division of Gerri G. Inc.

For information contact:
Michael R. Keough
Vice-President,
General Manager

140 Bay St. / Staten Island NY 10301 • 212-447-5558

---

**Globe**
**PERSONNEL CONSULTANTS**
*RECRUITERS OF PROFESSIONAL PERSONNEL FOR INDUSTRY*

EMPLOYMENT SPECIALISTS
IN THE MARINE INDUSTRY

**Job opportunities in marine professions. Naval architects,** marine engineers, shore-based marine administration, mechanical, structural, and other disciplines in offshore, marine and shipbuilding industries.

2727 KIRBY, #517 HOUSTON, TEX. 77098
713 / 526-3748

---

**POSITION WANTED**

Aggressive Individual looking for position with established company to head an operations or related department. Experienced in vessel, terminal and intermodal operations for container, RO RO, break bulk + parcel services. 15 years experience in shipping industry at several executive levels and also consulting experience.

Box 703 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

---

**POSITION WANTED**

LONG EXPERIENCED MARINE MANAGER AND ENGINEER DESIRES CHALLENGING WORK. EFFECTIVE IN CONSTRUCTION FROM INITIAL SHIPYARD CONTACT TO PURCHASE NEGOTIATIONS INCLUDING CONTRACT AND SPECIFICATION DEVELOPMENT, TO DESIGN DEVELOPMENT, REVIEW AND COMPLETION. INTO CONSTRUCTION SUPERVISION, ALL TESTS AND TRIALS, TO DELIVERY, WITH ALL PROPER REGISTRY DOCUMENTATION. IN OPERATIONS PROVIDE IMPROVED ECONOMY, EFFECTIVENESS AND RELIABILITY WITH REDUCTION OF DOWNTIME. AVAILABLE ON LONG OR SHORT TERM BASIS.

Box 617 Maritime Reporter/Engineering News
107 East 31 Street New York, N.Y. 10016

---

**WILSON is STEAMSHIP!**

We have served the Shipping Industry exclusively for over 40 years and maintain an active file of people experienced in all of its phases—including Port Engineers, Ship Construction Supervisors, M&R, Sales Engineers (chemicals, coatings, etc.)—to relocate anywhere. Salaries and fees negotiable; inquiries without obligation and in confidence.

**WILSON AGENCIES**
150 B'way, N.Y.C. 10038 (212) 732-2921
1121 Walker St., Houston 77002 (713) 224-2200

---

# MARINE CHIEF ENGINEERS

Belcher Oil Company, Towing Division, Miami, Florida has immediate openings for Marine Chief Engineers.

Basic requirements are:
U.S.C.G. Chief Engineers Diesel License.
Experience with Low Speed Diesels that burn heavy fuel is essential.

Applicants should reply in confidence, with resume and salary requirements, to:

**BELCHER OIL COMPANY**
**Personnel Department**
**Attn: Capt. W. Bunting**
**P.O. Box 525500**
**Miami, Florida 33152**

An Equal Opportunity Employer M/F

---

**POSITION WANTED**

Marine Surveyor — Diesel, Steam, Hull
Resume on Request Call Mr. Carlsson
**(914) 967-0372 (914) 967-2296**

---

# Your Ultimate Choice

**MARINE ENGINEER OFFICER**
**OVERSEAS**
**SHORE-BASED POSITION**

Why are so many people interested in overseas employment?

Our client offers:

40% overseas bonus (tax protected) 10% hiring bonus Extension bonus
Very competitive salaries Accelerated retirement
Travel — 6 weeks vacation with travel expenses-see Europe, the world
Living conditions — casual American hometown atmosphere Excellent career challenge

Position requires B.S. degree or equivalent and significant experience in marine field with a good practical knowledge in marine regulations. Work as an advisor in all phases of marine operations: drydocks, tugboats, cranes, crewboats, buoys and harbor operations.

For further information, contact Kevin Arndt or John Guice at (713) 943-2860 in our Gulf Freeway office or R.J. Curra or Jim DeForest at (713) 461-7777 in our Town & Country office.

**ALL FEES ASSUMED BY CLIENT COMPANIES**
**NEVER A CONTRACT TO SIGN**

M. david lowe
PERSONNEL SERVICES

494 Houston Natural Gas Building 1200 Travis Houston, Texas 77002

---

# marine recruiters

Brokers of Marine Talent

2200 6th Avenue Seattle, WA 98121 (206) 623-6790

## LIONAVE Inc.

SHIP SALES CHARTERING

### FOR CHARTER

**"ROYAL"**

ANCHORHANDLING/OCEANGOING SALVAGE TUG
8150 HP, Bollard Pull: 75 tons, Built 1973, Det Norske Veritas, Tweenscrew in fixed Nozzles/Bowthruster, Double Drum, Fully equipped, 2 Nohab Polar diesel, 15 knots on 14 tons MDO

**"PERKINS"**

OCEANGOING SALVAGE TUG
2750 HP, Bollard Pull 30 tons, Built 1967, A.B.S. Singlescrew in mov. nozzle, Fully equipped B & W diesel, 13 knots on 8 tons DO

9730 S. W. 162nd Street • Miami, Florida 33156
Telephones: (305) 255-4093 / 253-6340
TELEX: (WU) 80.3367 Lion Mia

## FOR SALE

**"AS IS WHERE IS"**

**M/v "JULIANA" ex "SEA GOBLIN"**
**Anchored Balboa Moorings**
**Panama Flag 762 TDW One Hold**
**2 hatches gearless abt 38,000 cubic feet cargo capacity**
**Bridge/engine room aft**
**2 radars (RCA/Decca) Loran**
**SSB / VHF / Echo Sounder, etc.**
**Main engine "INDUSTRIE" 504BHP**
**Built Holland 1954**

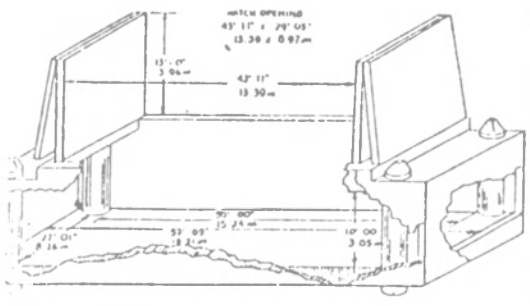
**For further information contact:**

**PANAMA BROKERAGE & CHARTERING, S.A.**
**P.O. Box 2095, Balboa, Panama**
**Tel: 61.1274 / 61.1412 / 61.1360 / 61.1368**
**Telex 3682515 / 3480315**

# FOR SALE by

**LEVIN METALS CORPORATION — RICHMOND, CALIF.**

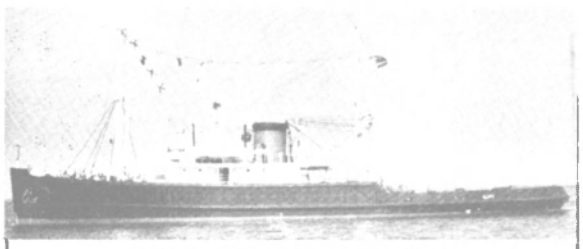
Former PFEL Lash Lighters, all steel construction, Avon type, 500 S/Ton capacity. Double bottoms, sides, and ends. 61 ft. long, 31 ft. wide, and 14 ft. high. Empty Lighter weighs 91.33 S/Tons. Double accordion doors, hydraulic operated.



**Please Call:**

**Peter Mitchell, Levin Metals Corp.**
**Marine Equipment Sales**
**1310 Canal Blvd. — P.O. Box 398**
**Richmond, Calif. 94807**

**(415) 236-0606**



### OCEAN-TUG-SALVAGE-TUG

All Steel Canadian flag — Can be U.S. for exploration. 217' X 40' X 19' Built 1943 NAPA CALIFORNIA 1427 tons ex BARS I British Admiralty Rescue Ship Austrailia. Twin Screw Diesel Electric Fine equipment Decca 303 Decca 428 4 each 950 HP Cooper Bessemer Diesels full CW radio etc. App. 100,000 spare parts and spare salvage gear including
2 spare intermediate shafts fine accommodations for 35 men
2 spare tailshafts Everything for salvage work
2 spare propellers Cruise 14 top speed 17 knots
spare tow cable 3000' 2½" wire Range 15,000 miles
cable on tow winch 3000' 2½"
machine shop—decompression tank—everything for salvage
asking $395,000.00

**OAKSMITH BOAT SALES, INC.**
**FISHERMEN'S TERMINAL • SEATTLE, WASHINGTON 98119**
**PHONE (206) 283-1000**

**SHIP LAY-UP FACILITIES**
**TENSAW RIVER DOCK & STORAGE YARD**
**UP RIVER FROM MOBILE, ALABAMA**
**FORMERLY U.S. GOVERNMENT RESERVE FLEET**
**FRESH WATER ANCHORING**
**440 A/C — FIRE PROTECTION — SECURE AREA**
16 Ft. Drafts
CALL FOR RATES
205/937-6338 or 205/438-3573

## FOR SALE

### TUGS & BOATS

202 — TUG BOAT, Steel Hull 61.8' x 14.7' x 7.3'
Powered by 16V71 Detroit 455 Shaft HP @ 1800 RPM Gear, Twin Disc MG-527 Ratio — 5.17:1

203 — TUG BOAT, Steel Hull 38.5' x 10.4' x 7'
Powered by 165 HP GM Gray Marine Gear, Twin Disc MG-509 Ratio 3 to 1

205 — TUG BOAT, Steel Hull 32.2' x 10' x 3.5'
Powered by 165 HP 671 GM Diesel
Gear Twin Disc Clutch w/Reverse & Reduction Gear

206 — TUG BOAT, Steel Hull 61' x 20½' x 6'
Powered by (2) 400 HP GM 12V71, GM Diesel Engine, Twin Disc Mod. 514, 4.5-1 Gear Reducer

208 — WORK BOAT, Steel Hull, 35.2' x 13.5' x 4.9'
Powered by GM 617 Diesel Engine, Twin Disc Manual Shift. 3:1 Reduction Gear Box

211 — TUG BOAT, Push Type, Steel Hull, Twin Screw, Up & Down Pilot House 52.5' x 20' x 7.1'
Powered by (2) 400 HP GM12V71

225 — SEA RAY PONTOON BOAT 8' x 20' w/Trailer and Evinrude 30 HP Motor, Carpeted Deck & Canopy Square Hole in Deck for Sounding Purposes

### BARGES

501 — BARGE, Deck Type Walking Spud 130' x 45' x 10' Used in Heavy Dredging

502 — BARGE, Deck Type w/Spuds 160' x 40' x 9'
Two 3' x 21" Spuds

503 — BARGE, Deck Type w/Spuds 130' x 40' x 8.5'
Two 24" Spuds

505 — BARGE, Deck Type 140' x 34' x 7.6'

507 — BARGE, Deck Type 75' x 23' x 5'

516 — BARGE, w/Concrete Deck 140' x 38' x 8'
Two 24" Spuds

517 — BARGE, Deck Type 290' x 43' x 11.5'

518 — BARGE, Deck Type 250' x 34' x 9.5'

519 — BARGE, Deck Type 250' x 34' x 9.5'

520 — BARGE, Deck Type 250' x 34' x 9.5'

522 — BARGE, Deck Type 250' x 34' x 9.5'

513 — BARGE, SELF DUMPING SCOW, 4 Compartment 350 CY 96' x 21.8' x 6'

560 — BARGE, SELF DUMPING SCOW, 6 Compartment 550 CY 128' x 33' x 10.6'

561 — BARGE, SELF DUMPING SCOW, 6 Compartment 550 CY 128' x 33' x 10.6'

565 — BARGE, SELF DUMPING SCOW, 6 Compartment 550 CY 128' x 33' x 10.6'

526 — BARGE, FUEL, 17,000 Bbl. Capacity 208.6' x 43' x 14.3'

### DREDGE

102 — ELLICOTT 14" DREDGE, Portable 70' x 25' x 6' w/50' Ladder Powered by 1275 HP CAT 398

P-18 — ELLICOTT 14" SERIES 1000 S/N 32550 Booster Pump Powered by 1275 HP CAT D398 Diesel Engine, Skid Mounted
Twin 548 GHP GM Gray Marine 12-110-12220 Diesel Engines Falk Six to One Reverse and Gear Reducer

**Roger J. Au & Son, Inc.**
**P. O. Box 1488**
**Mansfield, Ohio 44901**

Contact: Days — **Mansfield — Bob Smith (419) 529-3213**
**Sandusky — Norm Nestor (419) 627-8551**
Evenings — **Bob Smith (419) 756-0090**
**Norm Nestor (216) 839-2688**

# FOR SALE By LEVIN METALS CORP.

Two Coast Guard Cutters, "Minnetonka" & "Winona"

Ideal For Conversion To Oceanographic Survey Vessels, Diving and Drilling Platforms.

LOA 254', Beam 43', Draft 17', 2 Boilers, 4000 HP Single Shaft, Turbo Electric. Will Cruise 5,300 Nautical Miles at 18.4 Knots and 13,600 Nautical Miles At 11 Knots. 1,563 Tons Displacement.

Call: **Peter Mitchell, Levin Metals Corp.**
Marine Sales, 1310 Canal Blvd.
P.O. Box 398
Richmond, Calif. (415) - 236-0606

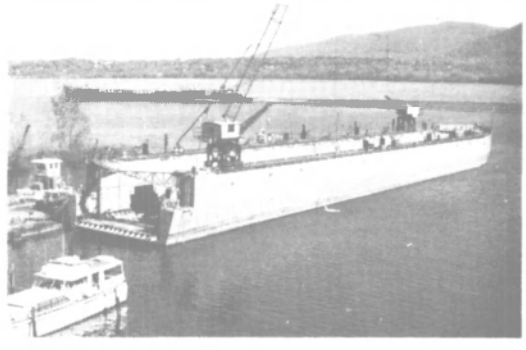

## FLOATING DRYDOCK For Sale

Presently in use
Length overall 400'
Breadth — 60'
Total depth — 33'
Breadth between wing walls — 42'
Length of basin — 361'
Gross weight — 2,600 tons
Capacity — 2,800 tons

Three longitudinal bulkheads. Three transverse bulkheads. Sixteen water tight ballast tanks. Four 24" centrifugal pumps with 50 H.P. vertical shaft motors (20,000 GPM). Thirty electric flood valves. Two manual cross-over valves. Hydraulic stern gate and fly bridges. Manual bilge blocks. 4' keel blocks, full length included. Two 12 ton diesel traveling gantry cranes on tracks on port and starboard weather decks. Dravo built, formerly Navy ARD.

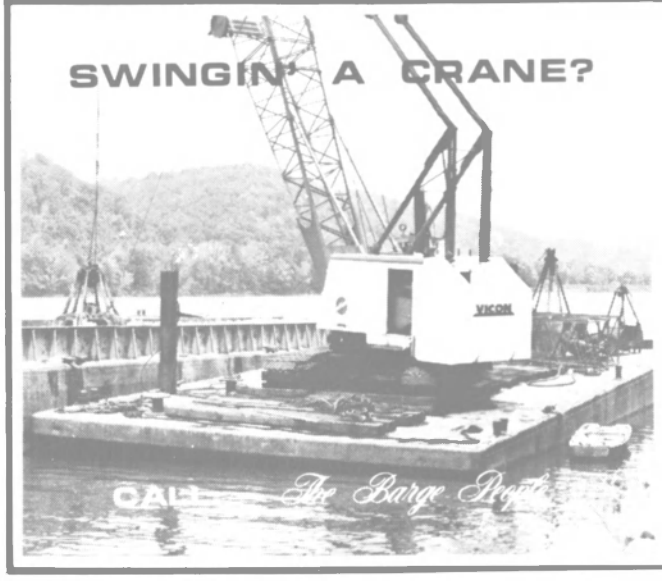
**STEEL STYLE SHIPYARD**
401 South Water Street
Newburgh, New York 12550 (914) 562-0860

Actual Photograph Price $450,000.00



**BARGES FOR LEASE**
**ON GULF COAST OF FLORIDA**

**MISENER BARGE AND BOAT RENTAL, INC.**
**St. Petersburg Beach, Florida 813-360-7033**




**McDONOUGH**
**MARINE SERVICE**

24 HOUR SERVICE

BARGES FOR RENT
ALL TYPES & SIZES

NEW ORLEANS
(504) 949-7586
TELEX 58 4393
P. O. BOX 26206
NEW ORLEANS, LA 70186

HOUSTON
P. O. BOX 233
CHANNELVIEW, TX 77530

PARKERSBURG
P. O. BOX 1825
PARKERSBURG, WV 26101

**FOR SALE**
**NEW UNUSED**
**DEEP WELL PUMPS**
Mfg Johnston Pump Co. 1974

200 GPM 239'TDH 6 stage
Column length 58'6" requires 75HP

**NICOLAI JOFFE CORPORATION**
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

**FOR SALE:**

180' x 40' x 14' supply vessel
Main engines (2) EMD 12-567 BC
(2) Reintjes WAV 1850 3.95:1 gears
(2) 75 KW generators driven by 8V71 GM engine
Fuel 76,400 gallons
Potable water 4,000 gallons
Lube oil 1,944 gallons
Bulk mud capacity (4) 750 cu. ft. tanks
Calcium chloride cap. 720 BBL
Deck space 105' x 32'
18 bunks
Full electronics
Wheel size 92" x 66" stainless steel

For further information, contact Mike Westbrook, Bollinger Marine Brokers, P. O. Box 250, Lockport, LA 70374.
Phone: (504) 532-2554 Telex: 58-4127

**SCHEDULE "B"**

**"RE DISPUTE BETWEEN SENER/CRINAVIS AND MOSS ROSENBERG VERFT, A.S, —**

**LIBEL CASE BEFORE THE HIGH COURT OF JUSTICE IN LONDON".**

"The first Plaintiffs (Sener Tecnica Industrial y Naval S.A., Las Arenas, Spain) in this action are Spanish Designers of ships and marine structures and the Second Plaintiffs (Crinavis Sistemas Navales y Cricgenics, S.A., Madrid, Spain) are Spanish Shipbuilders. The first Defendants (Moss Rosenberg Verft a.s, Moss, Norway) are Norwegian Designers and builders of ships and marine structures and the Second Defendant is their research and development manager. The action arose as a result of a press release issued by Moss Rosenberg in March 1977 in which Sener/Crinavis were accused of improperly copying Moss Rosenberg's designs, relating to LNG-carriers, and offshore plants for liquefaction and storage of natural gas in spherical tanks. Differences had arisen previously, concerned principally with Moss Rosenberg's claim that Sener/Crinavis had appropriated their technology and in particular their ideas regarding the support of spherical tanks in LNG Carriers. Prior to March 1977, Moss Rosenberg has built a number of LNG-carriers with spherical tanks supported on a single skirt construction. Sener/Crinavis advocated a similar design, the main difference being that the spherical tanks were supported on a double, as opposed to a single skirt.

As to offshore plants, the position in March 1977 was that Moss Rosenberg has designed a floating plant with an anchoring system, whereas Sener/Crinavis were marketing a plant supported by an artificial island.

Moss Rosenberg accept that their press release may have oversimplified the history of spherical tank and offshore plant design. Moss Rosenberg have never doubted that Sener/Crinavis did original design work and to the extent that the press release gave the impression that this was not so, Moss Rosenberg Verft a.s, and their R & D manager apologise for the impression given".

**FOR SALE–NEW ENGINE**

new cat D-399 engine and gear box
Turbo charged and after cooled Marine Engine
Arrangement P.L. 5161 with model #7271
Marine Transmission

Ratio is 5.09 to one.
Arrangement P.L. 1537 this is a new unit
asking price $135,000

Engine can be inspected in Oakland, California

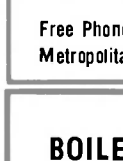
**Telephone: 415/893-7020**

33 RECTOR ST.
NEW YORK
N.Y. 10006
(212) 269-2515

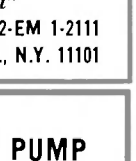
ANKER MARINE PAINTS

WORLD
WIDE
DISTRIBUTION

**Coast Guard & Navy Approved**
**Marine Valves & Fittings 1/8" to 72"**
*"When you need it yesterday"*
**IRON • STEEL • ALUMINUM • BRONZE • STAINLESS • ALLOYS**
**VALVES**



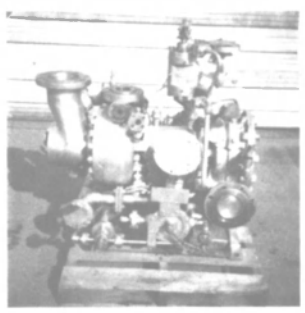
Cross, Angle, Manifold, Cargo, Scupper, Inverted vent, Globe, Angle, Gate, Indicator, Stop Checks, Check, Cleanouts .....



*"We got it",*
*"We'll get it", or "We'll make it"*
Free Phone: 800-221-9672 In New York State 212-EM 1-2111
Metropolitan Plb. Supply Corp., 5000 2nd St., L.I.C., N.Y. 11101

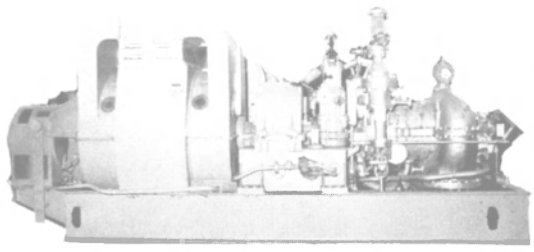
**PACIFIC TYPE TBA-12**
**BOILER FEED STEAM TURBO PUMP**

GPM 280
PSIG 575 inlet (555')
Steam inlet 425/740° F/15 EXH
BHP 139
Trip throttle valve
Woodward PG governor



process equipment engineers, Inc.
P.O. BOX 55686, HOUSTON, TEXAS 77055
Phone: 713 688-9373 Telex: 76 2163
Cable: POWERTHERM

**FOR SALE**
**by**
**LEVIN METALS CORPORATION — RICHMOND, CALIF.**



4 Westinghouse, Ship Service, Turbo Generators 1250 KW, 1563 KVA, 2010 Amps, 450 Volts, A.C., 3-Phase, 60 cycles, 1200 RPM.

Turbin Data: 8050 RPM, 525 PSI

These machines are complete and available from stock. Inside storage.

**Please Call:**

**Peter Mitchell, Levin Metals Corp.**
**Marine Equipment Sales**
**1310 Canal Blvd. — P.O. Box 398**
**Richmond, Calif. 94807**

**(415) 236-0606**

SOLD Through your CHANDLER

99.99 + % pure **ZINC** For Cathodic Protection

Meets Military Spec. Mil-A-18001 (ships)
Anodes • Bars • Circles • Rings • Rods IN STOCK

**SMITH and McCRORKEN, Inc.**
153 Franklin St. Dept. MR
New York, N.Y. 10013
Call (212) 925-2170
FOR FAST DELIVERY

# For Sale at Zidell

**AVAILABLE NOW FOR IMMEDIATE SHIPMENT**

## Two 500-ton Gantry Cranes — 70-foot Track Span

**(CAN BE WIDENED TO 100 FEET)**

Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4–150 HP–240 Volt DC Hoist Motors
4–150 HP–240 Volt DC Gantry Motors
2–265 KW–500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:
1) Moving heavy equipment
2) Dam Sites
3) Concrete Prefab plants
4) Railroad yards
5) Steel plants

Geared Track is also available at extra cost

200 TON/DIESEL ELECTRIC

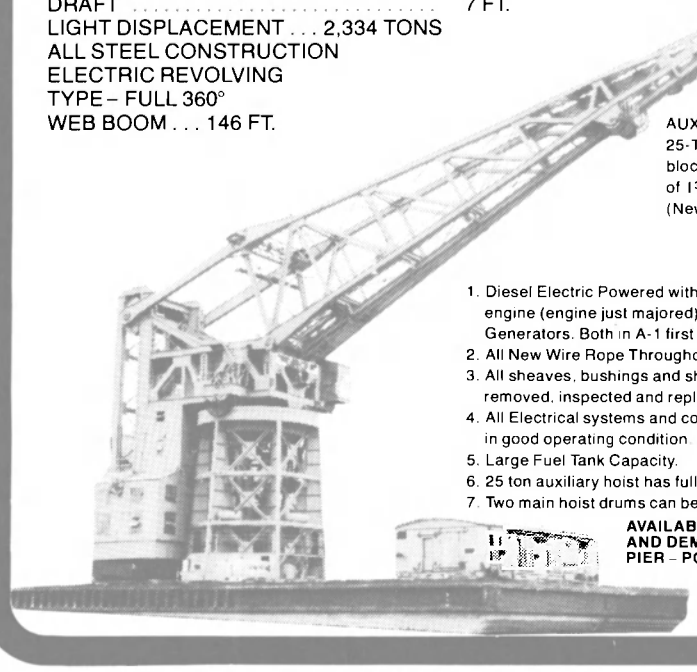
## Floating Crane

*FOR SALE – RENT– CHARTER*

LENGTH OVERALL ..... 140 FT.
BEAM ..... 84 FT.
DRAFT ..... 7 FT.
LIGHT DISPLACEMENT . . . 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING
TYPE – FULL 360°
WEB BOOM . . . 146 FT.

MAIN HOIST:
200-Ton – By 2 only 8 part blocks. Each block carries 2,050 ft. of 1½", 6 x 37 I.P.S. wire rope (New).

AUX. HOIST:
25-Ton – By 1 only 4 part block. Block carries 1,110 ft. of 1⅜", 6 x 37 I.P.S. wire rope (New).



1. Diesel Electric Powered with G.M. 8-278A diesel engine (engine just majored) and 300 KW, 230 volt Generators. Both in A-1 first class condition.
2. All New Wire Rope Throughout.
3. All sheaves, bushings and sheave pins have been removed, inspected and replaced in Good Condition.
4. All Electrical systems and controls have been placed in good operating condition.
5. Large Fuel Tank Capacity.
6. 25 ton auxiliary hoist has full 140 ft. of boom travel.
7. Two main hoist drums can be operated independently.

**AVAILABLE FOR INSPECTION AND DEMONSTRATION AT OUR PIER – PORTLAND, OREGON**

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.

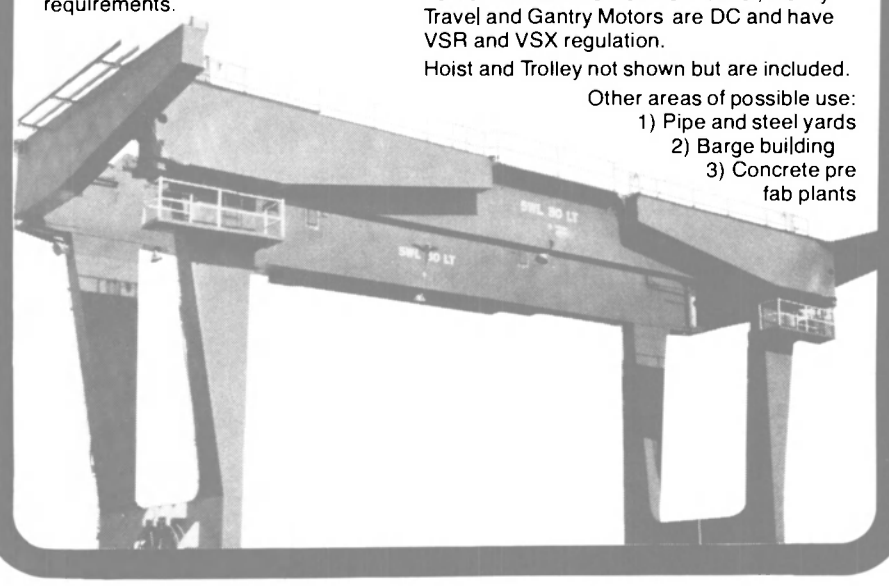
AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

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:
1) Pipe and steel yards
2) Barge building
3) Concrete pre fab plants



For additional information, brochures or inspection, contact: Hugh Sturdivant, Sales Manager.

**ZIDELL EXPLORATIONS, INC.**

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

ZIDELL

## HYDRAULICS

**SERVICE**

**REPAIR**

**PARTS**

**CONSULTING**

**CUNNINGHAM MARINE HYDRAULICS CO., INC.**

201 Harrison St. • Hoboken, N.J. 07030

Phones: Hoboken (201) 792-0500

Phones: New York (212) 267-0328

TWX 710-730-5224 CMH HBKN

## GRIPPERS

**For Jack-Up Barges**

**Sometimes Known As:**
**Gripper Bags - Gripper Slugs or Gripper Tubes**

We manufacture rubber inflatable grippers for several construction companies that use Jack-Up Barges. Our customers state that our grippers are superior to those which they had been using. If you are having any problem with quality, price or delivery of your grippers, please write or call direct:

(203) 677-7388.

THE PERMA-TYPE RUBBER COMPANY / P.O. Box 448
FARMINGTON, CONN. 06032

**"TOP DOLLARS PAID"**

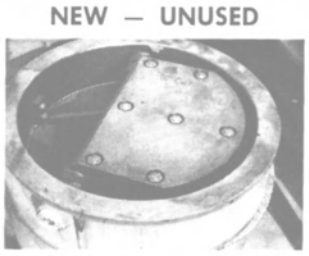
## WANTED

All Welding Alloys, Wires and Surplus Rod.

Call: **EAST WEST ALLOYS LTD.**
**1090 SOUTH LA BREA AVENUE**
**LOS ANGELES, CA 90019**

**(213) 933-5574**
**PHILA, PA. (215) 649-5805 "JERRY"**

FOR SALE
**24" VALVES**
**SWING CHECK — WAFER TYPE**
**NEW — UNUSED**



150 lb. cast steel, stainless steel trim. ABS & Coast Guard approved. Mfg. in 1975 by U.S. Manufacturer. Substantial savings.

**NICOLAI JOFFE CORPORATION**
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

STRAINERS • EXPANSION JOINTS • COUPLINGS

**MACHINING • WELDING • BRAZING**
**FABRICATION • DRILLING**
**THREADING • FACING • TAPPING**
**GROOVING • CUTTING • BEVELLING**

Piping Specialties • Special Valves • Special Fittings
Plate • Bar • Tubing • Rod
Iron • Steel • Bronze • Stainless • Aluminum • Monel • Alloys
**JOBBING and PRODUCTION WORK**

Send us your order and "Watch The Chips Fly"

"We got it", "We'll get it" or "We'll make it"
"If you can draw it", "we can make it"
"We weld everything, but a broken heart"

**METROPOLITAN MASTER MACHINISTS**
5000 2nd St., Long Island City, N.Y. 11101

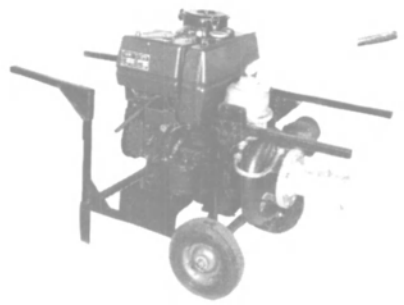
Free Phone: 800-221-9672 In N.Y. State 212-EM 1-2111

PIPE • VALVES • FITTINGS • FLANGES

**PORTABLE - EMERGENCY**

## 3" DIESEL GENERAL SERVICE AND FIRE PUMP

**70 GPM @ 105 PSI**
**WITH HAND PRIMING**



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

**THE BOSTON METALS COMPANY**

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

**9 X 12 2-SPEED ALL-STEEL**

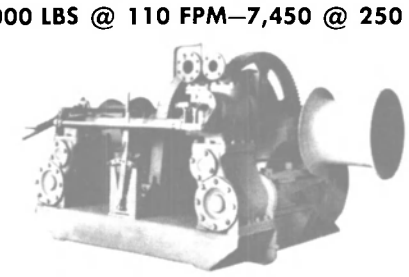
## STEAM WINCHES

**for use as**

## MOORING WINCHES

**OR GENERAL USE**

**20,000 LBS @ 110 FPM—7,450 @ 250 FPM**



DRUM CAPACITY: 1250' of 1" wire in 9 layers or 2200' of ¾" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies. DRUM BRAKE: Contracting band type — asbestos lining — foot operated. WINCH DIMENSIONS: 12' long—8' wide — 5' 10" high. Reconditioned by U.S. Navy. Equal to new.

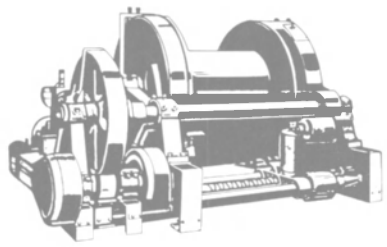
**THE BOSTON METALS COMPANY**

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

**LARGE STEAM**

## TOWING ENGINE

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



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

**ALSO AVAILABLE**

Large towing ring — 36" I.D.

**THE BOSTON METALS COMPANY**

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

**NEW — UNUSED**

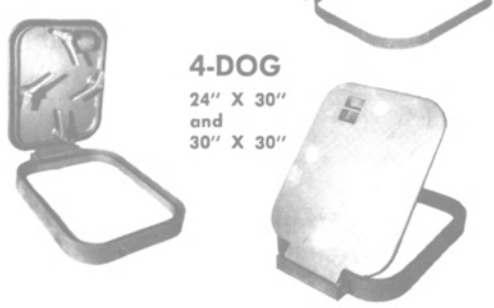
## FLUSH HATCHES

**14-DOG**

54" X 66" and 54" X 77"
14 Dog—operated from top side by T-Key, with dogs marked to show open & closed positions.

**4-DOG**

24" X 30" and 30" X 30"



4 Dogs on underside. Top side is flush and dogs are operated with T-Key openers.

**THE BOSTON METALS COMPANY**

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

**NEW WARREN 4 C.F.T.**

## TURBO FEED PUMPS

**PUMP: Warren single stage—6" suction—4" discharge. Normal 425 GPM—Maximum 580 GPM. Water temp. 280°F—discharge pressure rated 1215 PSIG—total head 2871 ft—NPSH 33 (max 50)—HP rated 468 (max 600). TURBINE: Steam inlet 3"—steam exhaust 8". Steam inlet pressure 870 lbs—steam temp. 587°F—exhaust pressure 40 PSIG—RPM 9900—overspeed trip 11,200 RPM Woodward governor—PG-PL—Bulletin 36012D. All accessories such as: low oil pressure trip—back pressure trip—low oil alarm switch—hand valve—lube oil cooler —aux. lube pump—oil temp. control valve—low oil level alarm connection—low oil pump motor start & stop pressure swith.**

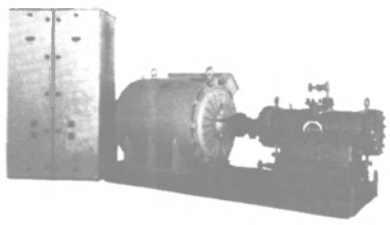
**THE BOSTON METALS COMPANY**

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

700 G.P.M. @ 150 P.S.I.
NEW — UNUSED

## MOTOR DRIVEN ROTARY HORIZONTAL PUMPS

WITH 4-SPEED 440/3/60 MOTOR



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

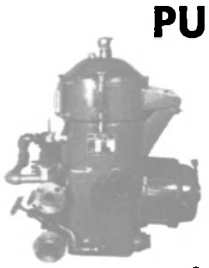
**THE BOSTON METALS COMPANY**

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

---

RECONDITIONED—GUARANTEED

## DELAVAL PURIFIERS



LUBE OR FUEL OIL

225 G.P.H.
55N-13 (Lube Oil)
55N-23 (Fuel Oil)

300 G.P.H.
65N-13 (Lube Oil)
65N-23 (Fuel Oil)

2 HP — 440/3/60/1750 RPM — Frame 224

**THE BOSTON METALS COMPANY**

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

---

15½" & 16" CLEAN BRASS
4-DOG MARINE

## PORTLIGHTS

15½" CLEAR OPENING
16" CLEAR OPENING

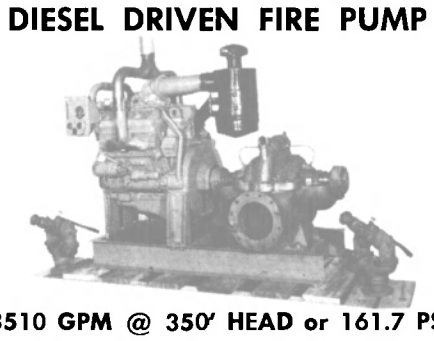
Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

**THE BOSTON METALS COMPANY**

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

---

## DIESEL DRIVEN FIRE PUMP



3510 GPM @ 350′ HEAD or 161.7 PSI

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

**THE BOSTON METALS COMPANY**

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

---

CROUSE HINDS

## 1000 WATT FLOODLIGHTS

NEW — UNUSED

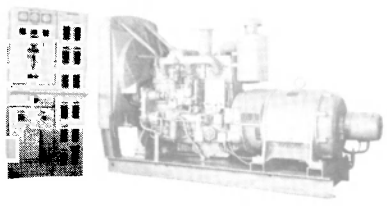
HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

**THE BOSTON METALS COMPANY**

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

---

## CUMMINS 75KW 93.8 KVA DIESEL GENERATOR SET

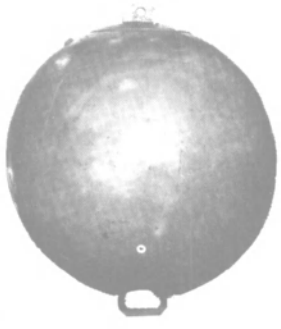


440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

**THE BOSTON METALS COMPANY**

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

---



NEW — UNUSED
SPHERICAL

## MOORING BUOYS

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

$349.00 each F.O.B. BALT.

## CYLINDRICAL BUOYS

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

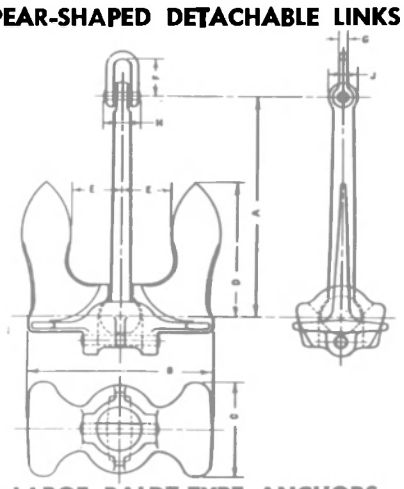
**THE BOSTON METALS COMPANY**

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

---

# ANCHORS — CHAIN

DETACHABLE LINKS
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS
16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS
3 EA. R.P. ANCHOR SHAX 3⅞ STK, 3⅞ PIN

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

NEW SWIVELS
3 EA. 2 5/16 — 3" E&E SWIVELS
13 EA. 3⅛ DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS
25 EA. #7 — 17 EA. #5

**THE BOSTON METALS COMPANY**

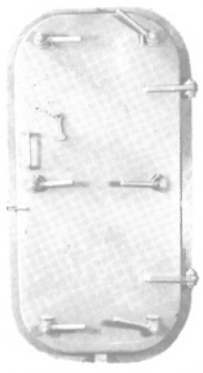
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

---

# FOR SALE

## NEW WATERTIGHT DOORS

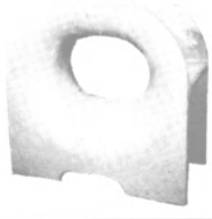
Steel Dogs



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

SIZE
26"x48" 26"x66"
26"x60" 30"x60"
EACH DOOR

IMMEDIATE DELIVERY



NEW 7" RADIUS PANAMA CHOCKS
(MEET PANAMA REGULATIONS)
14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

NEW UNUSED 12"X6½" PANAMA CHOCKS FOR SMALL VESSELS

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

**THE BOSTON METALS COMPANY**

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

# MITSUBISHI DIESELS: HIGHEST PERFORMANCE AND LOWEST FUEL CONSUMPTION EVER.

*Compact and efficient, low maintenance needs and economical on fuel. The Mitsubishi diesels are available now all along the Gulf Coast from Oosterhuis Industries.*

*You can't beat the Mitsubishi diesels. They come in wide horse power ranges and consume less fuel than comparable engines. They save money in other ways, too, through minimized maintenance and low original capital investment.*

*And every Mitsubishi diesel is backed by complete service and spare parts available from Oosterhuis dealers from Texas through Florida. You're on the right course with Mitsubishi diesels.*

*Ask people who have them, or contact Oosterhuis Industries, Inc., Engineers Road, Belle Chasse, Louisiana 70037.*

*Mailing Address: P.O. Box 30587, New Orleans, Louisiana 70190.*

*Cable: OOSTERHUIS*

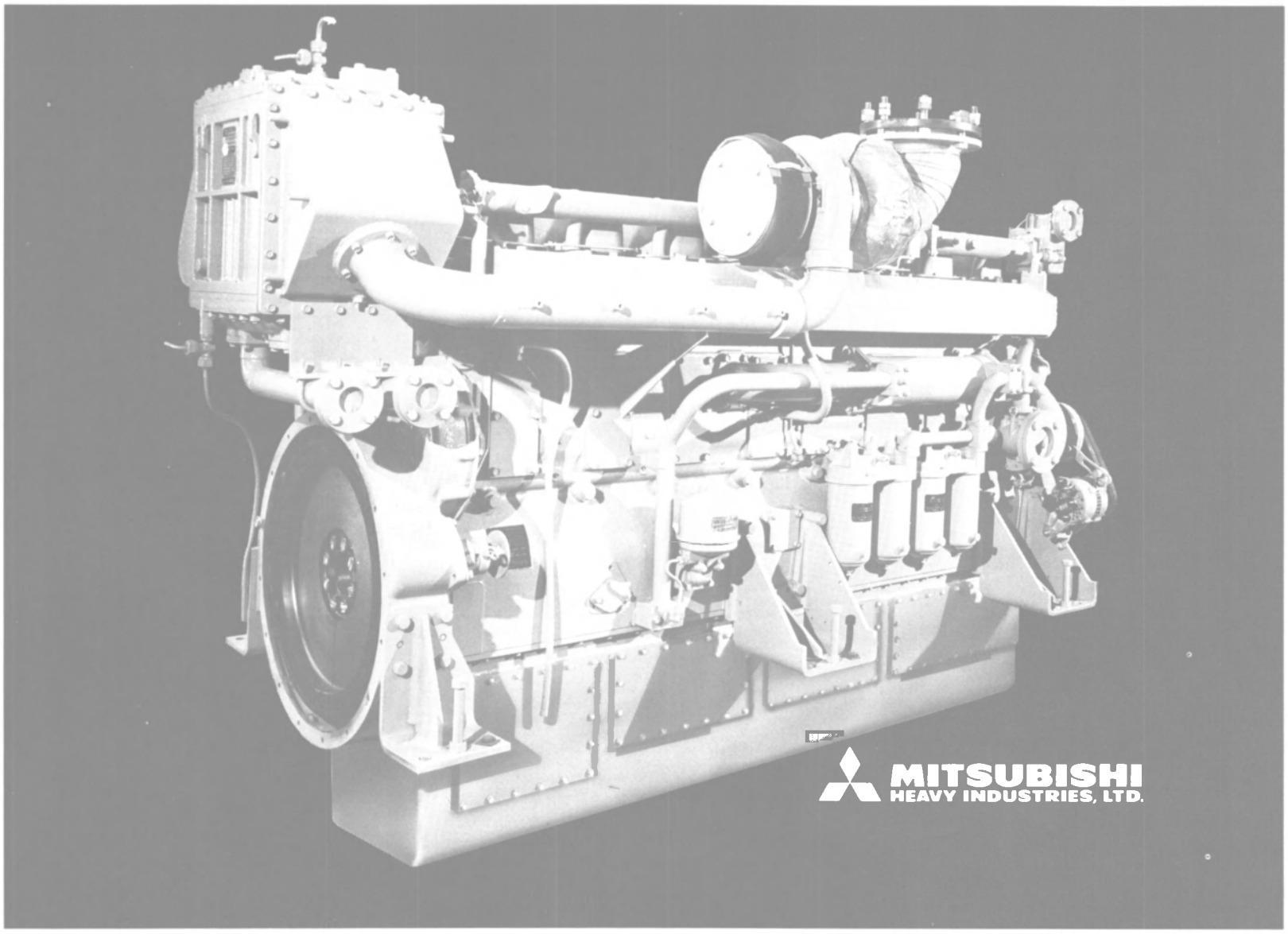
*Telephone: (504) 394-6506*

*Telex: 0587332*

*Houston Office Telephone: (713) 960-1400*

**Oosterhuis Industries, Inc.**

## Available now from Oosterhuis Industries.



# Stop smoking.

## ITT Mackay now offers four ways to improve fuel efficiency.

ITT Mackay, known on the bridge for reliable marine communications systems, now enters the engine room. Featuring equipment manufactured by proven performers like the Wager Company and VAF Instruments, ITT Mackay now offers four products to meet your fuel conservation needs.

**Smoke Indicator:** Available in both visual and photoelectric models, the Wager smoke indicator can distinguish between white and black smoke. It indicates, at a glance, the direction of changes to boiler controls.

**Combustion Optimizer:** This unit fine tunes the air/fuel ratio of your automatic combustion control system. It receives input from an electronic smoke indicator or oxygen analyzer monitoring combustion gases. The result is a reduction in fluctuations around the desired control point, permitting a much lower level of excess air while maintaining smoke-free operation.

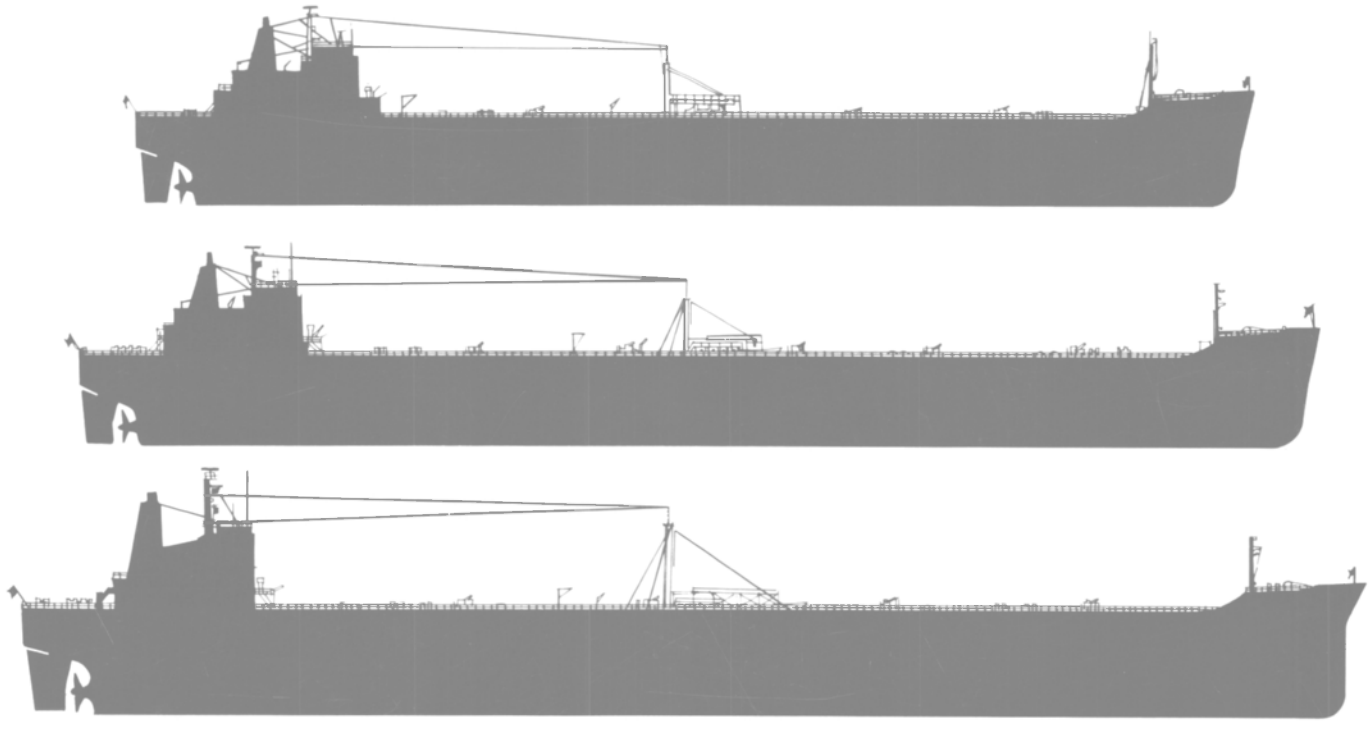
**Viscotherm® Viscosity Control:** The Viscotherm unit has been proven effective and reliable in both diesel and steam propulsion plants for 20 years.

**Fuel Metering:** ITT Mackay offers both piston and vane type positive displacement meters which can measure flows from 0.05 gal/hr (piston) to 425 gal/min (vane).

If you're thinking about fuel conservation systems, either retrofit or new construction, think ITT Mackay. To find out more about ITT's engine room products, call or write:
ITT Mackay, Dept. 370, 2912 Wake Forest Road, Raleigh, NC 27611.
Or telephone (919) 829-3134.

ITT Mackay

# How are your tankers affected by the new USCG rules?



Where can you get your tankers retrofitted to comply with the USCG rules on inert gas systems, segregated ballast, designated clean ballast, and crude oil washing systems? How long will it take? What will it cost?

## Call Bethlehem for answers: (212) 558-9500

Bethlehem's seven major shipyards in the United States add up to strong experience in both the building and repairing of tankers. And there is also our design arm, CTD. Bethlehem's Central Technical Division is world renowned for its innovative ship-systems' engineering and its bold advancements in ship design and construction technology. CTD has already developed retrofit concepts that satisfy the new Coast Guard rules for Bethlehem-built tankers. Our repair yards are well able—and are set—to handle the actual jobs of retrofitting.

But more! We'll gladly interpret the new rules applicable to your tankers and explain the many compliance options available. If you like, we'll develop suitable concepts for retrofitting any of your tankers, and design and engineer the changes required. Then, where scheduling permits, we'll quote the job at one of our yards.

**Must act now, or...**

June 1, 1981, the first deadline for compliance with the new rules, is not far away. Ship owners and operators who schedule retrofitting now may choose a layup time of convenience; those who wait may have to take the time slots that are left. If any!

Call Bethlehem now.

**BethShip** BETHLEHEM STEEL

**Bethlehem Steel—Shipbuilding**

**Ship Repair Sales Office:** One State St. Plaza, New York, NY 10004
Cables: BETHSHIP New York · Telex: 222-847 or 421-605 · Phone: (212) 558-9500
**Drydocks** in Baltimore, New York, Boston, Los Angeles, and San Francisco Harbors, and at Beaumont, Texas.