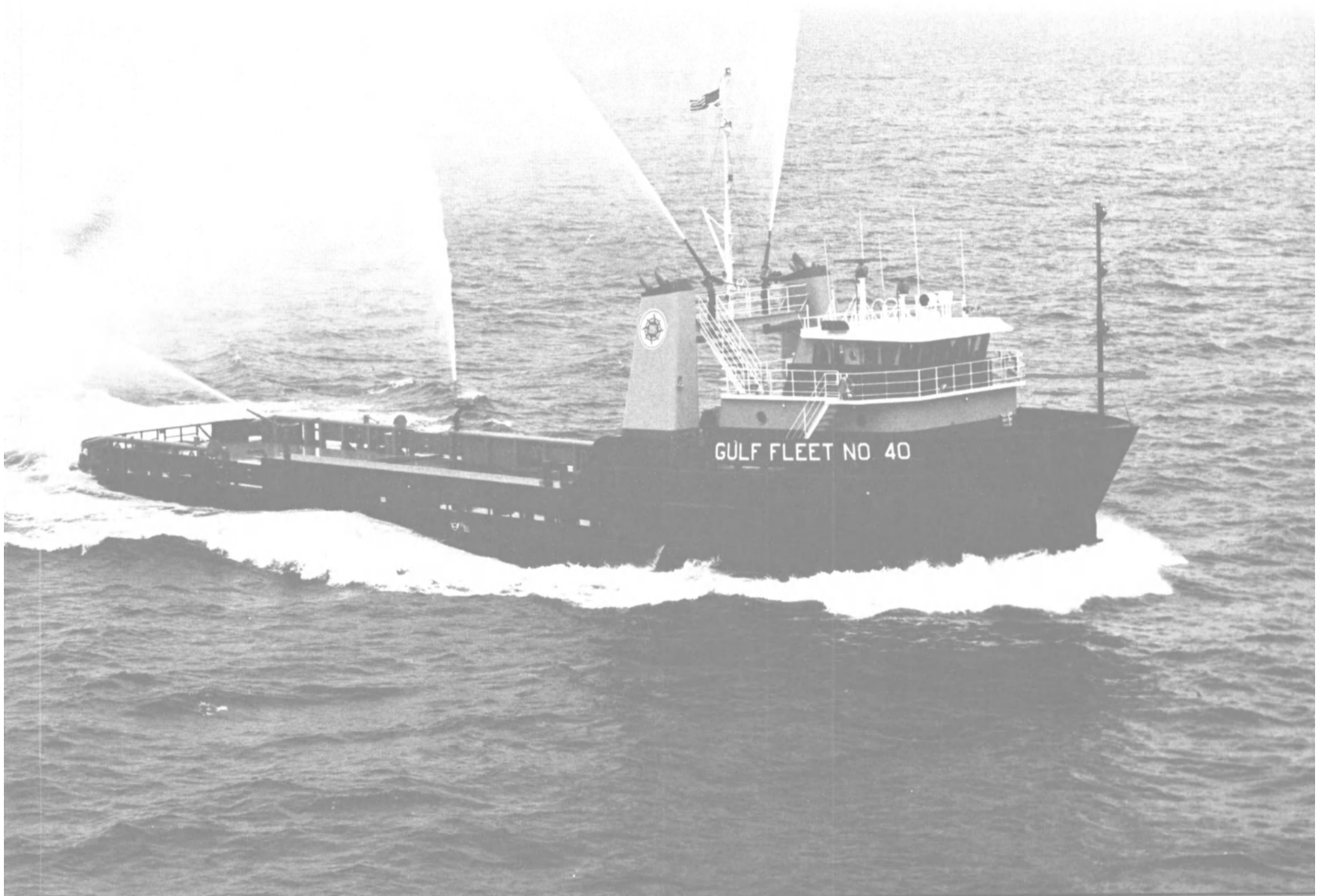


# MARITIME REPORTER AND ENGINEERING NEWS



Gulf Fleet No. 40

**Gulf Fleet Marine Adds  
100th Vessel To Fleet**

(SEE PAGE 10)

**JULY 15, 1980**

# If you need COW\* don't take any bull!

\*CRUDE OIL WASHING and Inert Gas Systems require owner's consideration due to the proposal of the recent IMCO Conference on Maritime Safety & Prevention of Pollution. Whether for retrofit or new building, complete systems experience should be considered.

## **GUNCLEAN**<sup>®</sup> CRUDE OIL WASHING

is economical and efficient

GUNCLEAN has been used for Crude Oil Washing since 1967 and these days all GUNCLEAN models, old as well as new, are used for all current Crude Oil Washing techniques. Considerable savings are realized due to increased cargo outturn. It reduces corrosion since sea water need not be introduced in 2/3rd of the tanks between dry docking. Pollution is reduced by minimizing the amount of oil-contaminated water that must be disposed of.

## **HOWDEN INERT GAS SYSTEMS**

for safety and protection

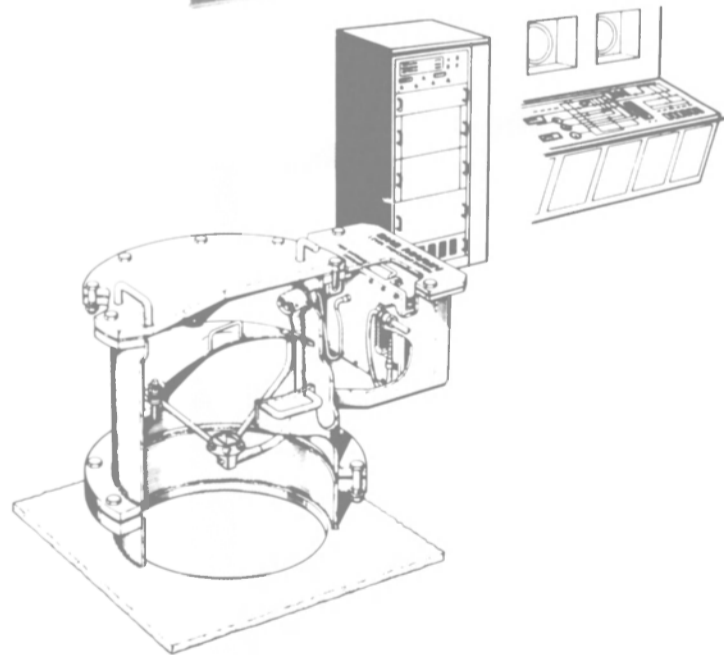
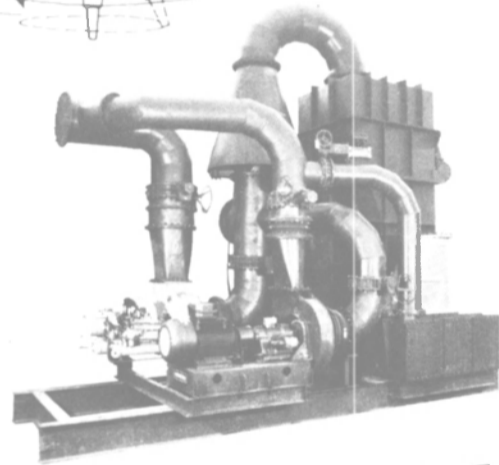
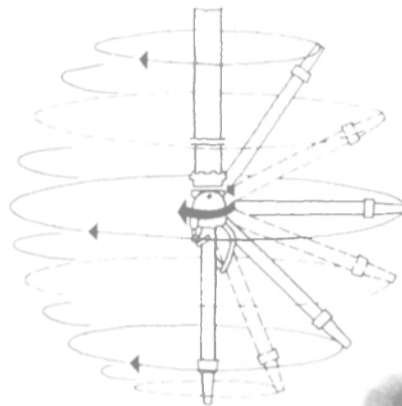
Since 1962, over 300 Howden Systems have been installed. COW requires IGS to protect your crew, ship and cargo. Howden's experience is available to assume total responsibility for complete installation which includes teams of survey engineers, necessary drawings, regulatory body approval, materials, final start-up, crew instruction and worldwide service by SALWICO, U.S.A., Howden Engineering U.K. and Gadelius, Japan.

## **Saab SUM-21**

for measuring ullage of cargoes  
aboard ships

SAAB SUM-21 provides dependable, accurate ullage measurements during COW. There are no moving parts and no equipment in the tank to damage. A transmitter in the tank top sends a radar beam to the surface of the tank contents. The reflected signal is converted by a receiver and relayed for processing in a central unit. Alarm levels can be preset over the entire tank range. It is intrinsically safe and accurate—for crude oil, liquid hydrocarbons or water.

Salwico Oil Pollution Monitors and Salwico Gas Sampling Systems are also available to meet the needs of a total system. For experience, safety, savings and utmost efficiency, consult SALWICO.



**SALWICO, INC.**

77 RIVER STREET • HOBOKEN, NEW JERSEY 07030 • U.S.A.  
Phone 201/420-0040 • Telex 12 403

# McAllister Feeder Service on the East Coast, is available weekly.

It's dependable and can save you a considerable amount of money.



Call this number direct to the booking agent:  
(212) 425-3540-41 or 269-3200

McAllister Feeder Barge Division  
McAllister Lighterage Line, Inc.  
17 Battery Place, New York, N.Y. 10004

**McAllister** 

**IF YOU  
ARE DEALING  
IN SHIPPING  
WE ARE A PART  
OF YOUR  
BUSINESS.**



**CANTIERI  
NAVALI  
RIUNITI**

**FINCANTIERI GROUP**

**SHIPBUILDING  
SHIPCONVERSION  
SHIPREPAIRS**

- **HEAD OFFICE:**  
GENOA (Italy) via Cipro 11  
Tel. 010/59951 □ Tlx. 270168
- **SHIPREPAIRING YARDS:**  
Genoa □ Tlx. 270645  
Palermo □ Tlx. 910041/720674
- **MGN** □ Tlx. 270370
- **SHIPBUILDING YARDS:**  
Ancona □ Riva Trigoso □ Palermo

**Main Agents:**

LONDON : Compass Shipping & Trading Co - Tx 884108 COMPAS G  
USA : Overseas Shipping Inc - Tx 423975 MOWS M  
NORWAY : Ebbe C. Astrup A S - Tx 11612 EBAS N  
GREECE : P. Wigham Richardson (Hellas) Co - Tx 212332 PWR G  
GERMANY: H. Glahr & Co - Tx 245537 GLCO D

**\$15-Million Contract  
Awarded Gibbs & Cox By  
Sea Systems Command**

Gibbs and Cox, Incorporated, New York, N.Y., is being awarded a \$14,988,175 negotiated cost-plus-fixed-fee contract for technical and engineering services for design maintenance in support of the Guided Missile Frigate (FFG-7) Class construction program. The Naval Sea Systems Command is the contracting activity. (N00024-80-C-2206)

**H.D. Hart Named To  
Marketing Position  
At Foss Alaska Line**

H.D. (Bud) Hart has been appointed manager, market development for Foss Alaska Line, a division of Dillingham Maritime. The announcement was made by T.V. Van Dawark, vice president and general manager of FAL.

Mr. Hart brings to FAL 13 years of varied experience in the transportation and motor carrier service industry. He will be based at the Seattle headquarters for FAL and be responsible for developing information on new FAL market opportunities and analyzing the feasibility of service expansion projects.

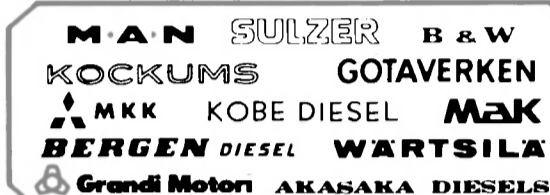
**Norwegian Firm To Build  
Offshore Platform For  
Mobil Oil Canada**

Norwegian Contractors, one of the two companies in Norway that build oil platforms for offshore use, has entered into a cooperation agreement with Canadian Lundrigans Ltd. of Newfoundland, and Dillingham Corp. of Canada, to engineer and construct an offshore platform for Mobil Oil Canada, in the Hibernia Field off Newfoundland. Norwegian Contractors will assist with the design as well as the construction, for a remuneration of approximately 20 percent of the building contract, in addition to receiving license fees. The amount of the contract has not been released.

For further information, contact **Fredrik Sundbye**. The Export Council of Norway, 800 Third Avenue, New York, N.Y. 10022.

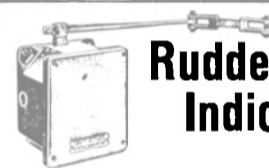


**GOLTENS**  
DIESEL ENGINE REPAIR & PARTS  
GET YOU GOING  
AND KEEP YOU GOING



**GOLTEN MARINE CO., INC.**

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



**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

**MARITIME  
REPORTER  
AND  
ENGINEERING NEWS**

(USPS 016-750)

No. 14

Volume 42

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

**(212) 689-3266**

**ESTABLISHED 1939**

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

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

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

Member

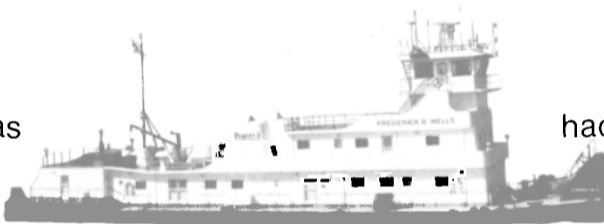


**Business Publications  
Audit of Circulation, Inc.**

# “Definitely the Best”



“When the decision was made to order four new towboats built to Peavey’s requirements, we wanted the best. I’ve been personally acquainted with St. Louis Ship for 25 years, but we visited other yards too. It was a big decision to make, so we took a look at everything available. St. Louis Ship was selected due to the overall quality and performance of their Hydrodyne Hull. As far as I’m concerned, they’re *definitely the best* on the river.” That’s what Floyd Goodman, Peavey’s Director of Towboat Operations told us,



when we asked why they had specified St. Louis Ship.

The four 3800 HP Hydrodyne towboats are exact duplicates, measuring 140'x 38' x 10.5'. They were christened the M/V Frederick B. Wells, M/V Frank T. Heffelfinger, M/V Mary H. Morrison and M/V Frank H. Peavey.

They are used to push Peavey’s fleet of over 200 covered hopper grain barges. St. Louis Ship would like to put its experience to work for you too. If you need a towboat, or if you are interested in knowing more about our Hydrodyne Hull design (built only by St. Louis Ship), call us at (314) 638-4000.



**ST. LOUIS SHIP**

611 EAST MARCEAU STREET, ST. LOUIS, MO 63111  
(314) 638-4000/TELEX 44-7224/ST L SHIP ST L

Division of Pott Industries, Inc. — An HNG Company

# CHARGE AIR COOLERS?

Yes Sir!

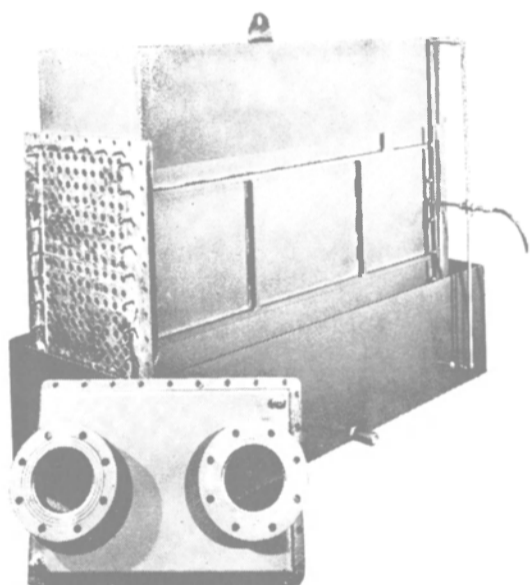
We produce, clean and repair

## ANY TYPE & SIZE SCAVENGING AIR COOLER

(with or without our own design

"COOLMAR" INTERNAL CHEMICAL SPRAY CLEANING SYSTEM)

for any type and size MARINE MAIN OR AUXILIARY DIESEL ENGINE



- ★ Any Class certificate supplied
- ★ Improved design
- ★ Excellent workmanship and material selection
- ★ We can show repeat orders from leading shipowners
- ★ We change aircoolers with own staff on your ships all over the world
- ★ Also for emergency orders

"COOLMAR" CHARGE AIR COOLER FOR B & W DE 984 VT2BF 180 Main engine  
(in self-cleaning position)

HOLLAND

# Coolmar

COOLMAR HEATEXCHANGERS B.V.

ROTTERDAM - Waalhaven Z.Z. 52

SCAVENGING AIR COOLERS, LUB-OIL COOLERS, FRESH WATER COOLERS, CONDENSORS, WATER HEATERS, TUBE BUNDLES

**COOLMAR HEATEXCHANGERS B.V.**

P.O. Box 54156 3008 JD Rotterdam

Telephone: Rotterdam (10) 290887; 297266

Telex: 28 4 28 (Beker NL) The Netherlands

**Agents for the U.S.A.: Piston Products Inc.**

P.O. Box 1079, 1140 Bloomfield Avenue

West Caldwell - New Jersey 07006

Telephone: N.J. (201) 575-0880, N.Y. (212) 269-0985

Telex: 13-8013

## P.D. Provost Appointed West Coast Manager For ITT Decca Marine

Peter D. Provost has been named as the new area manager for ITT Decca Marine, Inc., on the West Coast. He will be responsible for directing sales activities and providing technical and sales support for IDM's dealers and customers in California and Hawaii.



Peter D. Provost

Prior to joining ITT Decca, Mr. Provost was general manager of Bartell Marine Electronics. He has over 18 years' experience in the marine electronics field. His base of operations will be 1998 Flamingo Drive, Costa Mesa, Calif. 92626; (714) 546-0390.

## Windelev Will Head Newly Incorporated B&W Diesel, Inc.

Recently incorporated in the State of New York, B&W Diesel, Inc. will carry out all of the diesel-related activities formerly conducted by Burmeister & Wain American Corporation, including the promotion and sale of diesel engines of the B&W design, as well as after-sales service under the name of B&W Marine Service.



Claus Windelev

The president of B&W Diesel, Inc., an affiliate of the Danish company B&W Diesel A/S, is Claus Windelev who formerly, as vice president of Burmeister & Wain American Corporation, was responsible for that company's diesel business.

B&W Diesel, Inc. will remain in the offices of Burmeister & Wain American Corporation at One State Street Plaza, New York City, until later this year when its new office at 50 Broadway is completed.

## Hitachi Receives First U.S. Order For Two Jackup Drilling Rigs

Hitachi Zosen recently received an order from Offshore Investments Limited, a subsidiary of Hunt International Resources Corporation of Dallas, Texas, to sup-

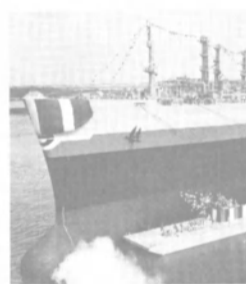
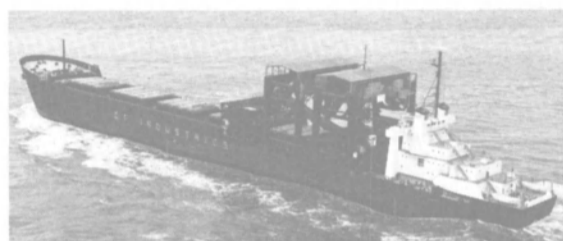
ply two jackup offshore type oil drilling rigs.

After delivery, the rigs will be operated by Penrod Drilling Company, also of Dallas, a member of the Hunt Group and one of the world's leading oil drilling companies.

The rigs will be constructed to ABS class in conformity with the USCG (United States Coast

Guard) regulations. Also, Hitachi Zosen's own standard specifications will be adopted in the construction of the rigs. Construction of both rigs will be completed at the Osaka Works (Sakai) of Hitachi Zosen in August and November of 1981.

Hitachi Zosen has received orders for 12 rigs since 1974. Seven units have already been delivered.



# Avondale... 40 years of diversified shipbuilding and offshore construction

## Proven Performance

Since 1938, Avondale has constructed over 2,300 vessels. In the period from 1967 to 1977 alone, 95 major ships were delivered. And in 1978, the Avondale Offshore Division has built 33 offshore drilling rigs, 20 jackets and 19 decks.

## Diverse Interests

Avondale never limits its interest in ship construction by type, size or quantity. Our design capability has been developed as a service to the industry for the development of new ship designs, and to review existing designs for possible improvements. We can meet all of your requirements. Similar diversification has been developed for the offshore industry.

## Unique Capabilities

Avondale's facilities are among the most modern in the United States. We are extremely proud of the fact that many unique construction techniques have been developed in response to challenges from the industry for certain types of vessels and rigs. But . . . the real reason for Avondale's capabilities is its people and their dedication to being the nation's best shipbuilders.

Let us respond to your next inquiry.



## Avondale Shipyards, Inc.

A Subsidiary of Ogden Corporation  
Post Office Box 50280 • New Orleans, Louisiana 70150  
(504) 436-2121

Top to bottom:  
INTEGRATED TUG/BARGE - We welcome the opportunity to bid on special projects.  
OIL TANKERS - Most recently to carry pipeline oil from Alaskan ports.  
PLATFORMS - Avondale has capabilities in all offshore services.  
LASH SHIPS - Avondale pioneered containerized vessels for dry cargo.  
BARGES - Avondale is a master barge builder, to your requirements.  
DRILLING RIGS - Avondale capabilities are varied from large to small.  
LNG/LPG SHIPS - Immense vessels to serve inter-continental trade routes.  
CONVERSIONS - Our massive drydock enables us to add new midbodies.  
WORKBOATS - Now on order, the workboats of the future.

## Mangone Delivers Advanced Offshore Research Vessel

Mangone Shipbuilding Company recently delivered the Western Narrows, an ultramodern, geophysical research and survey vessel with SCR (silicon-controlled rectifier) diesel-electric propul-

sion, to Western Geophysical Company of Houston. Mangone, a subsidiary of Stewart & Stevenson Services, Inc., delivered a sister ship to the same owner last fall.

These two vessels are the newest additions to the Western Geophysical fleet of some 30 ships doing offshore research around

the world, according to Mangone vice president and general manager Don Godeau.

The Western Narrows is 185 feet long with a beam of 38 feet, depth of 16 feet, and draft of 13 feet 8 inches (55.5 by 11.4 by 4.8 by 4.1 meters). Range is approximately 13,800 miles, working ca-

capacity 52 days, and cruising speed about 11 knots. Accommodations for 40 crew and geophysical personnel are fully air-conditioned.

The SRC diesel-electric propulsion system is said to give the ship greatly improved fuel economy and precision control. Two 16V 149T1 Detroit Diesel Allison engines each drive 1,100-kw Kato ac generators that supply power through the SRC equipment to two Westinghouse 1,000-hp dc motors, with a Cotta marine gear on each shaft. SRC system controls by International Switchboard Company are in the pilot-house and engine room.

The Western Narrows also has a 250-kw auxiliary generator powered by a 12V71 Detroit Diesel engine, and a 150-kw unit powered by a Detroit Diesel 8V71 engine. The ship has a 48-inch Murray & Tregurtha Harbor Master BT-375 bow thruster driven by a Westinghouse 1,000-hp dc motor.

Electronic equipment includes Decca autopilot, Sperry gyrocompass, Raytheon DE-731 recording Fathometer, two Decca 65121 radars, intercom system, and VHF and SSB radios. She also has azimuth stabilizers and a Comsat General 3941 satellite communications system with telephone and telex.

Also aboard the Western Narrows is a FLUME stabilization system, halon firefighting system, Pitman #757 five-ton crane, welding machine, and a motor-generator set for power to the geophysical equipment.

The vessel is classed by the American Bureau of Shipping and certificated by the U.S. Coast Guard.

**A 10,000-psi jet of water promises to revolutionize routine on-board maintenance... especially rust and scale removal of surfaces to be painted.**

Butterworth Systems now offers a modern alternative to the age-old chipping hammer. It's their MARINE LIQUA-BLASTER.



Diesel powered pump of a MARINE LIQUA-BLASTER onboard a vessel.

ultra-high pressure water-blasting equipment.

Especially developed for shipboard use at sea, the MARINE LIQUA-BLASTER unit uses a diesel or electric powered pump to generate a 10,000-psi jet of water that is directed by a fail-safe, hand-held gun at the surface being descaled.

### "White-metal" cleaning.

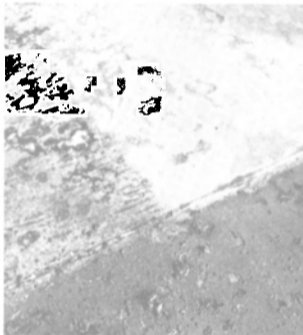
On a badly rusted surface, "water only" blasting removes scale and debris, leaving a surface that is acceptable for standard maintenance painting. If a moderate amount of sand is automatically added to the water jet, a surface can be "white-metal" cleaned more effectively and more efficiently than it would be with dry-sand blasting in a shipyard. With the MARINE LIQUA-BLASTER unit, a rust inhibitor can be added to protect the "white-metal" surface against oxidation before painting.

# Introducing the Butterworth Systems MARINE LIQUA-BLASTER® SHIP MAINTENANCE SYSTEM.



poop deck. The job was done as routine maintenance with interruptions for bad weather and all-hands tasks. In a little over two weeks the poop deck was "white-metal" cleaned and freshly painted.

Doing the same job in a shipyard would have cost \$13,750 at \$25 per square meter not including the incremental lay up time to accomplish this task.



Heavily rusted deck (below), after water blasting (left), and "white-metal clean after water-sand blasting (right)."

### Get all the facts.

For full details and a copy of an eight-page report, "Shipboard Cleaning and Descaling with Ultra-high Pressure Water Blasting", write or call today.



## Butterworth Systems

**BUTTERWORTH SYSTEMS INC.**  
224 Park Avenue, Box 352,  
Florham Park, N.J. 07932 USA  
Telephone: (201) 765-1549  
Telex: 136434

**BUTTERWORTH SYSTEMS (UK) LTD.**  
445 Brighton Rd., So. Croydon,  
Surrey CR2 6EU, England  
Telephone: (01) 668-6211  
Telex: 946524

**PARTEK CORPORATION OF HOUSTON**  
3721 Lapas Drive  
Houston, Texas 77023 USA  
Telephone: (713) 644-3636  
Telex: 762199

### Better than dry-sand blasting.

Because of the high velocity of the water sand jet, the sand impacts a rusted surface with a much greater force than with regular dry-sand blasting. The end result is faster cleaning using less sand. Respirators are not required since no dust is generated. Clean-up is also easier.

### Other shipboard cleaning.

In addition to descaling rusted surfaces, a MARINE LIQUA-BLASTER unit can be used for a number of

other on-board cleaning jobs. These include cleaning condenser and boiler tubes, oil spray from machinery, galley grease filters, clogged ports, and the like. For these jobs, as well as rusted surfaces, a variety of guns, lances, round and fan jet nozzles are available.

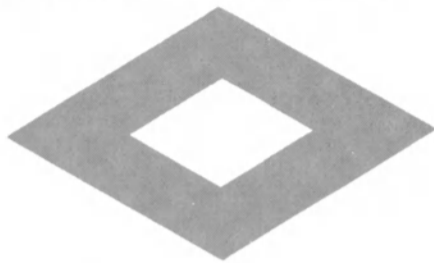
### Proven on-board use.

The experience on a 69,742-DWT tanker, is typical of other vessels that have used MARINE LIQUA-BLASTER equipment. Here, it was first used to clean a badly rusted 550-square-meter



# THERE IS A DIFFERENCE IN TUGBOAT COMPANIES.

- ◇ The largest and most powerful fleet of tugs.
- ◇ Twelve new tugs in twelve years.
- ◇ More tugs in planning.
- ◇ Skilled Personnel.



## Curtis Bay Towing Company

Over 68 years

Philadelphia • Baltimore • Hampton Roads  
Phone: (301) 685-8700

- ◇ Eight twin-screw tugs of more than 3000 hp.
- ◇ 3 port communications.
- ◇ 24 hours a day operation.
- ◇ Experienced, dedicated shoreside staff.



Docking the 76,361 gross tonnage M.S. YEMANJA on her maiden voyage to Baltimore.

# ON THE COVER

## Fireboat Gulf Fleet No. 40— 100th Vessel Joins A Growing Fleet

Gulf Fleet Marine Corporation demonstrated its powerful new fireboat recently at the Poydras Street wharf in New Orleans. Named Gulf Fleet No. 40, the new boat is the 100th vessel to join Gulf Fleet Marine's growing fleet of tugs, towing/supply vessels, crew and utility boats, and offshore deck barges.

Built in Houma, La., by Quality Shipyards, Inc., a Gulf Fleet company, the new boat was designed

from the keel up as a fireboat and towing/supply vessel for service with the offshore petroleum industry. She is classed by the American Bureau of Shipping A-1 (AMS) All Oceans, Towing.

Carrying a crew of seven, the boat is 185 feet long with a beam of 40 feet and depth of 14 feet. Clear deck space is 105 feet by 32 feet, and maximum deck cargo is about 550 tons. The two main engines are General Motors EMD



Gulf Fleet 40's four fire monitors can throw a total of 10,000 gpm of sea water for a distance of 400 feet. Two Warren pumps driven by Detroit Diesel engines provide power for the fire-fighting system, which meets Det norske Veritas rules.

units that develop a total of 3,900 bhp. They drive twin Avondale propellers through Reintjes reduction gears to provide a speed of 13 knots.

Navigation and communications equipment includes two Decca radar units, Sperry autopilot and gyrocompass, Micrologic Loran C, two Drake VHF-FM radios, Motorola Triton SSB radio, and Raytheon Fathometer.

Gulf Fleet No. 40 incorporates a special fire-fighting system developed by Gulf Fleet, which meets the requirements of Det norske Veritas for height and distance or water stream throw. The system is capable of projecting 10,000 gallons of water per minute 400 feet through four 6-inch nozzles. Power for the system is provided by two 5,000-gpm, horizontal split case Warren pumps driven by Detroit Diesel engines. The system also includes 8,600 gallons of fire

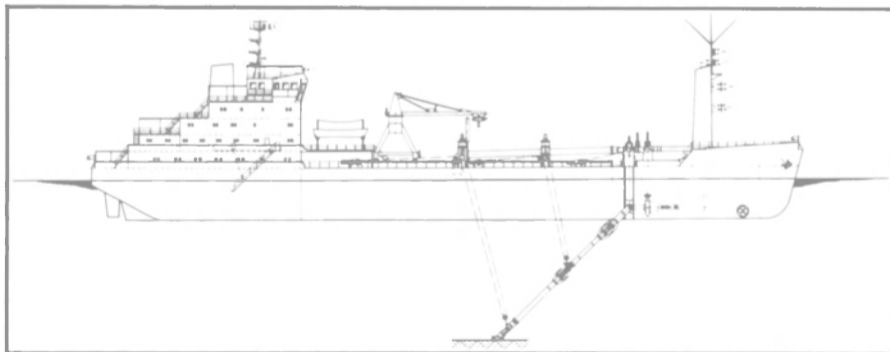
foam liquid storage, and a 2,000-gallon oil dispersment system.

At the introduction ceremonies, Gulf Fleet Marine president **Dick Currence** said that the new boat represents a dual achievement for the company. "First, it marks the 100th vessel to join our fleet. That's a significant goal towards which we've been building for many years. Second, the technology we have built into this fireboat represents a breakthrough in the design of offshore fire-fighting and service equipment. It's one of the most powerful boats of its type available anywhere in the world today, and we're proud to add it to our fleet."

The Gulf Fleet No. 40, a U.S.-flag vessel, will be owned and operated by Gulf Fleet Marine, and will be chartered ultimately to Gulf of Suez Petroleum Company, a joint venture of Egyptian General Petroleum Company and Amoco (Standard Oil of Indiana).

### GULF FLEET NO. 40

Main engines (2), GM Electro-Motive Division, Model 16-645-E2.	Anchor windlass, HBL Industries ADW-1.25E-3.
Reduction gears, Reintjes WGV-401.	Anchors (2), Danforth.
Generators (2), Delco E7345M1 (Detroit Diesel 8V-71 engines).	Towing winch, Smatco 66 DAW 200 (Detroit Diesel 8V-71 engine).
Switchboard, Continental.	Stern roller, Smatco 16580.
Steering system, S.S.I.	Fire pumps (2), Warren Pump (Detroit Diesel 16V-92 NA engines).
Engine controls, WABCO HD-2F4.	Deck tugger, Smatco HT-15-10.
F-O transfer pump, Gorman-Rupp.	Propellers (2) Avondale.
Drill water transfer pump, Gorman-Rupp.	Engine alarm panel, Engine Monitor.
Liquid mud pumps (2), T.R.W. Mission (Detroit Diesel 4-71 engines).	VHF radios (2), Drake MRT-55.
Bulk mud compressor, Quincy 75WS.	SSB radio, Motorola D80SCA-1820BK.
Sewage treatment plant, St. Louis Ship FAST 13M.	Radars (2) Decca RM914C.
Bow thruster, Murray & Tregurtha BT-340 (Detroit Diesel 8V-71 engine).	Loran C, Micrologic MC-220.
	Fathometer, Raytheon F720D.
	Gyrocompass, Sperry SR-130.



Outboard profile of 4,000-cubic-meter suction dredge that Orenstein & Koppel will build for Indonesian Government.

## O&K Will Build Hopper Dredge For Indonesia

O&K Orenstein & Koppel Aktiengesellschaft of Lubeck, West Germany, has received an order for the construction of a hopper suction dredge with a hopper capacity of 4,000 cubic meters. The order was placed by the Ministry of Transport, Communications, and Tourism, Directorate General of Seacommunications, Jakarta, Indonesia.

The dredge will be built under the survey and with the acceptance of Germanischer Lloyd. It will have an overall length of 110 meters, molded beam of 18 meters, and depth of 8 meters (360.9 by 59 by 26.2 feet). Full-load draft will be about 6.25 meters (20.5 feet) and maximum dredging depth will be 20 meters (65.6 feet). Total installed power will

be 5,635 kw, and open-water speed a maximum of 12 knots.

Dredge pump operation and main propulsion will be by direct-drive diesels. Twin-screw propulsion and an O&K transverse bow thruster will ensure good maneuverability. The dredge pump driving machinery and the main propulsion plant will be separate installations fore and aft, respectively.

The dredging spoil will be taken in by two side suction pipes and distributed in the hopper by means of a loading box. Hydraulically operated slewing pipes will be provided forward, port and starboard, for thin spoil mixtures.

Above the hopper, a traveling gantry slewing crane with a lifting capacity of 8 tons will be installed to handle necessary work on deck and on the dredge pumps.

All dredging gear is controlled centrally from two dredgemaster's stations on the bridge. The new dredge will have air-conditioned quarters for a crew of 56.

## American Bureau Announces Election Of New Managers

Five executives in the maritime industry were newly elected to the Board of Managers of the American Bureau of Shipping (ABS) at the annual meeting held at its headquarters in New York City. Announcement of their elections was made by **William N. Johnston**, ABS chairman of the board and president.

Elected to the board of Managers for the first time were: **William H. Banks**, president, Chevron Shipping Company, San Francisco; **Jerome L. Goldman**, president, Friede & Goldman, Ltd., New Orleans; **Peter G. Goulandris**, director, Capeside Steamship Company, Ltd., London; **George F. Lowman**, chairman and chief executive officer, Farrell Lines, New York; and **Cornelius S. Walsh**, chairman, Waterman Steamship Corporation, New York.

# Keep the boat working

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

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

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

All three engines appeared about equal in appearance, and the port engine was selected for

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

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

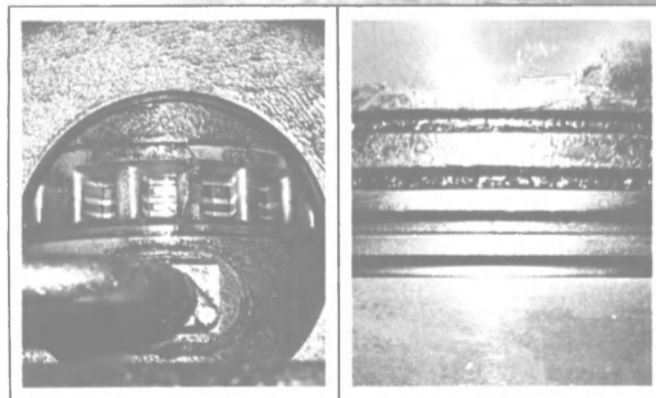
### Shell doubling MVI capacity

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

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

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

Come to  
**Shell for answers**



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

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

**New Primary Battery  
Introduced By SAFT  
—Literature Available**

SAFT Corporation of America, Valdosta, Ga., has announced the availability of a new line of high-capacity primary batteries for the navigational aid and barge lighting markets. According to Edgar Gardner, general manager, this is

the first truly new development introduced to this market in many years.

Mr. Gardner said the new line of batteries uses the carbon-zinc-air principle familiar to the marine lighting industry. SAFT's new line, however, incorporates a non-liquid electrolyte and other advancements that result in an extremely lightweight, compact,

stable energy source without the maintenance requirements and hazards associated with the liquid electrolyte technology.

According to Mr. Gardner, the battery will be manufactured at SAFT's new plant in Valdosta, under the trade name SOLID POWER.

It will be available in 350, 1200, 2400 and 3600 ampere hour capac-

ities with voltages of 1.25, 2.50 and 3.75. It will also be offered in buoy power pack assemblies in 1200, 2400 and 3600 ampere hour ratings at 6 or 12 volts.

For additional information and data sheets on the SOLID POWER line, write Elvin Beck, sales manager, Dept. MR, SAFT Corporation of America, 711-A Industrial Boulevard, Valdosta, Ga. 31601.

**JRC**  
*Japan Radio Co., Ltd.*  
Introduces  
**JUE-15-A**  
MARITIME SATELLITE COMMUNICATIONS TERMINAL

**New Technology**

- Advanced processor controller
- Compact — modular construction

**New Design**

- Simplified operation
- Flexible installation
- Rugged marine design

**New Features**

- Self diagnostics
- Full options
- Full worldwide installation service

**New Price**

- Lower investment through newer technology

Distributed by  
**MARITEL, Inc.**  
139 Old Solomons Island Road  
Annapolis, Maryland 21401  
301-266-5588/261-8888  
London 01-440-2014  
Telex: Western Union 87-760

**Two New Contracts For  
Drill Barge And Jackup  
Won By Promet Private**

Promet Private Limited, Singapore, recently received two new contracts, won in stiff competition with other shipyards. These two new orders will expand the order-book at the Pandan Road yard, which previously consisted of five supply vessels, four jackup-type drilling rigs, and one jackup-type service barge.

The first contract was signed with a French company, Total Indonesia, for construction of a drilling barge to work in Indonesian swamps. This will be the third swamp barge built by Promet this year. Delivery is scheduled for October 1980.

Promet signed the second contract with Sun Contractors Inc. of the United States for delivery of a four-legged, self-propelled jackup service barge. This is the second order from the U.S. company. Promet recently delivered to Sun Contractors a three-legged, self-propelled jackup-type service barge named the Carl Fleming.

The four-legged well service barge will consist of a floating/elevating unit containing the propulsion and jacking gear and other essential equipment. The four tubular legs with feet attached will provide the support foundation while in the operating or jacked-up position. The propulsion units will be four General Motors Detroit Diesel 12V71 engines to position the barge at well platforms and to propel the barge at approximately 10 mph.

The jacking equipment will be of 450 tons per leg jacking capacity and 500 tons per leg holding capacity. The vessel will be capable of operating in water depths of up to 130 feet, with a 30-foot air space between the bottom of the hull and the water surface.

The barge will be designed and built under special survey of the American Bureau of Shipping for Class A-1 Vessel for Coastwise Service and Arabian Gulf Service. Delivery is scheduled for March 1981.



Fred Ramsden, Fred West

## “Our strict inspections mean these barges are ready for immediate loading on delivery”

Making certain the customers get everything they wanted, and that a barge can do everything it was designed to do, requires total knowledge of barges and their construction. HBC Barge Inspectors, Fred Ramsden and Fred West:

“We’ve both worked as welders, fitters and layout men here at HBC Barge. We know from experience what goes into a well-built barge, start to finish. We inspect, start to finish.

“Welding is tested with an Ultrasonic Tester for required penetration and solid integrity. Hydrostatic testing is run on every tank barge. Every seam is soap seal tested.

“Our air test on every barge

is different than most. We test the whole barge, seam by seam, not just by compartments.

“We check on everything the blueprints and specs calls for, and everything that good construction requires, such as: fittings; pumping, piping and power systems; insulations, linings and coatings; and as perfectly straight barge construction as possible.

“The Coast Guard, and the American Bureau of Shipping, also inspects these barges. So do the customers’ inspectors, some of whom say this is some of the finest work they have seen. They

say virtually nothing gets past us.

“We try.”

Get your next barge fleet from a couple of inspectors as tough as any river. 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, contact:

# HBC Barge™

HBC Barge, Inc.

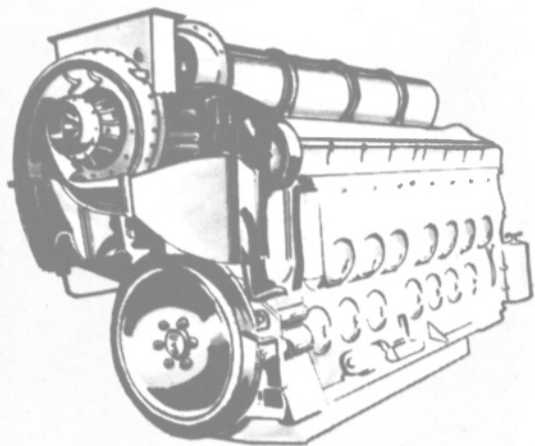
Formerly named Hillman Barge & Construction Company.

Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

# GM experience: We've supplied more medium-speed Diesels to boats on America's waterways than anyone else.

Vessels on America's inland waterways rely on their power plants for two things. Performance. And reliability. And EMD Diesels deliver.



Our engines have supplied over 100 million reliable, medium-speed Diesel horsepower — a world record in our size range. And a lot of that horsepower is at work keeping ships, barges and towboats productive.

But our experience is also based on a lot of other demanding applications. GM Diesels also go into oil rigs, power generation systems, standby power units and off-highway trucks. And we supply locomotives to railroads around the world.

A big reason why so many ship builders rely on EMD Diesels is our experience in designing easily maintainable engines. Unique design features cut maintenance time. Like the PowerPak, a complete cylinder assembly which lets you cut routine cylinder overhaul maintenance time in half.

Contact your EMD representative before you order your next

marine power plant. And let him explain how EMD experience can help you keep productive.



Or write Marine Sales, Electro-Motive Division of General Motors, La Grange, Illinois 60525. Telex: 270041, Cable: ELMODIV.

## ELECTRO-MOTIVE



Division of General Motors Corporation



**W.L. Rose Jr. Named President Of Williams-McWilliams**

William L. Rose Jr. has been named president of Williams-McWilliams Co., Inc., a New Orleans-based dredging and marine construction firm.



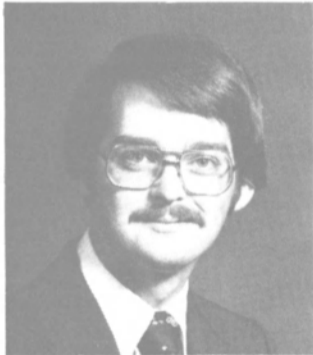
William L. Rose Jr.

Mr. Rose has served as Williams-McWilliams's executive vice president and general manager for the past year. He joined the company in 1966, became manager of offshore construction operations in 1967, and was named vice president-construction in 1969. Mr. Rose holds a B.S. degree in civil engineering from Louisiana State University, and served as a construction engineer in the U.S. Air Force.

Williams-McWilliams Co., Inc., a subsidiary of Houston-based Zapata Corporation, has dredging and marine construction operations involving 10 dredges and two New Orleans-area fabrication yards. The latter facilities are used for equipment repair and steel fabrication to support its inland and offshore construction projects.

**Alan McCommon Promoted To Marketing Assistant At Hudson Shipbuilders**

Wendle Huddleston, president of Hudson Shipbuilders, Inc., Pascagoula, Miss., recently announced a change in the company's management personnel.



Alan McCommon

Alan McCommon has been promoted to assistant for marketing. He will be responsible for sales, marketing, advertising, public relations, and estimating. He joined HUDSHIP as a planner in May 1979, and was promoted to production control manager in September 1979.

Prior to joining HUDSHIP, Mr. McCommon had been associated with Quality Shipbuilders, Inc. of Moss Point, Miss.

**Samson Offers New Shear Pin Shackle—Literature Available**

Increased tanker size, exposed locations, and stronger mooring systems have created a need to protect mooring buoys or other installations from overloading. To meet this need, the Samson Shear Pin Shackle is now available.

Up to the shear load it looks and works like any other shackle, but this shackle will shear at a predictable load. This will protect the entire system including the hawser, which is usually considered the "weak link" in a mooring system.

The design of the Shear Pin Shackle uses specially treated materials and is arranged so that the

load at shear is within a narrow band. For example: a unit rated at 350 tons will not shear below 320 tons, but 90 percent of the units will have sheared at or below 350 tons, and 100 percent by 360 tons.

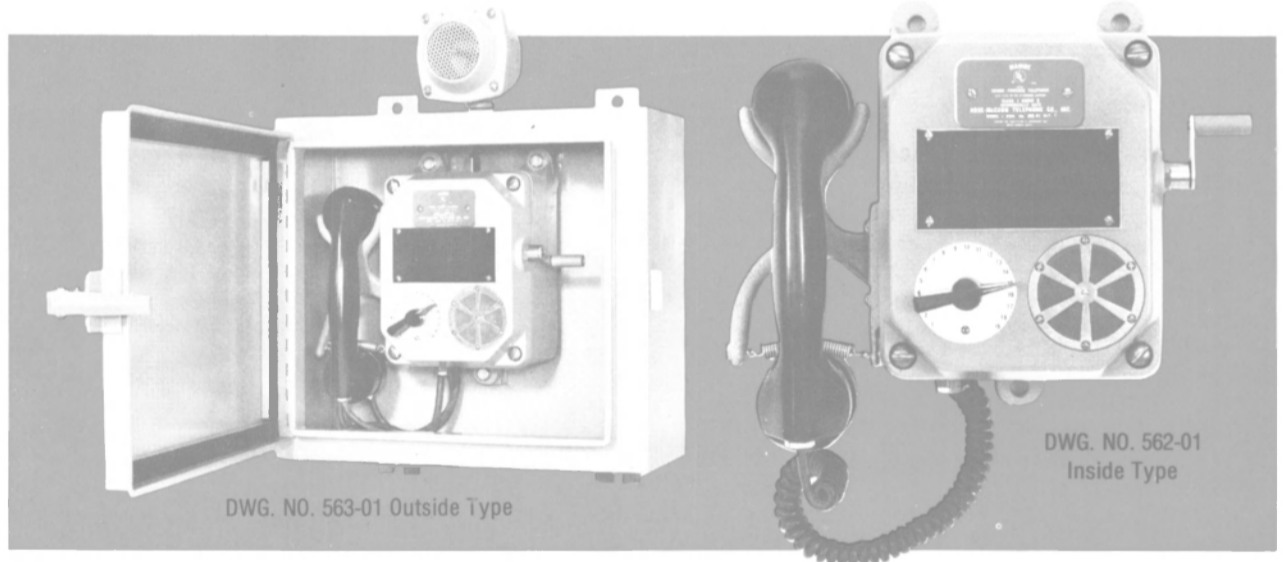
For further information write to Joe Linehan at Samson Ocean Systems, Inc., Dept. MR, 99 High Street, Boston, Mass. 02110.

# Intrinsically Safe Sound Powered Telephones for use in Class I Group D Hazardous Locations

Listed by Underwriters Laboratories, Inc.-

United States Coast Guard Accepted.

Manufactured in accordance with National Electric Code requirements of electrical apparatus to be used in gas or vapor atmospheres in Class 1 Group D hazardous locations.



**Rugged Construction ■ Dependable Service ■ Reliable Quality**  
**■ In service around the world since 1974 ■**

The Hose-McCann Intrinsically Safe Sound Powered Telephones are currently in use aboard Oil Tankers, Gas and Chemical Carriers, Oil Refineries, Chemical Plants, Oil Drilling Platforms and other oil or gas exploration installations requiring intrinsically safe apparatus.

These units are available with 8, 12, or 19 station selector switches, in three (3) basic models, Inside-Bulkhead Mounting, Outside Bulkhead Mounting, and Outside-Pedestal Mounting.

For complete details please call or write:



**HOSE-McCANN TELEPHONE CO., INC.**

9 SMITH STREET ■ ENGLEWOOD ■ NEW JERSEY 07631  
 PHONE 201-567-2030  
 TELEX NO. 642837 ■ CABLE ADDRESS: HOSETELCO EGWD.

# Canada's Arctic Pilot Project

Dawson R. Miller\*

The Canadian Arctic Pilot Project is a combined pipeline/marine transportation system for Arctic natural gas to supply about 7.0 million cubic meters of gas per day to southern consumers. After a three-year development period, we are now very close to initiating the construction of various components within the project.

Generally these are: the gas gathering system at the gas field; a gas pipeline across the Island to Bridport Inlet adjacent to Viscount Melville Sound; the facilities at Bridport Inlet which include the gas liquefaction (or process) barge, the storage barges and the vessel loading equipment; the two ships which will bring the liquid gas from the Arctic to the southern terminal, and the southern regasification facilities.

The gas that will be used is located in the Drake Field discovered by Panarctic on the Sabine Peninsula on Melville Island, which is located in the Parry Islands of the Canadian Arctic archipelago. This gas is excellent gas which requires very little pre-treatment before being pipelined. The methane content is very high—about 98 percent. Initially, eight wells will be drilled to supply the 8 million cubic meters per day required production with additional drilling being continued to maintain the production rate.

After chilled glycol treatment to remove water and to cool the gas to below the freezing point, the gas will be supplied to the cross-island pipeline.

The complete route of this pipeline is in permafrost so Alberta Gas Trunkline (AGT), who are the managers of that component, have chosen to use a buried chilled gas pipeline. The cold gas will not degrade the permafrost and

by burying will be isolated from the 40-cm deep active or growing area. During 1979, AGT conducted tests at Rae Point to identify the proper procedures for back filling the trench to avoid slumping, etc. The overland distance of the pipeline is about 160 kilometers and its diameter about 560 mm. This pipeline initially will not have any active compression since the gas comes from the field at about 8,500 kPa. As the field pressure drops due to depletion, compressions will be added to maintain the throughput.

At Bridport Inlet, the gas will be supplied to the process barge, where heat will be extracted from the gas stream by means of a multi-component refrigerant cycle. The gas will be cooled to about  $-162^{\circ}\text{C}$  at which point it becomes a liquid at atmospheric pressure. This plant will be constructed integral to a barge hull to allow building in an existing shipyard and then towed by way of Baffin Bay and Lancaster Sound to Bridport Inlet. The beam of the barge has been set to allow passage through the Panama Canal.

The output from the liquefaction process, about 12,200 cubic meters of liquid per day will then be transferred to two storage barges for holding until ready for loading onto the ships. These two storage barges will be designed so that they could be built in a Canadian shipyard.

The liquid gas will be loaded onto either of two large icebreaking carriers for transportation to the south. Each ship will be about 375 meters long overall with a beam of 42 meters and a draft of 11 meters in open water and 13 meters in ice. Displacement will be about 140,000 tons. The propulsion system will be ac/ac electric with three 44 MW electric propulsion motors, each driving an 8-meter-diameter fixed-pitch propeller. The number of gas-turbine/electric generators will depend on the final choice of prime mover and its power level. Candidate units include the LM 2500, the RB211

and the FT4, all gas turbines of the aero-derived type. These turbines will be fueled by a portion of the natural gas cargo; by augmenting the natural boil-off for the heavier load conditions. The use of the very clean natural gas is expected to reduce the maintenance costs and times significantly on the gas generator and power turbine over liquid fuel. The other big plus factor is the security of supply of the fuel since our company analysts believe that the availability of liquid fuel cannot be guaranteed in the 1990s and after.

The 140,000 cubic meters of liquid cargo will be carried in five tanks in the vessel. At present the system for cargo containment has not been finalized—either the membrane or spherical tanks will be acceptable. The final choice may well be made based on the licensing arrangements which the shipyard has prepared.

Because of their size and complexity, it is unlikely that the ships will be built in Canada, although two shipyards are working on a method by which they will participate in a joint venture with an offshore yard.

The locality of the southern terminal is not yet fixed. Three sites are presently under consideration—Gros Cacouna, P.Q.; Saint John, N.B., and Strait of Canso, N.S. The final choice of the site will probably be dictated by external factors.

The process of liquefying the gas stream is quite simple in principle. It involves removing enough heat from the incoming stream so that its temperature is reduced to about  $-162^{\circ}\text{C}$ . The process chosen will be that marketed by Technip of France. Most of this heat exchange process takes place inside the cryogenic heat exchanger which will be the largest single item of equipment on the barge. This unit will receive about 7,800,000 cubic meters of gas per day and produce about 12,570 cubic meters of LNG at full design capacity.

Refrigeration for the liquefaction process will be supplied by three Elliot compressors absorbing a total of 61 MW, and being direct driven by a Cooper power turbine driven by a Rolls-Royce RB211 gas generator unit. Inlet air for these power units will be drawn through a marine type air filter and silencing system to remove salt and moisture. In certain conditions this inlet air will require preheating to avoid ice build-up.

Boil-off gas and process flash gas will be recompressed for use as fuel by a 3-MW compressor which may be electric or gas-turbine driven.

Electrical service power will be provided by two gas-turbine-powered generator sets, each at about 10 MW. All these gas-turbine units will be fired on natural gas.

The barge hull itself will be about 132 meters by 32.3 meters by 15.6 meters with a full length "industrial" building type superstructure. The hull will have a complete double skin and will be strengthened to allow for being frozen into an intact ice sheet.

Because the barge will not be drydocked for at least 20 years, some special features will be included in the specification. Some of these features are: access must be allowed to all the inside surfaces of the shell; there will be a high adhesion outside coating system; there will be an impressed current system for corrosion protection; arrangements must be made to allow the maintenance of ship side valves while afloat, and a system of identification marks placed on the outside of the shell plating to allow divers to orient themselves.

The plant to be installed on this barge is very complex and, of course, includes a considerable amount of cryogenic piping and fluid handling equipment. A typical material for this service would be stainless steel, and due to the flammable nature of the fluid, the highest standards of design and assembly procedures must be used

\*Mr. Miller, naval architect for Petro-Canada with particular responsibility for the Arctic Pilot Project, presented the paper condensed here before the recent Canadian Shipbuilding and Ship Repairing Association's Annual Meeting.



throughout the cargo handling system.

The process barge hull will be divided into five separate areas by full and intact fireproof bulkheads. Personnel in transit through these bulkheads will be required to use air locks. Air pressure within each of these five spaces will be controlled by their individual heating and ventilation units so that a pressure gradient always exists from the least hazardous area (highest pressure) to the most hazardous area (least pressure). All spaces will be fitted with detection systems for combustible gases, temperature both hot and cold, and flame. Extinguishing systems will include water sprinkler, dry chemical, Halon, etc.

The major control complex for all the Bridport facilities will be located at one end of the barge. In this space will be controls for the gas production and field processing at Drake Point; the cross-island pipeline; the liquefaction process; the storage process; the interface with the ships for the loading process; and all the communications systems. These systems will be monitored automatically and constantly by a computer-based system. This will reduce the required staff on site to about 40.

To allow the plant to operate continually in a system which sees ship arrivals vary from one every eight days in summer to one every 16 days in winter, a "buffer" or storage capacity of 200,000 cubic meters is required. This will be contained in four tanks mounted in and integral to two barges. Each barge hull will be about 175 meters by 36.5 meters by 23.0 meters. As with the process barge these hulls will be strengthened in way of the ice belt for the voyage north; however, unlike the process barge which will float inside its own lagoon, the storage barges will be grounded on a gravel pad in a dewatered bermed area. This is an advantage in many ways when the range of displacement of each storage barge can range from 17,000 tons (dry) to 60,000 tons (full). The liquid cargo will be stowed in tanks with a membrane containment system. Either the Technigas or Gaz Transport system will be acceptable. For internal inspection and insulation monitoring purposes these storage barges will be double hulled throughout.

The successful docking of the tankers in an environment which grows 2.2 meters of ice each year is obviously of paramount importance. To aid these maneuvers, an ice management system has been designed — this will distribute warm water effluent (at about +10°C) below the ice cover adjacent to the wharf. The heat content of this water, about 100MW, will be obtained from the heat exchangers used in liquefying the gas stream. This heat will inhibit the ice growth to less than one

meter at the end of winter within an area of 100,000 square meters.

This ice management system has been extensively investigated in theory and the design will be finalized in a large scale-model within a cold room. This model will correctly grow ice, distribute warm water below the ice, and maneuver a vessel in and out of

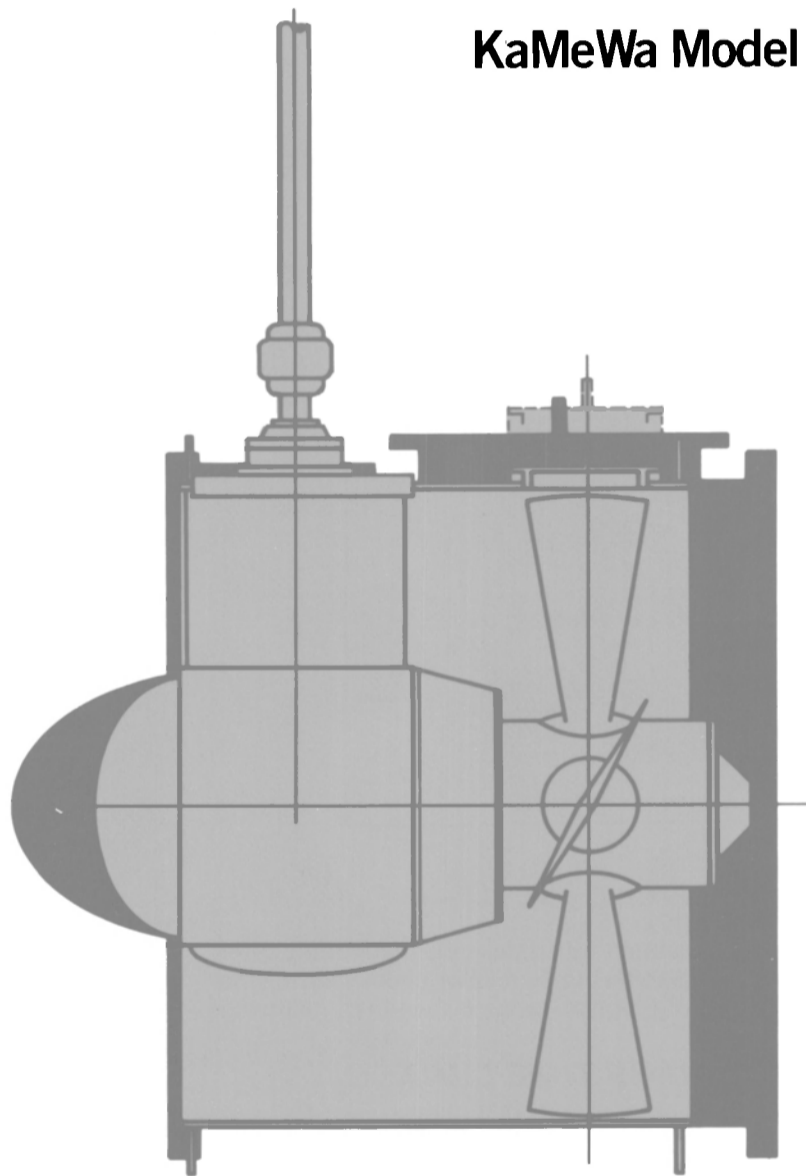
the wharf area. This model will cost about \$300,000 and take about five months to build and operate.

About half the total costs of the Bridport facilities goes into civil works, including roads, an airport, accommodations and, of course, the wharf and loading facilities for the ships. The other half will go into the process and storage barges.

Petro-Canada and its partners in the Arctic Pilot Project believe that resource movements from the Arctic will commence on a year-round basis in the 1980s. The Arctic Pilot Project contains all of the elements of these transportation systems, and by its successful implementation and operation will demonstrate the economic viability of such systems.

# MORE POWER TO YOU

## KaMeWa Model 200 CP Thruster



Power makes the difference. And size. The Model 200 is now in production. We capitalized on the latest technology without sacrificing the qualities which made our 1000 HP Model 80 the most successful thruster in the world.

Propeller diameter and input pinion speed are identical in both models. But the KaMeWa 200 accepts input horsepowers up to 1500!

We reduced overall tunnel length. Reduced the hatch removal clearance. Result: a thruster that's smaller. Streamlined. With greater flexibility for location in restricted spaces.

For even more power we also produce the Model 240 (to 2200 HP) and the Model 250 (to 3000 HP). Contact Gary Dayton for additional information.

## BIRD-JOHNSON COMPANY MARINE DIVISION

110 Norfolk Street, Walpole, Mass. 02081, Tel. (617) 668-9610, Telex: 92-4445

**Two Naval Architects  
Join Waller & Assoc.**

Frank van Bentem and Michael Pepper have recently joined the naval architectural company of Waller & Associates, Inc., Houston, Texas. Mr. van Bentem, vice president, has spent many years in the shipbuilding and marine consulting industry along the U.S. Gulf Coast, and was formerly head of his own consulting organization. He holds a degree in marine engineering and naval architecture from the University of Amsterdam and is a member of The Society of Naval Architects and Marine Engineers.

Mr. Pepper joins Waller & Associates as chief naval architect and program manager. He is a graduate of The University of Michi-



Frank van Bentem

Michael Pepper

gan with a B.S. degree in naval architecture and is a member of The Society of Naval Architects and Marine Engineers.

Waller & Associates, Inc. is a diversified

marine consulting group employed in basic design of marine equipment, structural analysis, transportation evaluation, and construction management.

**Bill Cleary Honored  
By AWO Board, Moynihan**

William F. Cleary, long-time secretary-treasurer of The American Waterways Operators, Inc., has been honored by AWO's board of directors and Senator Daniel Patrick Moynihan (D-N.Y.) for his outstanding record with the Association. Mr. Cleary, who has been with AWO since 1952, plans to retire this July 31.



A plaque citing his "unselfish dedication and distinguished service to AWO . . ." was presented recently to William E. Cleary (left), long-time secretary-treasurer of The American Waterways Operators, Inc. Presenting plaque is Senator Daniel Patrick Moynihan (D-N.Y.).

At a recent meeting of AWO's board of directors in Washington, D.C., Mr. Cleary was presented with a plaque citing his "unselfish dedication and distinguished service to AWO and the barge and towing industry for over a quarter century." In addition to the position of secretary-treasurer, Mr. Cleary has served as AWO's East Coast representative in the Association's New York City office.

Senator Moynihan, featured speaker at the AWO board meeting, prefaced his remarks with a tribute to Mr. Cleary. Senator Moynihan, chairman of the Senate's Subcommittee on Water Resources, made special note of Mr. Cleary's significant contributions to maritime commerce in the state of New York.

In addition to his role at AWO, Mr. Cleary has served since 1952 as president of the New York Towboat Exchange and Harbor Carriers of the Port of New York. He is also executive secretary of the New York State Waterways Association.

Among other accomplishments, Mr. Cleary has handled labor negotiations for marine transportation interests in New York Harbor, and has served as a civil defense advisor for this busy port.

Mr. Cleary also is a member of The Propeller Club of the United States, The Society of Naval Architects and Marine Engineers, and the Canal Historical Society of New York State.

Mr. Cleary will be succeeded as AWO secretary-treasurer by John J. Connolly, of the Association's headquarters staff, who was unanimously elected to the position at the board meeting.

AWO is the trade association representing the national interests of the inland and coastal domestic water transportation industry. Its membership includes not only water carriers, but also the shipyards that build and repair vessels for this industry.

**THE WORLD LEADER IN SHIP-TO-SHIP  
CRUDE OIL TRANSFERS  
announces a  
FLOATING STORAGE FACILITY**



**Cayman Energy Limited**

The largest "Ship-to-Ship" operators in the Caribbean with safe transfers in the Lee of Cayman Brac and Little Cayman Islands, B.W.I. now offer the Petroleum Industry the means for continued transportation savings thru a floating terminal to be managed by "Floating Terminals Ltd."

**FIXED FEE - NO STORAGE TIME LIMIT**

TWO ULCC'S PRESENTLY ON TEMPORARY STATION.  
CONTRACTS MAY NOW BE NEGOTIATED FOR PERMANENT  
TWO-YEAR TERMS TO COMMENCE WITHIN 30 DAYS OF SIGNING.

*Weather conditions ideal, equipment and facilities the finest together with experienced and reliable personnel. Transfer area depth is 22,000 feet. Safe anchorage off both islands.*

*Every emphasis is placed on extremely quick vessel turnaround, from ULCC's, VLCC's, etc. to the shuttle vessels. On-station equipment exists for five simultaneous transfer operations.*

**Agents for CAYMAN ENERGY, Ltd. and FLOATING TERMINALS Ltd.**

**TRANSPORTATION CONCEPTS & TECHNIQUES, INC.**

1020 West Main Street, Charlottesville, VA.  
Telephone 804-979-8101 Telex 822423



## Marine bodyguards.

**Our aluminum anodes offer predictable offshore performance.**

Controlled rate of corrosion, a Kaiser Chemicals technological breakthrough, enables designers to predict performance and life of aluminum marine anodes KA90 and KA95 with a high degree of success.

Why two alloys? To give you a choice. KA90, Al-Zn-Sn type (without mercury) is tested to have an average current output of 1176 amp-hours/pound. Voltages range from 1.07v to 1.15v. Or KA95, Al-Zn-Hg type (with mercury), tested to have an average current output of 1285 amp-hours/pound and a voltage of over 1.05v.

Both KA90 and KA95 aluminum marine

anodes are available in sizes up to 1,100 pounds from a 10,000,000-pound/year manufacturing facility designed exclusively for anode production. And every heat must qualify for acceptance by going through our Q-7 seven-point quality-control program.



Get our 20-page brochure which includes an anode-selection nomograph and other important design data. Write Kaiser Chemicals, 300 Lakeside Drive, Oakland, CA 94643, Room 1139 KB. Or call (415) 271-5580.

**KAISER**  
CHEMICALS

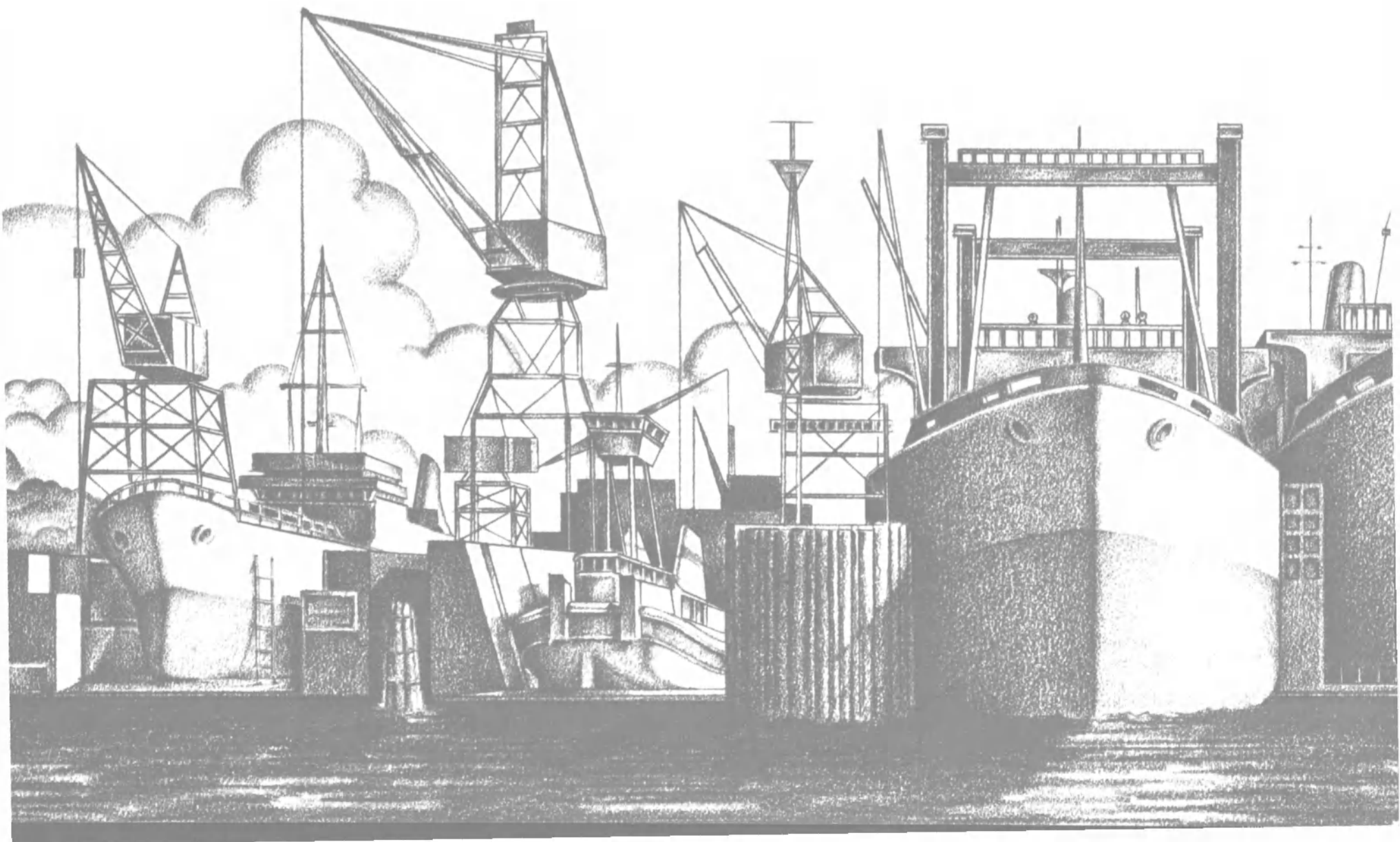
# Send us your new, Your great ships, and your liners, your VLC

We're the Portland Ship Repair Yard. And we offer you services and facilities you won't find at any other West Coast port.

First of all, our dry docks can handle any size ship, from tug to VLCC. The Port of Portland's Dry Dock 4 is the largest on the West Coast. It's the only Coast facility that can handle the entire Alaskan crude fleet. In all, we have 4 dry docks—for ships up

to 275,000 dwt. No West Coast ship is too big or too small for us.

Second, we don't waste your time. Reserve dry dock time now—select a contractor, negotiate or get two or three competitive bids, even after you're up on blocks. You're assured of superior work because ships are serviced by any one of three nationally renowned companies: Dillingham Ship Repair, Northwest Marine Iron Works, and Willamette Iron and



# your sophisticated; your small; Your tugs, C's yearning to be fit.

Steel Company. These outstanding companies bring years of experience and unmatched expertise to your service needs—whether they involve repair, maintenance, cleaning, jumbo-izing, ship conversion, or any combination of services.

Contact us about your service needs. Call any of the three contractors listed or the Port of Portland. We think you'll find that our ship repair service is another reason why. . . *we may be your perfect port.*

## Portland Ship Repair Yard



**Port of Portland**  
800 547-8411



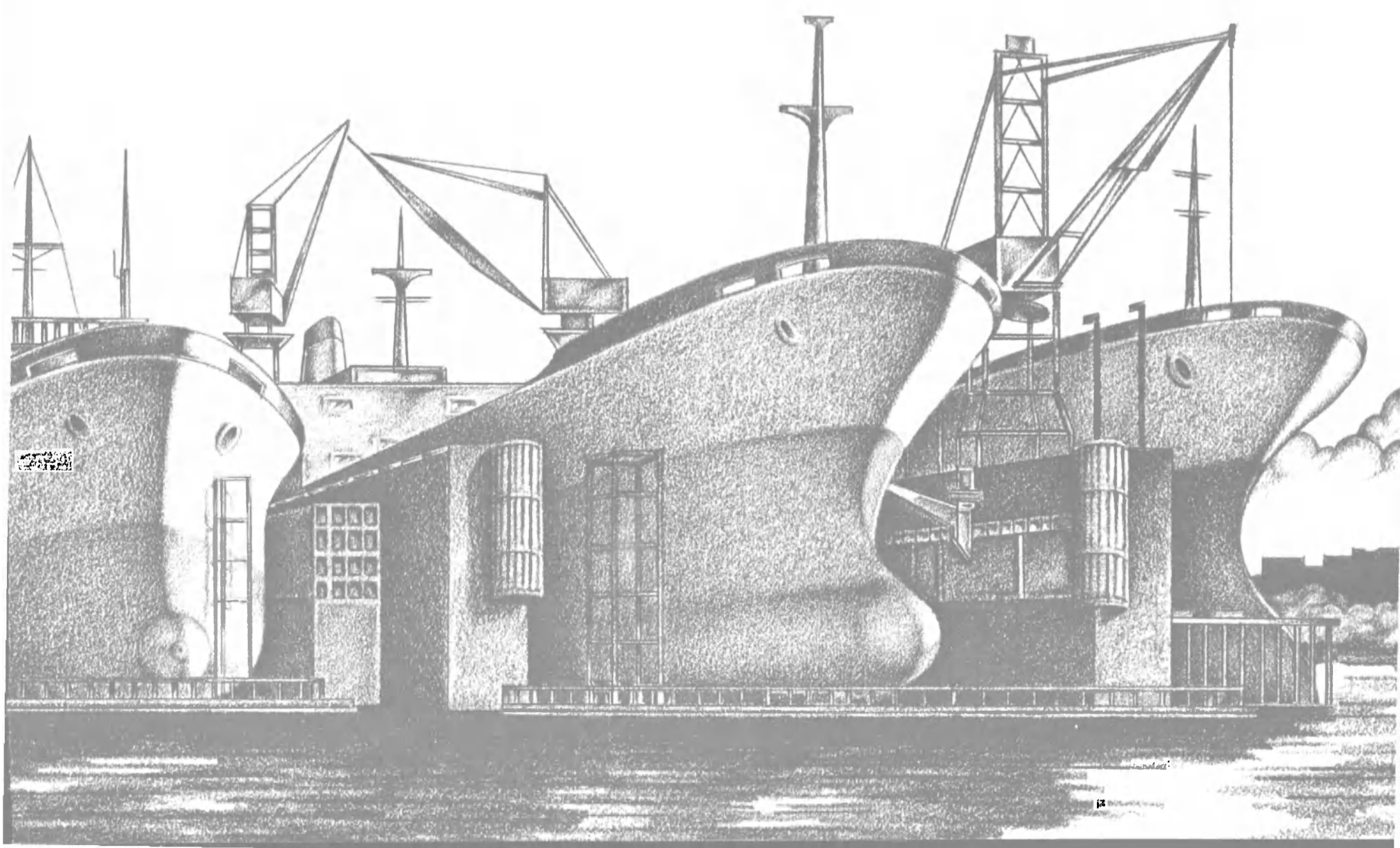
**Dillingham Ship Repair**  
503/285-1111



**Northwest Marine Iron Works**  
503/228-8222



**Willamette Iron & Steel Company**  
Days 503/226-5535 Nights 503/226-5200



**Brochure Available On  
Norshipco's Three  
Expanded Shipyards**

The expanding capabilities of Norfolk Shipbuilding & Drydock Corporation's three shipyards located in Norfolk, Va., are described and pictured in a recently published four-color brochure.

Established 60 years ago, Nor-

shipco has grown into a three-yard "ship repair city" with a work force of more than 3,300. It has comprehensive in-house capability for ship repair, conversion, and new construction, and a range of mobile services for many types of repair work on vessels outside the shipyards.

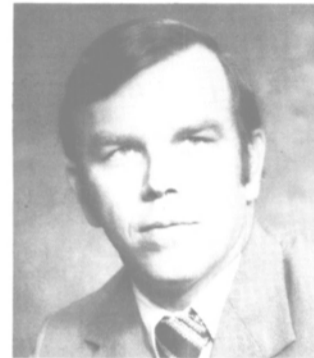
Two of the Norshipco yards—Berkley and Brambleton—are located on branches of the Eliza-

beth River; the Southern plant is on the Eastern Branch of Norfolk Harbor. Berkley, the largest plant, is for work on major ocean-going vessels, and is the site of major expanded facilities including the giant new floating drydock, concrete pier, and hammer-head crane.

For a free copy of the new brochure write to Carlos E. Agnese,

Dept. MR, Norfolk Shipbuilding & Drydock, P.O. Box 2100, Norfolk, VA 23501.

**Cliff Drown Named  
New President  
Of State Boat**



Cliff Drown

The board of directors of State Boat Corporation has announced the appointment of **Cliff Drown** as president. Since joining State Boat Corporation in 1974, Mr. Drown has held a number of positions with the company, including North Sea Area manager; vice president, operations; and executive vice president.

He has worked in the maritime industry for nearly 20 years, which includes four years in the U.S. Coast Guard, five years as a crewman on supply and geophysical vessels, and 10 years in management.

State Boat Corporation, a rapidly growing operator of tug/supply and supply vessels, operates a fleet of 26 vessels between 150 and 210 feet in length, supporting offshore exploration production and construction.

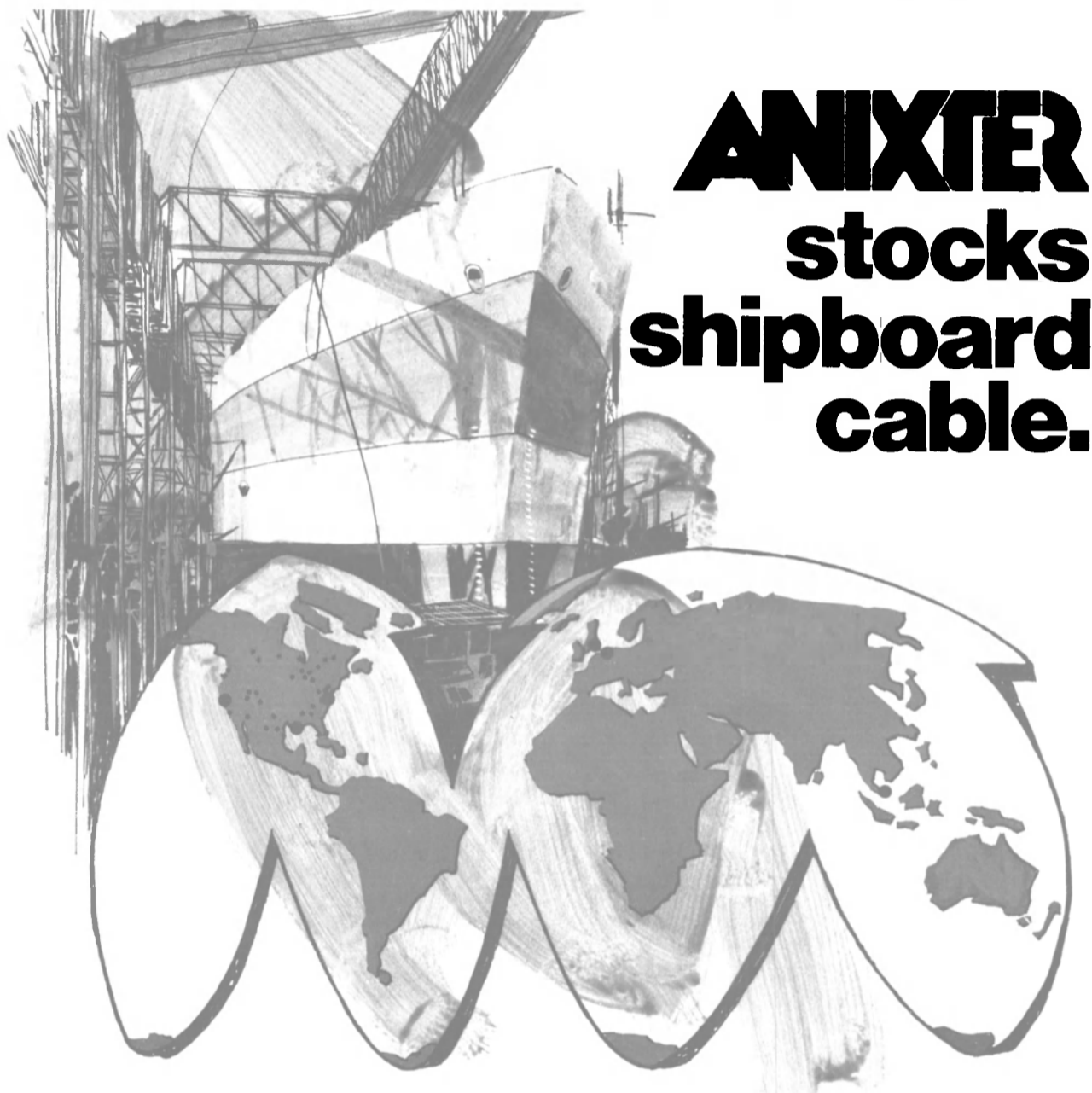
**Steam Engine Literature  
Available From Skinner**

Renewed interest in coal and other non-petroleum fuels has prompted Skinner Engine Company to offer Bulletin STE-677 on its multi-cylinder Universal Unaflow® Steam Engine. The company has been a pioneer in design and construction of steam engines since 1868.

Skinner steam engines powered thousands of ships in the first half of this century, and there is active interest in returning to this form of propulsion.

The bulletin details the features which make the "Universal Unaflow" a dependable, low-maintenance method of generating electricity, driving compressors and pumps, refrigeration and air-conditioning and other equipment. Steam engines have found wide application in petrochemical processing, sugar refineries, office buildings, hospitals and many other manufacturing and institutional situations.

For free literature containing details on steam engines from 300 to 3,000 horsepower, write to **C. Douglas Herrick**, Power Division MR, Skinner Engine Company, P.O. Box 1149, Erie, Pa. 16512.



**ANIXTER  
stocks  
shipboard  
cable.**

**any length. every spec. anytime. everywhere.**

ANIXTER'S huge stock of shipboard cable is never more than a few hours away from the major shipbuilding ports in the world. Whether as a single source of supply for long-range projects or as an emergency source for maintenance and repairs, ANIXTER can deliver whatever you need, exactly

where you want it. If you require special sizes, we'll stock that for you. And at ANIXTER, there's never a minimum order. We'll cut your cable to any length you specify. That's just one of the reasons we say: "We're serious about service."

**ANIXTER**

BROS., INC

Worldwide Electrical Wire & Cable Specialists

INTERNATIONAL: London 01-561-8118; Netherlands (078) 175466. EAST COAST: New York (914) 592-8800; GULF: New Orleans (504) 581-1241; WEST COAST: San Francisco (415) 352-3100  
In CANADA: call ANIXTER-TURMAC, Montreal (514) 637-3511

GENERAL OFFICE: 4711 Golf Road • Skokie, IL 60076 • (312) 677-2600

---

# Our new name...

# **DEVOE MARINE COATINGS CO.**

a division of **GROW GROUP, Inc.**

**...symbolizing our re-emphasis  
of commitment to the Marine and  
Offshore industries — worldwide.**

Over the past several years, as a part of Devoe & Reynolds Co., Devoe Marine has become a major factor in the worldwide marine and offshore business. Grow Group, Inc., the parent corporation, has recognized this impressive sales growth by separating Devoe Marine from Devoe & Reynolds. Both are now divisions of Grow Group, Inc.

Devoe Marine's technology laboratories and modern manufacturing facilities will continue to serve Devoe Marine in its increasing commitments to superior products and quality service.

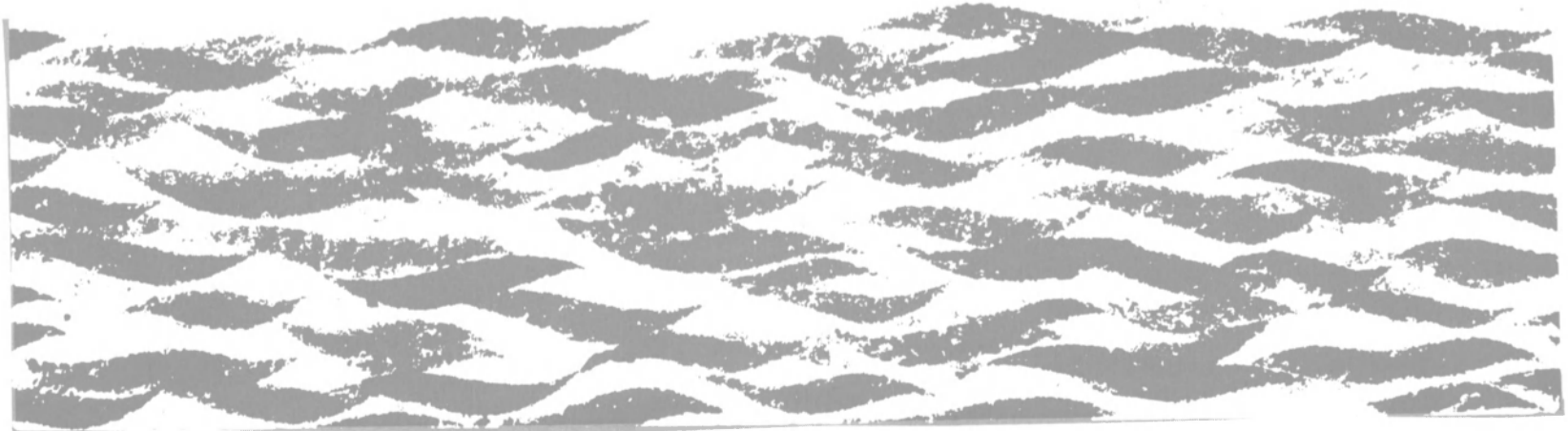
Our thanks to you for your past support and the continuing opportunities of serving you.



**DEVOE**  
**MARINE**  
PAINTS & COATINGS

**DEVOE MARINE COATINGS CO.**  
a division of **GROW GROUP, Inc.**<sup>TM</sup>  
4000 DuPont Circle  
Louisville, Kentucky 40207

*Devoe Marine Paints & Coatings... When Performance counts.*



**Butterworth Introduces  
Marine Liqua-Blaster  
—Literature Available**

Butterworth Systems recently introduced the Marine Liqua-Blaster®, an ultra-high-pressure water blaster unit for shipboard cleaning and descaling. Operating the Marine Liqua-Blaster unit at pressures up to 10,000 psi, one

man can do the job normally done by a crew with chemicals, hand tools, or sandblasters. The Marine Liqua-Blaster unit can also be used to clean condenser tubes, oil spray from machinery, galley grease filters, clogged parts, and the like.

1980 marks Butterworth Systems 50th year of operation. **Don Powell**, president of Butterworth Systems, recently commented at

a press conference at their Florham Park headquarters: "In the last 50 years we've seen a lot of companies come and go. Butterworth Systems plans to keep going strong in the next 50."

For free literature on Butterworth's Marine Liqua-Blaster, write **Neil Chamberlin**, Butterworth Systems, 224 Park Avenue, Box 352, Florham Park, N.J. 07932.

**Firm Changes Name To  
Houston Marine Services**

Houston Midstream Services, Inc. has changed its name to Houston Marine Services, Inc., according to an announcement by **Geran L. Graham**, president. The firm was founded in 1977 and initially engaged in midstream fueling of vessels in the Port of Houston.

"The new name more accurately describes the scope of our current operations," says **Mr. Graham**, who explains that the company sells and delivers diesel fuel and lubricants to the marine trade. These products are delivered by truck or barge, dockside, in the Houston, Galveston, or Texas City harbors.

The company operates tugs and barges from its marine facility on the Houston Ship Channel, which is currently undergoing a \$2-million expansion.

Houston Marine Services is structured as a wholly owned subsidiary of GT Energy Corp.

**Jurgen Manske Named  
Representative For  
Hapag-Lloyd Service**

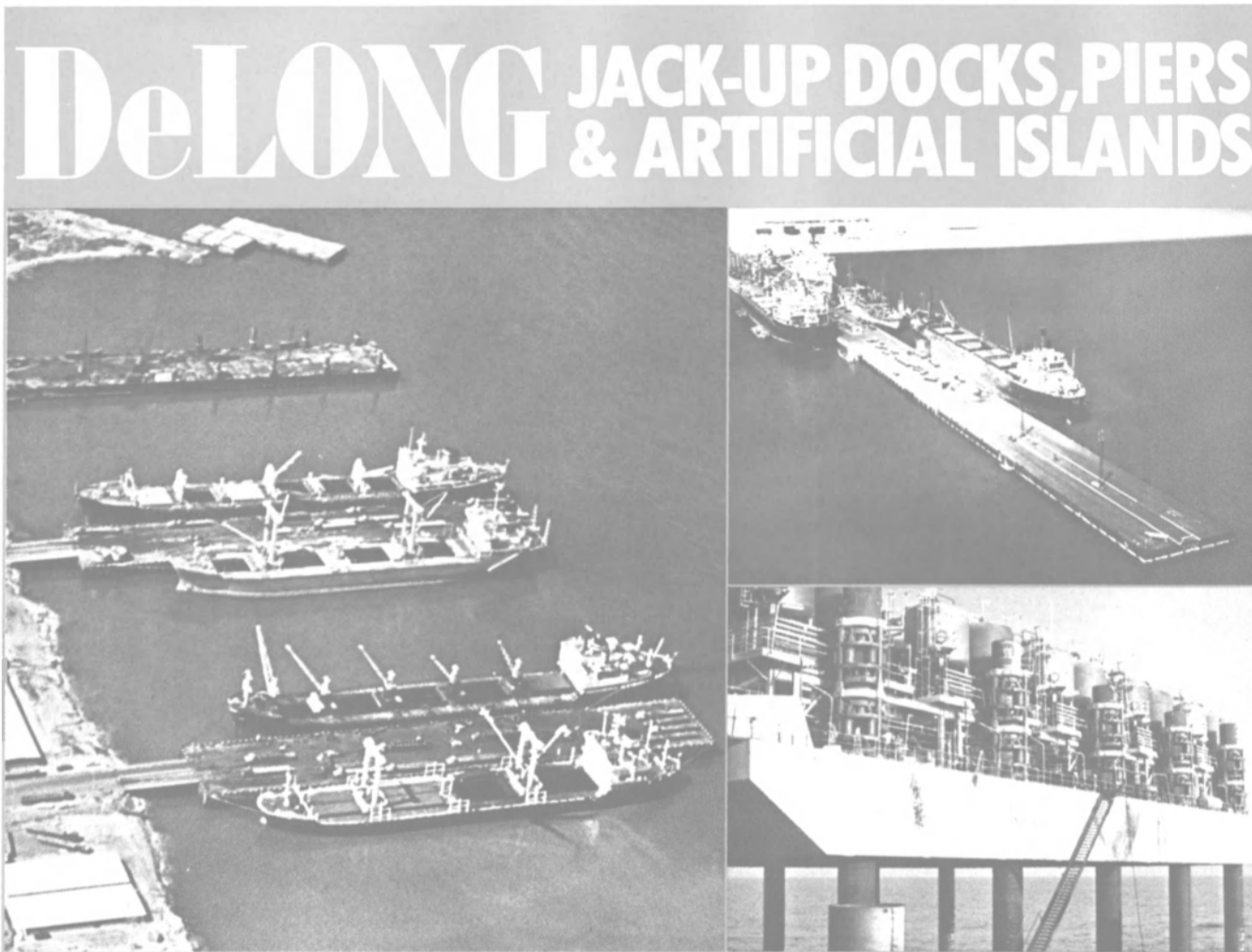


**Jurgen Manske**

**Jurgen Manske** has been appointed owner's representative for Hapag-Lloyd's U.S. Gulf Service, replacing **Peter Zehler**, who has returned to West Germany for reassignment with the steamship line. Based in New Orleans, **Mr. Manske** will be responsible for agency coordination for the entire Gulf Coast and South Atlantic Region.

He began his career in the steamship business in 1958 as an apprentice seaman with a major European line. After joining Hapag-Lloyd and advancing through various seaman's ratings, he enrolled in West Germany's maritime college and received his master's license in 1969.

**Mr. Manske** sailed as cargo officer on Hapag-Lloyd ships until 1971, when he became a shore-based liaison officer responsible for cargo-handling and vessel operations. In 1972, he was assigned to Houston to coordinate the start-up of Hapag-Lloyd's full container service from the U.S. Gulf to Northern Europe.



For more than 30 years DeLong has provided engineering, fabrication and installation services for heavy marine structures world wide.

DeLong, with affiliated Amrep companies, has particular expertise in offshore platforms and pier structures for relief of congested ports. We handle entire projects—from initial site survey through final fabrication and erection, and save a great deal of time and money in the process.

At the heart of our quick reaction to your problem is the DeLong jack, a construction tool that allows us to fabricate complete, fully outfitted structures at convenient shipyards, tow them to the final site, then quickly emplace them in even the most remote areas.

When you need terminals, piers or offshore platforms of any kind, call on the experts. Call DeLong.



*A member of the Amrep Group*

DeLONG CORPORATION  
29 BROADWAY  
NEW YORK, N.Y. 10006  
Tel: (212) 422-1275  
TELEX: WU-128278



**Safmarine Orders  
\$40-Million Container  
Carrier From IHI**

Ishikawajima-Harima Heavy Industries Company Ltd. has signed a \$40-million contract with South African Marine Corporation Ltd. (Safmarine) of Cape Town for construction of a 24,500-dwt cellular containership.

Scheduled for delivery in 1982, she will have a carrying capacity of 17,000 TEUs. This vessel is one of five containerships that will enter the South Africa-Far East trade in 1982. The Safmarine ship will be powered by a fuel-efficient diesel engine (IHI is a licensee for both Sulzer and S.E.-M.T. Pielstick).

**R.A. Gabriel Named  
VP-Manufacturing At  
Waukesha Engine**



**Richard A. Gabriel**

Richard A. Gabriel has been appointed vice president of manufacturing at Waukesha Engine Division, Dresser Industries, Inc. He is responsible for all engine manufacturing and manufacturing support operations at the division, which makes heavy-duty diesel and gas engines.

Mr. Gabriel joined Waukesha in 1978 as director of manufacturing operations, a post he held until his current appointment. Prior to his employment at Waukesha, he was manager of operations improvement at Dresser's Marion Power Shovel Division. He also had worked for a number of years in various management capacities for Westinghouse Electric Corporation.

**Leggett, Lowen And  
Singman Named To NMC  
Board Of Governors**

Further broadening the maritime industry's representation in the National Maritime Council, the NMC recently announced the addition of three key maritime industry leaders to its Board of Governors.

These officials are Robert L. Leggett, president, Joint Mari-

time Congress, Washington, D.C.; Capt. Robert J. Lowen, president, International Organization of Masters, Mates and Pilots, New York City; and Julian Singman, president, Maritime Institute for Research and Industrial Development, Washington, D.C.

Mr. Leggett, who served for 16 years as a member of Congress representing the 4th Congress-

sional District of California, has been active in many government programs.

Captain Lowen, a graduate of the U.S. Merchant Marine Academy, has spent almost 30 years as an active member of the Masters, Mates and Pilots. He was elected secretary-treasurer in 1971 and president in 1978.

Mr. Singman, a prominent at-

torney and partner with Landis, Cohen, Singman and Rauh, previously served as chairman, Drafting Committee, International Conference on Training and Certification of Seafarers; legal consultant, Intergovernmental Committee for European Migration; Deputy Maritime Administrator; and associate chief counsel, House Antitrust Subcommittee.

# Savannah: Class of '80



In the East, our yard gets pretty good grades.

Not because of our cranes, dock, specialized shops, good prices, or our perfect working climate.

But because we have the best bunch of workers in the business. Men like Arthur Allen.

Arthur just finished a long apprenticeship in our Inside Machine Shop. He's now a Journeyman Machinist—a first class mechanic. Which means he's as good as they come.

It isn't easy to make the grade at Savannah. If a man doesn't cut it he doesn't graduate.

Our work—voyage repairs, major conversions, and scheduled drydocking—is done by skilled people like Arthur. Competent, hard-working, gung-ho men and women. Many of whom have been here their whole working lives.

We're proud of them.

We want to thank them all. Publicly. For making us the first-class yard in the South.

**The Savannah Yard.**

Savannah Machine & Shipyard Co.  
P.O. Box 787, Savannah, Ga. 31402  
Tel. (912) 233-6621

74 Trinity Place, Suite 1800  
New York, N.Y. 10006  
Tel. (212) 432-0350

*We just shortened  
our name to  
Savannah Shipyard Co.  
Nothing else has changed.  
Same owners, same  
great Southern service.  
Y'all come.*



## world leader in container handling cranes

It's not idle talk...just observe the PACECO cranes in action. The way these big machines produce tells you there's something outstanding. PACECO equipment is the choice of major ports and terminals worldwide. There are reasons why.

**Portainer**<sup>®</sup>, **Transtainer**<sup>™</sup> and **Shipstainer**<sup>™</sup> cranes are built for high productivity, low maintenance and easy handling. Decades of continuous heavy duty work around the world have proven their durability.

Transtainer cranes, rubber-tired and rail-mounted, have high-stacking capabilities that will save your premium terminal space. Lower maintenance and lower operating costs combined with high productivity make this equipment cost effective!

Portainer and Transtainer Modular Automated Container Handling (MACH) crane models are available for ports and terminals of the future. For help in your expansion requirements and a **Big Lift In Your Productivity** – Contact PACECO!

### Lockheed Places \$8.6-Million Order For Colt/Pielstick Diesel Engines

The Fairbanks Morse Engine Division of Colt Industries has received an order for four large Colt/Pielstick marine diesel engines with auxiliary equipment

There, the Navy's Land Based Test Site will be used to simulate actual operating conditions of the ship propulsion system, and for operation training.



**Safmarine Orders  
\$40-Million Container  
Carrier From IHI**

Ishikawajima-Harima Heavy Industries Company Ltd. has signed a \$40-million contract with South African Marine Corporation Ltd. (Safmarine) of Cape Town for construction of a 24,500-dwt cellular containership.

Scheduled for delivery in 1982, she will have a carrying capacity of 17,000 TEUs. This vessel is one of five containerships that will enter the South Africa-Far East trade in 1982. The Safmarine ship will be powered by a fuel-efficient diesel engine (IHI is a licensee for both Sulzer and S.E.-M.T. Pielstick).

**R.A. Gabriel Named  
VP-Manufacturing At  
Waukesha Engine**



**Richard A. Gabriel**

Richard A. Gabriel has been appointed vice president of manufacturing at Waukesha Engine Division, Dresser Industries, Inc. He is responsible for all engine manufacturing and manufacturing support operations at the division, which makes heavy-duty diesel and gas engines.

Mr. Gabriel joined Waukesha in 1978 as director of manufacturing operations, a post he held until his current appointment. Prior to his employment at Waukesha, he was manager of operations improvement at Dresser's Marion Power Shovel Division. He also had worked for a number of years in various management capacities for Westinghouse Electric Corporation.

**Leggett, Lowen And  
Singman Named To NMC  
Board Of Governors**

Further broadening the maritime industry's representation in the National Maritime Council, the NMC recently announced the addition of three key maritime industry leaders to its Board of Governors.

These officials are Robert L. Leggett, president, Joint Mari-

time Congress, Washington, D.C.; Capt. Robert J. Lowen, president, International Organization of Masters, Mates and Pilots, New York City; and Julian Singman, president, Maritime Institute for Research and Industrial Development, Washington, D.C.

Mr. Leggett, who served for 16 years as a member of Congress representing the 4th Congress-

sional District of California, has been active in many government programs.

Captain Lowen, a graduate of the U.S. Merchant Marine Academy, has spent almost 30 years as an active member of the Masters, Mates and Pilots. He was elected secretary-treasurer in 1971 and president in 1978.

Mr. Singman, a prominent at-

torney and partner with Landis, Cohen, Singman and Rauh, previously served as chairman, Drafting Committee, International Conference on Training and Certification of Seafarers; legal consultant, Intergovernmental Committee for European Migration; Deputy Maritime Administrator; and associate chief counsel, House Antitrust Subcommittee.

# Savannah: Class of '80



In the East, our yard gets pretty good grades.

Not because of our cranes, dock, specialized shops, good prices, or our perfect working climate.

But because we have the best bunch of workers in the business. Men like Arthur Allen.

Arthur just finished a long apprenticeship in our Inside Machine Shop. He's now a Journeyman Machinist—a first class mechanic. Which means he's as good as they come.

It isn't easy to make the grade at Savannah. If a man doesn't cut it he doesn't graduate.

Our work—voyage repairs, major conversions, and scheduled drydocking—is done by skilled people like Arthur. Competent, hard-working, gung-ho men and women. Many of whom have been here their whole working lives.

We're proud of them.

We want to thank them all. Publicly. For making us the first-class yard in the South.

**The Savannah Yard.**

Savannah Machine & Shipyard Co.  
P.O. Box 787, Savannah, Ga. 31402  
Tel. (912) 233-6621

74 Trinity Place, Suite 1800  
New York, N.Y. 10006  
Tel. (212) 432-0350

*We just shortened our name to Savannah Shipyard Co. Nothing else has changed. Same owners, same great Southern service. Y'all come.*



## world leader in container handling cranes

It's not idle talk...just observe the PACECO cranes in action. The way these big machines produce tells you there's something outstanding. PACECO equipment is the choice of major ports and terminals worldwide. There are reasons why.

**Portainer®**, **Transtainer®** and **Shipstainer®** cranes are built for high productivity, low maintenance and easy handling. Decades of continuous heavy duty work around the world have proven their durability.

Transtainer cranes, rubber-tired and rail-mounted, have high-stacking capabilities that will save your premium terminal space. Lower maintenance and lower operating costs combined with high productivity make this equipment cost effective!

Portainer and Transtainer Modular Automated Container Handling (MACH) crane models are available for ports and terminals of the future. For help in your expansion requirements and a **Big Lift In Your Productivity** – Contact PACECO!

 **PACECO, INC.**  
A subsidiary of Fruehauf Corporation

Licenses and Representatives Worldwide – For information, contact PACECO  
World Headquarters: Alameda, CA 94501, (415) 522-6100, Telex 335-399  
or Paceco International Limited: London, Tel: 01-681-3031/4, Telex 946-698.

**Nolte Named Marketing Director For PM&O Lines Of San Francisco**

Philippines, Micronesia & Orient Navigation Company (PM&O Lines) has announced the appointment of **Thomas L. Nolte** as director, marketing

Mr. **Nolte** will be responsible for coordinating all marketing research and development, and will report directly to **J.J. Hoban**, vice president, marketing.

PM&O Lines operates the only containerized, direct shipping service from the U.S. West Coast and Hawaii to Micronesia.

**Dennis Friesl Named VP-Marketing For SCNO Barge Lines**



**Dennis D. Friesl**

**Dennis D. Friesl** has been elected vice president-marketing for SCNO Barge Lines, Inc. In making the announcement, **Fred S. Sherman**, president of SCNO, said: "This promotion continues to emphasize SCNO's goal of effective, personalized service in meeting the transportation needs of its many shippers."

Mr. **Friesl** began his SCNO career in 1972 as manager of the Lemont terminal of SCNO Terminal Corporation. In 1974, he transferred to SCNO Barge Lines as the Chicago Area sales representative. Subsequently, he was promoted to regional sales manager.

**French And Campbell Named To Head NMC Shipyard Council**

At a recent meeting of the Shipyard Council of the National Maritime Council, **C. Larry French**, president, National Steel & Shipbuilding Company, and **Edward J. Campbell**, president, Newport News Shipbuilding, were elected chairman and vice chairman, respectively, succeeding Shipbuilders Council president **Edwin M. Hood**, and **W.R. Phillips Jr.**, vice president, marketing, Newport News Shipbuilding.

These elections parallel recent restructuring of the Shipbuilders Council, whereby shipbuilding industry officials serve as chairman

and vice chairman of the Council's board of directors.

In addition, **John L. Roper III**, president, Norfolk Shipbuilding & Drydock Corporation, was elected a member of the Shipbuilders Council's Executive Committee. He succeeds **Peter S. Hepp**, former president, Sun Ship, Inc., and now group vice president, Sun Company. **Robert H. Campbell** is the new Sun Ship president.

**Shearson River Barge Asks Title XI Aid For \$4.4-Million Barge Order**

Shearson River Barge Associates V, New York, has applied for a Title XI guarantee to aid in financing the construction of 15 hopper barges. The 200-foot-long river barges will be used for general barge transportation on the U.S. inland waterway system.

Cargo Carriers Inc. of Minneapolis, Dravo Corp. of Pittsburgh, and Nashville Bridge Co. of Nashville will each build five of the barges. All the barges are scheduled to be delivered before October 1.

If approved, the Title XI guarantee would cover \$3,829,000, or 87½ percent of the total actual cost of \$4,376,900.

# Tie up to dependability.

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

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

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

*Call (713) 455-8819  
Or Cable HMS Jerico  
910-881-7166*

## Houston Marine Services, Inc.

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

## Lockheed Places \$8.6-Million Order For Colt/Pielstick Diesel Engines

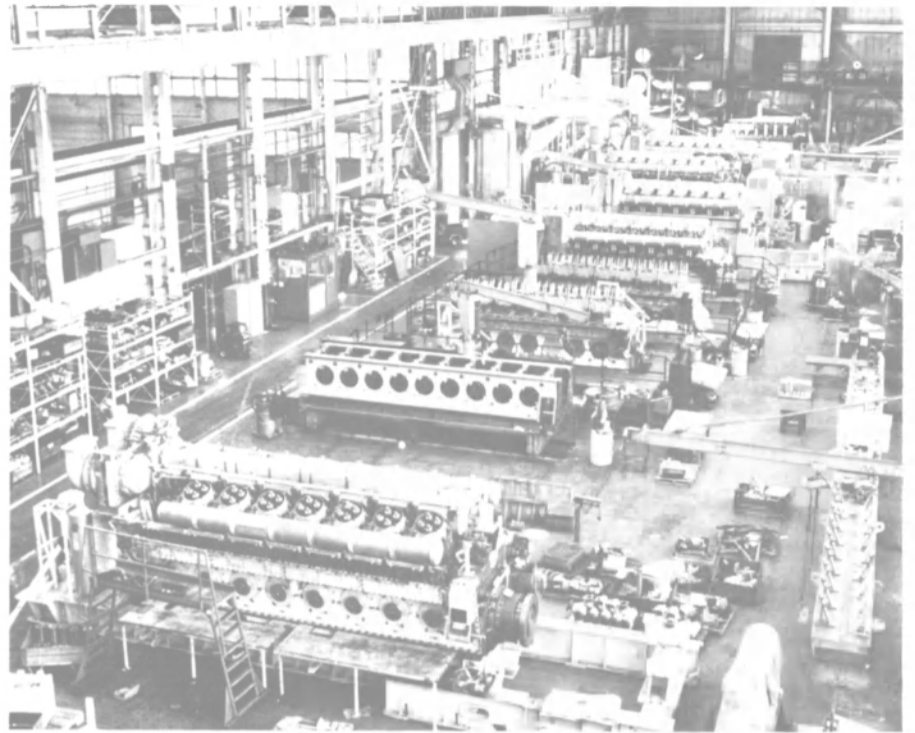
The Fairbanks Morse Engine Division of Colt Industries has received an order for four large Colt/Pielstick marine diesel engines with auxiliary equipment from Lockheed Shipbuilding and Construction Company of Seattle. Announcement of the \$8.6-million order was made by **Thomas J. Bullock**, division manager-government and nuclear marketing.

The four 16-cylinder, 8,500-bhp engines represent the first ship-set of propulsion machinery for the new amphibious, LSD-41 class dock landing ship program planned by the Naval Sea Systems Command. Earlier this year an order for \$4.3 million was received by Fairbanks Morse for two engines of the same size and configuration with auxiliary equipment for installation in a training and testing facility at the Philadelphia Naval Shipyard.

There, the Navy's Land Based Test Site will be used to simulate actual operating conditions of the ship propulsion system, and for operation training.

The two engines for the test site will be shipped in mid-1981, and the four engines for the first ship will be delivered in late 1981 and in the first quarter of 1982.

When funded, the LSD-41 program will involve a number of ships, each powered with four Colt/Pielstick diesel engines. Use of diesel propulsion in these ships offers distinct savings in fuel consumption. The Navy estimates that eight of the new ships, in replacing eight of an older class, will save more than 20 million gallons of fuel per year. As the diesel engines provide improved fuel consumption, the LSD-41 ships will carry less fuel and still meet cruising range requirements.



Overall view of final assembly and test floor sections of Fairbanks Morse Engine Division plant in Beloit, Wisc., where Colt/Pielstick engines are assembled.

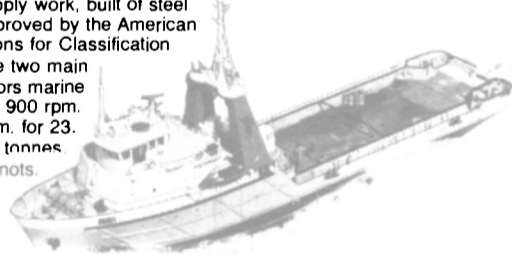
## The largest builder of small ships in Australia

Our modern flow-line shipyard has all the extras:

On site fabrication shop/machine shop, superb building & launch facilities. 'in house' computer system handling 32 operating channels, computer based N.C. Cutting and we are in close proximity to major suppliers.

### WESTERN TIDE

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



### LADY ANN

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



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



### Carrington Slipways Pty. Ltd

Old Punt Road, Tomago, NSW Australia 2322  
Tel: Newcastle 64 8071 Telex: 28185 Cable: Carrslips.

European Agent: European Marine & Machinery Agencies,  
60 Brookley Road, Brockenhurst Hants, SO47RA, U.K  
Telex: 47509

Middle East Sales Manager: John Skelton, P.O. Box 4134  
Nicosia Cyprus Telex: 2332 Mickys Attn Skelton

## AQUAMET

A boat shaft to meet every need — from Armco

Armco's famous family of AQUAMET® Boat Shafts gives you the selection to meet your needs most precisely. These shafts are service proved in all sorts of service conditions on most every type of boat.

**AQUAMET 17** provides a great combination of high strength, toughness, and resistance to corrosion and wear.

**AQUAMET 18** is the economical shaft—competitive with ABS Grade 2 carbon steel shafting with sleeves and corrosion protection. But there's much more—AQUAMET 18 offers superior strength and toughness plus excellent corrosion resistance.

**AQUAMET 19** (formerly SEALOY®) provides strength and corrosion resistance similar to Type 304N stainless steel.

**AQUAMET 22** gives you the best seawater corrosion resistance for shafting material plus excellent strength and toughness.

Find out how Armco® AQUAMET Boat Shafts can best meet your needs. For your copy of the Armco AQUAMET Boat Shafts Product Data Bulletin, clip this ad to your letterhead and mail to Armco, Advanced Materials Division, Dept. A-50, Box 600, Middletown, Ohio 45043.



Advanced  
Materials  
Division



# Ship owners trust Texaco lubricants and services to help keep their vessels running efficiently.



*They trust Texaco* research to produce products that meet the severe operational demands of today. Products such as:

- DORO AR 30—alkaline reserve crankcase lubricant.
- TARO Special—our specially formulated cylinder lubricant.
- TARO XD and TARO DP—the multipurpose products for lubrication of medium speed diesel engines.
- REGAL R&O SERIES—turbine lubricants which meet

the demanding requirements of today's equipment.

*They trust Texaco's* rapid oil analysis program which provides an analysis-and-detection service that can spot potential problems early and help reduce costly unscheduled downtime.

It all adds up to one thing. Marine engineering experience. Ship owners and engineers know Texaco has that experience and know we are working harder to keep their trust.



For information on our full line of marine lubricants, direct your inquiry to:

**Texaco Inc.**  
International Marine Sales Dept.  
2000 Westchester Ave., White Plains, New York 10650

**Texaco Ltd.**  
International Marine Sales  
1 Knightsbridge Green, London SW1X 7QJ

**McDermott Scotland Gets \$92-Million Contract From Marathon Oil U.K.**

McDermott Scotland, a division of McDermott International, Inc., has been awarded a contract for fabrication of a jacket, the base of an offshore platform, by Marathon Oil U.K. Limited. The contract, in excess of 40 million

pounds sterling (approximately \$92 million), calls for the jacket to be delivered to Marathon in April 1982.

The jacket will be installed in 365 feet of water in Block 16/7A in the Brae Field of the U.K. sector of the North Sea, 155 miles from Aberdeen, Scotland.

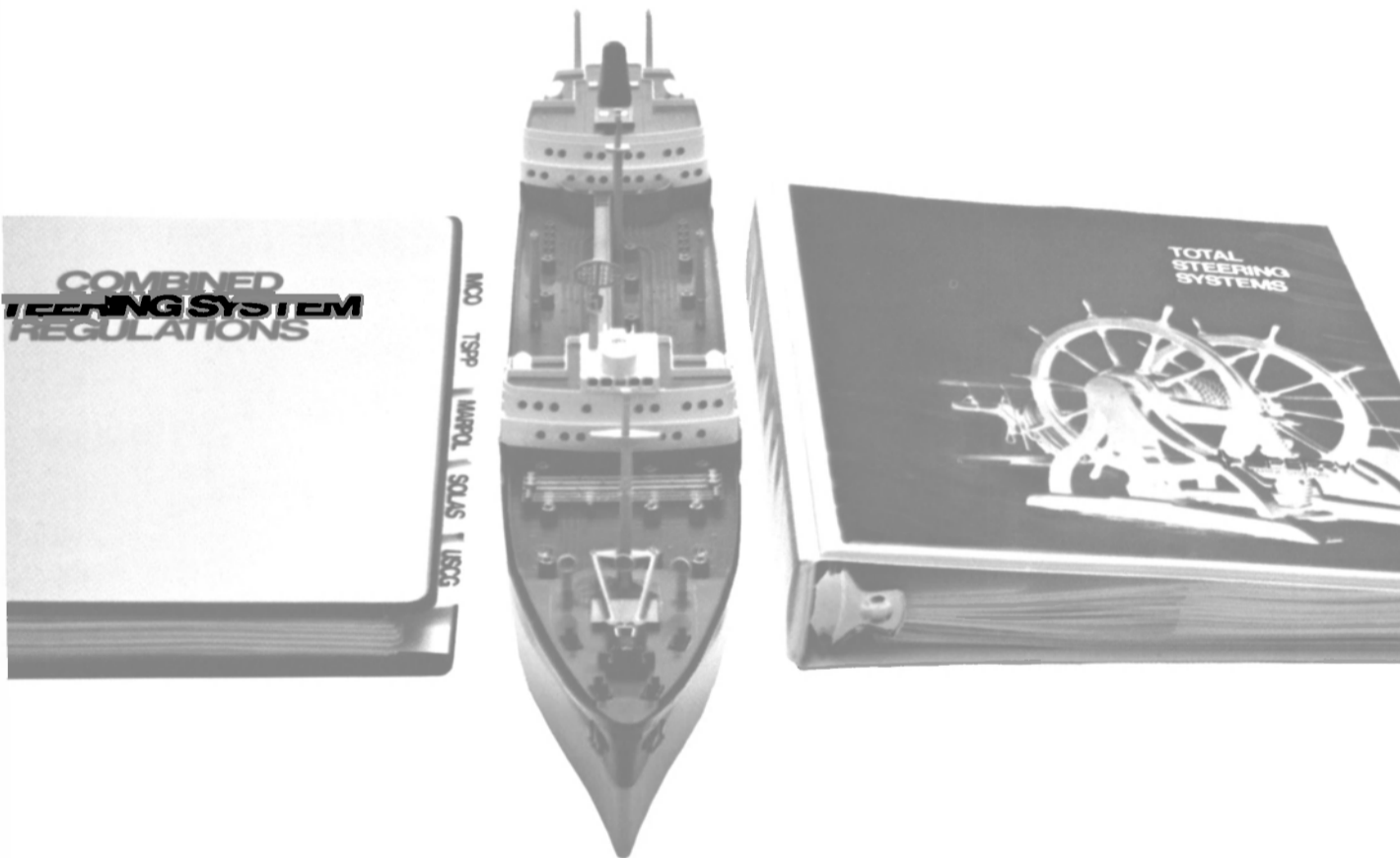
The steel jacket will weigh 21,000 metric tons, and is de-

signed to support a topside weight of 38,000 metric tons. It will be held in place by 36 piles, each having a diameter of 84 inches. The platform will make possible the development of one of the North Sea's deepest reservoirs. It will provide for the development of 46 wells that will reach a depth of up to 13,000 feet. By 1983, this portion of the Brae Field is ex-

pected to produce approximately 112,000 barrels of liquid hydrocarbons per day. The platform will have accommodations for 240 personnel.

McDermott International, Inc. is a subsidiary of J. Ray McDermott & Co., Inc. The company and its subsidiaries provide engineering and construction services to the offshore oil and gas industry, and manufacture steam generating equipment, tubular products, insulating products, and automated machine tools.

# The Law of Demand...and Supply



The new safety regulations demand a lot from you. They demand a lot from us, too.

But Sperry is accustomed to meeting demands. For more than 50 years we've been a major manufacturer of steering system components. Today, only Sperry can supply a *complete* steering system.

To help you comply with the latest rules, we've established a Retrofit Survey Team.

Each engineer on the team is thoroughly familiar with all regulations. Call him for a survey and he'll evaluate your present system. His subsequent proposal will recommend only the equipment you'll need and he'll outline a compliance

schedule, including cost and time estimates, and all the services required.

Sperry provides system design review, submission of proposal for regulatory body approval, installation supervision, assistance during final inspection, and supervision of sea trials.

The Sperry Retrofit Survey. When you need to know what you need.

For details, see your Marine Systems representative, or call or write: Sperry Division Headquarters, Marine Systems, Great Neck, New York 11020. (516) 574-3088.



A SHIP AWAY FROM HOME IS NEVER FAR FROM SPERRY.  
SPERRY IS A DIVISION OF SPERRY CORPORATION

**Maintenance Guide For Shipboard Officers Offered By Chesterton**

A six-page safety engineering and applications guide for chief engineers, chief mates, communications officers, and chief stewards with responsibility for marine maintenance has been published by A.W. Chesterton Company.

The four-color, illustrated guide includes descriptions of cleaners, solvents, lubricants, corrosion preventives, and protective coatings appropriate for engine room maintenance and use on decks, hull and storage applications, and for electrical and electronic applications.

Marine specialists stationed in the world's principal ports by Chesterton marine distributors handle all the products explained in the guide, which is available in English, French, German, Italian, Spanish, and Japanese.

For a free copy of Bulletin 71770, write to A.W. Chesterton Company, **Robert Robotham**, Dept. MR, Middlesex Industrial Park at Route 93, Stoneham, Mass. 02180.

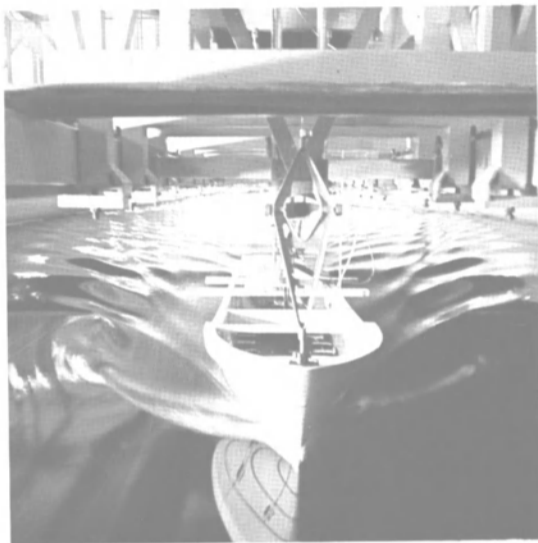
**CSSRA 1981 Annual Meeting Of The Technical Section Set For Montreal, Feb. 9-10**

The Annual Meeting of the Technical Section of the Canadian Shipbuilding and Ship Repairing Association (CSSRA) will be held at the Hyatt Regency Hotel, Montreal, Quebec, February 9 and 10, 1981. The Open Session starting at 9 a.m. February 10 will be devoted to technical papers and will be open to all interested people. Copies of papers presented will be available at the CSSRA registration desk. At 7:30 p.m., the Annual Banquet will be held in the Regence Ballroom and will be preceded by a Reception in the Foyer.

For further information on the 1981 meeting, write **Mrs. Joy MacPherson**, Secretary / Treasurer, CSSRA, Ste. 801, 100 Sparks Street, Ottawa, Ontario, K1P 5B7, Canada.



WE SELL MORE  
BECAUSE WE HAVE MORE  
TO OFFER



# CENTROMOR

POLISH SHIPBUILDING INDUSTRY—  
—MORE THAN SUCCESS IN WORLD SHIPBUILDING

1700 SHIPS DELIVERED TO OVER 100 SHIPPING COMPANIES  
THROUGHOUT THE WORLD

ALL TYPES OF SHIPS. CUSTOM BUILT. HIGHEST WORLD STANDARDS.



Head Office:

Okopowa 7,  
80-819 Gdansk, Poland  
Phone: 31 22 71  
Telex: 0512 376

Offices Abroad:

OSLO  
Phone: 41 80 63  
Telex: 19979 thomo n

HAMBURG  
Phone: 35 20 45  
Telex: 211914 polsh d

LONDON  
Phone: 01/ 370-6181  
Telex: 916074

MOSCOW  
Phone: 228 05 85  
Telex: morhan su 7361

NEW YORK  
Phone: /212/ 938-1900  
Telex: wu 128-241

RIO DE JANEIRO  
Phone: 221 1627  
Telex: 212 3396 julio br

**Richard S. Bliss Named Executive Vice President For Matson Terminals**



Richard S. Bliss

Matson Terminals, Inc., has appointed **Richard S. Bliss** to the newly established position of executive vice president. He has served as vice president, area manager, southern California, for Matson Navigation Company, parent company of Matson Terminals,

Inc., for the past three years, and before that held various executive positions with Matson Terminals.

**John C. Couch**, Matson vice president, area manager, northern California, since January, will replace Mr. Bliss as vice president, area manager, southern California, in Los Angeles.

**Barry L. Prince**, Matson general sales manager, has been named area manager, northern California, and **Edward P. Bowman**, assistant general sales manager, has been promoted to general sales manager.

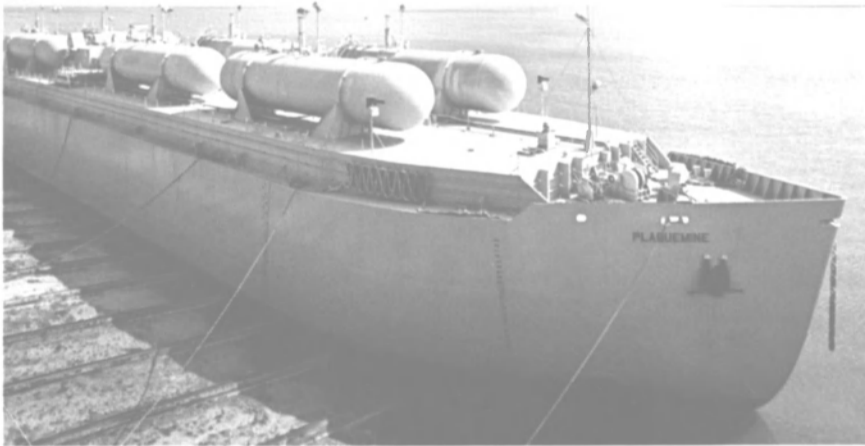
**\$3.7-Million Navy Contract Awarded To Southwest Marine**

The Naval Sea Systems Command has awarded a \$3.7-million contract to Southwest Marine of San Francisco Inc., for routine repairs to the aircraft carrier Coral Sea.



**Get a better barge.  
Get a better price.  
Get a GSC bid.**

**GALVESTON SHIPBUILDING COMPANY**



**PLAQUEMINE** An oceangoing barge with a deep notch for flexible push towing. A sophisticated and versatile 22,400 DWT double skinned barge with six (6) 2,000 barrel, 250 psi cylindrical chemical tanks on deck. With eight (8) integral hull tanks, including four (4) with steam heating coils, it has four (4) independent pumping systems with vapor recovery and restricted gauging capability. Its cargo discharge rate is 10,000 barrels per hour.

**PLAQUEMINE** has segregated ballast in her double bottom and wing tanks serviced by deep well ballast pumps and she is equipped with a 1,000 horse power D.C. electrical bow thruster with pilot house controls on the tug.

This barge and a twin identical unit, **VELASCO**, were delivered to their owner, Dow Chemical Company, during 1978.

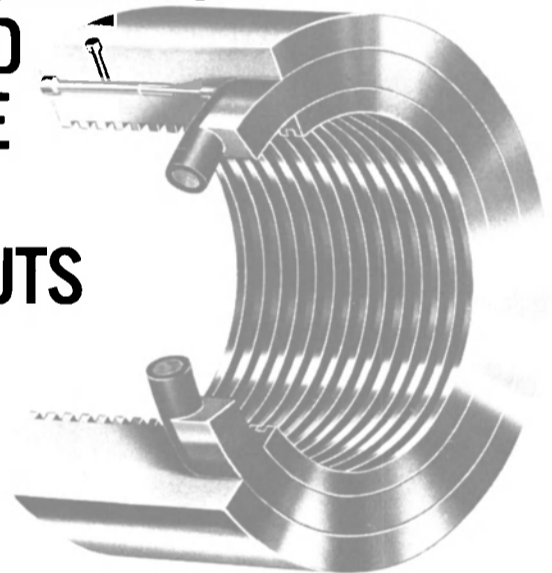
Get a Galveston Shipbuilding bid. Call Nat McClure at GSC today.



**GALVESTON SHIPBUILDING COMPANY**

6800 PORT INDUSTRIAL BLVD. / P.O. BOX 2660 / GALVESTON, TEXAS 77553  
TELEPHONE (713) 744-0491 / INTRACOASTAL CANAL MILE 355  
TELEX: 76 5442 GALV SHIP

**INTERCHANGEABILITY IS ASSURED WITH ACME THREADED PILGRIM® NUTS**



There is no galling or seizure on the shaft because:

- Weight of the Nut is taken on the cylindrical barrel of the thread because of generous axial clearance. There is no wedging as on "V" threads. Nut spins on freely.
- Pilgrim Nuts are guaranteed to be removable if fitted with Acme threads.
- Two threads per inch are used instead of four. Takes less time ON and OFF.
- Thread gauges are not necessary. The Pilgrim Nut is furnished threaded. Shaft manufacturer cuts shaft thread to furnished drawing tolerances.



**B.T. ALASKA**  
Built by  
National Steel &  
Shipbuilding Co.  
for Shell Oil Co.



Send for Descriptive Literature

**MAPECO PRODUCTS, INC.**

20 VESEY ST. • NEW YORK, N.Y. 10007  
212/732-7863 • TELEX 12-6075

## 100,000-dwt Floating Dry Dock Increases HUD's Tsing Yi Capacity

Ships of up to 100,000 dwt can be docked at Hongkong United Dockyards Ltd.'s (HUD) Tsing Yi Yard, following an agreement signed recently for HUD to charter Euroasia Shipyards' floating dock, which has a lifting capacity of 32,800 tons.

The move increases HUD's floating docks to three, including the ship repair company's existing Whampoa and Taikoo docks of 20,000 and 11,500 tons lifting capacity, respectively. The bareboat charter means that Euroasia is leasing only the dock itself; HUD will man the unit with its own labor force.

With a recent major overhaul to bring it into Lloyd's class, the dock has a length over keel blocks of 258.15 meters, and an internal width of 38.55 meters (847 by 126.5 feet), enabling it to accommodate the largest ships normally likely to visit Hong Kong.

"I am delighted to add this large dock to our major new facilities at Tsing Yi," said David Hall, managing director of HUD, "as it will allow us to broaden our activities in the repair of larger ships, consolidate our total facilities at Tsing Yi, and help finalize plans for the future expansion of our new dockyard."

## R.V. Warden Appointed To Executive Board Of N.H. Oceanographic Foundation

Richard V. Warden, president of Raytheon Marine Company, has been appointed to the executive board of the New Hampshire Oceanographic Foundation. The Foundation provides information on and support to oceanographic activities in the Granite State. The appointment was made by New Hampshire Governor Hugh Gallen.

Mr. Warden joined Raytheon, a leading manufacturer of marine electronics for oceangoing vessels, fishing and workboats, and pleasure craft, in 1977. From 1962 he served in several executive positions at ITT before being named president of ITT Decca Marine. Earlier, he served on active duty in the U.S. Navy as a navigator aboard a destroyer, and as a carrier pilot.

## Literature Available On Foxboro's New On-Line Ferrograph

Foxboro Analytical, a Division of The Foxboro Company, has just published a Product Specification Sheet for its new Model 958PF

on-line ferrograph. Through monitoring of the level of wear debris within a lubricating or hydraulic system, this new instrument is said to provide early warning of incipient failure in a wide range of machinery.

Wear debris is separated from the oil by a high-gradient magnetic field, and quantitative meas-

urement of the debris is achieved by a surface effect capacitive sensor. As separation of the debris is such as to provide a distribution according to size, two quantitative measurements are made to provide information on size distribution and total debris concentration within the system.

Applications include marine

propulsion and auxiliary machinery, gas turbines, gear boxes and transmissions, large critical bearings, hydraulic systems, and offshore production rigs.

For a free copy of the new literature—PSS 6-8A1 A—write to **Roger H. Rotondi**, Dept. MR, Foxboro Analytical, P.O. Box 435, Burlington, Mass. 01803.



## Marisat communications. A direct line to the seven seas at your fingertips.

Your present telephone and telex can be used, right now, to communicate with hundreds of ships and offshore operations worldwide.

You simply call a Marisat-equipped ship. And COMSAT General gets you there fast via satellite. You can send information instantly, day or night, privately, and even in the teeth of an electrical storm. No traffic congestion, no delays.

Now ship chandlers, shipping companies, agents, repair and marine suppliers, virtually anyone who has business with ships or rigs at sea, can do business better. And good, reliable communications give you that important competitive edge. To learn how to reach Marisat-equipped

ships and rigs, simply call our toll free number, **800-424-9152**, or send us the coupon below.

### Send for free Marisat Telephone/Telex Directory

Please send me free directory.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_



## Answers in orbit, via satellite. From COMSAT General Corporation.

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



## Innovative Tugboat 'Jekyll Isle' Delivered By Gladding-Hearn

The 76-foot tug *Jekyll Isle* (shown above) has been delivered by Gladding-Hearn Shipbuilding Corporation, Somerset, Mass., to *Jekyll Towing and Marine Services Corporation of Jekyll Island, Ga.* With the power and range to perform both mid-ocean and coastal work, the 185-ton vessel fills a void in the towing and chartering market, according to **Charles D. Gibson**, president of *Jekyll Towing*.

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 by Gladding-Hearn during the yard's 25 years of operation. In 1977, the yard designed and con-

structed the first U.S.-built tug powered by 360-degree, steerable propulsion units.

The *Jekyll Isle* is fitted with fuel-saving Kort nozzles, and she has a bollard pull of 17½ tons. She holds both American Bureau of Shipping and U.S. Coast Guard approval 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.

The boat is designed for crew and passenger comfort as well as performance. For coastal day trips, she can carry a master, two or three crew members, and up to 12 passengers. For offshore mis-

sions 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.

Main propulsion power is supplied by two General Motors 16V-92 Detroit Diesel Allison engines with a total output of 1,200 bhp, 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 use, 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.

Two 3-71 Detroit Diesel-powered generators supply 30 kw each. The electrical system is designed for non-parallel operation. A special feature allows exclusive use of one generator by a charterer while the other provides ship's power.

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 24-volt dc batteries.

Deck gear includes three winches, a knuckle-boom crane, 25-ton, pneumatic-release tow 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 searchlight for aft maneuvering are located on a walkway behind the pilothouse.

A life raft and small boat are

### Equipment and 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), **Baldr**.  
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, **Schlyer**.  
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**.

stored on the upper deck. A davit is fitted for lowering the boat and handling an over-the-side transducer boom. A wraparound sandwich fender system includes bow fender strips from the rail to 24 inches above the waterline for push-towing jobs.

The vessel's electronics include a Wagner autopilot, Raytheon 1025 Commercial Model Radar, a smaller Raytheon back-up radar, Simrad EQ depth recorder with MC expander system, and Wesmar scanning sonar and Towfish sonar. Her Loran is a Raytheon 600 with navigational computer including latitude and longitude readout. Radios are two Nautilus VHF's and one 1,000-watt SSB. For route and operational planning she carries a Furuno facsimile Weatherfax.

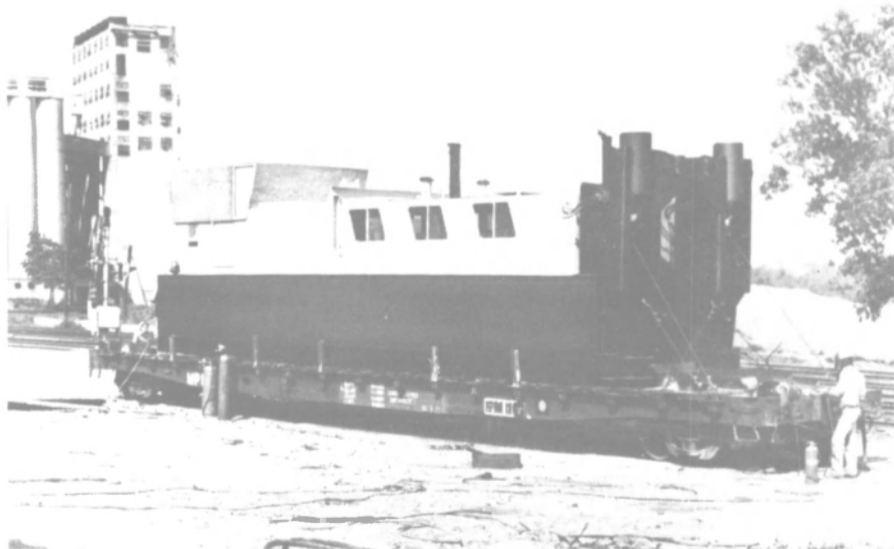
## Dixie Ships First Of 5 New Dredges To The Egyptian Dredging Co.

The Dixie Dredge Corporation, St. Louis, Mo., a subsidiary of Pott Industries Group, St. Louis Ship Division, Houston Natural Gas Corporation, has shipped the first of five new Dixie dredges and associated equipment to the Egyptian Dredging Company of Cairo, Egypt, it was announced by **Jack T. Dunn**, president.

The new Dixie dredges, which are part of a U.S. State Department A.I.D. project, employ a "tilting spuds system" which will allow the dredges to pass under bridges and other obstacles without having to remove their spuds. The Egyptian Dredging Company will build the hull side sections for the dredges, which will then be employed throughout Egypt to maintain and construct irrigation canals.

Each of the dredges is a modi-

fied Model CS-2-14 (EDC) Dixie dredge. The dredge pump in each craft is powered by a Caterpillar D-348 turbocharged and raw water aftercooled diesel engine developing 725 continuous horsepower. The service water pump, along with the hydraulic system and generator on each dredge will be powered by a Caterpillar 3306 turbocharged and raw water aftercooled diesel engine producing 175 continuous horsepower. The overall hull length is 40 feet long by 10 feet wide, and the dredging ladder, with an 18-foot removable section, extends 45 feet, enabling the dredge to dig to a depth of 33 feet below water level. Other equipment to be provided to the Egyptian Dredging Company includes five 36-foot dredge tender boats, two 32-foot



The first of five dredges begins the first leg of its long journey to the Egyptian Dredging Company of Cairo, Egypt.

crew boats, and spare parts and accessories needed to support dredging operations.

Delivery of the fifth Dixie dredge, completing the \$3.5-million contract, is scheduled before the end of the year.

Anyone wishing further information about dredges is invited to direct the inquiry to Dixie Dredge Corporation, Attention: **Jim Bishop**, Manager-Marketing, Dept. MR, 8224 Polk Street, St. Louis, Mo. 63111.

## H.J. Bobzien Named Chairman Of WTA

H.J. Bobzien Jr., president of American Commercial Barge Line Company, has been elected to fill the unexpired term of the late Robert A. Kyle as chairman of the executive committee of the Water Transport Association.



H.J. Bobzien Jr.

At the same time, Fred S. Sherman, president of SCNO Barge Lines, was elected to the executive committee, and K.W. Peters was elected treasurer.

L.E. Sutton, president of Dravo Mechling, succeeds Richard Smail of that company on the executive committee. T.B. Crowley, president of Crowley Maritime Corporation, remains vice chairman; John A. Creedy of New York, president; A.C. Sullivan Jr. of American Steamship Company, secretary.

## Fuel Conservation Subject Of N.Y. SNAME Symposium Sept. 22-23

The international problem of a decreasing world's fuel supply, as both demand and cost are increasing, will be addressed by the maritime community in a symposium, to be presented by the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers on September 22 and 23, 1980, at the Waldorf-Astoria Hotel in New York City.

On Monday morning, September 22, the symposium will open with a paper summarizing a study conducted by the U.S. National Academy of Sciences Maritime Transportation Research Board, which will be concluded with panel discussion. The morning session will be completed with dual presentation of papers on low-speed geared diesel engines and steam turbine technical modifications in the hotel's Jade Room and Astor Salon.

Dual sessions will be held for the remainder of the symposium, with themes as follows:

**Monday, p.m.** — Jade Room, "Fuel Economy"; Astor Salon, "Hull Form Forum."

**Tuesday, a.m.** — Jade Room, "Hull Roughness"; Astor Salon, "Steam Power Plants."

**Tuesday, p.m.** — Jade Room, "Propellers and Propulsion De-

vices"; Astor Salon, "Alternate Fuels and Propulsion Plant Economy."

A panel of experts from maritime research and production will comment on hull form during the Hull Form Forum on Monday afternoon and respond to participation by the audience. Members of the panel are Mel Colen of Avondale Shipyards, Peter Fitzgerald of Exxon, Karl Kirkman of Hy-

dromatics, Jacques Hadler of Webb Institute of Naval Architecture, James Robinson of the Naval Ship Research and Development Center, and Aake Williams of The Swedish Maritime Research Council.

As part of the symposium, a luncheon will be held each day at the Waldorf-Astoria. The luncheons will feature talks by Samuel Nemirow, U.S. Assistant Secre-

tary of Commerce for Maritime Affairs, on Monday; and by Colin P. Carter, vice president of energy economics, Chase Manhattan Bank, on Tuesday.

Forms for symposium registration and for hotel reservations have been mailed to SNAME members. Nonmembers who desire registration material should write to Joseph Cotter, P.O. Box 294, Rye, N.Y. 10580.

# COLLISION AVOIDANCE with

# DIGI PLOT®

## FULLY AUTOMATIC RADAR PLOTTING AID

# COMPARE



More than 285 DIGI PLOTS are at sea totalling over 1000 ship years of experience.

### • COMPUTATIONAL ABILITY

Most powerful micro-programmed computer designed specially for marine application. Not a limited performance microprocessor on a "chip".

### • REQUIRED TRAINING

Uses familiar radar vector display and controls. *No computer code inputs required.*

### • TRACKING PERFORMANCE

Target response and accuracy not affected by range scale, bearing or number of targets.

### • TARGET ACQUISITION

Manual or FULLY automatic with NO guard ring operational limitations.

### • RELIABILITY

Closed cooling system eliminates salt air corrosion. 100% production thermal and vibration tested to fully meet RTCM specifications. Every unit is factory operated for 200 hours at 140° F (60° C).

### • EQUIPMENT WARRANTY

Full coverage after acceptance of all parts costs for two years and all labor costs for one year.

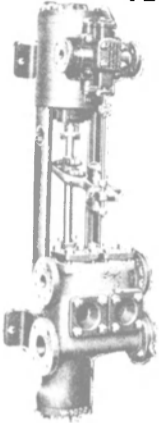


SYSTEMS DESIGNED FOR SAILORS

IOTRON CORPORATION, 5 Alfred Circle, Bedford, Mass., 01730 USA Telephone (617) 275-0340 Cable: Iotron Bos. Telex: 92-3426

# PUMPS

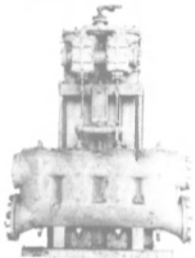
## UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



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

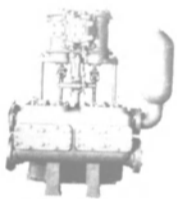
**\$1195**

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



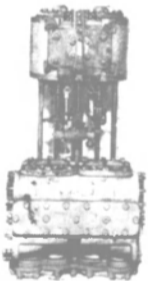
1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

## STEAM DRIVEN VERTICAL DUPLEX FIRE & GENERAL SERVICE PUMPS



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

## 8" X 8" X 10" VERTICAL DUPLEX PUMP



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

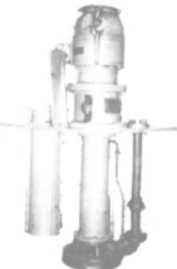
**PRACTICALLY  
NEW**

## LIDGERWOOD STEAM CAPSTAN



8 X 8—125 lb. working pressure. Reversible.

## 4 NEW UNUSED SUMP OR LOW PRESSURE DRAIN PUMPS



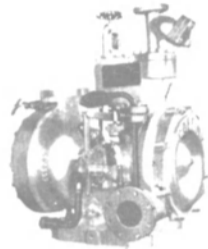
Bronze—40 GPM @ 40 PSI. 2" discharge—single impeller—CW rotation—32" from deck plate to base. Complete with flotation equipment. Totally enclosed 5HP 440/3/60 1725 RPM motor. Repair parts for motor & pump included.

## COFFIN FEED PUMPS — ALL SIZES — TYPE DE



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

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



### TYPE CG

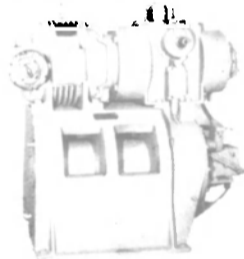
### 2 TYPE CG 350 GPM 1880' NET HEAD

7220 RPM—311 HP. Steam pressure 580 PSIG—0°-100° superheat. Exhaust 15 lbs—typical serial #5437-CG-8-8-33

## DAVIT — WINCH Mfg. by Skagit

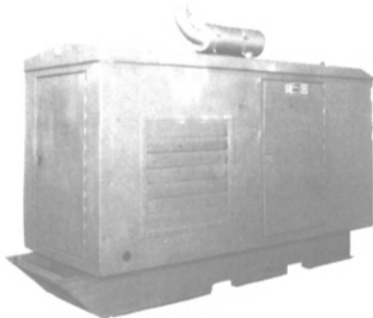
Rated 4000 lbs. @ 80 FPM

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

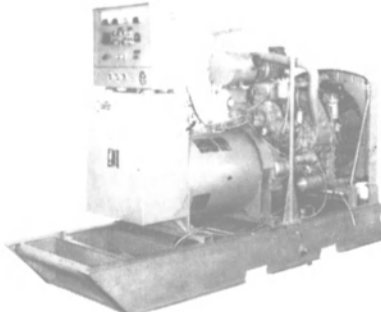


Motor: 13.5 HP — 440/3/60. Designed for ½" 6x37 wire rope. Divided drum with 2 spooling areas. Drum 8½ wide — 4" flange — 10" diameter. Complete with level wind. Also capable of manual operation by crank in case of motor failure. Hand brake & speed limiting brake are provided for holding & lowering boat by gravity. Non-magnetic.

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



UNIT WITH CABINET IN PLACE

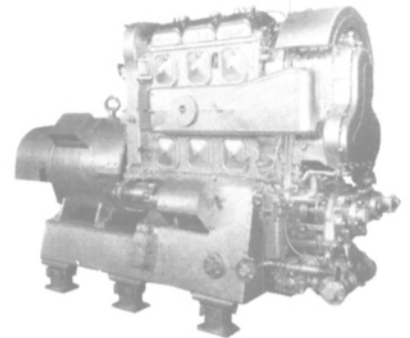


UNIT WITH CABINET REMOVED

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

WITH SWITCHGEAR / ALARMS / DISCONNECT

# G. M. 3-268A 100 KW A.C. DIESEL GENERATOR SETS



ENGINE: GM 3-268A—6½x7—1200 RPM—80% power factor—electric starting. GENERATOR: 100 KW—440/3/60/1200 RPM—161 amps. Drip-proof—open—self-ventilated. (Class "A" insulation stator—Class "B" insulation on field). EXCITATION: 2 KW DC unit—9' 1¼" long—37" wide.

## FOR C4-SA1-VESSELS

"General" Class — like-new condition

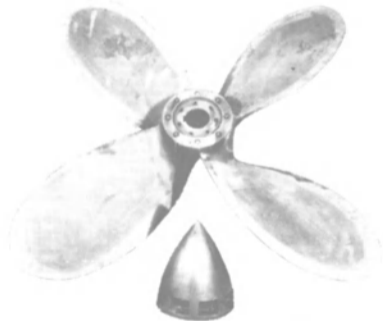
## 2 MAIN CF2V CONDENSATE PUMPS

Size 6X3 — 175 GPM  
185 Ft. Head — 1750 RPM

ALSO AVAILABLE

Turbine rotors — transfer pumps — complete Turbo Generators, etc.

## 4-BLADE LST BRONZE PROPELLERS



Starboard — 7' diameter — pitch constant 4.699: Bore tapers from 6¼" to 4<sup>53</sup>/<sub>64</sub>". 14½" taper equal to 1"/foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

## PLEASE NOTE:

Our Marine Dept. & Warehouse is now  
250 Scott St. at McHenry — Baltimore

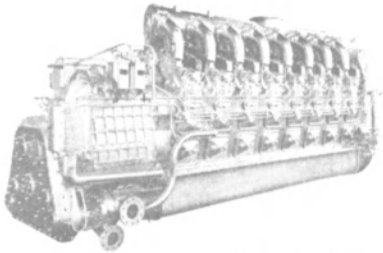


THE **BOSTON**  
313 E. BALTIMORE

Marine

CABLE: BOSIRON—BALTIMORE

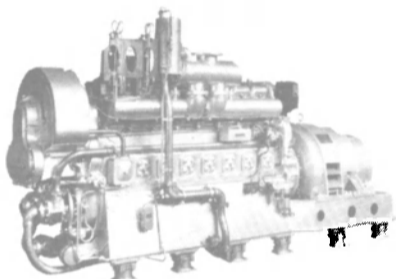
## G. M. 16-278A 1700 H. P. DIESEL ENGINES



Limited supply remaining

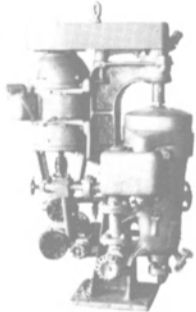
Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

## G. M. 8-268A 200 KW A.C. DIESEL GENERATOR SETS



ENGINE: 8-268A—6½" bore—7" stroke—1200 RPM—driving Westinghouse generator—200 KW—440 volts—3-phase—60 cycle—321 amps—80% power factor at 1200 RPM. Switchgear available.

### SHARPLES OIL PURIFIER



Ex. U.S.N. As removed from vessel. For lube or fuel oil. 225 GPH—viscosity 45, SSU @ 100°F fuel oil. 225 GPH—viscosity 180-200 SSU—130° lube oil. For lube oil models M-85-34-5-23BM-44 — for fuel oil M-85-35-5-8CA-13. Bowl speed 17,000 RPM—1" oil inlet & outlet. Vertical 2 HP 440/4/3400 RPM motor. Many units with stainless steel bowls.

located at  
Md. 21230

NEW PHONE  
(301)  
752-1077

# JN METALS CO.

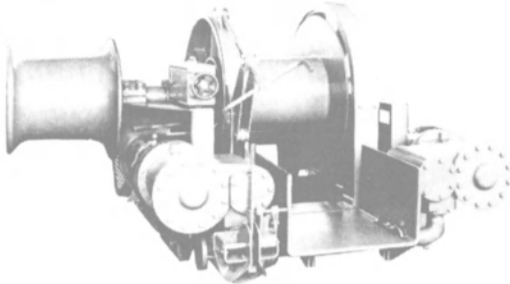
ST. • BALTIMORE, MD. 21202

Varehouse (301) 752-1077

, MD. U.S.A.

TWX 710-234-1637

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



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

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

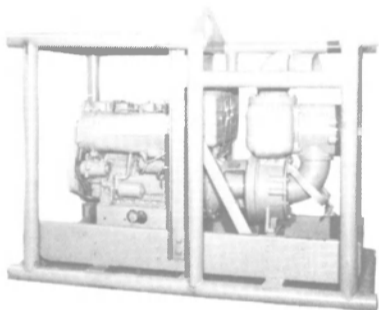
ALSO IN STOCK

12" x 14" Double Gypsy Unit

ALL UNITS CAN BE DEMONSTRATED RUNNING

### MARLOW

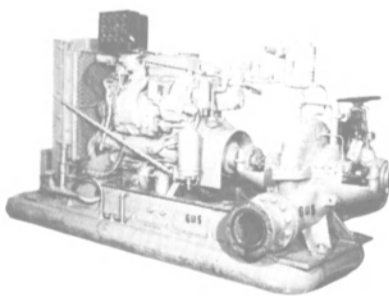
6" Self-Priming Salvage Pump



Marlow model 6EF18—driven by VM air-cooled 3-cylinder 52 HP diesel engine. 96,000 GPH at 40 ft. Maximum heads to 70 feet.

### GARDNER-DENVER 6" X 5"

BRONZE CENTRIFUGAL  
FIRE or JETTING PUMP



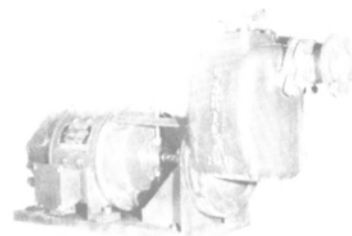
Driven by GM 3-71 diesel engine. PUMP: 1000 GPM @ 150 PSI/1500 GPM @ 100 PSI — 1750/2000 RPM. Maximum 175 PSI. Self-contained fuel tank in base. Automatic self-priming optional.

IMMEDIATE DELIVERY

## 2 3 / 4" STUD LINK CHAIN

10 Shots — with connecting links. ABS certificate. Practically New

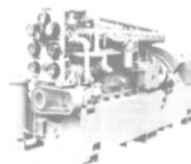
### CARTER BRONZE SELF-PRIMING BILGE & GEN. SERVICE PUMP



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

\$1466

### 100 KW GBD-8 DIESEL GENs.



From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM — Delco gen.—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. Ht necessary to pull piston 68". Fuel consumption 0.620 lbs/hr

## T-2 EQUIPMENT

Selected Items Listed

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

10 Stage — 435# — 720°T.T.

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

WESTINGHOUSE  
MAIN PROPULSION  
GENERATOR STATOR

From Ex-Pecos — in like-new condition. With A.B.S.

5-SPEED FORCED DRAFT  
FAN MOTOR



For T-2 Tanker. MOTOR: Totally enclosed—frame 505-S—440/3/60 —1770 RPM—typical serial #673-1807. CONTROLLER: 50 HP — CR-5333-820 — Cat. 932-1485. Max. amps 60.

WESTINGHOUSE  
538KW TURBINE ROTORS

WESTINGHOUSE 538 KW AUX.  
GENERATOR EXCITER ARMATURE  
400 KW REVOLVING FIELDS

We have both types:

110KW — 32KW — 5.5KW  
110KW — 28KW — 5.5KW

FOR G.E. 525 KW  
T-2 TURBO GENs.

- G.E. DORV-325M TURBINE ROTORS
- 400 KW 450/3/60/1200 A.C. 6-POLE REVOLVING FIELDS
- D.C. EXCITERS — 75KW/55KW
- AMPLIDYNE GENERATORS — NEW STYLE — LY-148

# Where Gulf meets

## Atlantic Coast

- Jersey City, NJ • Port Side Terminal  
• Morris Canal at World Trade Center • (201) 333-9771
- Philadelphia, PA • Gulf Oil Co. • Gate 1, 30th & Penrose Ave., 19145  
(215) 389-3500
- Baltimore, MD • Vane Brothers Co. • 916 S. Broadway, 21231 • (301) 732-6473
- Baltimore, MD • Marine Launch Co., Inc. • 606 S. Broadway, 21231  
(301) 732-1721
- Chesapeake, VA • Gulf Oil Terminal  
• P.O. Box 5328, 23324 • (804) 545-3565
- Savannah, GA • Casper Distr. Co.  
• 802 Wheaton St., 31404  
(912) 234-8324 & 234-7259
- Brunswick, GA • Thad J. Smith • 1025 Bay St., 31502 • (912) 265-2275
- Jacksonville, FL • Gulf Oil Co. • P.O. Box 26038, 32218 • (904) 765-5542
- Ft. Pierce, FL • Walker Distr., Inc. • P.O. Box 3689, 33450 • (305) 461-1020
- Ft. Lauderdale, FL • Gulf Oil Co. • P.O. Box 21588, 33316 • (305) 525-1311

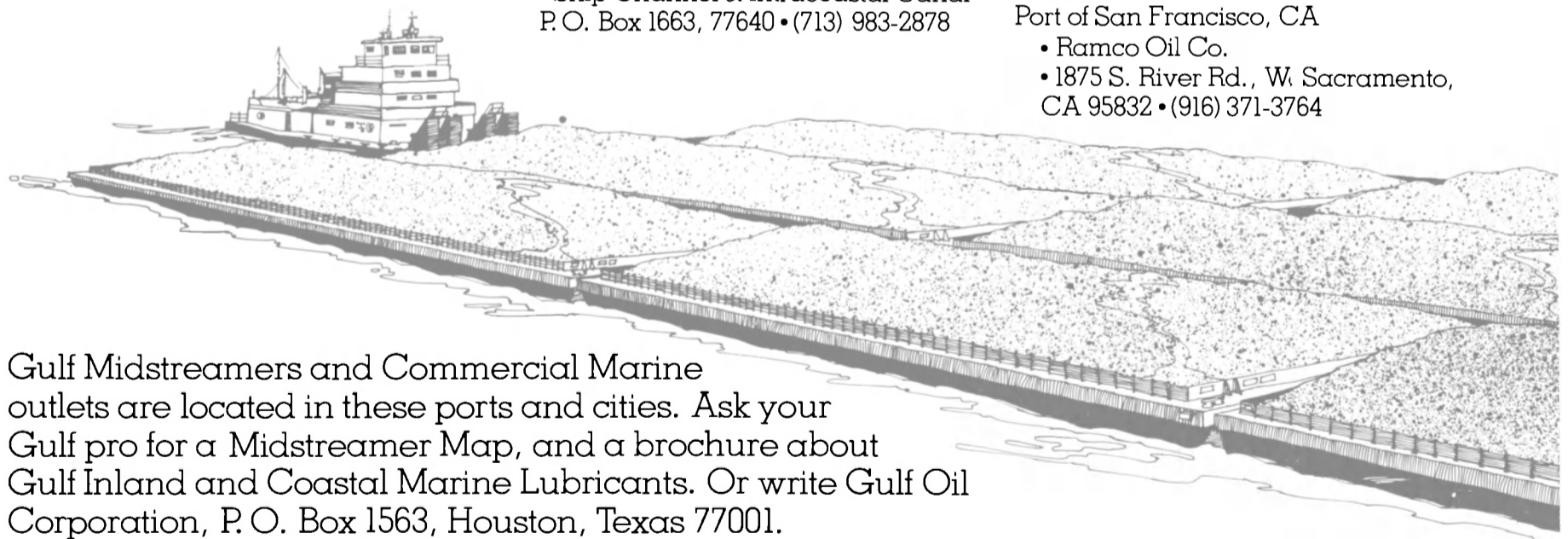
## Gulf Coast & Gulf Intracoastal Waterway

- Tampa, FL • Gulf Oil Co. • P.O. Box 19098, 33686 • (813) 831-1161
- Apalachicola, FL • J. V. Gander • P.O. Box 86, 32320 • (904) 653-9511
- Mobile, AL • Midstream Fuel Service, Inc. • 25 N. Section St., Fairhope, AL 36532 • (205) 433-4972 • Channel 16
- Harvey, LA • Harvey Canal Ship Service • P.O. Box 184, 70059  
(504) 366-9681—9682—9683
- Golden Meadow, LA • Martin Fuel Distributors, Inc. • P.O. Box 428, 70357  
(504) 475-7305
- Houma, LA • Oilfield Lubricant Service • 611 Palm Ave., 70361  
(504) 872-2716 & 525-3387
- Morgan City, LA • Mar-Vac Gulf, Inc. • 1001 Front St. & St. Clair, 70380  
(504) 385-2120
- Cameron, LA • J. W. Doxey, Jr. • P.O. Box G, 70631 • (318) 775-5520 Day.  
538-3116 Night
- Sulphur, LA • Calcasieu Fueling Service • Mile 241 P.O. Box 292, 70663  
(318) 583-7215 • KQU-606
- Orange, TX • Fosti • (713) 722-8393
- Port Arthur, TX • Petro-Gulf Fuels, Inc.  
• Ship Channel & Intracoastal Canal  
P.O. Box 1663, 77640 • (713) 983-2878

- Port Arthur, TX • Channel Fueling Serv.  
• Intracoastal Canal • P.O. Box 1408,  
77640 • (713) 962-5557
- Port Arthur, TX • Fosti • P.O. Box 1028,  
Hwy. 87, Sabine Pass, TX 77655  
(713) 982-9425
- Galveston, TX • Gulf Oil Co. • 1802  
Water, 77550 • (713) 763-6466
- Houston, TX • Channel Fueling Serv.,  
Inc. • (713) 482-9500
- Houston, TX • Warrengas Terminal  
• P.O. Box 485, Galena Park, TX  
77547 • (713) 453-7173
- Freeport, TX • Channel Fueling Serv.,  
Inc. • (713) 233-5321
- Freeport, TX • W. H. Pierce, Jr. • P.O.  
Box 330, Brazoria, TX 77422  
(713) 798-2255
- Pt. Lavaca, TX • F. H. Diebel, Jr. • 707½  
West Main St., 77979 • (512) 552-3224
- Aransas Pass, TX • Jack J. Johnson • 1180  
S. Euclid St., 78336 • (512) 758-3411
- Corpus Christi, TX • C. H. Cagle • 100 N.  
Brownlee, 78404 • (512) 882-3381
- Brownsville, TX • Harry L. Faulk • #3  
East Third St., 78521 • (512) 542-7451

## Pacific Coast

- Port of Sacramento, CA  
Port of Stockton, CA  
Port of San Francisco, CA  
• Ramco Oil Co.  
• 1875 S. River Rd., W. Sacramento,  
CA 95832 • (916) 371-3764



Gulf Midstreamers and Commercial Marine outlets are located in these ports and cities. Ask your Gulf pro for a Midstreamer Map, and a brochure about Gulf Inland and Coastal Marine Lubricants. Or write Gulf Oil Corporation, P.O. Box 1563, Houston, Texas 77001.



# the water.

Port of Santa Barbara, CA  
Port Ventura, CA  
Port Hueneme, CA  
T. W. Brown Oil Co., Inc. • 1457 Fleet  
Street, Ventura, CA 93003 • (805)  
644-7353

## Mississippi River

St. Paul, MN • Gopher Oil Co. • 2500  
Delaware Ave., S.E., Minneapolis,  
MN 55414 • (612) 331-5936

Dubuque, IA • Iowa Oil Co. • P.O. Box  
712, 52001 • (319) 583-3563

Moline, IL • BRU-SUN Co., Inc. • 6600  
John Deere Rd., 61265 • (309) 796-0123

Wood River, IL • Economy Boat Store  
Company • 301 Penning Ave., 62095  
(618) 254-4333

St. Louis, MO • Kiesel Marine Service,  
Inc. • 1717 Park Ave., 63104  
(314) 241-6850

Cape Girardeau, MO • Rhodes Oil Co.  
• P.O. Box 557, 63701 • (314) 334-7733

Memphis, TN • Economy Boat Store  
• Foot of Illinois Ave., 38106  
(901) 775-3131 • KXE-302 Channel 11

Memphis, TN • Waterways Marine, Inc.  
• Foot of Beale St., 38103  
(901) 522-5761 • KJC-771 Channel 16

Helena, AR • Helena Marine Service,  
Inc. • P.O. Box 428, 72342  
(501) 338-8765 & 338-8508 Day  
338-8765 Night • G-287

Greenville, MS • Waterways Marine of  
Greenville, Inc. • P.O. Box 1378,  
Warfield Point Greenville, MS 38701  
(601) 335-2526 • KWS-617

Vicksburg, MS • Channel Fueling  
Serv., Inc. • Mile 437, 39180  
(601) 636-4814

Baton Rouge, LA • Channel Fueling  
Serv., Inc. • P.O. Box 3142, 70821  
(504) 383-4691

Port Allen, LA • Tri-State Marine  
Services, Inc. • P.O. Box 109, 70767  
(504) 749-3171 • KAK-216

Gretna, LA • John W. Stone • 87 First  
Street, 70053 • (504) 366-3401 &  
361-3396 • KGW-352

New Orleans, LA • Channel Fueling  
Serv., Inc. • (504) 368-1416

New Orleans, LA • Gulf Outlet Fuel &  
Marine Supplies, Inc. • P.O. Box  
26005, 70186 • (504) 241-8680 • KVF-893

Venice, LA • Petroleum Products of  
Delaware • P.O. Box 73183, 70091  
(504) 455-2077 (Metairie)  
534-7544 (Venice)

## Ohio River

Pittsburgh, PA • Gulf Oil Co. • 300 Penn  
Center Blvd., 15235 • (412) 824-9900

Ludlow, KY • Columbia Marine  
Service, Inc. • P.O. Box 16107, 41106  
(606) 431-4450

Louisville, KY • Wooten River Service &  
Supply Co. • P.O. Box 6686, 40206  
(502) 896-0317 • KDO-737

Rockport, IN • M & P Contract Co. • P.O.  
Box 47, 47635 • (812) 649-2191

Paducah, KY • Molloy Marine Service,  
Inc. • 1136 S. 3rd, 42001  
(502) 443-6456 • KRS-857 Channel 16

Paducah, KY • Walker Midstream  
Service • 532 S. 2nd, 42001  
(502) 442-0925 & 442-2738 • KEW-827  
Channel 16

## Illinois River

Chicago, IL  
Lockport, IL  
Joliet, IL  
CHC Supply, Inc. • 120 Fairbank St.,  
Addison, IL 60101 • (312) 543-2255

Peoria, IL • Midwest Oil Co. • 1245 W.  
Washington, East Peoria, IL 61611  
(309) 694-3413

## Missouri River

Council Bluffs, IA • Oil Products Co.,  
Inc. • 101 S. 18th St., 51501  
(712) 322-8555

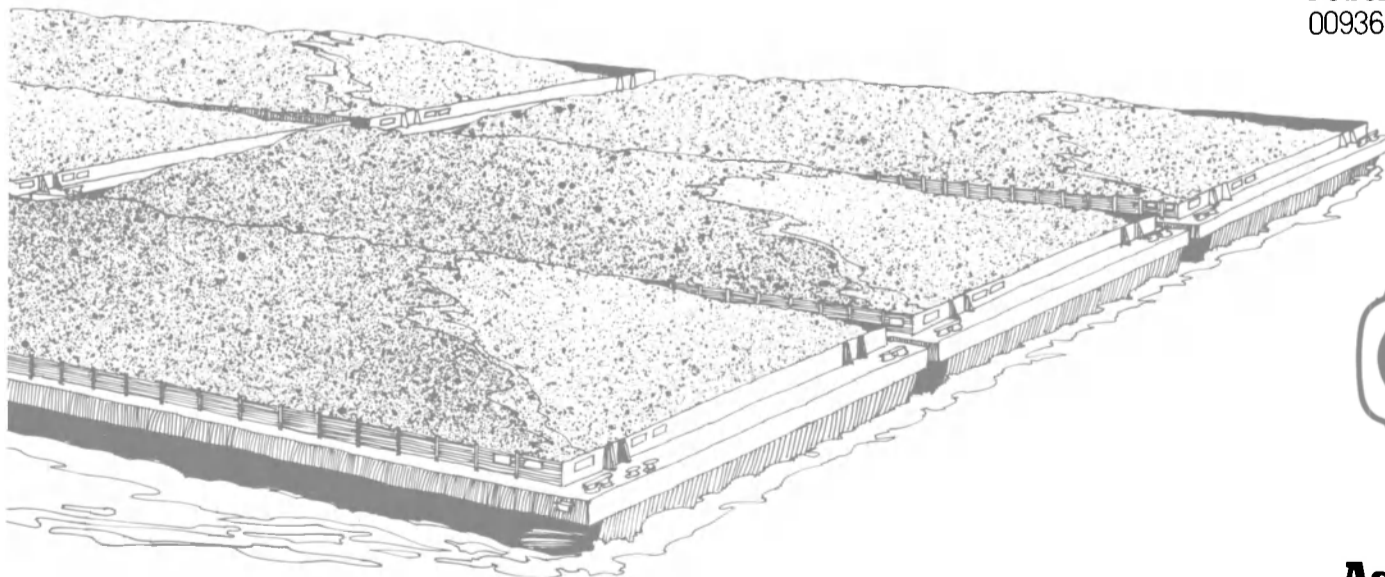
Kansas City, KS • Sam Dunn Oil Co.,  
Inc. • 1270 Southwest Blvd., 66102  
(913) 432-6606

## Arkansas River

Pine Bluff, AR • ATCO, Inc. • P.O. Box  
7111, 71611 • (501) 535-6464 Day  
534-0201 • 536-6535 Night  
Channel 16

## Puerto Rico

San Juan, PR • Mr. Louis Polanco • Gulf  
Petroleum S. A. • P.O. Box 4049,  
00936 • (809) 788-1910



**Ask the pro from Gulf.**



Crew/supply vessel **Audrey** was completed recently by Gulf Craft, Inc. for PSO Marine Transport, Inc., of Houston. Vessel's four MTU diesels drive her at top speed (unloaded) of 40 mph. Naval architect **Peter Sachse** calls her world's fastest planing crew/supply boat.

## New Crew/Supply Vessel 'Audrey' Powered By Four MTU Diesels

Several years ago, naval architect **Peter W. Sachse**, owner of PSO Marine Transport, Inc. of Houston, foresaw a need for faster, better-designed crew/supply boats to serve the growing offshore oil industry. In 1977 he introduced just such a vessel, the PSO-I, a planing supply and passenger carrier of under 100 gross tons.

Designed according to careful application of marine and aeronautical principles, the PSO-I was seaworthy, fast, and economical. Since that boat was delivered, Mr. **Sachse** has been refining the design to create a vessel with even greater cargo capacity, speed, and operating economy. The result of his work, the **Audrey** (PSO-II) made her trial run recently at Morgan City, La.

The **Audrey** is a 100-ton-class vessel with a top speed (unloaded) of 40 mph. With an average load she makes 36 mph, and even heavily loaded still runs at 30 mph.

The new vessel carries up to 50 passengers and has an on-deck cargo capacity of 35 tons. Her fuel capacity is 3,500 gallons, providing a range of about 800 miles.

For main propulsion power, Mr. **Sachse** chose four 950-bhp, MTU 8V 396 TC 82 diesel engines. The MTU diesels are designed to be lightweight and compact, offering a high horsepower to mass ratio. This gives the **Audrey** impressive ton-to-mpg figures.

The MTU 8V 396 TC 82 engines are delivered with connections built on—a complete power package with low fuel consumption, ready to install.

Mr. **Sachse's** design concept, re-

fining from the PSO-I, is based on precise calculations of speed to length ratios, planing capability, cargo capacity, and even passenger comfort. The basic design eliminates much of the rough ride characteristic of crew/supply vessels; comfort has been improved further by placing the lounge at the center of gravity in the hull.

In addition to all equipment required by the Coast Guard, **Audrey** has a pilot-operable fire-fighting system for flammable deck cargo, a non-flammable interior, full compartment floodability even under maximum loads, and carries two 25-man ocean-going self-inflating liferafts.

Mr. **Sachse's** idea for the PSO-I and ultimately for the **Audrey** came in the early 70s as offshore drilling was becoming more important. Rigs were being operated farther from shore, and new boats with greater cruising range and more carrying capacity were needed to service them. For the most part, new boats were simply longer and more powerful versions of the old designs.

But Mr. **Sachse** wondered if the designs being used provided the optimum in seaworthiness, carrying capacity, speed, and economy. "In looking back," he says, "it became obvious that the basic crewboat design was influenced heavily by the World War II PT boats. Unfortunately, other shortcomings aside, these craft were known for their rough riding characteristics.

"Still, the earlier 65-foot crewboats were speedy and quite seaworthy craft, and the older skippers wondered why they rode better than the newer and consider-

ably larger vessels. The one major reason for this is the larger aspect ratio of those 65-footers. What actually happened was that with every increase in length of the conventional crewboats, their beam did not follow in proportion. Large amounts of power are then necessary to drive such an out-of-proportion vessel at planing speeds. The result was that with every increase in length the aspect ratio decreased, and herein lies one of the key problems of the crewboats before the PSO-I."

A "narrow" boat suffers under several shortcomings, Mr. **Sachse** notes. An uncomfortable plunging motion, lowered pounds-per-square-foot carrying capacity, slowness to plane, and a diminished ton-mile-hour factor are the major faults, he explains.

Before the first line of the PSO-I was drawn, Mr. **Sachse** did detailed calculations to ensure proper proportions and ratios to eliminate the faults of the "narrow plane" vessels. Design of engine installation and propeller rotation were vital, too. He chose a quad arrangement over the triple design, and counter-rotated two of the four propellers to provide extremely clean flow of water under the hull.

The naval architect credits Gulf Craft, Inc. of Patterson, La., for its structural design work on both vessels. The hulls are constructed of a closely webbed system of lightweight L frames and H stringers with a "stressed skin" plating. The result is a light but extremely strong vessel constructed in a manner resembling that used in aircraft construction.

The PSO-II is a 97-foot by 24-

**Major Suppliers**  
Main engines (4), MTU 8V 396 TC 82 diesels.  
Generators (2), Delco 30-kw, driven by GM-Detroit Diesel 3-71 engines.  
Engine controls, Teleflex.  
Generator control panel, Sermac.  
Steering system, Womack.  
Propellers (2), Columbian Bronze.  
Bilge pump, Barnes.  
Fire pump, Berkley.  
Sanitation system, Mansfield.  
Running & navigation lights, Perko.  
Lifesaving gear, Switlik.  
Radar & Loran C, SI-TEX KODEN.  
Depth recorder, Datamarine.  
SSB radio, Hull.  
VHF radio, Motorola.  
Autopilot, Wesmar.  
(All electronic gear supplied by Frank L. Beier Radio Inc.).

foot true monohedron craft. The aspect ratio of her plane computes to 0.33 against an average of 0.25 for the conventional crewboat. Her dry displacement is 53 tons; with a continuous output of 3,400 bhp, the bhp per ton dry amounts to 64, which is an excellent value for a commercial vessel of this type.

With a deck load of 30 tons and fully fueled she displaces 95 tons, giving her a cruising speed of 30 mph, which is true planing for her size—an S/L ratio of 3.3. The deep vee of 18 degrees allows a smooth ride in a choppy seaway. To increase seagoing ability further, a hydrofoiled fin keel, anti-trip beveled chines, lift-splash strakes, and high aspect ratio rudders have been incorporated.

The below-deck passenger lounge in place of on-deck passenger cabin allows the pilothouse to be moved farther aft for better sea-keeping ability, and creates an aft cargo deck area of more than 1,000 square feet.

The basic economics of a mod-



ern crew/supply boat are determined by her ton-mile-hour factor when heavily loaded, in combination with high absolute speed for hotshot or personnel runs. Greater speed becomes ever more important as rigs are built farther offshore, Mr. Sachse explains. Vessels must be able to complete a trip in 12 hours, according to U.S. Coast Guard regulations, or carry a second skipper, adding greatly to operating expense.

The design cruising speed of the Audrey allows her to turn around within 12 hours, and thus her owner can run her up to seven trips a week. And that, adds her designer, is the single most important criterion for a fast, offshore supply and passenger-carrying vessel.

### \$19.9-Million Overhaul Job Awarded By Navy To Todd's Seattle Yard

Todd Pacific Shipyards Corporation, a subsidiary of Todd Shipyards Corporation, has been awarded a contract by the U.S. Navy for a general overhaul of the frigate Reasoner (FF-1063).

The \$19.9-million job, which will take about a year to complete, will be performed at the company's Seattle shipyard beginning in October this year.

### Caicos Petroleum Services Establishes Transfer Facility

Caicos Petroleum Services recently announced the establishment of a ship-to-ship oil transfer facility in the Turks and Caicos Islands. The company's activities are under the direction of Capt. J.O. Karstrom Jr., who is also the Services' U.S. agent.

Caicos Petroleum Services was formed by several Chicago area businessmen led by Raymond E. Cross, president of Federal Chicago Corp., and chairman of Federal Die Casting Co.

The transfer area is in the lee of the island of West Caicos on the east side of the Caicos Passage. The Caicos Petroleum Services facility provides full service for lightering operations, and air service to and from the United States. Hotels and a medical clinic are located on the nearby island of Providenciales. Ships stores and spare parts are available, and the company plans to provide bunkering services in the near future.

The operation is insured by Lloyd's of London, and includes a personnel boat for crew changes, utility boat, 10-foot by 20-foot sea cushion fenders, hoses, communications gear, oil dispersant, and related transfer tackle. Mooring

masters are provided by International Pilots of Atlantic Highlands, N.J.

For further information on Caicos Petroleum Services' new transfer facility, write Capt. J.O. Karstrom Jr., Dept. MR, Caicos Petroleum Services Inc., 2222 North Elston Avenue, Chicago, Ill. 60614.

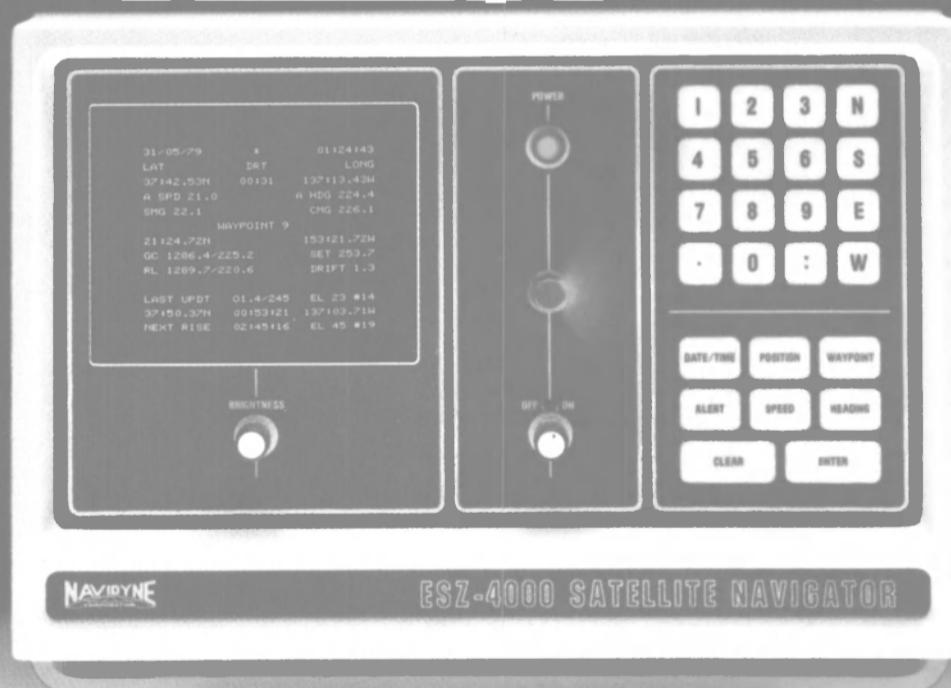
### Avondale Awards Contract To Lockstad

Howard E. Lindberg, president of Lockstad Co. Inc. of Mendham, N.J., a leading supplier of Chain Pipe Covers in the USA, recently announced the receipt of a contract from Avondale Shipyards, Inc. of Louisiana. Lockstad Co.

will supply all design, engineering and installation of Chain Pipe Covers for the Ogden marine tankers and the three American President Lines containerships now being built by Avondale.

Lockstad Co. Inc. recently moved their offices to R.D. #2, Burnett Road, Mendham, N.J. 07945.

# THE BEST SELLING SATELLITE NAVIGATOR TELLS ALL.



One of the main reasons that our ESZ-4000 is the world's fastest-selling satellite navigator is because it tells everything you want to know — without even being asked.

Every detail of where you are and where you're headed is constantly displayed. Including position, time, speed, heading, and course and distance to any one of nine prestored waypoints. And with the push of a single button, you can read the next ten satellite passes and the last six fixes.

#### THE INSIDE STORY.

Automatic inputs from speed log and gyro are standard, not optional.

And between satellite fixes, the ESZ-4000's computer updates your

ship's position every 10 seconds, using computed set and drift to make sure dead-reckoned position is as accurate as possible.

The more accurate the navigator, the more miles you'll save. The more time. And fuel. In fact, a large vessel may save the cost of the ESZ-4000 in the course of a single voyage.

No wonder Navidyne has sold more ESZ-4000s than any other single model on the market.

*WAIT, THERE'S MORE.*

We haven't begun to talk about our

satellite navigator's unmatched reliability, three-year warranty, worldwide shipboard service, or that it's been type approved by the Norwegian Maritime

Directorate, the Deutsches Hydrographisches Institut (DHI), and meets all U.S. Coast Guard requirements.

So contact Navidyne Corporation, 11824 Fishing Point Drive, Newport News, VA 23606 USA. Telephone: (804) 874-4488. Telex: 82-3653 (NAVIDYNE NPNS).

And get the whole story on the way Navidyne is building the most advanced products in marine electronics today.

**NAVIDYNE**

## Title XI Approval For Three Product Carriers To Cost \$197 Million

The Maritime Administration has approved in principle the application of First Attranco Tanker Corp., Second Attranco Tanker Corp., and Third Attranco Tank-

er Corp. for a Title XI guarantee to aid in financing the construction of three 50,884-deadweight-ton oil product carriers. The companies are subsidiaries of the American Transportation Co. Inc., New York.

National Steel and Shipbuilding Co., San Diego, Calif., is the pro-

posed builder of the three 658-foot-long, 106-foot-wide vessels. Deliveries of the first two tankers are scheduled for the autumn of 1982, with the third set to be delivered the following spring.

The applicants have indicated the vessels will be operated in the intercoastal trades of the United

States, Puerto Rico, Hawaii and the Virgin Islands.

The total estimated cost of the three tankers is \$197,007,000, or \$65,699,000 per vessel. The Title XI guarantee will cover \$173,380,000, or up to 87½ percent of the total estimated actual cost.



### Oil-free Cutless® rubber bearings stop water pollution, conserve oil.

In these days of fuel scarcity, leaky oil lubricated bearings waste energy and pollute our waterways. With Cutless water lubricated rubber bearings designed by Lucian Q. Moffitt, Inc., there's no oil seal to fail. No lube oil to leak out and pollute the waterways. Any water will lubricate the Cutless bearing . . . fresh water, salt or sand-filled.

Exclusive "Water Wedge" channels molded into a tough BFGoodrich rubber liner keeps plenty of lubricating water flowing through the Cutless bearing.

Cutless bearings are available worldwide from yards and marine stores in a full range of shaft diameters and load capacities. Write us for engineering data.

**LUCIAN MOFFITT, INC.**

NATIONAL and INTERNATIONAL DISTRIBUTORS  
P. O. Box 1415, AKRON, OHIO 44309

## Harold Bushey Named To Marine Sales Post For Tracor Marine



Harold G. Bushey

Harold G. Bushey has been appointed marine sales representative for Tracor Marine Systems, which is a part of the Tracor Instruments Division, Austin, Texas. Mr. Bushey will support the sales of Tracor Marine Navigation products including the Satellite Navigator II and the Omega Navigator II in the fishing, commercial marine, and pleasure craft markets. He reports directly to John Hoerber, marine sales manager of Tracor Instruments.

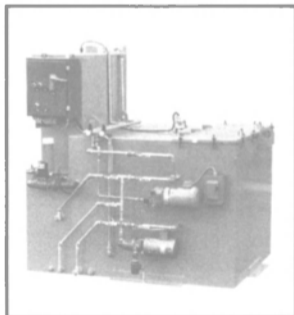
Before joining Tracor, Mr. Bushey was with Industrial Marine Precision Electronics Company located in Houston. He also acted as a distributor representative for JRC and TAIYO in the Gulf states.

## Title XI Sought For 20 Barges And 3 Towboats

Radcliff Materials Inc., 61 St. Joseph Street, Mobile, Ala., has applied for a Title XI guarantee to aid in financing 20 steel deck barges, and three twin-screw towboats.

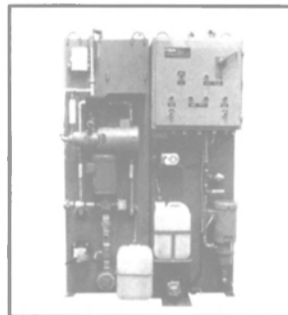
The 200-foot-long barges are currently under construction at Twin City Shipyard, St. Paul, Minn. The 850-horsepower towboats are being built at Dravo SteelShip Corp., Pine Bluff, Ark. All vessels are expected to be delivered by August 1980, and will be operated on the Mississippi River.

The Title XI guarantee will cover a total of \$8,297,000 compensating \$5,343,500, or 87½ percent, of the estimated actual cost of the barges and \$2,953,500, or 75 percent, of the estimated actual cost of the towboats.



BIO-STs 1000

## IT'S YOUR CHOICE!



STS-II

**ONLY SIGMA OFFERS BOTH BIOLOGICAL AND PHYSICAL-CHEMICAL MARINE SANITATION DEVICES**

To accommodate your particular needs, SIGMA has available a variety of shipboard sewage treatment systems that meet all U.S. and International requirements. SIGMA MSD's are easy to install, easier to operate, and easiest to finance. Deliveries from the United Kingdom, Greece, and U.S.A.

Shipboard Pollution Control Equipment

WORLDWIDE REPRESENTATION AND SERVICE



**SIGMA**  
TREATMENT SYSTEMS

2 Davis Avenue  
Frazer, PA 19355 USA  
Telephone: 215-647-3100  
Telex: 902014 SIGMA FRAZ

New York, ATCO MARINE CORP., Brooklyn

EUROPEAN REPRESENTATIVES

United Kingdom, FUGLESANG, LTD., London

Scandinavia, IEPC, A/S, Oslo

Germany, HATLAPA, GmbH, Uetersen

Greece, TECHNOMAR CO., LTD., Piraeus

Italy, ALBERTO BORDONI, Genova

ern crew/supply boat are determined by her ton-mile-hour factor when heavily loaded, in combination with high absolute speed for hotshot or personnel runs. Greater speed becomes ever more important as rigs are built farther offshore, Mr. Sachse explains. Vessels must be able to complete a trip in 12 hours, according to U.S. Coast Guard regulations, or carry a second skipper, adding greatly to operating expense.

The design cruising speed of the Audrey allows her to turn around within 12 hours, and thus her owner can run her up to seven trips a week. And that, adds her designer, is the single most important criterion for a fast, offshore supply and passenger-carrying vessel.

### \$19.9-Million Overhaul Job Awarded By Navy To Todd's Seattle Yard

Todd Pacific Shipyards Corporation, a subsidiary of Todd Shipyards Corporation, has been awarded a contract by the U.S. Navy for a general overhaul of the frigate Reasoner (FF-1063).

The \$19.9-million job, which will take about a year to complete, will be performed at the company's Seattle shipyard beginning in October this year.

### Caicos Petroleum Services Establishes Transfer Facility

Caicos Petroleum Services recently announced the establishment of a ship-to-ship oil transfer facility in the Turks and Caicos Islands. The company's activities are under the direction of Capt. J.O. Karstrom Jr., who is also the Services' U.S. agent.

Caicos Petroleum Services was formed by several Chicago area businessmen led by Raymond E. Cross, president of Federal Chicago Corp., and chairman of Federal Die Casting Co.

The transfer area is in the lee of the island of West Caicos on the east side of the Caicos Passage. The Caicos Petroleum Services facility provides full service for lightering operations, and air service to and from the United States. Hotels and a medical clinic are located on the nearby island of Providenciales. Ships stores and spare parts are available, and the company plans to provide bunkering services in the near future.

The operation is insured by Lloyd's of London, and includes a personnel boat for crew changes, utility boat, 10-foot by 20-foot sea cushion fenders, hoses, communications gear, oil dispersant, and related transfer tackle. Mooring

masters are provided by International Pilots of Atlantic Highlands, N.J.

For further information on Caicos Petroleum Services' new transfer facility, write Capt. J.O. Karstrom Jr., Dept. MR, Caicos Petroleum Services Inc., 2222 North Elston Avenue, Chicago, Ill. 60614.

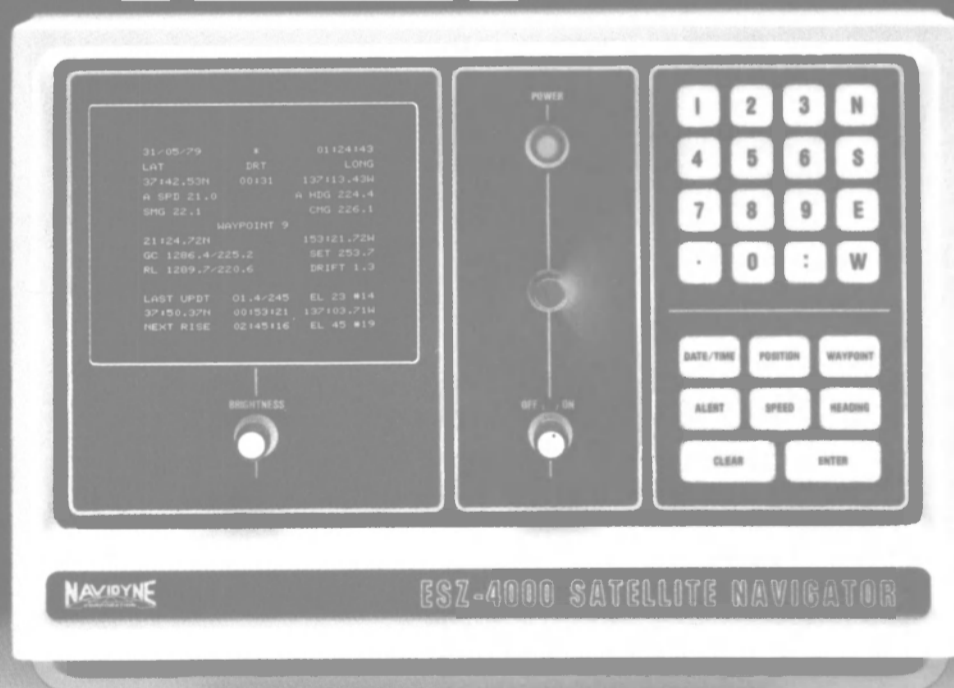
### Avondale Awards Contract To Lockstad

Howard E. Lindberg, president of Lockstad Co. Inc. of Mendham, N.J., a leading supplier of Chain Pipe Covers in the USA, recently announced the receipt of a contract from Avondale Shipyards, Inc. of Louisiana. Lockstad Co.

will supply all design, engineering and installation of Chain Pipe Covers for the Ogden marine tankers and the three American President Lines containerships now being built by Avondale.

Lockstad Co. Inc. recently moved their offices to R.D. #2, Burnett Road, Mendham, N.J. 07945.

# THE BEST SELLING SATELLITE NAVIGATOR TELLS ALL.



One of the main reasons that our ESZ-4000 is the world's fastest-selling satellite navigator is because it tells everything you want to know — without even being asked.

Every detail of where you are and where you're headed is constantly displayed. Including position, time, speed, heading, and course and distance to any one of nine prestored waypoints. And with the push of a single button, you can read the next ten satellite passes and the last six fixes.

#### THE INSIDE STORY.

Automatic inputs from speed log and gyro are standard, not optional.

And between satellite fixes, the ESZ-4000's computer updates your

ship's position every 10 seconds, using computed set and drift to make sure dead-reckoned position is as accurate as possible.

The more accurate the navigator, the more miles you'll save. The more time. And fuel. In fact, a large vessel may save the cost of the ESZ-4000 in the course of a single voyage.

No wonder Navidyne has sold more ESZ-4000s than any other single model on the market.

**WAIT, THERE'S MORE.**

We haven't begun to talk about our

satellite navigator's unmatched reliability, three-year warranty, worldwide shipboard service, or that it's been type approved by the Norwegian Maritime

Directorate, the Deutsches Hydrographisches Institut (DHI), and meets all U.S. Coast Guard requirements.

So contact Navidyne Corporation, 11824 Fishing Point Drive, Newport News, VA 23606 USA. Telephone: (804) 874-4488. Telex: 82-3653 (NAVIDYNE NPNS).

And get the whole story on the way Navidyne is building the most advanced products in marine electronics today.



## Title XI Approval For Three Product Carriers To Cost \$197 Million

The Maritime Administration has approved in principle the application of First Attranco Tanker Corp., Second Attranco Tanker Corp., and Third Attranco Tank-

er Corp. for a Title XI guarantee to aid in financing the construction of three 50,884-deadweight-ton oil product carriers. The companies are subsidiaries of the American Transportation Co. Inc., New York.

National Steel and Shipbuilding Co., San Diego, Calif., is the pro-

posed builder of the three 658-foot-long, 106-foot-wide vessels. Deliveries of the first two tankers are scheduled for the autumn of 1982, with the third set to be delivered the following spring.

The applicants have indicated the vessels will be operated in the intercoastal trades of the United

States, Puerto Rico, Hawaii and the Virgin Islands.

The total estimated cost of the three tankers is \$197,007,000, or \$65,699,000 per vessel. The Title XI guarantee will cover \$173,380,000, or up to 87½ percent of the total estimated actual cost.



### Oil-free Cutless® rubber bearings stop water pollution, conserve oil.

In these days of fuel scarcity, leaky oil lubricated bearings waste energy and pollute our waterways. With Cutless water lubricated rubber bearings designed by Lucian Q. Moffitt, Inc., there's no oil seal to fail. No lube oil to leak out and pollute the waterways. Any water will lubricate the Cutless bearing . . . fresh water, salt or sand-filled.

Exclusive "Water Wedge" channels molded into a tough BFGoodrich rubber liner keeps plenty of lubricating water flowing through the Cutless bearing.

Cutless bearings are available worldwide from yards and marine stores in a full range of shaft diameters and load capacities. Write us for engineering data.

**LUCIAN MOFFITT, INC.**  
NATIONAL and INTERNATIONAL DISTRIBUTORS  
P.O. Box 1415, AKRON, OHIO 44309

## Harold Bushey Named To Marine Sales Post For Tracor Marine



Harold G. Bushey

Harold G. Bushey has been appointed marine sales representative for Tracor Marine Systems, which is a part of the Tracor Instruments Division, Austin, Texas. Mr. Bushey will support the sales of Tracor Marine Navigation products including the Satellite Navigator II and the Omega Navigator II in the fishing, commercial marine, and pleasure craft markets. He reports directly to John Hoerber, marine sales manager of Tracor Instruments.

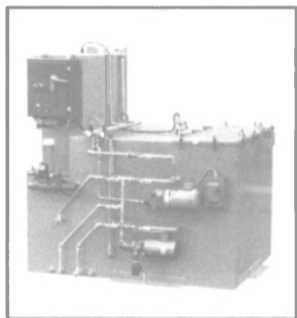
Before joining Tracor, Mr. Bushey was with Industrial Marine Precision Electronics Company located in Houston. He also acted as a distributor representative for JRC and TAIYO in the Gulf states.

## Title XI Sought For 20 Barges And 3 Towboats

Radcliff Materials Inc., 61 St. Joseph Street, Mobile, Ala., has applied for a Title XI guarantee to aid in financing 20 steel deck barges, and three twin-screw towboats.

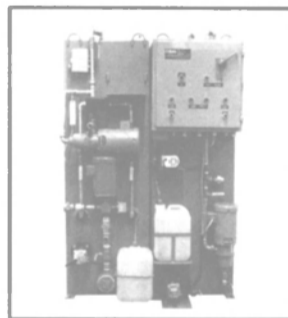
The 200-foot-long barges are currently under construction at Twin City Shipyard, St. Paul, Minn. The 850-horsepower towboats are being built at Dravo SteelShip Corp., Pine Bluff, Ark. All vessels are expected to be delivered by August 1980, and will be operated on the Mississippi River.

The Title XI guarantee will cover a total of \$8,297,000 compensating \$5,343,500, or 87½ percent, of the estimated actual cost of the barges and \$2,953,500, or 75 percent, of the estimated actual cost of the towboats.



BIO-STS 1000

## IT'S YOUR CHOICE!



STS-II

**ONLY SIGMA OFFERS BOTH BIOLOGICAL AND PHYSICAL-CHEMICAL MARINE SANITATION DEVICES**

To accommodate your particular needs, SIGMA has available a variety of shipboard sewage treatment systems that meet all U.S. and International requirements. SIGMA MSD's are easy to install, easier to operate, and easiest to finance. Deliveries from the United Kingdom, Greece, and U.S.A.

Shipboard Pollution Control Equipment

WORLDWIDE REPRESENTATION AND SERVICE



**SIGMA**  
TREATMENT SYSTEMS

2 Davis Avenue  
Frazer, PA 19355 USA  
Telephone: 215-647-3100  
Telex: 902014 SIGMA FRAZ

New York, ATCO MARINE CORP., Brooklyn

EUROPEAN REPRESENTATIVES

United Kingdom, FUGLESANG, LTD., London  
Scandinavia, IEPC, A/S, Oslo  
Germany, HATLAPA, GmbH, Uetersen  
Greece, TECHNOMAR CO., LTD., Piraeus  
Italy, ALBERTO BORDONI, Genova

## Ingram Exploration Names Thomas M. Ellis Jr. VP Of Exploration



Thomas M. Ellis Jr.

Thomas M. Ellis Jr. has been named vice president of exploration for Ingram Exploration Company, New Orleans, La., a wholly owned subsidiary of Ingram Corporation, it was announced recently by James A. O'Neill Jr., Ingram Corporation president.

Mr. Ellis began his career as an exploration geologist with Chevron Oil Company in 1953, and remained with Chevron until late 1978. Mr. Ellis served as executive assistant and general manager of exploration and production for Natural Gas Pipeline Company in Houston, a subsidiary of Peoples Energy Corp. (Chicago). He most recently served as vice president of exploration for Texoma Production Company, which is also a subsidiary of Peoples Energy Corporation.

In his new position, Mr. Ellis will be responsible for oil and gas exploration operations domestically and foreign, and will report directly to Allen R. Stern, Ingram Exploration president.

## Atlantic Marine To Build Two NSF Research Ships At Cost Of \$5.9 Million

Two identical oceanographic research ships ordered by the National Science Foundation (NSF) will be constructed by Atlantic Marine, Inc. of Fort George Island, Ga., at a total cost of \$5,900,000. Building of both vessels at the same time is expected to effect a saving of about \$250,000.

Although owned by the NSF, the vessels will be operated under contract by Duke University and by the University of Miami's Rosenstiel School of Marine and Atmospheric Science. Scheduling and use of the new ships will be coordinated by these institutions in cooperation with other East and Gulf Coast oceanographic institutions.

The 250-gt ships will be 135 feet long with a beam of 32 feet and full-load draft of 9 feet. Twin controllable-pitch propellers driven by 565-bhp diesel engines will

provide a sustained sea speed of 12.5 knots. Each vessel will have accommodations for a crew of nine and for 12 scientists.

The ships' design was developed by a consortium of oceanographic institutions led by James Gibbons, operations manager of the UofM's Rosenstiel School, working with the naval architecture firm of R.F. Matzer and As-

sociates of Jacksonville, Fla. Mr. Gibbons will also oversee construction of the vessels under a subcontract with Atlantic Marine.

The first ship is scheduled for completion on June 1, 1981, the second on September 1 the same year. One will replace the Eastward, a 117-foot vessel now operated by Duke University; the other will replace the 208-foot

R/V James M. Gilliss formerly operated by the University of Miami.

The nation's academic fleet now includes 26 vessels operated by 15 research laboratories. The ships are used by scientists at these and other academic institutions to carry out research projects funded by the NSF and other federal, state, and local agencies.

## Our turnaround time will turn you on.

Every day your ship is in a yard for repairs, it costs you money. Every day the delivery date slips, it not only hits you on the profit side, but it can wreak havoc with your shipping schedules and those of your customers.

It takes a lot for a shipyard to be able to do a repair job effectively and complete the work on time and within budget.

### It takes complete facilities

And no other yard in the Western Hemisphere can match us. Whether it's for routine maintenance, extensive machinery and hull repairs, jumbo/conversion or modification to IMCO standards, we can handle it on our 470 acres along two miles of waterfront. We have:

- 9 piers capable of berthing ships to 1200 feet long.
- Deep-draft graving docks from 650

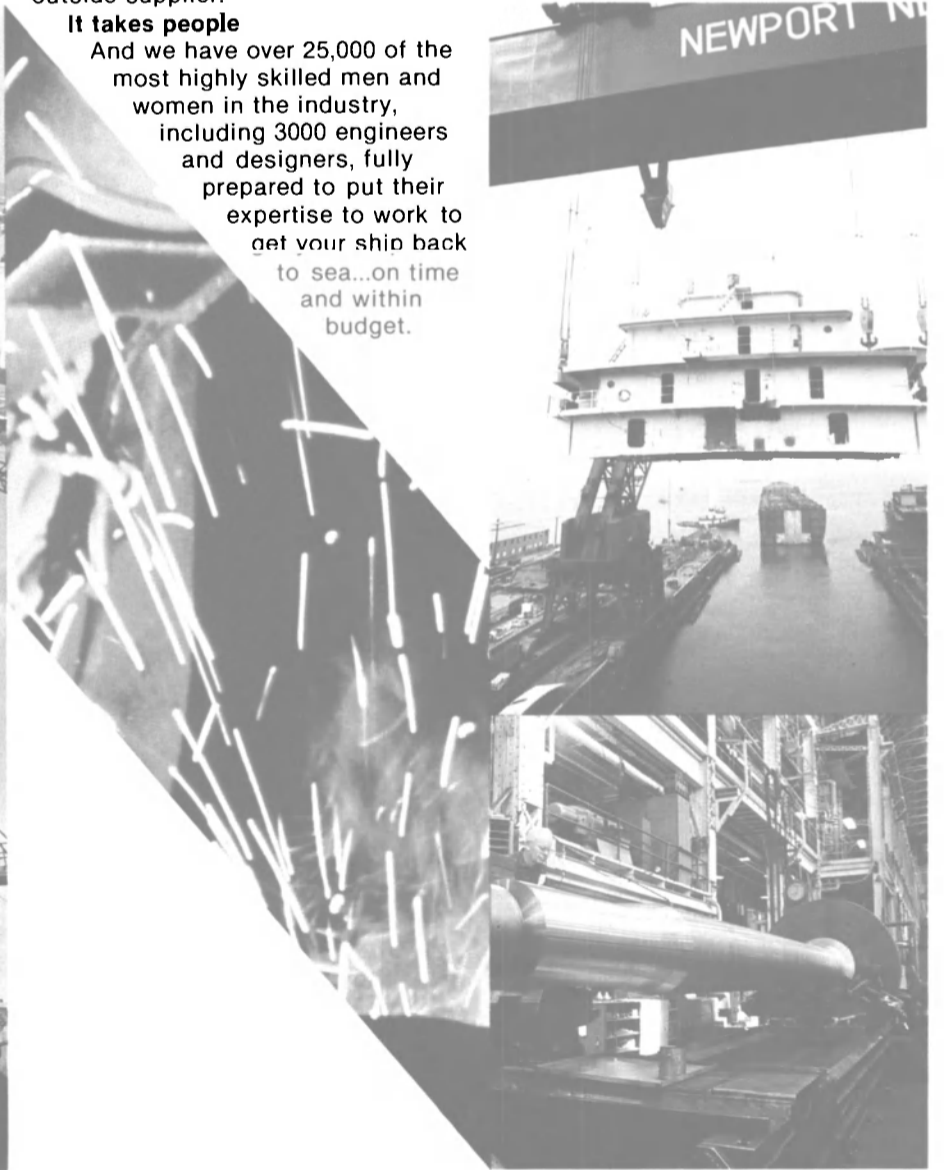
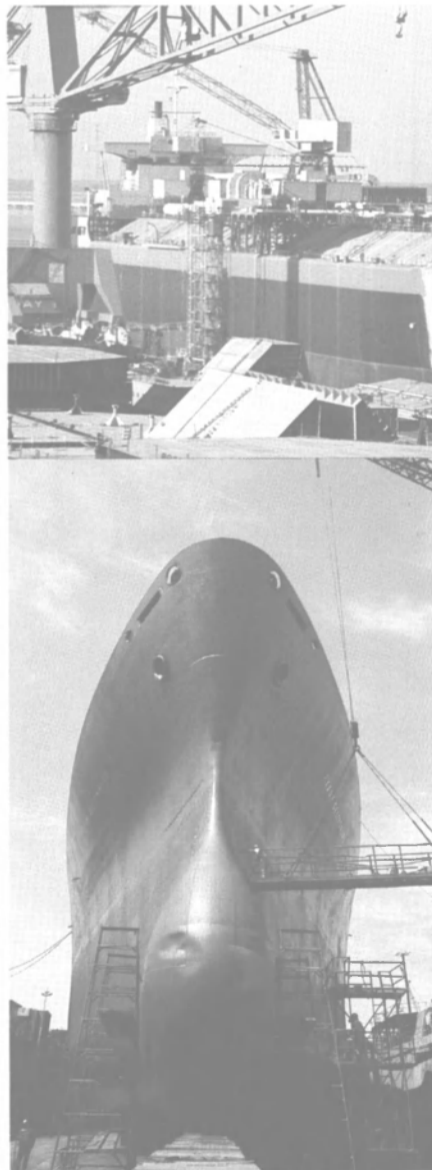
to 1600 ft. long by 92 to 250 ft. wide.

- The capability to dock fully-loaded container ships.
- A 300,000 sq. ft. machining center.
- A 23-story gantry crane able to lift 900 tons.
- A complete pattern shop.
- A complete materials testing laboratory.
- 11 acres devoted to steel production, plus a foundry that can pour stern frames, rudders and valve bodies.
- A 6½ acre steel fabrication center with 500 machines designed for the precision preparation of steel for repairs...both big and small.

Because we perform all these services ourselves, we maintain complete control. Your ship is never delayed while we wait for delivery of a critical component from an outside supplier.

### It takes people

And we have over 25,000 of the most highly skilled men and women in the industry, including 3000 engineers and designers, fully prepared to put their expertise to work to get your ship back to sea...on time and within budget.



### It takes experience

And Newport News Shipbuilding has been building and repairing ships for almost 100 years...from clipper ships to nuclear-powered submarines and supertankers. With our know-how and our people, it's no surprise that we can provide the finest service at competitive rates.

Any type of ship - luxury cruiser, container, molten sulphur, cryogenic or other specialty cargo - the more complex the job, the more you need Newport News Shipbuilding.

*Write or call today for our full color brochure "Commercial Shipbuilding and Ship Repair".*

## Newport News Shipbuilding



A Tenneco Company

Newport News, Virginia 23607  
(804) 380-2600/Telex 82-3453  
TWX 710-880-0007

**Larry N. Hairston  
Joins Marinette Marine  
As VP Of Marketing**

Roger Derusha, president of Marinette Marine Corporation, announced the recent appointment of Larry N. Hairston to the position of vice president of marketing.

Prior to joining Marinette Marine, Mr. Hairston was vice president of engineering with Equitable Shipyards of New Orleans. He has 11 years of experience in all forms of shipbuilding, including engineering, construction supervision, contract management and marketing.

**Navy Awards Contract  
To Metro Machine For  
\$10.4-Million Overhaul**

Metro Machine Corporation, Norfolk, Va., is being awarded a \$10,371,702 fixed price contract for the topside overhaul of the Amphibious Transport Dock LPD-

12 (USS Shreveport). The Supervisor of Shipbuilding, Conversion and Repair, USN, Portsmouth, Va., is the contracting activity. (N62678-70-C-0016)

**Olvesen Named Todd  
Marketing Director**



Edwin Olvesen

Edwin Olvesen has been appointed director of marketing of Todd Shipyards Corporation, it was announced by J.B. Burguières, vice president-marketing. Mr. Olvesen joined the Todd organization in 1938, and has served in various capacities at the company's corporate headquarters and in shipyards, including several years at the former Todd Hoboken Division. He was in charge of industrial sales at the Brooklyn Division for 15 years before joining the New York marketing force in 1966.

**Pielstick Diesels To  
Power French Navy And  
Yugoslavian Vessels**

The Alsthom-Atlantique Diesel Group has received an order from DTCN, a shipyard management company, for two S.E.M.T. Pielstick 16 PC2.5 diesel engines, each with a rated output of 20,000 bhp. These engines will be installed in a French Navy supply tanker.

DTCN also ordered from Alsthom-Atlantique two Pielstick 12 PC2.2 engines, each producing 6,000 bhp. These are to power two Series A69 dispatch boats forming part of the French antisubmarine and surface warfare fleet. With a displacement of 1,170 tons and rated speed of 24 knots, these boats are being built at the Lorient Naval Shipyard.

The Yugoslavian Government has ordered four Pielstick 12 PA6 V 280 diesels, each rated at 4,800 bhp at 1,000 rpm. This is the first time that Pielstick PA6 engines have been ordered by Yugoslavia for ship propulsion applications.

Two of the 12 PA6 engines will be assembled by the Yugoslavian licensee; the other two will be manufactured in Alsthom-Atlantique's Saint Nazaire plant.

**The Renowned  
"KOMETA-M" HYDROFOIL**



Featuring:

- High Stability-Withstands winds up to Force-5;
- High Capacity-Accommodates up to 116 passengers;

- High Speed-60-65 km/hr.
- Range in Miles: 240
- Sails with a Crew of Four

For detailed information, please contact:



V/O SUDOIMPORT  
5 Kalyaevskaya Ul., Moscow 103006, U.S.S.R.  
Telephone: 251-60-52; 251-03-85 Telex: 7272; 7587  
or AMTORG TRADING CORP.  
750 Third Avenue, New York, NY 10017

**REFRIGERATION  
AND AIR CONDITIONING**



- Air Conditioning & Refrigeration Systems Design, Sales and Service ● Stainless Steel Refrigerators and Freezers ● Ice Cubers ● Walk-in Coolers and Freezers ● Service and Parts Available 24 Hours A Day ● Rebuilding of All Ferrous and Non-Ferrous Surfaces With "Belzona Molecular Metal"

Over 50 ships serviced in the past year alone ● Our employees have over 80 years total experience in marine refrigeration ● Complete inventory of parts—York—Carrier—Chrysler—Henry—Alco—Penn—Sporlan—J & E Hall—Danfoss

new equipment — parts — services

**ADRICK Cooling Corp.**

30 B. Remington Blvd.  
Ronkonkoma, New York 11779 ● (516) 585-4231  
PLEASE SEND BROCHURE TO



Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**FOR DIESEL ENGINES . . .  
CHECK CYLINDER LOAD DISTRIBUTION WITH --**

**BMEP  
BALANCER  
MODEL 300-A**



ATTACHES TO STANDARD INDICATOR VALVE  
INDICATES CHANGE IN CYLINDER LOAD WHILE ADJUSTING FUEL RACK  
GAUGE READING COMPARABLE TO AREA OF INDICATOR CARD  
SIMPLE TO USE  
**REQUIRES NO MAINTENANCE  
ACCURATE  
RELIABLE**

CLIP & MAIL

J. LETO

*General Thermodynamics Corporation*

210 SOUTH MEADOW ROAD, P.O. BOX 1185, PLYMOUTH, MASSACHUSETTS 01960  
TELEPHONE: (617) 746-0200

Please send free catalog on balancer

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_



## Swanson Promoted To VP & General Manager Of Dillingham Shipyard

Charles Swanson has been named vice president and general manager of Dillingham Shipyard operations. The promotion was announced by Harold Malterre, president, Dillingham Maritime-Pacific Division.



Charles Swanson

Mr. Swanson, formerly first deputy director for the State of Hawaii's Department of Transportation, joined Dillingham Maritime-Pacific Division as director of market development and planning in October 1979. He is a retired U.S. Navy captain with a number of years of experience in transportation, specializing in marine transportation management.

Dillingham Shipyard is located in Honolulu Harbor and is a Pacific Basin center for repair of all sizes and types of commercial and government vessels, and is experienced in the modernization of smaller U.S. Navy ships.

Dillingham Maritime-Pacific Division comprises Dillingham Shipyard, Young Brothers, Ltd., Dillingham Tug & Barge Corporation, Dillingham Maritime Electric, and Dillingham Corporation of Guam.

## Orders For Six Ships To Cost \$180 Million Placed By Cast Group

Cast Containers S.A. of Fribourg, Switzerland, recently announced that the Cast Group has just ordered three new vessels to be built in Korea for its North Atlantic Container Service. This order is in addition to three container vessels contracted for in Yugoslavia earlier this year. The total value of the six vessels is \$180 million (U.S.).

At a press conference in Montreal, Klaus Glusing, president of Cast Containers S.A., explained that the announcement is part of an expansion program totaling \$235 million (U.S.) which, in addition to the six new vessels, also includes: acquisition of a fleet of 4,000 forty-foot containers to augment Cast's existing fleet of 14,000 twenty-foot containers; pur-

chase of two Japanese-designed container gantry cranes for the company's Montreal terminal; and the tripling in size of Cast's truck operations in Europe and North America to 270 tractor trucks.

The expansion program, including the delivery of the six new ships, which will double and bring to 180,000 TEUs, (twenty-foot equivalent units) Cast's annual

carrying capacity, is scheduled to be completed in 1982.

"The six new 70,000-dwt ships have been designed for a new age, the age of fuel economy, and are expected to be the most cost effective container carriers on the North Atlantic," Mr. Glusing said.

The two shipyards receiving the orders are Hyundai of Korea and

3 Maj Shipyard in Rideka, Yugoslavia.

Cast is part of Eurocanadian Shipholdings Limited, a privately owned group of shipping companies controlled by three Canadian entities: the family-owned investment company of F. Narby, founder of the Cast Group; Helix Investment Ltd., and the Canadian National Railways.

# ENVIROVAC

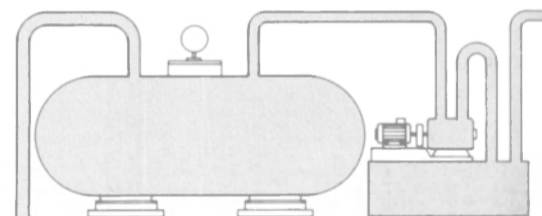
## Vacuum Sewage Collection and Holding Systems.

**The Quality Leader in Marine Sewage Units.** You'll find ENVIROVAC on Coast Guard and Navy ships. On big and small commercial vessels. And on hundreds of other marine installations the world over.

The key to the success of the ENVIROVAC System is its use of air instead of water for the transportation of sewage. In quality comparisons, the superiority of the ENVIROVAC Vacuum System is readily seen.

- ENVIROVAC systems use less water. Only 3 pints of water per flush, or about 2 gallons per crew member per day.
- ENVIROVAC reduces holding requirements. The vacuum toilet allows the vacuum collection/holding tank to be up to 90% smaller than equivalent gravity holding tanks.
- ENVIROVAC systems are easy to operate. Unlike treatment plants, the ENVIROVAC system does not require the addition of special chemicals, or the testing of the effluent. No special operating skills or specially trained personnel are required.
- ENVIROVAC systems have vitreous china toilets and all wetted parts that are made of non-corrosive materials.
- ENVIROVAC systems are easy to install. Because the vacuum toilet can discharge horizontally or vertically, total freedom of placement of the toilets and system components is possible. Piping can be run around and under bulkheads and decks.
- ENVIROVAC systems are U.S. Coast Guard approved. U.S.C.G. Certificate No. 159.15/1016/1/111.

Get the quality difference story on ENVIROVAC Vacuum Sewage Systems, today!



# ENVIROVAC

1260 Turret Drive, Rockford, Illinois 61111. Toll free (800) 435-6951.

# Proposed Shipboard Maneuvering Data

Alexander Landsburg, James C. Card, Haruzo Eda, Harry C. von Breitenfeld and Thomas Knierim\*

Resolution A. 160 of the Inter-Governmental Maritime Consultative Organization (IMCO) recommends to governments that they ensure that the master and officers of commercial ships have readily available on the bridge all necessary data concerning the maneuvering capabilities of the ship and stopping distances under various conditions of draft and speed.

The concepts for providing this information on a ship's maneuvering capabilities have been developed by SNAME T&R Panel H-10 (Controllability). While the concepts presented have already been exposed to a broad segment of the marine industry and have received favorable reaction, the Panel developed this paper to provide the opportunity for all interested parties to review the concepts. A widespread consensus on these standardized formats is desirable so that future national and international regulations will be useful and consistent.

A later IMCO recommendation, Resolution A. 209, specified that a maneuvering booklet be supplied to all ships and detailed the data to be presented. The U.S. Coast Guard implemented these ideas in 1975, requiring maneuvering information to be mounted on a bulkhead on the bridge of all ships entering U.S. waters. This attempt to provide the master and pilot with useful maneuvering information was met with industry concern over the utility of the information.

SNAME Panel H-10 is concerned with the whole of vessel controllability from ship design to underway navigation. While there has been much analysis of ship capabilities, little emphasis has

been put on development of this analysis and trial information for practical use by the master. The Panel decided to examine the types of maneuvering information that would be most useful, and to determine the best methods for obtaining and presenting it.

The Panel began the project in 1976 by requesting comments on the needs for information from 135 organizations in the marine industry. Of the one-third that responded, nearly all strongly endorsed the need for such information and sent comments and suggestions. The Panel analyzed the responses and drafted proposed informational formats to accomplish the indicated needs. These proposals were then sent back to those who had responded to the first request. The information formats presented in this paper are the consolidation of those comments.

The emphasis during development has been to step back and determine what data really should be presented and in what form it should be. The formats generated were not limited to just meeting current regulations and in some cases they don't even comply. Basic assumptions are that the concepts and presentations should be useful, standardized, lasting (but adaptable to technological changes), simple, inexpensive and complete.

## Needs For Information

Ship's officers and pilots have traditionally acquired shiphandling skills on-the-job under the tutelage of experienced shiphandlers. While learning the skill took time, the apprentice had plenty of opportunity for experience as most ships possessed similar handling characteristics. In the 1960s the situation changed dramatically as ships of increasing size and speed were built. Ship forms and their general characteristics have also undergone radical changes to the point where maneuvering capabilities are quite different from one vessel to the next.

Specific objectives of maneuvering information should depend directly on personnel needs and abilities to use the data supplied.

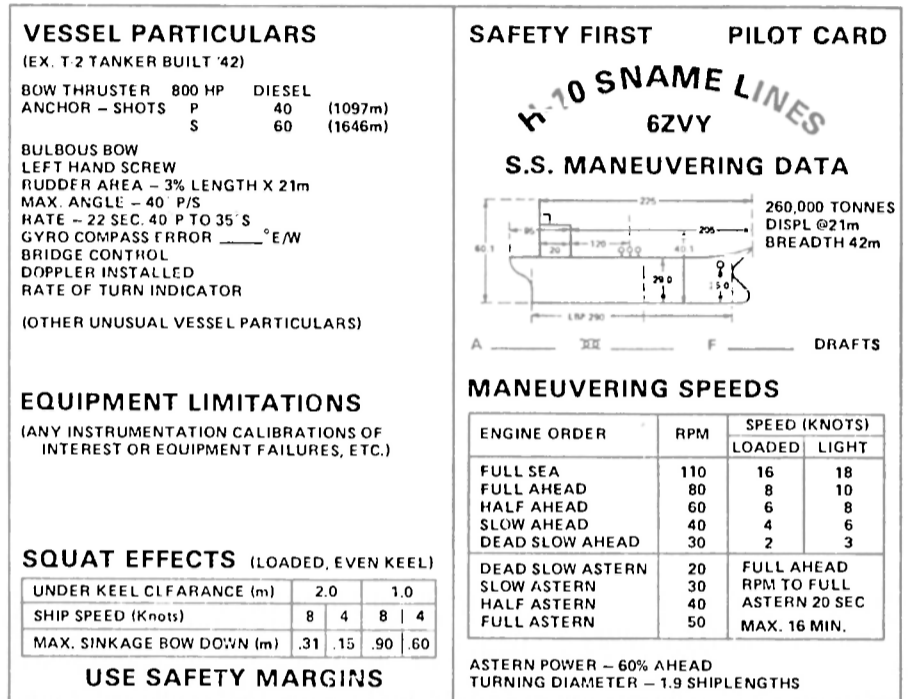


Figure 1 — Proposed pilot information card.

The following questions must be considered:

1. Who needs the maneuvering information and what benefits can be expected in terms of increased safety or effectiveness of vessel operations?
2. What information is needed by the pilot, the master and deck officers?
3. What are the different users' information priorities?
4. How can information be used in the process of ship handling?
5. What is the best way to make this information available to different users, and what must be available for "quick reference"? Where will the information be needed, i.e., in the person's pocket, posted at some convenient spot, laying on the table close at hand, in a cabin for study, in the chartroom bookcase, etc.?
6. What information is "vital" and what is only "interesting"?
7. How can the information be developed? (Tests, calculations, etc.)
8. What degree of accuracy is required?
9. What cost is reasonable per ship class?

Shipboard maneuvering information is primarily for use by the conning officer. It should help him in guiding the ship in the following general situations: Open seas, Port approach/departure, Berthing and anchoring, and Systems failure.

Ship handling, however, is truly an art where the "feel of the wheel" or feeling of oneness with the ship is all important. Measurement of the forces under one's control is nearly as difficult as those not under control. Often this control must be within the confines of channels, rocks, reefs, and shoals which constitute an ever-present danger and require expertise in the art of ship handling, backed by an intimate knowledge of the pilotage area and the peculiarities of the particular vessel.

## Proposed Formats

The Panel concluded that the concept of three standardized formats is the best way to provide useful information. The formats are:

1. Pilot Information Card (Figure 1)—A small pocket card (3½ inches by 5½ inches) that would contain ship's maneuvering information of prime importance to

\*Mr. Landsburg, Maritime Administration; Mr. Card, U.S. Coast Guard; Mr. Eda, Davidson Laboratory, and Mr. von Breitenfeld and Mr. Knierim, New York Sandy Hook Pilots Association, presented the paper abstracted here before the recent Spring Meeting and STAR Symposium of The Society of Naval Architects and Marine Engineers. Copies of the paper may be obtained from the Society at One World Trade Center, Suite 1369, New York, N.Y. 10048. Comments on the proposed data formats should be forwarded to C.L. Crane Jr., Panel H-10 chairman, at the Society's address.

the pilot. It provides a minimum of needed information noting unusual vessel particulars. It would be filled out with any additional pertinent data and given to each pilot as he boards.

**2. Posted Bridge Diagram**—A compact diagram in two parts (each 11 inches by 14 inches) mounted in a conspicuous and convenient place on the bridge. It would contain principal maneuvering information of a permanent nature for ready reference by both pilots and shipboard personnel.

**3. Shipboard Maneuvering Booklet**—A detailed manual containing information and instruction on ship's maneuvering capabilities. Although it would be kept available on the bridge ready for quick reference, it is intended primarily for longer term study. The use of a looseleaf binder would provide a convenient, easily referenced catalogue of useful maneuvering information. A section for added notes by the master on the vessel's capabilities would also be helpful. Form fill-ins could be provided for pertinent information such as best headings for a Williamson turn. Such standardization will also make the booklet useful to pilots for augmenting the brief, readily available information provided on the pilot card and bridge diagram.

The standardized design of the pilot information card and posted bridge diagram were drawn from some presentations currently in use. The general design of the bridge format was taken from a standardized diagram developed by the Oil Companies International Marine Forum (OCIMF). The OCIMF form satisfied both the IMCO resolution and present U.S. Coast Guard regulations. Looking to the future, Panel H-10's proposed format goes beyond present requirements in some areas, while omitting some specifics in other areas (for this reason the proposed diagram cannot be used to satisfy the present Coast Guard requirements).

#### Data Acquisition

Costs of providing shipboard maneuvering data must be considered and balanced with the benefits to be achieved. Even with the current state-of-the-art of analytical ship model testing and full-scale trials analysis, it is not possible to provide information that will precisely say what trajectory will occur under all conditions. Indeed, ship handling margins will always be necessary since even a small current has a tremendous effect which overshadows even moderate prediction inaccuracies. It is possible to inexpensively provide a reasonably accurate "relative" measure of a vessel's inherent maneuvering capabilities. Consistency of the data in showing relative capabilities between vessels is re-

quired, however, if the information is to be valuable.

Development of the maneuvering information for the proposed formats would usually be the result of combining a number of techniques. A series of full-scale trials will normally be available on the first of a ship class. In some instances ship maneuvering model tests will have been performed on the design, often re-

sulting in a mathematical model for the prediction of ship maneuvers. Where such information is not available, computer-aided estimates using standardized series or similar ship test results could be used to develop the data presented in the pilot information card and the posted bridge diagram.

Data development costs will vary according to data sources

and unusual characteristics of the ship involved. Normal analysis and preparation costs range from \$400 to \$1,200 per ship for either the single posted bridge diagram or 1,000 copies of the pilot information card.

The Shipboard Maneuvering Booklet is proposed primarily as a standardized outline into which the operator would provide infor-

(continued on page 48)

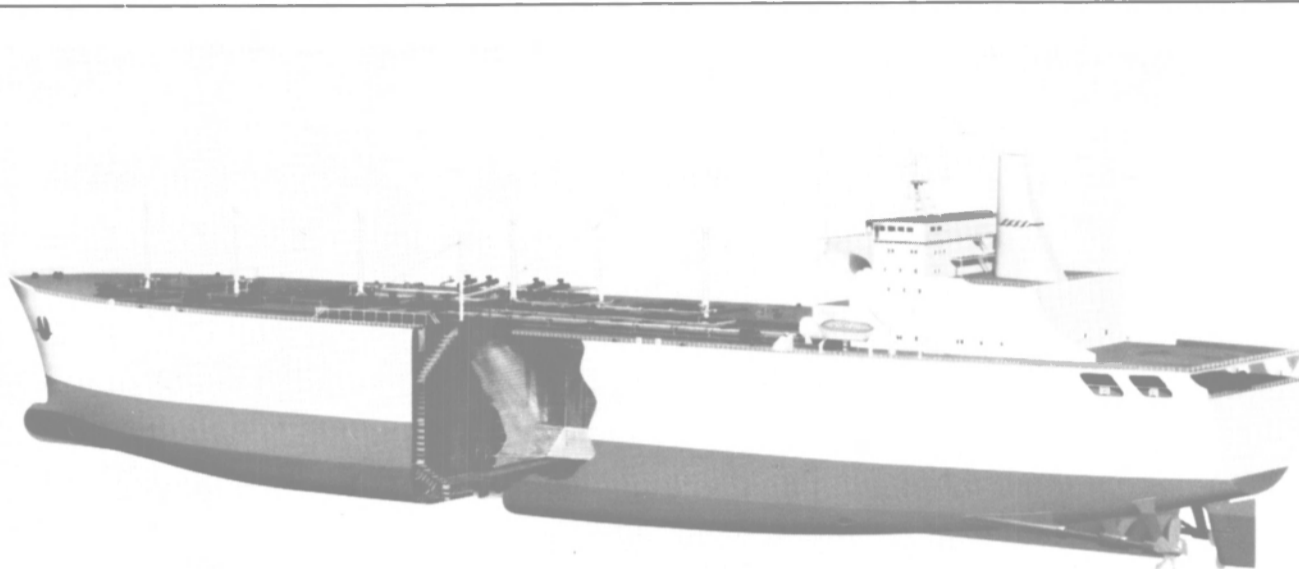


Illustration courtesy of Pacific LNG

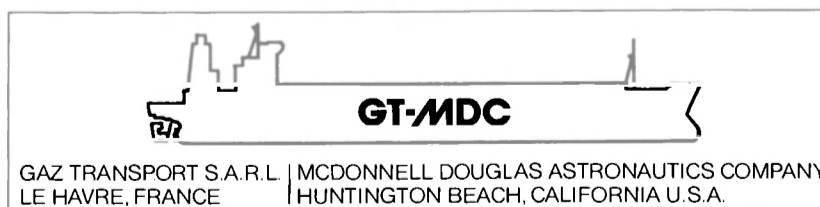
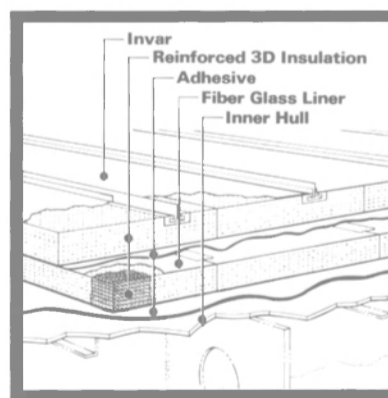
## Two proven systems combine to bring a new level of excellence to LNG containment.

The combination of Gaz/Transport and McDonnell Douglas liquefied natural gas barriers into a single containment system now offers shippers a new high level of volumetric efficiency and excellence in hull protection—at a competitive price. Each partner contributed 15 years of experience in cryogenic containment to the project.

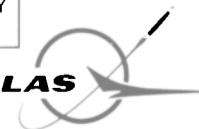
A proven system, the Invar metal primary barrier, has accumulated 1.7 million sea miles through 1978. The reinforced insulation used as a secondary barrier has been tested for a 20-year service life as a primary barrier.

The system is approved by the U.S. Coast Guard and classification societies worldwide. It has been selected by Sun Shipbuilding for two 130,000 cubic meter tankers for delivery to Pacific Marine Associates. To see what this remarkable system can

do for you, write for more information today. Contact McDonnell Douglas Astronautics Company, 5301 Bolsa Avenue, Huntington Beach, CA 92647. Phone: (714) 896-2372 Telex: 678426 MCDL-DGLS-HTBH, or Gaz/Transport, Naval Engineering, 50 Boulevard Haussmann, 75009, Paris, France. Phone: 285.19.00. Telex: SoFRAMA Paris 29063



**MCDONNELL DOUGLAS**



## Proposed Shipboard Maneuvering Data

(continued from page 47)

Information in the amount and the level of detail considered useful. Costs are thus difficult to project. The booklet should, however, provide a convenient format to report available information on the ship

and should not be considered an expensive item.

### Conclusions

Information on a vessel's maneuvering capabilities is needed by masters, mates and pilots to minimize the increasingly severe consequences of vessel accidents. Panel H-10 (Controllability) of SNAME has developed concepts

for the standard presentation of this information. These concepts are described in this paper to develop a consensus on requirements and to set presentation format standards.

The major requirement is to develop standardized formats for data presentation from which pilots and mariners can quickly learn about a ship's maneuvering

characteristics, and compare one ship to another.

Absolute accuracy of the data is less important than its relative indication of how well the ship can be expected to maneuver compared to how well other vessels have performed. The effects of current, wind and other factors are often very significant and overshadow the inaccuracies in maneuvering data prediction.

Standardized presentations of data should be both lasting and adaptable to technological improvements while remaining inexpensive to develop. Recent shallow-water ship trials and model tests, for instance, provide the basis for relatively accurate estimation of shallow-water behavior. Such predictions should be included for the use of the mariner.

Information to be presented must be carefully selected to ensure that the mariner is not overloaded with data.

## J.R. Mills Appointed At New Allis-Chalmers Marine Diesel Division

John R. Mills has been appointed general manager of the newly created Marine Diesel Division, Allis-Chalmers Corp., Milwaukee, Wis. His most recent position has been that of general manager of the company's Compressor and Custom Pump Division.

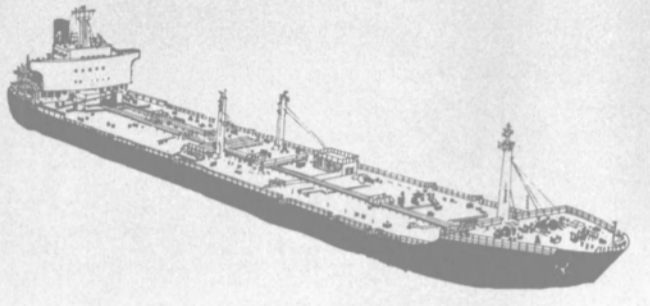


John R. Mills

Formation of the Marine Diesel Division is another step toward establishing Allis-Chalmers as a supplier of low-speed diesel engines for marine and stationary power applications, a company spokesman said.

The company is already building three 43,200-hp low-speed, crosshead diesels on a subcontract from Sulzer Bros., Inc., for installation on American President Lines containerships. This order is for the first low-speed diesels built in the United States since World War II.

Mr. Mills, a native of Chicago, joined Allis-Chalmers in 1970 and has held several management positions, including manager of special overseas projects in the Electrical Products Group and general manager of the Custom Pump Division.



*Engineered Products and Services*

**Atco Marine Corporation**

603 DEAN STREET / BROOKLYN, N.Y. 11238  
(212) 857-1050 telex: 223357 (ATCO UR)  
Cable Address: AMTRADISC NEW YORK

SERVING THE MARINE INDUSTRY

<b>INERT GAS SYSTEMS</b> PEABODY HOLMES LTD.	<b>OILY/WATER SEPARATORS</b> SIGMA TREATMENT SYSTEMS INC. HARCO MFG. CO.	<b>MONITORING SYSTEMS</b> DEBALLASTING & BILGES S.E.R.E.S.
<b>ACTUATORS-ELECTRIC</b> WESTRAN CORPORATION	<b>SEWAGE TREATMENT</b> SIGMA TREATMENT SYSTEMS	<b>LIFEBOATS — FIBERGLASS</b> OPEN & CLOSED TYPES DAVIT SYSTEMS
<b>DECK FITTINGS</b> UNIVERSAL FAIRLEADS PANAMA CHOCKS BITTS, WARPING GUIDES, ETC.	<b>GENERATORS</b> DIESEL & STEAM PORTABLE LIGHTING SYSTEMS	<b>MISCELLANEOUS</b> PUMPS, FANS, BLOWERS COMPRESSORS, SPARE PARTS

## Rescue your old diesel engine liners

Teleplate will make your worn-out diesel engine liners better than new at a fraction of the cost of a new liner. This process applies a uniquely patterned hard chrome surface that dramatically reduces oil consumption. Teleplate, used by the largest builder of diesel engines in the United States, includes testing, stripping, honing and plating operations to close tolerance specifications. Two plants, strategically located near inland and coastal waterways, provide fast turnaround service. We can also establish a stock inventory program to eliminate time delays. Write for our free Teleplate brochure. For fast action call your nearest plant.



FREE BROCHURE

### TELEDYNE METAL FINISHERS

Plants and Sales Offices at:  
1725 E. 27th St., Cleveland, OH 44114 • Ph: 216-696-0511  
• TWX: 810-421-8318 • 3125 Brinkerhoff Rd., Kansas City, KS 66115 • Ph: 913-371-8501



**Sartor And Jones  
Promoted To New  
Posts At Farrell Lines**



Thomas J. Sartor Jr.

James P. Horn, president of Farrell Lines Incorporated, has announced that **Thomas J. Sartor Jr.**, formerly vice president-marine, has been appointed vice president-marine special projects. This newly created position combines the former New Construction Section with that of Contract Administration and Naval Architecture. Mr. Sartor graduated from Webb Institute of Naval Architecture and has been with Farrell Lines since 1954.



Thomas Jones Jr.

Mr. Horn further announced the promotion of **Thomas Jones Jr.** to the position of marine superintendent. A graduate of the U.S. Merchant Marine Academy, Mr. Jones sailed with the old Isbrandtsen Line in licensed engineering capacities up to and including chief engineer.

**Electro-Nav Acquires  
Marine Division Of  
British Electronics Firm**

Electro-Nav president **Robert E. Negron** announced recently that agreement had been reached with Britain's Redifon Telecommunications Ltd. to transfer ownership and operation of Redifon's Marine Division to the newly formed Electro-Nav International Ltd., a wholly owned subsidiary of Electro-Nav Inc.

Mr. Negron, who assumes the chairmanship of Electro-Nav International, said he considers the high caliber of the technical staff in the acquired division to be a valuable asset for Electro-Nav's planned growth.

Electro-Nav represents more

than 80 international marine electronics manufacturers, and has close working relationships with manufacturers and technical service organizations in more than 50 countries in Europe, Africa, the Far East, and the Western Hemisphere. The new acquisition will enable Electro-Nav to provide more comprehensive worldwide technical services to its custom-

ers, and will significantly broaden the base of its European operations.

Under the acquisition agreement Redifon will continue to manufacture spare parts and support to maintain existing leasing and service contracts of the former division. Electro-Nav will take over all existing stocks of Redifon's deepsea equipment to

maintain supplies of spares and technical service support. Electro-Nav will assume responsibility for all future marketing and associated activities. Both companies also agreed to maintain close contacts on both commercial and technical levels, so that the interests of the customers of the former division will be fully safeguarded.

**Goodyear Brakeability:  
Disc brakes, more efficient,  
more effective than band brakes  
under dynamic operation.**

As a leader in disc brake technology, we supply brakes for bow thrust engines, propeller shafts, anchor windlasses, winches, as well as other uses.

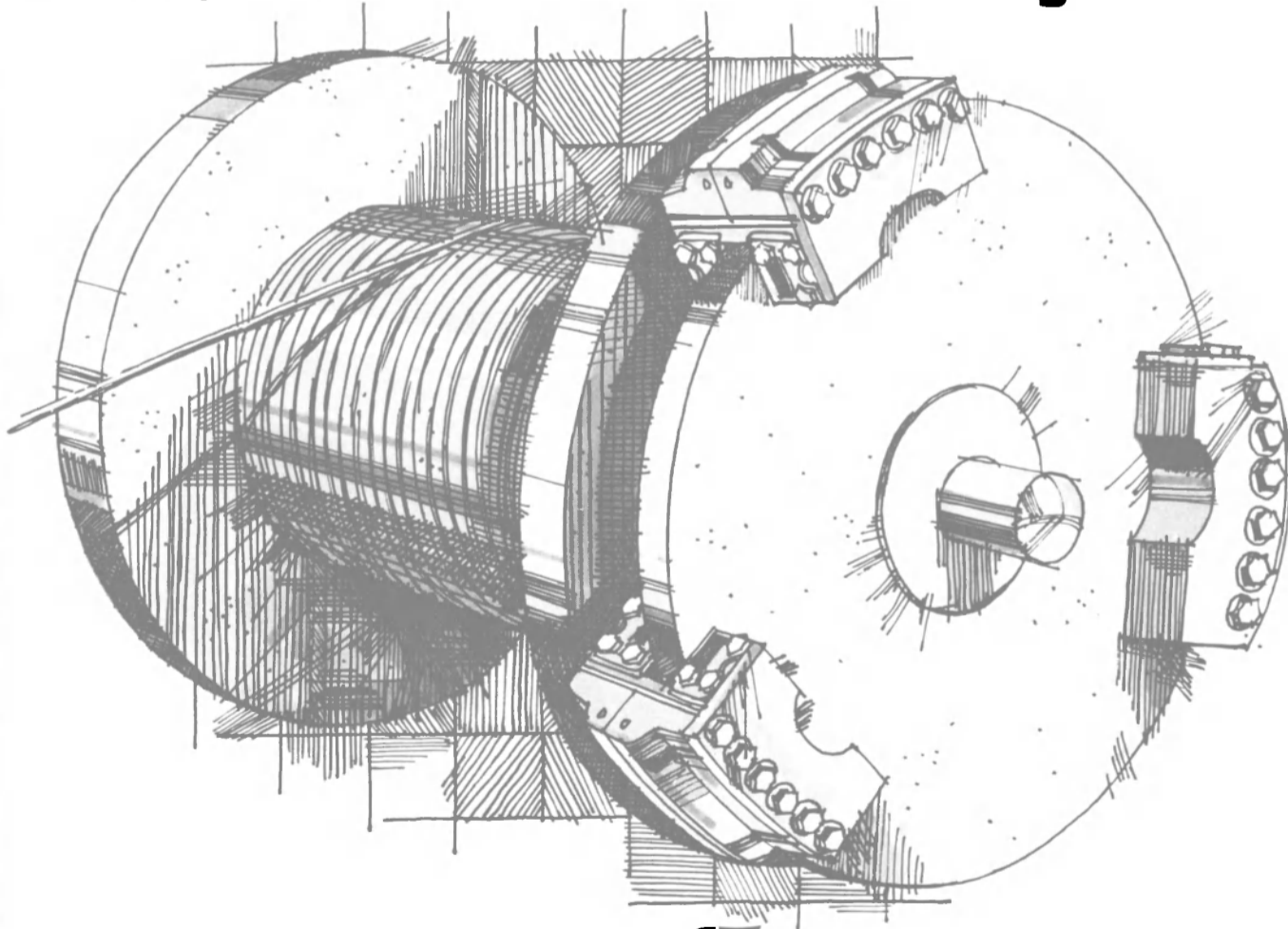
Disc brakes offer many advantages over band and shoe brakes. They are smaller. They can perform in both static and dynamic situations. Their non-self-energizing characteristic assures smooth, controlled payout and superior brake control. The large exposed disc surface dissipates more energy and heat.

Goodyear manufactured friction materials exhibit minimum fade at elevated temperatures and high energy input rates. As the linings wear, pistons continually advance, keeping displacement constant for each application. Quick-change lining design allows minimum downtime for replacement.

Our disc brakes are available in a complete line of caliper designs from 2½ lb. to 300 lb. units. By varying caliper multiples, disc thicknesses, operating pressures, etc., one brake caliper can be used across a complete product line.

For complete information, call Jim Evans, Marketing Manager, Industrial Brakes, Goodyear Aerospace Corporation, Box 427, Berea, Kentucky 40403, (606) 986-9381.

**We know how  
to make things work.**



**GOODYEAR**  
INDUSTRIAL BRAKES

## SNAME Chesapeake Section Hears Update Report On Design Of Multipurpose Mobilization Ship

The final meeting of the 1979-80 technical program of the Chesapeake Section of The Society of Naval Architects and Marine Engineers was held recently at the Bethesda Naval Hospital Officers Club. **George H. Levine** and **John**

**F. Walter** of the Maritime Administration, who were introduced by moderator **Ronald K. Kiss**, Director of the Office of Ship Construction, Maritime Administration, gave "An Update on the Contract Design of the Multipurpose Mo-



One of four of the world's largest RoRo barges.

## Whatever the size, FMC built barges can meet your demands.

When it comes to quality built marine equipment that's tough enough to meet your rugged hauling needs, you have a right to demand the best. In barges, our capabilities extend from the world's largest RoRo barge to efficient deck models. And we build them better.

650 foot side launch-ways and 200 ton crane, plus a staff of experts who custom build with pride have made us a leader in quality steel fabrication for over six decades.

We tackle jobs beyond the reach of other steel fabricators because

we're better equipped. And that's just part of your insurance of getting a better product.

For your next job, whatever the size, look to FMC. Demand the best. After all, we demand it of ourselves. Call or write Vice President of Sales, FMC Corporation, Marine and Rail Equipment Division, 4700 N.W. Front Avenue, Portland, Oregon 97208. Telephone (503) 228-9281; Telex 36 0672; Telecopy (503) 223-5036.

**FMC**

bilization Ship and a Review of the Preliminary Design PD-214."

The Maritime Administration has the responsibility for providing the shipping capability and military support during a wartime mobilization when massive movements of goods and supplies will be needed. An established, strong, and versatile U.S. merchant fleet will be required to react promptly to political and military challenges. Ship designs which are versatile and efficient, yet suitable for mass production, also are necessary to provide the needed shipping capacity during wartime and to provide quick replacement of ship losses to meet postwar trading requirements.

As part of its defense planning effort, the Maritime Administration established a "Ship Designs for Mobilization" project in 1974 to develop modern ship designs suitable for wartime production. This project has progressed through the definition of requirements, feasibility studies of various alternate designs, and the preliminary design of the PD-214 Multipurpose Mobilization Ship. Presently, the project is in the more detailed contract design phase which will result in the development of plans and specifications suitable for shipyards to prepare construction bid quotations.

This design is a single-screw, multipurpose cargo ship with designed-in flexibility and versatility that does not compromise efficiency. The ship is capable of the simultaneous loading, transporting, and discharging of roll-on/roll-off cargo and lift-on/lift-off cargo, including vehicles, containers, general breakbulk cargo, and heavy-lift cargo.

To avoid mobilization production problems and also to allow potential owners a choice, the ship is configured to accept a variety of main propulsion systems and

substitution of the deck cranes and ramps by other types of equipment or elimination of any capability not required. The main propulsion machinery types include steam, medium-speed diesel, slow-speed diesel, and gas turbine. Hull form has been developed carefully for superior hydrodynamic performance.

The base design incorporates flexibility to allow for a variety of configurations without major redesign effort. As a result, a lengthened vessel version modified to carry and store military equipment and stores for the Maritime Prepositioning Program has been selected for new ship construction. Contract plans and specifications are being prepared by M. Rosenblatt & Son, Inc. under contract to the Maritime Administration.

Dr. **James Lisnyk**, Maritime Administration, introduced **Rodney Peltzer**, a student of Virginia Polytechnic Institute, who presented a student paper on "The Effects of Shear and Roughness on Vortex Shedding Patterns Behind a Circular Cylinder at a Transitional Reynolds Number." Mr. Peltzer described the experimental results of laboratory tests on a circular cylinder to determine the effects of varying free-stream turbulence and surface roughness on drag and vortex shedding. These results are of interest in the design of the OTEC cold water pipe because of the forces induced by the oscillatory vortex system.

At this final meeting of the 1979-80 session, the following were elected to serve on the 1980-81 Executive Committee of the SNAME Chesapeake Section: chairman, **Robert Scott**; vice chairman and Papers Committee, **Frank Slyker**; secretary-treasurer, **Alexander Landsburg**; elected members, Capt. **Richard Gauthey**, **Donald Burklaw**, and **Jack Abbott**.



Shown at the SNAME Chesapeake Section meeting from left to right, are: **Pramud Rawat**, Vitro Labs. Div., Automation Industries, Inc., recipient of Award for Best Paper of 1979-80 Session; **Rodney Peltzer**, Virginia Polytechnic Institute, author, student paper; **John F. Walter**, Maritime Administration, author; **Frank Slyker**, Bethlehem Steel Corporation, vice chairman and Papers Committee, 1980-81; **George H. Levine**, Maritime Administration, author; **Ronald K. Kiss**, Maritime Administration, moderator; **James A. Lisnyk**, Maritime Administration, chairman, 1979-80; **Robert Scott**, Gibbs & Cox, chairman, 1980-81, and **Alexander Landsburg**, Maritime Administration, secretary-treasurer, 1980-81.

**Norfolk Shipbuilding  
Awarded \$3.4-Million  
Navy Overhaul Contract**

Norfolk Shipbuilding and Drydock Corporation, Norfolk, Va., is being awarded a \$3,399,636 formally advertised firm fixed price contract for the regularly scheduled overhaul and modernization of the APL-45, a non-self-propelled barracks craft. The Philadelphia Naval Shipyard, Industrial Management Department, Philadelphia, Pa., is the contracting activity. (N62678-76-C-0036)

**R.E. Christoverson Named  
VP-Marketing In New  
York For Phillyship**

Robert E. Christoverson has been appointed as vice president-marketing for Phillyship of Philadelphia. He will headquarter at 25 Broadway, Suite 1016, New York, N.Y. 10004. Established in 1960, Phillyship has become one of America's leading suppliers for marine service and repairs.



Robert E. Christoverson

Phillyship's president Joel H. van Diepen stated that Mr. Christoverson's extensive international sales experience will allow Philadelphia Ship Maintenance to broaden its activities and develop new services.

His last position was as vice president and general manager of Penco Division of Hudson Engineering. Prior to that, Mr. Christoverson was president of Geils & Foerst Marine Electric Inc., a manufacturer and distributor of marine electrical equipment.

Phillyship is currently expanding its headquarter and shop facilities.

**AFO Shipyards  
Appoints Representative  
For U.S. And Canada**

Walter Thorsen, Inc. recently announced its appointment as exclusive United States and Canadian representative for Atelier Francais de L'Ouest (AFO) group of French ship repair yards at Donges, Saint Nazaire, Brest, Le Havre, Rouen, Dieppe and Dunkerque.

AFO has a total of 19 drydocks, the largest of which is a new

graving dock at Brest measuring 1,378 feet long by 262 feet wide and capable of handling vessels up to 550,000 tons. Their other large drydocks are: Saint Nazaire, 1,147 feet by 164 feet; Brest 1,108 feet by 180 feet; Le Havre, 1,016 feet by 123 feet; and Dunkerque, 1,016 feet by 164 feet.

Their Saint Nazaire, Brest and

Le Havre yards have tank cleaning stations capable of discharging as high as 20,000 tons of slops in 18 hours, including the issuance of gas free certificates.

Extensive additions will be made at Le Havre with a new 170,000-deadweight-ton floating drydock 983 feet long by 180 feet wide to be operational by the end

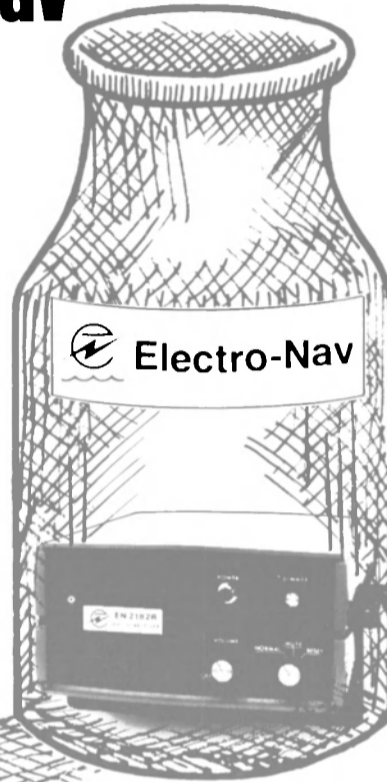
of 1981, and at their Dunkerque yard modern machine shops will be erected within a 14-acre area adjacent to their graving dock mentioned above.

For further details on AFO, write W. Thorsen, Dept. MR 80, Walter Thorsen, Inc., One World Trade Center, Suite 4543, New York, N.Y. 10048.

**Instant Relief from IMCO Radio Monitoring  
from Electro-Nav**

... and it won't cost you a bundle. It's our new EN 2182R Watch Receiver. We designed it to meet or exceed the very latest SOLAS 74/IMCO A.383 round-the-clock distress monitoring directives, and the pertinent requirements of just about every maritime regulatory agency in the world, CEPT, UK Home Office, Scandinavia's PTT, USA's FCC, you name it. And it's available right now, so you can forget about having to apply for additional extensions.

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



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

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

**Electro-Nav**  
For everything you need  
in marine electronics

Elizabeth, NJ 07201, 840 Bond Street, Tel: (201) 527-0099, (212) 697-7770. Cable: Navelectro, Telex: 13-8381. Oakland, CA 94606, 750 Kennedy Street, Tel: (415) 533-1840, Telex: 33-8509. London EC1, England, Rocco House, 283/281 City Road, Tel: 011-44-1-250-0781, Telex: (851) 299785. Washington DC 20005, Bowen Building Suite 532, 815 15th Street N.W., Tel: (202) 347-8231

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



PRESSURE VACUUM RELIEF VALVES

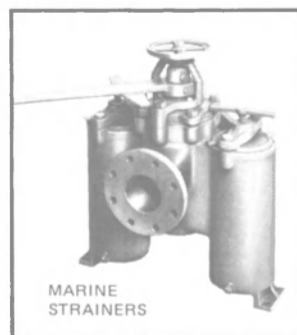
MARINE PRODUCTS DIVISION of the Hayward Manufacturing Company, formerly Mechanical Marine, has been furnishing valves and fittings to the marine industry for over 50 years. Our world renowned Vac-Rel pressure vacuum relief valves have served aboard thousands of ships.

Our vent check valves, deck covers and deck access boxes have also been installed by the thousands. Chances are we can deliver deck drains in many types faster than you can fabricate them yourself.

For your FREE copy of our 65 page catalog on our complete line of marine products, call or write to us.



VENT CHECK VALVES



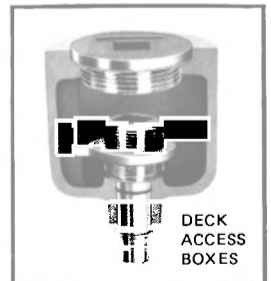
MARINE STRAINERS



DECK DRAINS & DECK PLUGS



VENT VALVES



DECK ACCESS BOXES

**Hayward Marine Products**  
DIVISION OF HAYWARD MANUFACTURING COMPANY, INC.  
900 Fairmount Avenue, Elizabeth, NJ 07207  
Phone: (201) 351-5400 / Telex: 139414

## NASSCO Lays Keel For Second Union Oil Product Carrier

A recent keel-laying ceremony at National Steel and Shipbuilding Company (NASSCO), San Diego, initiated construction of the second of three 37,500-dwt product carriers being built for Union Oil Company of California.

E.P. Barnett, vice president, refinery and supply, Union Oil Company, and D.L. Hanley, senior vice president, Western Region, Union Oil Company, together struck the initial arcs, signaling the beginning of construction. Richard H.

Vortmann, executive vice president, represented NASSCO in the keel-laying ceremony.

The product carriers are a new NASSCO design designated as the Carlsbad Class. They will be 658 feet in length, 100 feet in beam, have a 33-foot draft, and will carry 250,000 barrels of refined petroleum and petrochemical products from refineries to distribution centers.

The vessels will incorporate the most modern equipment available, and will meet the latest safety and environmental protection standards including double bottoms, a clean segregated ballast system,

an inert gas system, a sewage treatment plant, collision-avoidance radar, and a backup steering system. They will have steam turbine engines.

The first product carrier is scheduled for delivery in April 1981. It will be used to transport oil products from Union Oil's Beaumont, Texas, refinery to terminals on the Gulf and Atlantic Coasts.

NASSCO currently has under contract five Navy ships, an oil tanker, and four product carriers. The company is a wholly owned subsidiary of Morrison-Knudsen Company, Inc., Boise, Idaho.

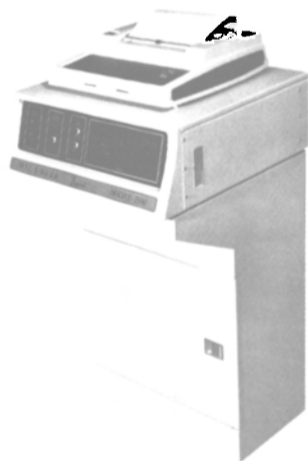


## Ship's Bell Logger

The NEW HENSCHEL MODEL 2550 BELL LOGGER employs an 8-bit microprocessor to provide the most advanced, easily-programmable bell logger available today. It has many features never offered before.

### FEATURES

- Easy Installation
- Simple Retrofit, uses existing ship's signals
- Small Size, low power consumption, rugged
- Internal Master Clock, will drive remote digital clocks
- Engineered for Reliability, low maintenance
- Alphanumeric LED Display, select any printed data
- Self Test, built-in diagnostics
- Expandable
- Battery Back-up
- Input Signal Isolation
- Bell Logger Memory, stores printed data in memory for later use



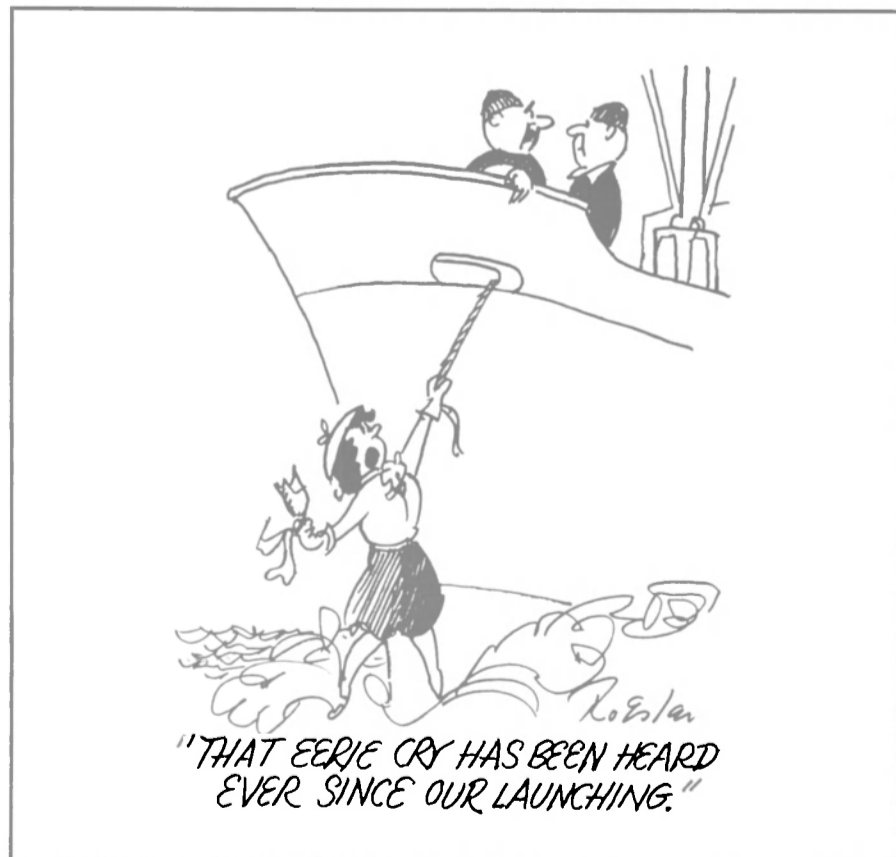
With Optional Stand



Henschel Corporation, a unit of General Signal  
14 Cedar Street, Amesbury, Massachusetts 01913 USA  
Telephone: 617-388-1103, Telex: 94-7444



Attending recent NASSCO keel-laying for Union Oil product carrier were (first row, L to R): Glen Lauritsen, surveyor, ABS; Kris Christensen, vice president, planning and programs, NASSCO; William Deasy, vice president, mining, Morrison-Knudsen; Glen O. Burk, president, West Coast Shipping; James Macias, welding foreman, NASSCO; Don L. Hanley, senior vice president, Western Region, Union Oil; E.P. Barnett, vice president, refinery and supply, Union Oil; W. Vernado, welding foreman, NASSCO; and Samuel D. Timmons, senior vice president, business affairs, NASSCO. (Back row, L to R): Al Giorgis, vice president, technical, NASSCO; W.T. Nickerson, marine engineer, West Coast Shipping; and Richard Vortmann, executive vice president, NASSCO.





---

# *We promise to tell the truth the whole truth and nothing but the truth. So help us BPA.*

As a member of BPA (Business Publications Audit of Circulation, Inc.) this magazine subscribes to the principle that it takes more than good faith to earn the business of advertisers. It takes good figures.

BPA, an independent, not-for-profit organization, audits our circulation data to make sure that advertisers get exactly what they pay for: you.

Once a year, BPA auditors examine our circulation list to make sure it's correct and up to date.

The audit makes sure you are who we say you are. It verifies your name, your company, your industry and your job title. This information enables our advertisers to determine if they're saying the right thing to the right people in the right place.

It also gives us a precise picture of who you are and, therefore, a good idea of what you want as a reader.

BPA. For readers it stands for meaningful information. For advertisers it stands for meaningful readers. Business Publications Audit of Circulation, Inc.  
360 Park Ave. So., New York, NY 10010.

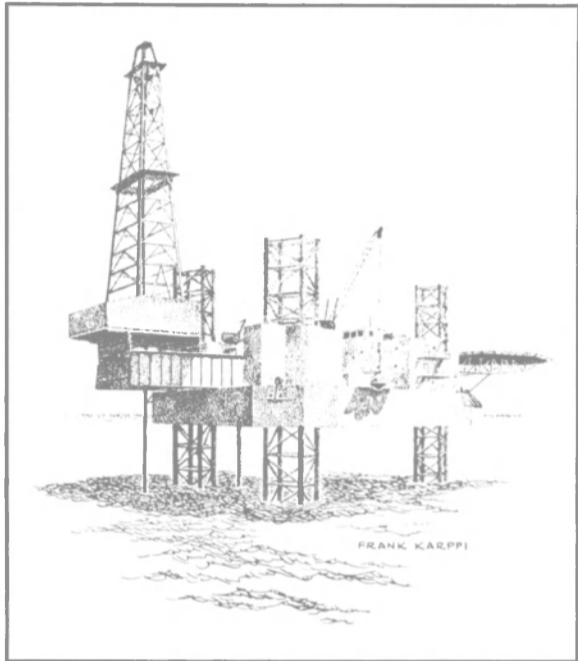


*We make sure you get what you pay for.*

**Levingston To Build  
\$37-Million Jackup Rig  
For Noble Drilling Corp.**

Ed Paden, president of Levingston Shipbuilding Company of Orange, Texas, has announced plans to build a Levingston Class 111-C jackup drilling rig for Noble Drilling Corporation of Ardmore, Okla., a wholly owned subsidiary of Noble Affiliates, Inc.

Overall dimensions of the triangular-shaped rig are 200 by 186 by 23 feet. The 414-foot-long, four-chord square truss legs will per-



Artist's rendering of triangular jackup drilling rig that Levingston Shipbuilding will construct for Noble.

mit the rig to drill in water depths of 300 feet to a maximum well depth of 25,000 feet.

Design criteria of the cantilevered unit will 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 third in a series of jackup rigs to be built by Levingston. They provide further continuity in the plan to divide yard efforts equally between conventional shipbuilding and offshore projects. The yard is optimistic about additional offshore business as well as continuation of its bulk carrier program.

Completion of this rig, to cost about \$37 million, is scheduled for October 1981 when it will begin drilling in the Gulf of Mexico.

**O&K Shipyard Delivers  
Offshore Crane Platform  
Designed By RSV Gusto**

The West German shipyard Orenstein & Koppel, Lubeck, recently delivered the four-legged, floating crane platform Biber 500. Built for Nassbaggerei Grun & Bilfinger of Hamburg, the platform was designed and constructed in 14 months. RSV Gusto Engineering B.V. of Schiedam, the Netherlands, provided the design and also the Gusto patented hydraulic-operated elevating systems. The unit is designed for operation offshore in coastal waters.

The Biber 500 has a length of 45 meters, width of 32.2 meters, and depth of 4.9 meters (147.6 by 105.6 by 16 feet). The caisson type



Floating crane platform Biber 500, built by Orenstein & Koppel, Lubeck, West Germany for a Hamburg owner, was designed by RSV Gusto Engineering, the Netherlands.

legs are 57.7 meters (189.3 feet) long and 2.4 meters (7.87 feet) square.

The platform is fitted with a Liebherr 500-ton, fully revolving crane, and is suitable for drilling operations. Accommodations for 20 persons are provided. The Gusto elevating system has an average jacking speed of 10 meters (32.8 feet) per hour. The platform is built to the rules of Germanische Lloyd.

RSV Gusto Engineering B.V. specializes in providing design and engineering services for a wide range of offshore products.

**MacGREGOR  
L'AND+SEA  
MARINE SALES**

MacGREGOR, the recognized leader in cargo access and transfer equipment, is expanding its after sales and repair network in the United States. This expansion will require additional sales persons to represent its worldwide network of repair facilities particularly in the New York area. The ideal candidates should possess an extensive marine background, the most recent spent as a port/superintendent engineer with prior seagoing background. Applicants should likewise have a pleasant appearance, good financial background, be a planner/organizer and an entrepreneur-type with commercial background, possess drive, self-motivation and be willing to travel. If you can qualify, call or send resume to John Slough, General Manager, MacGREGOR Land & Sea Inc., 135 Dermody Street, Cranford, NJ 07016 (201) 272-8440.

An Equal Opportunity Employer

**C. B. DARCY  
MARINE SALES  
REPRESENTING**

**Johnson® Johnson Rubber Co.**

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

**WESTERN BRANCH METALS**

Armco Stainless Shafting Systems  
Machining — Propeller Nuts

**DAMAN INDUSTRIES**

Ceramaloy Coatings  
Propeller Shaft Liners  
Dredge Pump Sleeves and Shafts

**FNT INDUSTRIES, INC.**

Commercial Fishing Supplies  
Netting — Rope — Twine

**KAHLENBERG BROS.**

Air Horns — S/S Propellers

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

**RAMPMASTER**  
MARINE ALUMINUM **GANGWAYS**  
TRUSS OR BEAM  
TYPE — ANY  
LENGTH  
CORROSION  
RESISTANT  
Portable  
Handrail  
Assemblies  
ALL TYPES  
SHIP'S LADDERS  
PIER STANDS  
Call Us For Quotes!  
**RAMPMASTER**  
INCORPORATED  
1226 N.W. 23RD AVENUE FORT LAUDERDALE, FLORIDA 33311  
TELEPHONE 305 584-5990

"Conrad builds barges with  
remarkable cost efficiency"  
BUILDERS OF BOATS AND BARGES  
CONRAD DRYDOCK'S  
DRYDOCKING...SHIPYARD  
**CONRAD**  
INDUSTRIES, INC.  
P.O. BOX 790/MORGAN CITY, LA. 70380  
TELEPHONE AREA CODE 504-384-3060

## Calendar Of Coming Events

**NORFISHING '80** Aug. 11-17  
*International Fisheries Fair Organized by the Norwegian Directorate of Fisheries in collaboration with the Norwegian Fair Organization.*  
 Nidarø Hall, Trondheim, Norway. Contact Mrs. Else-Marie Gehrken, information consultant, Norwegian Fair Organization, P.O. Box 130, Skoyen, Oslo 2, Norway; telex 18748.

**Offshore North Sea 1980** Aug. 26-29  
*International Technology Conference and Exhibition sponsored by the Norwegian Petroleum Society.*  
 Siddishallen Exhibition Centre, Stavanger, Norway. Contact Offshore North Sea 1980, P.O. Box 410, 4001 Stavanger, Norway; telex 33250.

**International Symposium on Ocean Engineering & Ship Handling** Sept. 17-18  
*Sponsored and organized by the Swedish Maritime Research Centre.*  
 Park Avenue Hotel, Gothenburg, Sweden. Contact the Gothenburg Convention Bureau, Parkgatan 2, S-41138 Gothenburg, Sweden.

**Shipboard Energy Conservation '80** Sept. 22-23  
*Symposium sponsored by The Society of Naval Architects and Marine Engineers and presented by the New York Metropolitan Section.*  
 Waldorf-Astoria Hotel, New York City. Contact John C. Daidola, c/o M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013; (212) 431-6900.

**Ship Operations Symposium** Sept. 23-25  
*Sponsored by the Maritime Association of the Port of New York, and others.*  
 Downtown Athletic Club, New York City. Contact the sponsor at 80 Broad Street, 34th Floor, New York, N.Y. 10004; (212) 425-5704.

**Exhibition & Congress: Ship, Machinery, Marine Technology International** Sept. 23-27  
*Organized by Hamburg Messe and Congress GmbH.*  
 Fair Grounds Exhibition Centre, Hamburg, West Germany. Contact the organizers at Tungiusstrabe 18, Messehaus Postfach 302360, Hamburg 36, West Germany; telex 0212609.

**International Oil Pollution Prevention Exhibition & Conference** Sept. 23-27  
*Organized by Hamburg Messe and Congress GmbH.*  
 Fair Grounds Exhibition Centre, Hamburg, West Germany. Contact Millard F. Smith, c/o Slickbar, Inc., 250 Pequot Avenue, Southport, Conn. 06490; (203) 255-2601.

**Marine Technology '80** Oct. 6-8  
*Conference & Exposition sponsored by the Marine Technology Society.*  
 Shoreham Americana Hotel, Washington, D.C. Contact MTS at 1730 M Street, N.W., Suite 412, Washington, DC 20036; (202) 659-3251.

**AAPA Annual Convention** Oct. 19-23  
*Sponsored by the American Association of Port Authorities.*  
 Omni International Hotel, Norfolk, Va. Contact AAPA 1980 Convention Planning Committee, Virginia Port Authority, 1600 Maritime Tower, Norfolk, Va. 23510; (804) 622-1671.

**WGA Annual Convention** Oct. 22-24  
*Ninth annual convention and technical symposium of the Wild Goose Association for professional navigators.*  
 Bradford Hotel, Boston, Mass. Contact Bahar Uttam, c/o JACOR, 300 Unicorn Park, Woburn, MA 01801; (617) 933-6805.

**SNAME Annual Meeting** Nov. 13-15  
*Sponsored by The Society of Naval Architects and Marine Engineers.*  
 New York Hilton Hotel, New York City. Contact SNAME, One World Trade Center, Suite 1369, New York, NY 10048; (212) 432-0310.

**EUROPORT '80** Nov. 18-22  
*Exhibition & Conference organized by the Europort Group.*  
 RAI Halls and Congress Centre, Amsterdam, The Netherlands. Contact Peter K. Johnson, Europort Inc., 6006 Bellaire Boulevard, Suite 101, Houston, TX 77081; (713) 666-5188.

## \$120-Million Order To Kockums For Two Car Carriers

Kockums AB, Malmo, Sweden, has received an order for two 17,000-dwt car carriers from Wallenius Lines of Stockholm. The order, which is worth about SEK 500 million (US \$120 million), complements two other identical ships scheduled for delivery to Wallenius in 1981. The new order is slated for shipment in the first half of 1982 and will bring the total of Kockums-built ships in the Wallenius fleet to 12.

The four diesel-powered vessels are virtual seagoing garages. Each ship has 13 decks, three of which are reinforced to accept heavy vehicles. They are able to hold 6,000 passenger cars or a combination of about 500 heavy vehicles and 3,000 passenger cars.

The vessels are 198 meters long (about

650 feet), with beams of 32 meters (105 feet) and drafts of 9.5 meters (31 feet). The main engines are Burmeister and Wain 6L80GFCA and can reach speeds of 19.6 knots. Each carrier has one bow thruster.

## Lockstad Co. Opens New Offices In Mendham, N.J.

Howard Lindberg, president of Lockstad Co., Inc., leading U.S. designer, manufacturer and supplier of Chain Pipe Covers, has announced the opening of new and larger facilities in Mendham, N.J. Over 1,000 ships are now operating using the patented unit designed, manufactured and supplied by Lockstad Co., Inc. For further information on Chain Pipe Covers for any size vessel, write Howard Lindberg, Dept. 780MR, Lockstad Co., Inc., R.D. #2, Burnett Road, Mendham, N.J. 07945.

# CAICOS PETROLEUM SERVICES

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



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

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

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

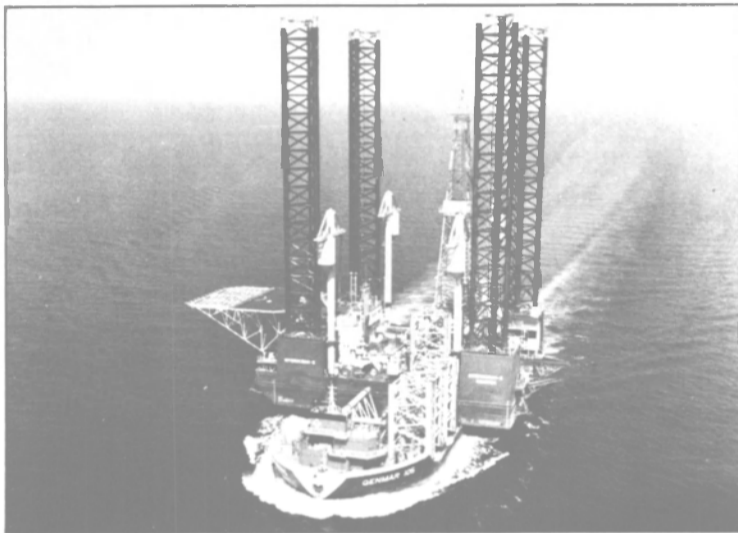


TWICE EACH MONTH  
THE CURRENT MAGAZINE

# Your marine advertising works ...in the number 1

***MARITIME REPORTER* blankets  
thousands more shoreside buyers...**

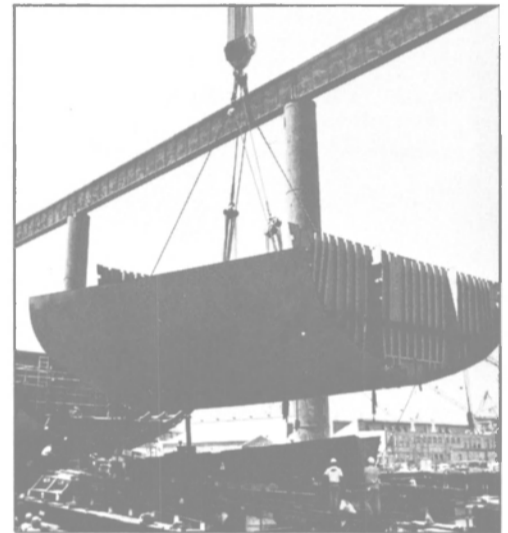
## OFFSHORE DRILLING



## GREAT LAKES



## SHIPYARDS



**These are BUYING POWER readers —  
the only people with *authority* to give business to all marine advertisers.**

**MARITIME REPORTER is wanted — requested ... in writing by thousands more individuals with these titles  
than any other marine magazine in the entire world.**

**VESSEL OPERATING COMPANIES, OCEAN, INLAND, HARBORS, OFFSHORE OIL DRILLING, PORT AUTHORITIES**  
Directors, owners, agents, presidents, vice presidents, managers, secretaries, treasurers, port engineers, superintendents,  
purchasing agents, port captains, port stewards, naval architects and engineers shoreside

**SHIPBUILDING, BOATBUILDING, AND REPAIR COMPANIES**

Directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers, purchasing agents,  
naval architects and chief draftsmen

**PROFESSIONAL MEN**

Naval architects, engineers and consultants shoreside

---

**TOTAL CIRCULATION OVER 99% REQUESTED...IN WRITING  
...BY EACH INDIVIDUAL READER**

---

# ***FIRST CHOICE OF MARINE BUYING READERS***

## Calendar Of Coming Events

**NORFISHING '80** Aug. 11-17  
*International Fisheries Fair Organized by the Norwegian Directorate of Fisheries in collaboration with the Norwegian Fair Organization.*  
 Nidarø Hall, Trondheim, Norway. Contact Mrs. Else-Marie Gehrken, information consultant, Norwegian Fair Organization, P.O. Box 130, Skøyen, Oslo 2, Norway; telex 18748.

**Offshore North Sea 1980** Aug. 26-29  
*International Technology Conference and Exhibition sponsored by the Norwegian Petroleum Society.*  
 Siddishallen Exhibition Centre, Stavanger, Norway. Contact Offshore North Sea 1980, P.O. Box 410, 4001 Stavanger, Norway; telex 33250.

**International Symposium on Ocean Engineering & Ship Handling** Sept. 17-18  
*Sponsored and organized by the Swedish Maritime Research Centre.*  
 Park Avenue Hotel, Gothenburg, Sweden. Contact the Gothenburg Convention Bureau, Parkgatan 2, S-41138 Gothenburg, Sweden.

**Shipboard Energy Conservation '80** Sept. 22-23  
*Symposium sponsored by The Society of Naval Architects and Marine Engineers and presented by the New York Metropolitan Section.*  
 Waldorf-Astoria Hotel, New York City. Contact John C. Daidola, c/o M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013; (212) 431-6900.

**Ship Operations Symposium** Sept. 23-25  
*Sponsored by the Maritime Association of the Port of New York, and others.*  
 Downtown Athletic Club, New York City. Contact the sponsor at 80 Broad Street, 34th Floor, New York, N.Y. 10004; (212) 425-5704.

**Exhibition & Congress: Ship, Machinery, Marine Technology International** Sept. 23-27  
*Organized by Hamburg Messe and Congress GmbH.*  
 Fair Grounds Exhibition Centre, Hamburg, West Germany. Contact the organizers at Tungiusstrabe 18, Messehaus Postfach 302360, Hamburg 36, West Germany; telex 0212609.

**International Oil Pollution Prevention Exhibition & Conference** Sept. 23-27  
*Organized by Hamburg Messe and Congress GmbH.*  
 Fair Grounds Exhibition Centre, Hamburg, West Germany. Contact Millard F. Smith, c/o Slickbar, Inc., 250 Pequot Avenue, Southport, Conn. 06490; (203) 255-2601.

**Marine Technology '80** Oct. 6-8  
*Conference & Exposition sponsored by the Marine Technology Society.*  
 Shoreham Americana Hotel, Washington, D.C. Contact MTS at 1730 M Street, N.W., Suite 412, Washington, DC 20036; (202) 659-3251.

**AAPA Annual Convention** Oct. 19-23  
*Sponsored by the American Association of Port Authorities.*  
 Omni International Hotel, Norfolk, Va. Contact AAPA 1980 Convention Planning Committee, Virginia Port Authority, 1600 Maritime Tower, Norfolk, Va. 23510; (804) 622-1671.

**WGA Annual Convention** Oct. 22-24  
*Ninth annual convention and technical symposium of the Wild Goose Association for professional navigators.*  
 Bradford Hotel, Boston, Mass. Contact Bahar Uttam, c/o JACOR, 300 Unicorn Park, Woburn, MA 01801; (617) 933-6805.

**SNAME Annual Meeting** Nov. 13-15  
*Sponsored by The Society of Naval Architects and Marine Engineers.*  
 New York Hilton Hotel, New York City. Contact SNAME, One World Trade Center, Suite 1369, New York, NY 10048; (212) 432-0310.

**EUROPORT '80** Nov. 18-22  
*Exhibition & Conference organized by the Europort Group.*  
 RAI Halls and Congress Centre, Amsterdam, The Netherlands. Contact Peter K. Johnson, Europort Inc., 6006 Bellaire Boulevard, Suite 101, Houston, TX 77081; (713) 666-5188.

## \$120-Million Order To Kockums For Two Car Carriers

Kockums AB, Malmo, Sweden, has received an order for two 17,000-dwt car carriers from Wallenius Lines of Stockholm. The order, which is worth about SEK 500 million (US \$120 million), complements two other identical ships scheduled for delivery to Wallenius in 1981. The new order is slated for shipment in the first half of 1982 and will bring the total of Kockums-built ships in the Wallenius fleet to 12.

The four diesel-powered vessels are virtual seagoing garages. Each ship has 13 decks, three of which are reinforced to accept heavy vehicles. They are able to hold 6,000 passenger cars or a combination of about 500 heavy vehicles and 3,000 passenger cars.

The vessels are 198 meters long (about

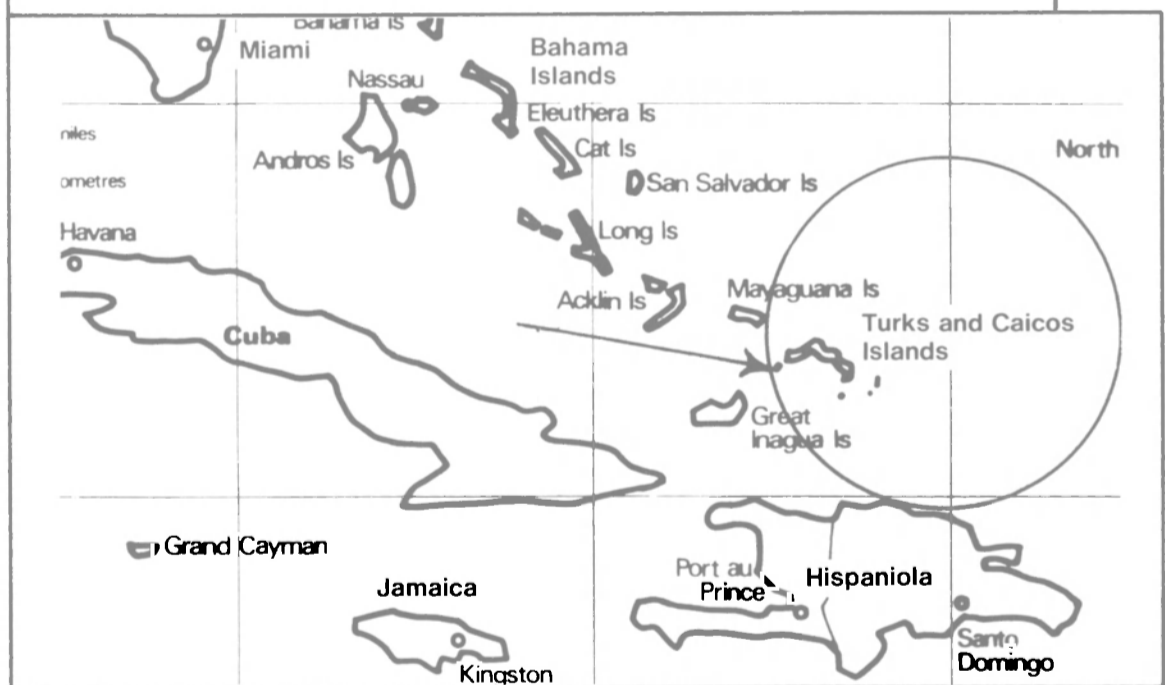
650 feet), with beams of 32 meters (105 feet) and drafts of 9.5 meters (31 feet). The main engines are Burmeister and Wain 6L80GFCA and can reach speeds of 19.6 knots. Each carrier has one bow thruster.

## Lockstad Co. Opens New Offices In Mendham, N.J.

Howard Lindberg, president of Lockstad Co., Inc., leading U.S. designer, manufacturer and supplier of Chain Pipe Covers, has announced the opening of new and larger facilities in Mendham, N.J. Over 1,000 ships are now operating using the patented unit designed, manufactured and supplied by Lockstad Co., Inc. For further information on Chain Pipe Covers for any size vessel, write Howard Lindberg, Dept. 780MR, Lockstad Co., Inc., R.D. #2, Burnett Road, Mendham, N.J. 07945.

# CAICOS PETROLEUM SERVICES

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



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

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

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

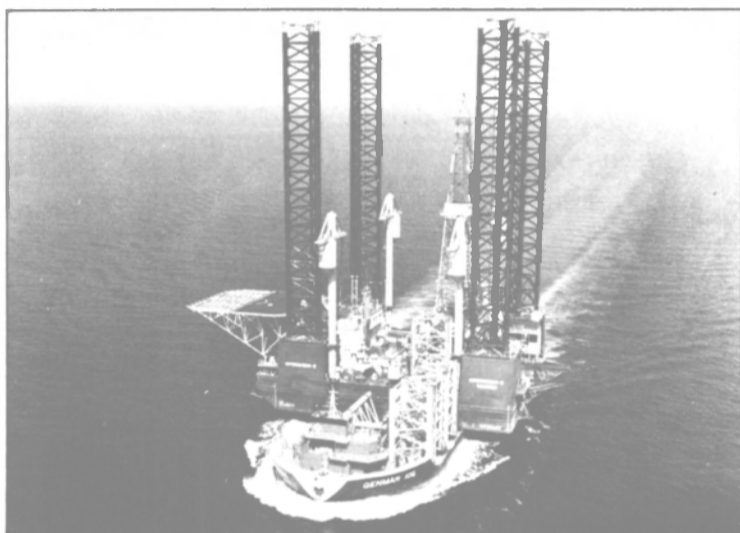


TWICE EACH MONTH  
THE CURRENT MAGAZINE

# Your marine advertising works ...in the number 1

***MARITIME REPORTER* blankets  
thousands more shoreside buyers...**

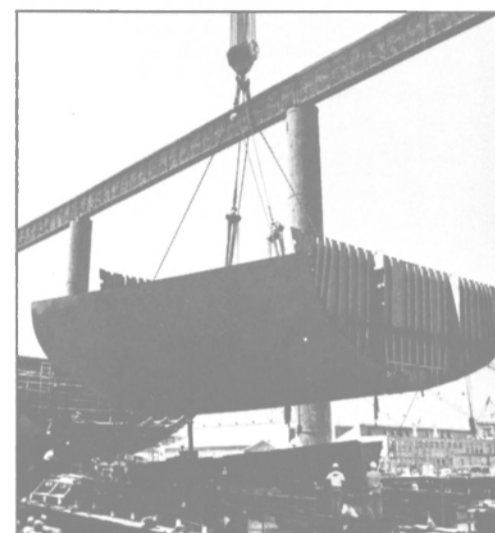
## OFFSHORE DRILLING



## GREAT LAKES



## SHIPYARDS



**These are BUYING POWER readers—  
the only people with *authority* to give business to all marine advertisers.**

**MARITIME REPORTER is wanted—requested...in writing by thousands more individuals with these titles  
than any other marine magazine in the entire world.**

**VESSEL OPERATING COMPANIES, OCEAN, INLAND, HARBORS, OFFSHORE OIL DRILLING, PORT AUTHORITIES**  
Directors, owners, agents, presidents, vice presidents, managers, secretaries, treasurers, port engineers, superintendents,  
purchasing agents, port captains, port stewards, naval architects and engineers shoreside

**SHIPBUILDING, BOATBUILDING, AND REPAIR COMPANIES**

Directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers, purchasing agents,  
naval architects and chief draftsmen

**PROFESSIONAL MEN**

Naval architects, engineers and consultants shoreside

---

**TOTAL CIRCULATION OVER 99% REQUESTED...IN WRITING  
...BY EACH INDIVIDUAL READER**

---

# ***FIRST CHOICE OF MARINE BUYING READERS***

# harder...to produce more sales for you magazine, MARITIME REPORTER.

***all marine areas...with a requested circulation to  
than than any other marine magazine in the entire world***

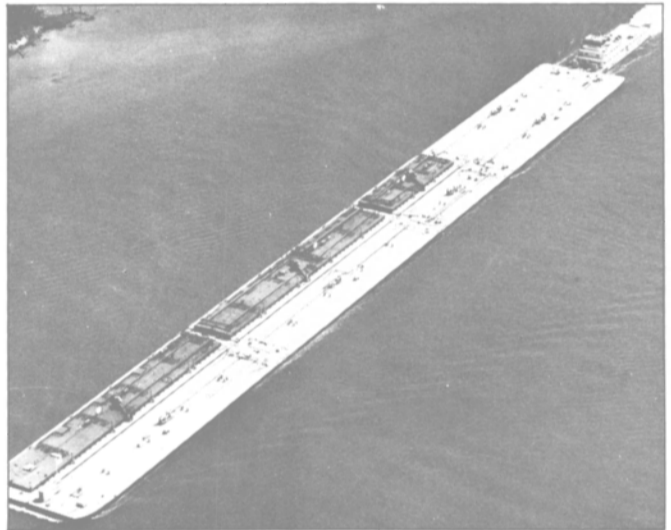
## OCEAN



## HARBORS



## INLAND WATERWAYS



**REQUESTED BY THOUSANDS MORE BUYERS WORLDWIDE** — MARITIME REPORTER is requested, in writing, by thousands more marine men who specify and buy than *any* other marine magazine in the entire world.

**REQUESTED BY THOUSANDS MORE U.S. BUYERS** — Throughout the entire United States... MARITIME REPORTER is requested by thousands more shoreside buyers than *any* other U.S. marine magazine.

**REQUESTED BY THOUSANDS MORE FOREIGN BUYERS** — Than the second magazine, ME/Log.

**MOST ADVERTISING PAGES** — In 1979, MARITIME REPORTER carried more pages of advertising (7" x 10") than No. 2, ME/Log.

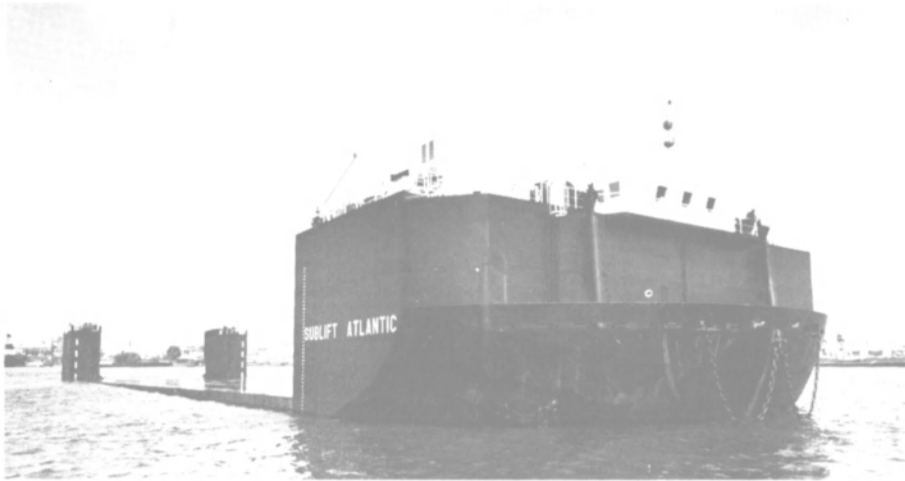
**400,000 FREE DIRECTORY LISTINGS** — Regular display advertisers in MARITIME REPORTER receive a free listing — company name and address — in the buyers directory section in all 24 issues for one entire year... whether an ad appears in every issue or not. No other marine magazine gives you this continuous sales-building exposure.

**LOWEST COST** — Why pay more... MARITIME REPORTER's advertising rates are lower than ME/Log's... and lower, cost per buying reader, than any other marine magazine.

## **AND MARINE ADVERTISERS**

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

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS



Built not for beauty but as a workhorse for extra-heavy and voluminous cargoes, submersible barge **Sublift Atlantic** was delivered recently by B.V. Scheepswerf "De Hoop" shipyard of Lobith, the Netherlands, to owners Nedbarges Sublift B.V., Schiedam.

## Submersible Deck Cargo Barge Delivered To Nedbarges Sublift

Nedbarges Sublift B.V., ship-owners of Schiedam, the Netherlands, recently took delivery in Rotterdam of the semisubmersible, oceangoing deck cargo barge **Sublift Atlantic**. Built by B.V. Scheepswerf "De Hoop" of Lobith, the Netherlands, the vessel is 135 meters long with a beam of 31 meters and depth of 8 meters (about 443 by 102 by 26 feet). Its lifting capacity is about 17,000 metric tons on a draft of 6 meters (19.7 feet).

The new barge is specially designed for the transportation of

extra-heavy and outsize cargoes such as jackup offshore drilling rigs, which can be loaded and discharged by submersion, without grounding the barge. For reasons of versatility, the owners have added some special features to this barge, including a heavy-duty ro/ro ramp that folds back into the deck, and removable rows of stanchions for carriage of deck cargoes of pipe, timber, logs, etc. Deck loading capacity is a uniform 15 tons per square meter.

This barge, unlike most others of its type, can be submerged re-

gardless of excess water depth. For this purpose it is fitted with a four-point mooring system using the main anchors forward and two stern anchors, all operated by independent hydraulic winches.

The high-volume pumps needed for submersion operations also

provide an extra feature: by directing their water flow to monitors, the barge becomes self-positioning in harbors and other well-sheltered waters.

A sister vessel to be named the **Sublift Pacific** will be added to the Nedbarges Sublift fleet in March 1981.

## Mangone Launches Special Purpose Tanker For Sun Transport

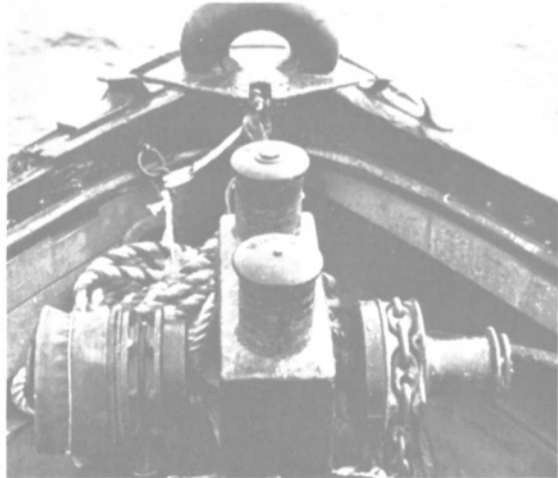


Mangone Shipbuilding of Houston has launched a 245-foot special purpose vessel being built for Sun Transport, a division of Sun International, Inc. The Northern Sun (shown above), ABS classed

A-1 oil carrier **Maltese Cross AMS**, is a self-propelled twin-screw motor tank vessel. It will be delivered late this summer and will work inland and offshore in Sun Transport's U.S. Atlantic

## 97 YEAR OLD CROWLEY TUG

"MARY D. HUME"  
RETIRES  
INTO  
LIVING  
HISTORY



Complete with her **MARKEY MACHINERY**

This grand old lady was in service till the fall of 1978, when she sailed under her own power to Gold Beach, Oregon, to become a floating museum at the Curry County Historical Society. Her Markey deck machinery has been on board for 41 years, and still is giving dependable service. No matter how long you keep your tugs, you can count on Markey deck machinery to stay with the ship. Call us for your needs.

**(MARKEY)**

**MARKEY MACHINERY CO., INC.**  
79 S. Horton St.  
Seattle, WA 98134  
(206) 622-4697

DECK AND AUXILIARY MACHINERY DESIGNING, BUILDING, REPAIRING  
REPRESENTED BY

H. J. WICKERT & CO., INC., 790 Tennessee St.  
San Francisco, Ca. 94107 • Ph. 415-647-3500  
J. H. MENGE CO., INC., P.O. Box 23602,  
New Orleans, La. 70183 • Ph. 504-733-4871  
J. H. MENGE CO., INC., 1011 World Trade Bldg.,  
1520 Texas Ave., Houston, Tx. 77002 • 713-224-9750



"GO-AHEAD, SAY 'DOWN-THE-HATCH',  
- JUST ONCE MORE!"



Coast operations. Mangone is a subsidiary of Stewart and Stevenson Services, Inc.

Overall measurements are 245 feet 6 inches by 45 feet by 19 feet 3 inches (74 by 13.5 by 5.8 meters) with a design draft of 14 feet 6 inches (4.4 meters). Powered by two GM EMD 8-645 E 7 diesels producing 1,900 total horsepower, the ship will operate at a service speed of about 12 knots. Accommodations are for eight crewmen.

The new vessel will have a cargo capacity of 21,549 barrels grade B oil products in 10 tanks in three segregated sections. For cargo unloading, there are three diesel-driven deepwell pumps rated at 2,100 gpm at 125 psi aboard.

Mangone vice president Don Godeau said the ship will be the first of its kind intended for U.S. operation and will combine offshore/oceangoing capabilities with the size and maneuverability to navigate inland waterways and canals. The vessel will be U.S. Coast Guard certificated.

Ship's electronics will include Sperry gyro, Sperry autopilot, Loran C, Fathometer, two radar units, ADF, two VHF radio sets, and SSB. The vessel will also be equipped with two 125-kw diesel-driven generators and a 35-kw standby generator.

### Bethlehem Terminal Island Gets \$9.1-Million Navy Order For Overhaul Work

Bethlehem Steel Corporation, Terminal Island, Calif., is being awarded a \$9,100,753 formally advertised firm fixed price contract for the regularly scheduled overhaul of the USS Bronstein (FF-1037). The Supervisor of Shipbuilding, Conversion and Repair, USN, Long Beach, Calif., is the contracting activity. (N65870-70-C-0001)

### Offshore Construction For \$50-Million Pipeline Goes To J. Ray McDermott

Houston Pipe Line Company and Valley Pipe Lines, Inc., Offshore Division, both subsidiaries of Houston Natural Gas Corporation (HNG), have announced plans to construct a 92-mile, 20-inch gas pipeline in state waters off Padre Island, Texas. When completed, the pipeline will be the longest offshore intrastate pipeline in the nation, with a design capacity of 400 million cubic feet per day.

Construction of the pipeline from state block 1064-L in the


Gulf of Mexico off Port Mansfield to an existing Houston Pipe Line Company facility at Chapman Ranch southwest of Corpus Christi is expected to begin August 1. Completion is anticipated in April 1981. The line, which will parallel the coast of approximately 68 miles before moving inland in Nueces County, will serve two platforms currently under con-

struction. The platforms will be operated by McMoRan Exploration Company. Contracts for the purchase of gas have been signed with McMoRan and Warren-King Oil Company, and commitments with the remaining owner interests are expected in the future.

J. Ray McDermott Company, Inc. has been awarded the offshore construction contract. Con-

tracts for the two other phases of construction, on land and across the Laguna Madre, have yet to be awarded.

More than 485,000 feet of pipe, including approximately 360,000 feet for the offshore portion, will be used to complete the project. Total cost of the pipeline is expected to be more than \$50 million.



**2400 N.W. 39th AVENUE**  
MIAMI, FLORIDA U.S.A. 33142  
(305) 871-4094  
TELEX: 512408  
CABLE: AMT MARINE











**NEW ORLEANS**  
(504) 522-5042  
**PORT EVERGLADES**  
(305) 462-5118

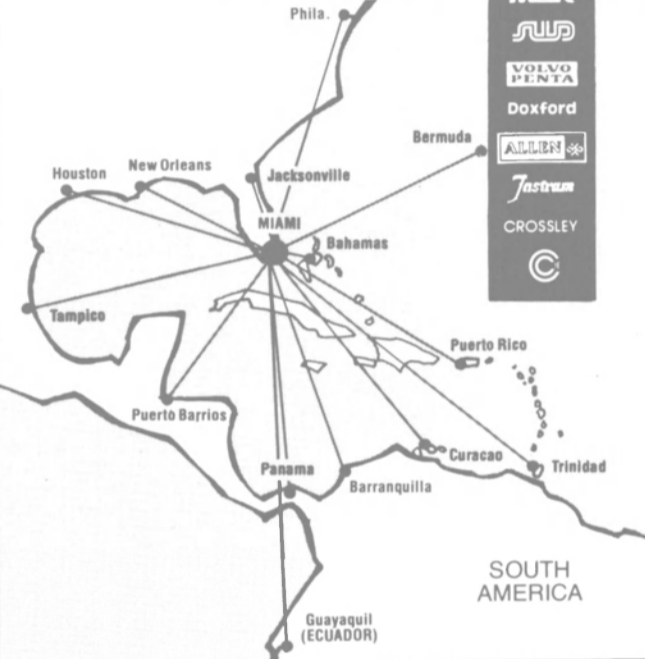
**24 HOURS / 7 DAYS  
A DAY / A WEEK**

- Emergency Repair Squads
- Dockside/At Sea/Abroad
- Comprehensive Marine Repairs—Machinery/Steelwork/Electrical
- Extensive Shop Facilities—Overhead Cranes/Presses
- Large Lathes/inch/metric
- Fleet of Portable Equipment

Generators Trucks  
Compressors Welders  
Boring Bars Lifting Gear

**FACTORY  
AUTHORIZED  
Repairer and  
Spares Dealers  
for**



SOUTH AMERICA

### State of Rhode Island Division of Purchases 301 Promenade St. Providence, RI 02908

The State of Rhode Island offers for sale a surplus Bucyrus-Erie Model H-5 hydro-crane 15 ton capacity. Pedestal Type, powered by a 55 H.P. motor 460v 3 phase 60 cycle motor.

This crane was on the University of Rhode Island research vessel "Trident" and was completely overhauled in 1976. It also has a spare boom cylinder. For further information please contact me at the above address or call 401-277-2375.

Paull L. Dunn  
State Property Officer

## MARINE CHECKERS, DRAFTERS and DESIGNERS

AVONDALE SHIPYARDS, one of Americas largest shipbuilders, currently has a production backlog of over \$1,000,000,000.

As a result of this tremendous volume of work, Avondale engineering urgently needs the following permanent personnel for its main yard in New Orleans, La.:

- MARINE PIPING CHECKERS, DRAFTERS & DESIGNERS
- MARINE STRUCTURAL CHECKERS, DRAFTERS & DESIGNERS
- MARINE OUTFITTING CHECKERS, DRAFTERS & DESIGNERS
- MARINE MECHANICAL CHECKERS, DRAFTERS & DESIGNERS

Avondale's Conceptual Design Department Requires:

- ONE PERSON CAPABLE IN MACHINERY ARRANGEMENTS, MARINE SYSTEM DESIGN, PIPING DIAGRAMS, AND PURCHASE SPECIFICATION FORMULATION.

Avondale engineering offers an excellent salary and benefits package, relocation expenses and a work environment designed to bring out the best in each engineering employee.

Forward resume including salary history to:



Mr. C. L. Morris  
V.P., Engineering Administration  
**AVONDALE SHIPYARDS, INC.**  
P.O. Box 50280  
New Orleans, La. 70150

An Equal Opportunity Employer M/F

# CLASSIFIED ADVERTISING

## WILSON is STEAMSHIP!

We have served the Shipping Industry exclusively for over 40 years and maintain an active file of people experienced in all of its phases—including Port Engineers, Ship Construction Supervisors, M&R, Sales Engineers (chemicals, coatings, etc.)—to relocate anywhere. Salaries and fees negotiable; inquiries without obligation and in confidence.

### WILSON AGENCIES

150 B'way, N.Y.C. 10038 (212) 732-2921  
1121 Walker St., Houston 77002 (713) 224-2200

## MARINE CHIEF ENGINEERS

Belcher Oil Company, Towing Division, Miami, Florida has immediate openings for Marine Chief Engineers.

Basic requirements are:

U.S.C.G. Chief Engineers Diesel License. Experience with Low Speed Diesels that burn heavy fuel is essential.

Applicants should reply in confidence, with resume and salary requirements, to:

### BELCHER OIL COMPANY

Personnel Department

Attn: Capt. W. Bunting

P.O. Box 525500

Miami, Florida 33152

An Equal Opportunity Employer M/F

## NAVAL ARCHITECT

MARINE ENGINEERING FIRM HAS IMMEDIATE NEED FOR AN EXPERIENCED NAVAL ARCHITECT WITH ABOUT 10 YRS BACKGROUND IN DESIGN, CONSTRUCTION, DRYDOCKING OF SHIPS, FLOATING OFFSHORE DRILLING RIGS AND PLATFORMS AND LIAISON WITH REGULATORY BODIES. MUST HAVE HEAVY EXPERIENCE IN STABILITY, MOORING, MOTIONS AND STRUCTURES AND POSSESS SUPERVISORY SKILLS. EXCELLENT BENEFIT PACKAGE. SEND RESUME TO:

GLOBAL MARINE DEVELOPMENT INC.

EMPLOYEE RELATIONS

P.O. BOX 3010

NEWPORT BEACH, CA 92663

AN EQUAL OPPORTUNITY EMPLOYER

New York Area Distributor and Service Facility for International Marine Electronics manufacturer seeks National Service Manager to fill vacancy created by internal promotion. Candidates should have 1st or 2nd class license with radar endorsement. Good salary and benefits.

Send resumes (in confidence) to Personnel Manager, Simrad, Inc., 1 Labriola Court, Armonk, New York, 10504.



**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 OPERATIONS COORDINATOR

### Chevron Shipping Company Perth Amboy, New Jersey

Challenging career opportunity in operational control and port operations of petroleum tankers. Applicant must be able to handle tanker operation problems, including dealing with multi-national vessels and government agencies. Must have demonstrated supervisory skills and capabilities. Advancement opportunities. Requirements include a license as a merchant marine officer and/or extensive ship operating experience and/or previous shoreside tanker operating experience. A degree from a Maritime Academy is desirable. Salary commensurate with experience and qualifications. Excellent benefits program including paid vacations, company and group insurance, retirement and stock plan.

Please send complete resume to **Chevron Shipping Company, 1200 State Street, Perth Amboy, NJ 08861.**



**Chevron Shipping Company**  
A Standard Oil Company of California Subsidiary

An Equal Opportunity/Affirmative Action Employer

### POSITION WANTED

LONG EXPERIENCED MARINE MANAGER AND ENGINEER DESIRES CHALLENGING WORK. EFFECTIVE IN CONSTRUCTION FROM INITIAL SHIPYARD CONTACT TO PURCHASE NEGOTIATIONS INCLUDING CONTRACT AND SPECIFICATION DEVELOPMENT, TO DESIGN DEVELOPMENT, REVIEW AND COMPLETION. INTO CONSTRUCTION SUPERVISION, ALL TESTS AND TRIALS, TO DELIVERY, WITH ALL PROPER REGISTRY DOCUMENTATION. IN OPERATIONS PROVIDE IMPROVED ECONOMY, EFFECTIVENESS AND RELIABILITY WITH REDUCTION OF DOWNTIME. AVAILABLE ON LONG OR SHORT TERM BASIS.

Box 617 Maritime Reporter/Engineering News  
107 East 31 Street New York, N.Y. 10016

### POSITION WANTED

EXPORT MGR, seasoned prof'l, in depth-experience product line mgmt, mktg, sales/admin ocean industries equip + diversified hi-tech electronics; trav'd; salary negotiable.

Reply PO Box 345, Sea Cliff, NY 11579.

## 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!

- ENGINEERING MGR (TANKER OPERATIONS) To \$50K
- ENGINEERING MGR (OCEAN TUG/BARGE OPERS) To \$45K
- ENGINEERING MGR (OCEANOGRAPHIC PRODUCTS) To \$45K
- PORT CAPTAINS (TANKER OPERATIONS) To \$40K
- PRODUCTION MGR (SHIP MACHY M & C SYSTEMS) To \$40K
- ASST MRTG MGR (DOD COMM'D/CONTR/COMM'N SYST) To \$38K
- MARKETING MGR (VESSEL TRAFFIC SYSTEMS) To \$35K
- ASST PROGRAM MGR (DOD SHIP AIR CONTR RADAR) To \$35K
- SALES ENGINEERS (SHIP MACHY M & C SYSTEMS) To \$35K
- SAFETY DIRECTOR (SHIPYARD) To \$26K
- SALES/SERVICE ENGINEERS (C.P. PROPS, THRUSTERS; ETC) To \$26K
- SERVICE ENGINEERS (DECK MACHY; RADAR CAS) To \$23K
- OTHER OPENINGS AVAILABLE

Call collect and/or mail job requirements/resumes to  
BOB SLEIERTIN  
P.O. BOX 86-A (583 State Road)  
No. Dartmouth, Mass. 02747  
(617) 997-3311

## WANTED MARINE ENGINEER

VIRGINIA DEPARTMENT OF HIGHWAYS & TRANSPORTATION

Waverly Residency

NEEDS

RIVER FERRY ENGINEERS

at

Jamestown-Scotland Ferry

QUALIFICATIONS: Must hold U. S. Coast Guard License as Chief Engineer of a vessel propelled by diesel engine of 1600 horsepower. Good physical condition.

SALARY: \$17,900 Annually

Fringe Benefits: Vacation, sick leave, retirement and State paid hospital insurance

Call 804-834-2333 collect for appointment for interview or write: Resident Engineer, Va. Dept. of Highways & Transportation, Waverly, Virginia 23890.

AN EQUAL OPPORTUNITY EMPLOYER

### POSITION WANTED

PORT CAPTAIN — Over 25 years experience in Stevedore operations, Terminal management and cargo handling. Very strong knowledge of breakbulk cargoes and specialized heavy lift operations. This includes containers, RO-RO combined with general cargo applications on all types of vessels. Have traveled widely and familiar with all U.S. East and Gulf Coast ports. In addition to steamship company representative, have heavy experience in terminal management, chartering and surveying. Also, have been commissioned officer in U.S. Coast Guard with specialty in dangerous cargo and port security. Prefer to establish within marine industry based in New York but will consider relocation. Can travel as required. Both domestic or foreign. Presently employed and highly respected on all operational levels and areas, in excellent health and have top references. For additional information and complete resume please contact:

Box 715  
107 East 31 Street

Maritime Reporter/Engineering News  
New York, NY 10016

### POSITION WANTED

DAVID ROSENBAUM  
BORN OCTOBER 9, 1925 IN TYCZYN, POLAND  
LICENSE: MASTER F.G. ISRAELI #1534 OF MAY 4, 1966  
MASTER OCEANGOING LIBERIAN #189462 OF JULY 7, 1979  
MASTER OCEANGOING POLISH #157 OF NOVEMBER 13, 1956

SAILED AS CAPTAIN FROM MARCH 1969 TO JUNE 1979 WITH "NAVICOM, INC." OF MILWAUKEE, WISCONSIN.

PRESENT ADDRESS: D. ROSENBAUM  
26, HASHOFTIM AVE.  
QIRYAT MOTZKIN  
ISRAEL  
PHONE: 04 706 496



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

**Professional  
Marine  
Recruiting  
Service**

**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

**For Sale: Fishing Boat.** 67 feet by 21 feet by 7 feet, equipped for long line and snapper fishing. Twin diesel engines, twin diesel generators. 3,500 gallon fuel capacity, complete electronics. Completely reconditioned in 1979. Will stand rigid inspection.  
**Call AC 904 249 5661 Ask for Vic.**

**FOR SALE**

- 1 Towboat, 47' x 18' x 6.2', 1050 HP
- 6 Hopper Barges, 135' x 28' x 10'
- 2 Dock Barges, 85' x 22' x 6'
- 1 Dock Barge Ext., 80' x 22' x 5'
- 1 Barge Winch, 10,000# Hoist
- 2 Dock Winches w/switches & controls

S.M.E., Inc.

P.O. Dr. 1187 — Uniontown, Pa. 15401  
Phone 412/438-0536 Telex 866529

**REQUEST FOR BID PROPOSALS**

**HIGH SPEED WATERBORNE  
TRANSPORTATION DEMONSTRATION**

Under the aegis of the Tri-State Regional Planning Commission, and as funded by the Urban Mass Transportation Administration, a service demonstration and evaluation of high speed waterborne transport as a mode public transportation in and around the waterways of the New York Metropolitan Region will be conducted.

Minimum acceptable high speed for this demonstration is considered to start at 25 knots.

- a. a 5 n.m. route demonstration:  
total movement of 1000 passengers/hour,  
move 500 passengers/hour one way.
- b. a 25 n.m. route demonstration:  
move 250 passengers/hour one way.

Various types of lease-charters with options for purchase will be called for, including full operation and maintenance of the vessel/s.

Manufacturers of suitable, proven, waterborne vessels will be provided with requests for proposal in the immediate future.

The Naval Architects and Marine Engineering firm of Gibbs & Cox, Inc. is acting as Marine Consultants for this project.

Interested parties may correspond with or call Mr. John C. Mok, Demonstration Manager at Tri-State Regional Planning Commission, One World Trade Center, 82nd Floor, New York, NY 10048; (212) 938-3327.

*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

**FOR SALE — DRY DOCK**

New 13,000 tons capacity  
Sides 120 ft. by 70 ft.  
with 20 foot high wing walls.

July 20th delivery

**CONRAD INDUSTRIES, INC.**

Morgan City, LA 70380  
(504) 384-3060  
(504) 384-3271

**FOR SALE**

Marine Vessels • Used LCM • Used Vacuum Barge  
Call (609) 423-2700 for inspection  
**PEABODY COASTAL SERVICES**  
85 Riverview Avenue  
Pauisboro, N.J. 08066

**FOR SALE**

**CARGO BARGE — MAITLAND ON 214213**  
350' X 56' X 16' 2850 g.t.  
Great Lakes Service, No Propulsion Machinery  
**CAR FERRY — GRAND RAPIDS ON 226151**  
348' X 56' X 19' 2950 g.t.  
Great Lakes Service, No Machinery

ALSO

**TUGS, BARGES, HYD. DREDGES, CRANES, &  
EXTENSIVE ITEMS FOR MARINE CONTRACTING  
WORK.**

**CONTACT SURPLUS SALES  
BULTEMA DOCK & DREDGE**  
559 E. Western  
Muskegon, MI 49443  
Phone 616-726-5241

**OCEAN TUG**

Built for U.S. Navy 1945  
205' x 39' x 19' Draft: 15.5  
Diesel Electric Drive  
9,000 Mile Range at 12 KNS.  
4 Gen. Motors Model 12-278A  
Price \$150,000.00 "as is"

**THOMAS W. OLSEN & CO.**

12955 Biscayne Blvd. N. Miami  
305-891-7685 Telex: 519733

**WANTED**

SMALL LPG CARRIER 100-150 TONS PROPANE.  
PLEASE REPLY TO: **GUSTAVO ABAROA**  
P.O. BOX 504 TELEX: 066835  
PHONE: (678) 2-46-33  
MAZATLAN, SINALOA. MEXICO.

**FOR SALE**

**FERRYBOAT & CHRIS CRAFT BOAT**

Sealed bids will be received until July 31, 1980, 2:00 PM EDST, by the Commonwealth of Virginia; Div. of Purchases and Supply; 217 Governor St., Richmond, Va., for the following: **FERRYBOAT — NAME: YORK; Engine: Fairbanks Morse Diesel, Double End. Cap.: 20 cars. Wt.: 260 gross or 168 net tons. Length: 106' 5". Beam: 33'. Overall: 44'. Depth: 11' 2". Good condition. Located at Scotland Wharf, Va. See Capt. J.R. Ward, (804) 294-3354. And a **CHRIS CRAFT BOAT, 40' SEA SHIP. Wt.: 9 tons. Large open cockpit. Main cabin w/dinette, galley, sleeps 6. Engine: Two 409 Chev. engines F/W cooled mahogany deck. Air conditioned. Located: Va. Institute of Marine Science, Gloucester Point, Va. See Mr. Carter, James or Woody Wilson, (804) 642-2111. For bid forms contact Mr. H.T. Martin, Richmond, Va., (804) 786-3876.****

**VARIOUS  
TECHNICAL SERVICES  
AVAILABLE TO THE  
INTERNATIONAL MARINE  
INDUSTRY . . . .**

Based upon an extensive background gained through in-depth experience with the structures, cargo systems, diesel and steam propulsion machinery systems, electrical systems, and control systems of a wide variety of vessel types, **INTERNATIONAL MARINE TECHNICAL SERVICES** is making a range of project services available within the general spectrum of activities associated with vessel operation, maintenance, repair, alteration, construction, and planning.

In general terms, these services consist of: on-site supervision of repair, alteration and construction projects; on-site inspection and supervision of the fabrication, alteration, repair/overhaul, and testing of machinery and equipment items; condition and performance evaluations; identification and resolution (trouble-shooting) of in-service problems; evaluation of plans, proposals, and specifications; data acquisition and preparation.

**INTERNATIONAL MARINE TECHNICAL SERVICE** is a small and extremely flexible organization providing the personalized attention of an experienced engineer to the execution of every project.

Projects have been and can be undertaken anywhere in the world-including at sea with vessels in service.

Detailed information available upon inquiry.

**INTERNATIONAL MARINE TECHNICAL SERVICES**

2831 Cabrillo Street  
San Francisco, California  
94121 U.S.A.  
Telephone: (415) 387-9871

**FOR SALE**

**By**

**LEVIN METALS CORP.**

Two Coast Guard Cutters, "Minnetonka" & "Winona"

Ideal For Conversion To Oceanographic Survey Vessels, Diving and Drilling Platforms.

LOA 254', Beam 43', Draft 17', 2 Boilers, 4000 HP Single Shaft, Turbo Electric. Will Cruise 5,300 Nautical Miles at 18.4 Knots and 13,600 Nautical Miles At 11 Knots. 1,563 Tons Displacement.

Call: **Peter Mitchell, Levin Metals Corp.**  
Marine Sales, 1310 Canal Blvd.  
P.O. Box 398  
Richmond, Calif. (415) - 236-0606



**MONTHLY MARINE SPECIALS**

**FOR SALE**

- (A) SPUD BARGE (NEW)  
Dimensions: 120' x 39'10" x 7'3"  
2 - 22" x 40" sq. spuds  
on port side  
11 Compartments  
Price: \$200,000.00
- (B) TWIN SCREW TOWBOAT  
Built: 1957  
Hull Dimensions: 128' x 35' x 11'  
Engines: 2 - GM16-645BC  
1600 H.P.  
Price: \$850,000.00
- (C) TANK BARGE  
Built: 1950  
Dimensions: 178' x 38' x 14'  
Capacity: 9,272 bbls.  
Price: \$150,000.00 AS IS/WHERE IS



**MOWBRAY'S  
TUG & BARGE  
SALES CORP.**

21 WEST ST NEW YORK NY 10006  
TELEPHONE (212) 943 7070

**GOT A SPECIAL JOB ?**



CALL: *The Barge People*

**McDONOUGH  
MARINE SERVICE**

24 HOUR SERVICE

**BARGES FOR RENT  
ALL TYPES & SIZES**

**NEW ORLEANS** (504) 949-7586  
HOUSTON (713) 457-5887  
PARKERSBURG (304) 485-4494  
P. O. BOX 26206 NEW ORLEANS, LA 70186  
P. O. BOX 233 CHANNELVIEW, TEX 77530  
P. O. BOX 1825 PARKERSBURG, W. VA 26101

**MACHINE SHOP FOR SALE**

Fully equipped for marine diesel repair  
Close to Dodge Island, Miami River, and X-ways  
Send for complete details; Bruce Keretes  
Parry Real Estate, 3050 Biscayne Blvd.  
Miami, Fla. 33137 (305) 576-5611

**FLOATING DRYDOCK  
For Sale**

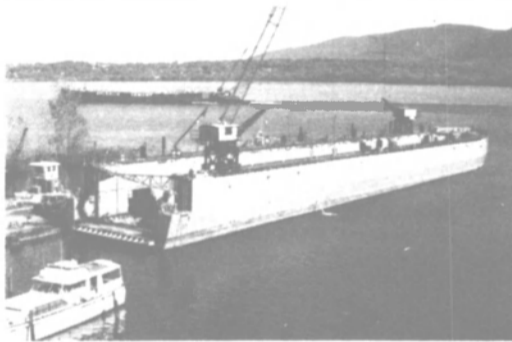
Presently in use Length of basin — 361'  
Length overall 400' Gross weight — 2,600 tons  
Breadth — 60' Capacity — 2,800 tons  
Total depth — 33'  
Breadth between wing walls — 42'

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

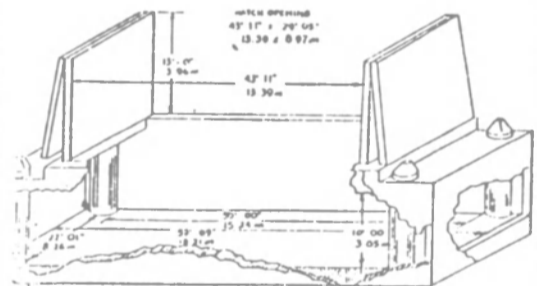
Actual Photograph Price \$450,000.00



**FOR SALE  
by**

**LEVIN METALS CORPORATION —  
RICHMOND, CALIF.**

Former PFEL Lash Lighters, all steel construction, Avon type, 500 S/Ton capacity. Double bottoms, sides, and ends. 61 ft. long, 31 ft. wide, and 14 ft. high. Empty Lighter weighs 91.33 S/Tons. Double accordion doors, hydraulic operated.



Please Call:

Peter Mitchell, Levin Metals Corp.  
Marine Equipment Sales  
1310 Canal Blvd. — P.O. Box 398  
Richmond, Calif. 94807  
(415) 236-0606

**FOR SALE  
TUGS & BOATS**

- 202 — TUG BOAT, Steel Hull 61.8' x 14.7' x 3'  
Powered by 16V71 Detroit 455 Shaft HP @  
1800 RPM Gear, Twin Disc MG-527  
Ratio — 5.17:1
- 203 — TUG BOAT, Steel Hull 38.5' x 10.4' x 7'  
Powered by 165 HP GM Gray Marine Gear,  
Twin Disc MG-509 Ratio 3 to 1
- 204 — TUG BOAT, Steel Hull 39.2' x 11' x 2.8'  
Powered by 165 HP GM Gray Marine Gear,  
Twin Disc MG-509 Ratio 3 to 1
- 205 — TUG BOAT, Steel Hull 32.2' x 10' x 3.5'  
Powered by 115 HP GM471  
Gear Twin Disc Clutch w/Reverse & Reduction Gear
- 206 — TUG BOAT, Steel Hull 61' x 20 1/2' x 6'  
Powered by (2) 400 HP GM 12V71 Gear,  
Twin Disc Mod. 514
- 208 — WORK BOAT, Steel Hull, 35.2' x 13.5' x 4.9'  
Powered by GM 8 V 61 Gear
- 210 — DREDGE TENDER, Steel Hull 25' x 10' x 3.6'  
Powered by GM 453 Engine Gear, Twin Disc  
2.9 to One Ratio
- 211 — TUG BOAT, Push Type, Steel Hull, Twin Screw,  
Up & Down Pilot House 52.5' x 20' x 7.1'  
Powered by (2) 400 HP GM12V71
- 225 — SEA RAY PONTOON BOAT 8' x 20' w/Trailer and  
Evinrude 30 HP Motor, Carpeted Deck & Canopy  
Square Hole in Deck for Sounding Purposes

**BARGES**

- 501 — BARGE, Deck Type Walking Spud 130' x 45' x 10'  
Used in Heavy Dredging
- 502 — BARGE, Deck Type w/Spuds 160' x 40' x 9'  
Two 3' x 21" Spuds
- 503 — BARGE, Deck Type w/Spuds 130' x 40' x 8.5'  
Two 24" Spuds
- 505 — BARGE, Deck Type 140' x 34' x 7.6'
- 507 — BARGE, Deck Type 75' x 23' x 5'
- 516 — BARGE, w/Concrete Deck 140' x 38' x 8'  
Two 24" Spuds
- 517 — BARGE, Deck Type 290' x 43' x 11.5'
- 518 — BARGE, Deck Type 250' x 34' x 9.5'
- 519 — BARGE, Deck Type 250' x 34' x 9.5'
- 520 — BARGE, Deck Type 250' x 34' x 9.5'
- 522 — BARGE, Deck Type 250' x 34' x 9.5'
- 513 — BARGE, SELF DUMPING SCOW, 4 Compartment  
350 CY 96' x 21.8' x 5'
- 560 — BARGE, SELF DUMPING SCOW, 6 Compartment  
550 CY 128' x 33' x 10.6'
- 561 — BARGE, SELF DUMPING SCOW, 6 Compartment  
550 CY 128' x 33' x 10.6'
- 565 — BARGE, SELF DUMPING SCOW, 6 Compartment  
550 CY 128' x 33' x 10.6'
- 526 — BARGE, FUEL, 17,000 Bbl. Capacity  
208.6' x 43' x 14.3'

**DREDGE**

- 102 — ELLICOTT 14" DREDGE, Portable 70' x 25' x 6'  
w/50' Ladder Powered by 1275 HP CAT 398
- P108 — ELLICOTT SERIES 1000 S/N 32550 Booster Pump  
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—Bob Smith or Norman Nestor (419) 529-3213  
Evenings—Bob Smith (419) 756-0090  
Norman Nestor (216) 839-2688

**NEEDED: MARINE PRODUCTS**

Sales organization in New Orleans needs  
Marine Lines to sell in Southeast Louisiana.  
Experienced personnel with excellent con-  
tacts looking for companies wishing to ex-  
pand into this area. Write or call:

Wholesale Marine, Inc.  
P.O. Box 8594  
Metairie, La. 70011  
Tel. 504 888 9487

**"TOP DOLLARS PAID"**

**WANTED**

All Welding Alloys, Wires and  
Surplus Rod.

Call: EAST WEST ALLOYS LTD.  
1090 SOUTH LA BREA AVENUE  
LOS ANGELES, CA 90019  
(213) 933-5574  
PHILA, PA. (215) 649-5805 "JERRY"

**SPECIAL OFFER**

Large quantity galvanized towline shackles.  
Threaded safety pin, nut and cotter \$9.50 ea.  
BOW DIAM. BOW INSIDE PIN DIAM.  
1 5/8" 5 1/8" x 2 1/4" 1 5/8"  
Deck pads for securing cargo \$5.00 ea.  
BASE PLATE BOW DIAM. BOW INSIDE  
11" x 4" x 5/8" 1" 4 1/2" x 4"

QUANTITY DISCOUNTS  
10% for 50 or more 15% for 100 or more



STRIEGL SUPPLY & EQUIPMENT CORP.  
6001 CHEMICAL ROAD, BALTIMORE, MD. 21226  
301-355-7922

**Surplus Anchors**

Government Surplus Anchors, 3000 # Navy L. W. T.  
Danforth Type, Priced to Sell  
Industrial Supply Co.  
P. O. Box 26087 New Orleans, La. 70186  
504-944-3371

### WINCHES—Steam or Air Operated

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

Large inventory of surplus chain and fittings

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

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

Spare parts for all steam winches

### STANDARD STEAM WINCH CO., INC.

Agents for The Crosby Group

191 Van Vorst St., Jersey City, N.J. 07032 201/433-6974

### FOR SALE!!!

USED CRANES AVAILABLE IMMEDIATELY  
LOCATION: PORTLAND OREGON

(1) AMERICAN WHIRLEY CRANE, Model R20, S/N 87878, powered by Cummins Diesel. Boom length—105', Whip—20', 45 tons at 30' radius. 32' centers.

(1) COLBY 240, S/N 170, powered by 200KW GM Diesel Electric. Boom length—115', Whip—15', 52 tons at 55'.

(1) AMERICAN R20, S/N 81481, powered by Cummins Diesel, 200KW. Boom length—105', Whip/Jib—15', 50 tons at 58'.

(1) AMERICAN R20, S/N 84184, powered by 200KW GM Diesel, with 38' track. Boom length—150', 60 tons at 50'.

(2) WASHINGTON MODEL 28H120, S/Ns 4490 & 4451, 32' centers, electric. Boom length—120', Gantry Height—60', 50 tons at 40'.

#### CRANE BARGES

"BIG BRUTE", Liberty Ship hull cut to 2nd deck, with 42" high bulwark, 414' x 57' x 28' 7", 33" W/F 130# Beams with 175# Rail on Deck, 32' centers, deck reinforced inside hull. Equipped with American R20HHE, S/N 87878, powered by Cummins Diesel, capacity 50 tons at 60'.

BARGE SS7—floating crane barge 148' x 50' x 12', Net Tonnage 741 L/T, certified by USCG and ABS, as +A1 Barge, all welded steel construction, equipped with American R20 Crane, S/N 81481, powered by Cummins Diesel, capacity 50 tons at 58'.

BARGE CRANE IRVING, converted from one half of liberty hull, 207' x 57' x 14', equipped with Colby 240 Crane, S/N 170, powered by Diesel Electric GM 200KW, capacity 52 tons at 55'.

Call or write for details:

Dr. Leonard Schnitzer, President  
SCHNITZER STEEL PRODUCTS CO.  
3200 N.W. Yeon Avenue  
Portland, OR 97210  
Phone: (503) 224-9900

### Europe's Largest Marine Stocks

FACTORY RECONDITIONED  
WITH CERTIFICATES

Anchors (1500)	(60) Generators
Chain Cables (3000 t)	(250) Pumps
Winches (150)	(35) Lifeboats
Windlasses (50)	(20) Gangways
Accommodation	
Ladders (30)	Spare Parts

PROMPT DELIVERY ALL PORTS  
ASK FOR OUR STOCKLIST

### WILLEM POT B.V.

45 Stationsplein—Rotterdam

HOLLAND

TELEX: 22496

Phone: 11 98 70

Grams: "Windlass"

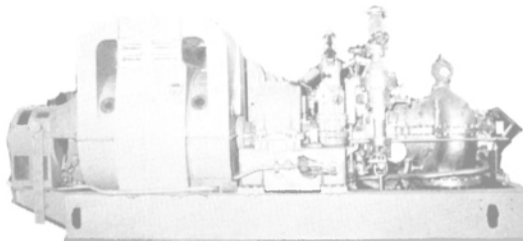
### 300 MARINE TOILETS

New — Boxed  
Wash Tubs — Tanks — Ball Mill Jars etc.  
SACRIFICE

D. SADOWITZ, 1401 Lincoln St., Linden, NJ 07036  
(201) 486-2946

# FOR SALE by

LEVIN METALS CORPORATION —  
RICHMOND, CALIF.



4 Westinghouse, Ship Service, Turbo Generators 1250 KW, 1563 KVA, 2010 Amps, 450 Volts, A.C., 3-Phase, 60 cycles, 1200 RPM.

Turbin Data: 8050 RPM, 525 PSI

These machines are complete and available from stock. Inside storage.

Please Call:

Peter Mitchell, Levin Metals Corp.  
Marine Equipment Sales  
1310 Canal Blvd. — P.O. Box 398  
Richmond, Calif. 94807

(415) 236-0606

Coast Guard & Navy Approved  
Marine Valves & Fittings 1/8" to 72"

"When you need it yesterday"

IRON • STEEL • ALUMINUM • BRONZE • STAINLESS • ALLOYS  
VALVES



Cross, Angle, Manifold, Cargo,  
Scupper, Inverted vent, Globe,  
Angle, Gate, Indicator, Stop  
Checks, Check, Cleanouts . . . . .



"We got it",  
"We'll get it", or "We'll make it"

Free Phone: 800-221-9672 In New York State 212-EM 1-2111  
Metropolitan Pib. Supply Corp., 5000 2nd St., L.I.C., N.Y. 11101

### CRANES FOR SALE



SCHILLER INTERNATIONAL CORP.

Exclusive LIEBHERR Agent

Container Cranes, Ship Cranes, Oil Platform Cranes  
Tower Box 40, Exec. Drive

2101 Executive Drive, Hampton, Va. 23666 USA  
Tele: (804) 827-9728 Telex: 823-678

### FOR SALE—NEW ENGINE

new cat D-399 engine and gear box  
Turbo charged and after cooled Marine Engine  
Arrangement P.L. 5161 with model #7271  
Marine Transmission

Ratio is 5.09 to one.

Arrangement P.L. 1537 this is a new unit  
asking price \$135,000

Engine can be inspected in Oakland, California

Telephone: 415/893-7020

Need Machinery, Parts,  
Or Service? Call Us,  
Schnitzer-Levin Marine  
The Reliable Supplier.  
Check Us Out.

✓ **Response— Quick  
and Knowledgeable**

✓ **Service You Can  
Count On—  
Howard Hemphill  
Is Our Expert**

- Steam or Diesel
- Conversion
- Installation
- Maintenance
- Repair

✓ **Superior Inventory—  
Everything for  
Engine and Deck**

- Main Propulsion  
Turbines & Parts
- Turbine Generators & Parts
- Diesel Engines
- Diesel Generators & Parts
- Boiler Feed Pumps
- Cargo Pumps
- Butterworth & Fire Pumps
- Evaporators
- Axial Fans
- Motors & Controls
- Air Compressors
- Winches
- Windlasses
- Anchors
- Chain
- Lifeboats
- Floating Equipment—  
Ships & Barges

✓ **Remember  
Schnitzer-Levin  
for Equipment  
and Repairs**

Schnitzer-Levin Marine Company



San Francisco (415) 761-0993  
TWX 910-371-7248

445 Littlefield Avenue  
(Box 2445)  
South San Francisco, CA 94080

New York (212) 832-3320

Portland (503) 286-5771

# 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

## 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.

**Z**  
**E**  
**ZIDELL**

**ZIDELL EXPLORATIONS, INC.**

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

# The BIG ONES at ZIDELL FOR SALE — RENT — CHARTER

Ready To Go To Work NOW

## 200-TON FLOATING CRANE

Diesel Electric



MR 7601

### VESSEL CHARACTERISTICS 200-TON LIFTING CAPACITY

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).

### ADDED FEATURES

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

Contact: **Hugh Sturdivant**

Sales Manager

Phone: 503/228-8691

## and 2 FLOATING DOCKS

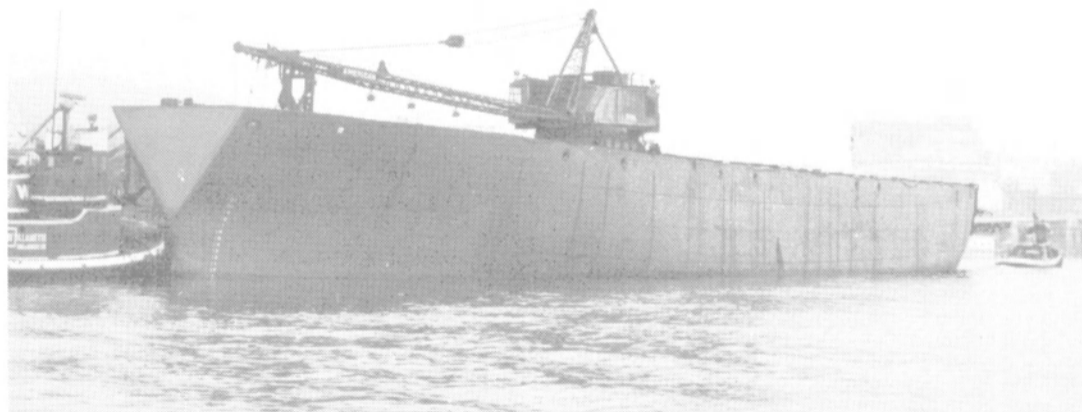
with 50-Ton Whirley Cranes

### VESSEL CHARACTERISTICS

LENGTH OVERALL ..... 442 FT.  
BEAM ..... 57 FT.  
DRAFT ..... (Light Displ.) 14 FT.  
CRANES: Main Hoist 50 Tons  
Whip Hoist 10 Tons  
Boom 105 Ft.

### Check these ADDED FEATURES

- ✓ 400 ft. Whirley Track on deck.
- ✓ 564,000 Cubic ft. of inside storage—5 Holds
- ✓ YES—IMMEDIATELY Available for Use.
- ✓ 3 Units in One—A Dock, A Whirley Crane and Large Dry Storage Facility.



MR 7602

Available for inspection and demonstration at our pier—Portland, Oregon

Contact: **Hugh Sturdivant**  
or **A. D. Canulette, Jr.**  
Phone: 503/228-8691  
Telex: 36-0503 • Cable "ZIDELL"

**ZIDELL**  
EXPLORATIONS, INC.  
3121 S.W. Moody Avenue  
Portland, Oregon 97201

## HYDRAULICS

### SERVICE

### REPAIR

### PARTS

### CONSULTING

#### CUNNINGHAM MARINE HYDRAULICS CO., INC.

201 Harrison St. • Hoboken, N.J. 07030

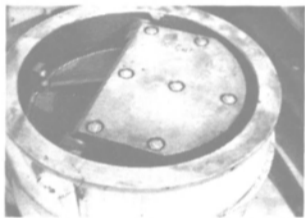
Phones: Hoboken (201) 792-0500

Phones: New York (212) 267-0328

TWX 710-730-5224 CMH HBKN



FOR SALE  
24" VALVES  
SWING CHECK — WAFER TYPE  
NEW — UNUSED



150 lb. cast steel, stainless steel trim. ABS & Coast Guard approved. Mfg. in 1975 by U.S. Manufacturer. Substantial savings.

#### NICOLAI JOFFE CORPORATION

9171 Wilshire Boulevard Beverly Hills, Ca. 90210  
(213) 878-0650 Telex 67-4638

STRAINERS • EXPANSION JOINTS • COUPLINGS

MACHINING • WELDING • BRAZING  
FABRICATION • DRILLING  
THREADING • FACING • TAPPING  
GROOVING • CUTTING • BEVELLING

Piping Specialties • Special Valves • Special Fittings  
Plate • Bar • Tubing • Rod  
Iron • Steel • Bronze • Stainless • Aluminum • Monel • Alloys

JOBGING and PRODUCTION WORK

Send us your order and "Watch The Chips Fly"  
"We got it", "We'll get it", or "We'll make it"  
"If you can draw it", "we can make it"  
"We weld everything, but a broken heart"

METROPOLITAN MASTER MACHINISTS  
5000 2nd St., Long Island City, N.Y. 11101

Free Phone: In N.Y. State  
800-221-9672 212-EM 1-2111

PIPE • VALVES • FITTINGS • FLANGES

## GRIPPERS

### For Jack-Up Barges

Sometimes Known As:  
Gripper Bags - Gripper Slugs  
or Gripper Tubes

We manufacture rubber inflatable grippers for several construction companies that use Jack-Up Barges. Our customers state that our grippers are superior to those which they had been using. If you are having any problem with quality, price or delivery of your grippers, please write or call direct:

(203) 677-7388.

THE PERMA-TYPE RUBBER  
COMPANY / P.O. Box 448  
FARMINGTON, CONN. 06032

## FOR SALE

- UNUSED & NEW CONDITION 20 TON ELEC. DRIVEN CLARKE CHAPMAN TOWING WINCH WITH 2 WARPENDS AND WARD LENARD CONTROLS.
- ONE REEL OF 1800' 1 1/2" WIRE ROPE.
- SPRAG GEAR FITTED CAPABLE OF WITHSTANDING STRAINS UP TO THE BREAKING STRAIN OF 1 1/2" DIA. ROPE 1E C66 LONG TONS.
- ELECTRIC MOTOR 30 H.P. AT 440 R.P.M.
- SUPPLY — 230 VOLTS D.C.
- COMPLETE EXTRA PARTS.
- DIMENSIONS:  
L = 13'8 1/2" OVERALL  
W = 19' OVERALL (to outside of warpend).  
H = 6 1/2'
- EST. TODAY'S REPLACEMENT COST OVER \$100,000.
- BARGAINED PRICED AT \$25,000 (U.S.A. FUNDS). F.O.B. VANCOUVER B.C.
- FOR MORE INFORMATION PHONE  
604 - 388-7533  
604 - 384-3690

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

70 GPM @ 105 PSI  
WITH HAND PRIMING



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

### THE BOSTON METALS COMPANY

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

## NEW — UNUSED FLUSH HATCHES

### 14-DOG

54" X 66" and 54" X 77"  
14 Dog—operated from top side by T-Key, with dogs marked to show open & closed positions.



### 4-DOG

24" X 30"  
and  
30" X 30"



4 Dogs on underside. Top side is flush and dogs are operated with T-Key openers.

### THE BOSTON METALS COMPANY

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

## SYNCRON LIFT 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: SYNCRONLIFT

### FROM OUR QUICK DELIVERY DEPARTMENT

## FOR T-2 TANKERS



- Rotors for G.E. 525KW DORV-325M aux. turbo-gen. sets. Also rotors for Westinghouse 538KW turbo-gen. sets.



- G.E. Main Turbine Rotors — Lynn and Schenectady
- 75/55 KW Excitation Armatures for auxiliary generators



- G.E. Revolving Field — August 1979 Certificate — for immediate delivery
- 1 Main circulating pump — complete — Ingersoll-Rand 24CVM. New certif. 1979 — completely rebuilt.
- Forced Draft Fan Motors — Westinghouse
- Cargo Pumps — 6GTM — 2000 GPM @ 280' head

### THE BOSTON METALS COMPANY

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

## 9 X 12 2-SPEED ALL-STEEL

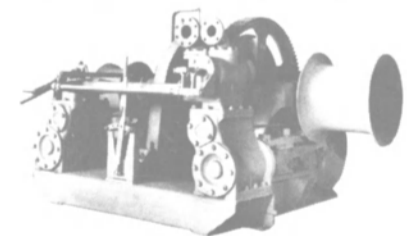
## STEAM WINCHES

for use as

## MOORING WINCHES

OR GENERAL USE

20,000 LBS @ 110 FPM—7,450 @ 250 FPM



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

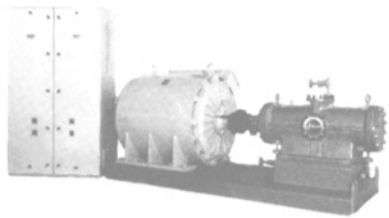
### THE BOSTON METALS COMPANY

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



700 G.P.M. @ 150 P.S.I.  
NEW — UNUSED

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

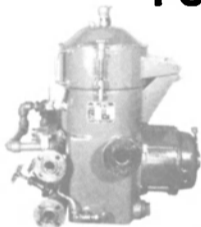


Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

**THE BOSTON METALS COMPANY**

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

**RECONDITIONED—GUARANTEED  
DELAVAL  
PURIFIERS**



LUBE OR FUEL OIL

225 G.P.H.

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

300 G.P.H.

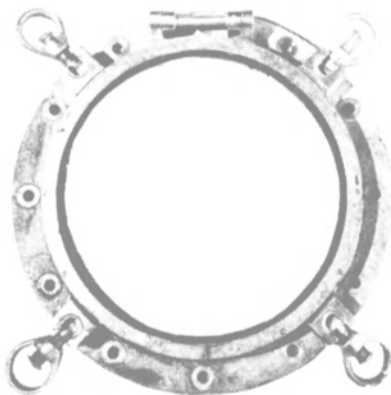
65N-13 (Lube Oil)  
65N-23 (Fuel Oil)

2 HP — 440/3/60/1750 RPM —  
Frame 224

**THE BOSTON METALS COMPANY**

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

**15½" & 16" CLEAN BRASS  
4-DOG MARINE  
PORTLIGHTS  
15½" CLEAR OPENING  
16" CLEAR OPENING**

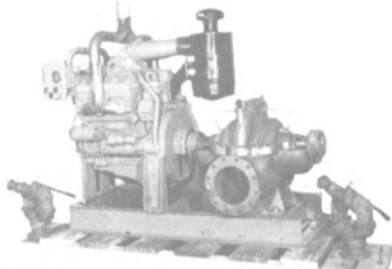


Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

**THE BOSTON METALS COMPANY**

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

**DIESEL DRIVEN FIRE PUMP**



3510 GPM @ 350' HEAD or 161.7 PSI

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

**THE BOSTON METALS COMPANY**

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

**CROUSE HINDS  
500 WATT  
FLOODLIGHTS**



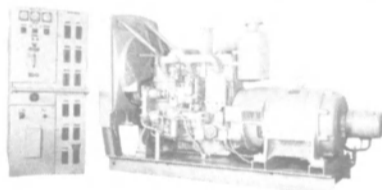
NEW — UNUSED

Heavy duty cast aluminum marine floodlights—500 watts incandescent NEMA 5-beam spread—ADE 14—meets Marine Underwriters Lab Standard 595. Corrosion-resistant—hinged door.

**THE BOSTON METALS COMPANY**

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

**CUMMINS 75KW 93.8 KVA  
DIESEL GENERATOR SET**

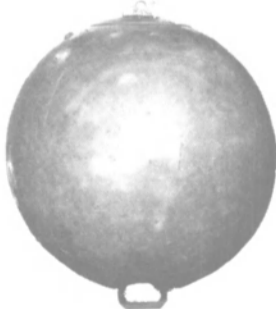


440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

**THE BOSTON METALS COMPANY**

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

**NEW — UNUSED  
SPHERICAL  
MOORING  
BUOYS**



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

**\$349.00**  
each F O B. BALT.

**CYLINDRICAL BUOYS**

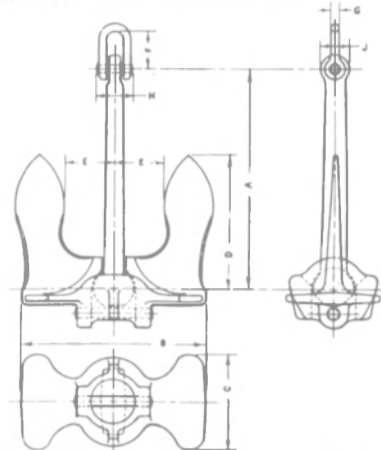
3 Available — 5 ft X 9 ft — with wood bumpers

**THE BOSTON METALS COMPANY**

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

**ANCHORS — CHAIN**

DETACHABLE LINKS  
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

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

NEW CHAIN

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

NEW SWIVELS

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

PEARSHAPED DETACHABLE LINKS

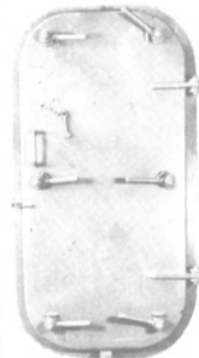
25 EA. #7 — 17 EA. #5

**THE BOSTON METALS COMPANY**

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

**FOR SALE  
NEW WATERTIGHT DOORS**

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE

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

EACH DOOR

**IMMEDIATE DELIVERY**

**NEW 7" RADIUS  
PANAMA CHOCKS**

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



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

**NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS**

FOR SMALL VESSELS



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

**THE BOSTON METALS COMPANY**

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

# BUYERS DIRECTORY

## AIR & GAS PURIFICATION

Robbins Aviation, Inc., 3817 Santa Fe Ave., Vernon, CA 90058

## REFRIGERATION-REPAIR & INSTALLATION

Adriac Cooling Corp., 30 B. Remington Blvd., Ronkonkoma, N.Y. 11779

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

R.W. Fernstrom & Company, 1716 Eleventh Avenue, Menominee, MI 49858

James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142

York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

## BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

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

GMCC/Porta-Shotblast, 1112 Davidson Road, Nashville, Tenn. 37205

## BOILERS—Tube Cleaning

Combustion Engineering, Inc., Windsor, Connecticut 06095

## BRAKES

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

## BROKERS

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

Daniel Yacht & Ship Brokerage Ltd., 1300 S.E. 17th St., Ft. Lauderdale, FL 33316

Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004

Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

## BUNKERING SERVICE

Belcher Company of New York, Inc., 48-02 54th Avenue, Maspeth, NY 11378

Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

## CARGO TRANSFER & ACCESS EQUIPMENT

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

## CHOCKING SYSTEMS

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

## CLOCKS

Wempe Chronometerwerke Germany, Stubbenhulk 25 2000 Hamburg 11, Germany

## COILS—Cooling, Heating, Ventilating

Colmac Coil, Inc., Colville, Wash. 99114

## CONTAINERS—Cargo Container Handling

Pacoco, 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

Megasystems, Inc., 5909 West 130th Street, Cleveland, OH 44130

Seatron Engineering & Mfg. Co., 1230 E. Joppa Rd., Towson, MD 21204

Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

Transamerica Delaval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

## COUPLINGS

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

## CRANES—HOISTS—DERRICKS—WHIRLEYS

Clyde Iron, a unit of AMCA International Corp., Suite 102, 2300 West Loop South, Houston, TX 77027

M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087

J.D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany

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

## DECK COATINGS—Non-skid

Selby, Battersby & Co., 5220 Whiby Ave., Philadelphia, PA 19143

## 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

New England Trawler Equipment Co., 291 Eastern Ave., Chelsea, MA 02150

## DIESEL ACCESSORIES

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

## DOORS—Watertight—Joiner

Walz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

## 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

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

American United Marine Corp., 575 Madison Ave., New York, NY 10022

## 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

Baldt, 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

Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208

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

Sudoimport, 5 Kalayevskaya, 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

Washington Iron Works, 1500 Sixth Avenue South, Seattle, WA 98134

## FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Coalmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52

Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356

Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663

Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

## FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

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. 06904

Greyhound Leasing & Financial Co., Greyhound Tower, Phoenix, AZ 85077

Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005

Saloman Brothers, One New York Plaza, New York, N.Y. 10004

Wargburg Paribos Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

## FITTINGS & HARDWARE

Custom Alloy, 2040 N. Loop W., Houston, TX 77018

Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

## FURNITURE

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

IDT 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

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

Phosmorin Equipment (Phoceenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France

Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

## HYDRAULICS

Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

## INERT GAS—Generators—Systems

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 06901

## 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

IDT 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

Midland Insurance Co., 160 Water St., New York, N.Y. 10038

Whitehall Brokerage, Inc., 17 Battery Place, New York, NY 10004

## KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

## LADDERS

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

## LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014

Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123

Perko Inc., P.O. Box 6400D, Miami, Florida 33164

Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209

Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

## LNG CONTAINMENT

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

## LUMBER

R.N. Templeman, Inc., 3000 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 67501

## MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

A.L. Burbank & Co., Ltd., Marine Thermatest 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

J.L. Bludworth, 8207 Glen Loch, Houston, Texas 77061

Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130

CCS Marine Associates Ltd., 2784 Crescentview Drive, N. Vancouver, B.C. Canada V7R2V1

C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211

CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176

CADCOM, 107 Ridgely Ave., Annapolis, MD 21401

Childs Engineering Corp., Box 333, Medfield, Mass. 02052

John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243

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

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

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

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

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

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

Designers & Planners Inc., One State Street Plaza, New York, N.Y. 10004

Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

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

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006

John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

L.R. Glasten & Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, Wash. 98104

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

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

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

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

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

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

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

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

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

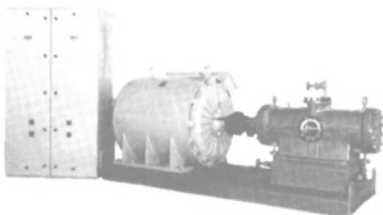
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

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

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

700 G.P.M. @ 150 P.S.I.  
NEW — UNUSED

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

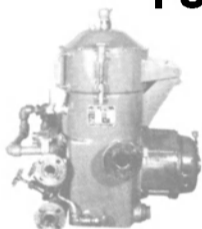


Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

**THE BOSTON METALS COMPANY**

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

**RECONDITIONED — GUARANTEED  
DELAVAL  
PURIFIERS**



LUBE OR FUEL OIL

225 G.P.H.

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

300 G.P.H.

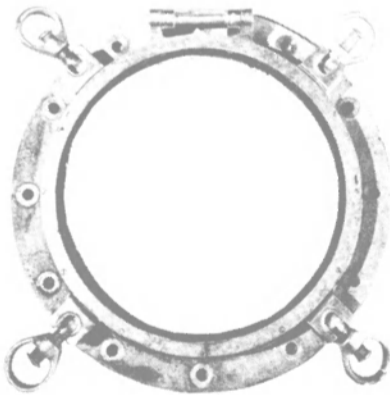
65N-13 (Lube Oil)  
65N-23 (Fuel Oil)

2 HP — 440/3/60/1750 RPM —  
Frame 224

**THE BOSTON METALS COMPANY**

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

**15½" & 16" CLEAN BRASS  
4-DOG MARINE  
PORTLIGHTS  
15½" CLEAR OPENING  
16" CLEAR OPENING**

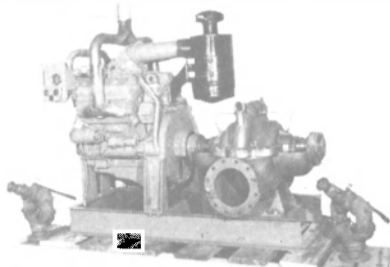


Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

**THE BOSTON METALS COMPANY**

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

**DIESEL DRIVEN FIRE PUMP**



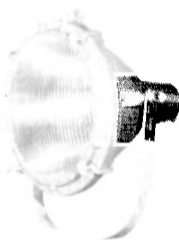
3510 GPM @ 350' HEAD or 161.7 PSI

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

**THE BOSTON METALS COMPANY**

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

**CROUSE HINDS  
500 WATT  
FLOODLIGHTS**



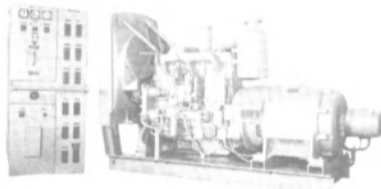
NEW — UNUSED

Heavy duty cast aluminum marine floodlights—500 watts incandescent NEMA 5-beam spread—ADE 14—meets Marine Underwriters Lab Standard 595. Corrosion-resistant—hinged door.

**THE BOSTON METALS COMPANY**

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

**CUMMINS 75KW 93.8 KVA  
DIESEL GENERATOR SET**

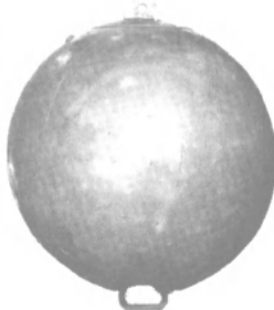


440/3/60 Generator—1200 RPM—driven by 6-cylinder Cummins diesel with electric starting. Free standing switchgear.

**THE BOSTON METALS COMPANY**

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

**NEW — UNUSED  
SPHERICAL  
MOORING  
BUOYS**



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

**\$349.00**  
each F.O.B. BALT.

**CYLINDRICAL BUOYS**

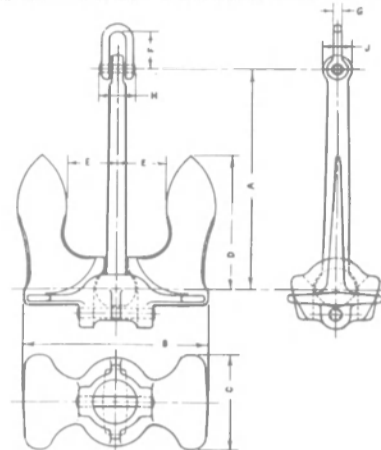
3 Available — 5 ft X 9 ft — with wood bumpers

**THE BOSTON METALS COMPANY**

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

**ANCHORS — CHAIN**

DETACHABLE LINKS  
PEAR-SHAPED DETACHABLE LINKS



LARGE BALDT-TYPE ANCHORS

16000 LBS/12000 LBS/8000 LBS/3000 LBS

10 EA. 5" x 15" I.D. STEEL RINGS  
3 EA. R.P. ANCHOR SHAX 3¾ STK, 3¾ PIN

NEW CHAIN

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

NEW SWIVELS

3 EA. 2½ — 3" E&E SWIVELS  
13 EA. 3¾ DETACHABLE LINKS

PEARSHAPED DETACHABLE LINKS

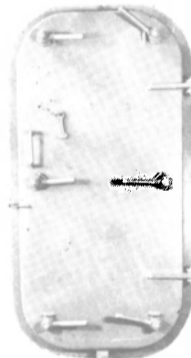
25 EA. #7 — 17 EA. #5

**THE BOSTON METALS COMPANY**

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

**FOR SALE  
NEW WATERTIGHT DOORS**

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE

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

EACH DOOR

**IMMEDIATE DELIVERY**

**NEW 7" RADIUS  
PANAMA CHOCKS**

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

**NEW UNUSED 12" 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

# BUYERS DIRECTORY

## AIR & GAS PURIFICATION

Robbins Aviation, Inc., 3817 Santa Fe Ave., Vernon, CA 90058

## AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Adrick Cooling Corp., 30 B. Remington Blvd., Rankonkoma, 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

## BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

Lucian G. 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

## BOILERS—Tube Cleaning

Combustion Engineering, Inc., Windsor, Connecticut 06095

## BRAKES

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

## BROKERS

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

Daniel Yacht & Ship Brokerage Ltd., 1300 S.E. 17th St., Ft. Lauderdale, FL 33316

Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004  
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

Max Rouse & Sons, Inc., P.O. Box 5250, Beverly Hills, CA 90213

## BUNKERING SERVICE

Belcher Company of New York, Inc., 48-02 54th Avenue, Maspeth, NY 11378

Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

## CARGO TRANSFER & ACCESS EQUIPMENT

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

## CHOCKING SYSTEMS

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

## CLOCKS

Wempe Chronometerwerke Germany, Stubbenhulk 25 2000 Hamburg 11, Germany

## COILS—Cooling, Heating, Ventilating

Colmac Coil, Inc., Colville, Wash. 99114

## 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

Megasystems, 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. 07087

J.D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany

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

## DECK COATINGS—Non-skid

Selby, Battersby & Co., 5220 Whiby Ave., Philadelphia, PA 19143

## 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

New England Trawler Equipment Co., 291 Eastern Ave., Chelsea, MA 02150

## DIESEL ACCESSORIES

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

## DOORS—Watertight—Joiner

Waltz & Krenzer Inc., 400 Trabold Road, Rochester, N.Y. 14624

## 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

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

American United Marine Corp., 575 Madison Ave., New York, NY 10022

## 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

Baldt, Inc., P.O. Box 350, Chester, PA 19016

Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014

Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550

Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208

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

Sudaimport, 5 Kalyovskaya, 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

Washington Iron Works, 1500 Sixth Avenue South, Seattle, WA 98134

## FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Coolmar Heatexchangers B.V., P.O. Box 54156 3008 JD Rotterdam, (The Netherlands) Waalhaven Z.Z. 52

Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356

Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663

Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

## FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

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. 06904

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

Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207

## FURNITURE

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

IDT 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

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 (Phoecenne Sous-Marine S.A.), 21 Boulevard de Paris, 13002 Marseille, France

Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

## HYDRAULICS

Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

## INERT GAS—Generators—Systems

Comar Corporation, P.O. Box 460, Worcester, MA 01613

Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039

Fredrikstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022

## INFORMATION—Marine

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

## INSULATION—Cloth, Fiberglass

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

Dupont Company, Nemours Bldg.-RM C31H6, Centre Rd. Bldg., Wilmington, DE 19898

IDT 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

Midland Insurance Co., 160 Water St., New York, N.Y. 10038

Whitehall Brokerage, Inc., 17 Battery Place, New York, NY 10004

## KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

## LADDERS

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

## LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014

Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123

Perko Inc., P.O. Box 6400D, Miami, Florida 33164

Phoenix Products Company, 4785 North 27th Street, Milwaukee, WI 53209

Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

## LNG CONTAINMENT

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

## LUMBER

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

## MACHINE TOOLS

Climax Manufacturing Company, P.O. Box 230, Newberg, OR 97132

Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

## MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

A.L. Burbank & Co., Ltd., Marine Thermostat Dept., One World Trade Center, Suite 2811, New York, NY 10048

General Electric Company—Bldg. 2, Rm 216, Schenectady, N.Y. 12345

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

## MOORING SYSTEMS

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

## NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202

Agemar, Avenida 3E No. 71-51, Edif. Acuario (Planta Baja) Apartado 1465, Maracaibo, Venezuela

American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004

Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015

J.L. Bludworth, 8207 Glen Loch, Houston, Texas 77061

Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130

CCS Marine Associates Ltd., 2784 Crescentview Drive, N. Vancouver, B.C. Canada V7R2V1

C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211

CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176

CADCOM, 107 Ridgely Ave., Annapolis, MD 21401

Childs Engineering Corp., Box 333, Medfield, Mass. 02052

John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243

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

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

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

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

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

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

Designers & Planners Inc., One State Street Plaza, New York, N.Y. 10004

Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

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

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006

John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

L.R. Glasten & Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, Wash. 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

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

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

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

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

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

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

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

PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117

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

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

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

Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504  
SI-TEX, P.O. Box 6700, Clearwater, FL 33518  
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.  
Texas Instruments Inc., P.O. Box 226080, M/S 3107, Dallas, TX 75265  
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

#### OILS—Marine—Additives

Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009  
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001  
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019  
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

#### 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  
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207  
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080  
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004  
Kaiser Aluminum & Chemical Corp., 300 Lakeside Drive (Room 1139KB) Oakland, CA 94643  
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817  
The Skybryte Co., 3125 Perkins Ave., Cleveland, OH 44114  
Teledyne Metal Finishers, 1725 East 27th Street, Cleveland, OH 44114  
Woolsey Marine Industries, Inc., 100 Saw Mill Rd., Danbury, CT 06810

#### PETROLEUM SUPPLIES

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  
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073  
Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, 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  
Alstham-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, One State Street Plaza, New York, N.Y. 10004  
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
Caterpillar Tractor Company, Engine Division, Peoria, IL 61629  
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511  
Combustion Engineering, Inc., Windsor, Connecticut 06095  
Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102  
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/Gulf Coast, P.O. Box 1528, Pascagoula, MS 39567  
Motive Power Corp., P.O. Box 365, Mineola, NY 11501 70124  
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670  
Oosterhuis Industries, P.O. Box 30587, New Orleans, LA 70190  
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014  
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031  
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166  
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  
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652

#### PUMPS—Repairs—Drives

Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030  
Transamerica DeLaval, Inc., IMO Pump Div., P.O. Box 321, Trenton, NJ 08602  
Warren Pumps, Inc., Bridges Ave., Warren, Mass. 01083

#### REFRIGERATION—Refrigerant Valves

BIGLEY 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  
Jackson Rope Co., Reading, Pa. 19603  
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110  
Tubbs Cordage Co., Orange, CA 92666

#### RUDER 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  
Demco, Inc., P.O. Box 94700, Oklahoma City, OK 73109  
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 02081  
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142  
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913  
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

#### SHIPBREAKING—Salvage

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 3006, 1003 AA, Amsterdam, Holland  
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142  
Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.  
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain  
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico  
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150  
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085  
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004  
Blohm + Voss AG, D-2000 Hamburg 1, P.O.B. 10 07 20  
Blohm + Voss Co., 55 Morris Ave., Springfield, N.J. 07081  
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, Tomago, N.S.W., Australia 2322  
Centromor, 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 10001  
Coastal Dry Dock & Repair Co., Building 131, Brooklyn Navy Yard, Brooklyn, N.Y. 11205  
Conrad Industries, P.O. Box 790, Morgan City, La. 70380  
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles  
Curacao Drydock, 26 Broadway, Suite 741, New York, N.Y. 10004  
Delattre-Levivier, Tour Fiat, Cedex 16, 92084 Paris La Defense, France  
Darby Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa  
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602  
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 Barge, Inc., Grant Building, Pittsburgh, PA 15219  
Halifax Industries, Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7  
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189  
Havre de Grace, Havre de Grace, Md.  
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan  
Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong  
Hudson Shipyards, Inc., P.O. Box Q, Pascagoula, MS 39567  
Ingalls Shipbuilding, P.O. Box 149, Pascagoula, 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  
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134  
J. Ray McDermott & Company, Inc., 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  
Marathon Manufacturing Company  
Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002  
Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520  
Marinette Marine, Ely Street, Marinette, WI 54143  
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047  
J. Ray McDermott & Co., Inc., P.O. Box 60035, New Orleans, LA 70160  
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, Monticello, Ark. 71655  
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202  
National Steel & Shipbuilding Corp., San Diego, Calif. 92112  
Newport Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012  
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607  
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100  
Paceco, 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 97208  
S.E.B.N., Societa Esterzio Bacini Napoletani, Via Marinella Varco N.6 (80133) Naples, Italy

St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111  
STE Marie Yard & Marine, Inc., 741 East Portage Ave., Sault Ste Marie, MI 49783  
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402  
Sembawang Shipyard Ltd., Sembawang, P.O. Box 3, Singapore 9175

The Service Machine Group, Inc., P.O. Box 2664, Morgan City, LA 70308  
Setenave-Estaleiros Navais De Setubal, P.O. Box 135, Setubal, Portugal

Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR  
Swiftships Inc., P.O. Box 1908, 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

Calcos 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  
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202  
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202  
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771

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

Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

UNDERWATER SERVICES—Contracting

SeaTec International Ltd., Blackburn Industrial Center, Gloucester, MA 01930

VALVES AND FITTINGS

American United Marine, Corp., 575 Madison Ave., New York, NY 10022  
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101  
Demco, Inc., P.O. Box 94700, Oklahoma City, Okla. 73109  
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

VIDEO EQUIPMENT

Video Library Systems, 185 Osoer Avenue, Hauppauge, NY 11787

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 Harton St., Seattle, Washington 98134  
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134

WINDOWS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076  
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055  
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings

Arma Steel Corp., 703 Curtis St., Middletown, Ohio 45042  
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

ZINC

Smith & McCorken, 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.



## In over 40 years of shipbuilding, we've learned a lot about marine repair.

Keeping downtime to a minimum is one of the most important considerations when you're in need of marine repair services. Since no one knows towboats and barges like the craftsmen who build them, no one is better qualified to give you cost effective, fast service than Jeffboat.

Jeffboat does all major metal structural repairs, hull repairs, engine work and everything in between. With every conceivable discipline necessary for marine repair right on the premises.

But just because they're big doesn't mean you don't get personal service. That's something you can count on from Jeffboat, along with genuine concern for your individual needs.



A combination of pride, experience and superior craftsmanship has made Jeffboat America's largest inland shipbuilder. A sincere desire to make these special resources available to you—regardless of the size of the repair job—assures you dependable, highly economical service with a minimum of downtime.

For more information on marine repair call: Ken Wise or Kenny Howe, (812) 288-0425 or (812) 288-1044 (24 hours).

**JEFFBOAT**

**America's largest inland shipbuilder.**



# Ahead of tradition

MacGregor believe that the future of merchant shipping depends upon increasingly innovative and progressive dry cargo access and transfer systems – and that's an area in which we can keep you well ahead.

Our experience covers every type of dry cargo vessel currently afloat, whether custom-built or for conversion. This expertise is backed by a reliable worldwide service network. We pioneered the roll-on, roll-off system and our reputation as designers of

hatch covers for every purpose is second to none.

So if you're interested in cutting port turnaround time, streamlining loading and unloading, and increasing the profitability of your operations maybe you should talk to us.



For full information contact:  
MacGregor Comarain Inc.  
135 Dermody Street  
Cranford, NJ 07016  
Telephone: 272 8440  
Telex: 138618

**Simply the highest standard**



## ITT's new SSB 6100: Exactly what boat owners need...and can afford.

ITT Marine's SSB 6100 delivers the performance of larger, more complex SSB's. Yet it's designed to fit the budgets of offshore private and commercial craft.

### The performance you need

Twenty-four fully-synthesized channels in the 2-9 MHz range and a 100 watt PEP transmitter output put you in touch with ships or shores up to hundreds of miles beyond the line-of-sight range of your VHF radio. Simplex or semi-duplex, and in A3A, A3H or A3J modes.

### The features you need

SSB 6100 can be operated with a radiotelephone permit. To communicate, you simply select the desired channel; an automatic clarifier handles fine-tuning, and automatic gain control and transmitter level control do away with the nuisance of adjustments. All 24 channels are readily programmable\* for frequency,

simplex/semi-duplex service and mode—no crystals to wait for.

### The economy you need—to save money now, and keep on saving

Solid-state technology keeps the 6100's cost to a minimum. But SSB 6100 keeps on saving you money; it's designed to take years of small craft bouncing and vibration without costly repairs. Any repairs involve an easy change of printed circuit boards. Service is available from trained, licensed technicians at the many ITT Marine service centers.

### Available now at ITT Marine

Get the complete story on the affordable SSB today. Telephone one of the offices listed below, or write to: ITT Marine, Dept. 370, 2912 Wake Forest Road, Raleigh, NC 27611.

\*At any ITT Marine service location.

**ITT** Marine

Seattle: (206) 283-4202 • Portland: (503) 228-3515 • Berkeley: (415) 549-0577 • Wilmington: (213) 834-3183 • Boston: (603) 898-7055  
Elizabeth: (201) 527-0300 • Baltimore: (301) 752-1311 • Miami: (305) 325-9226 • Tampa: (813) 223-6417 • Mobile: (205) 432-3658  
New Orleans: (504) 887-4200 • Houston: (713) 644-9246 • Beaumont: (713) 722-2444 • Corpus Christi: (512) 855-8498  
Baton Rouge: (504) 293-5106 • Greenville: (601) 335-5282 • St. Louis: (618) 254-9593 • Paducah: (502) 898-3616