

MARITIME REPORTER

AND
ENGINEERING NEWS

Special SHALLOW-DRAFT REVIEW



**Shallow-Draft
Vessel Review**
(SEE PAGE 14)

JANUARY 1, 1981

When you pass The Ambrose Light, you're not far from Gulf.



Back in 1908, U.S. Lightship No. 87 first dropped her mushroom anchor at 40° 27.5' N, 73° 49.9' W.

She was stationed there to guide square riggers and steamers through the shifting sandbars of the newly dredged Ambrose Channel and on into New York harbor.

When fog obscured her light, she blared a warning heard for miles.

And in 1912, ships began to home in on her radio beacon, the first in the world to operate successfully.

You can board the original Ambrose at New York's South Street Seaport Museum. The less romantic, but more efficient tower above now stands where she rode at anchor, a welcome sight (or sound) to seamen inward bound.

New York. Still another port where you'll find premium Gulf marine lubricants like Gulf Veritas Cyloils.

These highly alkaline cylinder lubricants are for use in all low-speed crosshead diesel engines burning residual fuel oils. They're manufactured from highly refined base oils

having maximum film strength and high oxidation stability, compounded with oil-soluble additives to provide the alkaline reserve needed to neutralize the acidic products of combustion and a high level of detergency to ensure maximum component cleanliness.

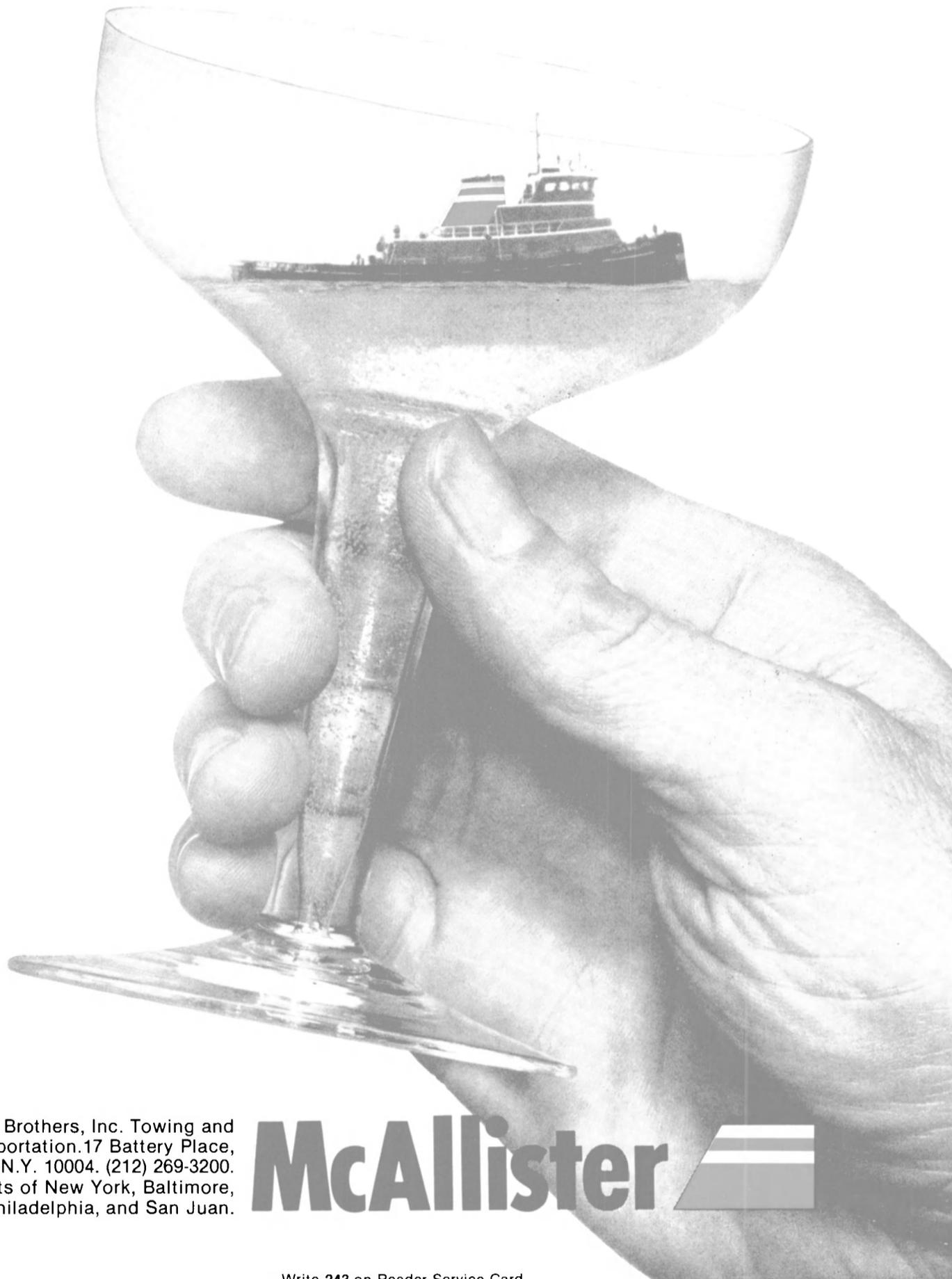
All of Gulf's marine products give you maximum quality, performance and bottom-line economy. They're available, backed by a complete and comprehensive service capability, at ports of call throughout the world. For specifics, please contact your local Gulf representative.



Gulf Trading and Transportation Company
A Division of Gulf Oil Corporation

Write 199 on Reader Service Card

The very best to you in 1981



McAllister Brothers, Inc. Towing and
transportation. 17 Battery Place,
New York, N.Y. 10004. (212) 269-3200.
Serving the ports of New York, Baltimore,
Norfolk, Philadelphia, and San Juan.

McAllister 

Write 243 on Reader Service Card

2182 ONE STEP

That's all you need for full compliance with worldwide 2182 kHz watch keeping regulations.

The one step? Just contact Griffith Marine.

We carry a complete line of first quality equipment to assure that your ship complies fully with all current and future international (also US) watch keeping regulations. Our full range of equipment includes dedicated receivers, tone encoders, antennas, transmitters, speakers, alarms and reset controls.

In addition to hardware, our communications design team will interface any equipment into your radio room, and our large staff of licensed technicians will install, service and maintain it.

GRIFFITH MARINE NAVIGATION, INC.

134 North Avenue, New Rochelle, NY 10801

Telephone: 212-828-5554 or 914-636-4340

TWX: 710-563-0617/Cable: GRIMAR NEW ROCHELLE NY

Electronic Navigation and Communications Equipment

Write 417 on Reader Service Card

Zelvin Levine Appointed Advanced Ship Operations Director At MarAd

Samuel B. Nemirow, Assistant Secretary of Commerce for Maritime Affairs, has appointed Dr. Zelvin Levine to the post of Director, Office of Advanced Ship Operations, one of three offices reporting to the Assistant Administrator for Research and Development.

In this new position, Mr. Levine is responsible for the Maritime Administration's (MarAd's) research and development programs in the areas of ship operations, including fleet management technology, ship performance and safety, and cargo-handling research. He also is responsible for the agency's National Maritime Research Center located at Kings Point, N.Y. One of the center's principal programs involves its Computer Aided Operations Research Facility (CAORF), which is the world's most advanced, computer-generated, visual display simulator devoted to ship operations research.

Mr. Levine has held senior management positions since joining the Maritime Administration. He has headed MarAd's Office of Advanced Ship Development (1975-80) and the Office of Maritime Technology (1972-75). He joined the agency in 1969 as program manager for advanced ship propulsion systems research and development after 14 years in the private sector.

B&W Yard Gets Contract For Tenth Bulk Carrier

Burmeister & Wain Shipyard, Copenhagen, has signed a contract with Newark Shipping Company Limited, Monrovia, Liberia, for the delivery of a 64,000-dwt bulk carrier of the fuel-saving type in the middle of 1982.

Since December 1979 the B&W yard has signed contracts for the delivery of no less than 10 ships of the above mentioned type, which is characterized by a low fuel consumption of less than 40 tons per day at an average speed of 15 knots.

With this contract the shipyard has secured work for the employees until first quarter of 1983. The B&W yard is optimistic in obtaining further orders.



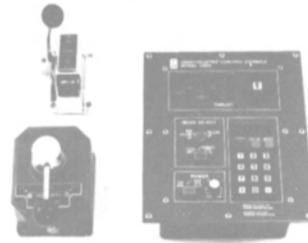
U.S. Navy Torpedo Recovery Vessel

Omnithruster™ More Than Just A Bow Thruster

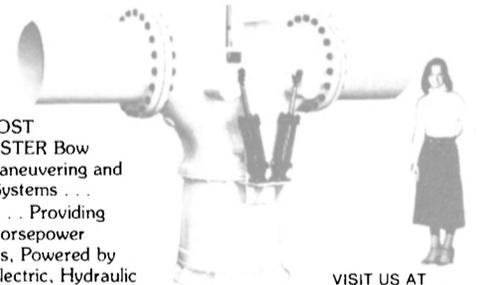
- ◆ Thrusts Underway
- ◆ Thrusts While Pitching
- ◆ No Reversing Impeller to Change Directions
- ◆ Minimum Buoyancy Loss
- ◆ Smaller Hull Penetration
- ◆ Fuel Savings

OMNITHRUSTER DOES IT ALL!

- ◆ Thrusts with nozzles out of water in rough seas: vertical systems only.
- ◆ No protrusions . . . no change in hull shape.
- ◆ Small nozzles reduce drag . . . save fuel and passage time.
- ◆ Easily retrofitted.



Micro-Processor Control System, Model 1200A . . . with gyro input . . . holds vessel's heading. System also accepts compatible NAV AIDS fore-aft and slow-speed propulsion and positioning.



LOWEST-COST
OMNITHRUSTER Bow
and Stern Maneuvering and
Positioning Systems . . .
PV SERIES . . . Providing
25 to 3000 Horsepower
Combinations, Powered by
AC or DC Electric, Hydraulic
or Diesel Drive.

VISIT US AT
THE WORKBOAT SHOW
NEW ORLEANS
BOOTH NO. 413-414

*Covered by U.S. Patents; Foreign Patents Pending

OMNITHRUSTER INC.
15418 Cornet Avenue, Dept. 37-A1
Santa Fe Springs, California 90670
213/802-1818 Telex 194265 OMNI SFES
Cable Address Omnithrust

Write 290 on Reader Service Card

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

(USPS 016-750)

No. 1

Volume 43

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.

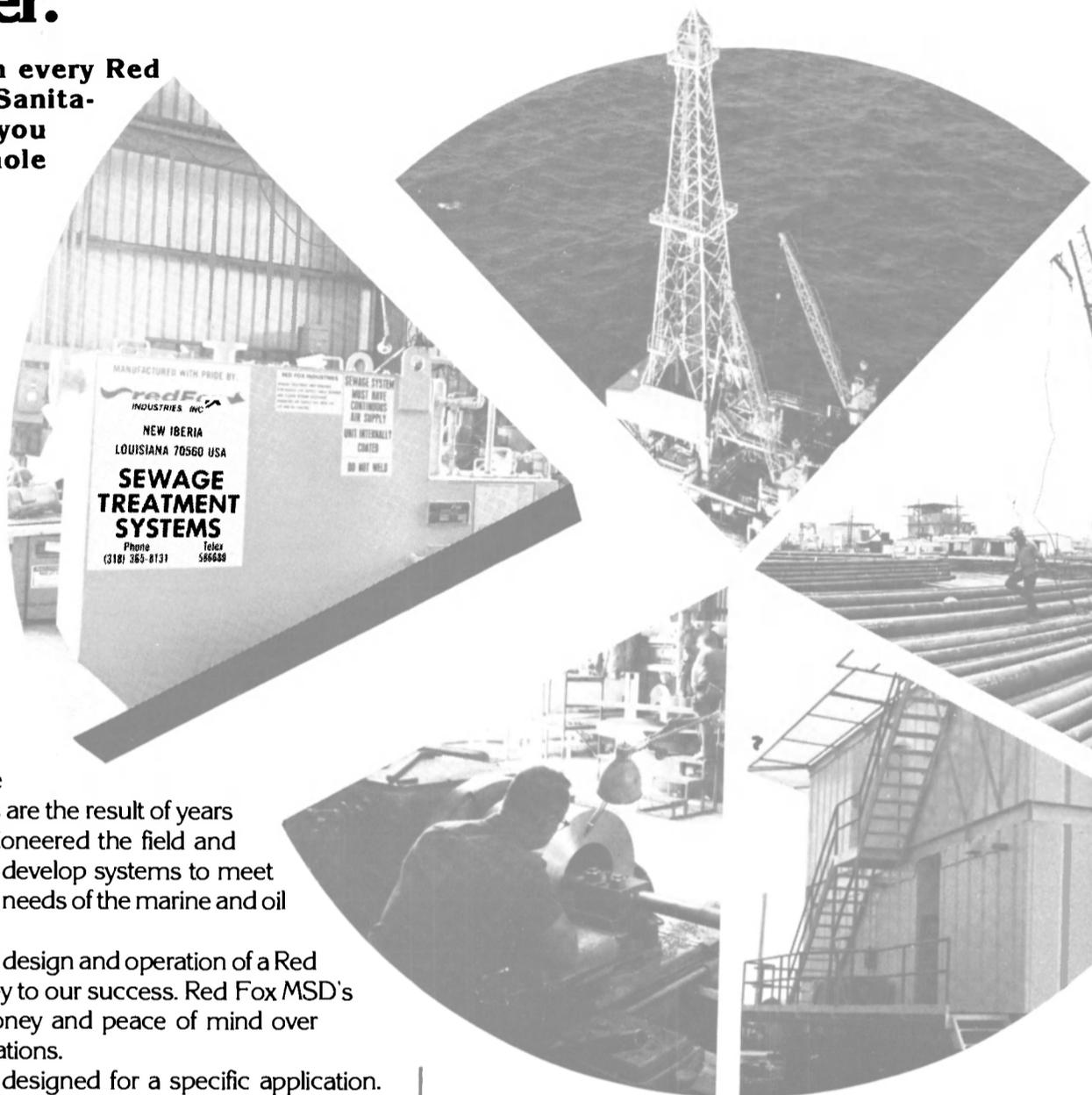
Member

BPA

Business Publications
Audit of Circulation, Inc.

When your "MSD" is from Red Fox- Your Marine Sanitation System Problems are over.

Because with every Red Fox Marine Sanitation Device, you get the whole company.



Red Fox Marine Sanitation systems are the result of years of research. We pioneered the field and have continued to develop systems to meet the ever increasing needs of the marine and oil industries.

The simplicity of design and operation of a Red Fox MSD is the Key to our success. Red Fox MSD's save you time, money and peace of mind over government regulations.

Each system is designed for a specific application. **Standard unit.** For large capacity from 100 gal/day to 9,000 gal/day.

Offshore unit. Meets oil industries' needs to conform to international disposal regulations.

Little Fox. A self sustained retro-fit unit designed for crews up to eight.

Fox Pac. Smaller than our standard unit and ideal for crews of 1-5, 6-10, and 11-20. All proven under actual conditions.

Each system offers: NO internal moving parts. EPA and USCG certifications. Meets IMCO standards. NO effect in transition from fresh to salt water. Needs no expensive chemicals.

Red Fox Sanitation Systems have been on duty for over ten years-trouble free.

Custom Designed Fabrication: As a fabricator of complete rig packages both offshore and land based, drill ship retrofit, inland barges and complete

"livable" living quarters . . . we meet the demands of the oil and marine industry to their satisfaction-and ours. Our attention to design, engineering, fabrication techniques, material selection, tools and craftsmanship must meet the highest standards we can place.

Machine & Supply: After 35 years of keeping the oil industry on the move, our Machine & Supply Division is called upon everyday-building, rebuilding, remodeling, designing and repairing.

Pipe Repair Yard: We're old hands when it comes to the basic item of oil field pipe. Our facility and experienced personnel have been providing Re-threading and Pressure Testing to meet API standards for over 35 years.

 **redFox**
INDUSTRIES, INC.

P.O. Drawer 640 New Iberia, Louisiana 70560 (318) 365-8131 TELEX 586680

**\$8.6-Million Contract
For Frigate Overhaul
Awarded By Navy To BIW**

A contract for approximately \$8.6 million to overhaul the frigate USS Brumby (FF-1044) was awarded by the U.S. Navy recently to Bath Iron Works, marking the second ship of the class slated for the shipyard within a month. A like contract for ap-

proximately \$9 million for its sister ship, USS Edward McDonnell (FF-1043), was awarded to the company in October. Both frigates were commissioned into the Navy in 1965, and both are scheduled to arrive at the Bath, Maine, yard in February 1981 for 10-month overhauls.

"We won both contracts against intense competition in an extremely depressed shipbuilding

industry," said BIW president John F. Sullivan Jr. "They reflect our aggressive marketing, which in turn reflects our total confidence in the ability of our management and shipbuilders to meet the most demanding budgets and schedules."

Mr. Sullivan said the dual overhauls will require about 800 workers at their peak. The newest award raises the value of con-

tracts won by Bath Iron Works since September to approximately \$64.7 million.

**Gould Gets \$4.4-Million
Navy Contract For
Navigational Sets**

Gould, Inc., NAVCOM Systems Division, El Monte, Calif., has been awarded a \$4,439,369 modification to a previously awarded letter contract for 43 AN/URN-25 TACAN navigational sets. The Naval Electronic Systems Command is the contracting activity. (N00039-80-C-0436)

**Phillips Appointed Gulf
Coast General Manager
For Designers & Planners**



Edwin F. Phillips

The Galveston Office of Designers & Planners, Inc. has been redesignated as the Gulf Coast Office, and has been relocated in Dickinson, Texas, midway between Galveston and Houston. Monroe Levy, vice president and manager of the Galveston Office, retired from D&P on December 31, 1980. However, he will continue as a principal owner and director of the corporation, and will remain on the staff as a consultant to the firm.

Edwin F. Phillips has been appointed as the Gulf Coast general manager. In his new capacity Mr. Phillips will report to the executive vice president Wolfgang Reuter, and will manage D&P's activities in the Gulf Coast Area. 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 Dickinson, Texas.

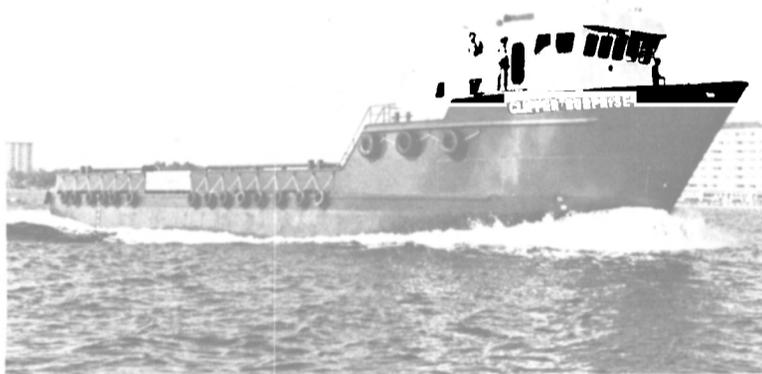
Mr. Phillips joined D&P in 1959 and held various positions with the company both in New York and Galveston, including the position of chief naval architect of the Galveston Office since 1969. Prior to joining D&P, he was employed by Marine Computer Applications Corporation, Grumman Aircraft/Engineering Corporation, and the Shipbuilding Division of Bethlehem Steel Corporation.

The new address of the Gulf Coast Office is Designers & Planners, Inc., P.O. Box 1144, Dickinson, Texas 77539; telephone (713) 337-6141.

**"THE BEST SURPRISE
IS NO SURPRISE!"**

**AND THE OWNERS OF PASC ENGINE ROOM
MONITORING SYSTEMS KNOW IT.**

THAT'S WHY CLIPPER FLEET'S "CLIPPER SURPRISE"
AND ITS FIVE SISTER VESSELS SWITCHED TO
PAN AMERICAN SYSTEMS.



"CLIPPER SURPRISE"

"CLIPPER FLYING CLOUD"

"CLIPPER WESTWARD HO"

"CLIPPER SEA WITCH"

"CLIPPER GREAT REPUBLIC"

"CLIPPER SOVEREIGN OF THE SEAS"



EASTERN MARINE SHIPYARDS, BUILDERS OF THE ABOVE VESSELS
HAVE ORDERED ADDITIONAL SYSTEMS TO OUTFIT THEIR STOCK
VESSELS. AGAIN, OUR CUSTOMERS RECOGNIZE THE QUALITY
AND OVERALL INDUSTRY REPUTATION OF PAN AMERICAN
ENGINE ROOM MONITORING SYSTEMS.

LOOK US UP
at the
1981 WORK BOAT SHOW
BOOTH 1116



Pan American Systems Corp.

P.O. DRAWER 400, BELLE CHASSE, LA. 70037 TEL.(504) 656-2291

**James H. Cottrell Joins
Ogden Corporation
As Vice President**

James H. Cottrell has been named vice president of Ogden Corporation, it was announced by Ralph E. Ablon, chairman and chief executive officer. Mr. Cottrell joins Ogden from the Lummus Company.



James H. Cottrell

He will direct Ogden's expansion into equipment for process and energy-related plants. Emphasis will be placed upon utilization and expansion of fabrication capabilities at Avondale Shipyards and Yuba Heat Transfer. State-of-the-art techniques will be offered for fabrication of engineered process equipment, pipe spools, and plant modules.

In addition, Mr. Cottrell will coordinate Ogden's activities in coal transportation, where the skills of several divisions are available for the manufacture of specialized railroad cars for coal transportation, handling of coal at ocean ports, and construction and operations of ships for coal movement.

Mr. Cottrell's industrial career commenced with Cities Service in 1958 on work associated with the Athabasca Tar Sands of Northern Alberta, Canada, and it includes over 15 years with C.F. Braun & Co. in various capacities to vice president, and Science Management Corporation as executive vice president.

**Guralnick Associates
Awarded Design Contract
By MSC-Pacific**

Morris Guralnick Associates, Inc. (MGA) has just been awarded a level-of-effort design contract by the Military Sealift Command, Pacific (MSCPAC), under which the San Francisco firm of naval architects and marine engineers will be called on to assist in design and engineering work associated with MSCPAC operations during the coming year.

In making the announcement of the new contract award, Hugh F. Munroe, president and chief executive officer of MGA, said: "In the past, occasional design tasks were issued by MSCPAC to design contractors only when an urgent need arose, and we have at times been engaged by MSCPAC to supplement its ship de-

sign staff. Recently, however, conditions have developed in which more formal and continuing assistance is required by MSCPAC, resulting in solicitation and award of the type of contract just awarded to our firm. Under this contract, we will provide on-demand services to MSCPAC throughout the year."

The Military Sealift Command, Pacific, headquartered in Oakland, Calif., is the shipping arm

of the Department of Defense, operating many classes of ships, including dry and bulk cargo types. In addition, MSCPAC operates support ships (underway replenishment and scientific) for the United States Navy and other customers. The maintenance of these vessels requires frequent modification to conform to changing conditions, and MGA will provide design and engineering assistance as required.

Morris Guralnick Associates, largest naval architectural and engineering firm of its type on the Pacific Coast, was founded in San Francisco 34 years ago. Presently engaged in several long-term projects for the maritime industry, the U.S. Navy, and other commercial and government clients, the organization in addition to its headquarters office in San Francisco operates a branch office in San Diego.

THERE ARE JUST
TWO KINDS OF VENT VALVES...
Wager Vent Valves
(THEN ALL THE OTHERS)



We make Wager Vent Valves - strong, true, rugged performers. These are vent valves you can count on for the long haul, in all kinds of sea, in all kinds of weather.

No one comes close to Wager in fine quality of design, materials, and workmanship - yet you can have Wager valves and pay about the same, sometimes surprisingly less than you might spend elsewhere.

Some marine people have asked us why we don't come up with a "blind" line of less exacting quality - just to compete with those lowest bidders. But we are not interested in producing "makeshift" valves, with the troubles they may give you at sea and the delays for replacement they may cause you in port.

Wager has meant finest quality back to our introduction of the innovative "ball float" valve in 1933. We have perfected that valve along the way. If we hit on a way to perfect it further - we will.

Quite simply: Wager makes the best vent valves in the business.

We intend to keep it that way.



Robert H. Wager Co., Inc.

Passaic Avenue
Chatham, NJ 07928 USA

Write us for spec sheets - no obligation.

Write 366 on Reader Service Card

Combination Gas Tanker 'Hektor' Delivered By Moss Verft

The Moss, Norway, yard of Moss Rosenberg Verft A/S, a member of the Kvaerner Group, recently delivered the liquefied petroleum gas/chemical tanker Hektor to A/S Nordsjogas of Stavanger, Norway. The ship has a total cargo capacity of 24,000 cubic meters divided in three tanks. These are designed for carrying propane, butane, ammonia, vinyl chloride (VCM) as well as mixtures of propane and butane. Two types of cargo can be carried simultaneously.

Hektor is built according to Det norske Veritas class +1A1, Ice C, EO, Tanker for Liquefied Gas. She is constructed in accordance with U.S. Coast Guard Rules and Regulations for Foreign-Flag Vessels, and also complies with IMCO Gas Code Regulation A 328 IX. The ship has an overall length of 157.80 meters, beam of 24.40 meters, and depth of 16.00 meters (517.7 by 80 by 52.5 feet). At maximum draft of 10.70 meters

(35.1 feet), she has a deadweight of 20,000 tons; gross tonnage is 15,819.

The ship is built with a single deck and without forecastle and poop. All accommodations and the engine room are arranged aft. Seven watertight bulkheads subdivide the ship, which is built with double bottom and single shell. The shell, main deck, and inner bottom in the cargo area are fabricated of steel meeting the requirements of a secondary barrier for cargo containment.

Hektor has three independent, self-supporting cargo tanks of prismatic shape. They are designed for carrying fully cooled LPG, NH₃, and VCM operating with a slight overpressure; lowest permissible temperature is minus 48 C. The tanks are built as a welded structure of plates of low-temperature steel, and insulated on the outside with polyurethane.

All pipe connections to the car-



Versatile LPG/NH₃/VCM tanker Hektor, completed recently by Moss Verft for A/S Nordsjogas, Stavanger, Norway, is powered by 14,400-bhp Horton/Sulzer diesel.

go tanks are connected to the tank dome. Discharging is carried out in about 10 hours by six deepwell pumps, two in each tank. Crossovers connect the ship's loading/discharge lines with loading arm on shore. Boil-off from the cargo is fed to the onboard reliquefaction plant, which consists of three two-stage units that reliquefy the gas and return it to the cargo tanks.

Main propulsion is by a Horton/Sulzer 6RND76M diesel with maximum continuous rating of 14,400

bhp at 122 rpm. Trial speed was 17.5 knots at a draft of 9.2 meters (about 30.2 feet). Two side thrusters are installed, one forward and one aft.

The ship is equipped with a gas detector and an inert gas plant; both are of Moss design and were fabricated by Moss Verft. Navigation equipment includes two radars, Decca Navigator, radio direction finder, gyrocompass system, autopilot, echosounder, and magnetic compasses.

Diesel Shipbuilding Delivers Steel Harbor Tug To Ecuador

Diesel Shipbuilding Company of Jacksonville, Fla., recently delivered a 46-foot tugboat to the Port Authority of La Libertad, Ecuador. The main engines for the twin-screw La Libertad were supplied by Coastal Power Products of Jacksonville. They are a pair of General Motors Detroit Diesel engines, each with a continuous rating of 230 bhp at 1,800 rpm, with 32-volt starting and 60-amp, 32-volt alternators on each engine. Reduction gear ratio is 4.5:1. The propellers are Ellis 4-blade bronze, 48 by 36 inches, and the propeller shafts are 4 1/2-inch PH stainless steel furnished by Western Branch Metals. Fuel capacity is 1,750 gallons.

The new tug is of steel construction with a 15-foot beam and draft of 6 feet. Hull construction

is 5/16-inch plate and the deck is 1/4-inch. There are five transverse bulkheads of 1/4-inch plate, and one longitudinal of 1/4-inch.

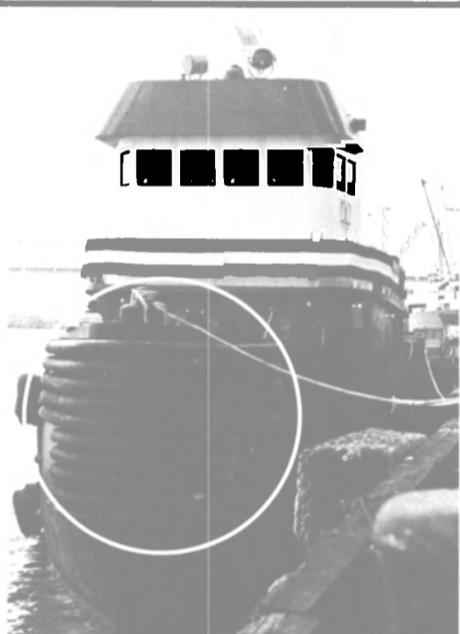
James W. Coppedge, president of Diesel Shipbuilding, said, "We have specialized in the construction of steel vessels, building a variety of shrimp boats and other workboats to meet the need for rugged, seaworthy boats. Our steel vessels have met that need for three generations."

The pilothouse has a Wagner model N400-1500, hydraulically operated steering system with a 42-inch mahogany wheel, Perko navigation lights with screens, and One Mile Ray searchlight. Quarters in La Libertad are of the day type, with settee cushions in the aft end of the wheelhouse, and two pipe berths.



Diesel Shipbuilding of Jacksonville has delivered the tugboat La Libertad to the Port Authority of La Libertad, Ecuador. Boat is powered by two Detroit diesels.

More Protection for Ship and Shore



MORSE®

MARINE FENDERS

BORG WARNER

Morse extruded marine fenders protect your tug, barge or work boat better because of their one piece hollow bore construction which absorbs and deflects shock better than conventional bumpers.

Highly resistant to wear, Morse Fenders are made with Neolastic® rubber to resist the harmful effects of sun, oxygen, ozone, salt water and temperature variations. Wear resistant Morse Fenders are the logical choice when the relative motion between rubbing surface and fender is lateral.

Available in a variety of styles and shapes, Morse Fenders can be pre-curved during fabrication to fit special requirements, attachment methods or designer needs.

When you want to protect your valuable ship, barge or dock, specify Morse Extruded Marine Fenders. Get them from...

J.H. MENGE & CO., INC.

Marine Engineering Sales and Inventory

P.O. Box 23602
New Orleans, La. 70183
Phone (504) 733-4871



Since 1878

1520 Texas Ave., Suite 1011
Houston, TX. 77002
Phone (713) 224-9750

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



**Talking Navigator Option
From Texas Instruments
—Literature Available**

Texas Instruments Incorporated has just introduced a TI 9930 Talking Navigator Accessory Option with Autopilot Output for use with its Loran C based navigation system.

Using the new Speech Option,

the commercial boat operator situated anywhere on the vessel where there is a speaker can receive Loran C-based information. Data is also available on call by pressing an appropriate key on the TI 9900 keyboard. Other messages include power-up status, system warnings, and entry corrections.

Another in a growing line of TI products utilizing Solid State

Speech™ chips, the TI 9930 may be added to the TI 9900 fully automatic Loran C Navigator. A state-of-the-art device introduced a little over a year ago, the TI 9900 packs a complete navigation system into a unit the size of a large city telephone book.

Easily added to any TI 9900 or TI 9900N, the new Speech Option provides multiple remote reporting capabilities at low cost.

The clear, crisp "voice" of the new unit can be heard anywhere a user chooses to mount a loudspeaker — in a pilothouse, below decks, on deck, or in the cockpit.

The unit can report eight basic navigational announcements: time (24-hour clock), position (latitude/longitude), speed over the bottom (knots), range to waypoint (nautical miles), time to go at present speed to next waypoint (hours-minutes-seconds), cross track error (miles off course), course made good (degrees true or magnetic), and bearing to next waypoint (degrees).

An operator can select up to four of the messages at a time, in any order, to repeat at any interval between six seconds and one hour. He can also utilize the normal visual display.

The TI 9930 will be shown publicly for the first time at the New York National Boat Show, beginning January 15, 1981.

For more information on the new Talking Navigator Option, Write 37 on Reader Service Card



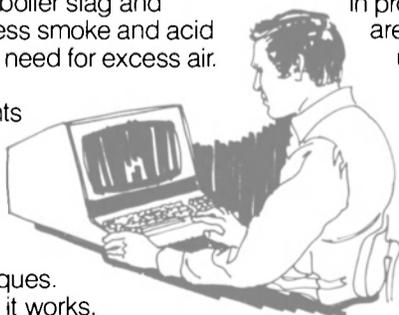
**HERE'S A DRAMATIC WAY TO PROVE THAT
FERROUS CATALYST CAN LOWER PROPULSION PLANT
OPERATING COSTS ABOARD YOUR VESSELS.**

New computer software program measures plant efficiency before and after catalyst use.

- Do fuel oil additives work?
- Will they lower operating costs and save fuel?
- Are they cost effective?

Ferrous Corporation has developed a computer software program that can tell you exactly how much a specific fuel additive changes the efficiency of your marine boiler or diesel.

We wanted the facts! The program was developed to test Ferrous Combustion Catalyst. For years we had observed the effects of Ferrous Catalyst: reduced boiler slag and engine deposits; less smoke and acid corrosion and less need for excess air. We assumed that these improvements would also save fuel. But we wanted to prove it with accurate and acceptable data processing techniques. Here's how it works.



Input data comes directly from you. All the input for the program comes directly from your engine room log. No special equipment or training is necessary.



The Ferrous software program evaluates the data and applies a number of correcting factors to determine changes in plant efficiency and trends in performance.

Before and after tests show significant results. Once the data has been analyzed, Ferrous prepares a report interpreting the results. Changes in propulsion plant efficiency are shown in easy to understand graphs.

To date, reports show efficiency improvements ranging from 4% to 8%. This means each gallon of Ferrous Catalyst saves three to six barrels of fuel. **We can show you the proof!** Sure we'd like to

sell you our product. But first, we want you to be convinced that Ferrous Catalyst works. If you're interested in putting your vessels to the test, or simply learning more about Ferrous Catalyst, fill out the coupon below and send it to Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009. Phone 206/454-6320.

FERROUS HAS THE PROOF!

SHOW ME THE PROOF!

- Send details about testing program.
- Send information about Ferrous Catalyst.
- Please have your representative call.

Name _____
Company _____
City/State/Zip _____
Phone _____



**\$7-Million Navy Contract
For Engineering Services
Awarded To Newport News**

Newport News Shipbuilding, Newport News, Va., has been awarded a \$6,969,382 cost-plus-fixed-fee contract for engineering and technology services in the conduct of SSN-688 Class planning yard functions and engineering services for operational SSN/SSBN submarines. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-2010)

**J.G. German Appointed
President And CEO
Of German & Milne**

German & Milne Inc., naval architects of Montreal, has announced the appointment of **John Gordon German** as president and chief executive officer. Mr. German is a graduate of the Massachusetts Institute of Technology and the University of Michigan, and has pursued a successful career in the field of ship design and marine transportation consultancy. He has many unusual and successful designs to his credit, and is currently engaged in special projects related to Arctic navigation.

**\$11.8-Million Support
Services Contract
Awarded To CACI-Federal**

CACI, Inc.-Federal, Arlington, Va., has been awarded a \$11,840,226 modification to a previously awarded contract for services in support of the Saudi Naval Expansion Program. The Naval Regional Contracting Office, Washington, D.C., was the contracting activity. (N00600-79-C-0206)

At-Sea Navigation Seeks Title XI On Two Tug/Barge Units To Cost \$54 Million

At-Sea Navigation, Inc., 534 East Putnum Avenue, Greenwich, Conn., has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of two ocean-going tug-barge units for transportation and incineration of chemical wastes off the Eastern Coast of the United States.

The 3,360-bhp diesel tugs would be 295 gross tons each, and the barges 7,000 gross tons each. A builder has not yet been proposed, but the applicant has indicated it would seek delivery in March 1983.

If approved, the Title XI guarantee would cover \$47,435,500, or up to 87½ percent of the total estimated cost of \$54,212,000 for the two tug/barge units.

ASNE Puget Sound Section Meets Aboard Ferry 'Issaquah'

A guided tour of the pilot-houses, engine rooms and engine control room of the new ferry M/V Issaquah while underway highlighted the recent meeting of the Puget Sound Section of the American Society of Naval Engineers. The combined dinner and technical meeting was hosted by the Washington State Ferry System, and was held as the ferry traveled between Fauntleroy and Southworth.

Dinner was followed by an interesting presentation by Jim Solund, project manager for construction. The presentation on the many engineering aspects of the ferry was followed by a brisk question and answer period. Capt. R.C. Melberg, maintenance director, provided excellent responses to the questions.

New Service Station For Propellers Added At Curacao Drydock Yard

The Curacao Drydock Company, Inc. of Willemstad, Curacao, Netherlands Antilles, recently opened a propeller service station that can accommodate propellers of nearly any type and size. The station came about by an agreement with Lips B.V. of Holland whereby several Curacao Drydock engineers, technicians, and welding specialists underwent an extensive theoretical and practical training course for the surveying, modifying, repairing, and general servicing of propellers. Extensive machinery was installed and special tools and materials were purchased in order to be able to offer the yard's clients another complete and efficient service.

Propellers need not belong to vessels that dock at Curacao Dry-

dock for surveys and repairs. Interestingly, several shipowners have already sent loose damaged propellers to the yard and, once repaired, had them collected and stored onboard as the spare. Opened only for a few months, the propeller service station has repaired a considerable number of propellers, thus complementing the many repair services already offered by the Curacao Drydock.

Earlier in 1980, Curacao Drydock also concluded a service station agreement with the maker of S.E.M.T. Pielstick engines. Again, engineers and technicians attended training courses in France to acquire the specialized know-how to overhaul and repair these engines.

These repair services were thus started and added to the existing ones at Curacao Drydock, which include other major manufactur-

ers of marine propulsion machinery, notably Burmeister & Wain, Gotaverken, M.A.N., Stork-Werkspoor Diesel, and Sulzer, among others, and the makers of specialized equipment and suppliers of services such as Simplex stern tube seals, Ascargo and MacGregor hatch covers, Chockfast epoxy chocking systems, Nicol & Andrew in situ machining, honing, and grinding, and Metalock repairs.

We've Just Scratched The Surface . . .

GOFF

INTRODUCES PORTABLE POWER BLAST EQUIPMENT



At Goff we discovered if our airless shot blast equipment were portable it would save time, money, require less manpower and provide easier access to surfaces that require blast cleaning. So, Goff is proud to introduce Portable Power Blast Equipment. / Goff's Portable Power Blast Equipment is designed to clean horizontal, or slightly inclined steel or concrete surfaces such as ships' decks, storage tanks,

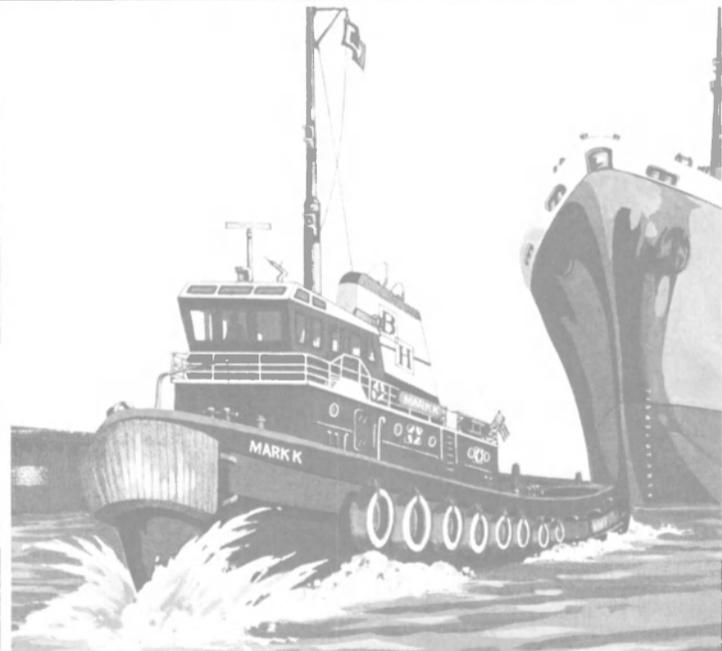
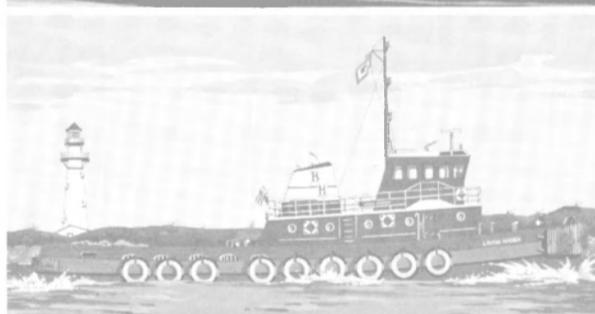
offshore platforms, warehouse floors, roads or airport runways. Our Portable Power Blast Equipment offers the most modern and efficient method of blast cleaning surface preparation ever introduced to the industrial market. /

For a free brochure and complete information on Goff's Portable Power Blast Equipment write or call today, P.O. Box 240, Tuttle, OK 73089, 405-391-3022.



ONE PLEASANT GROVE RD. • P.O. BOX 1607 • SEMINOLE, OK 74868

Write 398 on Reader Service Card



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.

B H **BAY-HOUSTON TOWING CO.**
HARBOR AND COASTWISE TOWING

Houston • Galveston • Corpus Christi • Freeport • Texas City

Write 126 on Reader Service Card



**Take comfort
in the air conditioning
with the best record at sea.**

You can't afford a crew sweltering in the engine room. That's why most of the ships around the free world are air conditioned with York marine air-cooled single package cooling units. Or water-cooled single package cooling units. Or air-cooled split system cooling units.

Because, like any other York system, they're all known for their reliability.

They're also all designed for shipboard. Easy to install. Simple to service. Available in a range of capacities that give you ideal cooling in the least amount of space. (We have heating, too, if you need it. Electric heat units,



single and split-system heat pumps.)

And you can take comfort in the fact that whatever port you make, a York serviceman can be on board within hours. Every major port in the free world has a York specialist and York parts for our refrigeration as well as air conditioning systems.

See your York Marine representative for the air conditioning that's ruled the seas for over 50 years. Or contact us. York Marine Department, York Division of Borg-Warner Corporation, P.O. Box 1592, York, PA 17405.

YORK DIVISION OF BORG-WARNER CORPORATION
BORG-WARNER

Ports to call for York 24-hour service.

Factory-trained air conditioning and refrigeration experts for 24-hour marine service. A full stock of York parts for anything you have on board. A complete range of York units to order without weeks of waiting. You can expect it all around the free world from York — from these York marine experts.

- 1. AA REFRIGERATION**
4721 Broadway, Galveston, TX 77550
(713) 744-0957
- 2. ADRICK COOLING CORP.**
30 B. Remington Blvd.,
Ronkonkoma, NY 11779 (516) 585-4231
Branch: Adrick Marine Corp.
77 River St., Hoboken, NJ 07030
(201) 420-1339
- 3. BAILEY REFRIGERATION CO.,
INC.** 74 Sullivan St.,
Brooklyn, NY 11231 (212) 855-3958
Branches: 2323 Randolph Ave.
Avenel, NJ 07001 (201) 382-1225
524 N.E. 190th St.
North Miami, FL 33179 (305) 651-4160
- 4. BAILEY CORPORATION**
632 Alvar St., New Orleans, LA 70117
(504) 943-2461
- 5. GENERAL MARINE
REFRIGERATION**
1100 N. Front St., Philadelphia, PA 19123
(215) 922-6293
Branches: Chesapeake Marine
Refrigeration Corp. 2626 Cromwell Rd.,
Norfolk, VA 23509 (804) 853-6856
Key Marine Refrigeration, Inc.
1625 Fleet St., Baltimore, MD 21231
(301) 563-2880
- 6. JW MECHANICAL SERVICE CO.**
6540 Federal Blvd., Lemon Grove, CA
92045 (714) 582-6320
- 7. PSER, INC.**
3441 17th Ave., West, Seattle, WA
98119 (206) 283-3200
- 8. QUALITY REFRIGERATION**
533 North Fries Ave.,
Wilmington, CA 90744 (213) 549-1532
Los Angeles, CA (213) 775-2735
- 9. TOMLINSON REFRIGERATION
AND SUPPLY CO.**
324 Broadway, Elizabeth, NJ 07206
(201) 351-1350

For any kind of marine air conditioning or refrigeration service, call the experts in every port.

Write 375 on Reader Service Card



McDermott International Buys Pipelaying Barge For \$85 Million

McDermott Incorporated has announced that its wholly owned subsidiary, McDermott International, Inc., has purchased the semi-submersible pipelaying barge Viking Piper from Viking Jersey Equipment Limited, a 75-percent-owned affiliate of Santa Fe International Corporation, for the sum of \$85 million.

The barge, with a gross weight of 19,968 tons and a displacement of 50,410 tons, will be redesignated the McDermott Lay Barge 200, and be based in the North Sea area. The company plans to employ it there and in other regions where weather conditions require a semisubmersible operation. Acquisition of this modern vessel allows McDermott to offer its customers increased capability for pipelaying operations on a worldwide basis, according to J.E. Cunningham, chairman of the board and chief executive officer.

The LB-200, with accommodations for a crew of 500, is a stern ramp lay barge capable of laying pipe with up to a 60-inch outside diameter at depths of up to 2,000 feet. It is 550 feet long, 192 feet wide, and 109 feet high. It has a line station feed with 10 stations, six of which are welding stations, and two pipe tensioners with a combined tensioning strength of 300,000 pounds and capable of feeding pipe at a rate of 100 feet per minute. The barge is also equipped with a saturation diving system, which operates at depths of up to 1,000 feet.

\$5.9-Million Contract For Navy Overhaul Awarded To Southwest Marine

Southwest Marine Incorporated, San Diego, Calif., is being awarded a \$5,878,000 formally advertised firm fixed price contract for the regularly scheduled overhaul of the tank landing ship Bristol County (LST-1198). The Supervisor of Shipbuilding, Conversion and Repair, USN, San Diego, Calif., was the contracting activity. (N62791-77-C-0001)

OPS Forms New Marine Design Services Division Roy Thomas Named Director

Offshore Power Systems (OPS), located in Jacksonville, Fla., has recently formed a marine design services division. A staff of over 100 engineering/design personnel complemented by a Computer-Aided-Design and Drafting System, a fully equipped and professionally staffed model shop, and a modern testing laboratory are available to serve the marine industry.

Offshore Power Systems, a Westinghouse enterprise, was originally formed as a joint venture between Westinghouse and Tenneco (Newport News Shipbuilding) with total responsibility for the engineering, design, analysis, licensing and manufacture of Floating Nuclear Plants. OPS is currently providing design services for two major shipyards.

Roy Thomas will be director of the Marine Design Division, and Clinton Dotson will be chief engineer of naval architecture and marine engineering. Mr. Thomas will be responsible for organizing and directing all marine design and engineering services provided to the maritime industries. He has over 20 years' experience in the marine field in design, engineering, supervision, project

management and administration. Mr. Thomas spent 15 years at Newport News Shipbuilding prior to joining OPS as chief engineer, design.

Mr. Dotson will be responsible for all engineering work on marine design projects. He began his 25-year career in the marine industry as an apprentice in the Newport News Shipbuilding Apprentice School. He gained extensive experience in the design and analysis of both Navy and commercial vessels during his 19 years of employment at Newport News Shipbuilding, and held the position of engineering section manager in the Hull Technical Department prior to joining OPS in 1972 as manager, naval architecture.

Skaer Appointed Vice President-Marketing For Wall Industries

D. Philip Skaer II has been named vice president of marketing by Wall Industries, Inc., Beverly, N.J., manufacturers of diverse rope constructions for marine, industrial, hardware, utility, and fishing markets. He was formerly vice president and general manager of Tubbs Cordage Company's Jackson Rope Division. Prior to that, he was sales manager of the Broderick and Bascom Rope Company in St. Louis.

Wall also named Russell Masson, Jacksonville, Fla., as sales representative covering the Southeastern United States. He was formerly with the Cordage Group for 27 years.

Wall Industries, Inc. is the parent company of Yale Cordage, Inc., Yarmouth, Maine; Wall Rope Works; and the New Bedford Cordage Company, Beverly, N.J. The company is currently celebrating its 150th anniversary as a major rope manufacturer.

Title XI Approval For Schmidt's Tank Barge To Cost \$1.68 Million

Assistant Secretary of Commerce for Maritime Affairs, Maritime Administration, Samuel B. Nemirow has approved in principle an application by O.L. Schmidt Barge Lines, Inc., for a Title XI guarantee to aid in financing the construction of a double-skinned tank barge.

The vessel, which was scheduled for delivery by the end of 1980, will have an overall length of 275 feet and a molded beam of 54 feet. It is expected to operate in the cartage of residential fuel in the Lake Michigan area, mostly between Chicago, and East Chicago, Ind. Port of Brownsville Shipyard, Inc., Brownsville, Texas, is the builder.

Title XI financing will cover \$1,470,000, or 87.1 percent of the estimated cost of \$1,680,000.

Electric Boat Gets Two Navy Contracts Totaling \$16.5 Million

General Dynamics' Electric Boat Division, Groton, Conn., has been awarded an \$11,000,000 cost-plus-fixed-fee contract for SSBN (fleet ballistic missile submarine) planning yard support. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-2004)

Electric Boat also was awarded a \$5,460,000 cost-plus-fixed-fee contract for SSN (attack submarine) planning yard support. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-2005)

A Review

OUTSTANDING U.S. SHALLOW-DRAFT VESSELS OF 1980



The shallow-draft sector of the U.S. shipbuilding industry continues its pattern of steady growth, especially in the offshore sector. Construction of utility boats, supply vessels, crewboats, and other types to service the offshore drilling and production platforms, as well as tugs and towboats for use on the inland waterways, is pro-

viding substantial and profitable work for most of the smaller yards.

This article—our First Annual Review of Shallow-Draft Vessels—is a portfolio of some of the outstanding craft that have been completed by U.S. shipyards during the past year.

CRABBER/TRAWLER 'BIRGIT-N'

The fishing vessel Birgit-N, first crabber/trawler built by Tacoma Boatbuilding for Bering Sea service, was delivered to Peter Njardvik and A.O. Nordheim to join their other vessels in the rigorous and highly competitive Bering Sea crab fishing. The vessel's design, by B.F. Jensen and Associates, incorporates several features that improve the efficiency of the trawler.

The new boat has an overall length of 123 feet, beam of 32 feet, and depth to main deck of 16 feet. Propulsion is by a Caterpillar D399 diesel with an output of 1,125 bhp at 1,225 rpm, providing a speed of 12 knots through 4.5:1 reduction gearing. The engine is controlled by Mathers Controls equipment. Electric power is provided by three Caterpillar generators—two model 3406 each of 210 kw and one model 3304 of 90

kw. The hydraulic system is by Vickers.

The Birgit-N has four crab tanks with a total capacity of 8,800 cubic feet, each tank being insulated with 6 inches of closed-cell urethane foam. This four-tank arrangement allows for ease of loading crab, and also facilitates handling of salmon when the vessel operates as a tender during the Alaskan salmon season.

A 60-ton York refrigeration plant is installed to maintain fish in the tanks at a temperature of 30 F in chilled seawater. Sumps located in the forward tanks and a sliding watertight door between tanks will allow rapid discharge of the frozen salmon via a fish elevator through the forward tank hatches.

A major benefit of the four-tank arrangement is a shaft alley

allowing access from the engine room to the steering compartment and lazarette below decks. The circulation pumps are located in the shaft alley, thus leaving more usable space in the engine room. All compartments below the deck are protected by watertight doors.

The efficiency of Birgit-N's design is enhanced by the use of two 10-ton cranes both supplied by Northern Line Machine, a division of Tacoma Boat. The forward crane has a reach of 36 feet, and will serve as the picking boom. The aft crane is a unique level-luffing design with a reach of 48 feet. The level-luffing fea-

ture of this crane allows the operator to raise and extend the boom without the need to constantly pay out or haul in line. No matter how the boom is manipulated, the line length remains fixed. This arrangement is said to be safer, faster, and more precise than existing installations. Both cranes are controlled by hydraulic servos on the main control valves that are located in the engine room.

The boat is also equipped with a pair of trawl winches, a stern ramp, and a Northern Line net reel to allow the Birgit-N to trawl for bait fish.



Birgit-N

TOWBOAT 'BOONE'



Boone

Dravo SteelShip Corporation, Pine Bluff, Ark., recently delivered the towboat Boone to Cincinnati Gas and Electric Company for use at its East Bend Station, a coal and lime facility located on the Ohio River near Rabbit Hash, Ky.

The Boone has a length of 60 feet, beam of 22 feet, and depth of 7.5 feet, and is powered by twin Caterpillar 3412 marine diesels developing a total of 900 bhp at 1,800 rpm. The engines are cooled by Fernstrum grid coolers. Caterpillar 3316, 45-kw, electric-start generators sets power the electrical system, which includes Beebe 33-RC deck winches, Carlisle & Finch searchlights, and other equipment.

The vessel is equipped with two 62-inch by 34-inch, four-blade bronze propellers furnished by Michigan Wheel. Two steering and four flanking rudders provide for maneuverability and speed. The heavily braced and framed hull is fabricated of 3/8-inch plate; deck plating is 1/4-inch. Fuel capacity is 8,000 gallons.

SUPPLY BOAT 'CLIPPER KEY WEST'

Blount Marine Corporation of Warren, R.I. has delivered the 156-foot offshore supply vessel Clipper Key West to Hamilton, Inc. of Panama City, Fla. The vessel admeasures under 200 gross tons, and is equipped to carry up to 600 long tons of combined calcium chloride or liquid mud and deck cargo. Clear deck length inboard is 114 feet, with a clear inboard width of 30 feet 8 inches. Her four mud tanks have a total capacity of 1,800 cubic feet.

Main propulsion is provided by two General Motors Detroit Diesel Allison 16V149 diesels developing a total of 1,800 bhp at 1,800 rpm and driving Columbian Bronze stainless steel propellers. Two 99-kw generators furnish electric power. A 36-inch Murray and Tregurtha bow thruster is powered by a 210-bhp diesel. On sea trials at full draft the vessel attained a speed of 12 knots.

Steering is S.S.I. electrohydraulic with an automatic pilot. Two radars, Sitex 22 and 23, a Marconi CH100 SSB radio, Motorola Triton VHF radio, Raytheon 6000 Dual C Loran, and

Data Marine depth recorders complete the pilothouse equipment.

The Clipper Key West meets U.S. Coast Guard requirements for Gulf Service, and is classed +A-1 by the American Bureau of Shipping. She joins the supply vessels Clipper Paradise Island and Clipper Cozumel built by Blount Marine Marine for the same owner.

(continued on page 16)



Clipper Key West

Twin Disc extends marine transmission line for engines up to 3617 kW (4850 bhp).

Now Twin Disc offers the North American marine industry five new series of marine reverse and reduction transmissions for higher horsepower diesel engines. Twin Disc has extended its line of domestically manufactured transmissions to include higher horsepower models from its partially-owned affiliate Nilgata Converter Company Limited (NICO). This means the superior reliability, performance and operating economics typical of Twin Disc Marine Transmissions are now available here in greater horsepower capacities than ever.

These larger, coaxial (inline) marine transmissions are designated Models MGN-650BZ, MGN-1000AZ, MGN-1600AZ, MGN-2200AZ and MGN-3200AZ. In addition, special designs and other NICO models are available in production quantities to meet specific installation and application requirements.

The MGN-Z Series Features:

- Coaxial input-output shaft arrangement for lowered propul-

sion package center of gravity.

- Wide variety of models and ratios to meet various propulsion requirements.
- Use same type oil as specified for the engine.
- Carburized, hardened and precision finished single helical gearing, anti-friction bearings, and hydraulically-actuated clutches are the principal members of the uniquely-designed gear train resulting in a dimensionally compact, low weight, high efficiency transmission.
- Prompt, smooth shifting, integral hydraulic forward and reverse clutches respond to operator requirements for good vessel maneuverability. The "X" control is available as an option which permits variable propeller speed independent of engine speed.
- Housing design and strategic placement of access covers provides for easy inspection and maintenance, even in compact engine rooms.

The MGN-Z Series, like all Twin Disc Marine Transmissions, are backed by Twin Disc's warranty program with Approved Renewal Parts available from Twin Disc. For more information on the new coaxial MGN-Z Series contact Twin Disc, Incorporated, Racine, WI 53403, U.S.A. Telephone (414) 634-1981, Telex 264432.

Request Bulletin 900.

We put horsepower to work.™

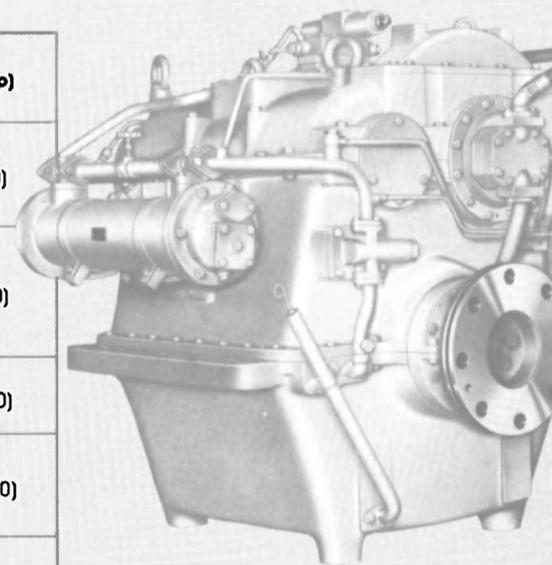


RACINE, WISCONSIN 53403, U.S.A.
ENGLAND BRAZIL SOUTH AFRICA
SINGAPORE AUSTRALIA HONG KONG
TWIN DISC INTERNATIONAL S.A.
1400 NIVELLES, BELGIUM

Model MGN-Z Series

| MARINE TRANSMISSION MODEL | NOMINAL RATIOS | GOVERNED ENGINE SPEED RANGE*, RPM | POWER RANGE* kW (hp) |
|---------------------------|----------------------------------------------------|-----------------------------------|-----------------------|
| MGN-650BZ | 3.0:1 3.5:1 4.0:1 5.0:1 6.0:1 | 700-1800 | 634-895 (850-1200) |
| MGN-1000AZ | 3.0:1 4.0:1 5.0:1 6.0:1 7.0:1 8.0:1 9.0:1 | 700-1800 | 634-1119 (850-1500) |
| MGN-1600AZ | 3.0:1 4.0:1 5.0:1 | 700-1700 | 1119-1641 (1500-2200) |
| MGN-2200Z | 3.0:1 3.5:1 4.0:1 4.5:1 5.0:1 | 700-1600 | 1491-2237 (2000-3000) |
| MGN-3200Z | 3.0:1 4.0:1 5.0:1 | 700-1400 | 2610-3617 (3500-4850) |

*Depending on ratio, type of duty, input speed and survey society classification requirements. Certification certificates available from ABS, LRS and other major survey societies.



Model MGN-650BZ

Write 362 on Reader Service Card ►

**Shallow Draft
Vessel Review**

(continued from page 15)

**CREW/SUPPLY
VESSEL 'C/RAIDER'**



C/Raider

Swiftships, Inc. of Morgan City, La., recently delivered the crew/supply boat C/Raider to CO-MAR Offshore Corporation, also of Morgan City. The vessel is the first in the CO-MAR fleet to be fitted with a ZF 2½:1 reduction gear. Her MTU engines combined with the ZF gears allow the craft to use larger propellers. This results in the vessel being able to transport heavier loads at higher speeds.

A twin-screw vessel, the C/Raider has a propulsion package consisting of two MTU 12V331 engines and ZF gears. A Delco 30-kw generator is driven by two Detroit Diesel 3-71 engines. On sea trials the boat attained speeds up to 25 knots.

Having passed U.S. Coast

Guard inspection, the C/Raider is certified to carry 65 passengers, aviation fuel, and corrosives. Accommodations are provided for a five-man crew.

With a cargo deck space 58 feet by 16 feet, the vessel's cargo capacity on deck is 110 long tons; below-deck capacity is 52 tons. Loaded draft is 6 feet. The tanks hold 3,740 gallons of fresh water, 13,350 gallons of drill water, 500 gallons of drinking water, and 4,000 gallons of fuel, giving the vessel an endurance of 40 hours.

Columbian supplied the propellers, four-blade, 42-inch by 38-inch Crewboat Bronze models. Electronics were supplied and installed by Bibbins & Rice. They include a Furuno radar, two radiotelephones, a Drake TRM-1 SSB radio, Drake MRF-55 VHF radio, Texas Instruments TI-9900 automatic Loran, an Impulse 600CV depth sounder, and Danforth C654C compass.

C/Raider is equipped with life-saving gear, and has full fire-fighting capabilities, and air-conditioning and heating throughout.

**CEMENTING VESSEL
'HALLIBURTON 224'**

Rockport Yacht & Supply Company, Inc. of Rockport, Texas, recently delivered the first of two 130-foot cementing vessels to Halliburton Services of Duncan, Okla. Named the Halliburton 224, the vessel operates out of Harvey, La., and incorporates Halliburton's latest pumping machinery

and five P-tanks installed in the main deck. The vessel has an overall length of 130 feet 7 inches, beam of 33 feet, and depth of 7 feet.

Propulsion is provided by two Caterpillar D-353 diesel engines, each with continuous output of 415 bhp at 1,225 rpm. The power train includes Twin Disc MG521, 4:1 reverse/reduction gears, two four-blade propellers, and stainless steel shafts.

The specialized pumping machinery is located on the main deck forward and in a machinery space below deck. The vessel is classed by the American Bureau of Shipping A-1, AMS, Inland and Coastwise Service. The sister vessel Halliburton 225 has also joined the Halliburton fleet.

Rockport Yacht & Supply and its associate shipyard, RYSCO Shipyard, Inc. of Blountstown, Fla., are subsidiaries of Luling Oil and Gas Company of San Antonio, Texas. The RYSCO yards are builders of supply boats, utility vessels, and tugs, and are known internationally for their seaworthy shrimp boats and fishing trawlers.



Halliburton 224

**PUSHER TUG
'JEANNE MARIE'**



Jeanne Marie

The recently delivered Jeanne Marie is the first of three sister vessels to be built by Marine Builders of Clarksville, Ind., for Archway Fleeting and Harbor Services of St. Louis, Mo. Powered by a matched pair of Cummins KT-2300-M diesels with a combined output of 1,400 bhp at 1,800 rpm, the pusher tug is the first newly constructed boat on the nation's inland waterways powered by the KT-2300-Ms.

The tug is 70 feet long with a beam of 26 feet and draft of 5½ feet. The sturdy vessel has been designed to handle heavy traffic. Twin Disc 530 gears with a 6.06:1 reduction ratio transmit power to twin 72 by 60 inch, stainless steel Kahlenberg propellers. Two knees rising 8 feet above the deck are bolted to the ship's understructure for added strength and stability.

A Racor 800B-5 recycle blending system helps save fuel by centrifuging crankcase oil after changes and recirculating the 35 to 40 gallons into the fuel system. A pair of Cummins 40-kw, N-495-GS generator sets, one a standby unit, provide electric power for lights, winches, and radios.

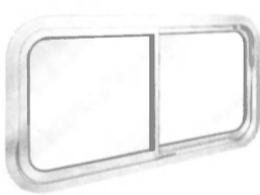
The steel-hulled pushboat is being used in Archway's switching operations based at Reidy Terminal in St. Louis. To further insure against lost time due to maintenance work, a service agreement has been signed with the St. Louis Cummins marine distributor, Cummins Missouri, Inc., for parts and service requests on a priority basis.

**TUGBOAT
'JEKYLL ISLE'**

The 76-foot tugboat Jekyll Isle has been delivered by Gladding-Hearn Shipbuilding Corporation of Somerset, Mass., to Jekyll Towing and Marine Services Corporation of Jekyll Island, Ga. Equipped with a wide array of deck gear and electronics, the new vessel is the latest in a series of innovative tugs designed and built

Proved Engineering and Dependability

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



Sliding Window



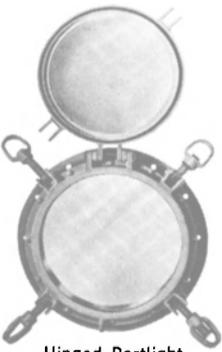
Crank-Operated Window



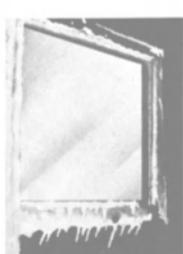
Window Wiper and Fixed Window



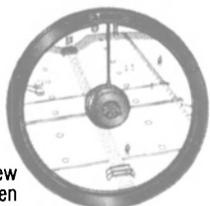
Weathertight Door



Hinged Portlight



De-icing, Heated Window



Clear View Screen

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.

Kearfott

a division of The SINGER Company

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

Write 231 on Reader Service Card

'JEKYLL ISLE' SUPPLIERS

Main engines (2), 16V-92 GM-Detroit Diesel Allison.
 Generator engines (2), Detroit Diesel Allison.
 Reduction gears, Twin Disc.
 Propellers (2), Kaplan.
 Crane, Appleton.
 A-Frame drive, Wabco.
 Winches (2), MARCO.
 Winch, capstan, and anchor windlass, New England Trawler.
 Anchors (2), Baldt.
 Tender, Boston Whaler.
 Steering gear and wheel, Wagner.
 Steering controls, Mathers.
 Compasses, Ritchie; Wagner.
 Searchlights (3) and navigation lights, Perko.
 Electric panels, Federal Pacific; Henschel; Simplex.
 Bilge and deck wash pumps, Jabsco.
 Fire pump; Gorman Rupp.
 Fendering, Schyler.
 Heating and air conditioning, Environmental Systems.
 Radars (2) and Loran, Raytheon.
 Depth recorder, Simrad.
 Sonars (2), Wesmar.
 Digital depth sounder, Raytheon.
 Facsimile recorder, Furuno.
 Bridge watch, Radar Devices Inc.
 Cordage, Samson.

searchlight for aft maneuvering are located on a walkway behind the pilothouse.

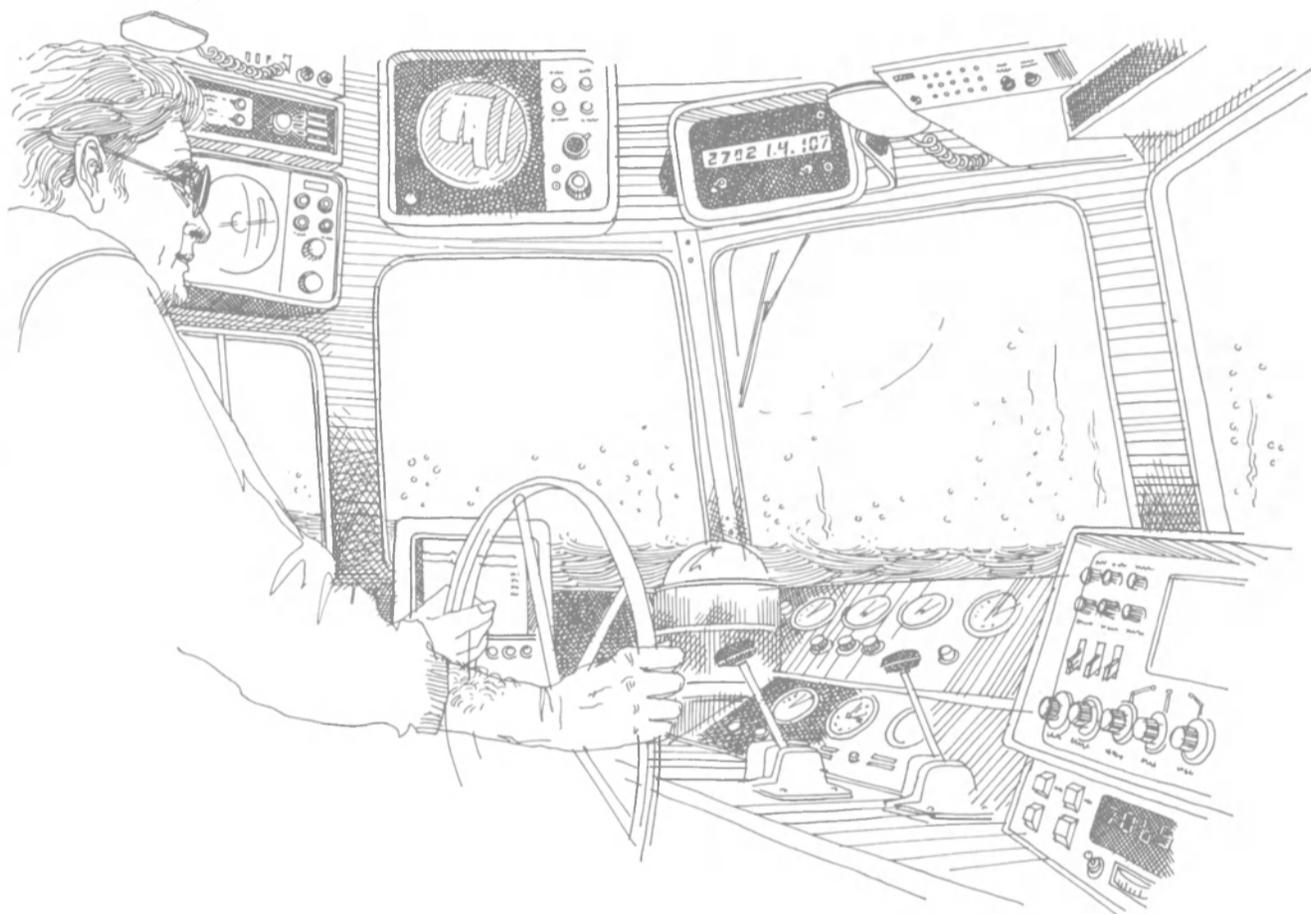
The vessel's electronics include a Wagner autopilot, Raytheon 1025 radar, a smaller Raytheon backup radar, Simrad EQ depth recorder with MC expander system, and Wesmar scanning sonar and Towfish sonar. Loran is a Raytheon 600 with navigational computer including latitude and

(continued on page 18)



Jekyll Isle

You have 20 ears.



RCA's new 8080 is fully synthesized. Keyboard programming for scanning.

With the new RCA 8080 VHF/FM Radiotelephone, you can instantly tune in any U.S., International or weather channel you like. And change channels at the touch of a button whenever you like.

Hit the scan button and the 8080 automatically scans up to 20 channels. You can find out in seconds what's happening in VTS-controlled ports or on other channels of interest.

The solid-state 8080 puts out a full 25 watts with

no chance of damage from an open or shorted antenna. And the superior receiver design assures crisp signals even in congested harbors. It's U.S.-built with solid-state reliability and corrosion-resistant materials. So you can count on the 8080 to keep working in the roughest marine environment.

For all the details, call Nick Stellatos (Atlantic Coast) at (201) 451-2222. Or Guy Faulstich (Gulf Coast) at (504) 367-9090. Or send the coupon.



Model 8080 VHF/FM Radiotelephone
 Purchase: \$1075.00* 5-Year lease: \$23.92* per month

RCA Service Company A-196
 A Division of RCA
 Marine Services
 Bldg. 204-2,
 Route 38, Cherry Hill, NJ 08358

Rush me the details on your new Model 8080 VHF/FM Radiotelephone.

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

*Prices subject to change without notice.



by Gladding-Hearn during the yard's 25 years of operation.

Main propulsion power is supplied by two GM Detroit Diesel Allison 16V-92 engines with a total output of 1,200 bhp at 1,800 rpm, giving a free-running speed of 11.3 knots. At cruising speed the boat has a range of 4,000 miles, and she can operate for up to 20 days at sea without resupplying when on low-fuel operation, such as maintaining a station-holding pattern. Fuel Capacity is 13,000 gallons, and her 550-gallon water tanks can be replenished by a 150-gpd Maxim evaporator.

The Jekyll Isle is fitted with fuel-saving Kort nozzles, and she has a bollard pull of 17½ tons. The vessel has both U. S. Coast Guard and American Bureau of Shipping certification for Unrestricted Ocean Service, and meets USCG stability standards for towing, passenger service, and over-the-side crane lifts with up to 24-foot outreach.

Two Detroit Diesel 3-71 diesel generators supply 30 kw each. The electrical system is designed for non-parallel operation. Two banks of 12-volt dc batteries power electronics, emergency lighting, and auxiliary engine starting. Main engine starting and certain specialized electronics are powered by a 24-volt dc system.

Deck gear includes three winches, a knuckle-boom crane, 25-ton, pneumatic-release towing hook, and a 6-ton hydraulic A-frame. The latter lowers to the deck while the vessel is in the towing mode. An aft steering station — with controls for the A-frame, main winch, knuckle-boom crane, and hydro-winch—and a 600-watt

**Shallow Draft
Vessel Review
—Jekyll Isle**

(continued from page 17)

longitude readout. Radios are two Nautilus VHF's and one 1,000-watt SSB. For routing and operational planning she carries a Furuno facsimile weatherfax system.

The boat is designed for crew and passenger comfort as well as performance. For coastal day trips she can carry a master and up to 12 passengers. For offshore missions she has four berths located in the forecabin and two in the dinette area, providing accommodations for four crewmen and three to four guests. The vessel has central heating and air-conditioning throughout.

ment in the pilothouse and at each engine. Three five-bladed, stainless steel, 109-inch propellers turn in stainless steel lined Kort nozzles. In addition to the conventional engine room controls, the Donnelly is equipped with an Engine Monitor Inc. monitoring system featuring an alarm panel in the pilothouse and one in the engineer's control booth.

Electric power is provided by two GM Detroit Diesel 150-kw diesel generator sets. A General Electric deadfront switchboard located in the soundproofed and air conditioned control booth is wired for parallel operation of the generators.

Pollution-control equipment has been installed to bring the towboat into compliance with all existing environmental protection requirements. All propulsion engine, reduction gear, and generator diesel sumps, as well as the propulsion engine's lube oil filters and coolers, can be pumped by a Viking pump to the dirty oil holding tank, or to a valved discharge connection on the main deck. Provision is also made for pumping out the dirty oil holding tank to this deck connection.

All bilge suction pumps are pumped via a Gorman-Rupp bilge pump to the oily water bilge collecting tank. A Hyde bilge pump draws from the oily water collecting tank and discharges to the Hyde separator, where separation and dispersal by gravity takes place. A St. Louis Ship FAST model 13-M sewage treatment plant treats the sewage from the toilet drains, and is valved to discharge the effluent overboard or to a flanged connection on the main deck.

Deck machinery consists of two Schoellhorn-Albrecht 20-hp, motor-driven double-barreled capstans, and six NABRICO 10-hp motor-driven winches. Two Sasin boat davits, one with an Ingersoll-Rand pneumatic hoist, are located aft, port and starboard on the second deck, to handle supplies, the small workboat, and the runabout.

All living quarters, lounge, galley, messroom, engineer's control booth, and pilothouse are heated or air-conditioned, with either hot or chilled water circulated through McQuay Perfex fan coil units, with circulating water being supplied from either a Weil-McLain heating boiler or a Carrier liquid chiller unit.

Two Varo 18-inch xenon searchlights are located atop the pilothouse. One Carlisle & Finch 14-inch, remote-controlled searchlight is located aft on the 2nd deck.

Navigation and communication equipment includes two Sperry radars, two Triton VHF-FM radiotelephones, one Northern SSB radio, two Honeywell fathometers, Hose McCann sound-powered telephone system, and a Galbraith E3750 public address system.

TOWBOAT 'JOHN M. DONNELLY'

In the shadow of the St. Louis Arch, Ingram Barge Company recently christened its new 9,000-bhp towboat, the John M. Donnelly. Designed and built by St. Louis Ship, Division of Pott Industries, the vessel features the exclusive Hydrodyne hull, and is the third towboat in the Ingram fleet built by St. Louis Ship.

The Donnelly's hull measures 200 feet by 50 feet by 11 feet 6 inches, with a normal operating draft of 8 feet 6 inches, and is designed to have an overall height of 38 feet 6 inches at design draft. The all-welded steel hull is

heavily framed longitudinally and transversely, with the aft deck raised to provide additional strength to the stern.

Propulsion power is furnished by three GM Electro-Motive Division 16-645E7BA marine diesels, each developing 3,000 bhp at 900 rpm, fitted with Falk 30MRV48 vertical offset, reverse/reduction gears. The engines and gears are cooled with water circulated through a St. Louis Ship skin cooling system. The engines are started from the engine room only, and are controlled by WABCO pneumatic control equip-



John M. Donnelly

**FERNSTRUM
GRIDCOOLER®
ENGINE AND KEEL COOLING**

R. W. FERNSTRUM & COMPANY
MENOMINEE, MICHIGAN, U.S.A. 49858
Phone: (908) 863-5553 • Telex: 26-3493 • Answer Back: FERNSTRUM MNOM

R. W. FERNSTRUM & CO., EXPORT DEPT.
MENOMINEE, MICHIGAN, U.S.A. 49858
Phone: (908) 863-5553 • Telex: 26-3493 • Answer Back: FERNSTRUM MNOM

**PASSENGER/SUPPLY
BOAT 'MARINA S.'**

The Marina S. is a passenger/supply vessel built by Mississippi Marine Towboat Corporation of Greenville, Miss., for Dinko's Marine Service of Aransas Pass, Texas. The new vessel is being used for contract work in Gulf waters from Brownsville, Texas, to Key West, Fla. With a length of 100 feet, beam of 24 feet, depth of 11 feet 6 inches, and normal operating draft of 8 feet, the vessel can accommodate 33 passengers and a crew of four.

The combination craft is powered by twin GM Detroit Diesel 16V-71 engines with a total output of 910 bhp at 1,800 rpm, coupled to Twin Disc gears with reduction ratio of 5.17:1. A pair of Lima 50-kw generators driven by Detroit Diesel 4-71 engines operating at 1,200 rpm provide electric power.

The vessel is fitted with a dual-station Orbital steering system, Decca RM914C radar, Sperry 8T autopilot, Raytheon 50A VHF radio, Dubose SSB radio, Texas Instruments TI-9900 Loran C,



Marina S.

Furuno F-850 depth finder, and a Kahlenberg D-2 air horn.

Fuel capacity is 18,494 gallons, potable water 1,705 gallons, cargo water 37,644 gallons, and lube oil capacity 150 gallons. Deck cargo capacity is about 35 tons. The vessel is fitted with a central water-cooled air-conditioning system.

Mississippi Marine offers towboat design and construction from initial design through completion. The yard also builds barges and offshore vessels, offering several stock designs that can be custom-fitted to fit individual owners' needs.

The Marina S. was designed by New Orleans naval architect Coe M. Best Jr.

UTILITY VESSEL 'PBR-216'



The offshore utility vessel PBR-216 and five sister boats have been completed by The Service Marine Group, Inc. of Morgan City, La., for PBR Offshore, Inc., also of Morgan City.

The PBR-216 has an overall length of 118 feet, beam of 26 feet, depth of 11.5 feet, and draft of 10 feet. Cargo water capacity is 58,000 gallons, fuel oil capacity is 30,000 gallons, and deck cargo load is 103 tons, with additional below-deck capacity of 217 tons.

The utility vessel is powered by two General Motors Detroit Diesel 16V-92N engines with a total output of 1,200 bhp at 1,800 rpm, supplied by George Engine Company, driving Twin Disc 5:1 reduction gears for a speed of 12 knots. Electric power is provided by two Detroit Diesel engines driving 50-kw generators.

Other equipment includes Sitex model 22 radar, Motorola 55/75 VHF radio, Drake TRM-115 SSB radio, SRD model CLX Loran, and Datamarine 2650 depth finder.

TOWBOAT 'PERCHERON'

The 65-foot towboat Percheron was built by Balehi Marine, Inc. of Lacombe, La., for Clydesdale Corporation, Harvey, La. The new vessel is powered by a pair of Detroit Diesel engines supplied by Kennedy Engine Company of Biloxi, Miss. Owners are Cliff Spanier and Larry Gisclair; the design work was done by naval architect David P. Levy.

Twin Disc reduction gears, 6½-inch Aquamet 18 stainless steel

shafts, 7-inch Aquamet 18 rudder stocks for the two steering and four flanking rudders, combine with a pair of Coolidge 72-inch by 54-inch stainless steel propellers to assure optimum performance for the Percheron.

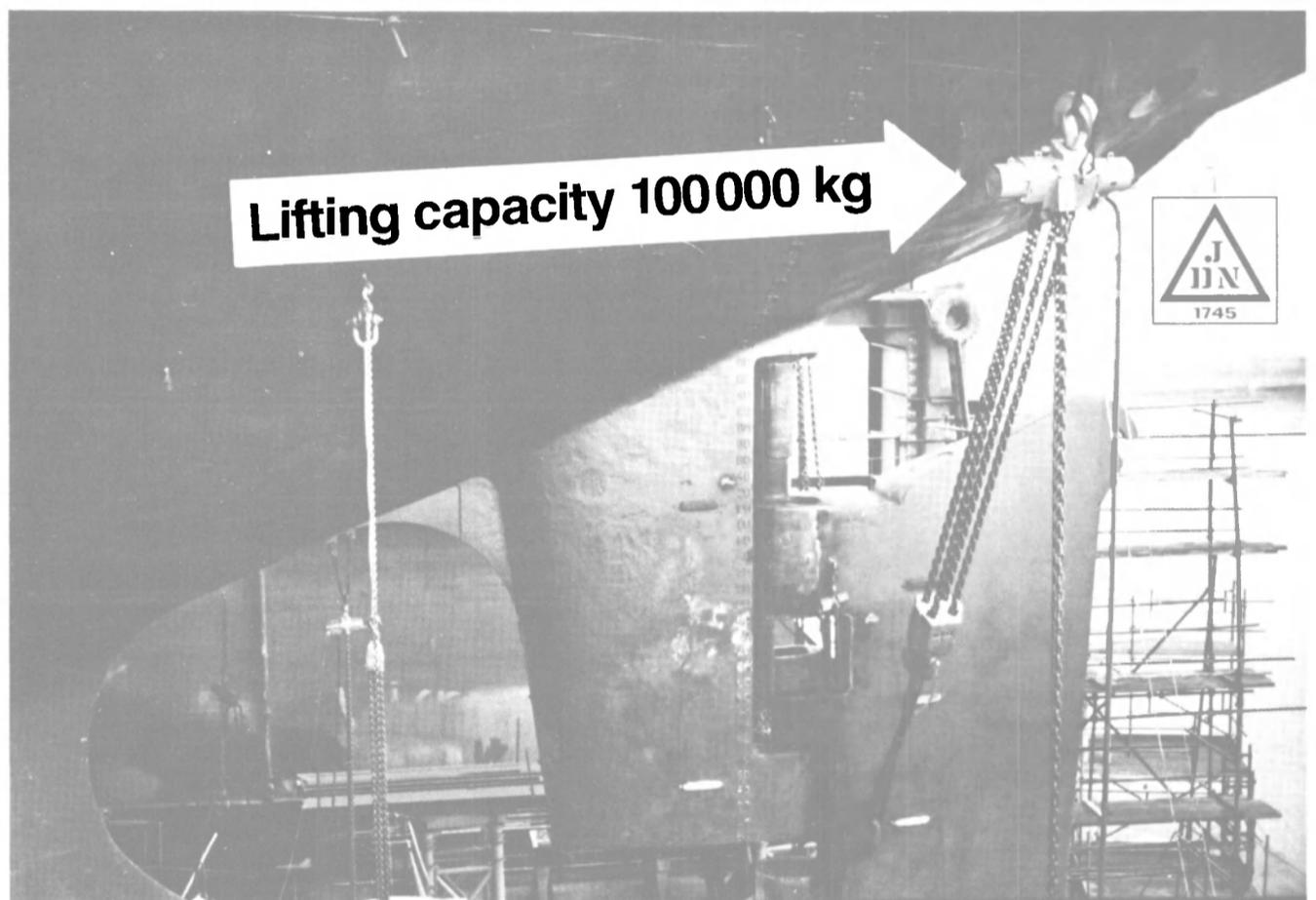
Tank capacities are 22,300 gallons of diesel fuel, 9,000 gallons of potable water, and 160 gallons of lube oil.

Pilothouse outfit includes a Furuno KRA-124 radar, two Nautilus Motorola VHF radios, Apelco AH-130 Loudhailer, controls for two Nabrico 40-ton electrohydraulic winches, Perko running lights, Carlisle & Finch searchlights, Buell-Stromberg air horns, Custom Hydraulic steering system, and Kobelt engine controls.

(continued on page 20)



Percheron



Transportable Pneumatic Hoists **JDN-PROFI** with lifting capacities of 100 kg to 100 000 kg for shipbuilding and ships

Even the mightiest JDN Pneumatic Hoists handling 15 t, 25 t, 50 t and 100 t can be easily relocated as, when and where needed (for fitting rudders, propellers, shafts).

JDN Pneumatic Hoists have infinitely variable controls – going from snail's pace to full speed.

All JDN Pneumatic Hoists are explosion proof. (Air makes no sparks.)

That's why JDN Pneumatic Hoists with capacities from 100 kg to 100 t are increasingly being installed both outboard and inboard. And getting along on only 6 bar air pressure.

We have the information and data you need. It's yours for the asking. Just write.

J. D. NEUHAUS HEBEZEUGE · D 5810 WITTEN-HEVEN

Telefon: 0 23 02 / 5 20 41 · Telex: 08 229 162

Write 284 on Reader Service Card

Shallow Draft Vessel Review

(continued from page 19)

FIRE/UTILITY VESSEL 'POINT T'

Halter Marine, Inc. of New Orleans introduced a new line of fire/utility boats with the recent delivery of the 150-foot Point 'T' to Point Venture, Ltd. of Morgan City, La. In addition to her 61,000-gallon liquid mud capacity, the new vessel carries three 6-inch, 2,400-gpm fire monitors capable of pumping water as well as 1,720 gallons of foam.

The Point 'T', with overall dimensions of 150 feet by 36 feet by 14 feet, is powered by two GM Detroit Diesel 16V-149NA engines each developing 900 bhp at 1,800 rpm.

She has a cargo capacity of 275 long tons and has 2,200 square feet of cargo space on her aft

deck. She can carry 78,560 gallons of fuel oil, 1,283 gallons of lube oil, 3,974 gallons of fresh water, 108,196 gallons of ballast water, and has a sanitary holding capacity of 895 gallons.

Auxiliary machinery includes two GM 75-kw generators driven by two Detroit Diesel 6-71 engines, a Continental Electric generator control panel, an Engine Monitor monitoring system, two Quincy D325 air compressors, and Aurora fire, ballast, bilge, and fuel-transfer pumps. The vessel is fitted with a Bird-Johnson bow thruster driven by a GM diesel, and the engine room is protected by a fire alarm system and automatic CO₂ flooding system.

Living quarters include six cabins, 20 berths, and a fully equipped galley. Classed by the American Bureau of Shipping A-1 + AMS, Point 'T' meets the requirements of USCG NVC 1-78 and USCG Subchapter I; carries a Panama Canal Admeasurement Certificate; and is approved by the U.S. Public Health Service.



Point 'T'

CREW/SUPPLY BOAT 'PORT ARTHUR'

Progressive Shipbuilders and Fabricators, Inc. of Houma, La. has delivered the aluminum crew/supply vessel Port Arthur to Port Arthur, Inc., also of Houma. The 110-foot boat has a beam of 24 feet and depth of 10 feet 6 inches. She is able to carry 63 passengers and a crew of five, as well as 47 long tons of deck cargo. Normal service speed is 28 knots.

Main propulsion is provided by four GM Detroit Diesel 12V71 engines, each with an output of 445 bhp at 1,800 rpm, supplied by George Engine Company. Twin Disc supplied the four reduction

gears, model MG 514, with 2½:1 ratio. Engine controls were supplied by WABCO.

Fuel capacity is more than 6,000 gallons, drill water 7,500 gallons, and potable water 800 gallons.

Navigation and communications equipment, supplied through Rhodes Electronics of Houma, include Furuno FRS 36 radar, Simrad LC 123 Loran C, Konel 1022 SSB radio, and Raytheon DE 750 Fathometer. Two GM Delco diesel generators provide electric power.



Port Arthur

SURFACE-EFFECT BOAT 'RODOLF'



Rodolf

The Rodolf, a 48-foot surface-effect vessel built by Bell-Halter of New Orleans for the Portland (Oregon) District of the U.S. Army Corps of Engineers, began service with a tour of the Gulf and Atlantic Coasts to demonstrate its operational and hydrographic surveying capabilities.

Two 350-bhp GM Detroit Diesel 8V-92N engines power twin four-bladed propellers, and a Detroit Diesel 105-bhp 4-53N engine drives the 30-inch-diameter lift

fan. The widely spaced propellers make the craft highly maneuverable at all speeds, both cushion-borne and hullborne.

As a result of the surface-effect vessel's unique design, the Rodolf is expected to improve significantly hydrographic and surveying technology through its high-speed capability and minimal wake. The boat rides on a cushion of air contained by catamaran style side hulls and flexible bow and stern skirts. At cruising speed the center portion of the hull is clear of the water, supported on the air cushion, thereby reducing resistance, providing higher speed, and improving ride and stability qualities.

Bell-Halter is a joint venture of Bell Aerospace Textron and Halter Marine formed to design, construct, and market air-cushion craft for commercial service.

TRAWLER 'STORM PETREL'



Storm Petrel

Another first for MARCO Seattle was accomplished with the delivery of the fishing vessel Storm Petrel to owner/skipper George Fulton. She is a refrigerated seawater, trawler/comboination boat, MARCO's first to be designed and engineered principally as a trawler. The new vessel has an overall length of 123 feet, beam of 31 feet, and depth of 14 feet.

Propulsion power for the Storm Petrel comes from a turbocharged and aftercooled Caterpillar D399-TA diesel with a continuous rating of 1,125 bhp at 1,225 rpm, driving a 96-inch Coolidge stainless-steel propeller through Reintjes reverse/reduction gears, providing a normal service speed of 12 knots. Auxiliary power is provided by one Caterpillar 3304N and two Cummins KT1150GC engines.

The vessel features a two-deck aluminum pilothouse above the

raised deck. The bridge deck has a 360-degree field of vision, and contains an aft-facing hydraulic control console that includes trawl winch controls.

The new boat has a complete outfit of electronics and other navigational aids, including two radars, two sonars, Loran, and a variety of radio equipment (see accompanying supplier list).

Much attention was given to net- and fish-handling space and equipment aboard the vessel, combining such features as the refrigerated seawater system, an eight-well configuration with a total capacity of 8,800 cubic feet, an articulated stern ramp, and a combination of gear that includes the first pair of MARCO's new WT-303 trawl winches and a removable four-drum stern gantry.

The new hydraulic ramp arrangement, which encloses the boat's stern when not in use, was developed by Mr. Fulton. MAR-

CO's new WT-303 winches deliver more power than previous models, providing the ability to handle the loads of midwater trawling. They feature a transmission that allows the winch to maintain constant speed and power once 30 percent of the cable is on the drum.

reduction gears with a ratio of 4.192:1. Two steering rudders and four flanking rudders are operated by independent hydraulic rams.

Two 100-kw generators are powered by GM Detroit Diesel engines. Hot water and heating are provided by a Kewanee boiler; the Dunham-Bush air conditioning system has a capacity of 20 tons.

(continued on page 22)



Volunteer State

'STORM PETREL' SUPPLIERS

Main engine: **Caterpillar** diesel model D399TA, turbocharged and aftercooled.

Reduction gear: **Reintjes** two-speed hydraulic reversing.

Propeller: **Coolidge** 96-inch-diameter, four-blade, stainless steel.

Steering: **Wagner** hydraulic, model T-19.

Auxiliary engines (3): **Cummins** models KT1150GC and NT855GC, both turbocharged; **Caterpillar** model 3304N.

Radars (2): **Furuno** FR1011 and FR701.

Depth recorders (2): **Furuno** FW-GT22 and FUG-22.

Net recorder: **Furuno** FNR-700.

Sonars (2): **C-Tech** "Omni"; **Wesmar** SS165-2400-FT.

Loran: **North Star** 6000 with SLC Nav-Pac.

Loran plotter: **Epsco** C-Plot II.

VHF radio: **Raytheon** 50A.

SSB radio: **Northern** N571, 150-watt.

Emergency radio: **Northern** N571, 100-watt.

Gyrocompass: **Sperry** SR-130.

Autopilot: **Sperry** 8T.

Intercom: **Raytheon** 350.

Wind speed indicator: **Danforth-White**.

Seawater circ. pumps (4): **Crane/Deming**.

Motors for above (4): **Lincoln**.

Chiller barrels (20): **General Refrigeration**.

Compressors (2): **Carrier**.

Telescoping crane: **Slattery**, 12-ton.

Stern ramp: **MARCO** hydraulic articulating.

Ramp winches (2): **Gearmatic**.

Winches (10): **MARCO** W3000 (3), W0600 (2), W0650 (3), WT303/40 (2).

Net reels (4): **MARCO** RT96S.

Motors for above (4): **Hydrostar** 525.

Bait chopper: **Hansen**.

TOWBOAT 'VOLUNTEER STATE'

The twin-screw, 5,830-bhp towboat Volunteer State has entered service moving commodities on the Lower Mississippi River. Built by Jeffboat, Incorporated in Jeffersonville, Ind., the new vessel is owned by American Financial Corporation and operated by H & S Transportation Company, Inc. and River Lines, Inc. of Nashville, Tenn.

The Volunteer State is powered by two Alco Power Inc. 16-cylinder diesel engines, model 16-251F, each rated 2,915 bhp at 1,200 rpm. These drive five-bladed, stainless steel propellers through two Falk 3040 reverse/

Design, construction, and service oriented



The Guemes

This 124-foot auto-passenger ferry performs yeoman service between Guemes Island and Anacortes, Wash.

Pilot Boats

Leading pilots' associations consider the Gladding-Hearn pilot boat the standard in the industry.



That's how Charles D. Gibson, president of Jekyll Towing & Marine Services Corp., described the Gladding-Hearn organization after his company took delivery of the 76-foot tug/utility boat *Jekyll Isle*, which he found "built to the highest quality standards."

See us in Booths 311-312 at The Work Boat Show

in New Orleans, Jan. 30-Feb. 1, 1981

Gladding-Hearn

Shipbuilding Corporation

1 Riverside Avenue, Somerset, Massachusetts 02725. Tel: 617/676-8596

Write 430 on Reader Service Card

C. B. DARCY MARINE SALES REPRESENTING



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

Write 385 on Reader Service Card

Rudder Angle Indicators

Watertight, synchro-driven types with bulkhead or panel-mounted electric indicators.

Shaft RPM or Engine Speed Indicators & Counters

Standard equipment on commercial & naval vessels for over 50 years. All-electric with wide choice of indicator and generator styles and mounting.

ALSO: Bow Propulsion Speed and Angle Indicators / Engine & Turbine Speed Indicators / Propeller Pitch Indicators / Cable Speed and Footage Counters / Event Recorders / Electric Elapsed Time Counters



6749 Upland Street, Philadelphia, Pa. 19142

1E-2102

Write 171 on Reader Service Card

**Shallow Draft
Vessel Review
—Volunteer State**

(continued from page 21)

Two Westinghouse 5320B air compressors are each rated 23.8 cfm at 250 psi.

Included in the deck machinery are two Schoellhorn-Albrecht type 21063 10-hp capstans, and four

Beebe model 62 5-hp winches. The fire pump was supplied by Ingersoll-Rand.

Among the electronics are a Sperry MXIG-AX radar, Raytheon DE 760 digital depth indicator, and Intech VHF and SSB radios. National Marine Service provided a Series 70 Tugmonitor system, Carlisle & Finch two xenon searchlights, and Kahlenburg a model Q-4 air horn.



UTILITY VESSEL 'WANDA LOUISE'

The U.S.C.G. says "Launch Away!"

**World-renowned
Schat Life Raft Davits are
now approved for use on**

U.S. ships. Schat's Raft Launching Davits are built to the highest standards and are now approved by every leading safety authority in the world. The latest seal of approval comes from the U.S. Coast Guard, allowing ship owners and builders to retrofit this proven davit on their vessels.

Slewing Arm Design. Schat's design features the slewing arm for maximum flexibility. The internal winch mechanism means that several fully-loaded inflatable rafts can be launched

in sequence within 30 minutes. Simple to operate, easy to maintain, and designed for space-saving stowaway, the

Raft Launching Davit is fitted on hundreds of ships, ferries, oil rigs and platforms around the world. Now it's made in America for American ships and offshore structures.

For full details on the Raft Launching Davits or other items of Schat lifting and transfer equipment, contact The Schat Davit Corporation, 226 West Park Place, Newark, Delaware 19711. Telephone: 302/366-1961. Telex: 835374.

Hudson Shipbuilders, Inc. (HUDSHIP) of Pascagoula, Miss., recently delivered its fifth vessel for 1980, the 120-foot utility boat Wanda Louise, built for Gerald P. Hebert Enterprises, Inc. of Lafayette, La. Designed by Har Keswani & Associates of New Orleans especially for the production department of Transco Exploration Company, the new vessel will service production platforms up to 125 miles offshore.

The Wanda Louise is said to be a unique vessel for her size. In addition to having an American Bureau of Shipping loadline and being built to U.S. Coast Guard Subchapter I Requirements, her deck cargo capacity is more than 130 tons, and she has freezer/cooler equipment to handle perishable items for the platforms and standby vessels.

Liquid cargo capability includes fuel, industrial water, and triethylene glycol. Heavy-duty, 3-inch pumps are used to transfer these liquids. She is required to off-load cargo in any type of weather, and is equipped with anchor chain and windlass rather than a cable and winch.

Wanda Louise is powered by twin GM Detroit Diesel Allison 16V92NA engines, each rated 600 bhp at 1,800 rpm and supplied by George Engine Company, and

(continued on page 24)

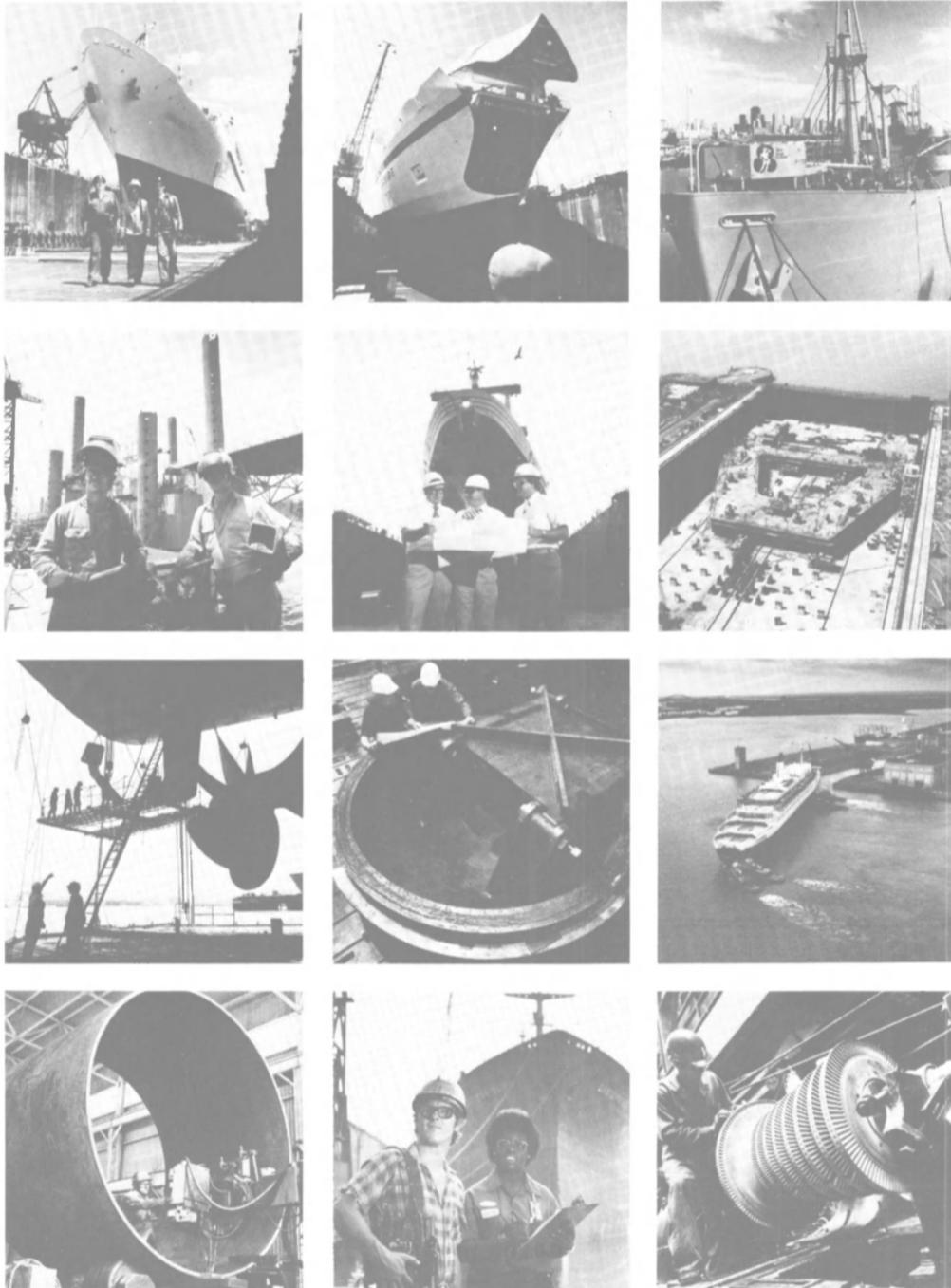
'WANDA LOUISE' SUPPLIERS

- Main engines (2), **GM Detroit Diesel** 16V92 NA.
- Reduction gearing, **Twin Disc** 527 5:1.
- Engine controls, **Mathers**.
- Generators (2), **Delco/GM** 50-kw.
- Control panel, **National Electric Coil**.
- Keel coolers, **Channel Iron**.
- Stuffing boxes, shaft and stern bearings, **Johnson**.
- Steering system & autopilot, **Sperry**.
- Shaft, **Aquamet** 5½-inch.
- Sanitary system, **Red Fox**.
- Air compressors (2), **Quincy**.
- Pumps, **Barnes; Aurora**.
- Anchor windlass, **HBL**.
- Radars (2), **Furuno** FR-240 and FR-701.
- SSB Radiotelephone, **Marco/Konel** 1022.
- Depth recorder, **Impulse** 3601.
- VHF Radiotelephone, **SSE** Sea Command.
- Loran C, **Micrologic** ML-220.
- Engine monitoring system, **Marine Electric**.
- Air horn, **Kahlenburg**.
- Searchlights (2), **Carlisle & Finch**.
- Navigation & running lights, **Perko**.
- Fire monitor, **Akron**.
- Pump for above, **Aurora**.



SCHAT
Leaders in lifting and transfer

BethShip 1981



Bethlehem's shipyard activities cover the waterfront. A dozen are illustrated in our 12½ x 26-in. 1981 wall calendar, a different photograph each month. If you'd like one of these calendars, send your request to:

Wall Calendar
 Shipbuilding Department
 Bethlehem Steel Corporation
 476 Martin Tower
 Bethlehem, PA 18016

Write 132 on Reader Service Card

**Shallow Draft
Vessel Review
—Wanda Louise**

(continued from page 22)

Twin Disc model 527 reduction gears. On sea trials the vessel exceeded 12 knots. Auxiliary power is provided by two 50-kw Delco generators driven by GM Detroit Diesel 4-71 engines. Engines are monitored by a 21-point Marine Electric system.

The pilothouse is designed for maximum visibility. Furnished and installed by Rhodes Electronic Service of Houma, La., the vessel's electronics include Furuno radars, Sea Command VHF radio-telephone by SSE, Impulse depth recorder, Apelco Trident loudhailer, Micrologic Loran C, Marco-Konel SSB radio, Nav-Lite panel by Continental Electric, and Speryr steering and autopilot system.

**SCALLOPER
'WESTPORT'**

Bender Shipbuilding & Repair Company of Mobile has delivered the scalloper Westport to Tradewind Fishing Corporation of New Bedford, Mass. She is the first of four identical vessels to be built at the Bender yard — another for the same owner and



two for Donna Lynn Fishing Corporation, also of New Bedford.

This latest series of vessels embodies many changes and improvements arising from operating experience with the fishing boat Tradewind, which was delivered to Tradewind Fishing in 1978. The Westport has an overall length of 98 feet, beam of 25 feet, and depth of 14 feet.

The new vessel is powered by a Caterpillar D399 diesel engine with an output of 1,125 bhp at 1,225 rpm, driving a Columbian Bronze 4-blade, 70- by 75-inch propeller in a Kort nozzle through a Caterpillar clutch and a Cat 7261 reduction gear having a ratio of 3.84:1. Service speed is 11.5 knots; engine controls are Mathers model AD12.

Cutless rubber stern bearings were supplied by Lucian Moffitt; main shaft bearings are Dodge Sleeveoil. The main engine is cooled by Fernstrum keel coolers. Two auxiliary engines are Caterpillar model D3304T.

Deck equipment includes two Hathaway model 12 AITHS hydraulic trawl winches and a 16-inch Hathaway trawl block. Hydraulically positioned gallows are moved outboard into fishing position by hydraulic rams. When in this position, fishing loads are carried by the structure of the vessel.

Central air-conditioning by Therman serves the wheelhouse and main and lower deck accommodations. The shucking house aft has Carrier air-conditioning and heating. The 15-person inflatable liferaft was supplied by Swit-Lick, and the air horn is a Kahlenberg model T1.

Electronic gear, supplied as a package by EPSCO and installed by the R.H. Sassaman Company of Mobile, includes the following: EPSCO radar model M16, radar model EB Seaveyor, Loran C model Seanav XL (one 32-volt dc and one 115-volt ac), two model 2001 depth recorders, model 901 autopilot with model 505 standard compass; Cobra CB radio with SSB, Northern SSB radio model N550, Yaesu shortwave receiver model FRG-7, and Raytheon loudhailer.



GOLTENS

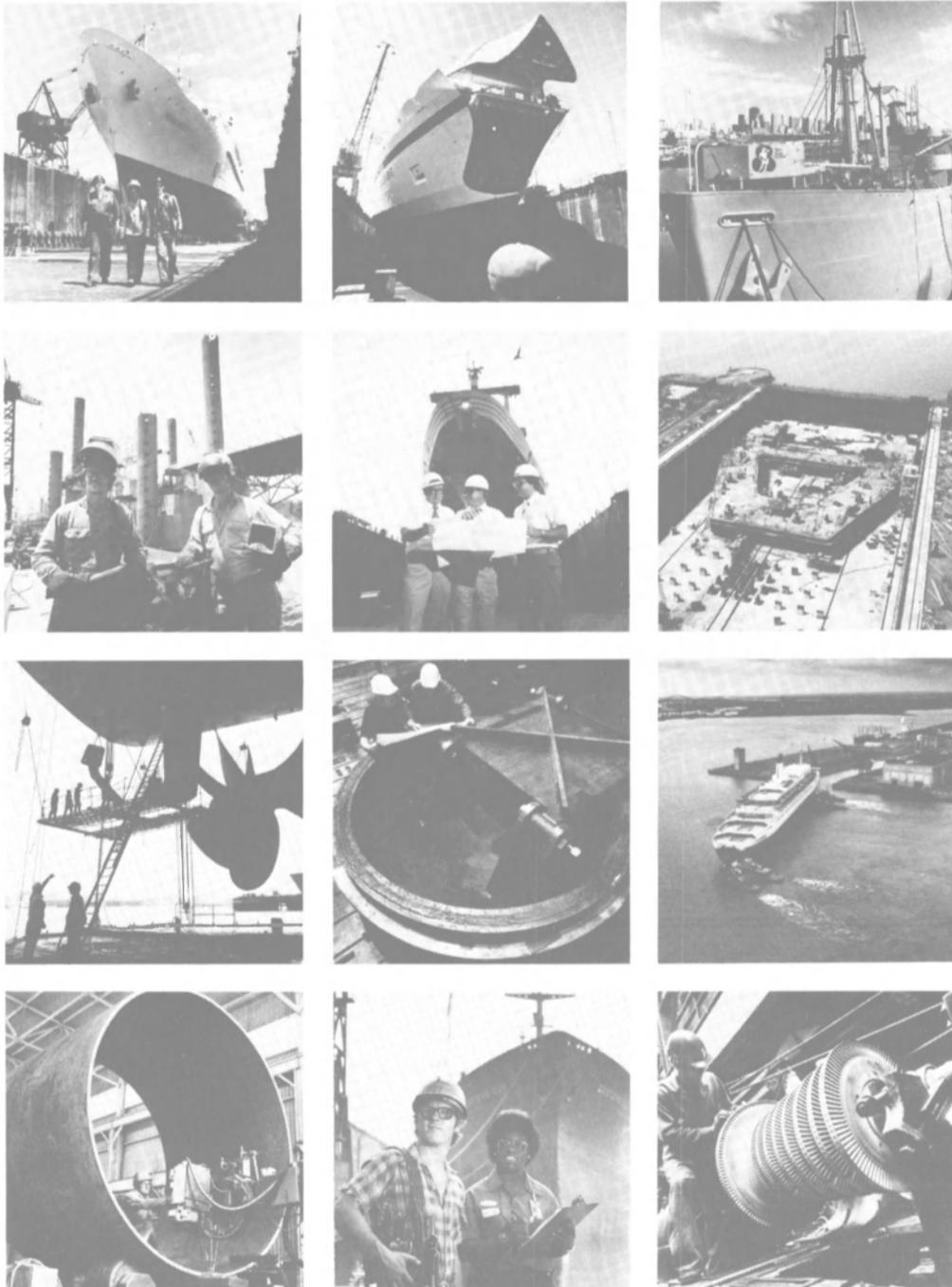
For forty years, the solution has been the same. Goltens! Goltens Marine is the innovator in diesel engine repair. Goltens stocks spare parts for almost every major manufacturer of diesel equipment. And Goltens' patented processes for on board, in place repairs enable them to complete in days what others take weeks or months to finish.



**Our 40th Anniversary
GOLTEN MARINE CO. INC.**

HEADQUARTERS: 160 Van Brunt St., Brooklyn, NY 11231 Phone: (212) 855-7200
• Telex: 22-2916 • Cable: GOLTENS
BRANCHES: Wilmington, Calif. • Miami, Fla. • Portland, Me. • Fairhaven, Mass. • Rotterdam, Holland • Kowloon, Hong Kong • Oslo, Norway • Telemark, Norway • Singapore

BethShip 1981



Bethlehem's shipyard activities cover the waterfront. A dozen are illustrated in our 12½ x 26-in. 1981 wall calendar, a different photograph each month. If you'd like one of these calendars, send your request to:

Wall Calendar
 Shipbuilding Department
 Bethlehem Steel Corporation
 476 Martin Tower
 Bethlehem, PA 18016

Write 132 on Reader Service Card

**Shallow Draft
Vessel Review
—Wanda Louise**

(continued from page 22)

Twin Disc model 527 reduction gears. On sea trials the vessel exceeded 12 knots. Auxiliary power is provided by two 50-kw Delco generators driven by GM Detroit Diesel 4-71 engines. Engines are monitored by a 21-point Marine Electric system.

The pilothouse is designed for maximum visibility. Furnished and installed by Rhodes Electronic Service of Houma, La., the vessel's electronics include Furuno radars, Sea Command VHF radio-telephone by SSE, Impulse depth recorder, Apelco Trident loudhailer, Micrologic Loran C, Marco-Konel SSB radio, Nav-Lite panel by Continental Electric, and Speryr steering and autopilot system.

**SCALLOPER
'WESTPORT'**

Bender Shipbuilding & Repair Company of Mobile has delivered the scalloper Westport to Tradewind Fishing Corporation of New Bedford, Mass. She is the first of four identical vessels to be built at the Bender yard — another for the same owner and



two for Donna Lynn Fishing Corporation, also of New Bedford.

This latest series of vessels embodies many changes and improvements arising from operating experience with the fishing boat Tradewind, which was delivered to Tradewind Fishing in 1978. The Westport has an overall length of 98 feet, beam of 25 feet, and depth of 14 feet.

The new vessel is powered by a Caterpillar D399 diesel engine with an output of 1,125 bhp at 1,225 rpm, driving a Columbian Bronze 4-blade, 70- by 75-inch propeller in a Kort nozzle through a Caterpillar clutch and a Cat 7261 reduction gear having a ratio of 3.84:1. Service speed is 11.5 knots; engine controls are Mathers model AD12.

Cutless rubber stern bearings were supplied by Lucian Moffitt; main shaft bearings are Dodge Sleeveoil. The main engine is cooled by Fernstrum keel coolers. Two auxiliary engines are Caterpillar model D3304T.

Deck equipment includes two Hathaway model 12 AITHS hydraulic trawl winches and a 16-inch Hathaway trawl block. Hydraulically positioned gallows are moved outboard into fishing position by hydraulic rams. When in this position, fishing loads are carried by the structure of the vessel.

Central air-conditioning by Therman serves the wheelhouse and main and lower deck accommodations. The shucking house aft has Carrier air-conditioning and heating. The 15-person inflatable liferaft was supplied by Swit-Lick, and the air horn is a Kahlenberg model T1.

Electronic gear, supplied as a package by EPSCO and installed by the R.H. Sassaman Company of Mobile, includes the following: EPSCO radar model M16, radar model EB Seaveyor, Loran C model Seanav XL (one 32-volt dc and one 115-volt ac), two model 2001 depth recorders, model 901 autopilot with model 505 standard compass; Cobra CB radio with SSB, Northern SSB radio model N550, Yaesu shortwave receiver model FRG-7, and Raytheon loudhailer.



**"Call
GOLTENS"**

For forty years, the solution has been the same. Goltens! Goltens Marine is the innovator in diesel engine repair. Goltens stocks spare parts for almost every major manufacturer of diesel equipment. And Goltens' patented processes for on board, in place repairs enable them to complete in days what others take weeks or months to finish.



**Our 40th Anniversary
GOLTEN MARINE CO. INC.**

HEADQUARTERS: 160 Van Brunt St., Brooklyn, NY 11231 Phone: (212) 855-7200
• Telex: 22-2916 • Cable: GOLTENS
BRANCHES: Wilmington, Calif. • Miami, Fla. • Portland, Me. • Fairhaven, Mass. • Rotterdam, Holland • Kowloon, Hong Kong • Oslo, Norway • Telemark, Norway • Singapore



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

Write 200 on Reader Service Card

**Caterpillar Announces
Two Improved Diesels
—Free Brochure Available**

At the recent Fish Expo in Boston, Caterpillar Tractor Company's Engine Division announced two improved models in its marine diesel engine line. One is a new, direct-injection configuration of the well-accepted turbocharged and aftercooled 3412 marine engine. The direct-injection 3412

DITA version is said to offer some 8-10 percent increased fuel efficiency compared with the pre-combustion chamber 3412 model.

Higher torque rise, greater operating range, and reduced heat rejection are also features of this new configuration. Approved ratings include 520 bhp (388 kw) continuous and 625 bhp (466 kw) medium-duty commercial at 1,800 rpm. The matched Cat 7221 and 7231 marine transmissions are offered for the continuous rating,

with the 7231 offered for the medium-duty commercial rating.

The 3412 DITA is designed primarily for medium to large fishboats (75-95 feet), inland towboats, and offshore utility vessels. With its attractive fuel economy, fishboat owners wanting higher horsepower will find the 3412 DITA and matching marine transmission a logical choice.

The second improved model announced by Caterpillar is the turbocharged 3208 T diesel, which is

replacing the current version 3208. Significant component improvements are said to be engineered into the compact, lightweight V8 diesel to extend its application to all levels of commercial propulsion service. Ratings for the 3208 T include 260 bhp at 2,800 rpm for light-duty commercial, 230 bhp at 2,400 rpm for medium-duty commercial, and 200 bhp at 2,400 rpm continuous.

Cat says the 3208 T provides the best power-to-weight ratio and largest displacement of any engine in its horsepower range. The weight of the engine and Twin Disc MG507 transmission is only 2,320 pounds. Displacement of the compact, 90-degree, V8 four-cycle diesel is 636 cubic inches (9.4 liters). The engine is equipped with a rear-mounted, water-cooled turbocharger with single exhaust outlet. Physical dimensions and connection points are the same as the current turbocharged 3208.

For further information and free literature on these two new Caterpillar engine models,

Write 38 on Reader Service Card

**A ship away from
home is never far
from Sperry**



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

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

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

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

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



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



SPERRY IS A DIVISION OF SPERRY CORPORATION

**Ralph Johnson Joins
PRC Guralnick In San
Diego As Naval Architect**

Ralph P. Johnson has joined the San Diego office of PRC Guralnick as a naval architect, according to John L. Torresen, vice president and chief design engineer.

Mr. Johnson, a graduate of the University of Michigan, had been hull group supervisor at Campbell Industries, San Diego. His background includes five years' experience in the design of large tug, supply, and fishing vessels. A Navy veteran, he performed engineering duties for four years, and last served aboard the attack carrier USS Ranger as boiler officer.

**Brown Named General
Manager Of Toronto
Harbour Commissioners**

Ian C.R. Brown, who has been with the Toronto Port Authority for nine years, has been appointed general manager of the Toronto Harbour Commissioners, according to an announcement by Karl Jaffary, chairman of the board. Mr. Brown succeeds Ernest B. Griffith, who remains as executive director of World Trade Centre Toronto, which is operated by the Commissioners.

The new general manager joined the Port Authority in 1971. Over the years he has held various posts. He was appointed assistant general manager in 1975. Mr. Brown is first vice president of the Canadian Port and Harbour Association. He is also on the board of the Canadian Importers Association.

◀Write 340 on Reader Service Card

Write 202 on Reader Service Card ▶

HALTER BUILT



Halter Marine builds more supply vessels than anybody else in the world.

Because we build them better than anybody else. We build for some of the world's largest fleet operators and some of the smallest. In 1979 six of our ten shipyards delivered 52 supply boats alone.

Halter-built supply vessels are at work throughout the world in all sea conditions providing every kind of support the offshore oil and gas industry demands.

Whether you need a vessel to carry drilling muds,

acids, drill pipe, position anchors, tow rigs, or whatever—we can build it for you. You can choose from stock designs from 110 feet to 217 feet with conventional or diesel electric power or, our in-house marine engineers and naval architects can design a vessel to suit special requirements.

And we don't stop there. Our interior design group provides interiors that keep crews comfortable in a home-like atmosphere for increased morale and efficiency.

We can build any boat you need. Ask us. Halter Marine, Inc., Dept. A-4, Box 29266 New Orleans, LA 70189 U.S.A., (504) 246-8900, Telex —58-4200, Cable HALMAR



The Total Shipbuilding Group

When your ship needs service every port is a major port to BP Marine International.



Brooks Range,
Interocean Management Corp.



More than 4000 ships
receive BP's high quality
lubrication services at 300
ports in over 60 countries.

BP North America Trading Inc.

New York
New Jersey
New Orleans
Houston
Los Angeles

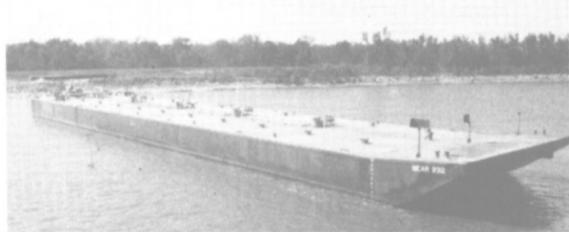
Telephone 201 494 3900

BP marine international. Serving America and the World.

Write 124 on Reader Service Card

Bergeron Enters New Product Line With Four Tank Barges

Bergeron Industries, Inc. recently delivered four tank barges from their Braithwaite, La., marine facility, marking the company's entrance into a new product line. Long a major designer and builder of deck barges, Bergeron is using this experience in tank barge construction.



Bear 232 (pictured above) is the second of two single-skin tank barges designed and built for Alabama River Towing of Mobile. The barges measure 264 feet by 50 feet by 11 feet, and have a total tank capacity of about 23,000 barrels. They are equipped with steam coils and a stripping system. Although they are single-skin design, the barges are certified by the Coast Guard as a Type III hull for carriage of hazardous cargoes, including benzene, and possess an American Bureau of Shipping load line for limited offshore service.

N.M.S. No. 2301 was rebuilt from a 297-foot 6-inch by 54-foot by 12-foot, double-skin box-type barge for National Marine Service. The box barge was cut into two pieces, with new rake sections built and installed to produce two 205-foot by 54-foot by 12-foot semi-integrated barges. N.M.S. No. 2301 and N.M.S. No. 2300 are Coast Guard approved for Subchapter 0 products, and possess American Bureau of Shipping load lines for limited offshore service.

Levingston To Build \$45-Million Jackup Rig For Noble Drilling Corp.

Ed Paden, president of Levingston Shipbuilding Company of Orange, Texas, has announced plans to build a second Levingston Class 111-C jackup drilling rig for Noble Drilling Corporation of Ardmore, Okla. Noble Drilling, a leading domestic drilling contracting firm formed in 1921, is a wholly owned subsidiary of Noble Affiliates, Inc. In addition to the two new jackups on order with Levingston, Noble owns seven platform rigs, three shallow-water mobile rigs, three inland rigs, and 34 land rigs.

Overall dimensions of the triangular-shaped rig are 200 feet by 186 feet by 23 feet. The 414-foot-long, square-truss legs allow the vessel to drill in water depths of 300 feet and to a maximum well depth of 25,000 feet. Design criteria of the cantilevered unit make it capable of operating under the harshest weather conditions. The unnamed jackup will be able to withstand winds of up to 109 knots and seas of 50 feet. Accommodations will be provided for a crew of 54.

This is the fifth in a series of jackup rigs to be built at Levingston. They provide further continuity in the company's plan to equally divide yard efforts between conventional shipbuilding and offshore projects. Levingston is optimistic about additional offshore business as well as continuation of its successful bulk carrier program.

The approximate cost of this rig is \$45 million. Completion is scheduled for December 1982.

Bulkfleet Marine Awards Maintenance System Contract To Stanwick

The Stanwick Corporation's Operations Engineering Division has been awarded a contract by Bulkfleet Marine Corporation to provide an automated maintenance management system for Bulkfleet's two dedicated, deep-notch tug/barge units (DDNTBU) in the 28,000-dwt class, powered by four economically efficient heavy fuel burning diesel engines.

The system to be installed by Stanwick provides simple yet effective means for managing and documenting preventive and repair maintenance actions. As an automated system, it is characterized by operational simplicity, minimum paperwork for chief engineers, and timely and efficient produc-

tion of maintenance status and machinery history reports.

According to Dexter Rumsey, a vice president of Stanwick's Operations Engineering Division and designer of Stanwick's automated maintenance management system, the system will achieve improved equipment reliability and extended equipment life at lower manpower and parts costs. The system is of a modular design, which allows customers the flexibility and capability to address unique and specific reporting requirements through customization and adaptation of the full spectrum of maritime operational needs.

Bulkfleet Marine Corporation's director of engineering Bob Osmer predicts that these two tug barge units will offer customers the most economical transport service currently available in the petroleum and bulk products industries.

YOU'RE WAY AHEAD



When TURECAMO does the towing

Around the clock. Turecamo's modern fleet of fast, powerful tugs stand ready to instantly provide you with the very best in towing services. Added to this are the years of invaluable experience docking and undocking ships of all sizes and in every phase of towing operations.

When you want fast, efficient and economical service...Call Turecamo First.

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

TURECAMO COASTAL & HARBOR TOWING CORP.

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

MATTON TRANSPORTATION CO. INC.

ONE EDGEWATER STREET
STATEN ISLAND, N.Y. 10305

TEL: (212) 442-7400

TURECAMO TRANSPORTATION CORP. MATTON SHIPYARD CO., INC.

TURECAMO TANKERS INC.

Three New Management Appointments Made At Crowley Maritime

Three appointments have been made in Crowley Maritime Corporation's International Division, according to a recent announcement by **Richard F. Andino**, San Francisco, Crowley vice president and general manager of the division.

Tom Pickford has been appointed

manager of marine operations, a newly created position with responsibility for coordinating the division's efforts in all facets of marine equipment evaluation and control. Mr. Pickford was previously instrumental in various Crowley joint venture operations, including a recent stint as managing director of a Tokyo-based joint venture service. He is based in San Francisco.

Bill Coleman has been named division area manager for Central

America and is based in Mexico City. He is responsible for developing markets throughout Central America and representing Crowley's interest in TAB, a joint venture with the Mexican steamship company *Transportation Maritima Mexicana S.A.* TAB provides equipment and services to the oil and marine construction industries in Mexico and Central America. Mr. Coleman brings over 15 years' maritime experience to the position, including service for

Crowley in Indonesia and the Caribbean.

Cecil Payne has assumed responsibilities as project manager of a TAB rock-haulage contract at Dos Bocas, Mexico, the site of a new tanker terminal. Prior to this appointment, he served in a number of capacities for Crowley, most recently as director of special projects for Crowley's Caribbean Division, Jacksonville, Fla.

Newport News Awarded \$51-Million Navy Contract For Attack Sub Work

Newport News Shipbuilding in Virginia, a unit of Tenneco Inc., has just received a U.S. Navy contract worth about \$51 million for detail design and yard services in support of nuclear-powered attack submarines (SSNs). The Newport News yard currently has eight submarines of this type under construction or on order, at a total contract value of more than a billion dollars.

J.P. Fischer Elected Operations VP For American Steamship



Joseph P. Fischer

Joseph P. Fischer has been elected vice-president operations. It was announced by **Thomas W. Burke**, president of American Steamship. Mr. Fischer joined American Steamship as senior marine superintendent in 1977, and was elected vice president-engineering in 1979. He spent nearly 19 years with the naval architectural firm of R.A. Stearn, Inc. of Sturgeon Bay, Wis. Mr. Fischer started his marine career in 1947 as a loftman for the Christy Corporation, now a part of Bay Shipbuilding Corporation, also of Sturgeon Bay.

\$36-Million Research Contract Awarded By Navy To Johns Hopkins

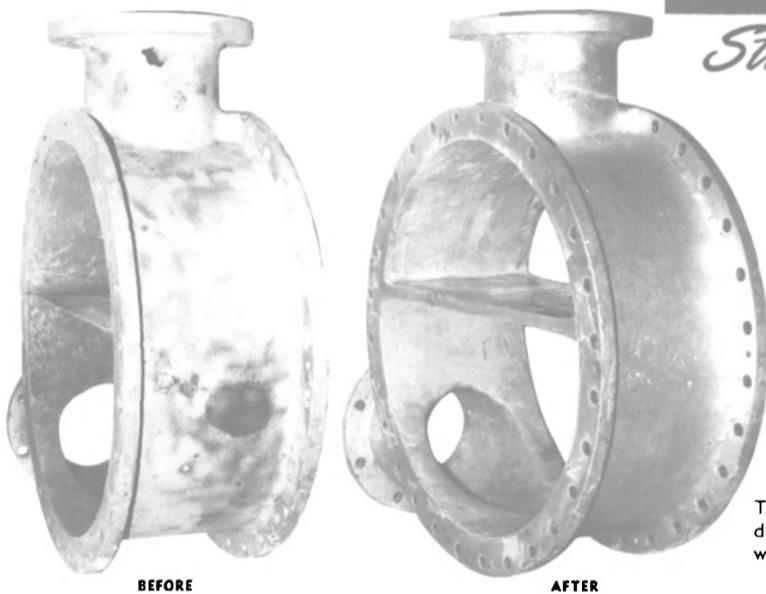
The Johns Hopkins University, Applied Physics Laboratory, Laurel, Md., has been awarded a \$35,916,600 modification to a previously awarded contract for research work connected with tactical/strategical systems and space science, research and development, and other related areas. The Naval Sea Systems Command was the contracting activity. (N00024-78-C-5384)

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

SEND FOR LIST OF CONTENTS AND LITERATURE

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

Packed in sturdy Navy type refillable metal containers.

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.

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

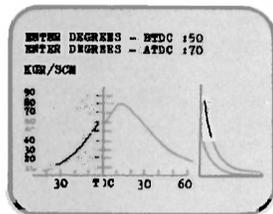
ALABAMA—Mobile
Kamil Ship Supply
CALIFORNIA—San Francisco
Cordes Bros
—Wilmington
J.M. Costello Supply Co., Inc.
FLORIDA—Tampa
Bonanni Ship Supply, Inc.
—Miami
Ocean Ship Supply
—Jacksonville
Weedon Engineering Co.
GEORGIA—Savannah
Southern Marine Supply Co., Inc.
LOUISIANA—New Orleans
Marine Sales, Inc.
MAINE—Portland
Chase Leavitt & Co., Inc.
MARYLAND—Baltimore
Tate Engineering, Inc.
MASSACHUSETTS—Boston
Klausen Gostby 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.

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—Marham
Industrial Equipment & Supply Ltd.
CANADA—Halifax
Hubeva Marine Plastics, Halifax

FRANCE—Dunkirk
M. & R. Oekytspotter & Sons
—Marseille
Sogerac
GREECE—Piraeus
Marine Technical Bureau
HOLLAND—Rotterdam
Van Lessen & Punt N.V.
HONG KONG—Kowloon
Marine Supply Company
ITALY—Genova
Coper S.A.S.
JAPAN—Yokohama
Inouye & Company, Ltd.
MALAYA—Singapore
Wah Hong & Company, Ltd.
NORWAY—Slabekk
Notus-Morot A/S
PORTUGAL—Lisboa
Valadas LDA
SOUTH AFRICA—Durban
James Brown & Hamer, Ltd.
—Woodstock, Capetown
Globe Engineering Works, Ltd.
SPAIN—Cadiz
Consumar
—Bilbao
Indame, S.A.
THAILAND—Bangkok
Klart 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.

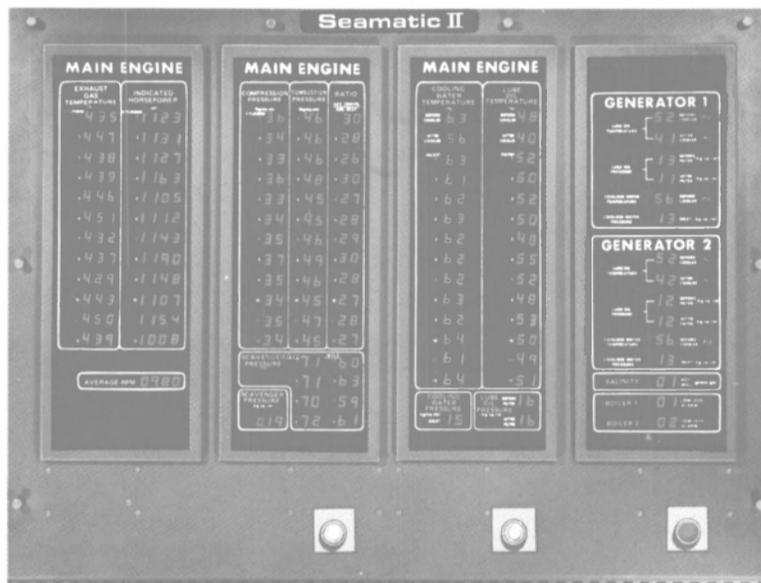
SELF CONTROL



Diesel Tuning



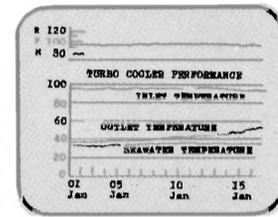
Data Display



Data Display Unit



CRT Video Station



Trendline Analysis

FOR SHIPOWNERS

In a world where precise control of operating costs means the difference between profit and loss...in a world of escalating fuel costs...write, phone or Telex Megasonics.

For Megasonics is the world's foremost designer, manufacturer and purveyor of sophisticated, state-of-the-arts monitoring and control systems.

Both USCG and ABS approved for total distributed microprocessor based automation and control systems. Seamatic type systems are marine proven in over 3,000,000 DWT of vessels--ranging from tugboats to VLCCs.

And, where console space is a pro-

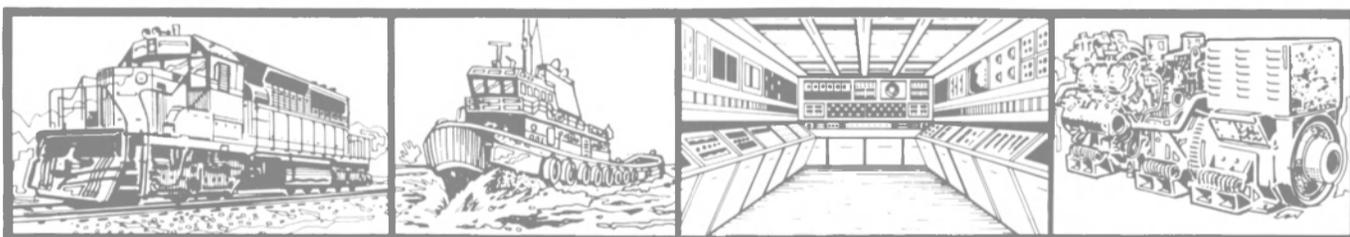
blem, Megasonics can reduce both size and weight by as much as 50%. Seamatics simultaneously monitor and digitally display a limitless number of engine and/or auxiliary machinery functions. Our CRT provides moment-by-moment monitoring as well as trendline displays. Magnetic cassette data storage makes data retrieval review quick and simple.

The optional Megasonics Sea Load program automatically computes and displays all types of loading calculations, too.

In addition, Megasonics' patented MS 2500 series of diesel engine diagnostic systems provide complete combustion and injection waveform

analysis in addition to individual cylinder horsepower and pressure values. These systems feature Megasonics' unique "zoom" or expansion function which enables operators to fine tune power plants to within one-tenth of a degree. These units are in operation on slow, medium and high speed diesels. Sensors and electronics are designed specifically for the rigors of maritime use but are equally effective in monitoring and analyzing any diesel application.

Put Megasonics' expertise to work for you today and reduce your operating expenses!



FOR Diesel Locomotives

FOR Tugboats to VLCC's

FOR Control Automation Systems

FOR Power Generators

MEGASYSTEMS, INC.
5909 WEST 130th STREET
CLEVELAND, OHIO 44130 U.S.A.
PHONE: (216) 267-3260
TELEX: 98-5523

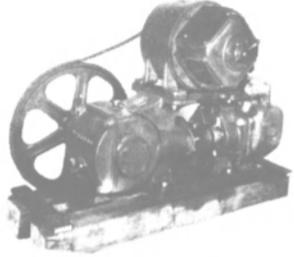
© 1979 Megasonics, Inc. *Patents U.S. and Foreign
Write 250 on Reader Service Card

MEGASYSTEMS, INC.
5909 West 130th Street • Cleveland, Ohio 44130 U.S.A. MR
Phone: (216) 267-3260 Telex: 98-5523
It sounds as if your Seamatic II is superior
 Please have a Representative call Please send literature

Name _____
Company _____ Title _____
Address _____ Phone _____
City, State, Zip _____

PUMPS

WORTHINGTON 2 1/2"x2" SANITARY & FLUSHING PUMP — 20 GPM — 80 LBS

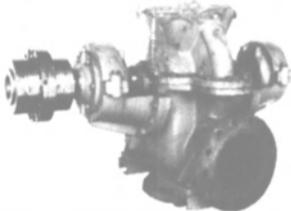


Motor driven type KAA — 1 1/2" suction — 1" discharge. MOTOR: 2 HP — 230 VDC. Can also be furnished with A.C. motor if desired.

UNUSED 5"x4" — 500 GPM @ 20 PSI — 1800 RPM WEIL GENERAL CIRCULATOR SERVICE PUMP

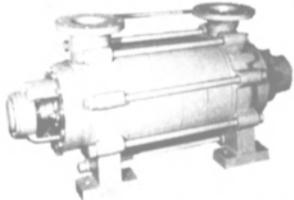
With totally enclosed explosion-proof motor. Bronze pump — horizontally split case — flooded submergence test pressure 300 PSI. MOTOR: Continental 10 HP — 440/3/60 — 1800 RPM — fan cooled — totally enclosed — horizontal — self-ventilated — EXPLOSION-PROOF. Unit 60" long — 24" flange to flange.

2000 GPM @ 75' BRONZE PUMPS



8X8 — 2000 GPM @ 75' — 1750 RPM — requires 50 HP 440/3/60 1750 RPM motor — frame 445-S. Pumps are ball-bearing split case centrifugals with cast iron driplip base. Very good condition.

UNUSED NIJUIS FIRE PUMP — PUMP ONLY



HID-5125250 — 531 GPM @ 323' head @ 1800 RPM

6X5 BRONZE GARDNER-DENVER PUMP

Split case type D — 1000 GPM — 125 lbs — 281" @ 1800 RPM. Requires 100 HP diesel drive. Suction lift 15 to 25' — 10 1/2" diameter flange. 6" Suction 5" Discharge.

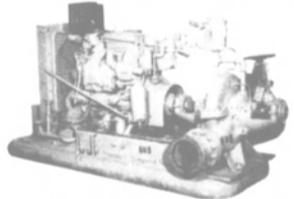
"EUREKA" DUPLEX DOUBLE-ACTING RECIPROCATING BILGE PUMP 500 GPM — 100' HEAD

Motor driven — pump operates at 320 RPM. MOTOR: 15 HP — 440/3/60 1750 RPM. DIMENSIONS: 5'9" high — 3' wide — 4' deep. Ex-M.V. Globtic Sun.

NIJUIS 3510 GPM DIESEL DRIVEN FIRE PUMP

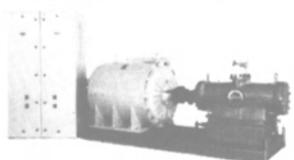
3510 GPM @ 350' head — 161.7 PSI. Pump is 10X8 — factory new — horizontally split case. ENGINE: GM 6V-71 or 8-V-71. Can furnish with heat exchanger & radiator.

GARDNER-DENVER 6 X5" BRONZE CENTRIFUGAL FIRE OR JETTING PUMP



Driven by GM 3-71 diesel engine. PUMP: 1000 GPM @ 150 PSI/1500 GPM @ 100 PSI — 1750/2000 RPM. Maximum head 175 PSI. Self-contained fuel tank in base. Automatic self-priming optional.

NEW UNUSED — 700 GPM — 150 PSI DELAVAL ROTARY PUMP



6X8 — 700 GPM @ 150 PSI — 1150 RPM — with 4-speed motor & control 100/75/50/37.5 HP — 440/3/60 — 1200/900/600/450 RPM. With Cutler-Hammer controller.

UNUSED BRONZE 2000 GPM @ 337' HEAD FIRE OR HIGH PRESSURE SERVICE PUMP



Mfg by Frederick Iron & Steel — 8" side discharge; — 8" bottom suction — model 8DSU-SPL. MOTOR: Crocker Wheeler — 250 HP — 240 volts DC — 1900 RPM — 102 7/8" O.A.L. — 34 1/2" wide — 37" high.

NEW UNUSED

KINNEY 20 GPM FUEL OIL SERVICE PUMP

Vertical — 50 PSI — with 2" inlet & outlet. MOTOR: 2 HP — 440/3/60 860 RPM — with starter. For fuel oil service, etc.

NEW UNUSED

SUMP OR LOW PRESSURE DRAIN PUMPS



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

CARVER CHILLED WATER SERVICE PUMP 160 GPM — 57 PSI



For air conditioning or water circulation. 160 GPM @ 57 PSI — 110 ft. head. Closed coupled — 10 HP 440/3/60/3500 RPM.

500 GPM FIRE SERVICE PUMP



Mfg. by Buffalo. Bronze — 500 GPM @ 100 Lbs. — 5X4 — 30 HP/240 DC — 105 amps — 1750 RPM.

PASSENGER/CRUISE SHIP SELF PRIMING NEW WORTHINGTON VERTICAL SUBMERSIBLE BILGE PUMP



FOR EMERGENCY USE ON PASSENGER SHIPS, ETC. PUMP: JAS — 264 GPM — 171' head — two 6" inlets — one 5" outlet. MOTOR: 40 HP — 230 volts DC — 149 amps. COMPLETE WITH NASH — SELF PRIMING PUMP ATTACHED.

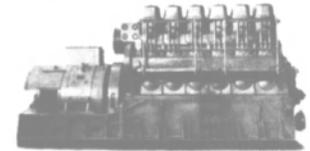
DIESEL GENERATOR SETS

290KW GM 8-268A DIESEL GENERATOR SET



120/240 VDC—1250 amps—shunt wound. ENGINE: GM 8-268A — 8 cyl — 6 1/2 X7 — 1200 RPM — good condition.

300KW BALDWIN DIESEL GENERATOR SET

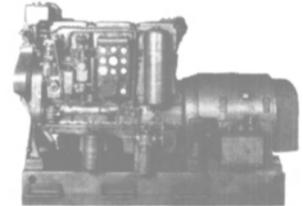


300KW — 120/240 VDC — 1250 amps — stab. shunt — 450 RPM. Baldwin diesel model VO. Ex C-1MAVO1.

100KW GBD8 DIESEL GENERATORS

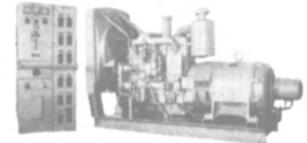
From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM — Delco generator — self-excited. ENGINE: Superior GBD-8 — 8 cyl — 5 1/2 X7 — 150 HP — 30 volt electric starting. Reconditioned to ABS. Dry weight 10,000 lbs. — OAL 124" — 65 11/16" high — 42" wide. Height necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

60 KW CUMMINS DIESEL GEN. SETS



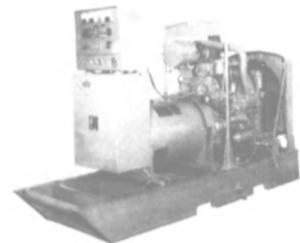
60KW — 120 volts — 500 amps DC generators. 6-Cyl. model H Cummins diesel engine.

75 KW CUMMINS DIESEL GENERATOR SET



75KW — 93.8 KVA — 440/3/60 — 1200 RPM — electric starting. Cummins 6-cyl engine with free-standing switchgear.

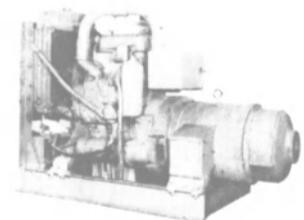
GM-4-71-T TURBO-CHARGED 100 KW DIESEL GENERATOR SET RADIATOR COOLED 1800 RPM



12 wire — all voltages possible — 100 KW 440/220/3/60. With switchgear. Has protective cabinet.

GM 8-268A 200 KW A.C. DIESEL GENERATOR SETS ENGINE: 8-268A — 6 1/2" bore — 7" stroke — 1200 RPM — driving Westinghouse generator — 200 KW — 440 volts — 3-phase — 60 cycle — 321 amps — 80% PF @ 1200 RPM. Switchgear available.

20KW 2-71 DIESEL GENERATOR SETS TEST RUN 1 HOUR



220/3/60 — 1200 RPM — Electric Machinery Co. or Delco. Brushless — will demonstrate running. (Also have 20KW sets with 220/440/3/60 — with brushes — 1200 RPM — Delco. Weight 2200 lbs.)

KNOWN 'ROUND THE WORLD



THE BOST

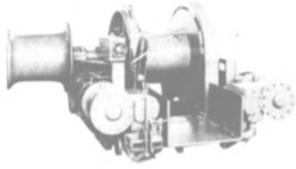
313 E. BALTIMO

Marine
Main (

GM 3-268A 100 KW DIESEL GENERATOR SETS
ENGINE: GM 3-268A — 6½"X7 — 1200 RPM — 80% PF — electric starting. **GENERATOR:** 100 KW — 440/3/60/1200 RPM — 161 amps. Dripproof — open — self-ventilated. (Class A insulation stator — class B insulation on field). **EXCITATION:** 2 KW DC unit — 9' 1¾" long — 37" wide.

WINCHES

STEAM MOORING WINCHES

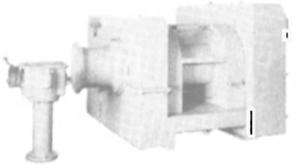


12" X 14" — AUTOMATIC TENSIONING with foot brake & declutchable gypsy head 20,000 LBS @ 100 FPM — FIRST LATER ALSO HANDLES 16,000 @ 150 FPM OR 50,000 @ 8 FPM.

Drum will show 1500 ft or 1½" wire in 9 layers. Steam inlet 3½" — 4" exhaust — 171 PSI working pressure. **BASE DIMENSIONS:** 6' X 6' 3½" — overall 8' 4½" wide x 9' long. Mfg by Friedrich Kocks.

ALL UNITS CAN BE DEMONSTRATED RUNNING

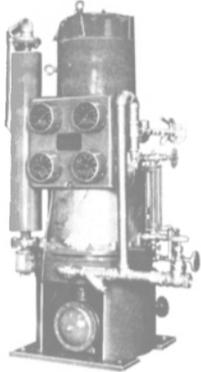
MODEL U1 UNIT WINCHES



7450 Lbs. @ 223 FPM. G.E. 50 HP Motor — 230 VDC. With controls and master switch.

AIR COMPRESSORS

NASH MULTI-PHASE CONTROL AIR COMPRESSOR 50 CFM — 100 PSI



Model MV-673. Continuous pressure maintained by pressure control valve. Complete with motor, heat exchanger, separator, silencer, pressure control valve, water seal pressure control valve. **CAPACITY:** 50 CFM @ 100 PSI — 3500 RPM. Motor 27 HP — 440/3/60. Cooling water flow 35 GPM — relief valve set for 110 PSIG. Vertical configuration. Pressure switch: on 80 PSIG — off 100 PSIG. Just removed from AT&T Vessel "Long Lines". Excellent condition.

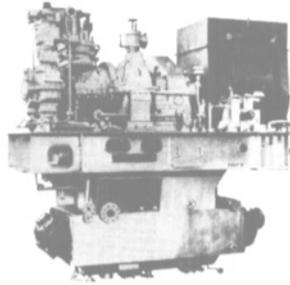
MARINE SHIPBOARD AIR COMPRESSOR V-TYPE — TS-22820



160 CFM @ 125 lbs — two stage 870 RPM — 8X8¼X8¾ — air cooled — with intercooler. Direct — connected air compressor #2261021. **MOTOR:** 50 HP 440/3/60 — mfg by U.S. Motor. **AIR COMPRESSOR:** Mfg by Air Pumps Ltd. Excellent condition — formerly used on AT&T Vessel "Long Lines" and removed only because they needed a larger unit. Complete with inter- and after-cooler. Very good condition.

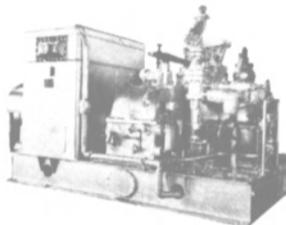
TURBO GENERATORS STEAM TURBINE — GEARS

1000 KW DELAVAL ALLIS-CHALMERS GEARED TURBO GENERATORS



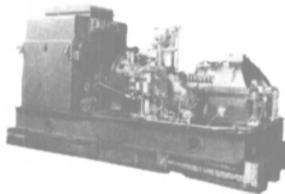
DeLaval turbine 1442 HP — 10019 RPM — class GJN — 9-stage — 1050 PSI — 950° TT. **GEAR:** 10019/12000. **GENERATOR:** Allis-Chalmers 1000 KW — 450/3/60/1200 — static excitation. Complete with condenser & switchgear optional. Send for brochure.

750 KW G.E. 7-STAGE TURBINE



450/3/60/1200 RPM — type FN3-FN24 — 10033 RPM. **GEAR:** 10033/1200 RPM. **GENERATOR:** type ATL — 6-pole — 450/3/60/1200 RPM — 0.80PF. **EXCITER:** 10KW 120 volts DC. Steam inlet 2½" — 125% load — 2 hour normal steam condition. Normal steam condition 525 lbs/825°TT — 1 lb absolute back pressure at turbine exhaust flange. Steam flow 100% load 7870 lbs. OAL 11' 4½" — OAW 6' ½" — OAH 6' 4". Total weight 24,500 lbs.

MARINER CLASS TURBINE & GEAR ONLY



G.E. 700KW DRV618-MR73 — 10938/1200 RPM 850 PSI — 850°TT — GEI-90755 CONDENSING. Complete with rotor bearings, diaphragms, packing, etc. Gear complete — type S — 432 — Form B — 10938/1200 RPM.

TURBINE & GEAR ONLY — NON-CONDENSING

G.E. 700KW DRV318-MR1 — 10938/1200 RPM — 850 PSI — 850°TT — 24 PSIG exhaust pressure. Rotor, diaphragms, packings, bearings available.

AUXILIARY TURBO GENERATORS ROTORS ETC.

● 400KW DELAVAL ROTOR — 7-STAGE — CLASS CD — 5910 RPM

835 lb W.P. — 840°TT — ex-Esso: Gloucester — Dallas Class — some Beth Sparrows Point & Quincy vessels, & Newport News Hulls 499-504 — in Book 820.

● 750KW DELAVAL ROTOR — 7-STAGE — CLASS G.J.

9823 — 585/865# steam pressure

● GEARS

Class KD — 9283/1200 — ex-City Service "Alton Jones" type vessels

GE ROTOR NEW 750 KW

Type FN-3-FN24 — 7-stage — 10033 RPM

WESTINGHOUSE NEW 1250 KW

540# — 825°TT — 8050 RPM

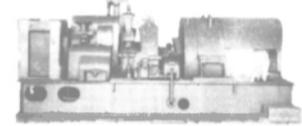
● FOR G.E. T2 VESSELS

G.E. DORV-325M — 5654 RPM — T2 tanker

● WESTINGHOUSE 538KW

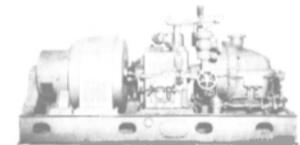
5010 RPM — T2 vessel

TURBINE & GEAR ONLY



New DeLaval type H.D. Turbine — #245204 — gear type KDC — 730 HP — 440# — 740°TT — 9977 RPM — with reduction gear output 1200 RPM. Turbine serial #245204.

G.E. 300KW TURBO GENERATOR & GEAR

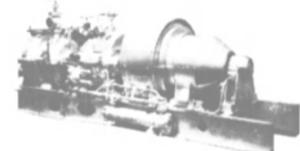


G.E. 300KW generator & 40KW D.C. exciter — 450/3/60/1200 RPM — ex USN D.E. vessel. **TURBINE:** DORV-325N — 4873 RPM — 400# — 50°F superheat.

300KW WESTINGHOUSE — LOW PRESSURE TURBINE & GEAR ONLY

Condensing or non-condensing designed for 300KW — 5286 RPM/1200 RPM on gear. **CAPACITY:** 300KW Normal 250 psi — 0°superheat — 25" vacuum 180KW — 250 psi — 0°superheat — 3 psi back pressure 300KW — 200 psi — 0°superheat — 25" vacuum. Steam/hour 6463 lbs — 100% load — steam/KW hr. — 20.88.

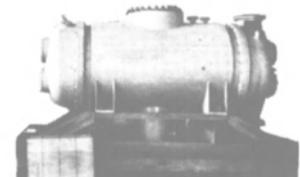
TURBO GENERATOR SET NEW — 200KW A.C. — 40KW D.C.



Ex USN — turbine type DN — 5-stage — 10012 RPM. **GEAR:** s-155 — single helical. **GENERATOR:** 200KW — 450/3/60/1200 RPM. Steam conditions: 540# — superheat 197°/208°.

MISCELLANEOUS

2 NEW — UNUSED 700 SQ FT CONDENSERS



Mfg by American Locomotive Works. 700 sq ft — 2-pass — gunmetal waterbox & return head. ⅝" tubes — 0.049" (18 BWG) — cupronical 70-30 — 100" effective length — 476 tubes. Located San Pedro, Calif. With hot well — 20" Center steam inlet — 9" inlet & outlet. Shell 30 lbs/head 30 lbs.

IN METALS CO.

ST. • BALTIMORE, MD. 21202

arehouse (301) 752-1077
e (301) 539-1900

Technology Survey Of Major U.S. Shipyards

A Survey Of 13 U.S. Shipyards
And 16 Foreign Shipyards Identifies
16 Areas Where U.S. Shipyards Lag
Behind Their Foreign Counterparts

Robert Lowry, William L. Stevens and John D.F. Craggs*

At the end of World War II, the United States had the largest and most productive shipbuilding industry in the world. During the past 30 years this country's shipbuilding industry has contracted to a fraction of its former size and has only in recent years made substantial investments in new facilities. On the other hand, foreign shipbuilders, notably the Japanese, have invested billions of dollars since WWII in new facilities and can now produce mer-

chant ships in a much shorter time and with substantially fewer manhours than are required in the United States.

In an effort to improve the productivity of the U.S. shipbuilding industry the Maritime Administration (MarAd) initiated the National Shipbuilding Research Program, which since 1971 has sponsored and jointly funded research and development (R&D) projects with a view toward improving the competitiveness of the industry. However, there has not been a uniform evaluation of the technology being applied to all phases of shipbuilding with a view toward identifying industry-wide needs. The R&D programs to date have usually dealt with development of specific equipments and procedures where deficiencies have tended to be apparent.

In 1975 the British Government conducted a technology survey of all U.K. shipyards in connection with the nationalization of the industry. After seeing the procedure used, MarAd concluded that a similar survey of major U.S. shipyards would be useful.

In May 1978 MarAd contracted for an assessment of the level of technology now being employed by major U.S. shipyards, as compared with the best comparable foreign shipyards. The procedure used to make this assessment was the same as that used in the United Kingdom.

This report identifies U.S. ship construction operations and procedures that are lagging behind their foreign counterparts. It is hoped that this survey will provide guidance in two ways:

1. Encourage individual shipyards to examine in depth areas where they are using low-level technology, and

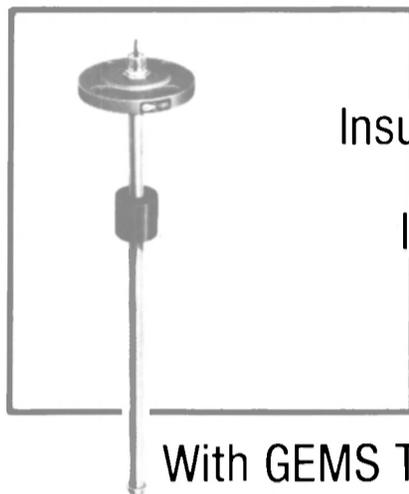
2. Serve as a baseline to the Government for determining what shipyard improvement programs it should support.

In considering the results of the survey, there are two important caveats:

First, shipyard productivity depends upon a combination of many factors. The facilities, tools and procedures covered in this survey are most important, but they are only as good as the people who manage and operate them. This survey does not measure management, motivation or effort.

Second, this survey identifies only the levels of technology being used. The decision by a ship-

(continued on page 36)

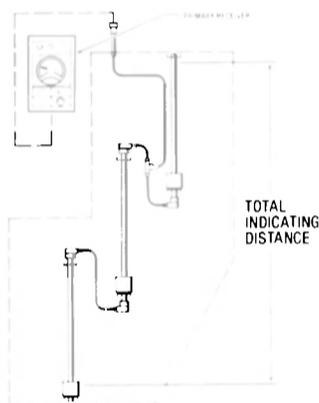


Insure Accurate
| Tank Level
Indication...

For application
information,
call toll-free
(800) 243-3177.

With GEMS TLI Systems.

The trouble-free simplicity of a magnetic float — transmitting continuous level "information" to a remote readout meter as it fluctuates with liquid level — is one very good reason to specify a dependable Gems Marine TLI System. Another is experience... more than two decades solving every known tank gauging problem afloat... on Flat Tops to Cruise Ships; Submarines to Super Tankers. Check these outstanding features, then contact us for a competitive quotation.



TYPICAL MULTI-TRANSMITTER INSTALLATION
IN UNUSUAL TANK CONFIGURATION

- Single or multiple transmitters available to suit every tank configuration.
- Transmitter accuracy nominal to within 1/2" of liquid level.
- Long operating life with minimal maintenance required.
- All systems are specific gravity compensated.
- Transmitter capable of two-liquid interface indication under MIL-L-23886A.
- Digital or dial receivers can be located up to 2000 feet from transmitter. No special or shielded cables required.
- Design simplicity minimizes malfunctions (float is only moving part).
- System accuracy and integrity checkable at the flip-of-a-switch. Installation is fast, simple, convenient; bracket or flange mounting.
- System calibration requires no special tools or test instruments.
- Adjustable independent alarms feature solid-state sensing for alarm and control functions.
- Meets quality control requirements of MIL-I-45208A.

For more information, contact Transamerica Delaval Inc., Gems Sensors Division, Plainville, Connecticut 06062 (203) 677-1311

**Transamerica
Delaval**

Write 355 on Reader Service Card

JACKSON MARINE CORP.

Robert M. Catharine Lester D. Catharine
17 Battery Place, New York City, N.Y. 10004
Telephone: 269-0930, 0937 Telex: ITT 423175, WUI 640-164

Representing:

Mercantile Beliard-Antwerp
Drydocks to 200,000 DWT

Hong Kong United Dockyards Ltd.
Drydocks to 70,000 DWT

Chantiers Navals de la Ciotat-France
Drydocks to 300,000 DWT

ASMAR Shipyards - Chile
Drydocks to 80,000 DWT

Hyundai Mipo Dockyard Company - South Korea
Drydocks to 400,000 DWT

Beliard Crighton et Cie - Dunkirk
Drydocks to 170,000 DWT

Caillard et Cie - Le Havre
Drydocks to 60,000 DWT

Dakar Marine - Dakar, Senegal
Drydocks to 70,000 DWT

Write 415 on Reader Service Card

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

Write 266 on Reader Service Card

*Mr. Lowry, president, and Mr. Stevens, vice president, Lowry and Hoffmann Associates, Inc., Arlington, Va., and Mr. Craggs, director, A&P Apple-dore International, Ltd., Newcastle upon Tyne, England, presented the paper condensed here before the recent Annual Meeting of The Society of Naval Architects and Marine Engineers. The complete paper, with comments, will be published in the 1980 TRANSACTIONS.

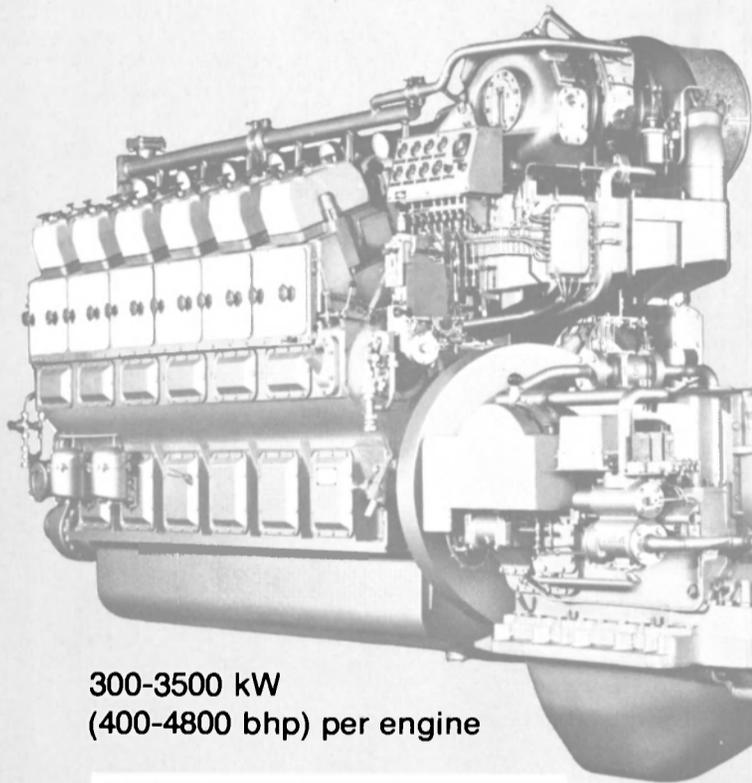
Write 136 on Reader Service Card

meet the experts

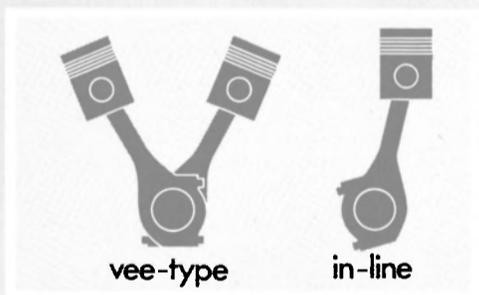
B&W *Alpha*

in marine diesel engines
transmission systems – propellers & nozzles
automatic control & monitoring

Under one roof



300-3500 kW
(400-4800 bhp) per engine



vee-type

in-line

At B&W Alpha, experienced specialists in all aspects of marine propulsion systems co-operate with researchers and production engineers to produce complete propulsion plants.

B&W Alpha pioneered this concept.
B&W Alpha constantly perfect it.

B&W Alpha propulsion plants are conceived complete from the drawing board – and their parts are manufactured to match for harmonious, economical operation.

They are covered by a single warranty and, throughout their long service life, they are serviced by a single worldwide organisation.

B&W Alpha – the fuel saving package

B&W Alpha Diesel AS

Marine Propulsion Systems

DK-9900 FREDERIKSHAVN, DENMARK · PHONE: (08) 42 10 00 · TELEX: 67 115

Agents: **PAT BRENNAN INC.**

Post Office Box 403 · 1907 Engineers Road · Belle Chasse, Louisiana 70037 · Phone: 504-392-8945 · Telex: 784 006

CADENA INC.

Post Oak Bank Building, Suite 620, 2200 S. Post Oak Road, Houston, Texas 77056 · Phone: (713) 960-1306 · Telex: 910 881-5005

Technology Survey Of Major U.S. Yards

(continued from page 34)

yard to use more advanced technology would depend upon an economic feasibility analysis that takes into account the market and the characteristics of the individual shipyard.

Survey Procedure

The evaluation system used for this technology survey was devel-

oped by A&P Appledore International, Ltd. (APA). The survey was conducted by Marine Equipment Leasing, Inc. (MEL).

The system for evaluating shipbuilding technology was first used in an extensive study prepared for the British Government. The purpose of the U.K. study was to obtain a commonly based, objective appreciation of the quality and quantity of the hardware and the associated methods and tech-

nology being used in each shipyard. Since that time, the system has been formally applied in Canada, France, Egypt and India.

Information on the technology and methods employed in each shipyard is collected by way of a survey of these principal operational categories:

- A. Steelwork Production
- B. Outfit Production and Stores

- C. Other Pre-erection Activities
- D. Ship Construction and Outfit Installation
- E. Layout and Materials Handling
- F. Environment and Amenities
- G. Design, Drafting, Production Engineering and Lofting
- H. Organization and Operating Systems

These categories in turn have been broken down into 70 elements. Each of the 70 elements covers a discrete shipbuilding operation or procedure.

A descriptive set of standards for each of the 70 elements was prepared. These standards consist of examples of methods and practices which typify each of four levels of technology for each element. The surveyor is thereby able to assign a "level of technology" to each aspect of shipyard operation which is studied. During the survey, the "closest" whole level number is marked and comments peculiar to the shipyard and element being studied are recorded.

The selection of the U.S. shipyards to be surveyed was based primarily on size, employment and product. Since the survey included foreign shipyards building primarily for deepsea commercial service with some naval construction, the largest of the U.S. shipyards building for this service were selected. These shipyards are now building over a broad span of complexity and ship size, from a nuclear-powered aircraft carrier and submarines to gas turbine-powered frigates and from commercial ships ranging from a 10,000-dwt tanker to 395,000-dwt ultralarge crude carriers (ULCCs) and liquefied natural gas (LNG) ships.

In order to survey 13 U.S. shipyards in the allotted time, two survey teams were required. The earlier surveys of foreign shipyards also involved different surveyors. All surveyors, however, used the same standards and essentially the same survey techniques. Several steps were taken to assure consistency of survey results.

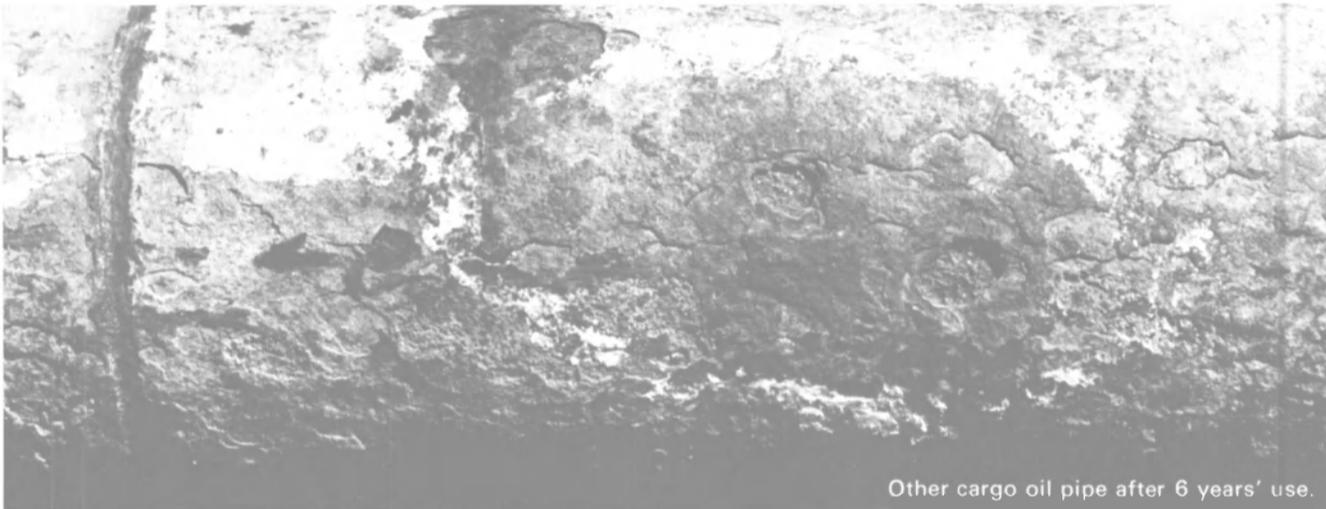
First, during the week of June 5, 1978, two senior members of the APA staff conducted a workshop for the six MEL surveyors on survey content and procedure. The workshop covered in detail what was included in each of the 70 elements and a discussion of the four technology levels for each element. This workshop and the ensuing exchange of views enabled the U.S. surveyors to be on the same "wavelength" as their British counterparts.

The second step taken by MEL to assure consistency and comparability of data was to design data sheets for collecting data.

The third step took place after
(continued on page 38)

Write 311 on Reader Service Card ▶

The same age! So what's the difference?



Other cargo oil pipe after 6 years' use.



Kubota cargo oil pipe after 6 years' use.

The pipe above obviously needs replacement, soonest possible, while the Kubota cargo oil pipe, shown below it, still has several years of good service life left. When replacing the pipe in your vessels, consider that Kubota's give more than two times longer service than most others. Fifteen years of use without replacement is ample proof of their superiority. Why?

Kubota materials and methods cannot be found anywhere else in the world. The material is KCP-3L, a chrome manganese steel especially developed by this company. It is made by Kubota's exclusive centrifugal casting techniques, widely acknowledged to be of the highest technological level. The highest degree of weldability gives it the greatest facility of use. That is why fully 95% of all Japanese tankers use Kubota cargo oil pipe. And why shipbuilders and repair docks around the world keep it on hand for installation and replacement. Write today for full information on how to raise the efficiency of your tanker operations.



KUBOTA CARGO OIL PIPE



The Basic Necessities Giant

KUBOTA

Osaka Head Office: 2-47, Shikit Suhigashi 1-Chome, Naniwa-ku, Osaka 556-91, Japan
Cable Address: IRONKUBOTA OSAKA Telex 526-7785 KUBOTA J. Phone: Osaka 648-2168
Tokyo Office: 3 Nihonbashi Muromachi 3-chome, Chuo-ku, Tokyo Japan
Cable Address: IRONKUBOTA TOKYO Telex 222-6068 KUBOTA J. Phone: Tokyo 279-2111

Overseas Offices:

Kubota, Ltd., New York Office: 50 Rockefeller Plaza, Suite 1214, New York, NY 10020. U.S.A. Phone: 212-246-4871. Telex 7105816020 KUBOTA NYK Cable Address: KUBOTA NYO
Kubota America Corporation: 523 West Sixth Street, Suite 1113, Los Angeles, California 90014. U.S.A. Phone: 213-627-6377 Telex 673238 KUBOTA LSA
Kubota, Ltd., London Office: 11/12 Hanover Street, London W1R 9HF. U.K. Phone: 01-629-6471 4 Telex 263235 KUBOTA G
Kubota, Ltd., Dusseldorf Office: 4000 Dusseldorf, Georg-Glock-Strasse, 14 Federal Republic of Germany Phone: 0211-450-907 Telex 8584498 KBTA D Cable Address: KBTA-D
Kubota, Ltd., Athens Office: 20, 28th of October Street, Filothei, Athens, Greece Phone: 6825646 Telex 214227 EXSE GR. 216343 EXSE GR
Representative of Kubota Ltd. (Jakarta Office): Skyline Building 8F, JL. M.H. Thamrin No. 9, Indonesia Phone: 363977 Telex 73-46630 KUBOTA JKT

Write 235 on Reader Service Card

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
Siljanganade 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



Technology Survey Of Major U.S. Yards

(continued from page 36)

the survey when all the surveyors met and exchanged annotated data sheets. Initially, each surveyor assigned a technology level to each element he surveyed. When the data sheets were exchanged with the counterpart surveyor on the other team, the level assignments were withheld and the

counterpart surveyor read the notes and made his own level assignments. Then, the two surveyors compared notes and reached agreement on the level assignments. This was done between the three pairs of surveyors that made up the two teams. It turned out that the surveyors were in agreement at least 90 percent of the time.

The fourth and final step took place in England. During the

process of comparing U.S. shipyards with foreign counterparts, each level assignment was reviewed using the surveyors' notes with the same staff engineers who conducted the workshop so as to assure consistency with the APA survey of the foreign shipyards.

The selection of foreign shipyards took into account all the information contained in the descriptions of the U.S. shipyards provided by MEL. For all the for-

eign shipyards, levels of technology have been assigned in accordance with the same standards by which the U.S. shipyards were judged. In half of the shipyards, APA had conducted a full survey of facilities, equipment, technology and methods. For the remaining shipyards, senior APA staff members had spent a minimum of two manweeks in each shipyard during the past three years. In selecting comparable foreign shipyards the following criteria were used: work experience past and present, maximum ship length, number of employees, physical size, and type of shipyard, that is, new or redeveloped. A total of 25 shipyards representing six countries — Japan, Germany, France, Denmark, Sweden and the U.K.—were selected.

Comparison and Analysis

The approach was to go from the broad to the detail level, from the eight categories to the 70 elements. More specifically:

1. The average technology levels of the U.S. and foreign shipyards for each of the eight categories are presented in four different ways to provide a broad perspective of the differences found.

2. Certain of the 70 elements are identified as critical and are presented in some detail.

3. Areas in which the U.S. shipyards measure favorably are identified.

4. Some of the causes of technology level differences are identified.

The data developed during this technology survey provide a wealth of detail for comparison and analysis. Some of the information presented in this paper shows the following:

The U.S. shipyards lead the foreign shipyards only in Category B, Outfit and Production Stores. Average technology levels are the same for Category H, Organization and Operating Systems. For the remaining six categories, U.S. shipyard technology levels are lower on the average, the greatest disparities arising with Categories C and F, Other Preerection Activities and Environment and Amenities, respectively. The first four categories (A-D) cover the technology employed in the "hands-on" manpower-intensive part of a shipbuilding project. Two of the remaining four categories primarily concentrate on the workplace and working conditions. The last two deal with the engineering and systems elements which direct and control the hands-on work. In actual fact, these last four categories are supportive since their purpose is to make it possible for the workforce to complete the ship in as short a time period as possible with minimum expenditure of manpower.

The shortfalls in three of the
(continued on page 40)



DELIVERING THE SHIPS THE U.S. NEEDS - WHEN IT NEEDS THEM - TO KEEP THE SEA LANES OPEN



The USS WADSWORTH (FFG-9); the USS DUNCAN (FFG-10); and the USS GEORGE PHILIP (FFG-12), three Todd-built guided missile frigates, recently joined the U.S. fleet — on schedule and at budget. A fourth frigate has been delivered to the Royal Australian Navy.

As the contractor awarded the largest number of FFGs, Todd has dedicated its full resources to making sure the 21 FFGs our Los Angeles and Seattle shipyards now have under construction continue to be delivered expeditiously to perform their important mission; keeping the international sea lanes open for U.S. military and merchant ships.

The FFG continues a century-long Todd tradition of shipbuilding in support of our nation's security and defense. Now we're ready for the challenges of the 1980's and beyond. Ready with experienced management whose dedication and attention are confined solely to shipbuilding and ship repair. Ready with a skilled workforce and active, modern facilities on all three sea coasts. These capabilities must be maintained on every coast, ready and able to build up and maintain the naval and commercial strength of the U.S. to keep its defenses strong.

Whether our nation's future needs are for additional FFGs, other classes of warships or commercial vessels, we're prepared to serve and serve well — quickly, skillfully, economically — in the Todd tradition.



TODD SHIPYARDS CORPORATION

One State Street Plaza, New York, N.Y. 10004

Telephone: (212) 344-6900 Cable: "Robin" New York

NEW YORK/LOS ANGELES/SAN FRANCISCO SEATTLE
NEW ORLEANS/HOUSTON/GALVESTON

Mobil EM/PA (Engine Maintenance through Progressive Analysis) is the systematic and consistent analysis of your vessel's engine oil. It can lead to your getting many more turns out of your engine.

EM/PA is performed by specialists in Mobil labs who report to you in writing. (In an emergency, your Mobil representative will phone you directly.)

Here's an example of this program in action:

The Mobil lab specialist spots a considerable increase in the PPM (parts per million) of a certain

metal in your engine oil. Mobil knows, from years of experience with all sorts of marine engines, that this particular metal is found in the main bearings of your particular engine.

Based on the fact there is more of that metal in your oil than there should be, Mobil can warn you that you may have excessive bearing wear!

You get an early warning, before a bearing goes completely.

Turn to Mobil EM/PA...for many happy turns!



**Mobil
EM/PA
for many
happy
turns.**

If we can't
save you money,
we don't deserve
your business.

Mobil[®]

© 1980 Mobil Oil Corporation

Technology Survey Of Major U.S. Yards

(continued from page 38)

first four categories stem from two broad causes. One concerns facilities and equipment, for example, covered workplaces, semi-tandem building berths, heavy-lift cranes. The other concerns items which are amenable to solution by thoughtful execution of

the elements comprising the last four, and particularly, the last two categories. Examples include the adoption of extensive pre-outfitting practices, construction of modules, and improved dimensional control. In a number of cases, management initiative alone is all that is needed.

Early in the assessment of the survey findings, it was noted that the technology levels of the larger shipyards were higher than those

of the smaller shipyards. The major U.S. shipyards were divided into three size groups of two, six and five shipyards — large, medium and small, respectively — to test this observation. The foreign shipyards were divided into comparable groups of four, ten and seven shipyards by keeping them with the specific U.S. shipyards with which they are compared throughout the survey. This showed that medium-

sized U.S. shipyards compared least favorably with their counterparts.

On the average, the U.S. shipyards were assigned high technology levels on those elements involving the coordination and control of shop and ship work. The very nature of the task of meshing all of the actions, physical and otherwise, essential to building a complex ship, coupled with Department of Defense work management requirements, certainly has contributed to this good showing.

Summary

The primary objective of this survey is to provide shipyard management and the Government with comprehensive information on which to base and evaluate plans for improving shipbuilding and technology.

U.S. shipyards on an average are using a lower level of technology than foreign shipyards in six of the eight major categories studied.

The survey shows that of the 70 elements examined, foreign shipyards, based on overall averages, employ a higher level of technology in 51 cases. When shipyard size is considered, the larger the shipyard, the higher the technology. This is true for both U.S. and foreign shipyards. The smaller of the major U.S. shipyards tend to be more on a par with their foreign counterparts. The most marked differences in technology levels are found in the medium-sized shipyards that account for nearly half of the major U.S. shipyards.

Fuller Named Executive Vice President For American Steamship



D. Ward Fuller

D. Ward Fuller has been elected executive vice president of American Steamship Company, it was announced by Thomas W. Burke, president of the GATX subsidiary company. Mr. Fuller joined American Steamship in 1977 as special assistant to the chairman, and was elected vice president-finance in 1978, and vice president-marketing in 1979. Prior to joining American Steamship, he was corporate treasurer for GATX Leasing Corporation in San Francisco. He was assistant vice president, world banking group, Bank of America from 1973 to 1975, and maintained a private law practice between 1970 to 1973.

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

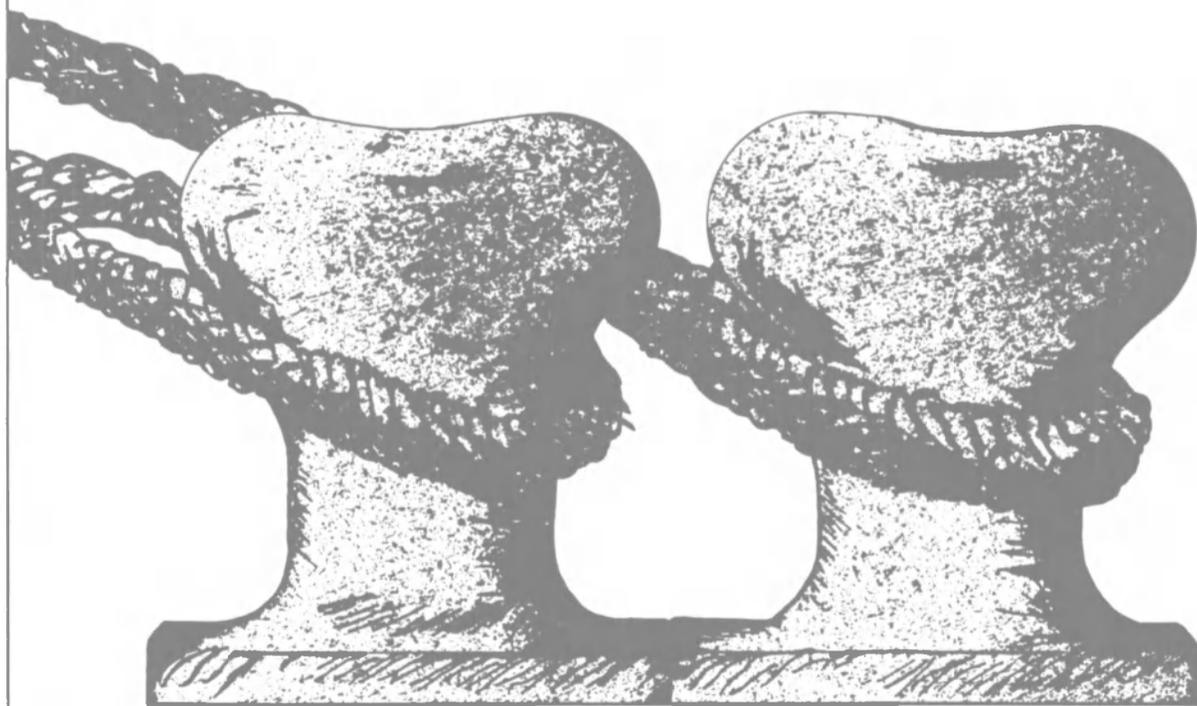
Midland's high level of experience as *the* insurer in complex and specialized Maritime waterfront operations means you have access to the expertise needed to plan the specific coverage that's right for you.

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



J.M. Wilson Named Vice President-Engineering At Philadelphia Resins



John Murray Wilson

John Murray Wilson has been promoted to vice president of engineering for Philadelphia Resins Corporation, Montgomeryville, Pa. He also will be in charge of product research and development, and the engineering of field applications for the corporation's industrial, marine and rope divisions. He also will continue to maintain contact with the corporation's worldwide distributors and factory-trained, certified representatives.

In his new position, Mr. Wilson will continue to maintain important contacts with key individuals in various departments or disciplines within the U.S. Navy, the U.S. Coast Guard, and worldwide classification and manufacturing societies.

Prior to joining Philadelphia Resins in 1973 as chief engineer, Mr. Wilson served as service supervisor for marine and industrial applications for General Electric Company. His five years of service with GE (USA) was preceded by service with General Electric of England, and with Associated Electrical Industries (AEI), also of Great Britain.

Webb Institute Receives \$3,500 Grant From Gulf Oil Foundation

Webb Institute of Naval Architecture, Glen Cove, N.Y., has announced receiving a \$3,500 Departmental Assistance Grant from the Gulf Oil Foundation. Institute officials said that the Grant will be used for its General Scholarship Program to further its education in naval architecture and marine engineering.

The purpose of Gulf's departmental assistance grants is to further special projects proposed by colleges and universities. In addition to departmental assistance grants, other phases of Gulf's Aid to Education Program include: undergraduate scholarships, graduate fellowships, employee gift matching, capital grants, and various special grants.

The check was presented to vice Adm. C.R. Bryan, president of Webb Institute, by John W. Kimble, director machinery design of Gulf.

Clements Named Group VP At Tracor Components, Succeeding J.D. Hughes

Frank W. McBee Jr., chairman and president of Tracor, Inc., has announced the election of Walter A. Clements as group vice president of Tracor Components. Mr. Clements, also president of Littelfuse, Inc., a Tracor subsidiary in Des Plaines, Ill., succeeds Jack D. Hughes, who retired from the

company effective December 31, 1980.

Mr. Hughes had served as group vice president of Tracor Components since Tracor's 1968 acquisition of Littelfuse, Inc., a 54-year-old electrical and electro-mechanical components manufacturing firm which he joined in 1943 and served as president of between 1965 and 1980.

Mr. Clements has been with Littelfuse since 1950, beginning

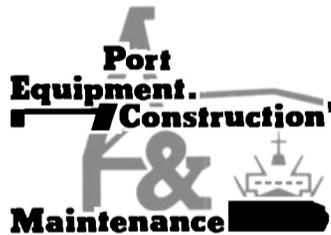
as a sales engineer and advancing to vice president of distribution sales and advertising in 1958 and vice president of sales and marketing in 1961. In 1969, he was elected executive vice president of Littelfuse and a member of the board of directors. As group vice president of Tracor Components, Mr. Clements will remain as president of Littelfuse and become chairman of the Littelfuse board of directors.

ANNOUNCING TWO MAJOR MARITIME EVENTS



Baltimore Convention Center Baltimore, Maryland March 9-11, 1982

For many years the maritime industry in North America has not had a major exhibition and conference. The National Maritime Show will provide an exciting new meeting place where ship owners, operators, naval architects, marine engineers and others can participate in a series of top level conferences and meet with manufacturers at the more than 300 exhibits in this major maritime exhibition.



Baltimore Convention Center Baltimore, Maryland June 8-10, 1982

Ports and harbors worldwide must adjust changing world trade and shipping patterns. This has led to the need for an exhibition and conference devoted to the total port industries — port authorities, civil engineers, terminal operators, shipping lines, stevedoring companies, port services and many others. A comprehensive conference program will examine the latest in: 'World Trade Trends', 'Port Management and Construction', 'Shipping Trends' and 'Transshipment'.

Write 418 on Reader Service Card

Please rush full details on:

National Maritime Show
March 9-11, 1982

Port Equipment, Construction
& Maintenance June 8-10, 1982

MR

Name _____ Title _____
 Company _____
 Address _____ Phone _____
 City _____ State _____ Zip _____ Country _____
 Product or service _____

Mail to: Industrial Presentations, Inc., 6006 Bellaire Boulevard, Suite 100 Houston, Texas 77081, U.S.A.
 or call (713) 666-5188 TWX: 910-881-5777

**Walbridge Re-elected
Chairman Of AIMV—
Other Officers Named**

John R. Walbridge has been re-elected chairman of the board of the American Institute of Marine Underwriters (AIMU). Elected along with Mr. Walbridge (senior vice president of The Insurance Company of North America) were: Edward K. Trowbridge,

deputy chairman (senior executive vice president of Atlantic Mutual Companies); Thomas O. Clark, vice chairman, (vice president, Ocean Marine Division of the Commercial Union Assurance Companies); Thomas A. Fain, president; and George S. Zacharkow, treasurer (chairman of the the Marine Office of America Corporation).

Seven other American marine insurance market executives were

elected to AIMU's board of directors: Harry S. Keefe, Talbot, Bird & Co., Inc.; Warren P. Noll, Royal Insurance Companies; John E. Greene, Hartford Insurance Companies; William Mack, American International Marine Agency; Richard N. Maiocco, Aetna Insurance Company; Sam V. Tranchina, Great American Insurance Company; and George W. Stellwag, Highlands Insurance Company.

**Colantone Named Senior
Account Executive At
Crowley Maritime**

Michael Colantone has joined the Crowley Maritime Corporation's Caribbean Division as senior account executive for Chicago, according to a recent announcement by Robert G. Homan, senior vice president and general manager of the division. As senior account executive Mr. Colantone will be responsible for marketing Crowley's services in Indiana, Michigan, and Illinois. He comes to Crowley with over 25 years of transportation experience.

Mr. Colantone may be contacted at (312) 828-0670, Crowley's Midwest Regional Marketing Office, 500 North Michigan Avenue, Chicago, Ill.

custom built...at low cost



steel barges

Before you order your next barge, get our estimate. We believe we can save you money. Quality workmanship and prompt delivery assured. For details, phone or write:

HAVRE de GRACE

SHIPBUILDING & MFG. CO., INC.
HAVRE DE GRACE, MD. ■ PHONE: 301 WE 9-2552

A subsidiary of M. P. HOWLETT, INC. — Est. 1875 ■ Nearly a century of 'know how' in floating cranes and barges ■ 410 32nd St., Union City, N.J. Phone: 201-866-1566

Write 213 on Reader Service Card



CONRAD INDUSTRIES, INC. expansion program triples production capacity

Conrad builds fuel, spud, deck, self propelled barges

CONRAD Industries, Inc.

- Accurate • Swift
- Streamlined • Cost efficient • In business since 1948

P. O. Box 790 Morgan City, Louisiana 70381 (504) 384-3060

**DAVID W. TAYLOR
NAVAL SHIP R&D CENTER**

is seeking

**SHIPBUILDING
ENGINEERS**

Responsibilities include Research and Development in ship design and construction: hull, mechanical, electrical, and electronics. Computer experience desirable but not essential. Salary ranges from \$15,947 to \$35,033 per annum commensurate with qualifications.

A B.S. in naval architecture, mechanical, electrical, or electronics engineering is required. These are career positions in the Civil Service.

The Center is located in Bethesda, Maryland, 12 miles northwest of downtown Washington, D.C.

Please send resumes or completed applications to:

DAVID W. TAYLOR NAVAL SHIP
RESEARCH AND DEVELOPMENT CENTER
Civilian Personnel Department
Code 701.2 MR
Bethesda, Maryland 20084

An Equal Opportunity Employer

**Steven Moodie To Retire
As President And Director
Of Interocean Shipping**

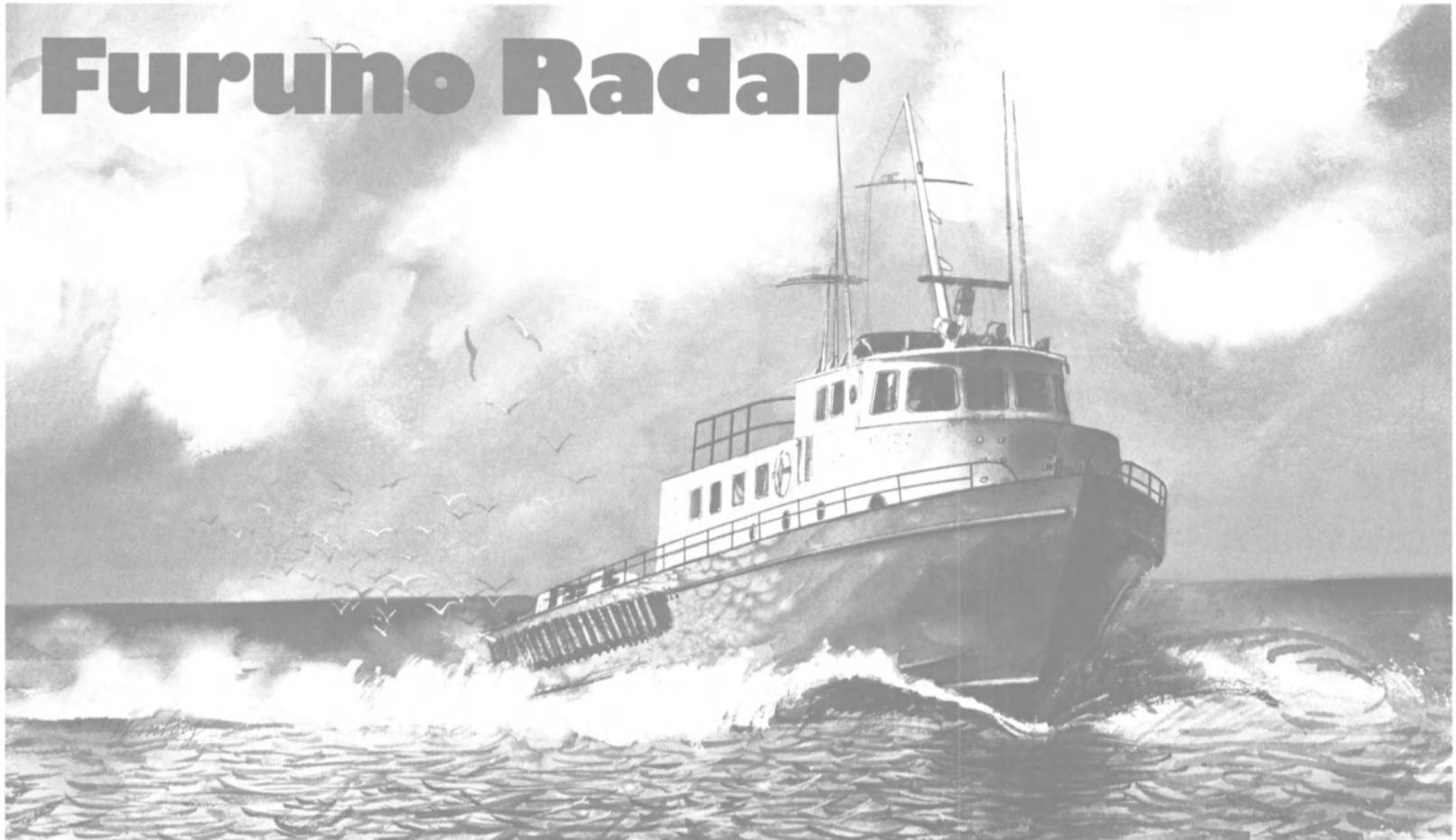
The retirement, effective January 31, 1981, of Steven M. Moodie as president and director of Interocean Shipping Company and its subsidiaries, Venoil and Venpet, Inc., and Steamship Service Corporation has been announced by Thomas T. Church, vice president, Bethlehem Steel Corporation, transportation. The companies are wholly owned subsidiaries of Bethlehem Steel.

Mr. Moodie, who has also served as vice president of Bethlehem Steel's Marine Division and Great Lakes Steamship Division, is concluding 38 years of service with Bethlehem. He was graduated from the New York State Maritime College in 1942. He joined Calmar Steamship Corporation, a former subsidiary of Bethlehem, that year as a third mate and sailed on various Calmar vessels during World War II.

After the war, he sailed on ore carriers of the Ore Steamship Corporation, and in 1947 became master of the S/S Bethore. In 1951, he became port captain in the New York office of Bethlehem's steamship companies. In 1954, Mr. Moodie was promoted to marine superintendent and assumed responsibility for all shore-side operations of the deck department.

He has since served in various capacities in marine operations at Sparrows Point, Md., and New York. He was named manager of the Great Lakes Steamship Division with offices in Cleveland in 1968, and was appointed assistant vice president of the Water Transportation Subsidiary Companies in 1972. Mr. Moodie was elected president and director of the various steamship companies in 1975, and has been responsible since then for Bethlehem Steel's water transportation operations.

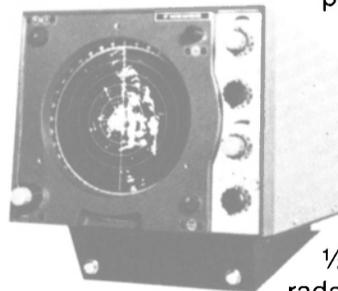
Furuno Radar



Quick, reliable relief from rain or fog or dark of night.

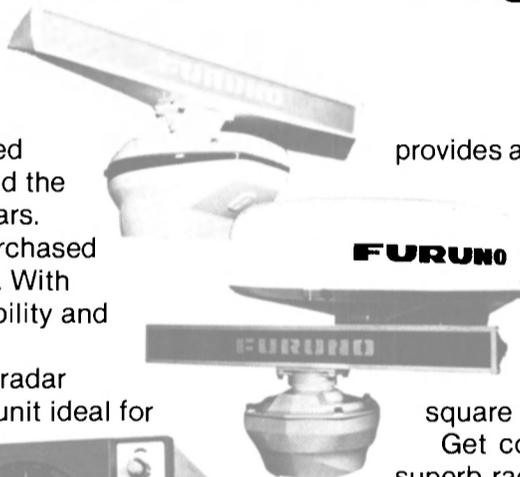
Furuno is one of the most respected names in marine electronics around the world, and has been for over 30 years. In fact, more Furuno radars are purchased in this country than any other type. With Furuno you get performance, reliability and service second to none.

MODEL 1600 is the first Furuno radar offered with a dome-type scanner unit ideal for larger sailboats and cruising auxiliaries. The compact display features a 7" CRT (equivalent to 12" with integral standard magnifier), 6 range scales from 1/2 to 16 n.mi., dual pulselength for optimum target definition at any range and a full 3 kW output. An entirely new integrated circuit front end eliminates failure-prone crystals and diodes, providing system performance equal to a unit having much higher output power.



FR-240 MKII radar is the workhorse of the Furuno line. A compact 3 kW unit with 7" CRT and six range scales from 1/2 to 24 n.mi., thousands of these radars are used daily aboard yachts, workboats and commercial fishing vessels around the world.

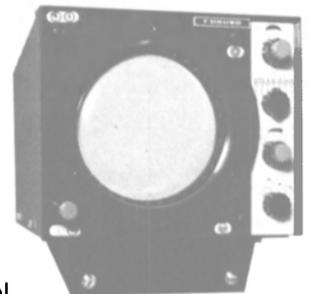
FR-360 is the "big brother" radar with seven range scales from 1/2 to 36 n.mi. A 7" CRT with integral magnifier and newly designed electronic front end



provides a picture equivalent to a much larger unit.

Like other radars in this group, the FR-360 offers all these features with a front panel measuring just slightly over one square foot.

Get complete information on any of these superb radars by visiting one of our more than 200 authorized Furuno dealer outlets, or by simply returning the coupon below.



FURUNO U.S.A., INC.

Furuno. Choice of the professionals.



© 1981 Furuno U.S.A., Inc.

Member

Furuno U.S.A., Inc. • Dept. MR-01
P.O. Box 2343, 271 Harbor Way, South San Francisco, CA 94080

Please send literature on the unit(s) marked below, plus the name of my nearest authorized Furuno dealer.

Model 1600 **FR-240 MkII** **FR-360**

Name _____

Address _____

City _____ State _____ Zip _____

Type of vessel owned _____

The illustration above is one in a series of 12 by artist Larry Winborg that are now being offered in three sets of 4 prints each, reproduced in brown sepia tone on 17" x 22" heavy white art stock suitable for framing. Order any one or all sets directly from Furuno U.S.A. Just mark your choice below and enclose \$5.00 per set for postage and handling.

U.S. Fishing vessels Work boats of America American yachts

Write 187 on Reader Service Card

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

agemar

AGENCIA MARITIMA DE REPRESENTACIONES C.A. (Agemar)
(Ship's Agents)

LAKE MARACAIBO TERMINALS

| | |
|------------------------------------|---------------------------------------------|
| 1) Puerto Miranda (Maraven) | 6) Bajo Grande (Corpoven) |
| 2) El Tablazo (Pequiven) | 7) Punta Palmas (Corpoven) |
| 3) La Estacada (Corpoven) | 8) San Lorenzo (Maraven) |
| 4) Punta Piedras (Maraven) | 9) La Salina (Lagoven) |
| 5) Bajo Grande Refinery (Corpoven) | 10) Maracaibo Piers & at anchorage (I.N.P.) |

COASTAL PORTS

| | |
|----------------------------------------------------|-------------------------------------------|
| 11) Punta Cordon (Maraven) | 15) El Palito (Corpoven) |
| 12) Amuay Bay (Lagoven) | 16) Borburata (Maraven) |
| 13) Puerto Cabello & at Dry Dock (I.N.P. & Dianca) | 17) Puerto La Cruz a) Guaraguao (Meneven) |
| 14) CVP Moran Buoy (Corpoven) | b) El Choure (Corpoven) |
| | c) Pamatacual (Corpoven) |

24 HOURS SERVICE — NAUTICAL ASSISTANCE BUNKERING AND FRESH WATER SUPPLIES

Communications to be addressed to head-office at
Avenida 3E No. 71-51 Edif. "Acuario" (Planta Baja)
Apartado 1465 - Maracaibo - Venezuela

Cables: AGEMAR - MARACAIBO
Telexes: 61274 Agmar-Ve
62337 Agmar-Ve

Phones: 061-916666 - 061-916997
061-918482 061-918495
V.H.F.: Int. Channels 12, 13, 14, 16.

"STABILOGAUGE"
Predetermines Stability (GM), Mean Draft, Deadweight and Displacement for any distribution of cargo including Free Surface and KG corrections.

"LOADSCOPE"
Automatically calculates and displays the Draft Fore & Aft, Deadweight, Bending Stress and Shear Stress which a ship will have under any longitudinal distribution of load, for any number of preselected stations or readouts.

Acts as a Summary Status Board

American Hydromath Company Buckwheat Bridge Road
Germantown, N.Y. 12526 518 537 4420

AMIRIKIAN ENGINEERING CO.
HARBOR AND DRYDOCKING FACILITIES
FLOATING LIFT DOCK AND SHORE TRANSFER
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 P.O. BOX 53434
President NEW ORLEANS, LA 70153

PHONE (504) 529-4171 (24 HRS.)

J. L. BLUDWORTH
MARINE DESIGN & CONSULTANT
TUGS, TOWBOATS, PROPELLERS

P.O. Box 2441
CORPUS CHRISTI, TX 78403 512-887-7981

DEL BREIT INC.
MARINE ENGINEERING CONSULTANT

326 Picayune Place Suite 201
New Orleans, La. 70130

(504) 523-2801

COI MARINA COMPANY

NAVAL ARCHITECTS

MARINE ENGINEERS

| | | |
|------------------------------------|-------------------------------|------------------------------------|
| JACKSONVILLE, FL (904) 724-9700 | NORFOLK, VA (804) 627-4384 | CHARLESTON, S.C. (803) 554-5580 |
| WASHINGTON, D.C. (703) 931-0333 | BOSTON, MA (617) 878-8340 | SAN DIEGO, CA (714) 474-3317 |
| PHILADELPHIA, PA (609) 772-0800 | GROTON, CT (203) 446-1721 | PASCAGOULA, MS (601) 935-4650 |

Surveyors • Engineers • Appraisers
Hull • Cargo-Machinery • Yachts

CAPTAIN TOM SMITH & ASSOCIATES

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 Associates

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

P.O. Box 13378
Pittsburgh, PA 15243
Bus 412-561-6000
Res 412-746-1534

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

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

82 BEAVER STREET
NEW YORK, N.Y. 10004
(212) 248-2250

P.O. BOX 1144 2341 JEFF. DAVIS HGWAY
DICKINSON, TEX. 77539 ARLINGTON, VA. 22202
(713) 337-6141 (703) 892-5900

DONHAISER MARINE, INC.
ENGINEERS NAVAL ARCHITECTS

11511 KATY FREEWAY Suite 400 Houston, Tex. 77079
Tel. (713) 493-3900 TWX 910-881-2770

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

GIANNOTTI & ASSOCIATES, INC.
NAVAL ARCHITECTS • OCEAN & MARINE ENGINEERING
SHIP & OCEAN PLATFORM MODEL TESTING
SHIP COLLISION ANALYSIS

1847 BERKELEY WAY 703 GIDDINGS AVE.
BERKELEY, CA 94703 ANNAPOLIS, MD. 21401
(415) 841-5875 (301) 268-0030

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

Naval Architects
Marine Engineers
Ocean Engineers

Seattle, WA
206-624-7850
Telex: 32-1226

THE GLOSTEN ASSOCIATES, INC.

Phillip Gresser Associates Ltd.

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



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 Area offices in:
Two World Trade Center Philadelphia Boston
Suite 9528 (609) 234-3880 (617) 383-9200
N.Y., N.Y. 10048 Washington, D.C. Norfolk
(212) 938-2100 (703) 920-3435 (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

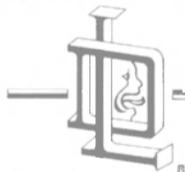
3333 Rice Street, Miami, Fla. 33133



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 792397



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 CONSULTANTS
& DESIGNERS, INC.

Naval Architects Marine Engineers

Telex: 98-5587
Main Off.: 308 Invest. Insur. Bldg. • Cleveland, Ohio 44114
(216) 781-9070

MARINE DESIGN INC.

NAVAL ARCHITECTS & MARINE ENGINEERS
Formerly Toms 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

RUDOLPH F. MATZER & ASSOCIATES, INC.



NAVAL ARCHITECTS

MARINE ENGINEERS

CONSULTANTS

SURVEYORS

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

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

GEORGE E. MEESE

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

TELEPHONE 194 ACTION ROAD
COLONIAL 3-4054 ANNAPOLIS, MARYLAND



Metritape®

Liquid Level & Temperature Gauging

for Cargo • Ballast • Draft • Crude Oil • Products • Chemicals
Central & deck-mounted readouts & alarms
33 Bradford Street, Concord MA 01742, U.S.A.
617/369-7500 Telex: 92-3492



ENGINEERING ASSOCIATES, INC.

NAVAL ARCHITECTURE & MARINE ENGINEERING

ACOUSTICS, VIBRATION & SHOCK (DYNAMICS)

NAVAL SHIP & SUBMARINE SURVIVABILITY

8150 LEESBURG PIKE SUITE 700 VIENNA, VIRGINIA 22180
(703) 442-8900 CABLE NKFEA

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

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

PRC Guralnick

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

PACIFIC INDUSTRIES INC.

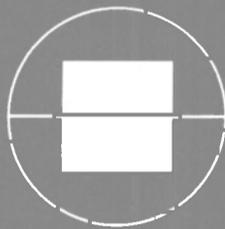
Alex O. Henderson President

MARINE SERVICES — WORLDWIDE OWNERS
REPRESENTATION. CARGO-REPAIRS-SALES

SUITE 1915 1440 Canal Street, New Orleans, LA 70112
Phone: Office: (504) 586-9960 TELEX: 584322
A.O.H. (504) 288-8798

Offshore Power Systems

A Westinghouse Enterprise



Naval Architects
Marine Engineers
Marine Design & Modeling

8000 Arlington Expressway
Jacksonville, Florida 32211

(904) 724-7700

Telex: 568406

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

S. L. PETCHUL, INC.

Naval Architect

1380 S. W. 57th AVENUE
 FORT LAUDERDALE, FLA. 33317 • (305) 583-0962

PILOTAGE CONSULTANTS, INC.

P.O. Box 3
 Capt. Jim Stillwaggon Atlantic Highlands, N.J.
 516-742-2467 07716

M. ROSENBLATT & SON, INC.

NAVAL ARCHITECTS AND MARINE ENGINEERS

New York City 350 Broadway
 (212) 431-6900

San Diego 1007 F. 1st Avenue
 (714) 238-1300

San Francisco 647 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

T. W. SPAETGENS

TORSIONAL VIBRATION SPECIALISTS

156 W. 8TH AVE.

OUR 33RD YEAR
 SERVING U.S. CLIENTS

VANCOUVER, CANADA V5Y 1N2
 (604) 879-2974 — TELEX 04-55188

R. A. STEARN INC.

NAVAL ARCHITECTS & MARINE ENGINEERS

253 N. 1st Avenue

Sturgeon Bay, WI 54235

Phone (414) 743-8282 TWX 910-270-1375

RICHARD R. TAUBLER, INC.

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

(302) 422-3371

SEACOR

SYSTEMS ENGINEERING
 ASSOCIATES CORPORATION

Naval Architects

Marine Engineering

Systems Analysis

Combat Systems Training

Engineering Department Training

Total Ship Testing

CALL FOR FREE BROCHURE TO ANY OF THE ABOVE OFFICES

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



THAMES ENGINEERING CONSULTANTS, INC.

CONSULTANTS TO THE MARINE INDUSTRY

(203) 443-1588

P.O. BOX 589
 NEW LONDON, CONN. 06320

Trans-International Marine Services Corp.



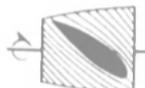
TIMSCO

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

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 - WDW 426040
 RCA - 236922 WDW
 WUI - WDW 666627
 212-867-4760

DIPLOMATE IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

THOMAS B. WILSON

NAVAL ARCHITECT & MARINE ENGINEER

920 North Avalon Blvd.

Wilmington, Ca. 90744 213/518-0940



WIND PROPULSION SYSTEMS

ANALYSIS - ENGINEERING - DESIGN

WIND SHIP DEVELOPMENT CORPORATION

P.O. BOX N. NORWELL, MA 02061

(617) 659-7946



WINK, Incorporated

CONSULTING ENGINEERS

Dock Damage Surveys

And

Design Of Marine Facilities

504/246-7924

8020 Mayo Blvd.
 New Orleans, La. 70128

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



Promet Gets Orders From Sedco, Sun Contractors For Four Drilling Units

Promet Private Limited of Singapore, in collaboration with Baker Marine Corporation of Ingleside, Texas, has announced the signing of contracts with Sedco, Inc. of Dallas to construct two self-elevating, cantilever beam mobile drilling platforms. These repeat orders from Sedco follow a contract won by Promet early in 1980 to construct a 151 by 156 by 18-foot platform that is scheduled for delivery in March 1981.

Baker's responsibility lies in the design and engineering of the platforms, and furnishing to Promet all structural design drawings and system schematics required for construction according to the standards of the American Bureau of Shipping.

Construction has begun on the first rig and the second will be started in March 1981, with deliveries scheduled for the first half of 1982. Both rigs will measure 174 by 162.5 by 18 feet, and will have three independent truss legs 301.5 feet long. The units will be raised and lowered by means of Baker Marine rack and pinion electrohydraulic drives.

Both BMC 200 I.C. class jackups will operate in water depths up to 200 feet, and will have a jacking speed of 60 feet per hour. Each rig will have 10,800 short tons of total holding capacity in drilling position. Designed with three-level quarters, each rig will provide accommodations for 70 personnel.

At the same time, Promet announced receipt of contracts from Sun Contractors for construction of two four-legged jackup barges — making a total of three units of that type and two three-legged barges ordered from Promet by Sun Contractors. The latest barges ordered will measure 130 by 69 by 10 feet, and are scheduled for delivery in September 1981 and January 1982.

Dieseldcare '80 Conference Stressed American Activities



Some 150 delegates attended recent Dieseldcare '80 Seminar at the New York Hilton Hotel. At lectern greeting opening session is moderator Perry W. Nelson, executive vice president of M. Rosenblatt & Son, Inc.

This year's successful edition of the popular Dieseldcare Seminars that are sponsored by Shipcare & Maritime Management was held recently at the New York Hilton Hotel. In a departure from previous years, the general theme of the two-day conference was based on the experience of American shipowners with medium- and slow-speed diesel engines, including operations, maintenance, fuels, training, spares, and other aspects.

Moderators for the four sessions were: Perry W. Nelson, executive vice president, M. Rosenblatt & Son; Barry K. Brown of Worth Shipping Services; Robert J. Bazzini, Eastern Region marketing manager,

Transamerica Delaval; and Professor S.G. Christensen of the U.S. Merchant Marine Academy. The final session concluded with a panel discussion, "Coping With Fuel Quality Problems."

Megasystems Building New \$1.5-Million Center In Boca Raton, Florida

Fast-growing Megasystems, Inc., designers and manufacturers of state-of-the-art microprocessor electronic monitoring and control systems is building a full-scale additional executive and manufacturing center in Boca Raton, Fla.

The Cleveland-based Megasystems originally planned the new \$1.5-million, 26,000-square-foot facility as a headquarters site, but burgeoning sales have forced an alteration of the original plans. Under the new plan, the recently enlarged Cleveland facility will continue to service the Great Lakes and Canada. Centered on a five-acre site in the Arvida Park of Commerce, the new Megasystems facility is expected to be completed by March of 1981.

In anticipation of the formal opening, a temporary sales and hiring center already has been opened to recruit and train qualified personnel to staff the new facility.

According to Dean Chimples, president of Megasystems, the Boca Raton location was selected for two reasons: it is one of the world's largest electronics manufacture and supply centers; and it has fast and easy access to the Caribbean, Europe, the Mediterranean, and the Gulf Coastal areas—all of them areas in which Megasystems serves major shippers and shipbuilders.

Founded in 1975 to develop complete marine automation systems, Megasystems has fitted more than 3,000,000 dwt of vessels in the past two years and, with the current expansion and in-hand orders, expects to more than double production within the next year.

WOMA Announces New Sales Brochure On Its Water-Blasting Equipment

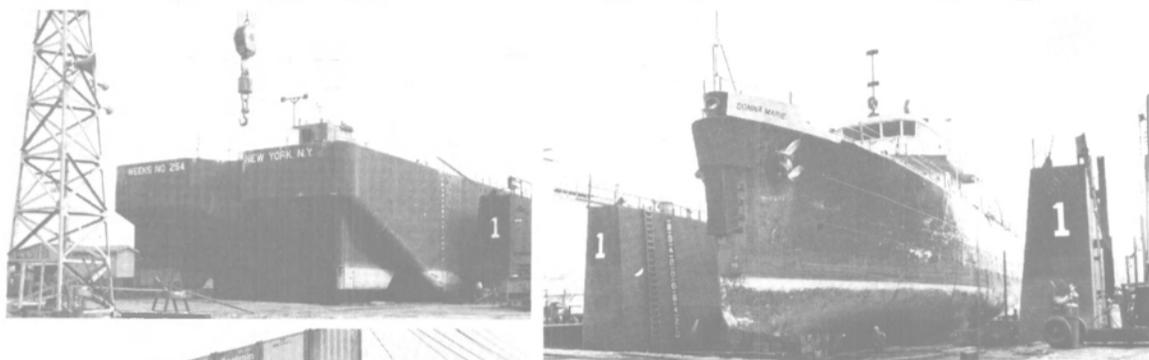
WOMA Corporation of South Plainfield, N.J., a leader in high-pressure "water as a tool" technology, has a new sales brochure describing their unique industrial cleaning and maintenance systems. Over 25 years of research and development, innovation, and experience has resulted in a wide array of field-proven systems that meet the requirements of virtually all industries, including shipbuilding, quickly, safely, and efficiently. Because of the unique properties and ready availability of water, WOMA's systems not only function where strict environmental controls are necessary, but can also save money over other cleaning methods, according to the manufacturer.

The brochure's cover depicts two of WOMA's high-pressure water units, highlighted by their powerful four-gun operation. Inside is a section illustrating some typical WOMA systems that can range in horsepower from 10 to 500, and feature diesel and electric drivers. Some of the more important and unique features of WOMA systems are detailed, including the WOMA pump, specially manufactured by WOMA for their high-pressure water systems. Another section is devoted to depicting some of the hundreds of WOMA accessories.

For the free brochure and further information on WOMA high-pressure water cleaning and maintenance systems,

Write 36 on Reader Service Card

SERVICE AND REPAIR IS OUR BUSINESS



MARINE REPAIR, MAINTENANCE AND CONVERSION SINCE 1908

UNION DRY DOCK & REPAIR COMPANY

Foot of Pershing Road,
Weehawken, N.J. 07087

(201) 867-0904

Write 363 on Reader Service Card

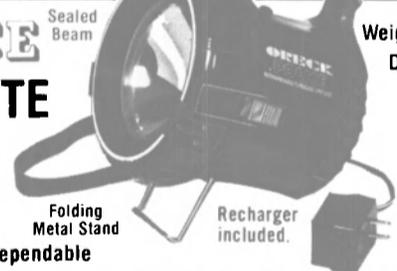


David Oreck, Pres.
Oreck Corporation

David Oreck recommends...
Most Powerful Hand Held Cordless Light Available!

Police Emergency Light provides up to 7 1/2 hours of light when power fails!

ORECK XL POLICE RECHARGEABLE SPOTLITE 303,952 AIRCRAFT CANDLEPOWER



Weights 5 lbs. 8 oz.
Diameter 7 1/2"
Length 7 1/2"

• Built-in nickel cadmium rechargeable batteries.

Non Fading Light, Holds Charge For 1 Year—Always Dependable

NickelCad Cells can be fully recharged more than 1,000 times at any AC outlet. (Gelled batteries will charge 200 times or less)

PRESENTLY IN USE BY:

- POLICE, FIRE DEPT'S. and MILITARY
- HOME and PLANT SECURITY
- CAMPERS, SPORTSMEN, BOATS, AIRPLANES and EMERGENCY CAR USE

Wherever Emergency Light Is Needed

- Weather Proof • Sealed Beam
- Includes shoulder strap, folding stand and 110V Recharger.
- PINPOINTS TARGETS 1/3 OF A MILE AWAY.
- PENETRATES THICK, HEAVY SMOKE.
- SWEEP AND SEARCH HAZARDOUS AREAS.

© 1981
Oreck
Corp.

CREDIT CARD HOLDERS CALL
TOLL FREE 800-535-8810
Louisiana Residents Call (504) 733-8761
American Express, VISA, MasterCard
or Carte Blanche.

HAVE YOUR CREDIT CARD NUMBER READY
Call Mon. thru Friday (8 to 5 Central Time)

- Auxiliary Momentary Switch For Instant On-Off, Signaling, Power Conservation.

NO BATTERIES TO BUY FULLY OPERATIONAL

ALL PURPOSE EMERGENCY LENSES (OPTIONAL)

with protective carrying case
YELLOW LENS to penetrate fog and smoke
HIGH INTENSITY floodlight lens
RED LENS—indicate danger—long wave restricted signaling



ORECK CORP. • 100 Plantation Rd. • New Orleans, La. 70123 MR4-191

My check made payable to ORECK CORP. for the following:

| Quantity | XL POLICE CORDLESS/RECHARGEABLE SPOTLITE | ea. | Total |
|------------------------------------------------------|---------------------------------------------|-------------|----------|
| 1 | \$295.00 (LESS 40%) | \$177.00 | \$177.00 |
| 2 OR MORE | \$295.00 (LESS 50%) | \$147.50 | \$147.50 |
| For Shipping, Handling and Insurance Add \$4.50 each | | | |
| 3 | PIECE EMERGENCY LENS SET PLUS CARRYING CASE | ea. \$36.25 | \$108.75 |
| 1 | 220 VOLT CHARGER WITH EUROPEAN PLUG | ea. 15.00 | 15.00 |
| 1 | 12 VOLT CIGARETTE LIGHTER CHARGER W/ADAPTER | ea. 15.00 | 15.00 |
| USE IT FOR 30 DAYS—MONEY BACK GUARANTEE | | | |

AMOUNT \$

La. Residents Add Sales Tax \$

Address _____ Shipping, Handling and Insurance Add \$

City _____ State _____ Zip _____ TOTAL

Charge to: AMEX VISA Carte Blanche ENCLOSED \$

MasterCard Exp. Date _____ Send FREE Catalog

Credit Card No. _____ NO P.O. Box Numbers

Signature _____ C.O.D. Orders Not Accepted

Please send me additional information on the POLICE SPOTLITE.

Write 422 on Reader Service Card

Re-engining Of Seatrain Ships Discussed At New York SNAME

The topic at the recent meeting of the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers — the annual joint get-together with The Society of Marine Port Engineers New York — was the re-engining of the four Seatrain Lines' Euroliner Class container-ships.

In each of these four ships, the original gas turbine propulsion units were replaced with two Stork-Werkspoor nine-cylinder, medium-speed TM620 engines, each rated at 16,000 bhp when burning heavy fuel. Each engine drives a Lips controllable-pitch propeller at 90 rpm through single-reduction Lohmann and Stolt-

erfoht gears. The conversion work was performed at the Ross yard of Howaldtswerke-Deutsche Werft of Hamburg.

The principal author was L.J. Neut, technical manager, Marine Division, Stork-Werkspoor Diesel, B.V. of Amsterdam, the Netherlands. He was assisted in the presentation by Stork's P. van Oirschot and P. Wieske. The three men presented an interesting and informative description of the Seatrain conversions, including economic aspects, fuel considerations, testing of propeller designs by Lips, measurements at the Netherlands Ship Model Basin, and some operating experience.



Principals at recent joint meeting were (L to R): George Murphy, president of The Society of Marine Port Engineers New York, N.Y., Inc.; L.J. Neut, technical manager, Marine Division, Stork-Werkspoor Diesel, B.V. of Amsterdam, Holland, author; and Eric Litchen, chairman of the New York Metropolitan Section of SNAME.

**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 radiroom 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

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



Write 386 on Reader Service Card

SNAME Chesapeake And MTS Washington Sections In Joint Meeting



Authors and officers at recent joint SNAME/MTS meeting included (L to R): Peter E. Wilkniss, NSF, author; Wilbur G. Sherwood, NSF, author; Alexander Landsburg, Maritime Administration, secretary-treasurer, Chesapeake Section SNAME; Morris A. Ransone, Tetra Tech, Inc., chairman, Washington Section MTS; Robert J. Scott, Gibbs & Cox, Inc., chairman, Chesapeake Section, SNAME; James W. Curlin, Deputy Assistant Secretary for Land and Water Resources, U.S. Department of the Interior; and Andreas B. Rechnitzer, Office of the Oceanographer of the Navy.

A joint meeting was held in November at the Fort Meyer Officers' Club by the Chesapeake Section of The Society of Naval Architects and Marine Engineers and the Washington, D.C. Section of the Marine Technology Society. The paper, the National Science Foundation Drilling Programs—A Status Report, by Wilbur G. Sherwood, Peter E. Wilkniss and Archie McLerran, all of the National Science Foundation (NSF), provided a subject that appealed to the similar, yet also diverse, interests of both organizations.

The presentation by Mr. Sherwood began with a brief history of the National Science Foundation's Deep Sea Drilling Program, which began in 1961 when the CUSS I drilling platform undertook nine days of drilling in 3,240 feet of water off LaJolla, Calif. The program continued on using more capable platforms and culminated in the use of the drillship Glomar Challenger, which is now obtaining deep ocean sediment samples off the Southeast Coast of the United States.

During the past 19 years, the Deep Sea Drilling Project has added materially to our under-

**Dravo
SteelShip**



TWO STOCK 65' x 27' x 7' PUSHBOATS ARE UNDER CONSTRUCTION AND SCHEDULED FOR COMPLETION IN MAY AND JUNE, 1981.

FEATURES INCLUDE:

- TWIN GM 16V-92 MAIN ENGINES
- TWIN GM 4-71 GENERATORS
- FULL GALLEY AND HEAD
- QUARTERS FOR SIX
- POWER WINCHES
- INTERIOR ACCESS TO ALL LEVELS
- WITH OR WITHOUT WATERTIGHT DOORS AND BULWARKS
- 27' EYE LEVEL, 360° VISIBILITY

ROUTE 4, BOX 76
PINE BLUFF, ARK. 71602
TELEPHONE 501-536-0362

SUBSIDIARY OF DRAVO CORPORATION

Write 166 on Reader Service Card

**DAVID W. TAYLOR
NAVAL SHIP R&D CENTER**

is seeking

NUMERICAL SHIP HYDRODYNAMICISTS

The Numerical Fluid Dynamics Branch of the David W. Taylor Naval Ship Research and Development Center is seeking Ph.D. level naval architects with experience or training in numerical ship hydrodynamics. Candidates' research interest must fit into the group's broad program of basic research into numerical methods for solving fluid flow problems of naval importance. Vacancies are at the GS-12/13 (\$26,951 to \$41,660) level.

The Center is located in Bethesda, Maryland, 12 miles northwest of downtown Washington, D.C.

Please send resumes or completed applications to:

**DAVID W. TAYLOR NAVAL SHIP
RESEARCH AND DEVELOPMENT CENTER
Civilian Personnel Department
(Code 701.2 MR)
Bethesda, Maryland 20084**

An Equal Opportunity Employer

standing of the earth's crust, including data leading to the development of the plate tectonics model. In addition, significant technical advances in offshore drilling, such as dynamic positioning, satellite navigation, sonar drill hole re-entry techniques, improved core bits and equipment, and improved coring techniques are now being used by the offshore oil drilling and mining industry. Other recent developments include the ability to run intermediate casings in deep water (18,000 feet or greater), successful fishing and recovery of a drill string in 18,000 feet of water, improved deepwater drill string designs, and the development of instruments capable of obtaining data from deep holes.

The limitations of the Glomar Challenger have led to the need for a more capable platform to support a major new initiative, the Ocean Margin Drilling Project, which entails drilling in 13,000 feet of water to depths of 20,000 feet below the subsea bottom. This effort will be jointly funded by the U.S. Government and the oil industry, and primary emphasis will be placed on increasing basic scientific knowledge about the passive ocean margins where thick sediments exist and sophisticated well control techniques and blowout prevention are required.

It is intended to use the Government-owned Glomar Explorer for this program because of its seakeeping and stability characteristics, dead weight capacity, available volume for laboratories, and precise stationkeeping system. To date, a baseline conceptual design has been completed and NSF intends to complete an updated Baseline Design, including trade-off studies, and to issue a request for proposals for a program systems integration contractor in Fiscal Year 1981.

New Firm Will Provide Skilled Workers For Building & Repair Yards

The Consolidated Industrial Skills Corporation (CISCO) has been formed to supplement companies with skilled, first-class labor. Currently, CISCO is servicing major shipbuilding concerns in the Gulf and East Coasts with pipefitters, shipfitters, machinists, and electricians on an as-needed basis.

With the nationwide supply of qualified tradespeople in great demand, CISCO's program helps its customers satisfy their present production needs, enabling them to bid additional work.

CISCO's principal officers, **Mack E. Reifers** and **Christopher S. Gallo**, have serviced shipbuilding and repair companies with skilled manpower numbering up to 600 craftspeople. The firm has offices in Jacksonville and New Orleans. The Florida address is P.O. Box 24470, Jacksonville, Fla. 32217; (904) 399-1802.

Skinner To Produce Steam Engines In New Larger Capacities

The oldest manufacturer of steam engines still operating in this country has announced an extension of the sizes available for both marine and stationary use. Skinner Engine Company of Erie, Pa., said that effective immediately the Skinner Marine Unaflow steam engines will be

available in capacities from 400 to 15,000 horsepower. The stationary or industrial models of the "Universal Unaflow" engines are available in various capacities to 10,000 horsepower.

R. Dennis Whiting, company vice president, said that growing interest in steam engines for marine propulsion and electrical generation prompted the company to expand its line. Mr. Whiting said that even larger sizes would be

produced on special order after consultation on the proposed application.

Stationary models of the steam engines are used to generate electricity, drive compressors and pumps, and supply power for a wide range of manufacturing processes.

For additional information on Skinner reciprocating steam engines,

Write 42 on Reader Service Card

The Opportunity of the 80's

You are an engineer or an engineering manager and a good one. You are interested in a major project and you want a job that challenges your skills, that gives you the opportunity to work with state-of-the-art technology in naval ship design, to interface with professionals in other disciplines and to keep moving ahead. You want a good life for yourself and your family, along with top compensation . . .

Our long-term program offers exciting opportunities for professionals in the following disciplines:

- **naval ship design**
- **ship construction**
- **ship command and control**
- **electronic and electrical systems**
- **mechanical systems**
- **naval material procurement**
- **naval logistic support**
- **quality assurance**
- **planning, scheduling and estimating**

If you want to be part of the team efforts behind what is truly the challenge of this decade, consider a career with us.

For more information, please send your resume or call collect:

J. Di Maurizio
Scan Marine Inc.
P.O. Box 80
Longueuil, Quebec
J4K 5C6
(514) 651-9313

(Located on Montreal's south shore, the city of Longueuil offers a full array of municipal, cultural and educational services.)



SCAN MARINE INC.



**Canadian
 Patrol
 Frigate Program**

\$1.2-Million Navy Contract For Communications Buoy Awarded To Hazeltine

Hazeltine Corporation, Commack, N.Y., has announced the receipt of a \$1.2-million U.S. Navy contract from Naval Sea Systems Command for the development of a digitally programmable communications buoy and buoy interface unit for use in submarine communications via satellite. The system, once developed, will be considered for installation on all SSN United States submarines.

This contract will permit Hazeltine, a leader in advanced sonobuoy technology and design, to apply and extend that technology in development of a new submarine communications system. System design and development will be performed primarily by the staff of Hazeltine's Anti-Submarine War-

Comfort-Mate

"Quality Marine Furniture is our Business"

- Maintenance Free Deck Furniture
- Maintenance Free Deck Equipment
- Fabricators of Wood Aluminum, Steel, Fiberglass & Formica
- Complete line of Maritime Interior Furniture

Send for additional information & catalog

COMFORT-MATE, INC.

P.O. BOX 160845 MIAMI, FLORIDA 33116
Tel. 305-233-5626 • Cable: COMFRMATE

Millard

CONTROLLED METALS
For NAVAL and NUCLEAR APPLICATIONS

**NAVAL BRASS
BRONZE
COPPER
COPPER NICKEL**

With Traceability to Origin

70-30 and 90-10
**COPPER NICKEL ALLOY TUBE & PIPE
COPPER NICKEL FITTINGS**
BUSHIPS DWG. 810-1385880

COPPER SEAMLESS TUBE

**ADMIRALTY and COPPER NICKEL
CONDENSER TUBE**

ROD and BAR

NAVAL BRASS NAVY G METAL COPPER NICKEL
ALUMINUM BRONZE NICKEL ALUMINUM BRONZE
AMPCO 8 AMPCO 18 AMPCO 45 AMPCO 570
AMPCO 15 AMPCO 21 AMPCO 483

SHEET and PLATE

**NAVAL BRASS COPPER NICKEL
ALUMINUM BRONZE**

**Complete Shearing, Sawing, Ring
and Contour Cutting Facilities**

Phone us at 215/674-9686 or write for our
**CONTROLLED METALS BROCHURE and
our FULL-LINE CATALOG.**

MILLARD CONTROLLED METALS, INC.
A MILLARD ASSOCIATED METAL SERVICE CENTER
5B LOUISE DRIVE GINKGO INDUSTRIAL PARK IVYLAND, PA 18974

MILL TEST REPORTS • QUALITY CONTROL MIL-I-45208A

Write 428 on Reader Service Card

fare facility in Braintree, Mass. Analysis and design support will be provided by Hazeltine's Research Laboratories and Electronic Identification Product Line.

New Brochure On Hoists And Winches Available From Joy Manufacturing

A new 16-page brochure describing its complete line of air hoists and utility winches is now available from the Joy Manufacturing Company.

Air hoists and utility winches are widely used in industry and mining. They have no spark or shock hazards and work in extreme temperatures. Typical uses are oil drilling platforms, refineries, construction sites, mines, and various marine applications.

The brochure includes a Hoists Selector Chart as well as a full page devoted to each model or model family. The page covers hoist dimensions, foundation dimensions, general specifications, and performance curves for the hoist at "full drum," "1/2 drum," and "first turn on drum."

For copies of the brochure, designated B1530,

Write 39 on Reader Service Card

\$10.4-Million U.S. Navy Overhaul Contract Awarded To General Ship

General Ship Corporation of East Boston, Mass., has been awarded a U.S. Navy contract in the amount of \$10,437,420 for regular overhaul of the destroyer USS Mullinnix (DD-944).

Under the new contract, the Mullinnix will arrive in the yard in February 1981 for a 10-month overhaul. General Ship is now completing overhaul work on the destroyer USS Edson (DD-946), which will be delivered to the Navy within the original contract schedule period.

Contracting activity was the Supervisor of Shipbuilding, Conversion and Repair, USN, East Boston. (N62665-79-C-0004)

New Ultrasonic Liquid Level Control System Introduced By Inventron

Inventron Industries Inc. of Klamath Falls, Ore., has introduced a microprocessor-based level control system dedicated to pump control. The new system, named the LS-99, uses ultrasonic transducers to detect product level in tanks and other vessels.

Among the key features of the LS-99 is an array of front panel controls that permit the user to perform all start-up and calibration routines without opening the controller cabinet. The standard configuration of the LS-99 is designed to handle single and duplex pump stations, but as many as eight pumps can be controlled. The controller for the LS-99 can be purchased without an ultrasonic control card, and thus can be used to control the 4-20 mA signal of essentially any type of level-control device.

Lead and lag pump capability is included, and four thumbwheel switches on the front panel permit easy and fast changes in settings. Optional high and low alarms can be included if desired. Analog voltage outputs are included, and optional current outputs are available with the system.

For additional information on the Inventron Industries LS-99,

Write 40 on Reader Service Card

New Watch Receiver Announced By DEBEG— Literature Available

DEBEG Marine, Inc., Tewksbury, Mass., has announced availability of its new Model 2340 watch receiver. The receiver was designed to conform to SOLAS regulations and the requirement that all vessels over 300 gross tons will be equipped with a watch receiver by March 31, 1981. According to the company the unit has been successfully proven on hundreds of oceangoing vessels, having already met all of the required European standards. FCC approval is pending.

The DEBEG 2340 RT watch receiver auto alarm provides permanent watch-keeping on the international distress frequency, 2,182 kHz. Three operational modes are push button selectable. When in mute mode, the receiver is in operation but AF signals are inaudible. In the 2-tone filter mode, only the 1,300 Hz and/or 2,200 Hz are audible. In the normal mode, all AF signals are audible.

In the mute mode, the receiver will automatically switch over to normal on reception of the international radiotelephone alarm signal, the navigational warning signal, or the EPIRB signal. The automatic switchover from mute or 2-tone filter modes with external signaling is achieved by special logic selector circuits. An optional clock is available to switch from mute mode to normal during the silence periods.

For more information and free literature, Write 41 on Reader Service Card

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 employment agencies

Specializing exclusively to the Maritime Industry for over 40 years

1121 Walker, Suite 220
Houston, Texas 77002
(713) 224-2200

150 Broadway, Suite 503
New York, New York 10038
(212) 732-2921



BIANCO International, Inc.
100 Mariner's Blvd. Suite 88
Mandeville, LA 70448 504/524-8607

**Professional
Marine
Recruiting
Service**

AVONDALE SHIPYARDS, INC.

**ONE OF OUR GOOD MEN
HAS BEEN PROMOTED!**

The conceptual design staff of the Advanced Programs Department of Avondale Shipyards, Inc., New Orleans, Louisiana, needs one Naval Architect and one Marine Engineer for the conceptual design of all types of ships, offshore drill rigs, and floating plants to take his place. If you are a producer and are interested call:

**Mr. Mel Colen
1-800 535-4084**

An equal opportunity employer M/F

Maritime Reporter/Engineering News

marine
recruiters Brokers of
Marine Talent
2200 6th Avenue Seattle, WA 98121 (206) 623-6790



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

Turbine Service Engineer

Supervisor Opportunity in Baltimore, Md.

One of the nation's largest shipyards, Bethlehem's Key Highway Yard, repairs and converts ships of various designs and sizes. Needed here immediately is an individual with at least five years of experience in a supervisory status on work involving the technical repair and installation of various types and sizes of turbine-driven marine equipment.

We have liberal paid-up benefit programs, including insurance, major medical, dental, vision, and pension. We have a liberal vacation and holiday schedule. We pay top wages for work which occurs near the Inner Harbor of Baltimore, Maryland. There will be some travel in this job.

Send resume to: Bethlehem-Steel Corp., Baltimore Yard, 1101 Key Highway, Baltimore, MD 21230

An Equal Opportunity Employer

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, LA-GUARDIA AIRPORT, NEW YORK, NEW YORK 11371, USA

NAVAL ARCHITECT

Progressive Gulf South Shipyard seeking Graduate Naval Architect. Prior design experience in Offshore supply vessel industry preferred. 1 to 3 years experience. Must be experienced in tonnage and stability calculations. Salary negotiable, excellent benefits. Reply

Box 1202 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

ExecuSearch
Professional Recruiters
Specializing in
MARINE • SHIPPING • TRANSPORTATION
We are specialists who know YOUR business
ExecuSearch
Division of Gerri G. Inc.
140 Bay St. / Staten Island NY 10301 • 212-447-5558
For information contact:
Michael R. Keough
Vice-President
General Manager

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

Technician

Marine Service

Tired of working on the same old equipment every day? We service a wide variety of communications, navigation and other shipboard electronic equipment. If you have a first or second class FCC Radiotelephone license with ship radar endorsement, we have opportunities in the New York/New Jersey, Houston/Beaumont, TX and New Orleans/Morgan City, LA areas that you should hear more about. A knowledge of Morse Code or telegraph license is helpful.

Expand your field experience and advance with this major service organization. RCA will offer you a fine starting salary and solid package of company paid benefits including a company vehicle. For more information, call COLLECT, Rob Robinson, (609) 338-6517, or write to

RCA Service Company
Rt. 38, Bldg. 201-2
Cherry Hill, NJ 08358

Equal Opportunity Employer



A Tradition
On The Move!



MARINE SALES ENGINEER

Wanted for long-established firm. Knowledge of electrical equipment, including some industrial products. Send inquiry or resume in confidence to:

Box 104 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

Position wanted in Marine Sales or Marketing with background in international and domestic sales; calling on ship owners, foreign and domestic; experience in shipyards and Naval architects; background in Marine supplies, coatings and chemicals.

Box 101 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

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

MARINE PERSONNEL

For Employment Opportunities & Corporate Staff
Requirements in Operations, Engineering, M&R,
Sales/Marketing, Traffic & Administration

CONTACT ROSS WORDEN ABOUT THESE AND OTHER JOBS

| | | |
|-------------------------|------------|--------|
| NATL. SALES MGR.-DIESEL | Midwest | to 50K |
| PORT CAPTAIN | Midwest | to 40K |
| PORT CAPTAIN-TANKERS | Midwest | to 40K |
| OPERATIONS PLANNER | Calif. | to 35K |
| SCHEDULING MANAGER | East Coast | to 35K |
| REGIONAL MGR.-STEAMSHIP | S. Calif. | to 35K |
| PORT ENGINEER | Midwest | to 35K |
| PRICING MANAGER | Northwest | to 35K |
| SHIP DESIGNER | S. West | to 34K |
| SS AGENCY MANAGER | Seattle | to 30K |
| MARINE DESIGNER | Midwest | to 25K |
| NAVAL ARCHITECT | East Coast | to 25K |
| SHORESIDE NAVIGATOR | N. Calif. | to 25K |
| EQUIPMENT CONTROL MGR. | S. Calif. | to 23K |

ALL RESUMES & INQUIRIES CONFIDENTIAL

ALL FEES PAID BY CLIENT COMPANIES

COMPANY ASSIGNMENTS WELCOME

NO FEE UNLESS REFERRAL HIRED

MCR AGENCY INC. 415-444-7700

TRANSPORTATION PERSONNEL CONSULTANTS

405 14th St., #1600 MR
Oakland, California 94612

Naval Architects

Ship design, oversee and evaluate the characteristics of ships at design stage. MS Degree in Naval Architecture or Ocean Engineering, with sufficient knowledge in hydrodynamics, structural, mechanical and electrical equipment of ships. At least one year experience with sea-going background required. \$20K/yr. Send resume to:

Virginia Employment Commission
6320 Castle Place
Falls Church, VA 22044

Sales Opportunity—Marine Electronics

Established manufacturer and distributor of marine navigation and communication equipment seeks person with sales and/or technical background in marine electronics. Willing to travel. Excellent salary and benefits package. For immediate confidential consideration, please respond to:

Box 103 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

Professional Engineer with background in marine or mechanical construction or design. Excellent salary and benefits. Located in St. Louis. Send inquiries to:

Second Coast Guard District
Civilian Personnel Branch
1430 Olive St.
St. Louis, MO 63103
314-425-4665

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!

MANY OPPORTUNITIES AVAILABLE, INCLUDING:

- VP OPERATIONS (GENERAL CARGO) to \$45K
- SALES MGRS. (DIESEL ENG; WORKBOATS) to \$40K+
- TECH DESIGN MGR (O'HAUL PLANNING) to \$40K
- PREV MAINT ENGRS (DIESEL EXP) to \$35K
- MECH/CIVIL ENGRS (STRUCTURAL) to \$35K
- SALES (CHEM; COAT; ELECTR; ETC) to \$35K+
- MARINE PURCH CONTRACT ADMIN (SHIPYARD) to \$30K
- NAV ARCH/MAR ENGRS to \$30K
- SAFETY ENGRS (SHIPYARD) to \$30K
- DRAFTING (MECH; PIPING; ELECTR) to \$27K
- MECH F'MAN (SHIPYARD/MARINE ENG) to \$23K

Call/mail resumes and salary info/job requirements to:

BOB SLEIERTIN
P.O. BOX 86-A (583 State Road)
No. Dartmouth, Mass. 02747
(617) 997-3311

POSITION WANTED

(PORT ENGINEER — PORT SUPERINTENDENT — SHIP REPAIR)

10 YEARS EXPERIENCE ON SEA GOING VESSELS OF ALL TYPES — SHORESIDE SHIP REPAIR EXPERIENCED AS CHIEF ENGINEER FOR 1½ YEARS.

SEEK SHORESIDE POSITION WITH WELL ESTABLISHED COMPANY. WILLING TO RE-LOCATE. PLEASE REPLY TO:

LAKHO N. SIDHWANI
40-79 216th Street
Bayside, NY 11361

World-wide delivery of your vessel to 500 G.T. by U.S.C.G. licensed Master with 20 years sea-going experience and intimate knowledge of marine equipment. For availability please contact:

Box 102 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

FOR SALE
OCEAN GOING BARGE

Double hull, 4.5 million gallons, 6.5 million gallons utilizing wing tanks. 21 compartments, each with separate pump and piping. Linings are steel, rubber, SS and nickle clad. Mfg. 1954 in Quincy, Mass. Dry docked August 1976. Certificate expired August 1978.

Length Overall 551'2" Breadth 68'0"

Draft Loaded 31'4"

Displacement 26,450 L.T.

Deadweight 20,335 L.T.

Available for inspection.

Call or write:

Lamar E. Peterson
Dow Chemical USA
Material Recovery, Bldg B-3611
Texas Division
Freeport, Texas 77541
Tel. 713/238-3127



FOR SALE

TUGS & BOATS

- 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
- 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

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'
- 521 — BARGE, Deck Type 250' x 34' x 9.5'
- 522 — BARGE, Deck Type 250' x 34' x 9.5'
- 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
Mansfield — Bill Chandler (419) 529-3213
Sandusky — Norm Nestor (419) 627-8551
Evenings — Bob Smith (419) 756-0090
Norm Nestor (216) 839-2688

FOR SALE
CREW/SUPPLY BOATS



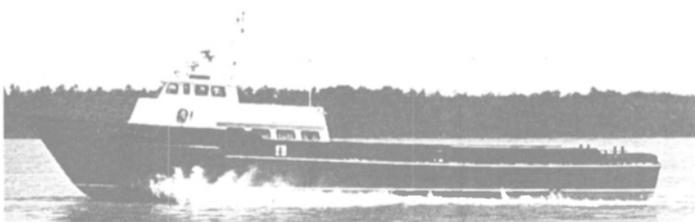
2-225 90' x 21' ALUMINUM HULL BLT. 1973
ENGINES: THREE (3) GM 12V-71 T.I.
SPEED: 22 KTS.
PASSENGERS: 59 — CENTRAL AIR HEAT
DECK CARGO: 15 L.T. DECK AREA 40' x 19'
ELECTRONICS: RADAR-SSB-VHF
CERTIFIED: USCG
PRICE: \$475,000.00



2-226 110' x 22' x 9'4" ALUMINUM HULL BLT. 1979
ENGINES: THREE (3) GM 12V-71T1
GENERATORS: TWO (2) 40 KW EACH
FUEL: 2400 GALS.
WATER: 600 GALS.
SPEED: 23 KTS.
DECK CARGO: 40 L.T.
PASSENGERS: 58 CENTRAL AIR HEAT
ELECTRONICS: RADAR-SSB-VHF-LORAN
CERTIFIED: USCG
PRICE: \$1,000,000.00
(3 SISTERS OF ABOVE VESSELS AVAILABLE)



2-227 100' x 21.7' ALUMINUM HULL BLT. 1976
ENGINES: THREE (3) GM 12V-71T1
GENERATORS: TWO (2) 30KW
FUEL: 3,200 GALS.
WATER: 300 GALS.
SPEED: 20 KTS.
DECK CARGO: 15 L.T. CLEAR DECK 50' x 18'
PASSENGERS: 65 CENTRAL AIR HEAT
ELECTRONICS: RADAR-SSB-VHF-LORAN
CERTIFIED: USCG
PRICE: \$775,000.00



2-228 122' x 23'9" x 10'4" ALUMINUM HULL BLT. 1978
ENGINES: TWO (2) M.T.U. 12V331TC71
SPEED: 23 KTS.
GENERATORS: TWO (2) 30 KW
FUEL: 11,820 GALS.
PASSENGERS: 59 CENTRAL AIR HEAT
DECK CARGO: 55 L.T. CLEAR DECK
ELECTRONICS: RADAR-SSB-VHF-LORAN
PRICE: \$1,300,000.00



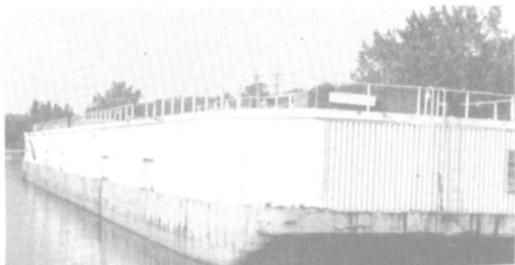
2-258 (A), (B), (C) THREE (3) SISTERS ALUMINUM CREWBOATS
125' x 23'9" x 10'4" BLT. 1979
CLASS ABS MALTESE CROSS A-1-USCG CERTIFIED
ENGINES: TWO (2) M.T.U. 12V331T.C.
TOTAL HP: 2240 CONT. 2440 MAX.
GENERATORS: TWO (2) 30KW 120/240 60CY. 3PH.
PASSENGERS: 44 CREW & CENTRAL AIR HEAT
DECK CARGO: 65 L.T. DECK AREA 75' x 16'
FUEL CAP: 11,820 GALS.
POTABLE WATER: 8,430 GALS.
BALLAST WATER: 21,130 GALS.
ELECTRONICS: 2 RADARS-VHF-SSB-FATHOMETER-LORAN
SPEED: 23 KTS.
PRICE: \$1,500,000.00 EACH VESSEL.

CAPTAIN ASTAD COMPANY, INC.

P.O. BOX 53434 NEW ORLEANS, LA. 70153

(504) 529-4171 TELEX: 58208 "ASTAD" NLN

**HOUSE BARGE
SALE • CHARTER**



250' x 39' x 9' Steel Welded
Aluminum Siding, Air Conditioned
Top deck built to support passenger load
Located N.Y.

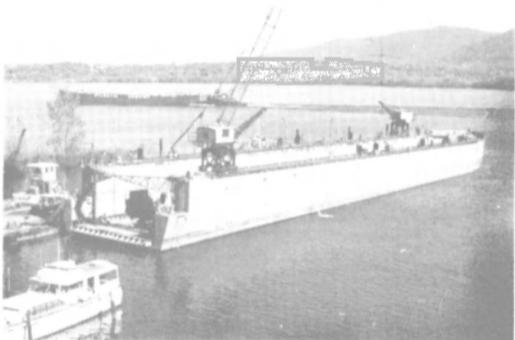
COEN MARINE EQUIPMENT, INC.
15 Slope Drive Short Hills, N.J. 07078
Phone N.Y. (212) 448-0900
Other Barge 40' to 300'
For Sale • Charter

**FLOATING DRYDOCK
For Sale**

Presently in use Length of basin — 361'
Length overall 400' Gross weight — 2,600 tons
Breadth — 60' Capacity — 2,800 tons
Total depth — 33'
Breadth between wing walls — 42'

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



**OCEAN-GOING TUG BOAT
SALE OR LEASE**

VESSEL PARTICULARS

Length 123' Net tons 109
Breadth 35' Horsepower 4620
Depth 18'6" Fuel Cap. 119,372
Gross tons 167 gal.
Classification —
ABS-A-1 Towing

MACHINERY & EQUIPMENT

(2) Nohab SF112 VS-F Diesel Engines
(2) Detroit Engine Power Generator sets
(1) Intercontinental 172 two drum
towing winch

Phone Ask For
(602) 248-5777/5520 Bob or Roy

**OFFSHORE OIL SKIMMER
FOR SALE**

Bennett MK6E, 42', Diesel powered, dismantles to 3 sections; for air transport, USCG documented, 36" hydraulic belt pick up, 10,000 gallons product storage, less than 200 hours total use. For further information contact:

Sealand Environmental Engineering, Inc.
P. O. Box 5045
Milford, CT 06460
Tel: 203-877-4267

MUST SELL

TWO ROLL ON/ROLL OFF LANDING SHIPS 200' x 34', LIGHT DRAFT 3' FWD 5' AFT, ENGINES, GENERATORS AND ALL MACHINERY OPERATIVE. HAS 8000 CU.FT. OF REEFER AND CAN HANDLE LIQUID PETROLEUM PRODUCTS IN ADDITION TO GENERAL CARGO. LOCATED MIAMI. ALSO SPARE PARTS FOR THE ENGINES AND OTHER MECHANICAL EQUIPMENT VALUED IN EXCESS OF \$50,000 WILL BE PROVIDED WITH EACH SHIP SOLD. PANAMANIAN REGISTRY. WRITE OR CALL DUBBIN, CANAVERAL INT'L CORP., 7100 BISCAYNE BLVD., MIAMI, FLA. 33138 — 800-327-8435 OR 305-759-2441.

FOR SALE BY OWNER



Landing Craft & Towing Vessel — 125' x 34' x 10'. Excellent condition. Main Eng. V-12 71 6:1 Twin Disc. (2) Gen. Sets 50 & 100 KW. Towing Winch — Hyd. Deck Crane — G.T. 149 (2) Radars — SSB. Auto Pilot — Gyro Loran. Ramp Opening 15' Vessel Equipped to haul 5 Refer Vans.
Call Jacobson 206 782-1618

**FOR SALE
NEW UNUSED
1500 HP REDUCTION GEARS**

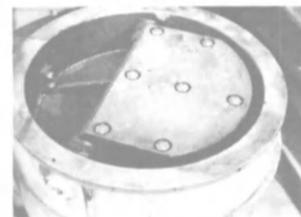
6.75 : 1
PORT AND STARBOARD



Mfg. Farrell Birmingham
Input RPM 1011/1350
Output RPM 150/200

NICOLAI JOFFE CORPORATION
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

**FOR SALE
24" AND 30" VALVES
SWING CHECK
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

**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
NEW — UNUSED**

4—BUTTERWORTH HEATERS 850 Sq. Ft.
90/10 cuni tubes 180psi steam
75/210° sea water
3—FW/SW HEAT EXCHANGER 1686 Sq. Ft.
90/10 cuni tubes 113/90° fresh water
8—FUEL OIL HEATERS 90 Sq. Ft.
125psi steam 400psi design pressure
8—CONTAMINATED DRAIN COOLERS
83 Sq. Ft. 150 psi design 250/95° out
All above ABS and Coast Guard approved manufactured by American Standard 1974 for San Clemente T8-S-100B Class Tankers. Complete specifications & drawings available.

NICOLAI JOFFE CORPORATION
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

TAKIN' IT OFFSHORE?



McDONOUGH
MARINE SERVICE

24 HOUR SERVICE

BARGES FOR RENT
ALL TYPES & SIZES

CALL: *The Barge People*

NEW ORLEANS HOUSTON PARKERSBURG
5041 949 7586 7131 452 5887 33041 485 4494
 TELEX 58 4393 P.O. BOX 211 TELEX 86 9412
 P.O. BOX 26206 NEW ORLEANS, LA 70186 CHANNELVIEW, TEX 77530 P.O. BOX 1825
 NEW ORLEANS, LA 70186 CHANNELVIEW, TEX 77530 PARKERSBURG, W. VA 26101

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



Dredging & Towing Equipment
Available for Renting or Leasing

Steel Tug 61 feet — 450 horsepower

Mud Scows

- 1 550 yard mud scow
- 1 350 yard mud scow

Available in the Hampton, Virginia area.

Contact — Tudor Marine
(804) 489-7009

Will rent all or part.

Wanted OILFIELD Supply Boat

155'-170' Current P.B.S. & C.G. Inspection. For purchase or lease.

AMERICAN GENERAL MARINE SERVICES
520 Tamal Plaza • Corte Madera, CA. 94925
415-924-7420



Marine Products
Machinery

- Pumps • Valves • Fittings
- Accumulators
- Priming Systems
- Valve Actuators

Hull

- Bow Thrusters • Steering Gear
- Controllable Pitch Propellers
- Anchor • Deck Machinery
- Tank Cleaning Equipment
- Inert Gas Systems
- Rudder Arrestor

Call Or Write For Brochure

MARITIME EQUIPMENT INC.

RT. 31 & COMMERCE ST., FLEMINGTON, N.J. 08822

Gulf Coast East Coast
(504) 885-1911 (201) 782-0767

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 McCROKREN, Inc.

153 Franklin St. Dept. MR Call (212) 925-2170
New York, N.Y. 10013 FOR FAST DELIVERY

DIESEL GENERATORS
Big Savings

- CAT D399TA 900KW, Only 1 yr. old, 1400 hrs. fully equipped only \$115,000
- CAT D349TA 750KW, 1200A breaker, oil field type base, excell \$ 68,500
- CAT D379TA 400KW low hrs. U.G. 8 gov. has everything, reduced \$ 46,500
- CAT D346TA 375 480V (2) avail, run good, fully equipped just ea. \$ 18,500
- CAT 3408PCTA 300KW Factory package, with C-B only 2000 hrs. save!! \$ 23,500
- CAT 3408 PCTA 300KW like new, full warranty, Lima Gen. excell only 27,500
- CAT D398 600KW trailer mounted, 2 yrs. old, low hours, special \$ 75,000

MANY MORE... CALL OR WRITE

southern energy, inc.

P.O. Box 5560
Jacksonville, FL 32207
(904) 268-4200

Engines • Generators
Systems Design • Installation

BARGES FOR LEASE
ON GULF COAST OF FLORIDA



MISENER BARGE AND BOAT RENTAL, INC.
St. Petersburg Beach, Florida 813-360-7033

IMMEDIATE DELIVERY FROM STOCK



SEA CUSHION MARINE FENDERS
Small SEA CUSHION Foam-Filled Fender with Elastomer Coated Nylon Net

| Size Inches | Energy Absorption at 60% Compression Foot-Pounds | Weight Pounds | Price \$ |
|-------------|--------------------------------------------------|---------------|----------|
| 16x36 | 2,000 | 37 | 750. |
| 24x36 | 4,000 | 70 | 950. |
| 32x50 | 12,000 | 145 | 2300. |

6269 Leesburg Pike
Falls Church, Virginia 22044
USA
Telephone: (703) 534-3500
Telex: 899 455

SEAWARD INTERNATIONAL INC.

For Lease

City owned facility on Lake Superior available to qualified individual or firm. Prefer lessee with knowledge of small vessel repair and construction. Construction of this facility to begin during Spring of 1981. Facility will be available to leasee by Spring of 1982.

INCLUDES COMPLETE FACILITY
Protected harbor - 130 marina slips, 150 ton travel lift hoist & trailer, 12,400 sq. ft. vessel repair building, large boat storage & repair yard, plenty of room for expansion.

Minimum capital requirement. Excellent opportunity for qualified individual or firm.

Contact: James Mattson, Mayor
Washburn, WI 54891

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

ALUMINUM LIFEBOATS

50 Person—Oar Propelled—26'X9'X3'10"

23" Centers on hooks—empty wt 2740 lbs.—total wt with passengers 11,993. With ridge pole, spreader & cover. Mfg by Marine Safety Equipment Co. Maleco release gear. Type B-1. Simultaneous release both ends. USCG approved No. 160,033/52/0.

THE BOSTON METALS COMPANY

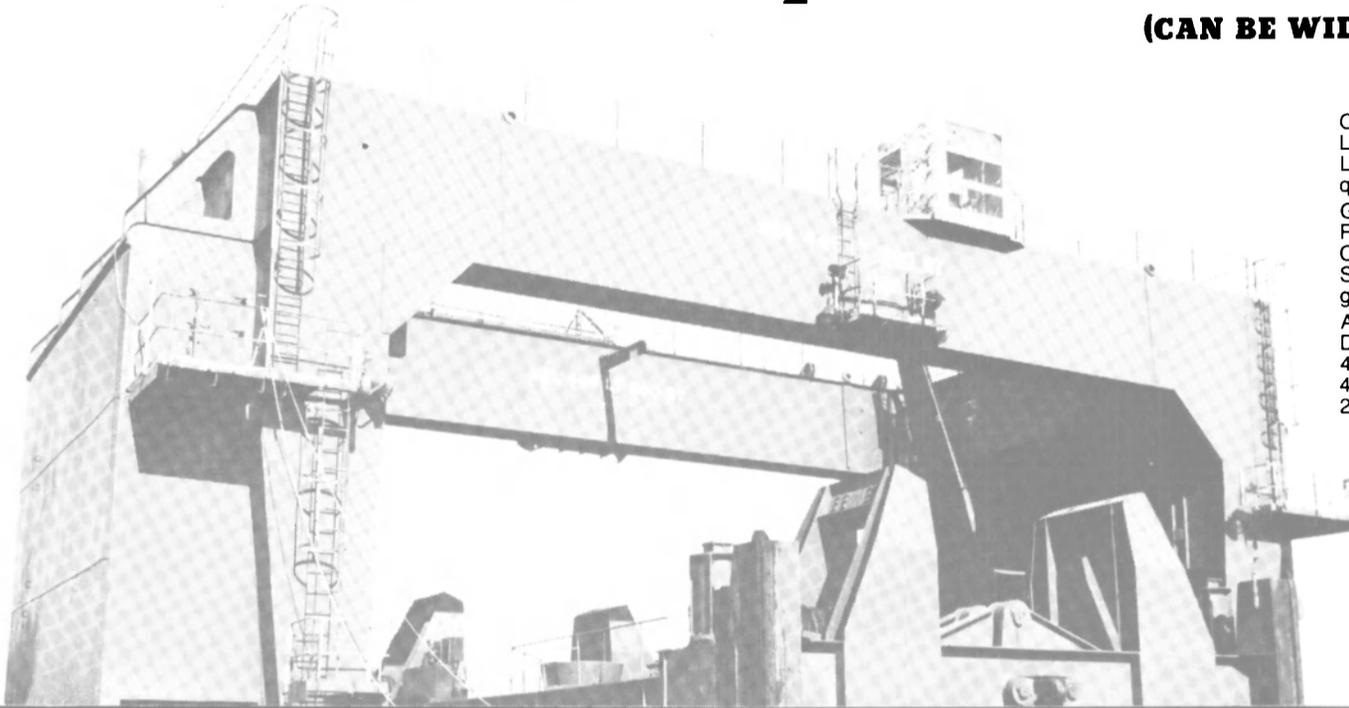
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

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

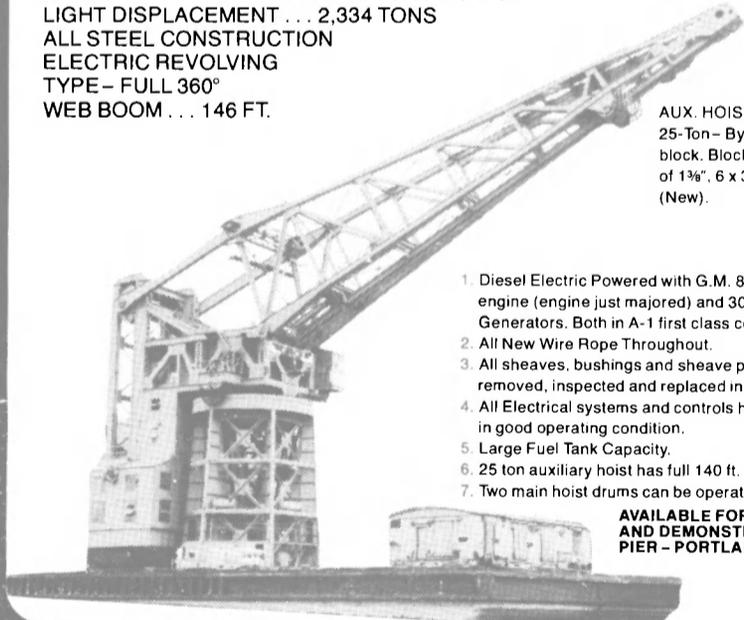
LENGTH OVERALL 140 FT.
BEAM 84 FT.
DRAFT 7 FT.
LIGHT DISPLACEMENT ... 2,334 TONS
ALL STEEL CONSTRUCTION
ELECTRIC REVOLVING
TYPE - FULL 360°
WEB BOOM ... 146 FT.

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 1¾" 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.

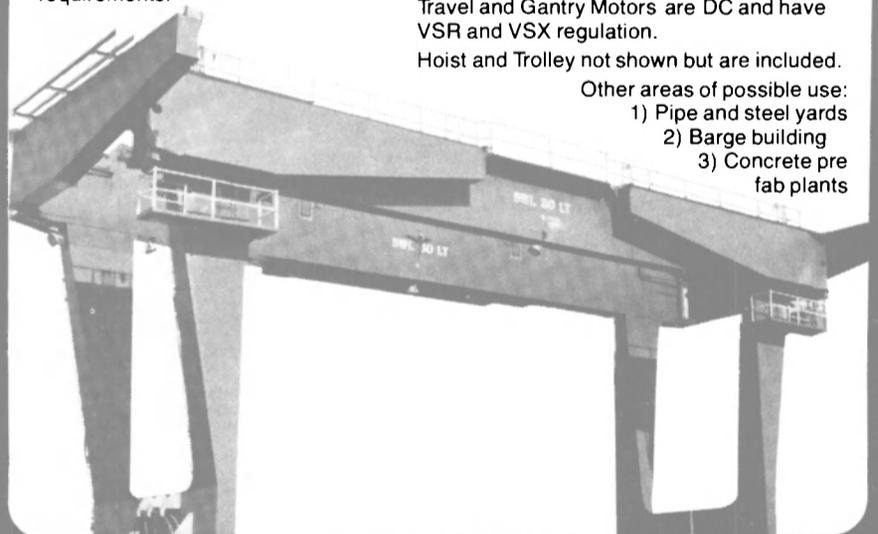
MG set: 250 HP-AC-170 KW 230 DC.

• 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, or A.D. Canulette, Jr.

Z
E
ZIDELL

ZIDELL EXPLORATIONS, INC.

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

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

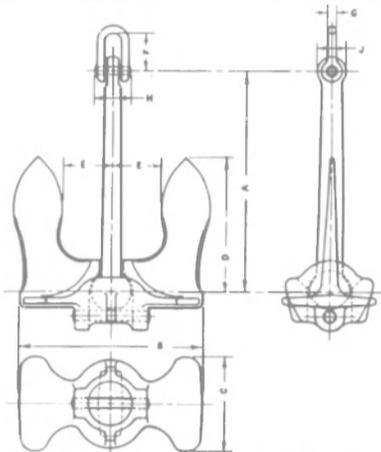
33 RECTOR ST.
 NEW YORK
 N.Y. 10006
 (212) 269-2515



WORLD
 WIDE
 DISTRIBUTION

ANCHORS — CHAIN

DETACHABLE LINKS
 PEAR-SHAPED DETACHABLE LINKS



LARGE BALD-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

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

NEW CHAIN

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

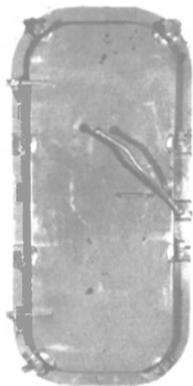
NEW SWIVELS

3 EA. 2 5/16 — 3" E&E SWIVELS
 13 EA. 3 1/8 DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS
 25 EA. #7 — 17 EA. #5

THE BOSTON METALS COMPANY

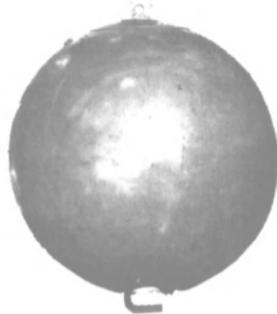
313 E. Baltimore St. Baltimore, Md. 21202
 Marine Warehouse (301) 752-1077



QUICK-ACTING
 LEVER
 OPERATED
 WATERTITE
 DOORS
 26" X 66"
 8-DOG
 Rights & Lefts

THE BOSTON METALS COMPANY

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



NEW — UNUSED
 SPHERICAL
**MOORING
 BUOYS**

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

CYLINDRICAL BUOYS

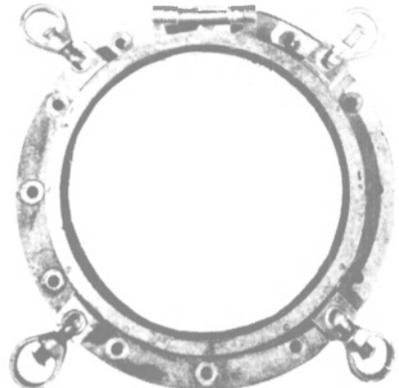
3 Available — 5 ft X 9 ft — with wood bumpers

THE BOSTON METALS COMPANY

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

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

15 1/2" CLEAR OPENING
 16" CLEAR OPENING



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

THE BOSTON METALS COMPANY

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

**250KW GM 12-V-71
 DIESEL GENERATOR SETS**

440/3/60/1800 — with free-standing switchgear. Generators manufactured by Electric Machinery Co. — E.M. Bema — brushless — synchronized — keel cooled.

CAN BE SEEN ABOARD ALCOA "SEAPROBE"

THE BOSTON METALS COMPANY

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

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



24" X 24" X 10"
 4-DOG



72" X 72" X 12"
 16-DOG



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

**NEW UNUSED
 FLUSH HATCHES**



54" X 66"
 54" X 77"

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



24" X 30"
 30" X 30"

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



18" DIAM X 10"
 SCUTTLE



60" X 42" X 12"
 10-DOG



20" DIAM X 4"
 SPRING
 LOADED
 4-DOG

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



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



36" X 26" 7-DOG
 TANKER EXPANSION
 TRUNK



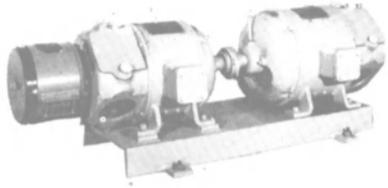
THE BOSTON METALS COMPANY

313 E. Baltimore St.

(301) 752-1077

Baltimore, Md. U.S.A. 21202

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



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

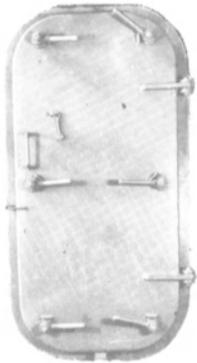
ALSO WITH 230 VOLT D.C. MOTORS

THE BOSTON METALS COMPANY

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

FOR SALE
NEW WATERTIGHT DOORS

Steel Dogs



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

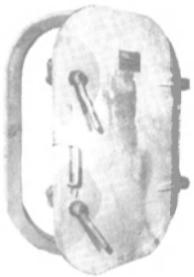
SIZE

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

EACH DOOR

IMMEDIATE DELIVERY

NEW SMALL STEEL
WATERTIGHT
DOORS



24" X 36"

2-DOGS

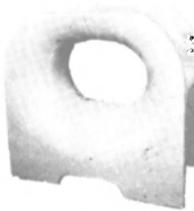
5 Right Hand
2 Left Hand

IMMEDIATE
DELIVERY

NEW 7" RADIUS
PANAMA CHOCKS

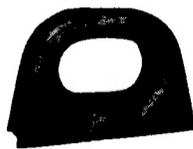
(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base—length 28"—height 27¼". IMMEDIATE DELIVERY FROM STOCK.

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

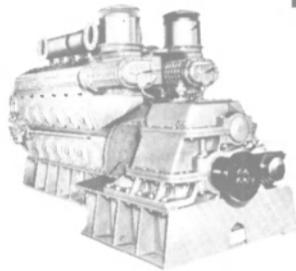


Closed chocks—12" X 6½" inside opening—23" overall outside—8" high—15" high—7" radius—weight 110 lbs. IN STOCK.

THE BOSTON METALS COMPANY

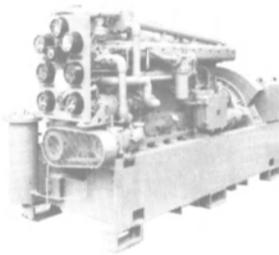
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

LST MACHINERY



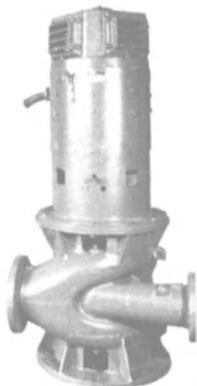
PORT & STARBOARD GM 12-567A
900 HP DIESEL ENGINES
with Falk reverse & reduction gears

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



100KW GBD-8 DIESEL GEN.

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



GARDNER-DENVER
BALLAST PUMP

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

TAILSHAFTS

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

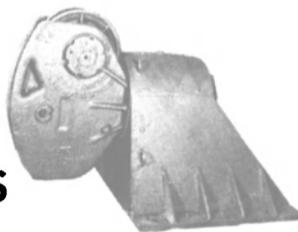
THE BOSTON METALS COMPANY

313 E. Baltimore St.

752-1077

Baltimore, Md. 21202

SURPLUS
BERGER
FAIRLEADS

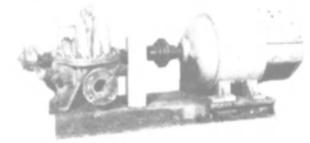


2 Model 620—for 1½" wire—20" sheave. Located San Francisco, Ca.

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

THE BOSTON METALS COMPANY

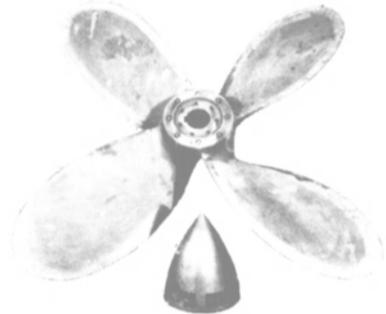
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077



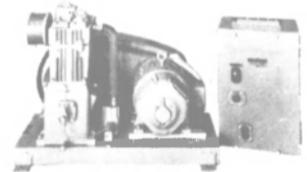
GOULD FIRE & BILGE PUMP

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

4-BLADE PROPELLERS
BRONZE — PORT & STARBOARD



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



CLUTCH TIRE AIR COMPRESSOR

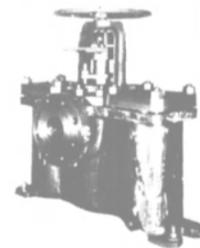
Model 320—4 X 2½ X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.



COMBINATION LUBE OIL &
SALT WATER COOLING PUMPS

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

NEW-UNUSED
3" STEEL
DUPLEX
STRAINER



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

THE BOSTON METALS COMPANY

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

BUYERS DIRECTORY

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Adrick Cooling Corp., 30 B. Remington Blvd., Ronkonkoma, N.Y. 11779
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
R.W. Fernstrum & Company, 1716 Eleventh Avenue, Menominee, MI 49858
James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection

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

BEARINGS—Rubber, Metallic, Non-Metallic

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

BLASTING—Cleaning—Equipment

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

BOILERS—Tube Cleaning

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

BRAKES

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

BROKERS

B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10005
Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

BUNKERING SERVICE

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

CARGO TRANSFER & ACCESS EQUIPMENT

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
MacGregor-Comarain, Inc., 449 Sheridan Blvd., Inwood, N.Y. 11696

CHOCKING SYSTEMS

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

CLOCKS

Wempe Chronometerwerke Germany, Stubbenhulk 25 2000 Hamburg 11, Germany

COILS—Cooling, Heating, Ventilating

Colmac Coil, Inc., Colville, Wash. 99114
Crown Assets Disposal Corp., 300 Notre Dame St., Ville St.-Pierre, Quebec, Canada H8R 3Z6

CONTAINERS—Cargo Container Handling

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

CONTROL SYSTEMS—Monitoring

Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasonics, Inc., 5909 West 130th Street, Cleveland, OH 44130
Seatronic Engineering & Mfg. Co., 1230 E. Joppa Rd., Towson, MD 21204

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

Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

COUPLINGS

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

CRANES—HOISTS—DERRICKS—WHIRLIES

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

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

DECK MACHINERY—Cargo Handling Equipment

Appleton Machine Co., Marine Division, 618 S. Oneida St., Appleton, WI 54911
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS

B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231

Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114
Teledyne Metal Finishers, 3125 Brinkerhoff Road, Kansas City, KS 66115

Twin Disc, Incorporated, Racine, Wis. 53403

DRAFTING EQUIPMENT

AM Bruning, 1834 Walden Office Square, Schaumburg, IL 60196

ELECTRICAL EQUIPMENT

Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6

Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS

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

EQUIPMENT—Marine

ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013

Baldi, Inc., P.O. Box 350, Chester, PA 19016
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550

J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La. Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94030

Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

EVAPORATORS

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

EXPANDED METALS—METALS

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

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52
Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44563
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44052
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing

Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 05904
Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Salomon Brothers, One New York Plaza, New York, N.Y. 10004
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE

Custom Alloy, 2040 N. Loop W., Houston, TX 77018
Robson Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
IDI Corp. (Intersystems Design & Technology Corp.), P.O. Box 1590, Summerville, S.C. 29483

GANGWAYS

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

HATCH & DECK COVERS—Chain Pipe

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

Julius Mock & Sons, Inc., 20 Vesey St., New York, NY 10017

HULL CLEANING

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

HYDRAULICS

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

INERT GAS—Generators—Systems

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

INFORMATION—Marine

Maritime Data Network, 300 Broad Street, Stamford, CT 05901

INSULATION—Cloth, Fiberglass

Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Dupont Company, Nemours Bldg.-RM C31H6, Centre Rd. Bldg., Wilmington, DE 19898
IDI Corp. (Intersystems Design & Technology Corp.), P.O. Box 1590, Summerville, S.C. 29483

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036

B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038
Whitehall Brokerage, Inc., 685 3rd Ave., New York, NY 10017

JOINER—Water-tight Doors—Paneling

Masonite Commercial Division, Dover, OH 44522
Walz & Krenzer, Inc., 400 Tralbold Road, Rochester, NY 14624

KEEL COOLERS

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

LADDERS

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

LIFEBOATS & DAVITS

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

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

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

LNG CONTAINMENT

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

LUMBER

R.N. Templeman, Inc., 3030 Perdido St., New Orleans, LA 70119

MACHINE TOOLS

Climax Manufacturing Company, P.O. Box 230, Newberg, OR 97132
Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67301
Republic-Lagun Machine Tool Co., 1020 E. Carson St., Carson, CA 90749

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

MOORING SYSTEMS

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

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

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

J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Jacksonville, Florida 32211
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates, Inc., 3309 Tulane Ave., New Orleans, La. 70119
Designers & Planners, Inc., 82 Beaver Street, New York, NY 10005
Donhauser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Parke C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krage & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01470
Lucander Designs, P.O. Box 711, San Perilita, TX 78550
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Meritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Robert B. Niederberger, P.E., 507 Evergreen Road, Severna Park, MD 21146
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, E000 Arlington Expressway, Jacksonville, FL 32211
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotaque Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013
and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl & Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Secor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08033
Seaworth Systems, 36 Main Street, Essex, CT 05426
George G. Sharp, Inc., 103 Church St., New York, N.Y. 10007
T. W. Spetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Corning Townsend III, 18 Church St., Georgetown, CT 05829
Undersea Systems, 112 W. Main St., Bay Shore, NY 11706
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70033

NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Collins Marine Corp., Pier 32, San Francisco, CA 94105
Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
Dantronics Company, P.O. Box 204, Boca Raton, FL 33432
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPCO, Inc., 411 Providence Highway, Westwood, Mass. 02090
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94060
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Harris Communications, RF Communications Division, 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Decca Marine, U.S. Route 1 & St. Joe Rd., P.O. Box G, Palm Coast, FL 32037
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606

Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311

North American Philips Communication Corp., 91 McKee Road, Mahwah, N.J. 07430

RCA Service Co., Building 204-2, Camden, N.J. 08101

Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577

Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103

Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914

Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061

Rockwell International, Collins Telecommunications Products Division, Cedar Rapids, IA 52405

Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504

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

Texas Instruments Inc., P.O. Box 226030, M/S 3107, Dallas, TX 75265

Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives

B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07025

Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009

Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001

Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10319

Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017

Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS

Alfa-Laval, Inc., 2115 Lindwood Avenue, Ft. Lee, NJ 07024

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932

Sigma Treatment Systems, 603 Dean St., Brooklyn, NY 11238

PAINTS—COATINGS—CORROSION CONTROL

Belzona Molecular Metalife Inc., 224 7th Street, Garden City, NY 11530

"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230

Devco Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207

Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94030

International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004

Jatun-Baltimore Copper Paint Co., 501 Key Highway, Baltimore, MD 21230

Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817

The Skybryte Co., 3125 Perkins Ave., Cleveland, OH 44114

PETROLEUM SUPPLIES

Houston Marine Services, Inc., First State Tower, Suite 509, Houston, TX 77015

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696

CUNICO Corp., Cooney Pipe & Corder Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748

Hydro-Craft, Inc., 4223 Eadeland, Royal Oak, Mich. 48073

Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

PLASTICS—Marine Applications

Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

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

Alstom-Atlantique, 2 quai de Seine, 93203 Saint-Denis, France

Arma Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150

Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081

Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark

Burmeister & Wain Diesel, Inc., 50 Broadway, New York, NY 10004

Caterpillar Tractor Company, Engine Division, Peoria, IL 61629

Calt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511

Combustion Engineering, Inc., Windsor, Connecticut 06095

Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525

Elliott Company, (Div. of Carrier Corp.), Jeanette, PA 15644

General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531

MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478

Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3

Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507

Motive Power Corp., P.O. Box 365, Mineola, NY 11501 70124

Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670

Oosterhuis Industries, P.O. Box 30587, New Orleans, LA 70150

Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014

Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031

Schottel of America, Inc., 8775 N.W. 56 Street, Miami, Fla. 33166

Skinner Engine Company, P.O. Box 1149, Erie, Pa. 16512

Steamco Corporation, 364 Stowe Avenue, Orange Park, FL 32073

Tacoma Boatbuilding Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422

Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621

Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650

Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401

Vaith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

PUMPS—Repairs—Drives

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

Transamerica DeLaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110

Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431

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

Tubbs Cordage Company, Orange, CA 92668

RUDDER ANGLE INDICATORS

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142

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

Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011

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

SANITATION DEVICES—Pollution Control

Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013

Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111

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

Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184

Microphor, Inc., P.O. Box 490, Willits, CA 95490

Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560

Research Products/Blankenship, 2639 Andjon, Dallas, Texas 75220

St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111

Sigma Treatment Systems, 2 Davis Ave., Frazer, PA 19355

SCAFFOLDING EQUIPMENT—Work Platforms

Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

Spider Staging Sales Co., P.O. Box 182, Renton, Washington 98055

Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02031

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142

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

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage

American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210

The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202

Levin Metals Corporation, 1310 Canal Blvd., Richmond, CA 94807

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

SHIPBUILDING STEEL

Arma Steel Corp., 703 Curtis St., Middletown, Ohio 45042

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3036, 1003 AA, Amsterdam, Holland

AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142

Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valparaiso, Chile, S.A.

Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain

Astilleros Unidos de Veracruz, S.A., San Juan de Uluva S/N, Apdo. Postal 647, Veracruz, Ver., Mexico

Avondale Shipyards, Inc., P.O. Box 52030, New Orleans, La. 70150

Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235

Beregon Industries Inc., P.O. Box 38, St. Bernard, La. 70085

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

Blount Marine Corp., P.O. Box 368, Warren, RI 02885

Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124

Ira S. Bushey & Sons, Inc., 764 Court Street, Brooklyn, N.Y. 11231

Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy

Carrington Slipways Pty, Ltd., Old Punt Road, Tamago, N.S.W., Australia 2322

Centromar, One World Trade Center, Suite 3557, New York, N.Y. 10048

China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10019

Coastal Dry Dock & Repair Co., Building 131, Brooklyn Navy Yard, Brooklyn, N.Y. 11205

Conrad Industries, P.O. Box 790, Morgan City, La. 70390

Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles

Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004

Delattre-Levivier, Tour Fiat, Cedex 16, 92034 Paris La Defense, France

Dorbvl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa

Drava Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602

Empresa Nacional Bazan, Paseo de la Castellana 65, Madrid 1 Spain

Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122

FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208

Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553

HBC Barae, Inc., Grant Building, Pittsburgh, PA 15219

Halifax Industries, Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7

Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189

Havre de Grace, Havre de Grace, Md.

Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan

Hong Kona United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

Hudson Shipbuilders, Inc., P.O. Box Q, Passaic, MS 39567

Jackson/New York, 29 45 Richmond Terrace, Staten Island, NY 10303

Jeffboat, Inc., Jeffersonville, Ind. 47130

Keppel Shipyard Ltd., P.O. Box 2169, 325, Telok Blangah Road, Singapore 4

Kockums Shipyard, S-201, 10 Malmo 1, Sweden

Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134

McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160

MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016

Mangone Shipbuilding Co., 819 South 80th Street, P.O. Box 5446, Houston, TX 77012

Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043

Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047

Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681

Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, MS 38701

Monark Boat Co., P.O. Box 210, Manticello, Ark. 71655

Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202

National Steel & Shipbuilding Corp., San Diego, Calif. 92112

Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012

Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607

North American Hydraulics, P.O. Box 278, Brampton, Ontario Canada L6V 2L1

O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 13, Genoa, Italy 16100

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

Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156

Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862

Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767

Port Houston Marine, Inc., 7220 J.W. Peavy Drive, Houston, TX 77012

Port of Portland, P.O. Box 3529, Portland, OR 97203

Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22

S.E.B.N., Societa Esterercizio Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy

St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111

STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783

Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402

Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175

The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70303

Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal

Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113

Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR

Sun Ship Inc., Chester, PA 19013

Swiftships Inc., P.O. Box 1903, Morgan City, LA 70380

Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422

Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004

Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606

Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway

Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316

Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139

Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087

Wiley Manufacturing, a unit of AMCA International Corp., P.O. Box 97, Port Deposit, MD 21904

Zigler Shipyards, P.O. Box 2607, Morgan City, La. 70380

SHIP STABILIZERS

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

SMOKE INDICATORS

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES

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

SURVEYORS AND CONSULTANTS

Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903

Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING

Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

Salwico, Inc., 77 River St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS

Transamerica DeLaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

Zesco, Inc., 3131 Brian Park, Suite 1095, Houston, TX 77042

TECHNICAL MANUAL PREPARATION

Benhof, Inc., 2468 N. Jerusalem Road, N. Bellmore, NY 11710

TERMINALS—Oil—Transfer

Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614

Delong Corp., 29 Broadway, New York, N.Y. 10006

Transportation Concepts & Techniques Inc., 1020 West Main Street, Charlottesville, VA 22903

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.

Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002

Chatin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202

Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202

Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771

Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113

Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130

James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004

McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004

McDonough Marine Service, P.O. Box 26206, New Orleans, La.

Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048

Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002

Turecama Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

TRAINING SERVICES—Simulator

Ship Analytics, Park Circle, Centerport, NY 11721

UNDERWATER SERVICES—Contracting

SeaTec International Ltd., Blackburn Industrial Center, Gloucester, MA 01930

VALVES AND FITTINGS

Dover Corporation, Norris Division, P.C. Box 1739, Tulsa, OK 74101

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

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

Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184

Rockwell International, Flow Control Division, 400 N. Lexington Avenue, Pittsburgh, PA 15208

Stacey Valve Co., 29 Meserole Ave., Brooklyn, N.Y. 11222

Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

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

Winel of America, Inc., 16014 Cowley Road, Grafton, OH 44044

WATER PURIFIERS

Evepure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

WINCHES AND FAIRLEADERS

Bloom Inc., Highway 20, West Four Miles, Independence, IA 50644

Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027

Gearmatic Co. Ltd., 7400 132nd Street, Surrey, B.C., Canada

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

WINDOVS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076

Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055

Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings

Arma Steel Corp., 703 Curtis St., Middletown, Ohio 45042

Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

ZINC

Smith & McCracken, 153 Franklin St., New York, N.Y. 10013

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

U.S. SHIP CONSTRUCTION CONTRACTS

1 — MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — DECEMBER 1, 1980

| Builder | Owner | Total No. | Type | Hull Nos. | Est. GT (Each) | Est. DWT (Each) | Est. HP (Each) | Est. Total Cost (\$Mil.) |
|--------------------------|--------------------------|-----------|---------------------|------------|----------------|-----------------|----------------|--------------------------|
| American Ship Building | Interlake Steamship | 1 | Bulk | 909 | 32,000 | 59,000 | D-16,000 | 50.0 |
| Avondale Shipyards | American President Lines | 3 | Container | 2329-31 | 40,500 | 30,300 | D-43,200 | 330.0 |
| | Suwanee River | 3 | Tug/Barge | 2323-8 | 16,000 | 41,300 | D-18,200 | 111.6 |
| | Ogden Marine | 2 | Products | 2318 19 | 25,000 | 42,000 | D-15,000 | 100.0 |
| | Eagle Dredging | 1 | Dredge | 2320 | 4,200 | 4,900 | D-7,500 | 30.0 |
| | Corps of Engineers | 1 | Dredge | 2322 | 9,900 | 8,000 | D-10,400 | 67.5 |
| | United States Trust | 1 | Dredge | 2332 | — | — | — | 30.0 |
| Bath Iron Works | Corps of Engineers | 1 | Dredge* | 402 | 6,000 | — | D-7,000 | 65.0 |
| Bay Shipbuilding | Goodyear Steamship | 1 | Bulk | 724 | 12,000 | 23,500 | D-7,500 | 25.0 |
| | Ogelbay Norton | 1 | Bulk | 726 | 33,000 | 50,000 | D-14,000 | 52.4 |
| Bethlehem-Sparrows Point | Artemis Marine | 1 | Tug/Barge | 4652 | 32,000 | 47,000 | D-18,200 | 52.6 |
| | First-Fifth Tug/Barge | 5 | Tug/Barge | 4653-7 | 32,000 | 47,000 | D-18,200 | 266.0 |
| Equitable Shipyards | City of New York | 2 | Ferry | 1713-14 | 3,000 | 4,200 | D-7,800 | 30.0 |
| General Dynamics-Quincy | Bulkfleet Marine | 2 | Tug/Barge | 055-6 | 12,000 | 27,000 | D-8,000 | NA |
| | Coastwise Shipping | 3 | Tank Barge | 023-5 | — | — | — | NA |
| | New England Electric | 1 | Collier | — | 23,500 | 36,000 | T-12,000 | 60.0 |
| Levingston Shipbuilding | Levingston Falcon I | 3 | Bulk | 751-3 | 23,500 | 36,000 | D-14,800 | 120.0 |
| Mangone Shipbuilding | Sun Transport | 1 | Products | 129 | 1,600 | 2,300 | D-1,900 | NA |
| National Steel & SB | Union Oil | 3 | Products | 415-17 | 24,500 | 37,500 | T-13,000 | 150.0 |
| | American Tankships | 5 | Products | 419-23 | 24,500 | 37,500 | D-11,400 | 239.0 |
| | American Trading Trans. | 3 | Products | 424-6 | 27,000 | 44,000 | D-11,400 | 153.0 |
| Norfolk Shipbuilding | Corps of Engineers | 1 | Dredge | 178 | 2,750 | — | D-2,250 | 18.5 |
| Sun Ship, Inc. | Sun Transport | 2 | Products | 676-7 | 17,000 | 31,000 | D-16,200 | 72.0 |
| | Waterman Steamship | 3 | RO/RO-Cont. | 679-80, 82 | 18,500 | 23,500 | T-32,000 | 207.1 |
| | Calif. & Hawaii Sugar | 1 | Barge | 683 | 21,000 | 37,000 | — | 25.0 |
| Upper Peninsula SB | State of Michigan | 1/4 | Tug(1)/ Barge(4) | 001-5 | 5,400 | 10,000 | D-8,000 | 35.5 |

* Subcontracted from Sun Ship (formerly Sun Hull No. 681).

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — DECEMBER 1, 1980

| Builder | Owner | Name | Type | Delivery |
|-------------------------------------------|---------------------|-----------------------|-------------|----------|
| Alabama Dry Dock Mobile, Ala. | Diamond M | Diamond M. Hunter | Semisub. | 12/81 |
| Baker Marine Ingleside, Texas | Huthnance Dig. | Charger I | Jackup | 6/81 |
| | Huthnance Dig. | Charger II | " | 9/81 |
| | Magnum Marine | Mr. Demp | " | 11/81 |
| | Magnum Marine | Robert N. Haskin | " | 2/82 |
| | Magnum Marine | Robert W. Womack | " | 5/82 |
| | Marine Drilling | J. Storm XV | " | 3/81 |
| Bethlehem Steel Beaumont, Texas | Broughton Offshore | Broughton II | Jackup | 2/81 |
| | Griffin-Alexander | Griffin-Alexander I | " | 4/81 |
| | " | Griffin-Alexander II | " | 6/81 |
| | " | Griffin-Alexander V | " | 5/82 |
| | Houtech Energy | Houtech I | " | 8/81 |
| | " | Houtech II | " | 10/81 |
| | " | Houtech III | " | 3/82 |
| | " | Houtech IV | " | 9/82 |
| | Keyes Offshore | Keyes 200 | " | 12/80 |
| | Marine Drilling | J. Storm XVI | " | 7/81 |
| | " | J. Storm XVII | " | 9/81 |
| | O & U Drilling | (unnamed) | " | 1/82 |
| Bethlehem Steel Sparrows Point, Md. | Griffin-Alexander | Griffin-Alexander III | Jackup | 3/82 |
| | " | Griffin-Alexander IV | " | 5/82 |
| | " | Griffin-Alexander VI | " | 6/82 |
| | " | Griffin-Alexander VII | " | 9/82 |
| | Temple Drilling | Cheyenne | " | 4/82 |
| General Dynamics Charleston, S.C. | Oil Patch Drilling | (unnamed) | Jackup | 10/81 |
| | " | (unnamed) | " | 12/81 |
| Ingalls Shipbuilding Pascagoula, Miss. | Transworld Drilling | Transworld 69 | Submersible | 7/81 |
| | " | Transworld 70 | " | 8/81 |
| | " | Transworld 72 | " | 12/81 |
| | " | Transworld 73 | " | 1/82 |
| | Bonito Offshore | Bonito I | Jackup | 3/82 |
| | Chiles Drilling | Yucatan | " | 9/81 |
| | Global Marine | Glomar Main Pass I | " | 11/81 |
| | " | Glomar Main Pass II | " | 1/82 |
| | " | Glomar Main Pass III | " | 3/82 |
| | Huthnance Drilling | Vanguard I | " | 7/81 |
| | Keyes Offshore | Keyes 300 | " | 3/81 |
| | " | Keyes 301 | " | 5/81 |
| | " | Keyes 302 | " | 6/81 |
| Levingston Shipbuilding Orange, Texas | Dixilyn-Field | DF-87 | Jackup | 4/81 |
| | Noble Drilling | (unnamed) | " | 10/81 |
| | " | (unnamed) | " | 12/82 |
| | Bridas S.A.P.I.C. | Rio Colorado I | " | 12/80 |
| Marathon LeTourneau Brownsville, Texas | Chiles Drilling | Seabee | Jackup | 3/83 |
| | Global Marine | Glomar High Island V | " | 5/81 |
| | " | Glomar Adriatic I | " | 8/81 |
| | " | Glomar Adriatic II | " | 10/81 |
| | " | Glomar Adriatic V | " | 6/83 |
| | Keydril | Key Manhattan | " | 1/81 |
| | Penrod Drilling | Penrod 86 | " | 2/82 |
| | " | Penrod 88 | " | 5/82 |
| | " | Penrod 90 | " | 8/82 |
| | " | (unnamed) | " | 4/83 |
| Marathon LeTourneau Vicksburg, Miss. | Penrod Drilling | Penrod 87 | Jackup | 5/82 |
| | " | Penrod 89 | " | 9/82 |
| | " | Penrod 91 | " | 1/83 |
| | Rowan Drilling | Charles Rowan | " | 3/81 |
| | " | Arch Rowan | " | 6/81 |
| | " | Gilbert Rowan | " | 10/81 |

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — DECEMBER 1, 1980 — (Con.)

| Builder | Owner | Name | Type | Delivery |
|--------------------------------------|-----------------|---------------|-------------|----------|
| | " | Cecil Provine | " | 3/82 |
| | " | (unnamed) | " | 9/83 |
| Vemar Shipyard Channelview, Texas | Atwood Oceanics | Richmond | Submersible | 9/81 |
| | Cliffs Drilling | (unnamed) | Jackup | 7/81 |
| | Penrod Drilling | Penrod 170 | Submersible | 12/81 |
| | " | Penrod 171 | Submersible | 4/82 |
| | " | Penrod 172 | Submersible | 8/82 |

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — DECEMBER 1, 1980

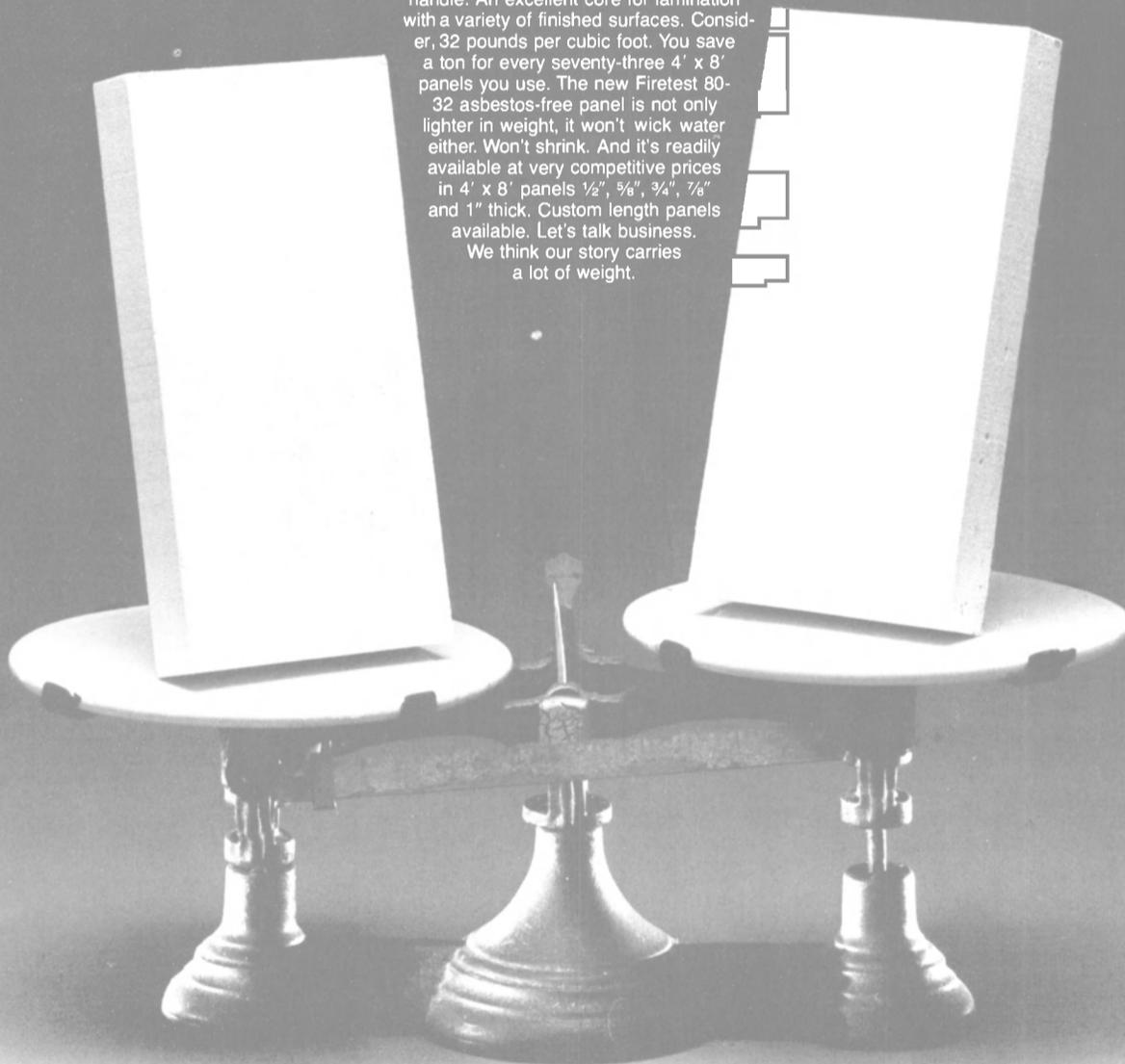
| Builder | Type | Navy Nos. | No. | Est. Contract Value, \$Mil. |
|-----------------------|--------------------------|----------------|-----|-----------------------------|
| Avondale Shipyards | Fleet Oiler | AO-177-9 | 3 | \$216.0 |
| | " | AO 180, 186 | 2 | 146.2 |
| Bath Iron Works | Guided-Missile Frigate | FFG-16 | 1 | 59.4 |
| | " | FFG-21, 24, 26 | 3 | 178.2 |
| | " | FFG-29, 32, 34 | 3 | 147.0 |
| | " | FFG-36, 39, 42 | 3 | 209.9 |
| Boeing Marine Systems | Missile Patrol Hydrofoil | PHM-2 | 1 | 21.3 |
| | " | PHM-3-6 | 4 | 178.0 |
| GD-Electric Boat | Attack Submarine | SSN-698-1 | 2 | 856.0 |
| | " | SSN-700-4 | 5 | 2,171.4 |
| | " | SSN-705-10 | 6 | 2,605.6 |
| | " | SSN-719-20 | 2 | — |
| | Trident Submarine | SSBN-726 | 1 | 285.4 |
| | " | SSBN-727-9 | 3 | 699.4 |
| | " | SSBN-730 | 1 | 354.5 |
| | " | SSBN-731-2 | 2 | 699.0 |
| Ingalls Shipbuilding | Missile Cruiser | DDG-993-6 | 4 | 1,400.0 |
| | Destroyer | DD-997 | 1 | — |
| | Aegis Missile Cruiser | CG-47 | 1 | 287.8 |
| Lockheed Shipbuilding | Sub. Tender | AS-41 | 1 | — |
| Marinette Marine | Fleet Ocean Tug | T-ATF-16-9 | 1 | 7.6 |
| | " | T-ATF-170-2 | 3 | 25.1 |
| National Steel & SB | Destroyer Tender | AD-42-4 | 3 | 502.2 |
| | Cable Repair Ship | T-ARC-7 | 1 | 107.0 |
| Newport News SB | Attack Carrier | CVN-70-71 | 2 | — |
| | Attack Submarine | SSN-711 | 1 | 103.2 |
| | " | SSN-712-15 | 4 | — |
| | " | SSN-716-18 | 3 | 380.8 |
| Peterson Builders | Patrol Gunboats | F-PGG-1-9 | 9 | 78.9 |
| Tacoma Boatbuilding | Missile Patrol Chaser | F-PCG-1-4 | 4 | 52.5 |
| | Med. End. Cutter* | WMEC-901-4 | 4 | 130.0 |
| | Med. End. Cutter* | WMEC-905-13 | 9 | 378.0 |
| Todd-San Pedro | Guided Missile Frigate | FFG-14 | 1 | 48.7 |
| | " | FFG-19, 23, 25 | 3 | 151.0 |
| | " | FFG-27, 30, 33 | 3 | 147.0 |
| | " | FFG-38, 41, 43 | 3 | 214.8 |
| | " | FFG-46 | 1 | 67.7 |
| Todd-Seattle | Guided-Missile Frigate | FFG-17-18 | 2 | 99.3 |
| | " | FFG-20, 22 | 2 | 100.7 |
| | " | FFG-28, 31, 35 | 3 | 147.0 |
| | " | FFG-37, 40 | 2 | 143.2 |
| | " | FFG-44, 48 | 2 | 135.3 |

*For U.S. Coast Guard.

NEW FIRETESTTM 80-32 MARINE JOINER PANEL

WEIGH THE FACTS

The fact is FiretestTM 80-32 weighs 30% less than the other product*. It meets U.S. Coast Guard B-15 requirements for Class A-60, A-30, and A-15 construction. And it's 30% lighter. Easier to handle. An excellent core for lamination with a variety of finished surfaces. Consider, 32 pounds per cubic foot. You save a ton for every seventy-three 4' x 8' panels you use. The new Firetest 80-32 asbestos-free panel is not only lighter in weight, it won't wick water either. Won't shrink. And it's readily available at very competitive prices in 4' x 8' panels 1/2", 3/8", 3/4", 7/8" and 1" thick. Custom length panels available. Let's talk business. We think our story carries a lot of weight.

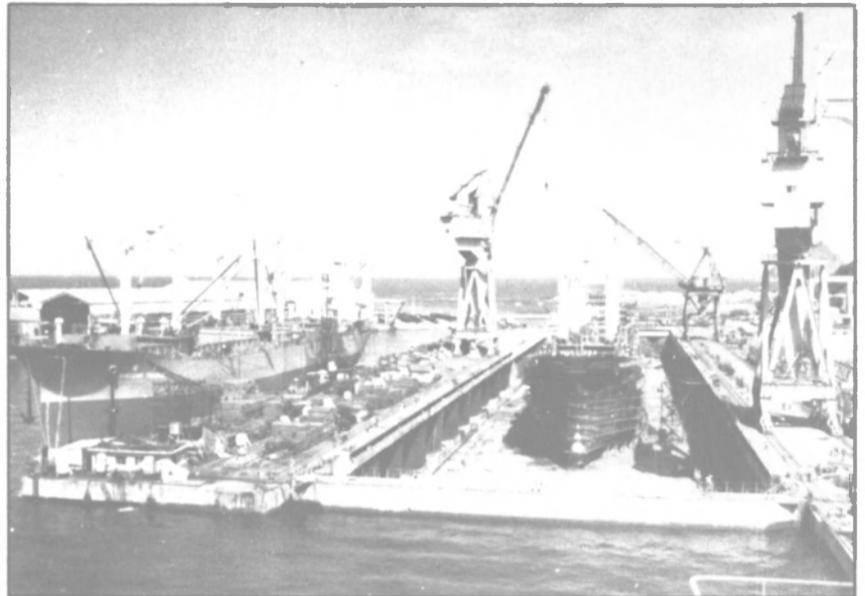
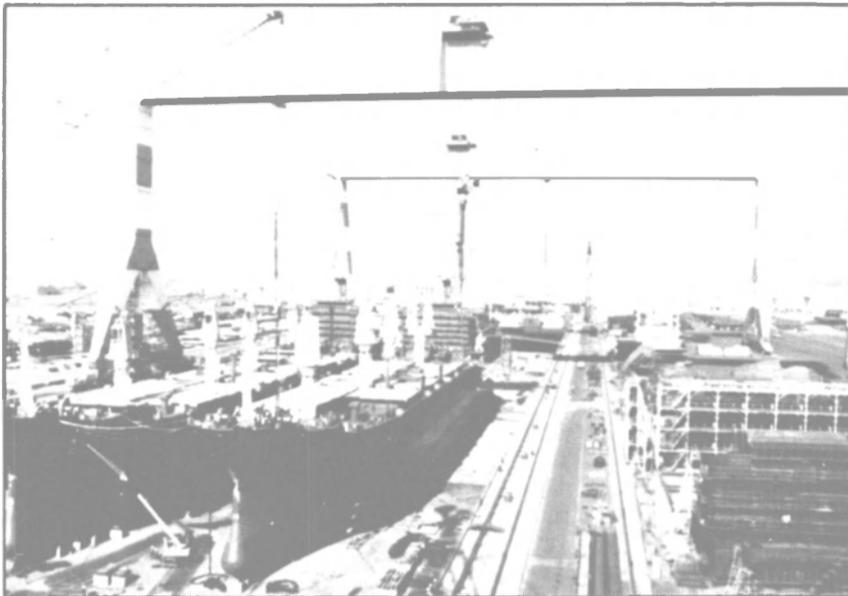


*COMPARED TO JOHNS-MANVILLE "MARINITE M" JOINER PANEL



COMMERCIAL DIVISION

Marine Business Department
202 Harger St., Dover, Ohio 44622
Phone Toll Free (except Ohio) 1-800-321-4404



CHINA SHIPBUILDING

BUILDS THE FINEST SHIPS *for less money*

China ShipBuilding quotations are surprisingly attractive

Give China Shipbuilding the opportunity to quote on your next new ship. We have an enviable record for building the very finest vessels at substantially lower prices than those quoted by other shipyards.

China Shipbuilding offers the most efficient shipbuilding facilities incorporating the very latest techniques, developments, machinery and equipment...two complete yards...integrated complexes...more than thirty years experience...carefully planned from conception to completion for the fastest and most cost-efficient operation available anywhere.

There are over 8,000 highly skilled and experienced employees, including the very best and most experienced technical and design staff, at your disposal at China Shipbuilding. We will welcome the opportunity to be of service at any time.

- **LARGEST SHIPBUILDING AND REPAIR FACILITY IN THE FAR EAST.**
- **4 DRYDOCKS AND 1 SLIPWAY—TOTAL CAPACITY 1.32 MILLION TONS.**
- **OVER 300 SETS OF CRANES—CAPACITIES RANGING FROM 3 TONS TO 350 TONS.**
- **ONE OF THE WORLD'S LARGEST HULL CONSTRUCTION SHOPS—2,460 FT. LONG, 690 FT. WIDE, 1,130,000 SQ. FT.**
- **8,000 EXPERIENCED EMPLOYEES, INCLUDING A COMPLETE TECHNICAL AND DESIGN STAFF.**
- **NEW BUILDING, REPAIR AND CONVERSION—ANY SIZE OF VARIOUS VESSELS UP TO ONE MILLION DWT.**

Write for full color brochures describing complete facilities and services available.

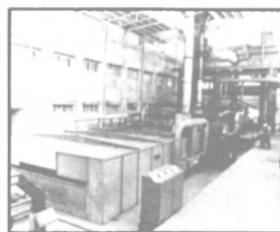
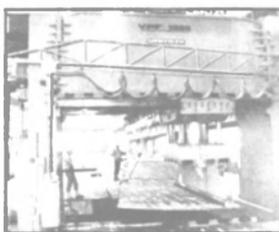
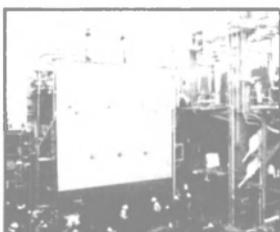


CSBC

CHINA SHIPBUILDING CORP.

6th Floor, Tai Tze Building, 20, Pa Teh Road, 3rd Section,
Taipei (105), Taiwan, Republic of China,
Tel: (02) 771-0181 (6 lines) • (02) 752-8122 (8 lines)
Telex: 11705 Taipei • Cable: CSHIPCO, TAIPEI

U.S.A. REPRESENTATIVE—Allegro Transportation & Supply Corp.
1 Penn Plaza (Room 1606) New York, N.Y. 10119
Tel. (212) 868-3188 • Telex: 425375/WU 12-7867



DIGIPILOT®

FULLY AUTOMATIC RADAR PLOTTING AID



More than 325 DIGIPILOTS are at sea totalling over 1500 ship years of experience.

Merchant Officers have sailed with more DIGIPILOTS than any other ARPA!

Today's DIGIPILOT incorporates over ten years of evolutionary development and continuous improvement derived from extensive use at sea. Nothing has been spared to make the best ARPA available in today's market.

Unique DIGIPILOT features:

- OPERATES WITH ANY MANUFACTURER'S MARINE RADAR - eliminates the cost of replacing radars.
- FULLY AUTOMATIC 'HANDS OFF' TARGET ACQUISITION - eliminates operational limitations of fixed and variable Guard Rings.
- TRACKS AND DISPLAYS UP TO 60 TARGETS SIMULTANEOUSLY - Target capacity depends on model selected.
- SYSTEM CAN BE USED IN CONFINED WATERS - target acquisition, tracking, and plotting accuracy not affected by "number of echoes on the same bearing."
- BRIGHT TWO-COLOR PPI DISPLAY - eliminates confusion between radar echoes and vectors.
- PROVIDES A BACK UP RADAR DISPLAY - increases radar availability and operational safety.
- SIMPLE TO OPERATE - dedicated radar type controls greatly reduce operator training requirements.
- COMPUTER CONTROLLED CLUTTER REJECTION - for target tracking at close range.
- SUPERIOR NOISE REJECTION - three pulse correlated quantized video.
- COMPLETELY TIME VARIABLE TRUE AND RELATIVE VECTORS - allow easy determination of points of possible collision.
- CONTINUOUS DIGITAL TARGET DATA READOUT - no interruptions due to own ship or target maneuvers.
- STATIC AND DYNAMIC TRIAL MANEUVER CAPABILITY - including own ship's maneuvering characteristics.
- AUTO-POSITIONING NAVIGATION MARK - continuously indicates own ship in relation to a "marked" geographic position for man overboard and set and drift determination when piloting.
- 'BUILT-IN' TRAINING DISPLAY - for easy on-board operator training.
- OPTIONAL NAV-LINES FOR ANTISTRANDING - simple, operator controlled, pre-planned parallel index navigation lines.
- 2 YEAR GUARANTEE - covers all parts for two years, labor for one year.
- EXPANDS TO A FUEL SAVING INTEGRATED BRIDGE SYSTEM - with the addition of DIGIPILOT fully adaptive autopilot and DIGINAV fully automatic navigation system.

Should the Shipowner Buy Anything Less?

iotron

SYSTEMS DESIGNED FOR SAILORS

IOTRON CORPORATION, 5 Alfred Circle, Bedford, Mass., 01730 USA Telephone (617) 275-0340 Cable: Iotron Boston Telex: 92-3426

Write 388 on Reader Service Card

Best Boat in the fleet

We asked Hugh Steger, Senior Vice President-Operations, M/G Transport, about his company's experience with the M/V Hugh B. Steger:



"It has done an excellent job for us in our coal tow operation. Captain Supple is very pleased. He said it's 'the smoothest boat he ever handled'. Why don't you talk to him?"



M/V Hugh B. Steger

We did, and Captain Harold Supple told us:



"For handling and maneuverability, the Steger is a good shover and a good handler, with great visibility, too. We have a fleet of 12 owned and chartered towboats to push our 245 barges. I never drove one of these Hydrodynes before and I believe this is the best boat we have in the fleet. Our Chief Engineer says it's the best built boat he ever saw. M/G is really pleased with it, and I am too."

When you need a new towboat, talk to a Hydrodyne owner first. Then talk to St. Louis Ship, the only yard that builds them. Call (314) 638-4000.



ST. LOUIS SHIP

DIVISION OF POTT INDUSTRIES INC.
611 EAST MARCEAU STREET, ST. LOUIS, MO. 63111

New York, Chicago, Kansas City, New Orleans, Memphis, Minneapolis, Houston, and Mobile.

Write 319 on Reader Service Card