

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

Site Of 1980 WRC Meeting, New Orleans, La.

**A Preview—  
WRC 1980  
Annual Meeting**  
(SEE PAGE 12)

**JANUARY 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*

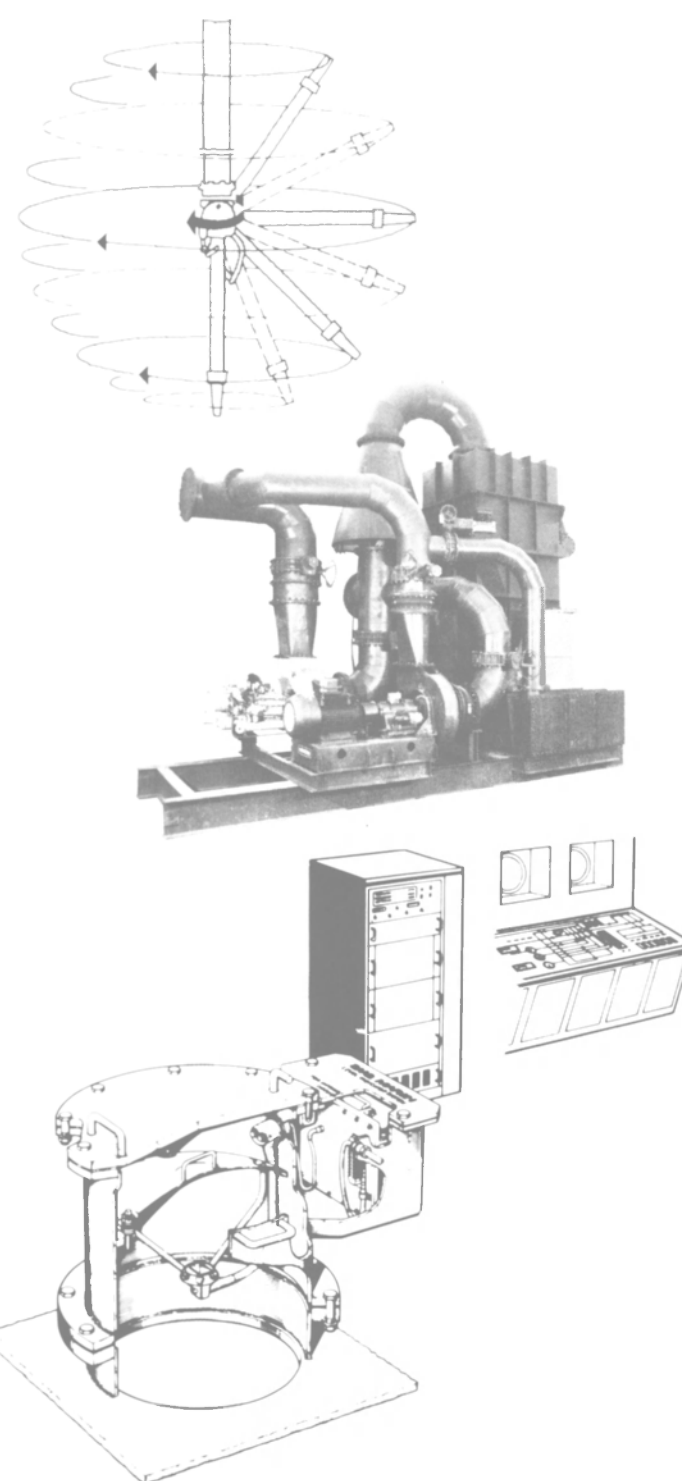
Since 1962, over 300 Howden Systems have been installed. COW requires IGS to protect your crew, ship and cargo. Howden's experience is available to assume total responsibility for complete installation which includes teams of survey engineers, necessary drawings, regulatory body approval, materials, 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*

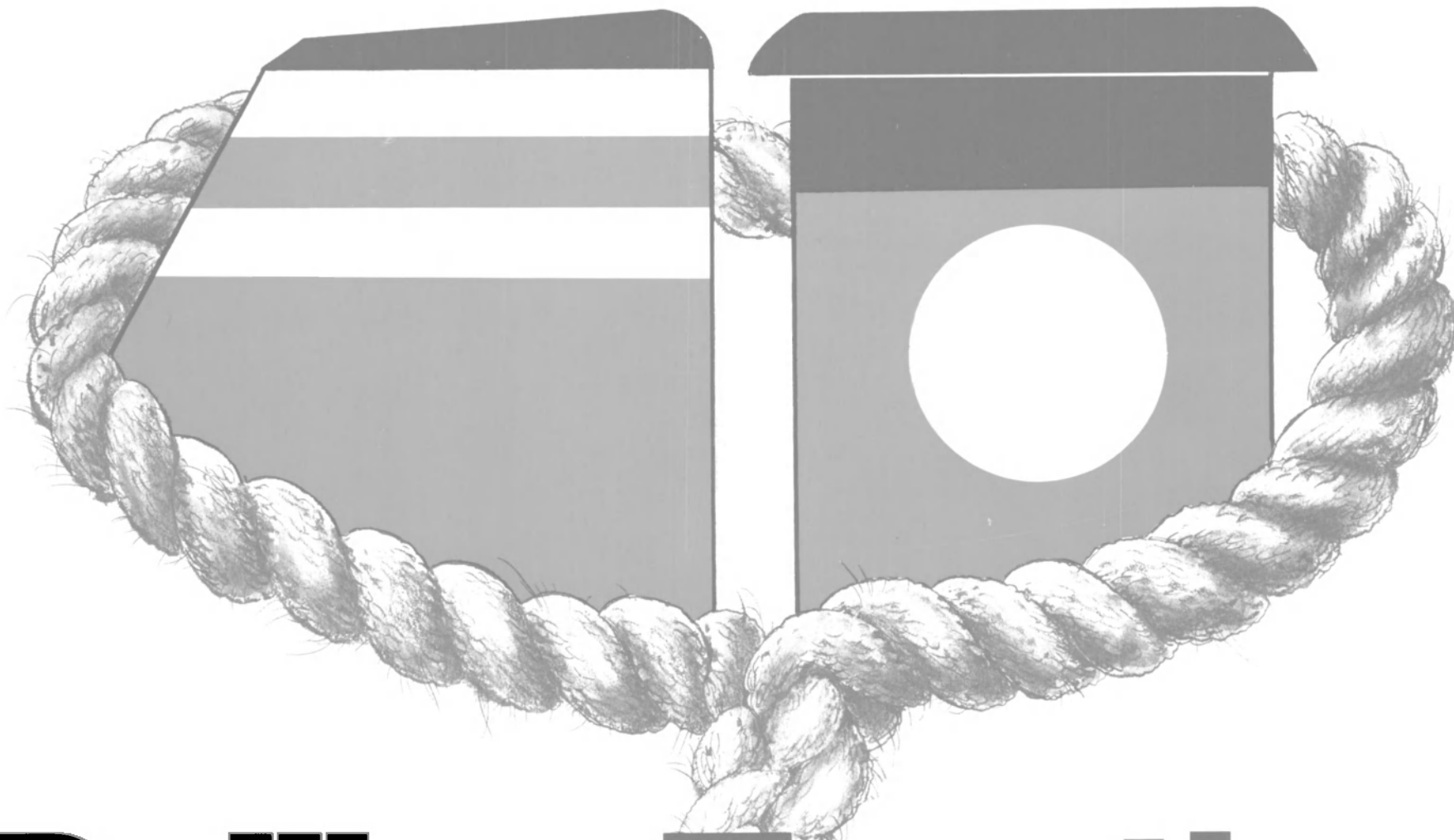
SAAB SUM-21 provides dependable, accurate ullage measurements during COW. There are no moving parts and no equipment in the tank to damage. A transmitter in the tank top sends a radar beam to the surface of the tank contents. The reflected signal is converted by a receiver and relayed for processing 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.

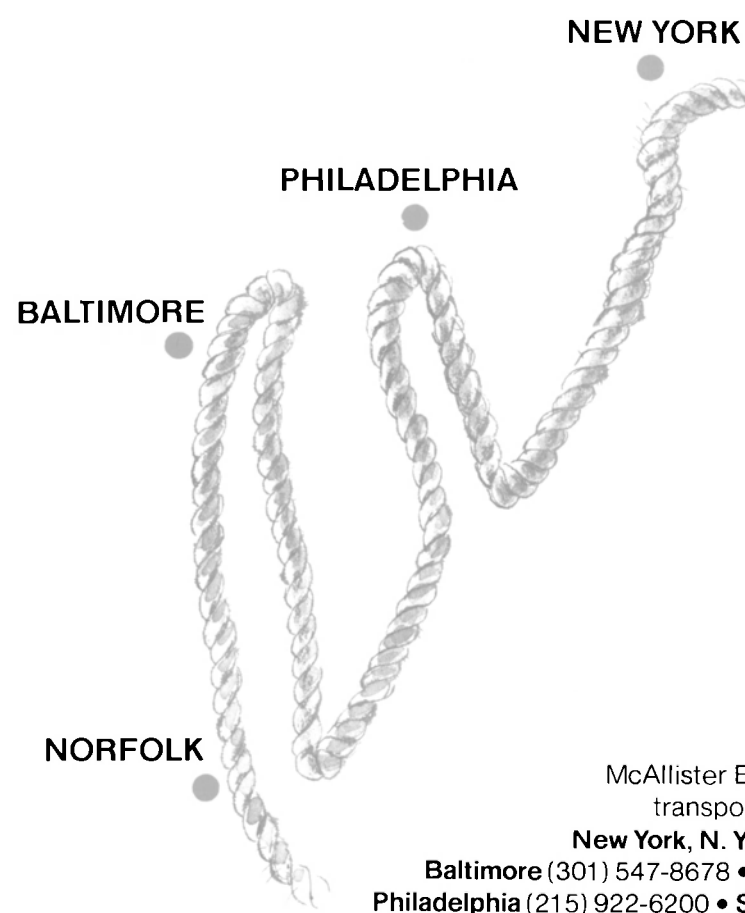


## **SALWICO, INC.**

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



# Pulling Together



Two companies, Baker-Whiteley and McAllister, each with over 100 years of towing experience, join to provide harbor service in New York, Philadelphia, Baltimore and Norfolk (Hampton Roads).

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**McAllister** 



## OUR MARK OF EXCELLENCE

Only excellence can describe the Waukesha Mark I and Mark II Sterntube Seals. These seals have been put into service around the world on everything from supply boats to super tankers and continually provide trouble-free operation. For the Mark of Excellence in sterntube seals, our Mark I and II, write for Catalogs W-5A and W-5B or call your Waukesha Bearings representative today.

**WAUKESHA**  
BEARINGS CORPORATION  
P. O. Box 798 • Waukesha, Wisconsin 53186 • Phone: 414-547-3381  
WA-2



### AWO Reports \$2.9 Billion In New Waterways Plants In First Half Of 1979

More than 20,000 new jobs were created by 245 plantsites built or expanded along commercially navigable waterways of the U.S. in the first half of 1979, according to an AWO survey. The 245 industrial facilities represent a 22 percent increase over the first half of 1978.

Of the total, 167 facilities reported capital investments of \$2.9 billion and 76 facilities reported a total of 20,246 new jobs, a 23-percent increase in new jobs over the first half of 1978.

AWO records show that 99 of the facilities are metal-producing operations, 65 are petroleum and chemical installations, 13 are paper and wood-producing facilities, 10 are terminals, docks and wharves, and 58 are general manufacturing installations.

The Mississippi River accounts for 49 facilities, the Ohio River 26, the Houston Ship Channel 24, the Tennessee River 17, the Arkansas River 15, the Missouri River and Gulf Intracoastal Waterway 13 each, and the Columbia River and Atlantic Intracoastal Waterway 11 each.

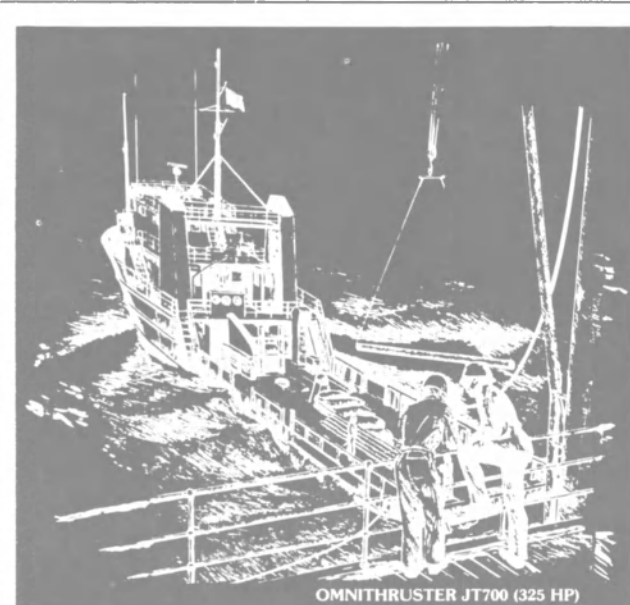
This brings the total plantsites constructed since 1952, when AWO began compiling statistics, to 11,254, representing a capital investment of more than \$205.3 billion.

### Marine Drilling Requests Title XI For 4 Rigs Costing \$86 Million

Marine Drilling Ltd., 900 Corpus Christi National Bank Building, Corpus Christi, Texas 78401, has applied for a Title XI guarantee to aid in financing the construction of four jackup drill rigs.

The rigs, which will be capable of drilling in up to 200 feet of water, will be operated in the Gulf of Mexico. One rig, constructed by Baker Shipyard, Ingleside, Texas, was delivered in July 1979. The remaining three are to be constructed at Bethlehem Steel Corporation's Beaumont, Texas, yard and are expected to be delivered on February 1, May 1, and August 1, 1980.

If approved, Title XI financing would cover \$64,000,000 of the total actual cost of the rigs of \$86,190,000.



### Omnithruster™ More Than Just A Bow Thruster

- Bow Steering
- Maneuvering
- Position Keeping
- Slow Speed Propulsion

#### OMNITHRUSTER DOES IT ALL!

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

#### OMNITHRUSTER Helps Supply Boats Deliver "Come Hell or Rough Water."

- Keeps working when other boats must lay off and wait.
- Reduces rig and boat damage.
- Simplifies maneuvering with inexperienced crew.

\*OMNITHRUSTER Bow and Stern Systems, powered by AC or DC electric, hydraulic or diesel drive, provide 25 to 2400 HP combinations with up to 25 lbs. of rated thrust per HP.



OMNITHRUSTER INC.  
16837 S. Normandie Ave.  
Gardena, CA 90247, Dept. 31A-20  
213/538-2551 Telex 194265  
Cable Address Omnithrust

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## Best Boat in the fleet

We asked Hugh Steger, Senior Vice President-Operations, M/G Transport, about his company's experience with the M/V Hugh B. Steger:



"It has done an excellent job for us in our coal tow operation. Captain Supple is very pleased. He said it's 'the smoothest boat he ever handled'. Why don't you talk to him?"



M/V Hugh B. Steger

We did, and Captain Harold Supple told us:



"For handling and maneuverability, the Steger is a good shover and a good handler, with great visibility, too. We have a fleet of 12 owned and chartered towboats to push our 245 barges. I never drove one of these Hydrodynes before and I believe this is the best boat we have in the fleet. Our Chief Engineer says it's the best built boat he ever saw. M/G is really pleased with it, and I am too."

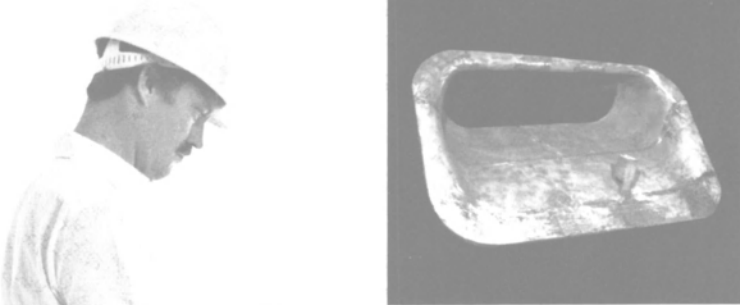
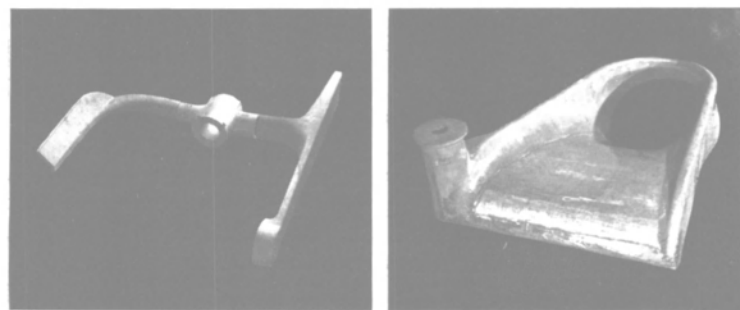
When you need a new towboat, talk to a Hydrodyne owner first. Then talk to St. Louis Ship, the only yard that builds them. Call (314) 638-4000.



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At Washington Iron Works peace of mind comes with every job... because we take *full responsibility* from placement of order through to completion.

Washington Iron Works is more than a single service operation. We offer a large foundry capacity, providing single castings up to 20,000 lbs. and welded constructed castings currently in excess of 65,000 lbs. In addition, we provide the finest in **machining, fabrication and assembly** to satisfy your most exacting requirements. Finally, Washington Iron Works backs these services with a complete **engineering staff**—to insure a quality product that "works right" each and every time. Next time you require custom marine new construction or repair—let Washington Iron Works take the responsibility and provide you peace of mind—and a job well done.

Contact: Stephen T. Matzke (206) 623-1292  
TWX 910-444-2057

 **WASHINGTON IRON WORKS**

Division of FORMAC INTERNATIONAL, INC.

1500 Sixth Avenue South / Seattle, Washington 98134 (206) 623-1292

## China Shipbuilding To Build Four 87,000-DWT Tankers For Exxon



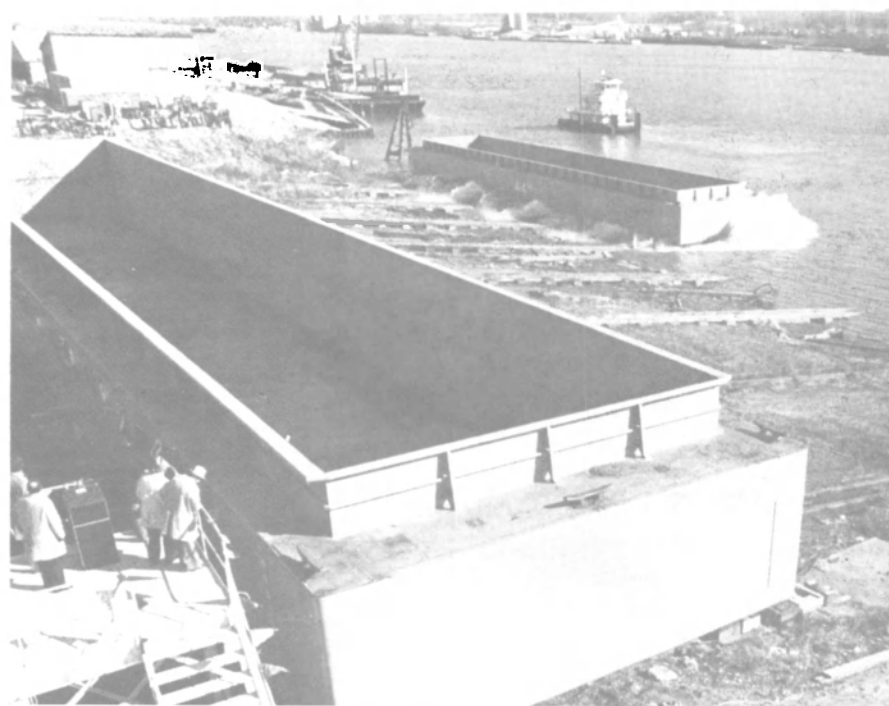
Executives of Esso Tankers and China Shipbuilding shown at the recent contract signing in New York City are, left to right: A. Elmer III, commercial planning manager, Esso Tankers, Inc.; R.L. Preston, president of Esso Tankers, Inc.; Adm. S.T. Wang, chairman, China Shipbuilding Corporation, and P.H. Liu, sales manager, China Shipbuilding Corporation.

A contract, reportedly worth approximately \$120 million, was awarded recently by Esso Tankers, an affiliate of Exxon Corporation, to the China Shipbuilding Corporation of Taiwan. The order to construct four 87,000-dwt tankers is particularly significant for China Shipbuilding as Exxon, the world's largest oil company, has been a pioneer in technical innovation and is very exacting regarding the design of its vessels and choice of shipyards. China Shipbuilding's United States address is c/o the Allegro Transportation and Supply Corporation, One Penn Plaza, New York, N.Y. 10001.

## Kerr (Canada) Names 2 To New Posts

The board of directors of Kerr Steamships (Canada) Limited recently announced the appointment of **William C. Kane** to the position of vice president and gen-

eral manager, effective December 1, 1979. Mr. Kane will remain in the head office in Montreal. **Ian K. Brimacombe** was named assistant vice president, effective December 1, 1979. Mr. Brimacombe will be based in Kerr's Toronto office.



**JEFFBOAT CELEBRATES MILESTONE**—Jeffboat, Inc., Jeffersonville, Ind., one of America's largest inland shipbuilders, celebrated a milestone recently with the launching of barges numbers 414 and 415 into the Ohio River as thousands of spectators watched from the shoreline. This represents a production capacity of well over one barge manufactured per day by the company. Company officials think that the total for 1979 will be between 435 and 440. That translates to well over two million hours of labor in 1979. Short speeches at the launch site were given by Jeffboat executive vice president **Bob Green**, Jeffersonville Mayor **Richard Vissing**, and **Joe Bobzien**, president of Jeffboat and its sister company, American Commercial Barge Line.

Maritime Reporter/Engineering News

# RAYCAS.

## Because safety at sea is no accident.

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

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

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

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

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

### Unmatched radar performance.

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

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

assures compliance with MARAD requirements for dual installations.

### User-oriented presentation.

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

### RAYCAS features.

- **Relative-motion Display:** Centered or 70% off-centered with course-up or north-up.
- **True-motion Display:** Own ship moving across scope with course-up or north-up.
- **Target Acquisition:** Manual or automatic with fixed and adjustable guard zones.
- **Tracked Targets:** Up to the 20 most dangerous targets.
- **Target Vectors:** Indicate true or relative courses and speeds; adjustable time base helps predict future position.
- **Target Trails:** Indicate target's past position and course.
- **Dangerous Targets:** Automatically selected by pre-set CPA (Closest Point of Approach)



and TCPA (Time to CPA).

- **Points of Potential Collision:** Automatically displayed.
- **Digitally Displayed Data:** CPA and TCPA; own ship's speed and course; target's range, bearing, speed,

and true course; own vector length; vector time; BCR (Bow Crossing Range) and BCT (Bow Crossing Time).

- **Trial Maneuver:** Scope displays results of own ship's trial course and speed changes.
- **Visual and Audible Warnings:** Dangerous target, target in guard zone, equipment fault, trial maneuver, and target lost.
- **Automatic Drift Correction:** Computed by tracking on fixed navigation aid.
- **Navigation Lines:** Scope presentation of 8 lines for fairways.
- **Brightness Controls:** Separate adjustments for radar and computer video.
- **Performance Monitor:** Manual or automatic monitoring of radar performance.

**Two-year warranty.** The American made RAYCAS, like the more than 5000 Raytheon Dual 3 and 10-cm Radars now in service, is

already a proven performer. Installations have been made on all types of vessels from coastal ships to VLCC'S.

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



For more detailed information contact the

Raytheon Marine Company office nearest you.

**Raytheon Marine Company**  
676 Island Pond Road  
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Telephone: (603) 668-1600  
Telex: 94-34-59

**Raytheon Marine Sales And Service Company**  
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Denmark  
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Telex: 31473 RAYCO DK

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**Raytheon Marine And Service Company**  
Millard House  
5 Exchange Building  
Cutler Street  
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Telex: 8954198

RAYTHEON



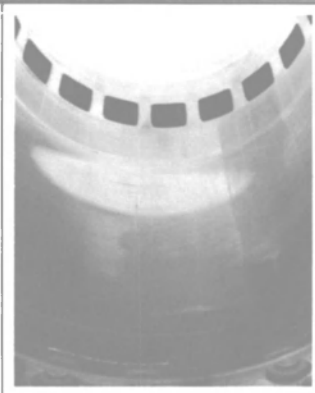
# Keep the boat working



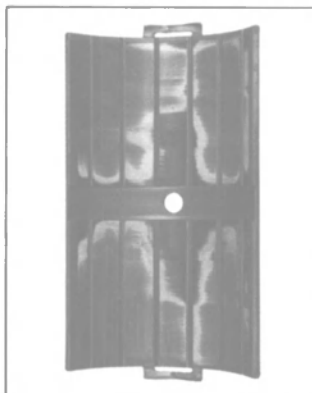
## The MV "Mana" does-for Dillingham. Her 12 645 E6 engines, overhauled at 16,753 hours, looked good for many more-on Caprinus® Oil.



Ring groove fill normal. Number 3 and 4 lands clean.



Liner shows little wear. Honing marks still visible.



Silver trunnion bearing shows normal wear of lead flashing.



Valve deck illustrates cleanliness typical of both engines.

During late 1976, the then new MV Mana's engines were filled with high alkalinity Caprinus® T Oil. Then, in 1978, the switch was made to the even more improved Caprinus R Oil. Since 1976 the engines have racked up 16,753 hours before scheduled overhaul — without a single power-pack replacement. The consensus? The engines looked good enough for 20,000 hours — probably even longer.

Dillingham Tug & Barge Corporation needs reliability — there are no repair stations between the Hawaiian islands and the "mainland" or throughout the South Pacific where they operate. Dillingham Tug & Barge runs a top-notch maintenance program with Caprinus R to keep the boats working.

Both engines were exceptionally clean. Top ring side clearance averaged 0.013" and the top rings were rated at 2 to 2A — which means the grooves were visible on the top ring on about half the pistons. Silver trunnion bearings were good. Overall engine reliability as shown by maintenance records was excellent.

Low wear rates were especially evident in the top ring side clearances, ring gap clearances, ring faces, piston ring groove widths (pistons

were reusable without machining for oversize rings), liners and piston skirts. Shell's premium MVI base oil keeps ring groove deposits soft, friable so deposits are worked out by ring action. Rings compress into the grooves and traverse the ports without breaking or chipping. The result is low ring and liner wear rates.

In addition, Dillingham's use of Caprinus R in its Fairbanks Morse engines has eliminated the former expensive task of intake and exhaust port cleaning of those engines three times a year.

Caprinus R Oil is Shell's one oil for big medium-speed marine diesels. Its high alkalinity reserve and dispersancy with Shell's premium MVI base oil fight corrosive wear, keep engines clean and deposits soft — so that normal engine operation keeps deposits from building up. It's been proven — in ALCO, EMD and Fairbanks Morse, as well as other engines.

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

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

Come to Shell for answers





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

- ALABAMA**  
 Bayou La Batre  
 Deep Sea Marine Products  
 Location: West Bank, 500 Tram  
 Avenue  
 Phone: (205) 824-4127  
 Radio: Ch 16, VHF  
 Mobile  
 Midstream Fuel Service, Inc.  
 Location: Mobile River, Mile 1.5  
 Address: Fairhope 36532  
 Phone: (205) 433-4972  
 Radio: Ch 16, VHF
- ARKANSAS**  
 Helena  
 Helena Fuel & Harbor Service, Inc.  
 Location: Mississippi River, Mile 661  
 Riverfront & Bridge Road  
 Phone: (501) 338-8321  
 Radio: Ch 16
- CALIFORNIA**  
 Oakland  
 Bay Area Petroleum, Inc.  
 Location: 421 23rd Ave.  
 Phone: (415) 534-4517  
 San Diego  
 Alameda & Brito, DBA Tuna Clipper  
 Marine  
 Location: San Diego Harbor  
 Foot of Crosby Street  
 Phone: (714) 232-1838  
 San Pedro  
 San Pedro Marine, Inc.  
 Location: Berth 74  
 Phone: (213) 832-1339
- FLORIDA**  
 Jacksonville  
 See Savannah Oil & Chemical  
 Savannah, Ga.  
 Port Everglades  
 Belcher Oil Company  
 Location: Port Everglades  
 2401 Eisenhower Boulevard  
 Address: Fort Lauderdale  
 Phone: (305) 525-4261  
 Tampa  
 Belcher Oil Company  
 Location: Tampa Bay  
 Phone: (813) 247-4572, 247-4573  
 West Palm Beach  
 Belcher Oil Company  
 Location: Fort of Palm Beach  
 1733 Hill Avenue  
 Phone: (305) 848-1495
- GEORGIA**  
 Brunswick  
 See Savannah Oil & Chemical  
 Savannah, Ga.  
 Savannah  
 Belcher Oil Company  
 Location: Savannah River, Mile 17  
 Pier 50, Georgia Ports Authority  
 Phone: (912) 954-8821  
 Savannah  
 Savannah Oil & Chemical  
 Location: Savannah River  
 847 W. River Street  
 Phone: (912) 234-2402
- ILLINOIS**  
 Hardford  
 Ory Bros. Marine Service of  
 America, Inc.  
 Location: Upper Mississippi River,  
 Mile 197  
 Foot of Hawthorne Street  
 Phone: (618) 234-0626 (Illinois)  
 (314) 741-2570 (Missouri)  
 Radio: Ch 16, KLC 791  
 Wood River  
 Hardford Fueling Service  
 Location: Upper Mississippi River,  
 Mile 196  
 Phone: (618) 234-4333  
 (314) 741-3667  
 Radio: Ch 16 VHF KLG 280
- KENTUCKY**  
 Louisville  
 Wooten River Service  
 Location: Ohio River, Mile 603  
 2527 River Road  
 Phone: (502) 896-0317  
 Paducah  
 Molloy Marine Service, Inc.  
 Location: Ohio River, Mile 934  
 100 Husband  
 Phone: (502) 443-6456  
 Paducah  
 Walker Midstream Fuel and  
 Service Co.  
 Location: Ohio River, Mile 934  
 532 South Second St.  
 Phone: (502) 442-2738  
 Radio: Inq. 156
- LOUISIANA**  
 Amelia  
 Berwick Bay Oil Co., Inc.  
 Location: Bayou Boeuf  
 Intracoastal Waterway  
 1/2 mile North 85 mile board  
 See Berwick listing under Morgan  
 City, La.  
 Baton Rouge  
 Capital Marine Supply, Inc.  
 Location: Lower Mississippi, Mile 230  
 Foot of North Street  
 Phone: (504) 343-8379  
 Radio: Channels 16, 74, 10, 66a VHF  
 KFT 322
- Baton Rouge**  
 Channel Fueling Service, Inc.  
 Location: Lower Mississippi, Mile 232  
 River Road  
 Phone: (504) 383-4691, 383-4814  
 Radio: Inq. 156.8  
 Belle Chasse  
 Plaquemines Oil Sales Corp.  
 See Plaquemines Oil, Venice, La.  
 Berwick  
 Berwick Bay Oil Co., Inc.  
 Location: Atchafalaya River - 1/4 mile  
 north of Hwy 90 bridge  
 See Berwick Oil Listing under  
 Morgan City, La.  
 Cameron  
 Berwick Bay Oil Co., Inc.  
 Location: Calcasieu River  
 See Berwick Bay Oil listing.  
 Morgan City, La.  
 Cameron  
 Cameron Marine Service, Inc.  
 Location: Calcasieu River  
 Phone: (518) 775-5206  
 Dulac  
 Berwick Bay Oil Co., Inc.  
 Location: Houma Navigation Channel  
 17 miles South of Houma  
 See Berwick Bay Oil listing.  
 Morgan City, La.  
 Gretna  
 John W. Stone Oil Distributor, Inc.  
 Location: Lower Mississippi, Mile 96.5  
 87 First Street, Gretna  
 Harvey 77059  
 Phone: (504) 366-3401  
 Radio: KGW 352  
 Houma  
 Houma Oil Company, Inc.  
 Location: Intracoastal Canal  
 Phone: (504) 872-0464  
 Intracoastal City  
 Berwick Bay Oil Co., Inc.  
 Location: Vermillion River - 1/4 mile  
 north of Intracoastal Canal, Mile 155  
 See Berwick Bay Oil listing.  
 Morgan City, La.  
 Lake Charles  
 Channel Fueling Service, Inc.  
 See Channel Fueling Service,  
 Sulphur, La.  
 Morgan City  
 Berwick Bay Oil Company, Inc.  
 Location: Young's Road  
 Phone: (504) 384-1610  
 north of Intracoastal Canal, Mile 155  
 Radio: KVF KRG 79  
 New Orleans  
 Gulf Outlet Fuel & Marine  
 Supplies, Inc.  
 Location: Gulf Intracoastal Waterways  
 Mile 8 East  
 3400 Jourdan Road  
 Phone: (504) 241-8680  
 Radio: KVF 683  
 Port Allen  
 Tri-State Marine Service Co.  
 Location: Lower Mississippi, Mile  
 227.5  
 River Road  
 Phone: (504) 749-3171  
 Radio: 156.8  
 Sulphur  
 Channel Fueling Service, Inc.  
 Location: Gulf Intracoastal Waterway  
 West, Intersection of Calcasieu  
 River  
 Phone: (518) 583-7215, 583-7384  
 Radio: 156.8  
 Venetie  
 Plaquemines Oil Sales Corp.  
 Location: Mississippi River  
 Mile 10.5 at Grand Pass  
 Louisiana Hwy 23, Venice  
 Address: Belle Chasse  
 Phone: (504) 394-9595 (Belle  
 Chasse)  
 (504) 534-7403 (Venice)
- MASSACHUSETTS**  
 Gloucester  
 Progressive Oil Co., Inc.  
 Location: Gloucester  
 Address: 52 Grove St.  
 Phone: (617) 283-2000  
**MINNESOTA**  
 Winona  
 Waterways - Winona, Inc.  
 Location: Upper Mississippi, Mile 725  
 376 East 2nd St.  
 Address: 455 North St.  
 Fountain City, WI.  
 Phone: (608) 687-6931 (Wisconsin)  
 (507) 452-5252 (Minnesota)  
 Radio: Ch 16-12
- MISSISSIPPI**  
 Blount  
 Ship Services Corporation  
 Location: Gulfport State Port and  
 Biloxi Back Bay, Beacon 7  
 Phone: (601) 374-1000  
 Greenville  
 Waterways Marine of Greenville, Inc.  
 Location: Lower Mississippi, Mile 537  
 Warfield Point Road  
 Phone: (601) 335-2526  
 Radio: KWS 617
- Pascagoula**  
 Fuel Services, Inc.  
 Location: Bayou Casotte  
 Ingalls Avenue  
 Phone: (601) 762-0636, 762-0640  
 Radio: Ch 16  
 Vicksburg  
 Vicksburg Mid-River Services, Inc.  
 Location: Lower Mississippi, Mile 437  
 Foot of Lee Street  
 Phone: (601) 656-4814, 636-7731  
 Radio: 156.8
- MISSOURI**  
 St. Louis  
 St. Louis Fuel & Supply Co., Inc.  
 Location: Upper Mississippi, Mile 179  
 Address: Foot of Gratiot Street  
 Phone: (314) 421-3960  
 Radio: Ch 16, WHR-KDO 722 Fort  
 Cuage
- NORTH CAROLINA**  
 Elizabethtown  
 Campbell Oil Company, Inc.  
 Location: 1010 West Broad Street  
 Phone: (919) 862-4107
- OREGON**  
 all ports  
 see Lilyblad Petroleum listing under  
 Tacoma, Washington
- PENNSYLVANIA**  
 Philadelphia  
 River Associates, Inc.  
 Location: Delaware River  
 Pier 9 North  
 Phone: (215) 463-8100
- SOUTH CAROLINA**  
 Charleston  
 Charleston Oil Co.  
 Location: Ashley and Cooper Rivers,  
 1953 King St. Extension  
 Phone: (803) 577-5600  
 Charleston  
 See Savannah Oil & Chemical,  
 Savannah, Ga.  
 Georgetown  
 See Savannah Oil & Chemical,  
 Savannah, Ga.  
 Port Royal  
 See Savannah Oil & Chemical,  
 Savannah, Ga.
- TENNESSEE**  
 Memphis  
 Memphis Boat Refueling Service, Inc.  
 Location: Lower Mississippi, Mile 735  
 Foot of Illinois Street  
 Phone: (901) 775-3131  
 Radio: Ch 16  
 Memphis  
 Veterans Marine of Memphis, Inc.  
 Location: Lower Mississippi, Mile 736  
 Foot of Beale Street  
 Phone: (901) 525-5761  
 Radio: Ch 16, 156.6
- TEXAS**  
 Galveston  
 Grasso Marine Service, Inc.  
 Location: Galveston Ship Channel  
 Pelican Island  
 Phone: (713) 744-2888 (dock)  
 (713) 763-4343 (office)  
 Lake Jackson  
 Channel Fueling Service, Inc.  
 Location: Gulf Intracoastal Waterway  
 West, Mile 393  
 1400 Marlin Avenue  
 Phone: (713) 233-5321, 233-5322  
 Radio: 156.8  
 Port Arthur  
 Channel Fueling Service, Inc.  
 Location: Gulf Intracoastal Waterway  
 West, Mile 282  
 5700 Proctor Street  
 Phone: (713) 962-5557  
 Radio: 156.8  
 Rockport  
 Berwick Bay Oil Co., Inc.  
 Location: Rockport Navigation Harbor,  
 Intracoastal Canal, Mile 526  
 See Berwick Bay Oil Listing, Morgan  
 City, La.
- VIRGINIA**  
 Norfolk  
 Marine Oil Service, Inc.  
 Location: Elizabeth River  
 Address: 71 Rock Street  
 Phone: (804) 622-0934, 622-3109
- WASHINGTON**  
 Seattle  
 Ballard Oil Co.  
 Location: Lake Washington Ship  
 Canal  
 Phone: (206) 783-0241  
 Tacoma  
 Lilyblad Petroleum, Inc.  
 Location: Washington and Oregon - all  
 ports  
 Phone: (206) 572-4402  
 Radio: KLB radio station  
 Marysville, Wa.
- WASHINGTON**  
 all other ports see Lilyblad Petroleum  
 above.
- WEST VIRGINIA**  
 Ft. Plessam  
 City Ice & Fuel Co.  
 Location: Ohio River, Mile 265.3  
 Address: 224 First Street  
 Phone: (304) 675-2010



**FIRST AT HALIFAX**—Halifax Industries Limited, Halifax, Nova Scotia, recently received the first vessel in its newly installed floating dock, Scotiadock, at its ship repair facility at Halifax Shipyards. The M.V. Amstelstraat, 159 meters by 22.8 meters (about 522 feet by 75 feet), 17,525 dwt, entered Scotiadock recently for cleaning and painting of the hull, repairs to both port and starboard bilge keels, minor repairs to the rudder post and the installation of mooring cleats. Scotiadock arrived in Halifax from Rotterdam in 1979, and underwent a major upgrading and refitting process. Scotiadock is 185 meters by 25.2 meters (about 607 feet by 83 feet), and has a maximum lifting capacity of 16,000 tons. The addition of Scotiadock to the facilities at Halifax Shipyards provides greater capacity to better service vessels traveling on the adjacent North Atlantic sea lanes.

**Desco Marine Launches Its 100th Cummins-Powered Boat**



Singleton Fleets, Inc. president Henry Singleton Jr. addresses guests attending launch of Singleton Fleets 56. He later accepted a plaque from William Blizzard Sr., Cummins Florida, Inc., Tampa, honoring his company for purchasing the 100th Cummins-powered Desco trawler.

Desco Marine, St. Augustine, Fla., reached two milestones this past December with the launching of the Singleton Fleets 56. The 73-foot vessel is the 2,200th wood shrimp boat built by Desco, and the 100th Desco boat powered by a Cummins K-series marine diesel engine.

Paul Kahlenbeck, vice president-Industrial Marketing, Cummins Engine Co., commemorated the occasion by presenting a plaque to Desco president Tom Collins during launching ceremonies attended by some 500 Desco and Singleton Fleets personnel and industry representatives.

Henry C. Singleton Jr., president of Singleton Fleets, Inc., Tampa, Fla., received a scale-model Cummins marine engine desktop display to commemorate Singleton's purchase of the 100th Desco boat powered by a Cummins K-series engine. Making the presentation was William D. Blizzard Sr., Cummins Florida, Inc., Desco's Cummins engine supplier. Singleton Fleets 56 is the 10th consecutive new Singleton vessel to be powered by a 1,150-cubic-inch six-cylinder Cummins K-series marine diesel engine. A Cummins KTA-1150-M, rated 470 hp at 1,800 rpm, powers the Singleton Fleets 56. The previous nine Singleton vessels are powered by Cummins KT-1150-M engines, rated 365 hp at 1,800 rpm. Desco builds eight wood shrimp trawlers per month in hull sizes ranging from 62 to 73 feet. The company also builds 12 fiberglass-hulled boats each month at its St. Augustine yard. Desco's wood boats are built in standardized designs, making it possible for fleet owners and operators, like Singleton Fleets, to reduce inventory and repair costs. The company points out that Desco shrimp boats and fishing trawlers are at work around the world.

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 Manager Commercial Communications  
 One Shell Plaza  
 Houston, TX. 77002

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

Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company/Vessel \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Port Allen Marine, with over 400 skilled personnel, offers complete barge and towboat repair as well as "gas-free" barge cleaning services.

Our full-service shipyard facilities have been expanded to include five drydocks: two 500 ton capacity, one 1,500 ton, one 1,800 ton and one 2,500 ton capacity. Located on the Port Allen-Morgan City route mile 57, Port Allen

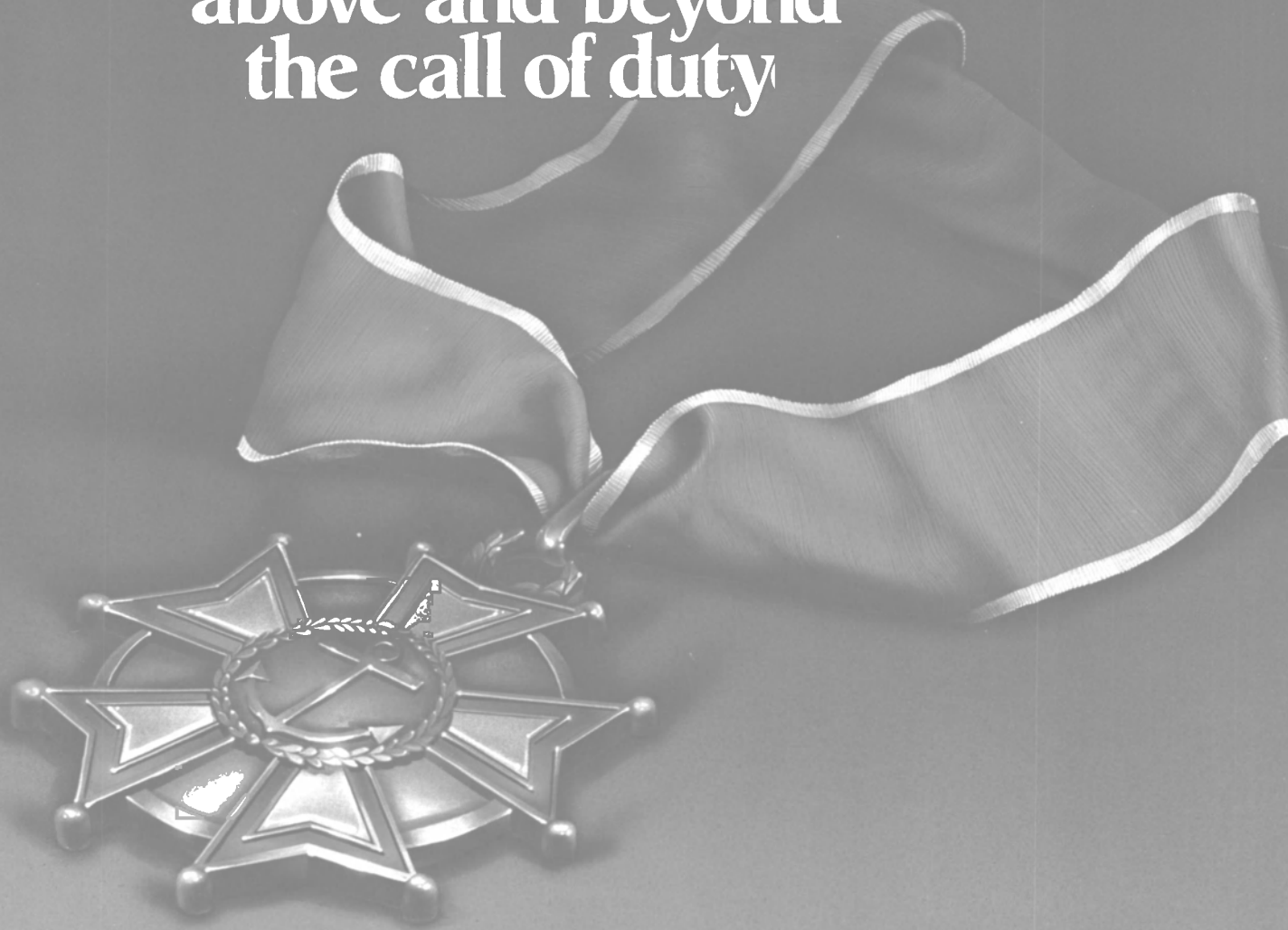


Marine provides services ranging from routine maintenance and emergency repairs to major reconstruction.

Expert barge cleaning service is provided by Port Allen Marine on the Mississippi, located at mile post 224.6 in Baton Rouge.

Now, more than ever, Port Allen can provide barge cleaning and repair service that is above and beyond the call of duty.

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**2 Drilling Rigs Ordered  
From Gotaverken Arendal**

Saleninvest of Sweden announced recently that it had ordered two jackup oil drilling rigs from Gotaverken Arendal, Goteborg, Sweden. The order is worth SKr 250 million (\$27.26 million). The rigs are due for delivery in 1980 and 1981. Salen Energy, the energy subsidiary of Saleninvest, is already operating one jackup rig and one platform rig in the Gulf of Mexico. A further rig, due for delivery in 1980, is under construction in a Canadian shipyard.

**Swanson Named To New  
Matson Navigation Post  
In Washington, D.C.**

Matson Navigation Company has appointed Eugene R. Swanson to the position of vice president-director, government affairs, in Washington, D.C., effective December 14, 1979, it was announced by James P. Gray, president.



Eugene R. Swanson

Mr. Swanson, formerly vice president, general sales manager, will succeed John R. Kuykendall, who died recently after 10 years as Matson's Washington representative.

Mr. Swanson, who started his transportation career in the railroad industry, joined Matson in 1960 as Chicago district freight sales manager, and became Eastern area sales manager in 1967. He served as marketing director for Matson's Far East freight service before he was named general sales manager of the Hawaii service in 1970. He was elected a vice president in 1975.

**Kent And Boling Elected  
To The NOIA Board**

W.D. Kent of Houston, Texas, and Don Boling of Tulsa, Okla., have recently been elected to the board of directors of the National Ocean Industries Association, headquartered in Washington, D.C. Mr. Kent is the president of Reading and Bates Drilling Co., and Mr. Boling is senior vice president for Marketing and Field Operations of C-E Natco. NOIA, with over 400 members, is the only national trade association representing all facets of the offshore and ocean-oriented indus-

tries engaged in the economic development and use of marine resources.

Mr. Boling, a registered professional engineer and past Section chairman of the Society of Petroleum Engineers, joined C-E Natco in 1951. C-E Natco is a leading designer and manufacturer of petroleum production processing systems.

Mr. Kent, a director of the International Association of Drill-

ing Contractors, has served as president of Reading and Bates Drilling Company since it was formed as a new operating subsidiary in 1972. Reading and Bates Corporation, of which Mr. Kent is a director, is engaged in offshore and onshore contract drilling, oil and gas exploration and production, oil and gas pipeline construction, and coal mining.

Membership in the National Ocean Industries Association is

open to those companies or individuals who seek to foster maximum development of the oceans' resources through business enterprise. Members include companies involved in all phases of ocean activities, including drilling, marine and air transportation, fishing, geophysical exploration, service, manufacturing and equipment supply, petroleum production, gas transmission, shipyards, and others.

# One of the biggest names in ships is GECC.

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GECC is a \$7 billion company. That means we're big enough to finance or lease tankers (add up the deadweight tonnage and we own the largest fleet under the U.S. flag), tugs, barges, cargo ships, cargo-handling equipment, offshore rigs and the vessels to service them, shipyards, drydocks and a lot more.

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in almost everything.**



## A Preview—

# 1980 Annual Meeting, Water Resources Congress

New Orleans, La., was selected as the site of the 1980 annual meeting of the Water Resources Congress to be held February 13-16, at the New Orleans Hilton Hotel. This year's convention promises to be particularly significant and enjoyable for numerous reasons. It is being held during the week of the Mardi Gras festivities, giving many attendees the opportunity to participate in the Mardi Gras for the first time. More important, 60 years ago, in 1919, the Mississippi Valley Association, one of the two predecessor organizations of WRC, was founded in New Orleans. At this meeting, WRC will commemorate the founding of MVA and review the most important events which have transpired in the field of water resources over the past 60 years.

Attendees will ponder the future of water resource development in a setting which has become synonymous with controlled waters. Meeting on the banks of the Mississippi River, WRC members and guests will assess where the nation stands concerning the conservation and development of its water resources as it heads into the 80s.

"Our association looks back over a decade of many accomplishments in the wise use and proper development of the nation's water resources," reported **Vernon Behrhorst**, chairman of the board of WRC. "However," he continued, "WRC is concerned over the future of water resource programs because of the many regulations promulgated during the 70s which will dog the footsteps of project planning and development in the coming decade."

In addition to the morning and afternoon sessions, the agenda features nationally prominent luncheon speakers, an evening reception, an attractive program for the ladies, and the WRC Marine Exposition, opening at 9 a.m., February 14, in the Grand Salon 1 and 2. Other attractions include the Mardi Gras parades, February 12 through 16; an evening with jazz clarinetist **Pete Fountain**, February 15; and a New Orleans harbor cruise aboard the steamer *Natchez*, February 16.

Seven general sessions on the multiple uses of water will be held in the Grand Ballroom A. These include: Water for Food

& Fiber; Flood Plain & Coastal Resources; Water for Energy and Industry; Water for Fish, Wildlife and Recreation; Water for Transportation and Commerce; Water Quality and Municipal Supply; and Water Resources Management.

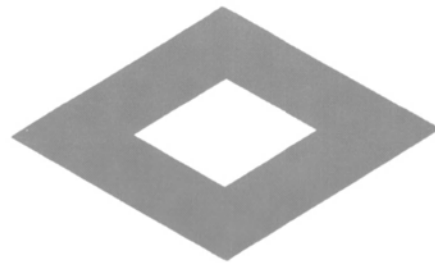
Among the events of particular interest to vessel operators and builders will be the WRC Marine Exposition and the session meeting, "Water for Transportation and Commerce," which will be held Friday, February 15, from 1:45 to 3:30 p.m. in Grand Ballroom A. The topic of this session will be "General Subjects of Regulations Pending Legislation and Studies." **Charles F. Lehman** and Rear Adm. **Wayne E. Caldwell**, Chief Office of Marine Environment and Systems, U.S. Coast Guard, will preside over the meeting. Participants will include Maj. Gen. **E.R. (Vald) Heiberg III**, Director of Civil Works, U.S. Army Corps of Engineers.

Other meetings include the board of directors, business, general membership, and the Resolutions Coordinating Committee. The WRC Annual Meeting adjourns at noon on February 16.

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# THERE IS A DIFFERENCE IN TUGBOAT COMPANIES.

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Docking the EL PASO HOWARD BOYD at the  
Columbia LNG Corp. Terminal at Cove Point, Md.

**McDermott Building Two Bulkfleet Marine Tugs Custom-Made For Future**

Two vessels now under construction for Bulkfleet Marine Corporation of Houston, Texas, at McDermott Shipyard-Morgan City (La.) Division are being custom-made for the future.

Designed to burn heavy fuel oil, a fuel expected to be abundant when other fuels are scarce, the two 140-foot oceangoing tugs are seen as a realistic and innovative technological adaptation to an energy-restricted future. Though similar craft have been built, these are the first such tugboats to be built in the United States.

"McDermott feels fortunate to be the first shipbuilder in the country to apply this

technology to oceangoing tugs," said V.J. LeBlanc, head of the McDermott Shipyard Group. "We're proud we will be building these vessels for Bulkfleet Marine Corporation's fleet."

According to J. Barry Snyder, president of Bulkfleet Marine, the tugs have been dedicated for service in the Gulf of Mexico, the Caribbean and the Atlantic Ocean. They will be used with specially designed barges that will carry 203,000 barrels of bulk petroleum each.

The new tugs will each have 8,000 available horsepower, generated by twin 4,000-hp MaK engines that develop their rated power at a low 425 rpm. The vessels will be 140 feet long, have a 43-foot beam and a depth of 22 feet.

The McDermott shipyards at Morgan City and New Iberia, La., specialize in the con-



**HANDSHAKE FOR THE FUTURE** — Contract signed for building the first vessels in the fleet of Houston's Bulkfleet Marine Corp., J. Barry Snyder, left, president of Bulkfleet, and V.J. LeBlanc, head of J. Ray McDermott & Co., Inc.'s Shipyard Group, seal the agreement with a handshake. The two oceangoing tugs, to be built by McDermott's Morgan City Division, will burn heavy fuel oil, a fuel expected to be abundant when other fuels become scarce.

struction of large tugs, supply vessels, fishing vessels, jackup and package rigs, dredges, oceanographic research and oceangoing work vessels. The yards also construct workover and drilling barges, derrick barges, pipelaying barges, crane barges and workboats.

**National Marine Seeks Title XI For 5 Towboats And 46 Barges Costing \$36 Million**

National Marine Service, Inc., 1750 Brentwood Boulevard, St. Louis, Mo. 63144, has applied for a Title XI guarantee to aid in financing the construction of 46 double-skin petroleum chemical tank barges and five diesel-powered towboats. The vessels are expected to be operated on the inland waterways of the United States.

The proposed builders for the barges are Hillman Barge & Construction Co., Brownsville, Pa., Nashville Bridge Co., Nashville, Tenn., and Jeffboat, Inc., Jeffersonville, Ind. The proposed builders for the towboats are Dravo Corp., Pittsburgh, Pa., and Arthur Ortis Boat Building, Krotz Springs, La. The vessels are expected to be delivered between 1980 and 1981.

If this application is approved, the Title XI guarantee would cover \$30,700,000 of the total actual cost of \$36,390,352.

**Ariadne To Build Tanker At Newport News —Title XI Approved**

The Maritime Administration has approved in principle an application by Ariadne Company, 2001 Marcus Avenue, Lake Success, N.Y., for a Title XI guarantee to aid in financing the construction of a 39,700-deadweight-ton tanker. The ship is to be owned by an owner-trustee, bareboat chartered to Ariadne, and time chartered for approximately 8½ years to the Amerada Hess Corporation.

The completed vessel will have an overall length of 644 feet 9 inches, a molded beam of 102 feet, and a speed of 16 knots. Plans call for using the existing stern section of the Cities Service Norfolk, a tanker originally constructed by Bethlehem Steel Corporation at Sparrows Point, Md., in 1956. Newport News Shipbuilding has been selected to build the new tanker, with delivery estimated for June 1, 1981. The Title XI guarantee is to be for \$25,408,000, which is 87½ percent of the estimated actual cost of the ship. Ariadne is a limited partnership affiliated with the Berger Group.





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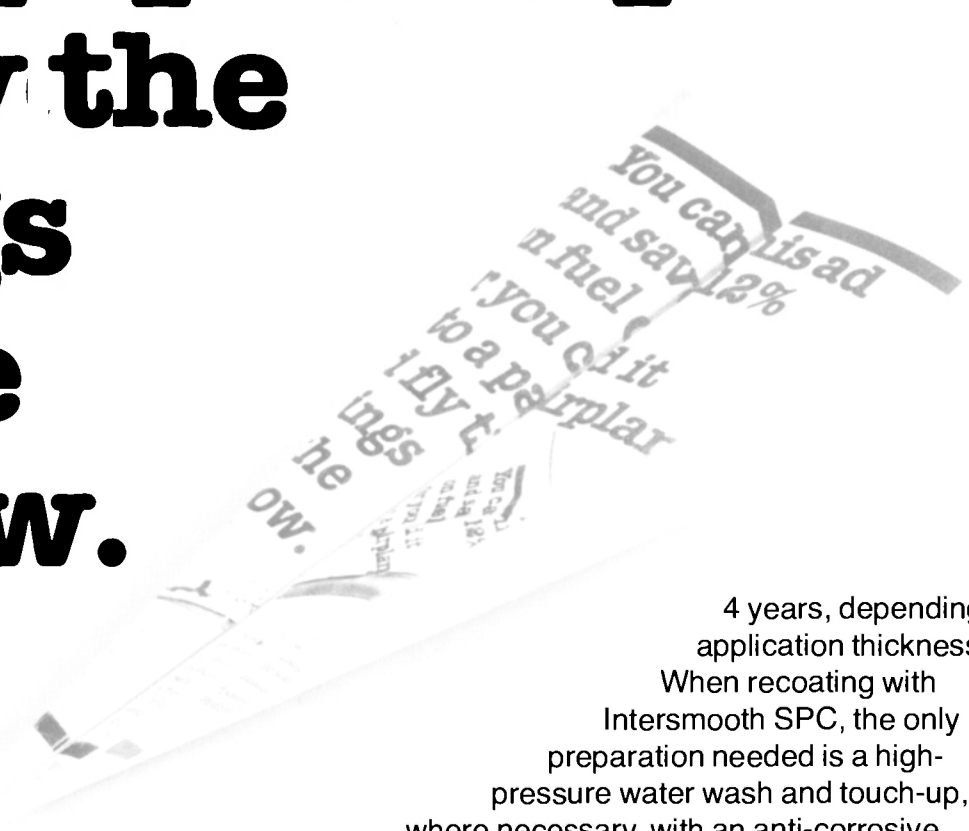


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**Reduced Towing Costs  
Subject Of Study On  
Towing Surge Pendants**

The following is a condensation of a technical study prepared by the engineering and research departments of Samson Ocean Systems, Inc., Shirley, Mass. The report analyzes and compares the performance characteristics of the traditional towing surge pendant utilizing heavy chain with those of a nylon rope pendant.

A surge pendant is an energy storage device typically located between the towing bridle and the towing hawser. They are used with wire towing hawsers where desirable to reduce the scope and catenary depth of the hawser without reducing the overall energy storage of the hawser system. Traditionally, a surge chain has been used consisting of one or two shots of very heavy chain. The chain catenary provides the necessary energy storage with the penalty of increased weight and towing resistance and greatly increased catenary depth at low speeds. It is desirable to replace the surge chain with a pendant of nylon rope. This offers the required energy storage because of nylon's elasticity without the weight of the chain.

The performance of a tow in a seaway requires the continuous transfer of energy between the vessels involved. Any difference in speed between the tug and tow (during start-up or under wave impact) means the tug must accelerate the tow or be slowed down by it. If the energy necessary to accomplish acceleration or deceleration must be transmitted instantaneously, as it would through a rigid link, it would result in enormous loads on the deck fittings. It is, therefore, essential for a towing hawser system to store energy from one vessel and transfer it gradually to the other without excessive loads. Nylon rope offers this energy storage capacity with less length than wire or chain catenaries with the resulting advantages of improved control, reduced weight, little or no catenary, and reduced towing resistance. Improved control results from the reduced length or scope of the hawser which provides a greater angle of the hawser at the tow, or turning moment, for the same sideways motion of the tug.

The energy storage characteristic is required primarily by deep ocean tows. Harbor tows usually call for precise control of the tow and therefore less elongation. Tows which have utilized surge pendants include U.S. Navy operations between San Diego, Long Beach and Hawaii, and the BAR-347 tow. The BAR-347 is a 51,000-ton pipelay barge which was towed, on 21-inch 2-in-1 nylon, from the Netherlands to the Gulf of Mexico by Dr. Jack, a 7,500-hp oceangoing tug.

The use of a surge pendant with a wire rope hawser offers the advantages of utilizing exist-

ing towing equipment and locating the synthetic rope outboard of both the tug and tow, thus minimizing abrasion. The basic procedure is to connect one end of the pendant to the bridle on the tow and the other end to the tow wire. When entering or leaving harbor, the tow wire is paid out just enough to clear the tug

bulwark. This puts the tow on a short scope for better control. Once at sea, the tow wire can be paid out until the tug and tow are in step (i.e., riding up and down the waves together). If the selection procedure outlined in the complete Samson study has been used, there is no need to pay out wire for a catenary. The

surge pendant has all the energy storage capacity required by the tow. This allows the tow hawser to be kept near or even above the water surface, and thus reduces the resistance of the tow. The reduced resistance can result in either higher speeds or reduced fuel consumption.

The study concludes the prin-

# Crude Oil Washing problems come in many shapes and sizes. So do BUTTERWORTH tank cleaning machines.

**The Right System  
Reduces  
Turn-around Time...  
Increases Profits.**

Because tank washing problems can be simple or complex there is no one machine that is right for every tank or task. But with this wide range of equipment Butterworth Systems can help you select precisely the right machine or combinations of machines for your vessel, so you get the optimum cleaning system at minimum cost.

With the IMCO deadline approaching, there couldn't be a better time to let Butterworth Systems solve your tank cleaning problems.

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For over fifty years Butterworth Systems has been the world leader in tank cleaning equipment. Our complete line of

tank washing machines offer thoroughly proven performance and the highest reliability. Each BUTTERWORTH® tank cleaning machine has its own unique cleaning capabilities and advantages which can provide a tailor-made system for your specific crude oil washing needs.

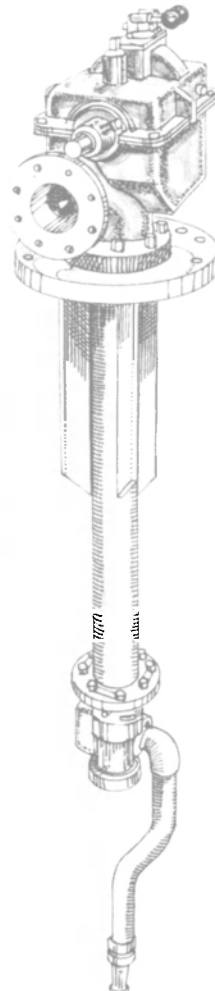
## 1.

**The LAVOMATIC®  
SA Machine. For  
Fastest Cleaning of  
Large Tanks.**

The deck mounted LAVOMATIC® SA tank cleaning machine has a capacity of 90-150 tons per hour and a Selective Arc feature for single or multi-stage crude oil washing. It is the only tank cleaning machine in the world which has a patented programmed speed feature which concentrates cleaning effectiveness wherever sludge buildup is normally heavy. The LAVOMATIC® SA unit automatically slows

down when washing critical areas and then speeds up over less critical areas. This speed programming feature can result in up to 60% reduced cleaning time.

The LAVOMATIC® SA advantage: the fastest economical cleaning of even the largest tanks plus a long history of superb performance and reliability.

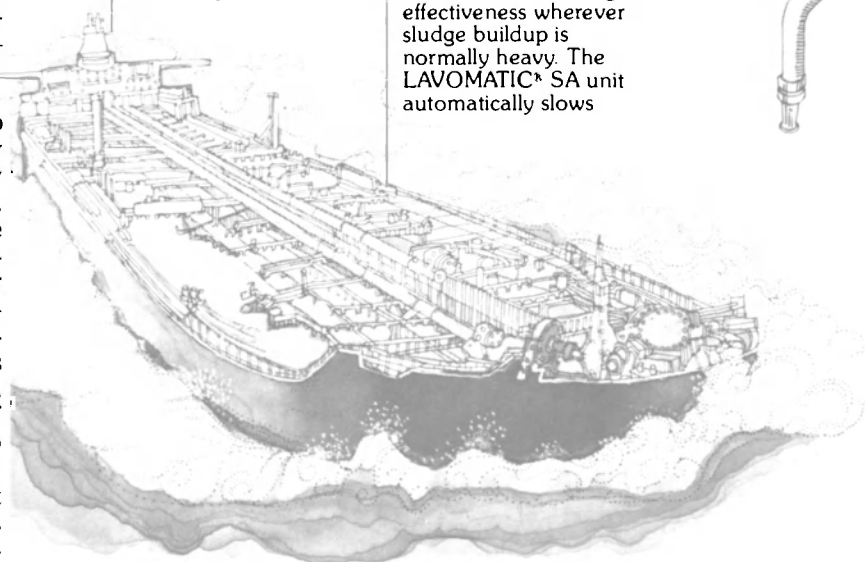


## 2. Introducing the BUTTERWORTH® P-60 Machine. Making Multi-stage Crude Oil Washing More Economical.

The latest addition to the Butterworth Systems family of tank cleaning machines, the P-60 is a single nozzle, deck mounted machine functionally similar to the LAVOMATIC® SA machine. The capacity of the P-60 ranges from 90 to 150 tons per hour. It features a permanently mounted control box/power source, preset speed and full-flow turbine.

Three preset selectable arcs are available to the tanker crew for a full wash, side wash or bottom wash. The bottom wash setting features a closer wash pattern to provide the greater cleaning power required there.

The P-60 advantage: provides multi-stage washing and proven Butterworth Systems reliability while reducing initial cost.





cipal advantages of nylon surge pendants for existing tugs with wire towing winches are lower life cycle costs, simplicity, reduced scope, increased control, little or no catenary, and reduced resistance with resulting savings in speed and fuel.

Copies of the complete study are available at no cost from

Samson, and contain full instructions and graphs describing the methods for determining the most cost-effective surge pendant systems for various types of tugs.

For a free copy of the Samson study "Towing Surge Pendant," write to G.P. Foster, Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110.

### G.E. LM2500 Engines To Power Eight More U.S. Navy Frigates

The United States Navy has exercised part of a 48-ship option to purchase eight additional USS Oliver Hazard Perry (FFG-7) Class ships. Each will be powered

by two General Electric LM2500 Marine Gas Turbines. Firm orders on these LM2500 powered frigates now include 34 for the U.S. Navy, three for the Royal Australian Navy, and three for Spanish Navy frigates of the same basic hull design. The first of these eight new ships is scheduled to be launched in February 1982, with the eight scheduled for delivery from May 1983 to January 1984. Options to purchase 40 additional sets of engines for these frigates remain for deliveries through 1985.

In total, the LM2500 has been selected to power 137 vessels in 12 Free World navies and to date, LM2500s have logged over 265,000 hours at sea, with an established record of over 99.95 percent availability in marine service.

The Oliver Hazard Perry Class frigates have a displacement of 3,585 tons, length of 445 feet, beam of 47 feet, with speed capability of 28+ knots.

Bath Iron Works Corporation (BIW) in Bath, Maine, is the central procurement agency for this contract with the U.S. Navy. In addition to BIW, Todd Shipyards in Seattle, Wash., and San Pedro, Calif., will be the shipbuilders.

### Anton J. Jung Appointed Market Manager At M&T Chemicals

Anton J. Jung has been named market manager for the Bio & Fine Chemicals Division of M&T Chemicals Inc., Rahway, N.J.



Anton J. Jung

He will be responsible for the marketing of antifoulant chemicals used in ship bottom paints.

Prior to this new appointment, Mr. Jung was a sales manager in Europe for M&T Chemicals B.V., located in Vlissingen-Oost, the Netherlands.

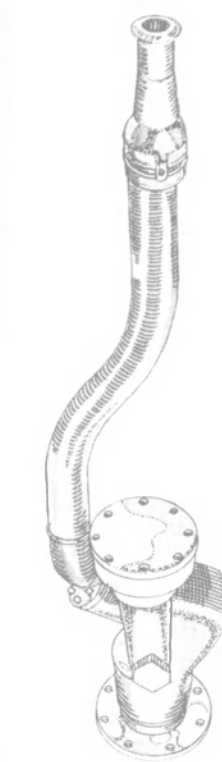
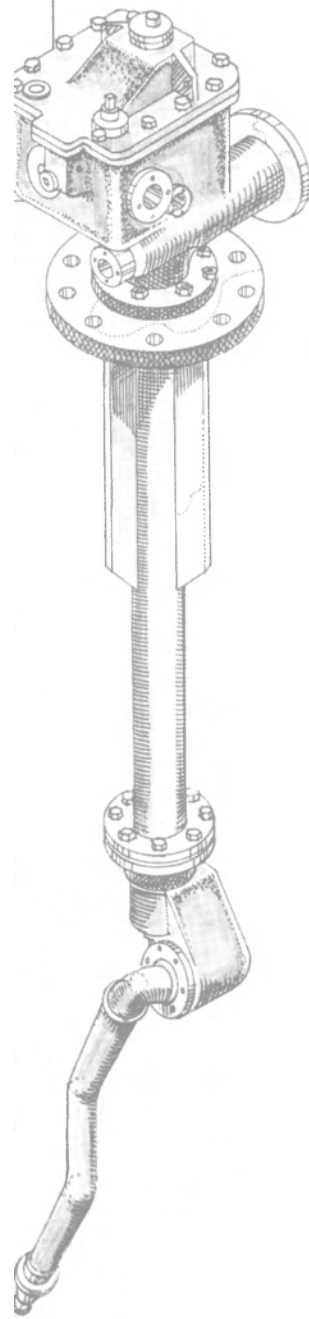
Mr. Jung holds a degree in chemical engineering from Chemotechnique Schule der Stadt, Frankfurt Am Main, West Germany, and has taken graduate courses in industrial management.

M&T Chemicals Inc. is a manufacturer of specialty chemicals based on tin, antimony, phosphorus, sulfur and zirconium; electroplating chemicals and processes; and formulated plastic materials.

## 3.

### The BUTTERWORTH® MP Machine. Cleans Hard-to-reach Areas From Any Angle.

The multi-position, very high-capacity BUTTERWORTH® MP machine is designed to clean hard-to-reach areas in complex tank structures. Self-powered



and range to clean medium sized tanks or hidden areas in large tanks. The SSK machine can be fixed-in-place at any angle, weighs 55 lbs and has a throughput capacity of 80 tons per hour and an effective cleaning range of approximately 100 feet.

The SSK advantage: low cost cleaning of moderate size tanks with famous Butterworth Systems technology.

## 5.

### The BUTTERWORTH® SK Machine. Cleans Hidden Areas or Smaller Tanks.

Fixed-in-place at any angle, the SK machine has a twelve year track record of dependable, effective cleaning. It features Butterworth Systems' exclusive

"ball of twine" spray pattern that crisscrosses and overlaps for thorough cleaning. The SK machine weighs 55 pounds and has a throughput of 30-60 tons per hour and a range of 70 feet.

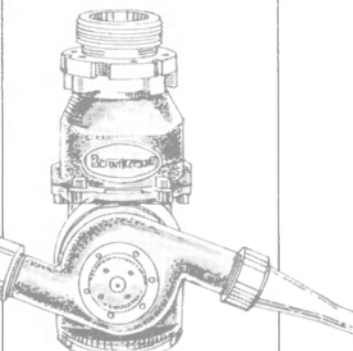
The Super K advantage: low cost cleaning of hard-to-reach areas plus Butterworth Systems reliability.

## 6.

### The BUTTERWORTH® K Machine. For Small Tanks, Fixed-in-place at Any Location.

Over 20,000 BUTTERWORTH® K machines have made it the industry favorite for every kind of tank cleaning for twenty-three years. Now the K machine provides valuable COW service.

It weighs less than fifty pounds, has a cleaning range of 30 feet and up to 30 tons per hour throughput.

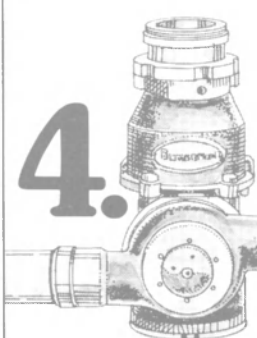


Fixed-in-place, the K machine is ideal for cleaning smaller tanks or small hard-to-clean areas in large tanks. Its twin nozzles rotate while the entire unit revolves, thereby producing Butterworth Systems' "ball of twine" pattern which ensures that every inch of surface is completely covered.

The K advantage: small size, lightweight, low cost and the most proven Butterworth Systems technology.

and featuring simple design, the MP provides the very high reliability required for within-tank mounting. This single nozzle tank cleaning machine weighs 178 lbs and can be fixed-in-place in any location, at any angle, and is specifically designed to allow installation on tank bottoms under the cargo.

The MP advantage cleans large areas which cannot be reached by conventional deck-mounted equipment and provides unbeatable Butterworth Systems performance.



## 4.

### The BUTTERWORTH® SSK Machine. For Small Areas or Medium Size Tanks.

The BUTTERWORTH® SSK two-nozzle machine combines throughput

For any capacity range or tank location Butterworth Systems has proven equipment to meet your needs.

| Unit              | Capacity Tons Per Hour | Weight   | Location     | Attitude |
|-------------------|------------------------|----------|--------------|----------|
| LAVOMATIC® SA     | 90-150 TPH             | 820 lbs. | Deck Mounted | Vertical |
| BUTTERWORTH® P-60 | 90-150 TPH             | 690 lbs. | Deck Mounted | Vertical |
| BUTTERWORTH® MP   | 70-150 TPH             | 178 lbs. | Any          | Any      |
| BUTTERWORTH® SSK  | 60-80 TPH              | 55 lbs.  | Any          | Any      |
| BUTTERWORTH® SSK  | 30-60 TPH              | 55 lbs.  | Any          | Any      |
| BUTTERWORTH® K    | 20-30 TPH              | 48 lbs.  | Any          | Any      |

## Butterworth Systems

For more information contact 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 Road, South Croydon, Surrey CR2 6EU, England Telephone: 01-668-6211 Telex: 946524

**Port Weller Dry Docks  
Delivers Bulk Carrier  
With Fuel Efficient Hull**

A maximum Seaway-size 34,000-dwt self-unloading bulk carrier incorporating a new hull design for reducing fuel consumption was christened at Port Weller Dry Docks in St. Catharines, Ontario, recently. The 730-foot ship was named Canadian Enterprise

by Maureen McTeer, wife of Canada's Prime Minister. It was built for Upper Lakes Shipping Ltd. of Toronto, and is the third self unloader of this size delivered by the shipyard to Upper Lakes Shipping in the past three years.

The Canadian Enterprise is similar in all respects except one to the Canadian Transport, which was christened at the yard last April. The one difference is the design of the stern. Below the

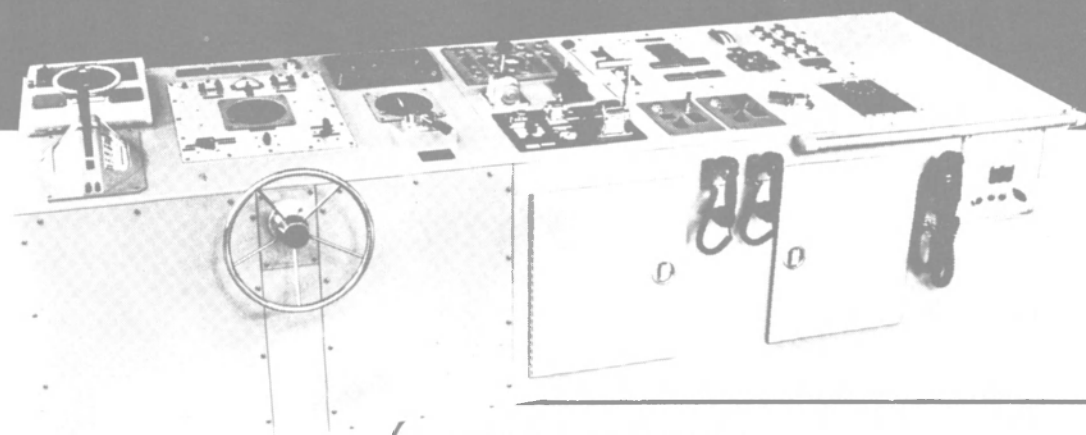
waterline are what appear to be the tops of two half tunnels which direct a greater volume of water against the propeller. Because of this feature, the ship's medium-speed diesel engine will develop the same amount of thrust as an engine with greater horsepower, resulting in a saving in fuel of about 10 percent.

Canadian Enterprise is equipped with the latest type of cargo reclaimer and automated console

that permits one crew member to unload the ship at a rate of 6,000 tons per hour. The console and reclaimer were developed by Port Weller Dry Docks, its subsidiary, Canal Electric Ltd., and a material-handling company. The console is located in the control room on the forecastle deck.

The ship is powered by two M.A.N. diesel engines generating 8,750 bhp. It will have a service speed of 13 knots, and will carry a crew of 30.

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ABS & COAST GUARD APPROVED  
ACCU & ABCU PACKAGED  
AUTOMATION SYSTEMS for SMALLER  
DIESEL POWERED VESSELS**

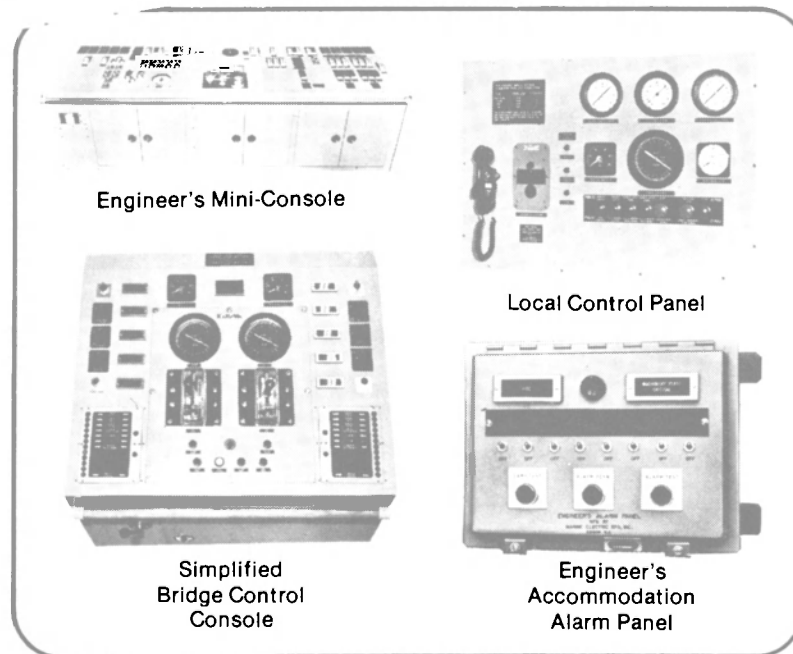


Smaller diesel powered vessels can now have completely automated monitoring and control systems that comply with ABS classifications of ACCU and ABCU as well as with Coast Guard NVC-1 and IEEE Standard #45.

A standard ACCU package includes a Central Control Console on the bridge, an Engineer's Mini-Control Console and an Engineer's Accommodation Alarm Panel.

To satisfy ABCU requirements, the Engineer's Control Console is simplified to a Local Control Console with independent manual control. It is also possible to obtain certification with all monitoring located on the bridge alone.

An NVC-1-78 package is also available for unmanned or minimum manned operation.



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**\$14.3-Million Title XI  
Sought For 50 Barges  
And Towboat Repowering**

Riverway Co., 7703 Normandale Road, Minneapolis, Minn. 55435, has applied for a Title XI guarantee to aid in financing the construction of 50 dry cargo hopper barges and the repowering of a triple-screw towboat.

The hopper barges will be built at Twin City Shipyard Co., St. Paul, Minn. It is anticipated that 20 will be delivered next March 15, with the balance to be delivered thereafter.

After being repowered by Alco Power, the towboat will be rated at 8,400 horsepower.

All the vessels will be used on the inland waterways of the United States.

The estimated actual cost of the project is approximately \$14.3 million. If approved, the Title XI guarantee will cover \$12.6 million.

**CP Ships Announces  
Senior Appointments**



W.J. Ryan

The appointments of D.R. Newbery as managing director, container services division, D.P. Peadon as general manager, operations and system services, R.A.R. Vartan as general manager, marketing and sales, and W.J. Ryan as general manager, North America, have been announced by CP Ships.

Mr. Newbery is responsible for the overall management of the container services division. Mr. Peadon is responsible for the company's operating functions, while Mr. Vartan is responsible for CP Ships' worldwide marketing and sales activities. All three men are located at CP Ships' headquarters in London, England.

Mr. Ryan is responsible for CP Ships' North American activities. He is located in Montreal, Canada.

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The MARCO-built 123-foot Northern Leader was recently delivered to its new owners, Tom and Colleen Peterson and Russell Ott. The vessel is equipped for all phases of crab fishing, bottom fish trawling and freezing.

### 123-Foot Northern Leader From MARCO Equipped As Catcher, Freezer, Packer

The Northern Leader, the third in a new series of 123-foot combination boats constructed by Marine Construction & Design Co. (MARCO), Seattle, Wash., was delivered recently. It is reported to be one of the most versatile fishing vessels for the North Pacific yet constructed by MARCO.

Owners of the new vessel are Tom and Colleen Peterson, experienced participants in the fishing industry, and Russell Ott, veteran fisherman of several North Pacific fisheries. They also own another crabber, the 120-foot Ocean Leader. Mr. Ott will skipper the Northern Leader.

It is the first to be equipped by MARCO for dry refrigerated holds as well as for chilled seawater and circulating seawater.

The all-steel vessel is equipped to work all phases of crab fishing, bottom fish trawling, and freezing. It will also operate as a tender, packer, and processor for herring and salmon.

With its 9-foot stern ramp and installed prepping, the Northern Leader can be easily converted to trawling.

For salmon and herring packing, the Northern Leader has three insulated holds with an 80-ton chilled seawater system.

These three holds, plus a fourth hold in the lazarette area, can be used to carry dry frozen product with 9,300 cubic feet of capacity.

The hydraulic deck machinery for crabbing includes a MARCO KingHauler for hauling crab pots, a KingCoiler for line coiling, a double action crab pot dumping rack, and a bait chopper.

A MARCO U880 Capsulpump fish pump will be used during packing operations.

The new vessel utilizes a 12-ton Slattery knuckle boom crane with a MARCO W3000 winch. Other MARCO winches include a W0650 topping winch, another W3000 boom winch, and an A5031 anchor winch.

The main engine is a Caterpillar D399 turbocharged and after-cooled diesel that develops 1,125 bhp and is coupled to a Caterpillar 7271 hydraulic reverse reduction gear. The vessel has a Coolidge 90-inch four-bladed stainless-steel propeller.

Auxiliary power is provided by two Caterpillar D3408 TA diesel engines, each coupled to a 250-kw generator set. The Northern Leader, unlike other vessels in the series, has a 440-volt electrical system for the refrigeration system. There is also a Caterpillar D3304 T auxiliary engine with a 90-kw generator.

A major change in the series design has been the enlarging of the engine room to accommodate the refrigeration system. This was accomplished by moving the after engine room bulkhead between the wing tanks 5 feet aft.

The layout and decoration of the interior was designed by Mrs. Peterson. Mrs. Peterson also de-

signed a new open galley arrangement for the Northern Leader.

Mr. Ott, skipper and part owner of the Northern Leader, has designed a completely new master control console that provides a panoramic view of all electronics. The console is at a 60-degree angle, and the electronics are recessed in the console so that the pilot can conveniently monitor all navigation and fishing operations.

Pilothouse electronics include two Simrad Lorans, two Raytheon radars and one OKI radar, a Simrad recording depth sounder, Wesmar scanning sonar, Ross depth indicator, Sperry autopilot, Sperry gyrocompass, JAX-12 facsimile weather receiver, and VHF, CB and two SSB radios. The Wagner hydraulic steering system includes a walnut wheel for emergency control, plus three jog stations.

The Northern Leader is the ninth fishing vessel for the North Pacific fisheries MARCO has delivered this year. The previously delivered 123-foot boats were the Sea Wolf and Arctic Wind, both completed this past summer.

### FMC Releases Study On Virgin Islands Trade

The Federal Maritime Commission has prepared a Virgin Islands Trade Study. The report focuses upon both recent and anticipated ocean shipping developments in the trades between the U.S. Virgin Islands and the U.S. mainland, Puerto Rico, various Caribbean nations, Europe, and other trading partners.

The study includes a description of the U.S. Virgin Islands economy, fleet configuration in the Virgin Islands trade, a review of the region's ports and harbors, and an extensive economic analysis of the impact of ocean transportation on the Islands' economy.

The report also provides a comprehensive listing and discussion of the flow of various commodities in the Virgin Islands' foreign and domestic trade, as well as a detailed survey of the attitudes of Virgin Islands shippers toward the quality of the ocean transportation services they utilize.

FMC Chairman Richard J. Daschbach observed that the study "should provide additional information required for enlightened regulation of the maritime industry serving the Virgin Islands."

The Commission has previously published similar economic analyses of current and prospective conditions in the North Atlantic, North Pacific, Hawaiian and Alaskan trades. Copies of the "Virgin Islands Trade Study: An Economic Analysis" may be obtained by sending a check or money order for \$8 to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock Number 014-000-00069-1)

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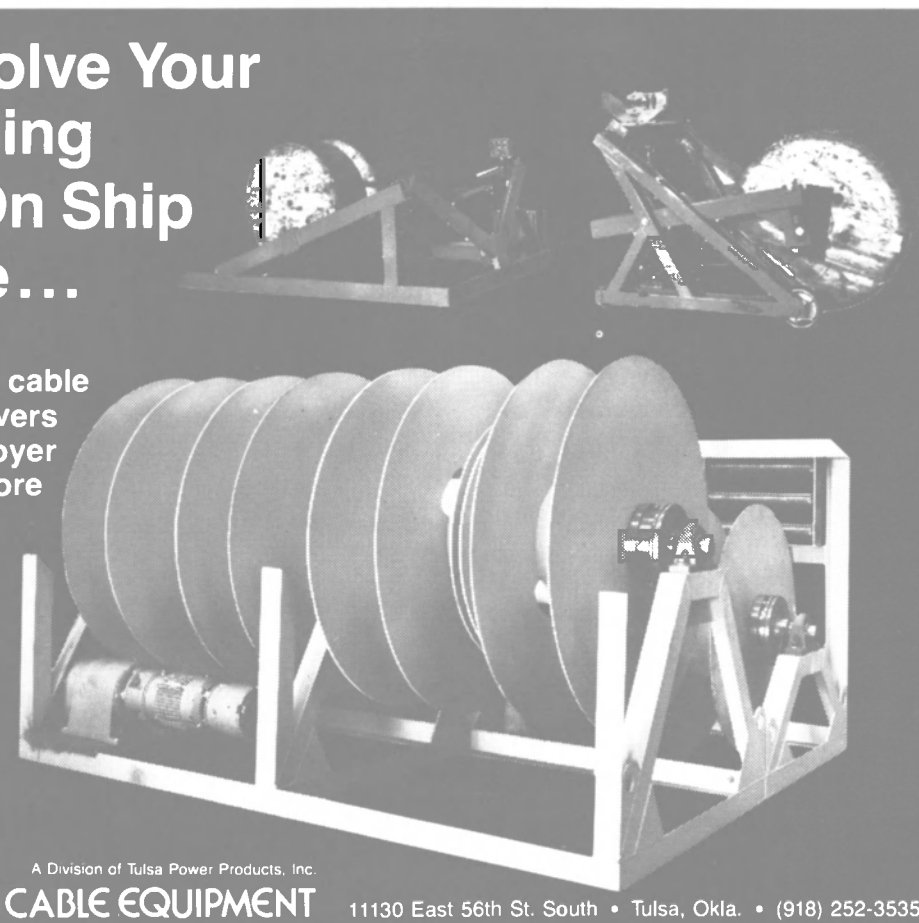
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**NASSCO Awarded 5-Ship  
\$239-Million Contract  
By American Tankships**

American Tankships Inc., a wholly owned subsidiary of Ingram Corporation, New Orleans, La., has signed a final contract with National Steel and Shipbuilding Company (NASSCO), San Diego, Calif., for the construction of five 37,500-dwt U.S.-flag (Jones Act) product carriers, it was announced recently by Cyrus E. Webb, American Tankships president.

According to Mr. Webb, who is also vice president of Ingram Corporation, all five vessels will be built by NASSCO in its San Diego shipyard. The first vessel is scheduled for delivery in April 1982, with the remaining four vessels scheduled over the subse-

quent three-year period. Cost of the first vessel is fixed at approximately \$51 million, and the remaining four are at a base price of approximately \$47 million each, subject to escalation.

The contract is subject to cancellation if American Tankships does not obtain a financing guarantee from the United States Maritime Administration by May 31, 1980. In addition, American Tankships has the right under the contract to cancel any of the last four vessels up to stated dates between September 1980 and June 1982.

The vessels to be constructed by NASSCO represent a new class ship with an overall length of 658 feet, a beam of 90 feet, and a fully loaded draft at 36 feet. Mr. Webb also announced that each of the vessels will be powered by a Sulzer slow-speed diesel. American Tankships is an integral part

of Ingram Corporation, New Orleans, a privately owned company with subsidiaries located throughout the United States and Europe. Activities of the corporation are principally energy related, including oil refining and marketing, pipeline construction, oil and gas exploration and the transportation of petroleum products.

**Kerr Steamship Names  
Yang Assistant VP**

Alfred C. Yang has been appointed assistant vice president by Kerr Steamship Company, Inc. San Francisco, Calif.

Born in Shanghai, China, Mr. Yang received his early shipping education in Hong Kong, joining Kerr in 1963. Most recently, he has been line manager for Phoenix Container Liners (1976) Ltd.

**\$72.4-Million Saudi  
Naval Training Contract  
Received By Sperry**

The Sperry Division of Sperry Corporation has received a \$72.4-million contract to provide Saudi Arabian naval forces with training materials and equipment for the operation and maintenance of various navigation and combat systems. The contract is part of a major naval expansion program underway by the Saudi Government.

Under the terms of the contract, Sperry will provide instruction books and manuals and some of the training equipment for the operation and maintenance of anti-ship missile systems, fire control systems, electronic warfare systems, sonar and radar systems, computers, and collision avoidance systems, either installed or slated for installation aboard Saudi naval vessels.

Shipment of the instructional materials began several months ago, and is expected to be completed by 1981.

**Saleninvest May Buy 7  
More Reefer Vessels**

Saleninvest, Sweden's largest shipping group, is currently discussing the purchase of seven additional reefer vessels from Japan. The ships, built during the period 1977-79, are to be registered to a foreign subsidiary.

**Barges To Move 176%  
More Coal—Twice The  
Grain By Year 2003**

The barge and towing industry will be moving substantially increased volumes of coal and grain by the turn of the century, according to the technical findings of the National Waterways Study. The findings were presented at a Washington briefing recently, the first in a series of meetings scheduled around the country.

The study, scheduled for completion in 1981, shows that the inland waterways will experience a 176-percent increase in coal movements by the year 2003.

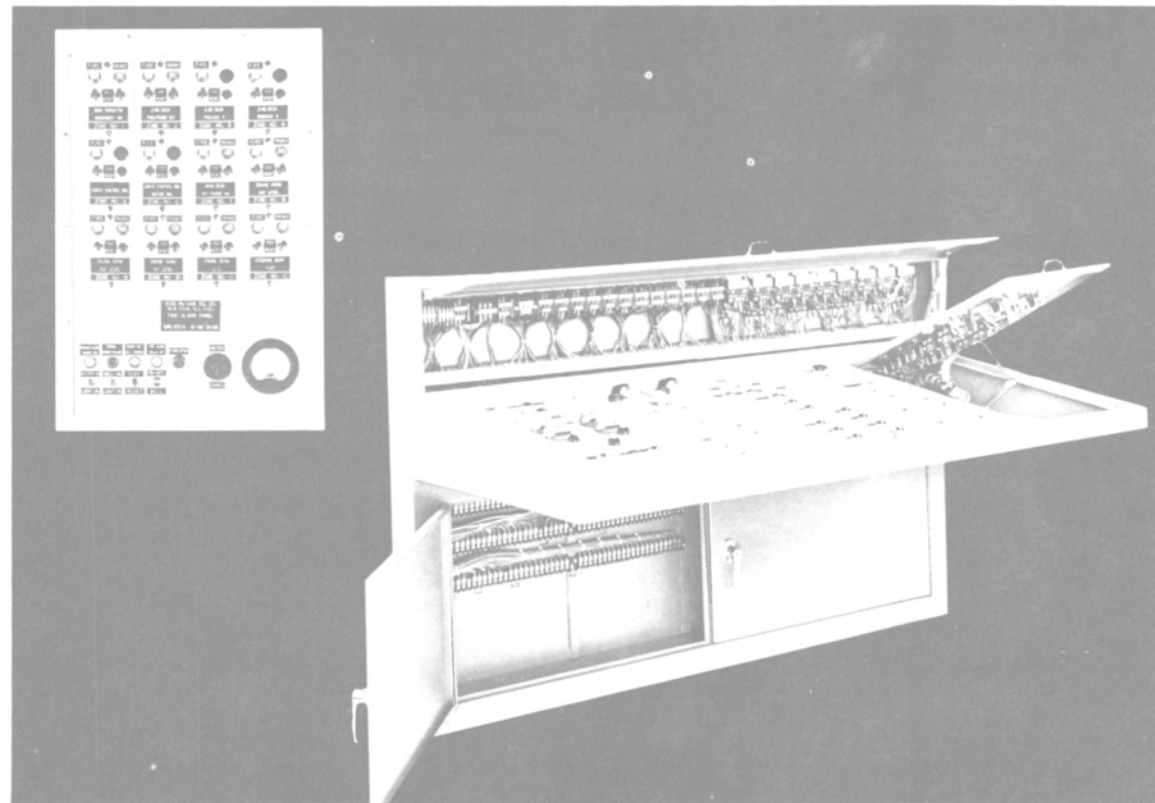
Grain exports moved by barge are also expected to grow dramatically, doubling by the year 2003.

The effort, which will examine waterway commodity flows under 10 different scenarios for 49 commodity classifications and 61 waterways segments, is scheduled to produce study findings in the fall of 1980 and recommendations in the spring of 1981.

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Gulf Harmony AW Oils for hydraulic systems  
Gulf Fluid Lubcotes® to protect wire ropes, chains & sprockets  
Gulf No-Rust for rust prevention  
Gulfgem and Gulfcrown® Greases for multi-purpose applications  
Gulf-Check engine diagnostic analysis  
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For information on any Gulf marine product, ask your Gulf pro, or write for the Gulf Inland & Coastal Marine Lubricants brochure and Midstreamers Directory. Gulf Oil Corporation, P.O. Box 1563, Houston, Texas 77001



Gulf Oil Corporation

### Crude Oil Supply And Tanker Demand Report Available From Drewry

During the 1970s, the influence and importance of expanding oil supplies close to the major oil consuming nations has grown rapidly. Rising output from new producing areas has increased the availability of short-haul crude oil supplies, thereby displacing significant volumes of long-haul supplies in the global pattern of seaborne oil trades. Growth in aggregate world tanker demand has consequently been dampened, exacerbating the depression in the oil shipping sector. Since the 1973 Oil Crisis, a number of OPEC countries have adopted production ceilings in the interests both of conservation and of maximizing revenues in the long-term. In the wake of the Iranian Crisis, these ceilings have been strictly applied. Oil exports from the Middle East have for some years served to balance global supply and demand, but since 1973 the political and economic climate in the Middle East has changed; the new emphasis on conservation has been accompanied by a manifest unwillingness to increase output merely in response to higher energy demand in the major consuming nations. In this context, oil supplies from non-OPEC areas are becoming increasingly sought after, particularly "new" supplies from such areas as the North Sea and Mexico. H.P. Drewry's Study No. 76, "Crude Oil Supply and Tanker Demand," focuses on recent and possible future trends in world oil production, and assesses their effect on tanker demand.

This report reviews the world oil market in 1977 when, after a period when the market was distorted by the two-tier pricing system, oil supplies were in excess of demand; sluggish growth in demand restrained the growth in both world oil production and consumption. An outline of trends in production, consumption and seaborne oil movements is followed by an analysis of the tanker demand generated by intra-area seaborne oil movements, which totaled 299.1 million dwt, compared to an average fleet employment in oil trading for the year of 318.0 million dwt. The difference between the two figures was attributed partly to inter-area trading (20.1 million dwt), but mainly to operating inefficiencies (68.8 million dwt). Had all the operating inefficiencies been accounted for by slow-steaming, then the fleet would have averaged 11.75 knots during the year, compared to the commonly accepted normal service speed of 15 knots.

Following a thorough, worldwide, country-by-country examination of recent and expected future trends in production and available export surpluses of crude

oil in the period up to 1985, six areas outside the Middle East emerge as likely sources of significantly increased supplies of short and medium-haul crudes. These areas are the three "traditional" suppliers of short and medium-haul crudes—North and West Africa, the Caribbean (excluding Mexico), and the Far East (excluding the People's Republic of China)—and three relative

newcomers—Alaska, Mexico, and the North Sea.

Based on the data from the preceding section, Section Three illustrates the potential impact of the production forecasts on tanker demand. It reappraises the role of the traditional suppliers of short-haul crudes, and analyzes the impact of both these supplies and expanding production from the "new" areas on

tanker demand. The prospects presented by the expanding development of the oil industry in the People's Republic of China are also reviewed. By the mid-1980s, supplies of short-haul crude to major markets could potentially be sharing an increase in the order of 250 mta compared to present levels. However, if current political and economic constraint continue in the producing

# THE RUST-PROOF PROOF.

### A current ABSTECH report proves Fluid Film® stands up to 9½ years of continuous ballasting without rust damage or re-coating.

Now there's solid evidence that Fluid Film® stops rust for years under the most corrosive conditions.

9½ years ago the ballast tanks of the *SS Marine Eagle*, an ammonia tank carrier, undergoing modification by Newport News Shipbuilding, were sprayed with Fluid Film Gel (B) White. They have never subsequently been touched up or re-coated (although continuously ballasted at 17-day intervals).

The results of ABSTECH Inspection Report #78-269 NN, dated 27 November 1978, are amazing: ultrasonic readings show the steel to

be in excellent condition throughout, with many of the original painted construction marks preserved.

This is important news to every ship owner and owner of offshore structures, because Fluid Film conclusively out-performs and out-saves all other coatings (including exotic coatings) under the most corrosive environments. In addition:

#### Fluid Film is easier to apply.

Fluid Film does not require sand-blasting or a clean, dry surface preparation: it goes right through existing rust to base metal, providing a continual non-drying protective barrier. It is applied in a single coat under any weather conditions, does not blister, peel, emulsify, crack or dry out, and it can be easily touched up if needed.

#### Fluid Film has a three-year, rust-proof guarantee.

Fluid Film is so effective that we guarantee it for 3 years when used in your ships' tanks. Even on in-service vessels. If in three years from date of application, Fluid Film fails to provide corrosion control under normal operating conditions, we will supply replacement material to you absolutely free\*

#### Fluid Film stops metal replacement costs.

Look at the chart and you'll see why Fluid Film is a tremendous cost saver.

The *SS Marine Eagle* is only one of hundreds of reports that prove the important time, money and labor saving value of Fluid Film. If you are interested in more information on our entire line of Fluid Film products, call collect or write to: Eureka Chemical Company, 234 Lawrence Avenue, (P.O. Box 2205), South San Francisco, CA 94080, (415) 761-3536.

countries this potential may not be achieved. A great deal depends on a refining and consolidation of politics and economic planning in general, and oil policy in particular, in countries such as Libya, Nigeria, Venezuela, and Mexico, which are among those outside the Middle East with the greatest potential for an expansion in oil production in the 1980s.

The Study concludes that by

1985 a total in the range of 67-95 million dwt of long-haul tanker demand could have been displaced by increased oil production from short and medium-haul sources. Since the long-haul routes are largely tonaged by VLCCs and ULCCs, the implication is that this displacement of long-haul tanker demand will deal a blow to employment prospects for large tankers, and serve to further the

trend already evident toward medium-sized ships.

"Crude Oil Supply and Tanker Demand," No. 76 in a series of reports on various aspects of shipping prepared by the Research Division of HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England, is available at a single copy rate of US \$95 (all overseas orders) or £40 (UK only), or on a subscrip-

tion basis US \$360 (all overseas orders) or £150 (UK only) for the series 71-80.

#### Lips-Doran To Establish Chesapeake, Va., Plant

Lips-Doran Company, a subsidiary of Lips Propeller Works of Drunen, the Netherlands, will establish one of its U.S. manufacturing and service facilities in Chesapeake, Va.

Lips is one of the world's largest manufacturers of large mono-block propellers, controllable-pitch propellers and thrusters. The company operates 32 facilities around the world.

The Lips-Doran plant in Chesapeake will construct a new building on a five-acre tract in the Cavalier Industrial Park in Chesapeake. The new plant will serve as a production and repair facility for mono-block propellers, controllable-pitch propellers and thrusters. Company spokesman Jeff van Oekel indicated operations are expected to begin in mid-1980.

The company has operated a similar facility in Mississippi since 1970. However, according to Mr. van Oekel, the intense concentration of shipbuilding activity along the East Coast of the United States, and in Virginia's Tidewater area particularly, persuaded the company to shift these operations. The company has been in operation in temporary facilities in the Tidewater area since 1977. Lips-Doran will continue to operate their propeller facilities in Oakland, Calif., and Portland, Ore.

#### Corpus Christi Marine Names Herschel Chase



Herschel Chase

The appointment of Herschel E. Chase as marine sales representative for Corpus Christi Marine Services Company in Houston, Texas, was announced by Waylon Boles, vice president.

Mr. Chase will be responsible for sales of marine fuels in the Houston area. Corpus Christi Marine sells and delivers marine fuel on the Texas Gulf Coast through the use of its fleet of 13 barges and six towboats.

Mr. Chase joins CCMS after spending 30 years with Exxon Company, U.S.A. He is a member of The Society of Naval Architects and Marine Engineers, and the Society of Port Engineers.

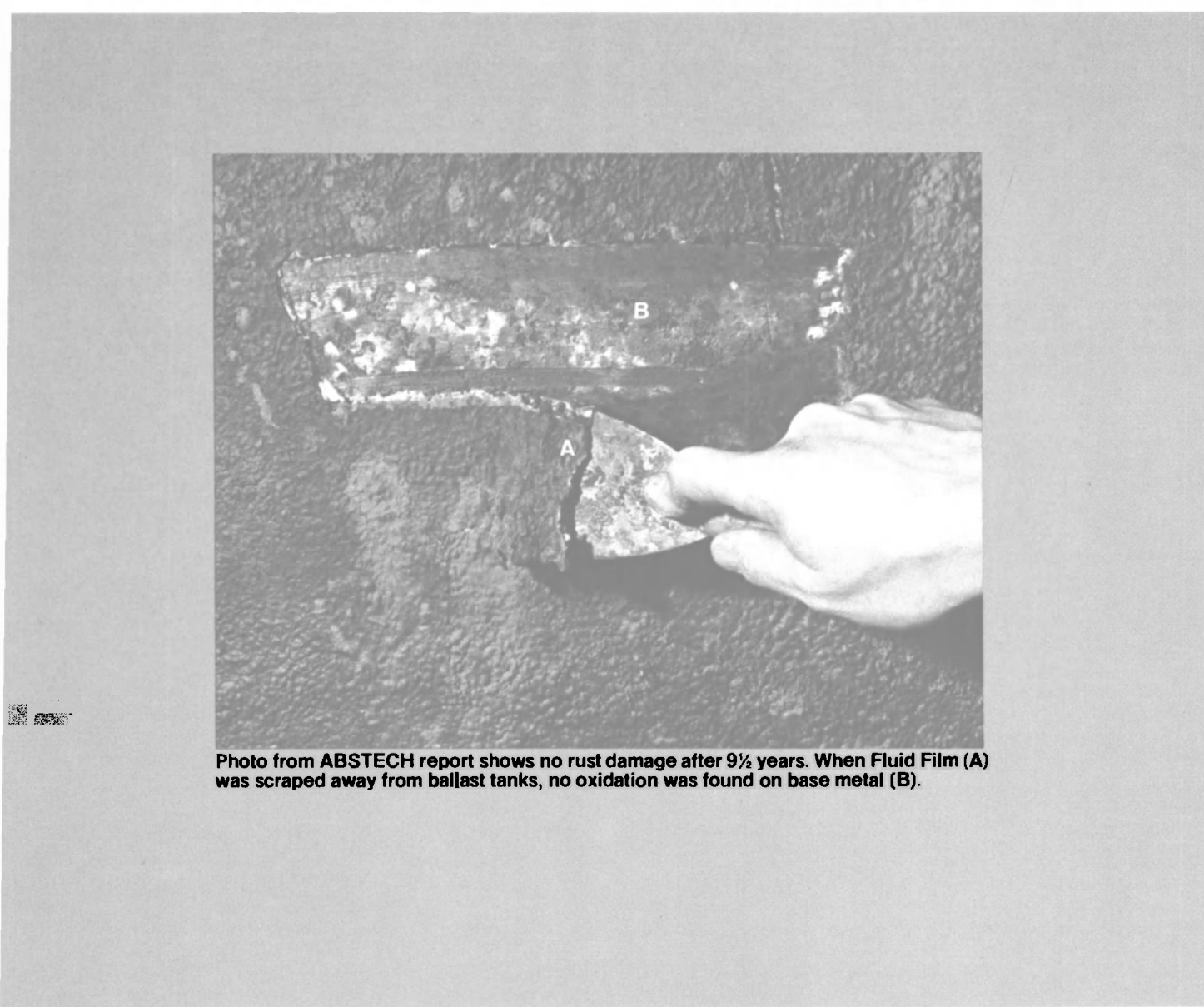


Photo from ABSTECH report shows no rust damage after 9½ years. When Fluid Film (A) was scraped away from ballast tanks, no oxidation was found on base metal (B).

| Fluid Film Gel B   | Exotic Coatings                      |
|--|--------------------------------------|
| None to minimum surface preparation.                           | Sandblasting required                |
| Can be applied to damp surface                                 | Dry surface required                 |
| Needs only one coat  | Two to three coats required          |
| No curing time needed.   | 48 hours curing time necessary.      |
| Over 400°F flash point during application.                     | 110°F flash point during application |
| Three-year no-rust guarantee                                   | No other guarantees known            |
| Chart comparison based on in-service ballast tank applications |                                      |

\*This guarantee does not cover applications where our specifications were not followed or to in-service vessels where Fluid Film may have been applied over loose, non-adhering rust/scale. It also does not cover any area where the material was removed.

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**East Coast Division** Rouse Tower, Suite 4000, 6060 Jefferson Avenue, Newport News, Virginia 23605, Tel: (804) 380-8220 • Mr. H. Warren

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**Highgate & Job Ltd.**, 35 Regent Road, Liverpool, England L5 9TB, Telex: 629264 • Mr. M. C. Cameron

**Federal Republic of Germany** Alfred Hocht, Postfach 11 15 26, Hopfenmarkt 33, 20300 Hamburg 11, Federal Republic of Germany, Telex: 211088, Tel: (040) 362521 • Mr. B. Schultz

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**Rust is the cancer. Fluid Film is the answer.**



EUREKA CHEMICAL COMPANY



**Dinko's Marine Service  
Orders Supply Vessel  
From Mississippi Marine**

Mississippi Marine Towboat Corporation, a Greenville, Miss.-based company, designer/builder of motor vessels and barges, has been commissioned by Dinko's Marine Service, Inc. of Aransas Pass, Texas, to build a second passenger/supply vessel for that firm.

D. John Nichols, president of Mississippi Marine, said the boat, now under construction and scheduled for delivery to Dinko's in March 1980, is as yet unassigned and will be available for contract work by the Dinko organization.

The 33-passenger vessel will have a deck cargo capacity of approximately 35 LT. Specifications call for Dinko's craft to be 100 feet by 24 feet by 11 feet 8 inches, with an operating draft of 8 feet. It will be powered by a pair of Detroit Diesel 16V-71 engines coupled to Twin Disc MG-527 gears.

Other mechanical specifications include a pair of Detroit Diesel 4-71-50KW nonparallel operation generators, a Sperry 8T autopilot and an Orbitrol dual station steering system.

For passenger and crew comfort, the vessel will be equipped with a central unit water-cooled air-conditioning system.

Mississippi Marine, located on Lake Ferguson at Greenville, offers towboat design and construction from initial design phase through completion. In addition, the firm also builds barges and offshore vessels. It offers several stock designs of barges, towboats, and offshore boats, custom out-fitted where necessary to fit individual companies' requirements.

Mississippi Marine also operates dual drydock facilities for repairs and vessel renovations on inland waterways. The firm maintains its own naval architect on staff to provide complete design services.

For further information, contact D. John Nichols, Mississippi Marine Towboat Corporation, P.O. Box 539, Harbor Front Industrial Park, Greenville, Miss. 38701, phone (601) 332-5457.

**New Major Shipyard To  
Be Formed In Hong Kong**

A new major shipyard, Euroasia, is to be formed in Hong Kong between the C.Y. Tung Group, Chung Wah and A & P Appledore International Ltd. on Tsing Yi Island.

Euroasia will incorporate the ship repair business of the Overseas Shipyard Corporation, which has been successfully docking vessels within the C.Y. Tung Group for some years.

Chung Wah has recently emerged as one of Southeast Asia's leading shipbuilders, and

has recently constructed one of the world's largest tugs for United Towing (18,000 bhp, with a bollard pull of 160 tons) and a fleet of nine patrol boats for the Hong Kong Government.

A & P Appledore, one of the world's foremost shipyard consultants and operating groups, has been substantially involved in the startup of the Hyundai and Daewoo Yards in Korea, as well as the Promet Yard in Singapore.

APA are also managers of the successful Neorion Ship Repair Yard in Greece.

The Euroasia Yard will begin ship repair operations in April of this year. The yard will be able to drydock vessels up to 80,000 dwt. The yard will also undertake new construction of ships of smaller sizes and specialized craft such as container feeder ships, patrol boats, supply boats, fireboats, fishing vessels, etc., cater-

ing to the growing demand in Southeast Asia. Vessels up to 16,000 dwt will be built. The yard has a steel capacity of 18,000 tons per year. The complex will also be involved in other marine-oriented industrial activities, including offshore construction as well as structural steel and pipe manufacture.

Total cost of the project will be in the vicinity of HKD240 million.

**if you  
want to...**

**carry it...**

Wiley Manufacturing builds a wide range of barges and scows, including deck barges, tank barges, dump barges and crane barges. Standard and custom-designed models are available to conform with ABS, USCG or other regulations.

**dredge it...**

Wiley makes clamshell dredges in several sizes, which can be fitted out completely, with machinery, operating and personnel houses, spuds and deck equipment.

**tow it...**

When it comes to quality shipbuilding at an economical cost, Wiley is a specialist. We have made many commercial self-propelled vessels—tugs and towboats, tankers, passenger and fishing vessels.

**sink it...**

Many companies have come to rely on Wiley Manufacturing for those special steel fabrications that are made to be sunk—like tunnel tubes and pier forms. Wiley's convenient riverside location makes it especially easy to inspect and deliver massive fabrications such as these.

**float it...**

Wiley fabricates a wide variety of ship parts for the nation's leading shipbuilders. We specialize in the construction of ship mid-bodies, used in the conversion of existing cargo ships, container ships, bulk carriers and tankers.

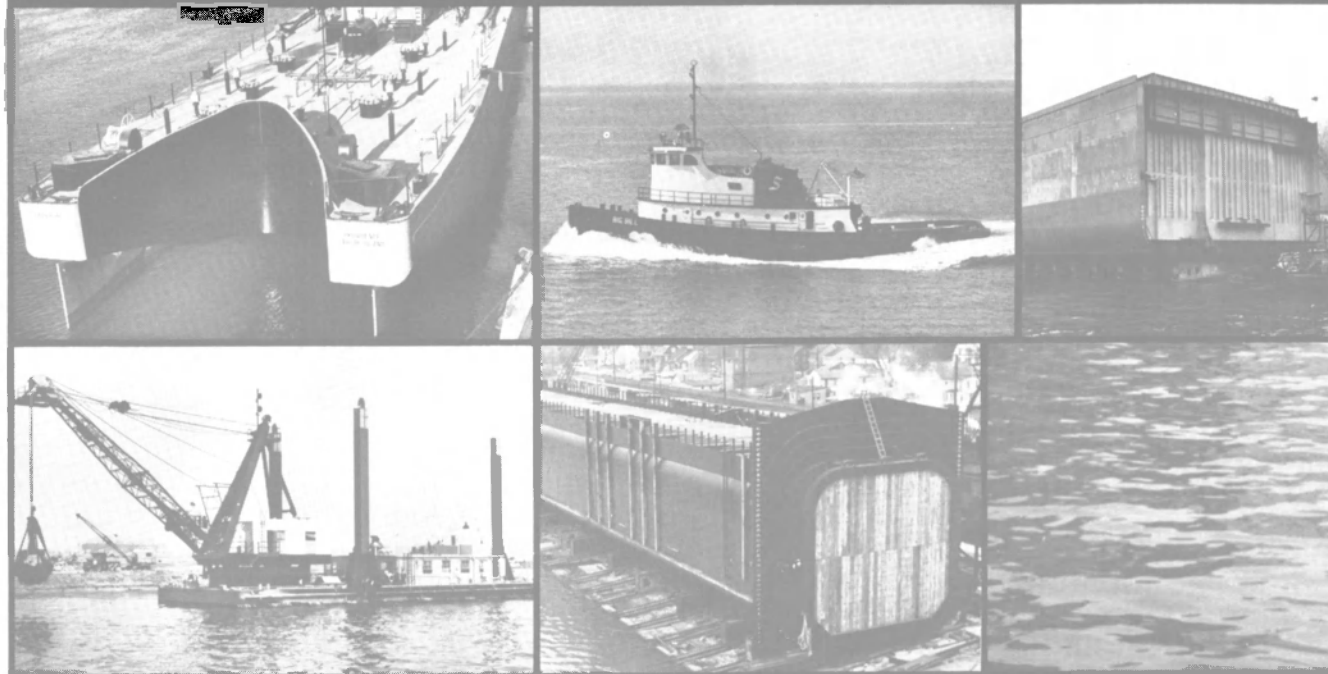
**do anything**

Wiley's marine capabilities are broad. So if we don't already make exactly what you want, we have the ability to custom-build it to your specifications. The next time you have a marine fabrication problem—give it to Wiley Manufacturing.

WE'RE THE PEOPLE TO DO IT.

**WILEY** MFG

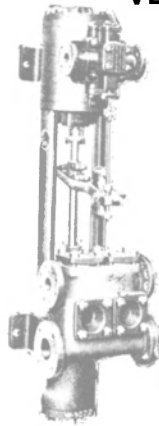
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## PUMPS

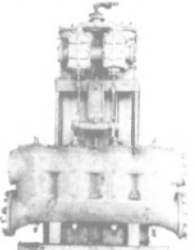
### UNUSED WORthington VERTICAL SIMPLEX PUMPS



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

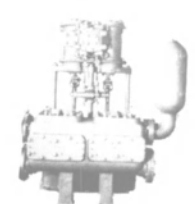
**\$1195**

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



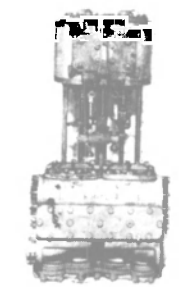
1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction — 10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'11½" — depth 3'9½". Wt. approx. 10,000 lbs.

### 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



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

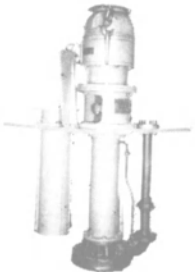
**PRACTICALLY  
NEW**

### 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 SHP 440/3/60 1725 RPM motor. Repair parts for motor & pump included.

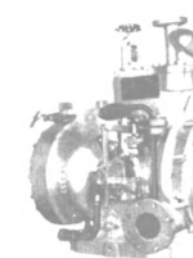
**\$1450 EACH**

### 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—NSPM 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

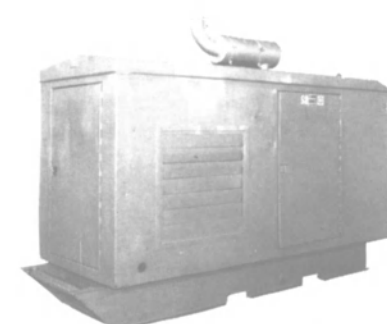
Rated 4000 lbs. @ 80 FPM

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

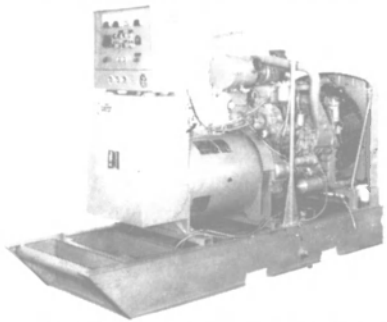


Motor: 13.5 HP — 440/3/60. Designed for ½" 6x37 wire rope. Divided drum with 2 spooling areas. Drum 8½ wide—4" flange—10" diameter. Complete with level wind. Also capable of manual operation by crank in case of motor failure. Hand brake & speed limiting brake are provided for holding & lowering boat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

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



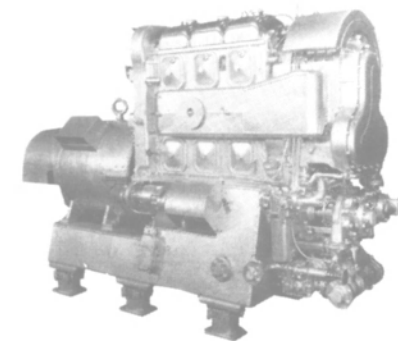
UNIT WITH CABINET IN PLACE



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. Dripproof—open—self-ventilated. (Class "A" insulation stator—Class "B" insulation on field). EXCITATION: 2 KW DC unit—9' 1¾" long—37" wide.

### FOR C4-SA1-VESSELS

"General" Class — like-new condition

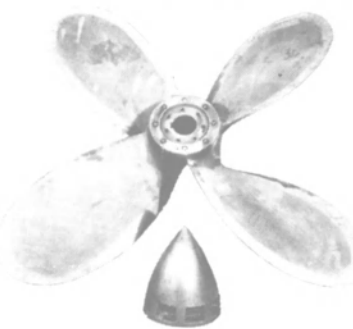
### 2 MAIN CF2V CONDENSATE PUMPS

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 4¾". 14½" taper equal to 1" foot on diameter. U.S. Navy reconditioned. Average weight 1760 lbs.

### PLEASE NOTE:

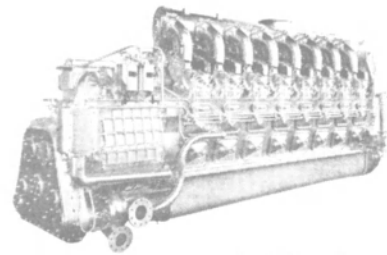
Our Marine Dept. & Warehouse is no  
250 Scott St. at McHenry — Baltimore



THE BOSTON  
313 E. BALTIMORE

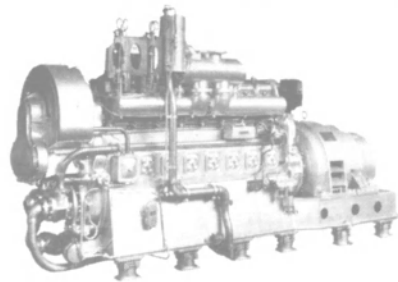
Marine V  
CABLE: BOSIRON—BALTIMORE

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



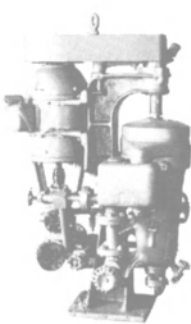
Limited supply remaining  
Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

**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-85-34-5-238M-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.

**\$1695 EACH**

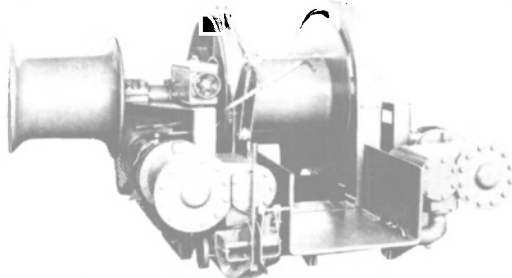
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**STEAM MOORING WINCHES  
12" x 14" — AUTOMATIC TENSIONING  
with foot brake & declutchable gypsy head  
20,000 LBS @ 100 FPM—FIRST LAYER**



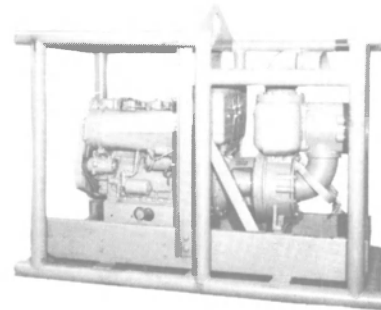
**ALSO HANDLES 16,000 LBS @ 150 FPM  
OR 50,000 LBS @ 8 FPM**

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**

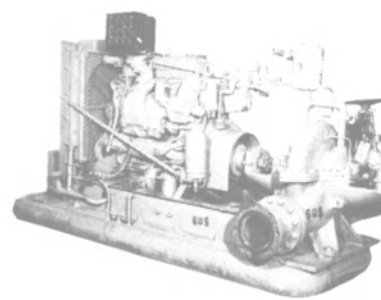
ALL UNITS CAN BE DEMONSTRATED RUNNING

**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**



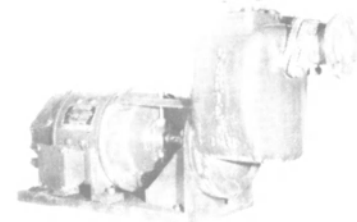
Driven by GM 3-71 diesel engine. PUMP: 1000 GPM @ 150 PSI/1500 GPM @ 100 PSI — 1750/2000 RPM. Maximum 175 PSI. Self-contained fuel tank in base. Automatic self-priming optional.

**IMMEDIATE DELIVERY**

**2 3 / 4" STUD  
LINK CHAIN**

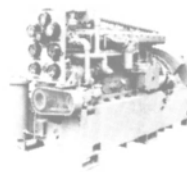
10 Shots — with connecting links. ABS certificate. Practically New

**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 — 5½"x7" — 150 HP — 30 volt electric starting. Reconditioned to A.B.S. Dry wt 10,000 lbs — DAL 124" — 65-11/16" high — 42" wide. Ht. necessary to pull piston 65". Fuel consumption 0.620 lbs/hr

**T-2  
EQUIPMENT**

**Selected Items Listed**

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

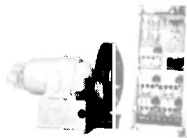
10 Stage — 435# — 720°T.T.

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

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T-2 TURBO GENS.**

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- Ⓛ 400 KW 450/3/60 1200 A.C. 6-POLE REVOLVING FIELDS
- D.C. EXCITERS — 75KW/55KW
- AMPLIDYNE GENERATORS — NEW STYLE — LY-148

**Shell Offers Literature  
On New Diesel Oils**

Literature is now available describing the performance characteristics of the new Argina® T Oils 30 and 40 introduced by Shell Oil Company to meet the more severe performance requirements of newly developed medium-speed trunk-type diesel engines used in deep-draft marine service.

Diesels of this type are finding wide application in marine service

and are designed to accept more viscous fuels of higher sulfur content.

Improved engine cooling incorporated in these units has the effect of lowering temperatures of cylinder walls and in ring belt areas under low-power operation. This allows the formation of more acidic condensation.

One feature of Argina T Oils is a high base number (TBN-E 30) to neutralize acids caused by the use of high sulfur fuels.

The new oils are also suitable for many main engine reduction gears. In this application, Shell recommends Argina T Oils for complete system fill. It is not recommended that these oils be added to conventional gear oils presently in the system. Available worldwide, the new and improved Argina T Oils replace Argina Oils 30 and 40.

For copies of the Argina Oils 30 and 40 literature, write William C. Merritt, Manager Com-

mercial Communications, Shell Oil Company, One Shell Plaza, Houston, Texas 77001.

**Kevin O'Donnell Joins  
Marine Systems Operation  
At Magnavox**

Kevin O'Donnell has been appointed product manager for Commercial Marine Navigation products in the Marine Systems Operation, Magnavox Government and Industrial Electronics Company, Torrance, Calif.



Kevin O'Donnell

In his new position, Mr. O'Donnell has marketing responsibilities for Satellite Navigation products in fishing, commercial marine and pleasure craft markets. He reports directly to Michael Etherington, senior product manager of Marine Products for Magnavox.

Prior to joining Magnavox, Mr. O'Donnell was contracts representative for Raytheon Technical and Administrative Services, Ltd., Paris, France, and was responsible for overall technical and contractual interface with European governments and subcontractors.

Mr. O'Donnell is a member of Los Angeles World Affairs Council, and holds a Bachelor of Arts degree from Boston College, as well as a master's degree in international management.



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Names J. Stanley Co.**

The J. Stanley Co. is now a Supply Center for BUTTERWORTH® portable tank cleaning machines and BUTTERWORTH tank cleaning hose and accessories.

The J. Stanley Co. serves the maritime industry throughout the U.S.A. and Europe. In business since 1910, the J. Stanley Co. has become a major supplier of deck, cabin and engine supplies, as well as provisions, specializing in service to tankers, freighters, container ships, and passenger ships.

The J. Stanley Co. is located at Lower Con Hook Road, P.O. Box 24, Bayonne, N.J. 07002. Telephone: (201) 339-1432, Telex: 12-6347 Stanbayco.

Butterworth Systems is an international company which manufactures equipment for tank cleaning, underwater hull cleaning, and oil/water separation. Butterworth Systems is located at 224 Park Avenue, Box 352, Florham Park, N.J. 07932. Telephone: (201) 765-1546.



#### Peruvian Navy Places Order For Six Marland Sanitation System Units

The Navy of Peru has ordered Marland Sani-Systems™ for a new retrofitting program. The order covers six units specially designed for the respective configurations of the three vessels in the project.

Marland manufactures physical/chemical sewage treatment systems for vessels of all sizes. Certified by the USCG, Marland's Type II Marine Sanitation Systems are also certified by IMCO. Marland Systems have already been installed aboard British Royal Navy (MOD) ships.

The units to be installed in the Peruvian vessels are based on the Sani-System® 630A Conversion System which offers up to 5,000 gallon-per-day treatment capacity when interfaced with shipboard holding tanks.

For further information and complete literature, write to **Bob Daniels**, VP, Marland Environmental Systems Inc., North Main Street, Walworth, Wis. 53184.

#### Halter Marine, Inc. Sets Production Record —228 Deliveries In 1979

Halter Marine, Inc., New Orleans, La., set another annual production record in 1979 by delivering 228 vessels.

Six of the company's shipyards delivered 75 large commercial vessels, while Halter's three consumer product yards delivered 153 vessels. The 10th Halter facility furnished pre-cut steel and aluminum for commercial vessels.

Included in the total were 52 supply boats, up 10 from 1978's record pace, further strengthening Halter's position as one of the world's largest builders of support ships for the offshore oil and gas industry.

Also in the tally are nine crew-boats, four lift boats, two tugs, two fishing vessels, and one each survey boat, ferry, VIP launch, patrol boat, oil retriever, and a surface-effect hydrographic vessel.

Halter's consumer products shipyards delivered 105 Cigarette racing boats, 41 Coastal Fisherman Lafitte skiffs, six Easterly 38 sailboats, and one Halter 63 + 2 yacht, sportfisherman.

**Floyd J. Naquin**, president of Halter Marine, said the continuing growth and productivity of the company can be attributed to three programs — product diversification, a multimillion-dollar capital improvement and expansion program, and HIP, the Halter Incentive Program.

Halter's diversification efforts in 1979 are reflected in the signing of contracts for seven large catamaran (CATUGS) tugs totaling nearly \$140 million, the delivery of a 162-foot multipur-

pose fishing vessel for Alaskan fisheries, and delivery of the first Bell-Halter surface effect ship to the U.S. Army Corps of Engineers.

Systems and equipment at all yards were upgraded with major programs implemented at Chickasaw, Ala., and at the New Orleans Industrial Canal facility.

Chickasaw added two 300-ton crawler cranes, a 56,000-square-

foot fabrication building with overhead cranes, three CATUG erection plattens, refurbished a 40,000-square-foot warehouse, and began construction of a large dry-dock.

Another numerically controlled plasma arc cutting machine was installed at the Industrial Canal facility where a new 30,000-square-foot fabrication building was erected.

The HIP program, which completed its first full year's operation, increased productivity at all yards. It rewards employees with quarterly cash bonuses for saving time and materials, while maintaining or improving product quality.

Halter Marine owns and operates six shipyards in Louisiana, two in Mississippi, one in Alabama and one in Florida.

## 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.

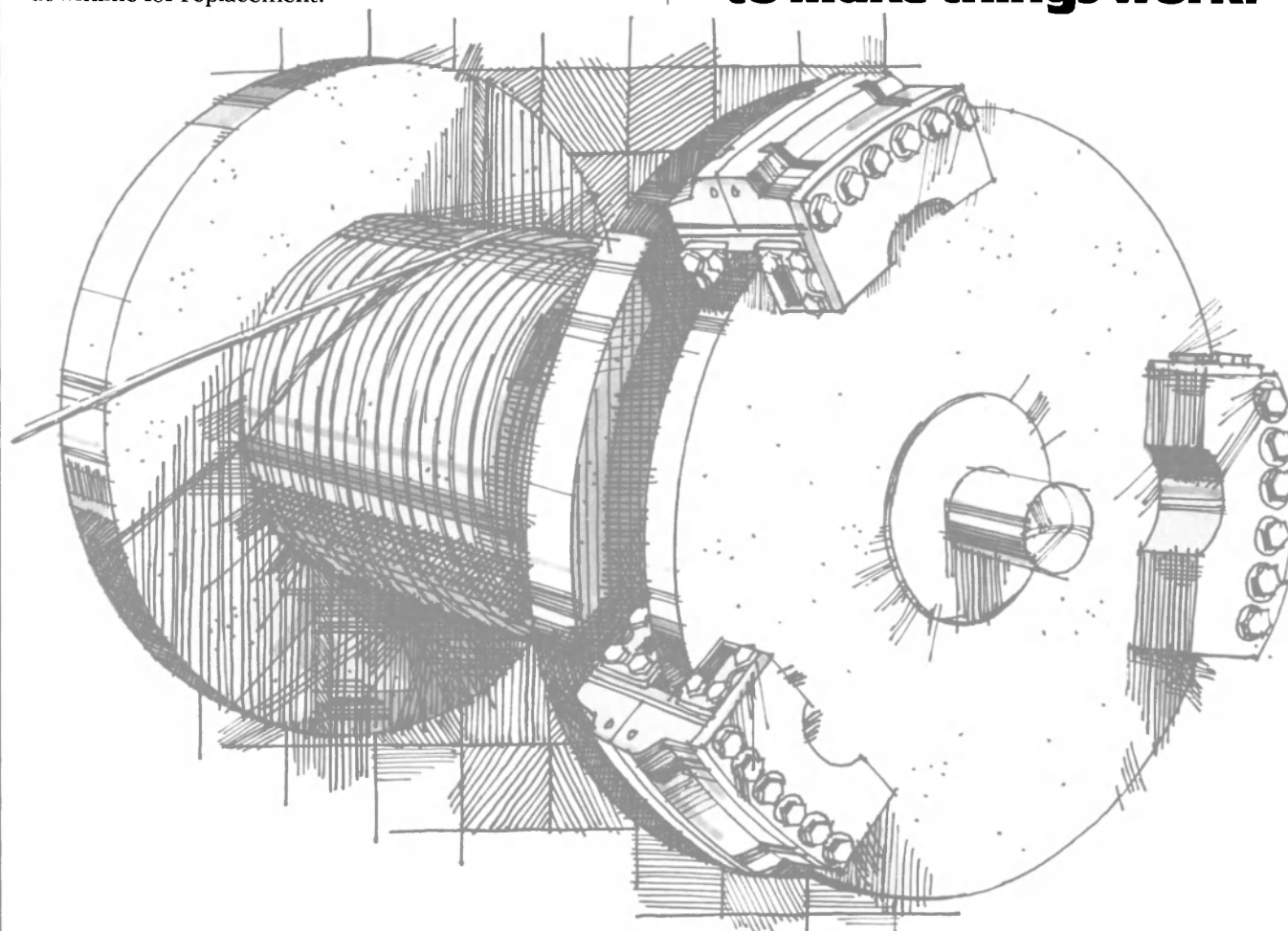
Disc brakes offer many advantages over band and shoe brakes. They are smaller. They can perform in both static and dynamic situations. Their non-self-energizing characteristic assures smooth, controlled payout and superior brake control. The large exposed disc surface dissipates more energy and heat.

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.

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to make things work.**



**GOODYEAR**  
INDUSTRIAL BRAKES

**McAllister Acquires Baker-Whiteley—  
Now Offers Baltimore-Based Marine Services**



Shown at the signing in Baltimore, Md., the principals of the respective companies are, left to right: Thomas J. Murphy Jr., president of Baker-Whiteley; Brian A. McAllister; William M. Kallop; Anthony J. McAllister Jr., president of McAllister Brothers, Inc.; and James P. McAllister III.

McAllister Brothers, Inc. recently announced the merger into its organization of Baker-Whiteley Towing Co., one of the two major tug operators in the Port of Baltimore. The announcement was made by Anthony J. McAllister Jr., president of the New York, N.Y.-based towing and transportation company, which also serves the Ports of New York, Norfolk, Philadelphia, and San Juan.

This merger adds complete coverage for McAllister towing services throughout the important Chesapeake Bay area. It brings to a total of over 100 the number of tugs and barges which McAllister operates in its marine towing and transportation services along the U.S. East Coast, in the Caribbean, Pacific, and the Arabian Gulf. Both McAllister and Baker-Whiteley each have over 100 years of marine expertise, and modern vessels and experienced crews, he said.

According to the announcement, Baker-Whiteley will continue to operate as a subsidiary of McAllister under the direction of Capt. Thomas J. Murphy Jr. Operating from its berthing facilities at Recreation Pier, close to Baltimore's Inner Harbor, Baker-

Whiteley operates six tugs which can handle the largest vessels that call on the port. The company has 55 employees.

Baker-Whiteley has a rich tradition in the maritime industry, starting out in 1878 selling and transporting coal to steamships, tugs, lighters and shore facilities. As the demand for tug services increased, the company expanded its fleet, becoming almost wholly engaged in supplying tug power assistance to many of the largest American and foreign steamships.

Captain Murphy, a graduate of the U.S. Merchant Marine Academy, joined Ramsey, Scarlett & Co., after a successful sea career. He joined Baker-Whiteley in 1971, and became its seventh president in 1976.

The McAllister name has been associated with marine transportation in the Port of New York for over 115 years, through four generations of the McAllister family. Current ownership of the company includes a group of four McAllisters, brothers and cousins—great-grandsons of the founder—all of whom have grown up close to the marine transportation industry.

**Ogden Unit Orders  
Two New Oil Tankers**

Ogden Corporation announced recently that its subsidiary, Ogden Marine, Inc. (OMI), has agreed to purchase two new medium-size oil tankers from Sumitoma Heavy Industries, Ltd. The vessels will be in the range of 60,000 to 80,000 deadweight tons with an aggregate price of between \$45,000,000 and \$55,000,000, the final size and price to be determined by OMI by January 1980. Construction will begin mid-

1980, and delivery is scheduled for the third quarter of 1981.

The ships will utilize low-fuel consumption diesel engines and a wide-beam, shallow-draft design, meeting all U.S. and international safety and environmental requirements.

With the delivery of these two vessels as well as the 1981 delivery of the two U.S.-flag chemical product carriers being built at Avondale Shipyards for OMI, the Ogden fleet will consist of 33 vessels having a total of 1,887,000 deadweight tons.

**SNAME Philadelphia Hears Paper  
On Hopper Dredge Design**



Attending the December meeting, past chairmen of the Philadelphia Section of SNAME are, left to right: (standing) G.H. Boyd, W. Smedley, F.L. Pavlik, J.A. Hill, M.E. Willis, A.C. Brown, G.A. Johnson, V. Olson, and G.C. Swensson; (seated) K.C. Thornton, C. Zeien, S.F. Spencer, K. Gyswyt, S.S. Morse, B.B. Cook, H.T. McVey, and F.W. Beltz Jr.

The December '79 meeting of the Philadelphia Section of The Society of Naval Architects and Marine Engineers was held at the Engineer's Club in Philadelphia, Pa., and was attended by 77 members and guests.

The Section's past chairmen were honored, with 16 in attendance for the presentation of a paper entitled "New Approaches to the Design of Hopper Dredges," authored by Ernest P. Fortino, retired Chief of the Marine Design Division, Philadelphia District of the U.S. Army Corps of Engineers.

Coordinator Kent C. Thornton introduced William R. Murden, U.S. Army Corps of Engineers, Washington, D.C., who presented the paper for the author, now recuperating from illness.

The paper concentrates on features considered to be new and different in the design of the three new hopper dredges. A principal objective was to reduce operating costs, and was attained by introducing extensive automa-

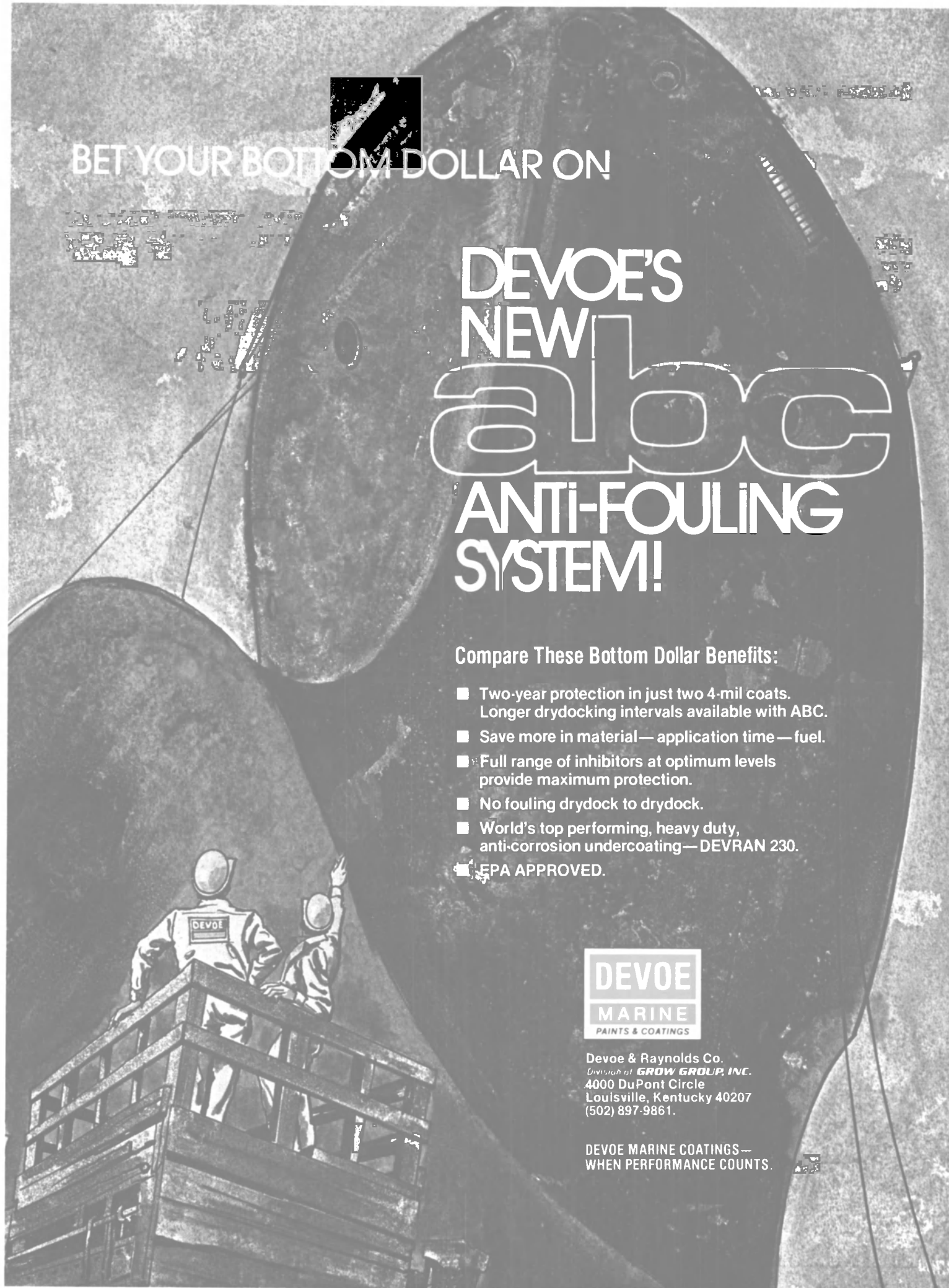
tion and adopting new operating philosophies, thereby requiring fewer operating personnel. This in turn permitted location of the entire superstructure aft in lieu of conventional practice of forward and aft. Operating techniques are also described, as well as the Corps pioneering history in the evolution of hopper dredge design.

The general interest in this subject was evident by the seven discussions presented, including M.E. Willis, Sun Ship; H.P. McManus, Tech. Amal. Dredge Design, Inc.; G.A. Johnson, consultant; L. Marella, American Dredge; G.R. Knight, J.J. McMullen; W.A. Cleary, U.S. Coast Guard, and F.L. Pavlik, Keystone Shipbuilding.

Section chairman K. Gyswyt presented a pin to past chairman G.C. Swensson, and received a report on the activities of the National Steering Committee from Mr. Pavlik, Section representative, to round-out an interesting meeting.



Shown at the Philadelphia Section meeting are, left to right: (standing) H.P. McManus, M.E. Willis, G.A. Johnson, and G.R. Knight, discussers; K.C. Thornton, coordinator; G.C. Swensson, past chairman; and F.L. Pavlik, discussor; (seated) J.J. Hibbits, vice chairman; K. Gyswyt, Section chairman; and W.R. Murden, Paper presenter.



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rosion Science and Technology, in association with The Norwegian Society of Chartered Engineers, The Norwegian Petroleum Society, and The U.K. Department of Industry, are now available in a soft cover booklet priced at £25, available from Marine Management (Holdings) Limited, Activities Division, 76 Mark Lane, London EC3R 7JN, England.

The names of authors and the titles of the papers they presented are as follows: Dr. John

S. Smart, Amaco International Oil Company, "Comments and Criticisms on the Nace Standard RP-01-76 for Offshore Structures"; A.N. McKelvie, B.Sc., FICorrT, FTSC, Paint Research Association, "Water/Abrasive Blasting for Preparation of Surfaces before Painting"; J.D. Tighe, J.D. & S. Tighe, "A Comparison of Conventional and Airless Abrasive Blasting Techniques"; D.J.H. Odds, CEng, MIMarE, F.A. Hughes & Co. Ltd.,

"Big Clean up in the North Sea"; C.F. Britton, LRIC, MICorrT, FInst., Pet., Rohrback Instructions Ltd., "Monitoring in Internal Corrosion in Offshore Installations"; K.F. Baxter, International Paints Ltd., "High Performance Coating of the Offshore Industry"; D. Bayliss and F.G. Dunkley, BIE, Anti-Corrosion Ltd., "Some Aspects of Offshore Corrosion Protection"; G. Bailey, M.Sc., Ph.D., CChem, MRIC, Corrosion and Protection Centre Industrial Services, The University of Manchester Institute of Science and Technology; D.H. Deacon MICorrT, BIE, Anti-Corrosion Ltd.; W.R. King, Continental Oil Co., Natural Gas Division, "Results of Offshore Tests of Selected Coating Systems"; Derek N. Evans, Ceng., FISTructE, AM-InstW, FFB, Modern Metal Treatment Limited, "How Not to Employ a Painting Contractor"; T.D. Winslow and J.F. Dubois, Bredero Price (U.K.) Limited, "Epoxy Powder Coating"; Rupert F. Strobel, 3M Company, "Fusion Bonded Epoxy Coatings for Pipeline Corrosion Protection"; S. Eliassen and G. Valland, Det norske Veritas, "Design Rules for Offshore Cathodic Protection Systems"; R. Strommen, The Corrosion Centre SINTEF, "Current and Potential Distribution on Cathodically Protected Submarine Pipelines"; Hans Arup, Curt Christensen, Jorgen Moller, Korrosionscentralen ATV, Denmark, "Corrosion and Cathodic Protection in Arctic Water"; and F. Jensen, A/S Skarpenord, "Testing of Sacrificial Anodes — Necessity and Experience."

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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.

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- 9 piers capable of berthing ships to 1200 feet long.
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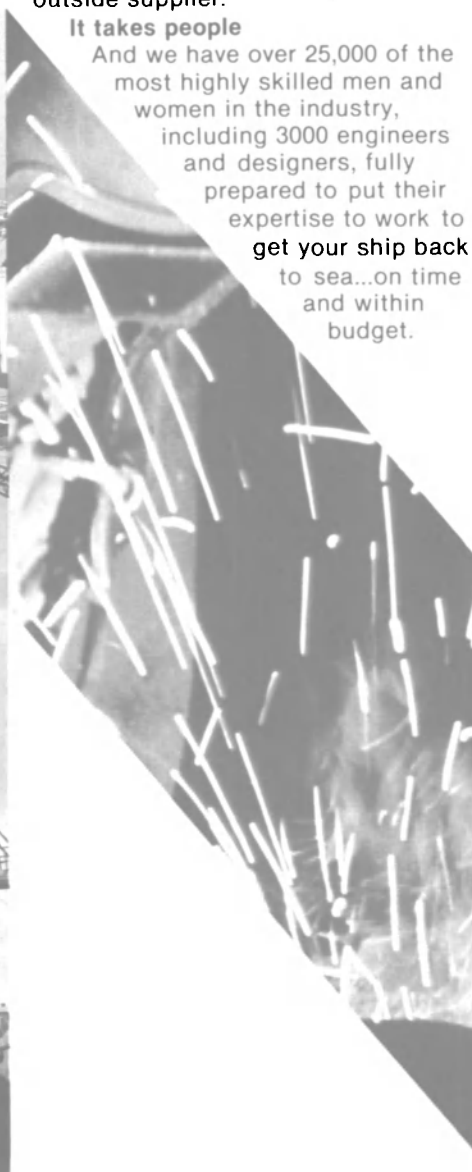
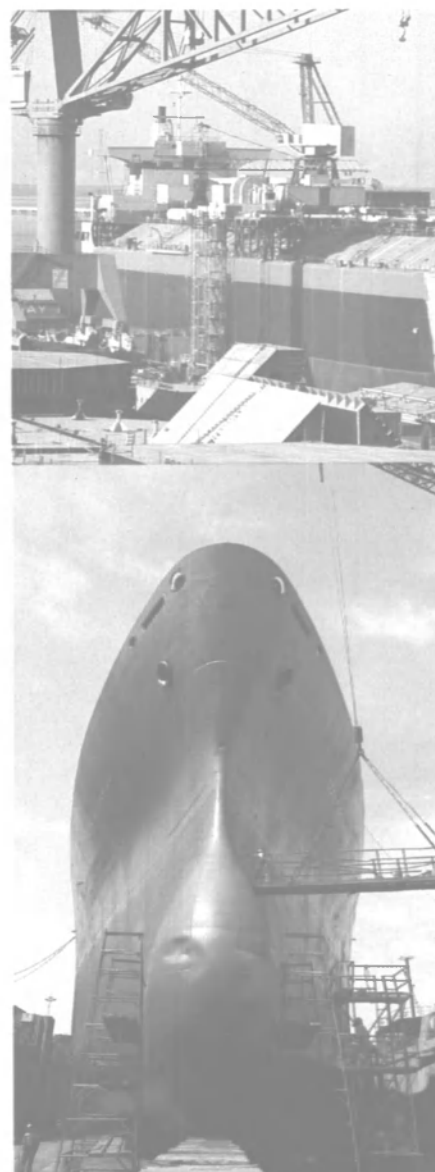
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**Matson Executives  
Named To New Posts**

Four executives of Matson Navigation Company assumed new positions January 1, 1980, in line with Matson's policy of expanding the companywide experience of its top officers, James P. Gray, president, announced. The changes are:

**Michael S. Wasacz**, senior vice president, freight division, to president of Matson Terminals, Inc. Mr. Wasacz will also continue as a Matson Navigation Company senior vice president.

**Arthur J. Haskell**, senior vice president, engineering and marine operations, to senior vice president, area manager, northern California, in Oakland.

**John C. Couch**, president, Matson Terminals, Inc., to Matson Navigation Company senior vice president, engineering and marine operations. Mr. Couch will also continue to direct installation of Matson's overhead container handling system at Terminal Island in Los Angeles Harbor until its completion next summer.

**C. Bradley Mulholland**, vice president, area manager, northern California, to vice president, freight division, at San Francisco headquarters.

**R.W. Scheffer Will  
Become President  
Of Smit International**

The Group managing directors of Smit International have announced that P.E.E. Kleyn van Willigen, president of the Group, will retire on June 1, 1980, when he will reach retirement age.

R.W. Scheffer, Group managing director, will succeed Mr. van Willigen as president. B.J. Amesz will remain deputy.

The company intends to appoint J.W.H. Weissink, presently managing director of Smit International's Overseas Offices, a member of Group Management, as of April 1, 1980.

Smit has also decided to discontinue the divisional structure of the firm, introduced at the time of the merger between Smit International, Smit-Lloyd and Smit-Spilo in 1976.

**Luetge Named Houston  
District Credit Manager  
By GE Credit Corp.**

General Electric Credit Corporation (GECC) has named John E. Luetge credit manager of its Industrial Equipment Financing district office in Houston, Texas.

A native of Houston, Mr. Luetge will be responsible for all internal operations, including approval of the individual investments, as well as collection activities covering the entire Southwestern region. His previous assignment was credit specialist in Dallas.

The Houston district office provides financing for construction equipment, machine tools and other production machinery, trucks and workboats. Number one in the field, GECC currently has more than \$1.2 billion in receivables.

Mr. Luetge was graduated from the University of Houston in 1972 with a BBA degree.

**Davie Signs \$C35-Million  
Petrobras Rig Contract**

Davie Shipbuilding Limited of Lauzon, Quebec, Canada, announced recently that it has signed a \$35-million Canadian-dollar contract with Petrobras (Brazil's national petroleum company) for the construction of a 300-foot marine jackup drilling platform. The contract, signed in Rio de Janeiro, follows by four days contracts signed in Houston, Texas, between Global Marine and Davie for two jackup rigs worth a total of \$68-million Canadian dollars.

The Petrobras contract is significant for Davie in that it is the largest model rig contracted by Davie, and signifies a broadening of the geographical market to South America for Davie's successful rig construction program. All previous rigs built by or on

contract with Davie are with U.S.-based corporations.

The Brazilian contract extends Davie's rig orderbook to the end of November 1981, and provides a solid base upon which to build future ship construction, repair, and industrial contracts. Davie's next open delivery date for jack-up rigs is now May of 1982, and Davie is confident of continued success in the rig market given continuance of current Canadian government support programs.

Davie, which last year delivered two 250-foot jackup drilling rigs, has contracts for five rigs to be delivered through 1980 and 1981. These include three rigs for Global Marine Drilling Company, scheduled for delivery in September '80, May '81, and June '81; a delivery to Salen Offshore in May '80, and the Petrobras contract for November '81. The total value of the contracts is worth approximately \$150 million Canadian.

The delivery of three rigs in 1981 should have the effect of increasing manpower requirements of 300 workers by midsummer 1980.

The contract announced is for a model 116-C (cantilevered) marine jackup drilling rig of Marathon LeTourneau design. The 116-C can work in water depths of 300 feet and withstand wind velocities of up to 125 mph. The platform has facilities for 84 persons.

Navidyne's new ESZ-7000 looks more like a satellite navigator than a Loran C.

With good reason. Much of the same technology that made Navidyne's satellite navigator the world's best went into our new Loran C Navigator. So no wonder our Loran C doesn't look like any other. It's more advanced than any other.

**IT LOOKS TOO SIMPLE  
TO BE SO SOPHISTICATED.**

The ESZ-7000 is the soul of simplicity because at its heart is a very sophisticated microcomputer. One that puts on our Loran's screen everything a navigator could want to know.

The date, precise time, present latitude and longitude, course and speed made good, and



Simple initialization: Turn on...enter GRI...Period.

course and distance to any of nine preselected waypoints for both great circle and rhumb line routes. Also the total distance run and estimated time of arrival. Even left-right steering commands for maintaining a precise predetermined course.

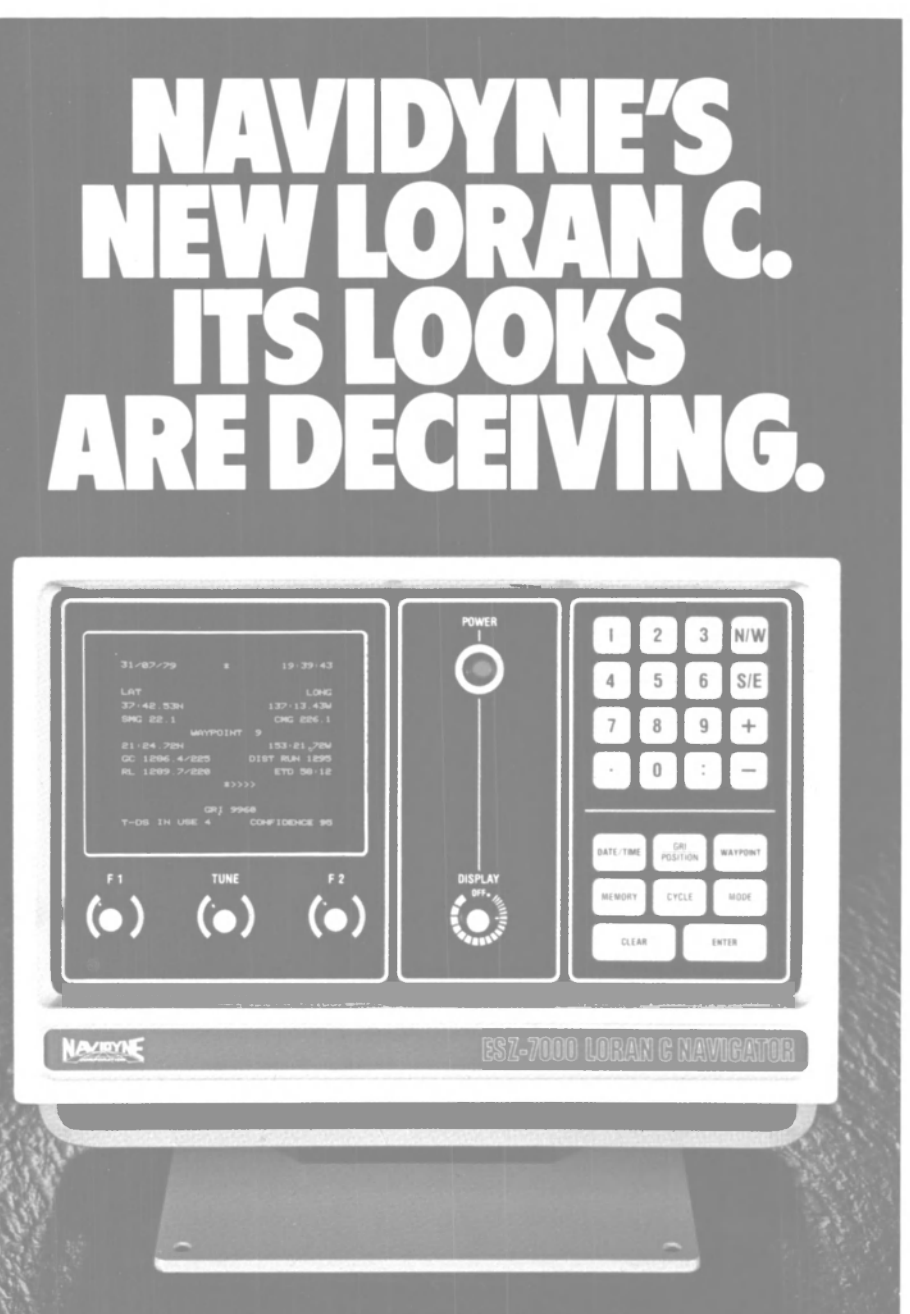
All this. All displayed at once. Eliminating switching and look-up codes—and a large measure of human error.

**IT LOOKS TOO BEAUTIFUL  
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Our design meets all U.S. Coast Guard requirements, of course. And much more. Sealed membrane switches, instead of pushbuttons, keep salt and moisture out. The number of components has been reduced by advances in electronics.

And factory burn-in reduces chance of failure to a minimum. Result: A Loran C receiver so rugged and reliable that we back it with a full three-year warranty.

And if you ever need service, count



on world-wide Navidyne shipboard service in nearly every major port.

**IT LOOKS TOO EXPENSIVE  
TO BE SO AFFORDABLE.**

By now, you probably think this is the most expensive Loran C on the market.

Not so. Compare its features to units costing far more—and there's no comparison. The ESZ-7000 sets a whole new standard.

**TWO WAYS OF LOOKING  
AT THE ESZ-7000.**

If warnings indicate possible tracking problems, you can easily change from the fully automatic latitude/longitude-reading screen to a

display of up to five time differences (TDs) as shown here. With all pertinent information about the condition of each signal.

A simplified version of the ESZ-7000 is also available which displays Loran C time differences only. But even it offers more information at a glance than any other Loran C.

In fact, any way you look at our new unit, you find it's worth a closer look.

For more information and the location of your nearest dealer, contact: Navidyne, 11824 Fishing Point Drive Newport News, Virginia 23606 USA. Telephone: 804/874-4488. Telex: 82-3653 (NAVIDYNE NPNS).

**FMC Marine And Rail Launches Fourth Ro/Ro Barge For Crowley**



The Marine and Rail Equipment Division of FMC Corporation, Portland, Ore., recently launched the fourth in a series of four of the world's largest roll-on/roll-off (ro/ro) barges. The 580-foot-long triple-deck trailer barge (shown above) was delivered in December to her owners, Crowley Maritime Corporation, San Francisco, Calif. Christened El Rey, the barge will be operated in Caribbean trade by Trailer Marine Transport Corporation, a Crowley company.

**John E. Carroll Jr.**, FMC divi-

sion manager, said: "We are especially proud of our on-schedule performance in the construction of these ro/ro barges, and we feel we have again demonstrated our competitiveness as a barge yard. After El Rey is delivered, two specialized barges are scheduled to be constructed for other customers."

In a traditional launching ceremony, **Gail Merriam**, wife of Crowley executive vice president **J. Alec Merriam**, christened El Rey by breaking a bottle of champagne against the steel hull. Sec-

onds later, a large crowd of guests, employees and their families watched El Rey reach a speed of 20 miles per hour before splashing into the Willamette River from FMC's side launch ways.

El Rey will operate between Trailer Marine Transport's home ports in Jacksonville, Fla., and San Juan, Puerto Rico. All three decks on the barges are designed to be loaded with truck trailers simultaneously from tri-level loading ramps in each port.

Based in San Francisco, Crowley is a major international marine transportation firm. In recent years, FMC has built several barges for Crowley, including oceangoing oil barges, deck cargo barges, and three sister barges to El Rey.

The Marine and Rail Equipment Division of FMC is a manufacturer of two types of transportation equipment in Portland — marine vessels and railroad freight cars.

**Griffin And Alexander Awards Contract For 2 Rigs To Bethlehem**

Griffin and Alexander Drilling Company, a newly formed drilling contractor located in Houston, Texas, has awarded Bethlehem Steel Corporation's Beaumont, Texas, shipyard a contract for construction of two 250-foot water depth offshore drilling rigs to be delivered in April and June 1981.

**Loy Griffin**, chairman of the board, and **J.W. (Bill) Alexander**, president of Griffin and Alex-

ander, said the rigs involve a total investment of \$56.5 million. The cantilevered jackups will be capable of drilling 30,000-foot-deep wells in water depths up to 200 feet. They will feature 1,000,000-pound combination drilling loads and substructures capable of being cantilevered 45 feet aft of the platform. These rigs are currently available for lease.

In announcing the award, **Sherman C. Perry**, general manager of the Beaumont shipyard, said that these will bring to 14 the number of mat-supported cantilevered rigs of this basic design previously delivered or under construction at Beaumont.

**John S. Hollett Joins Crowley Maritime**

**John S. Hollett** has joined Crowley Maritime Corporation's Caribbean Division as marketing manager, bulk commodities, according to a recent announcement by **Robert G. Homan**, Jacksonville, Fla., senior vice president of the division.

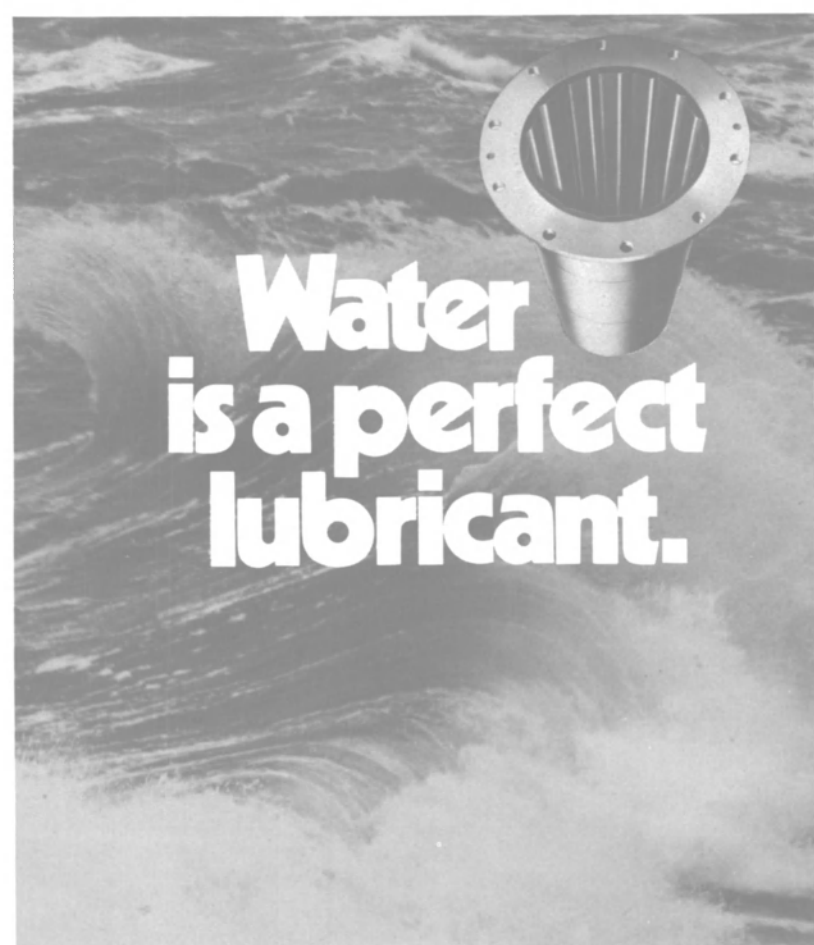


**John S. Hollett**

In his new position, Mr. Hollett is responsible for marketing Crowley's bulk petroleum services on the U.S. Gulf and East Coasts. Crowley operates 125,000-barrel barges carrying clean and black oil products, as well as other liquid or dry commodities. These barges carry up to five different grades of oil at one time, segregating the cargo into 5,000, 10,000, or 15,000-barrel tanks.

Mr. Hollett was previously director of marketing for Saudi Arabia Transport Organization, Ltd., a Crowley joint venture based in Damman, Saudi Arabia.

Bulk commodities services are a function of Crowley Towing and Transportation, which operates tugs, oil barges and flat-deck barges in Caribbean contract movements. Crowley's Caribbean operations also include Trailer Marine Transport Corporation, which provides ro/ro trailer service between the U.S. mainland and Puerto Rico; Gulf Caribbean Marine Lines, which provides pass/pass warehouse barge service between the U.S. mainland and the Caribbean; and CTMT, Inc., and Interisland Intermodal Line, which operate feeder services to many ports throughout the Caribbean.



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### E.C. Flint Promoted At Zidell's Marine Construction Division

Edward C. Flint has been promoted to production manager of the Marine Construction Division of Zidell Explorations, Inc., Portland, Ore.



Edward C. Flint

In his new position, Mr. Flint, who has 20 years of marine construction experience, will be responsible for all phases of Zidell barge construction, outfitting, and delivery.

Prior to joining Zidell in 1977 as production superintendent, Mr. Flint was hull foreman for National Steel & Shipbuilding, and steel superintendent for Campbell Industries, both of San Diego, Calif.

In addition to barge construction, Zidell Explorations is active in marine repair, voyage repair dockside, drydock construction, marine equipment sales, and valve manufacture. Besides its Portland headquarters, it has offices in Tacoma, Wash., Long Beach, Calif., Houston, Texas, Atlanta, Ga., Baton Rouge, La., Elmhurst, Ill., and East Brunswick, N.J.

### Construction To Begin On New \$20-Million N.Y. Container Terminal

New York State Commissioner of Transportation William C. Hennessy, New York City Commissioner of Ports and Terminals Susan Heilbron, and Port Authority Executive Director Peter C. Goldmark Jr. recently signed the final agreement for the \$20-million Red Hook Container Terminal in the Atlantic Basin area of Brooklyn, N.Y.

At the same time, the Port Authority announced the award of the first major contract for the new marine project—a \$2.8-million construction contract to rebuild a portion of Pier 10 wharf structure, and construct a new Atlantic Basin wharf between Piers 10 and 11 at the Brooklyn-Port Authority Marine Terminal.

Work will begin immediately under the contract which was awarded to Underpinning & Foundation Constructors, Inc. of Masspath, N.Y. It has been estimated that the development means immediate construction jobs, and eventually a \$13-million payroll for 300 employees and another 900 workers indirectly connected with the operation. The Red Hook

project will mean the retention of more than 5,000 waterfront jobs.

The Terminal will be built in two phases on a site which includes Piers 10 and 11 of the Brooklyn-Port Authority Marine Terminal. Additionally, a 10-acre tract of land located at the foot of Hamilton Avenue is expected to be acquired and cleared by the City of New York. The state's share of the project is \$12 million, with the city providing the remaining \$8 million.

Under the lease agreement, the

Port Authority will provide the initial 30 acres surrounding Piers 10 and 11 and construct and operate the new Red Hook Terminal.

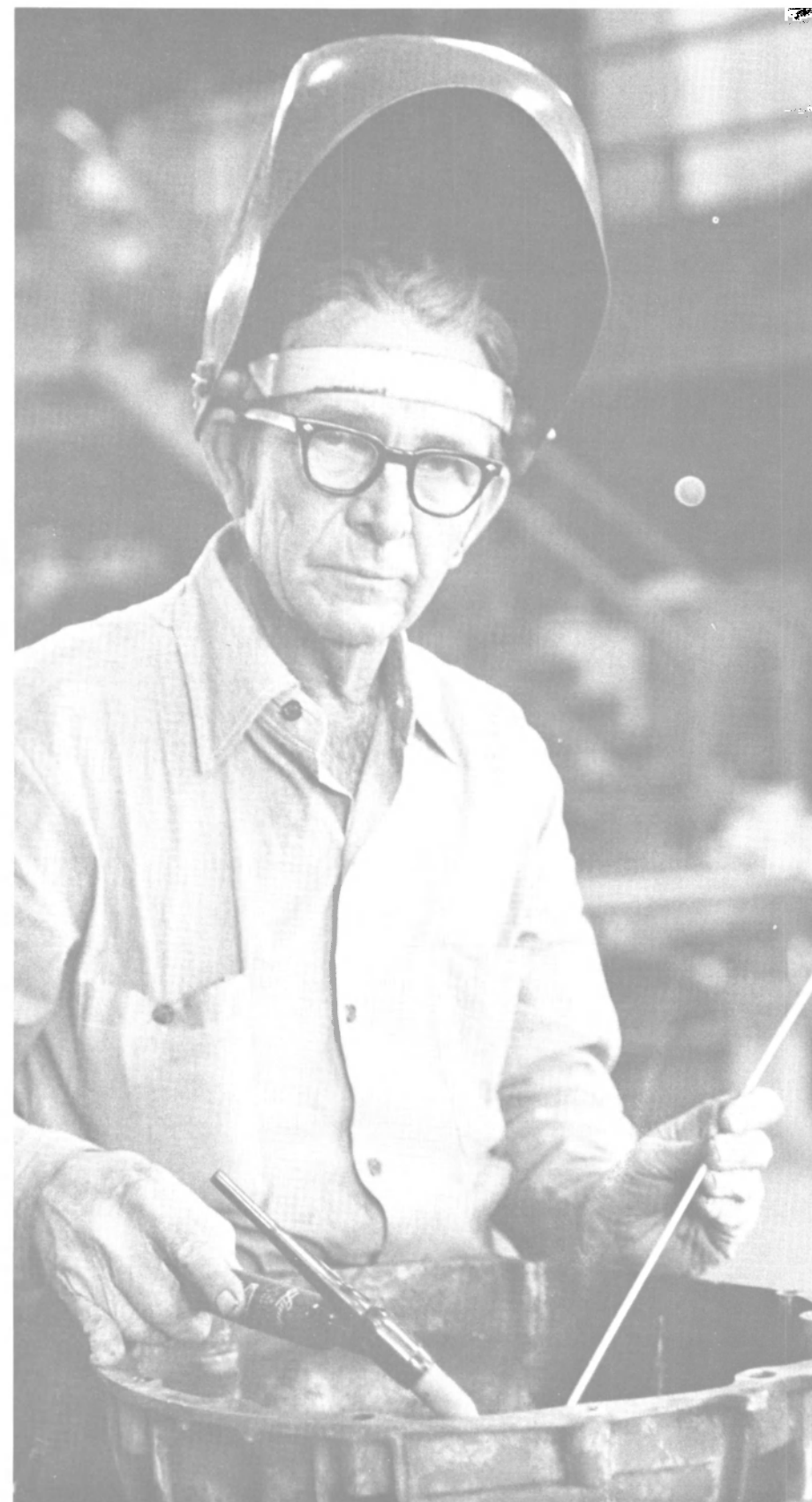
When completed in the late fall of 1980, the first phase of the project will combine Piers 10 and 11 into a 30-acre site to provide a 1,000-foot containership berth, as well as two breakbulk berths at Pier 11. The Red Hook Terminal is expected to be in operation by the end of 1980, and will be able to handle 20,000 containers a year.

The second phase, to be com-

pleted by the end of 1981, will increase the new terminal's capacity by 5,000 containers per year through the addition by the city of about 10 acres of land. The terminal will then have the capacity to handle an estimated one million tons of general cargo, or approximately 25,000 containers per year.

In the third phase, for which no timetable has been set, the terminal may be further expanded, giving the Red Hook Container Terminal a capacity of 50,000 containers per year.

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**3 New Reports Now Available From Ship Structure Committee**

The Ship Structure Committee has available copies of three new reports.

SSC-288, "The Effects of Varying Ship Hull Proportions and Hull Materials on Hull Flexibility, Bending and Vibratory Stres-

ses," is an analytical study which considers four typical vessels—an ore carrier, a tanker, a container ship and a general cargo vessel. With the flexibility of the hull represented by the natural frequency of the ship, a potentially useful relationship between the flexibility and bending moment has been established.

SSC-289, "A Method for Economic Trade-offs of Alternate

Ship Structural Materials," develops a relatively inexpensive and simple method for comparing the relative costs and benefits of using materials other than mild steel in ship construction. The factors considered include useful ship life, construction costs, repair and maintenance costs, together with noneconomic considerations, such as suitability for intended use and trade route, environmental impact, and depletion of natural resources.

SSC-290, "Significance and Control of Lamellar Tearing of Steel Plate in the Shipbuilding Industry," is a useful guide describing the factors which contribute to and influence lamellar tearing, a review of the procedures used to determine susceptibility to lamellar tearing, and methods for post-welding detection and repair of lamellar tears. This type of failure is especially common in fixed and mobile platforms of the type used in the offshore mineral exploration and production industry.

For copies of these reports, an index of past reports or further information, contact: Secretary, Ship Structure Committee, U.S. Coast Guard Headquarters, G-M TPI3, Washington, D.C. 20593.

exhibitors from all over the world are expected to attend. One hundred fifteen technical papers dealing with the prevention, behavior, control and cleanup of oil spills will be presented. A number of films on these subjects will also be shown.

The papers will stress new prevention and control techniques, cleanup operations, cleanup cooperatives, training techniques, monitoring, new equipment development, oil transfer practices, offshore operations, dispersants, fate and effects of oil, natural resource damage assessment, and the national and international socio-economic-legal aspects.

Sponsors of the international conference are the American Petroleum Institute, the U.S. Environmental Protection Agency, and the U.S. Coast Guard.

**Sun Shipbuilding Names Simpson Vice President**



Stephen W. Simpson

**International Oil Spill Conference To Be Held In Atlanta March 2-5, 1981**

The seventh biennial Oil Spill Conference—sponsored jointly by the petroleum industry and the federal government—will be held March 2-5, 1981, at the Atlanta Hilton, Atlanta, Ga.

More than 1,500 delegates and

Sun Shipbuilding and Dry Dock Co., Chester, Pa., has announced the appointment of **Stephen W. Simpson** as vice president and corporate counsel, reporting to the president.

In this post, Mr. Simpson will provide legal counsel to the officers and managers of the shipyard, will work with external legal counsel used by Sun Ship, and will have primary responsibility for legislative matters affecting the company.

**Paul-Munroe Marine And Offshore Names Gusmeri To Houston Sales Post**

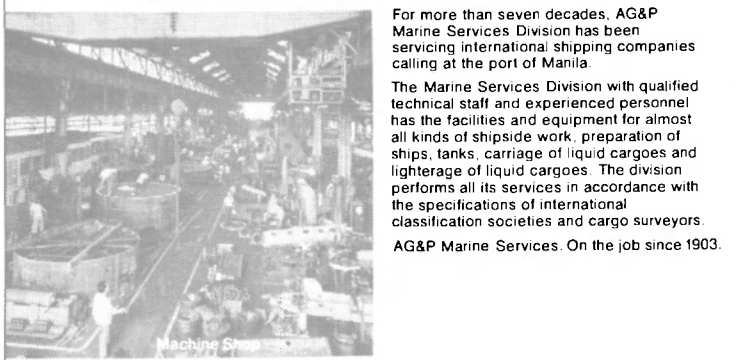
Paul-Munroe Hydraulics, Inc., Marine & Offshore Division, Orange, Calif., has appointed **Val J. Gusmeri** to the position of regional sales engineer, Houston, Texas.

In making the announcement, **Peter R. Carter**, the division's vice president and general manager, stated that Mr. Gusmeri will be responsible for improving Paul-Munroe's position in the offshore and marine markets, and strengthen their relations with the Gulf and East Coast customers. Mr. Gusmeri brings to Paul-Munroe over 20 years of experience in systems engineering; the last 15 years as senior product specialist with N.L. Shaffer.

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### Mississippi Marine Towboat Delivers Two New Vessels To Palmer Barge Line



The M/V Stacey Palmer, one of two new vessels designed and built by Mississippi Marine Towboat Corporation of Greenville, Miss., and recently delivered to Palmer Line, Inc. of Nederland, Texas.

Mississippi Marine Towboat Corporation of Greenville, Miss., recently delivered two vessels—the M/V Scott Palmer and the M/V Stacey Palmer—to Palmer Barge Line, Inc. of Nederland, Texas.

The sister vessels, both recently commissioned by the Palmer firm, were completely designed and built by Mississippi Marine. Both vessels, based in Port Arthur, Texas, are primarily engaged in towing petroleum products.

The hulls of the Palmer crafts are 60 feet long, 24 feet wide, by 8 feet deep, with normal operating drafts of 6 feet 6 inches. Twin Detroit Diesel 16V-71 engines generating 1,200 horsepower @ 1,800 rpm each, drive both boats. Stainless-steel 56-inch-diameter Kahlenberg propellers with a 47-inch pitch are coupled with the engines via Twin Disc MG-518 reduction gears with a 5.07:1 ratio. Quincy F325-14 air compressors are also on board.

Kennedy Engine in Biloxi, Miss., supplied both the engines and the Delco 40-kw generators to Mississippi Marine. The engine monitoring equipment came from Pan American Systems of Belle Chasse, La.

Both vessels have liquid capacities of 13,500 gallons of fuel, 4,500 gallons of fresh water, and 350 gallons of lube oil.

Matthews Marine Systems, Inc. designed the steering system for the Scott Palmer, while M & I Hydraulics of Jackson, Miss., supplied the system for the Stacey Palmer. Both boats have two steering rudders and four flanking rudders.

Each craft has two 55/75 Modar VHF radios with a Raytheon 350 loud hailer and SBA-301 SSB. Similarly, both are radar equipped with a Decca RM 914C. Both accommodate a crew of six. The Stacey Palmer consists of a main deck with two double staterooms for the crew, and a second deck with one stateroom with two sin-

gle bunks for the captain and pilot. The Scott Palmer has a main deck, identical to the Stacey Palmer, with two double staterooms for the captain and pilot on the second deck.

Each vessel has removable stacks, Mathers AD-14 air throttle controls and central air-conditioning.

Mississippi Marine, located on Lake Ferguson at Greenville, builds towboats and barges and offshore vessels. It also operates dual drydock facilities for repairs and vessel renovations on inland waterways. The firm offers towboat design and construction from initial design phase through completion. The firm has recently finished construction of its own second 1,750-ton drydock to complement the capacities of its existing 2,500-ton drydock.

For further information, contact D. John Nichols, Mississippi Marine Towboat Corp., P.O. Box 539, Harbor Front Industrial Park, Greenville, Miss. 38701. Phone (601) 332-5457.

### Norwegian Firm Offers Porthole/Escape Hatch —Meets Safety Rules

A Norwegian company, MSCI, is marketing a new and revolutionary combined porthole/escape hatch as an extra source of security for vessel crew and passengers.

JETOB-T-301 has been patented, and meets all classification requirements for safety at sea. It is approved by the Norwegian Maritime Directorate and Det Norske Veritas.

The unique design of the product allows a person in an emergency situation to change an ordinary looking porthole into an emergency exit within seconds by turning an approved locking device.

The escape opening is sufficiently large enough to allow a per-

son wearing a life jacket or a survival suit to evacuate the vessel in minimum time through the porthole when other routes are blocked or dangerous.

The JETOB-T-301 has been designed with triple security against mechanical strain and can be installed in all parts of the vessel, including the lower part of the hull, according to classification rules.

The first JETOB-T-301 units are now being installed on Norwegian passenger vessels and are also designed for naval vessels, offshore and other commercial vessels.

Further information and full literature can be obtained by writing to P.N. Svinoe, Marketing Survey and Consultants International, P.O. Box 230, 6065 Ulsteinvik, Norway.

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It gives you 24 channels, pre-programmed for single sideband and compatible AM. They cover the entire 2-18 MHz marine spectrum, and can be spread out or grouped in any band without restriction.

It's compact, and has dual remote capability, as a back-up system should. The SSB "HighSeas" has

\*Safety of life at sea

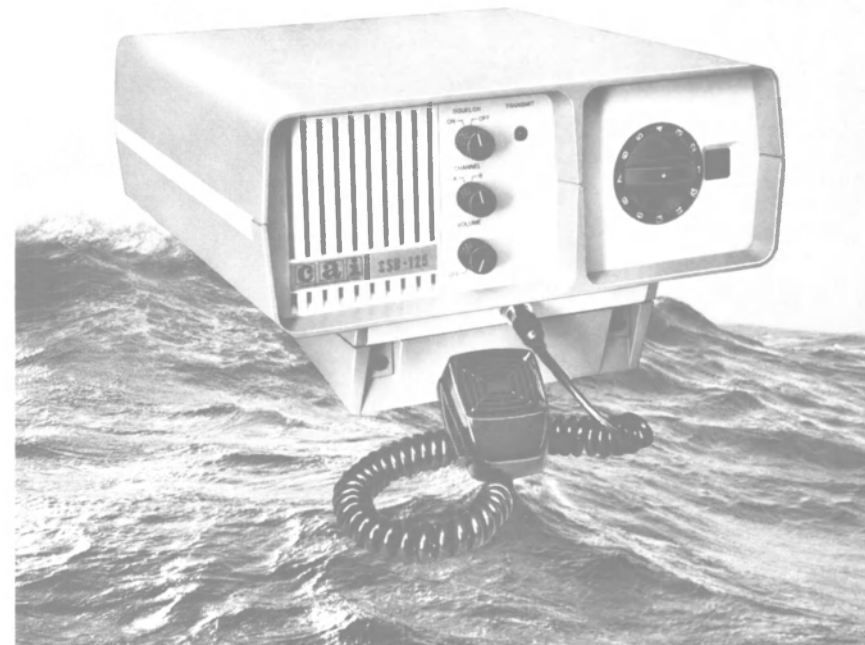
a solid state transceiver and 125-watt RF power amplifier/power supply combined in a single, rugged cabinet.

It's easy to use. Because CAI designed the SSB "HighSeas" to be the main communications system for smaller seagoing craft, it is extremely simple to operate. All the operator has to do is select a pre-programmed channel. An optional servo tuned antenna coupler automatically and continuously fine tunes the antenna to the exact frequency.

It's completely reliable. The SSB "HighSeas" meets or exceeds ICC and ITU requirements and is FCC and DOC type accepted. Like its big brother, CAI's frequency synthesized CA-35MS/MKII used by hundreds of commercial vessels as their principal SSB communications system, it is supported by CAI's dependable service organization. For detailed information, write:



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**Pickands Mather Awards  
\$10-Million Conversion  
Order To Fraser Shipyard**

Pickands Mather & Co., Cleveland, Ohio, has announced it will spend more than \$10 million to convert the steamship Charles M. Beeghly to a self-unloader. Pickands Mather, a subsidiary of Moore McCormack Resources, Inc., is operator of The Interlake Steamship Company.

Conversion work on the 806-foot bulk freighter will begin at the end of the 1980 shipping season, and be performed by Fraser Shipyard, Inc., in Superior, Wis. The project is expected to be completed by April 1981.

The conversion involves installing a conveyor system the length of the ship below its cargo holds. The conveyor will transport iron ore pellets to an unloading boom which will be installed on the

deck, allowing the ship to self-unload without the need for dockside unloading facilities.

David A. Groh, Pickands Mather vice president, marine, said the decision to convert the Beeghly was based largely on the projected increase in self-unloader tonnages the Interlake fleet will carry in the 80s. "Conversion of the Beeghly, along with a similar conversion of the Elton Hoyt 2nd and construction of a new 1,000-

foot vessel, will make it possible for us to meet our haulage obligations."

Mr. Groh noted that the Beeghly conversion will slightly decrease the vessel's 32,000-ton capacity, but that this would be more than offset by additional trips because of shorter turn-around time due to her self-unloading capability.

Elton Hoyt III, PM's president and chief executive officer, said: "Conversion of the Beeghly and Hoyt and construction of our third 1,000-footer is evidence of the confidence we have in the long-term prospects for the Interlake fleet."

The Beeghly was built in 1959, and originally christened the Shenango II. The vessel was purchased by Pickands Mather in 1967 and renamed in honor of a former chairman of Jones & Laughlin. Built as a 710-footer, the ship was lengthened to 806 feet in 1972.

**Doescher Named VP  
Of Templeman Lumber**

Philip A. Doescher Sr. has been named vice president of Templeman Industrial Lumber, Inc., formerly R.N. Templeman, Inc., according to Benjamin J. Ericksen, president.



Philip A. Doescher Sr.

Mr. Doescher, a native New Orleansian, was for 31 years in managerial positions with a stevedoring and shipping company. He was later associated with a marine cleaning service, specializing in cleaning bulk carriers and cargo vessels. He joined the Templeman firm in 1977. Mr. Doescher is a member of The Propeller Club, and International House.

**Gibbs & Cox Elects**

**R. Della Rocca VP**

James J. Convy, chairman of the board of Gibbs & Cox, Inc., one of the nation's leading independent naval architectural firms, has announced the election of Ralph Della Rocca to vice president. Mr. Della Rocca is head of the Newport News Division, which is staffed with experienced ship designers in hull, machinery, electrical, electronics and weapons fields. This division will provide detail design services, amplifying the capabilities of Gibbs & Cox's other divisions located in New York, N.Y., and Arlington, Va.

Mr. Della Rocca has been with

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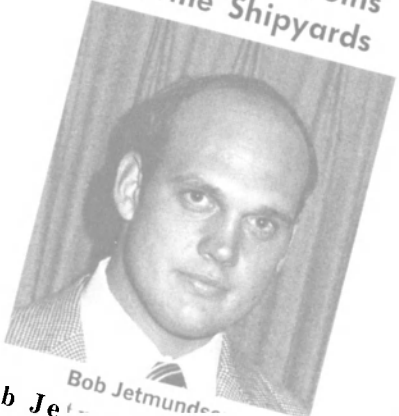
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Gibbs & Cox for more than 33 years, during which time he has served the company in various management capacities. For many years, he was head of the Hull Division Engineering Department. As manager of several basic materials research and development projects, he was responsible for the initial designs and application of fiberglass reinforced plastics to boat hull construction. He also served as the senior project manager for the Spanish Aircraft Carrier Program. From 1971 through 1977, as assistant division head-Hull Division, he was intimately involved in the design of the successful FFG7-Class Program and the lead ship USS Oliver Hazard Perry.

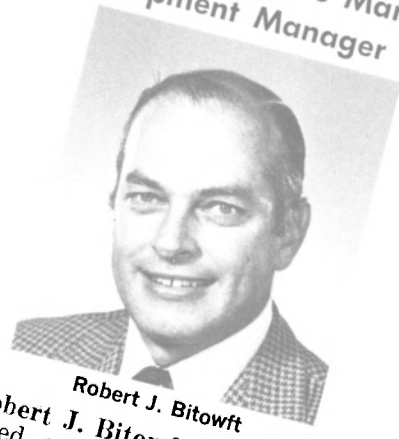
**Bob Jetmundsen Joins Jacksonville Shipyards**



Bob Jetmundsen

Bob Jetmundsen has joined Jacksonville Shipyards, Inc. as sales representative. The announcement was made by Bill Newburn, vice president, Sales for the Jacksonville, Fla., yard. Mr. Jetmundsen graduated from the College of Southwestern at Memphis in 1977, where he received his B.A. degree in economics and political science. He was formerly employed as a sales representative with Alabama Dry Dock and Shipbuilding Company. He is a member of The Society of Naval Architects and Marine Engineers, and The Promoter Club of the United States.

**GE Names Bitowft ASD Navy And Marine Market Development Manager**



Robert J. Bitowft

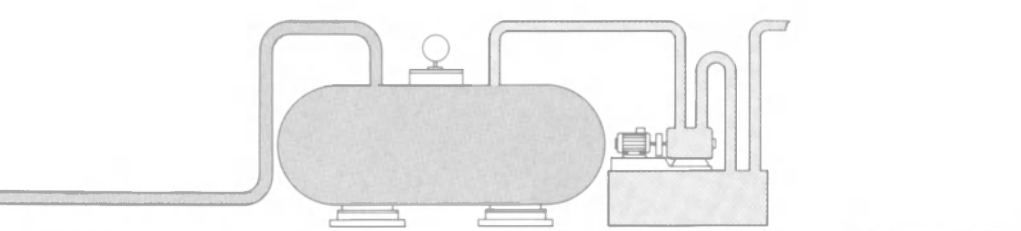
Robert J. Bitowft has been appointed manager of Navy and Marine Market Development for General Electric Company's Apparatus Service Division (ASD), Schenectady, N.Y., it was announced by John W. Blake, manager of sales for ASD.

January 15, 1980

In his new position, Mr. Bitowft will be responsible for the identification and development of new service capabilities, at the national level, for the naval and marine industries. The Apparatus Service Division and its GE affiliated companies make up a leading industrial repair and maintenance service organization, with a worldwide network of service shops in the U.S. and abroad that provide electrical, mechanical and electronic equipment service for both GE and non-GE equipment.

A native of Brooklyn, N.Y., Mr. Bitowft received his Bachelor of Science degree in engineering from Georgia Institute of Technology in Atlanta in 1955. He also received a master's degree in business administration from Loyola University New Orleans, La., in 1965.

Mr. Bitowft joined General Electric in 1957 on the Technical Marketing Training Program in Schenectady in 1959. He joined the Installation and Service Engineering Division (I&SE) in Waynesboro, Va. He was named technical representative in I&SE in 1960. He left the company in 1965 and worked in the fields of space engineering consulting, aerodynamic development, and real estate development. His office will be located in Washington, D.C.



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The ENVIROVAC system also features vitreous china toilets. And, there's no overboard effluent to worry about...no chemicals, special operators, or testing needed. Designed as Type III Systems, they also permit overboard discharge where allowed.

**THAT'S HOW THE COAST GUARD DOES IT.**

The ENVIROVAC Sewage Collection and Holding System is U.S. Coast Guard approved. In fact, these systems are presently being used or installed on 75 Coast Guard vessels.

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**American Ship Building  
Elects H.A. Fernstrom  
To Board Of Directors**

H. Allen Fernstrom, vice president of finance for The American Ship Building Company, Cleveland, Ohio, has been elected to the corporation's board of directors, it was announced by Edward C. Forbes, president and chief executive officer.

Mr. Fernstrom fills the vacancy on the board left by David M. Thoburn, who resigned. Mr. Fernstrom joined American Ship in 1975 as controller-treasurer. During the previous 10 years, he had various division controller assignments in the United States and Europe with The Singer Company.

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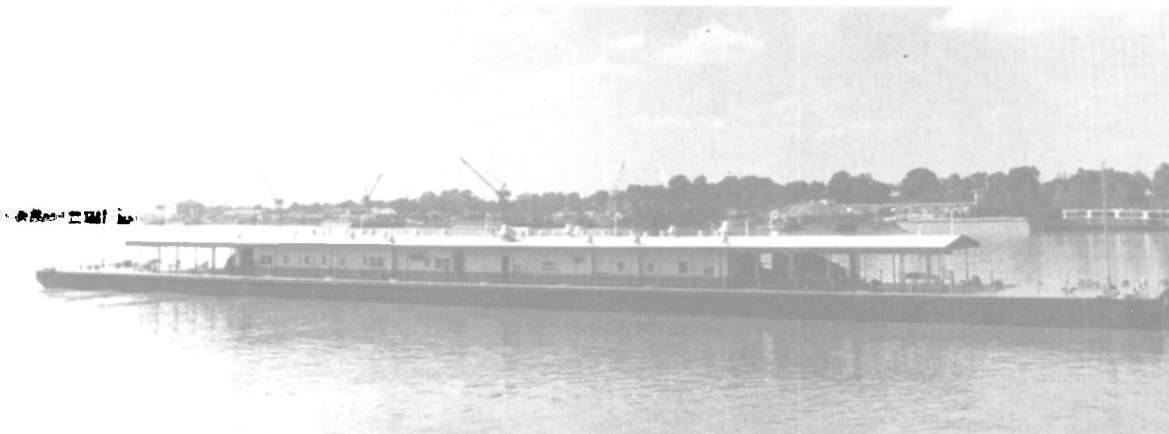
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**RAMPMASTER**

1226 N.W. 23RD AVENUE FORT LAUDERDALE, FLORIDA 33311  
TELEPHONE 305 584-5990

**Jeffboat Launches Mooring Barge For Corps Of Engineers**

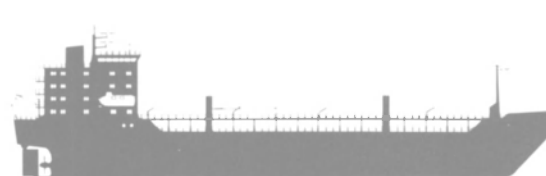


New 400-foot Corps of Engineers mooring barge constructed by Jeffboat.

Jeffboat, Inc., Jeffersonville, Ind., recently launched and delivered a 400-foot by 45-foot by 9-foot mooring barge slated for use by the U.S. Army Corps of Engineers in Vicksburg, Miss. The barge, built in two 200-foot sections and bolted together in the center, contains offices, drafting room, crew's mess,

locker room with showers, and a completely outfitted machine shop. It is equipped with a three-drum winch, two air compressors, a water-treatment system and a fire-extinguishing system, and gets its power from two 200-kw electric generating sets.

**NavireYard Building 7,000-DWT  
Tanker For Finnish Esso**



Silhouette of the 7,000-dwt tanker.

Oy Navire Ab's shipyard at Naantali, NavireYard, Finland, is building a 7,000-dwt tanker for Esso. The vessel will be delivered in the fall of 1981.

The new ship was designed by Kleven's Mek. Verksted of Norway. The hull will be built at Naantali from sections delivered by Navire's workshop at Parainen.

It is 108 meters long, has a breadth of 17.5 meters, a maximum draft of 7.3 meters (about 354 feet by 57 feet by 24 feet), and is Finnish ice-classed 1A.

Main propulsion machinery consists of two medium-speed diesel engines with a total capacity of 3,700 kw (5,000 hp), giving the vessel a speed of approximately 14 knots.

Segregated ballast tanks, double bottom and double boards meet strict environmental protection requirements. The vessel will be operated by Esso and used to transport chemicals and lubricating oils.

**MorMac Appoints Marcelewski  
Philadelphia Office Manager  
—Edward J. Desher Retires**

Robert E. O'Brien, president and chief executive officer of Moore McCormack Lines, Incorporated, New York, N.Y., recently announced the retirement of Edward J. Desher, manager of the company's Philadelphia, Pa., office, effective December 31, 1979, and the appointment of Peter B. Marcelewski to serve in that position. Moore McCormack is the ocean shipping subsidiary of Moore McCormack Resources, Inc., of which Mr. O'Brien is also an officer and director.

Mr. O'Brien noted that Mr. Desher's "long and effective career in ocean shipping spans nearly 50 years, the last 43 of which were

spent with Moore McCormack. His knowledge and dedication to the maritime industry has over the years been an important contribution not only to the Lines, but to the Port of Philadelphia as well.

Mr. O'Brien, in announcing Mr. Marcelewski's appointment as manager, noted that "his diversified shipping experience would contribute substantially toward the continued progress of the company."

In his new assignment, he will be responsible for the administration and operational functions of the Philadelphia office.

Mr. Marcelewski has been affiliated with Mooremack since 1962. He has held positions in all phases of the company's Philadelphia operations, and was appointed assistant manager in 1978.

**Farrell Realigns  
Executive Personnel**

George F. Lowman, chairman and chief executive officer of Farrell Lines Incorporated, has announced a realignment of executive personnel. These changes, effective immediately, are planned so that the company can render more efficient service to its customers in anticipation of an increased volume of business in the 1980s. This is especially true on the North Europe Trade Route, where improved regularity of service will be offered to accommodate the potential increase. The new executive responsibilities are as follows:

Richard V. Parks is named senior vice president-North Europe service; Michael J. Esposito, senior vice president-Mediterranean South Asia services; and Edward J. Chick, senior vice president-Africa services. In addition, Donald A. Adley is named senior vice president-Marketing, and Thomas R. Tarbox, vice president-North Europe, headquartered in Farrell Lines' London office. Kenneth H. Oelkers becomes vice president-Administration. William F. Toohy is senior vice president for the Australia New Zealand services. Mr. Lowman believes that these newly assigned executive responsibilities will assure proper direction of Farrell Lines' services on its seven essential U.S. Trade Routes and in the management of all departments of the company.



The U.S.T. Pacific, one of two of the largest ships built in the Western Hemisphere, dwarfs a 30-foot sloop sailing past the docks at Newport News Shipbuilding.

### Newport News Delivers The U.S.T. Pacific In Record Time

The U.S.T. Pacific, one of the two largest ships built in the Western Hemisphere, was delivered recently by Newport News Shipbuilding, Newport News, Va., marking a new U.S. commercial construction record.

Edward J. Campbell, Newport News president and chief executive officer, said the shipyard constructed the U.S.T. Pacific from keel-laying to scheduled delivery in only 11 months. The previous record for large tanker construction was 14 months, and that was for a tanker of less than 200,000 deadweight tons. The U.S.T. Pacific displaces 390,000 deadweight tons.

The keel for the U.S.T. Pacific was laid on January 8, 1979, and the ship was launched on September 8, 1979.

The vessel was delivered to United States Trust, with InterOcean Management Corporation as the ship's operator and Shell Oil Company as term charterer.

The U.S.T. Pacific will carry nearly three million barrels of crude oil, which can be refined into enough gasoline for 1,000 people

each to drive a million miles (1.6-million kilometers)—plus enough heating oil to warm some 30,000 homes for a full year.

With an overall length 1,187 (362 meters), a depth of 95 feet (29 meters), and a 228-foot (70-meter) beam, the U.S.T. Pacific has about five times the carrying capacity of a conventional tanker. The ship was constructed building block style, with some sub-assemblies weighing up to 800 tons (728 tonnes). Despite their size, the margin for error in the placement of these giant sub-assemblies was measured in fractions of an inch.

The ultra large crude carrier (ULCC) is the sistership of the U.S.T. Atlantic, which was delivered by Newport News Shipbuilding on March 7, 1979.

Newport News Shipbuilding, the world's largest shipyard, is Virginia's largest private employer, and the nation's only shipyard capable of building and servicing the full range of nuclear and conventionally powered ships for both the Navy and commercial customers.

### Bourgeois And Mitchell Elected Vice Presidents At State Boat Corp.

The board of directors of the State Boat Corporation has announced the election of Ivan J. Bourgeois and Roger Mitchell as vice presidents of the corporation.



Ivan J. Bourgeois

Roger Mitchell

A native of Berwick, La., Mr. Bourgeois began his 25-year career in the offshore transportation industry in 1954 as a deckhand. After working his way up to captain, he later served in several supervisory positions onshore. Mr. Bourgeois joined State

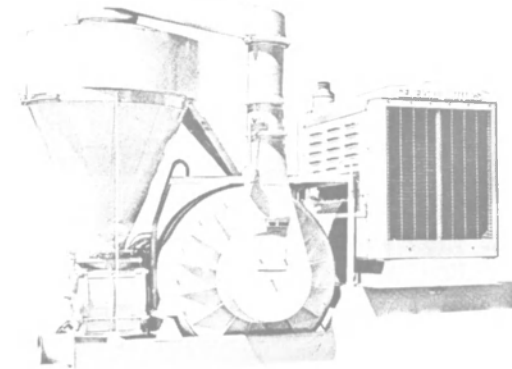
Boat in 1970 as marine supervisor and was subsequently promoted to fleet supervisor. As vice president, Mr. Bourgeois will oversee the marketing and operation of 13 of the vessels in State Boat's fleet.

Mr. Mitchell, a native of Port-of-Spain, Trinidad, has been involved with marine engines, fishing vessels, and supply vessels for 15 years. Beginning his career as a service manager with the Caterpillar marine engine dealership in Trinidad, Mr. Mitchell joined State Boat in 1971 as manager of State Trawlers Company, an overseas subsidiary of State Boat Corporation. In 1975, Mr. Mitchell was transferred to State Boat's supply vessel operation, where he has previously been both a marine and fleet supervisor. His duties are now identical to those of Mr. Bourgeois.

Both Mr. Mitchell and Mr. Bourgeois work out of State Boat's Morgan City, La., office and reside in the area with their families.

For over two decades, State Boat Corporation has been a pioneer in providing tug supply and supply vessels for the offshore transportation industry in the Gulf of Mexico and throughout the world. State Boat's fleet currently consists of 26 vessels ranging up to 204 feet and 7,200 hp, with additional vessels under construction.

## NEW! 2 MARK III MARINE GRAINVAYORS SAVE 15% to 20% IMMEDIATELY AVAILABLE



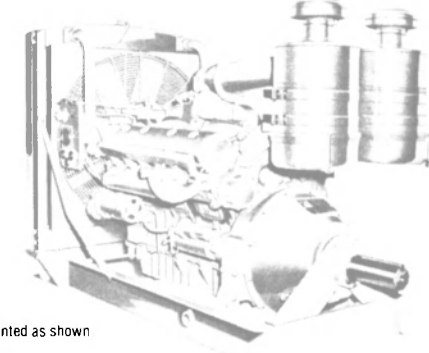
Self Contained. Designed and manufactured expressly for rapid unloading of grain. (Approximately 75 tons per hour)

|                   |                            |                    |   |
|-------------------|----------------------------|--------------------|---|
| Overall Height    | 117 1/2"                   | Operating Pressure | Mercury at 3900RPM  |
| Overall Length    | 147"                       | Fan Blades         | Aluminum Diecast  |
| Overall Width     | 87"                        | Fan Diameter       | 38"   |
| Deck Clearance    | 9 3/8"                     | Fan Housing        | 1 piece Spinning  |
| Weight (approx)   | 10,750 lbs.                | Fan Housing        | 3/8" thick plate  |
| Engine            | General Motors 8V71 Diesel | Air Lock Valve     | Rotary Reversible   |
| Engine Horsepower | 338 @ 2300 RPM             |                    | All Hydraulic Drive   |
| Engine Speed      | 1900 RPM                   | Cyclone            | High efficiency, involute curved entry                                    |
| Compressor        | Multi Stage Centrifugal    | Bearings           | (5) Heavy Duty Self-Aligning 2 7/16" Labyrinth Seals plus Dust-Protection |

\* Lot of Accessory Equipment Available. Included at no cost on sale of both units. F.O.B. our New Jersey warehouse.

**\$35,927.00 each**

### NEW! GMC 8V71 Diesel Engine

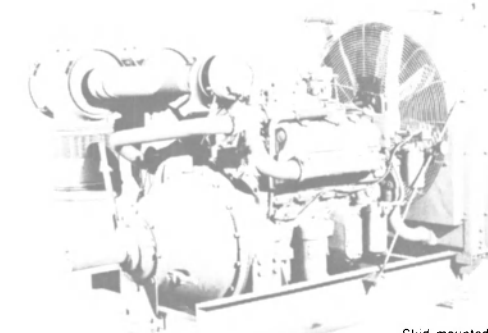


Skid-mounted as shown

|                              |                   |                                 |            |
|------------------------------|-------------------|---------------------------------|------------|
| Engine Type                  | 2 cycle V8 Diesel | EQUIPMENT                       | Heavy Duty |
| Number of Cylinders          | 8                 | P.T.O. Starting Equipment       | Heavy Duty |
| Bore and Stroke              | 4 1/4" x 5"       | and Governor                    |            |
| Total Displacement           | 568 cu. in.       | F.O.B. Our warehouse New Jersey |            |
| Max. Brake H.P. Basic Engine | 338 @ 2300 RPM    |                                 |            |
| Net Weight, Dry              | 5400 lbs.         |                                 |            |

**\$12,950.00**

### NEW! GMC 8V92TI Diesel Engine



Skid-mounted as shown

|                              |                   |                                       |            |
|------------------------------|-------------------|---------------------------------------|------------|
| Engine Type                  | 2 cycle V8 Diesel | Net Weight, Dry                       | 6300 lbs.  |
| Number of Cylinders          | 8                 | EQUIPMENT                             | Heavy Duty |
| Bore and Stroke              | 4 8/16" x 5"      | Twin Disc P.T.O.                      | Heavy Duty |
| Total Displacement           | 736 cu. in.       | F.O.B. Our warehouse Portland, Oregon |            |
| Max. Brake H.P. Basic Engine | 550 @ 2300 RPM    |                                       |            |
| (Turbo-charged)              |                   |                                       |            |

**\$22,944.00**



For additional information, brochures or inspection, contact: Hugh Sturdivant, Sales, Manager

**ZIDELL EXPLORATIONS, INC.**  
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Immediate opening for Test Engineer for government contractor aerospace project. Candidate must have extensive experience in the planning and conducting of tests on aircraft and/or marine vehicles and a working knowledge of weight and balance analysis, performance data analysis, and test instrumentation. Must also have a B.S. degree in mechanical engineering, aeronautical engineering, or naval architecture. Send resume and daytime telephone number to: Lenore Bryan

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Applicants must have a BS degree (MS preferred) in Industrial Hygiene that includes curriculum exposure to such areas as ventilation, hazardous materials, hearing conservation, and noise abatement. Any intern/co-op experience would be a plus.

This position offers exceptional professional challenges, competitive salary, comprehensive benefit package and relocation assistance in an attractive suburban New England setting located midway between Boston and New York. Send your resume and salary requirements to:

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Sale Expires Jan. 30, 1980

## SHACKLES

|       |                              |           |
|-------|------------------------------|-----------|
| (223) | 1" End                       | \$ 30 ea. |
| (12)  | 1-1/8" End                   | 70 ea.    |
| (25)  | 1-1/4" End                   | 90 ea.    |
| (11)  | 1-3/8" End                   | 90 ea.    |
| (23)  | 1-1/2" End                   | 125 ea.   |
| (14)  | 1-3/4" End                   | 130 ea.   |
| (12)  | 1-7/8" End                   | 145 ea.   |
| (5)   | 2" End                       | 145 ea.   |
| (34)  | 2-1/2" End                   | 150 ea.   |
| (9)   | 2-3/4" End                   | 300 ea.   |
| (34)  | 3" End                       | 340 ea.   |
| (75)  | 1-1/8" screw pin, chain type | 85 ea.    |
| (11)  | 2-3/8" screw pin, chain type | 350 ea.   |
| (15)  | 3" screw pin, chain type     | 350 ea.   |

## WELDED STUD LINK CHAIN

|          |                |                |
|----------|----------------|----------------|
| 93 shots | 7/8" Gr. 2 (F) | \$ 400 per sh. |
| 21 shots | 1-1/2" Gr. 3   | 1100 per sh.   |

## DANFORTH ANCHORS

|     |                |       |
|-----|----------------|-------|
| (1) | 750 lb. (used) | \$225 |
|-----|----------------|-------|

## LWT ANCHORS

|     |                 |          |
|-----|-----------------|----------|
| (1) | 750 lb.         | \$ 700   |
| (2) | 4000 lb.        | 2000 ea. |
| (1) | 4000 lb. (used) | 1300     |
| (1) | 5000 lb.        | 2500     |

## STOCKLESS ANCHORS

|      |                    |           |
|------|--------------------|-----------|
| (82) | 200 lb. (used)     | \$ 60 ea. |
| (3)  | 275 lb. (used)     | 65 ea.    |
| (1)  | 250 lb. Baldt type | 215 ea.   |
| (8)  | 350 lb. Baldt Type | 250 ea.   |
| (3)  | 800 lb. Baldt Type | 800 ea.   |
| (3)  | 2600 lb. (used)    | 780 ea.   |

|     |                      |            |
|-----|----------------------|------------|
| (2) | 4000 lb. (used)      | \$1200 ea. |
| (2) | 11000 lb. Baldt type | 5000 ea.   |
| (1) | 12000 lb. (F)        | 7000 ea.   |
| (3) | 15000 lb. (F)        | 9450 ea.   |
| (2) | 18000 lb. (F)        | 9000 ea.   |
| (1) | 20000 lb. (F)        | 10000 ea.  |

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|      |                       |           |
|------|-----------------------|-----------|
| (12) | 3/4" CCL — HS-Bronze  | \$ 65 ea. |
| (7)  | 1" CCL — non-magnetic | 100 ea.   |
| (33) | 1-5/8" CCL (used)     | 60 ea.    |
| (3)  | 1-3/4" CCL            | 65 ea.    |
| (41) | 2-7/8" CCL            | 180 ea.   |
| (15) | 3-1/8" CCL — ORQ Type | 400 ea.   |
| (41) | 3-1/4" CCL            | 350 ea.   |
| (30) | 3-3/8" CCL            | 400 ea.   |

## KENTER CONNECTING LINKS

|      |             |           |
|------|-------------|-----------|
| (3)  | 3" CCL      | \$280 ea. |
| (11) | 3-1/16" CCL | 280 ea.   |

## SWIVELS

|     |                                      |            |
|-----|--------------------------------------|------------|
| (1) | 1-1/4" Baldt swivel                  | \$ 550 ea. |
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| (1) | 3-3/8" Jaw & jaw swivel (F) shackles | 1300 ea.   |

## CHAIN STOPPERS

|     |   |             |
|-----|---|-------------|
| (1) | 3/4" Ulster type                            | \$ 125 ea.  |
| (5) | 3-7/16" Ulster type                         | 2500 ea.    |
| (1) | 1-1/4" Pelican Hook Ass'y                   | \$ 250 ea.  |
| (4) | 3-1/2" Pelican Hook Ass'y                   | 2000 ea.    |
| (1) | 3-3/4" Pelican Hook Ass'y                   | 2500 ea.    |
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 21 WEST ST. NEW YORK N.Y. 10006  
 TELEPHONE 212 943 7070

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**MARINE ENGINEER**  
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 Waverly Residency  
**NEEDS**  
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 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

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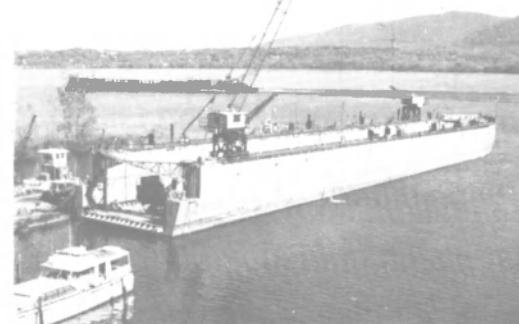
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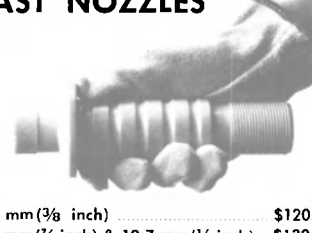
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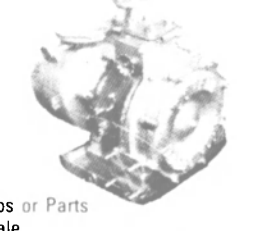
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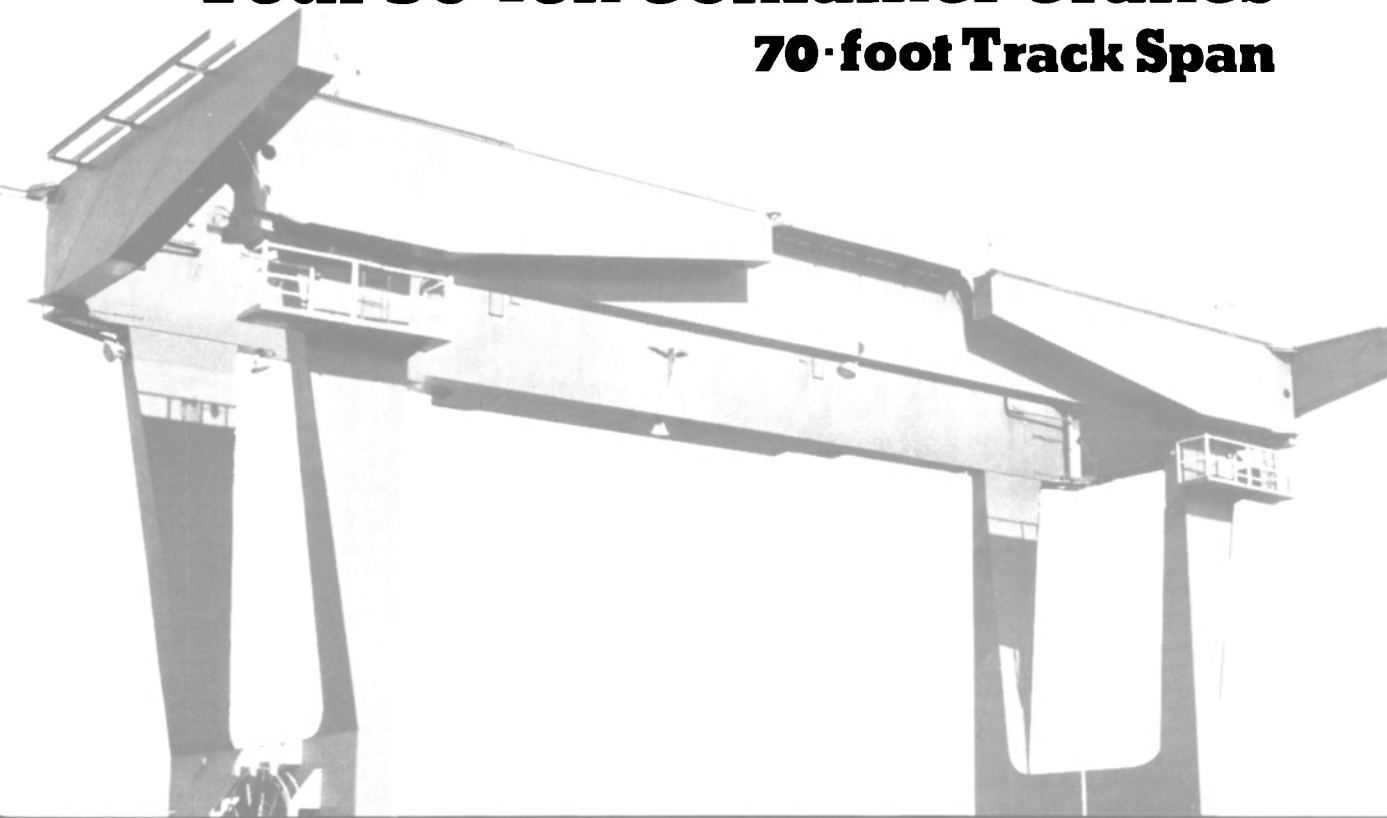
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2) Dam Sites  
3) Concrete Prefab plants  
4) Railroad yards  
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## Four 30-ton Container Cranes 70-foot Track Span



NEW 1970-72

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230 DC

200 HP DC Hoist Motor  
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Trolley Travel 275 FPM.  
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30 LT @ 85 FPM  
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32' 0" Maximum Outstretch

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

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For additional information, brochures or inspection, contact: Hugh Sturdivant, Sales Manager.



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Diesel Electric



MR 7601

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 ALL STEEL CONSTRUCTION  
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 WEB BOOM ..... 146 FT.  
 MAIN HOIST: 200-Ton—By 2 only, 8 part blocks.  
 Each block carries 2,050 ft. of 1½",  
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 AUX. HOIST: 25-Ton—By 1 only 4 part block.  
 Block carries 1,110 ft. of 1¾", 6 x 37  
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**and 2 FLOATING DOCKS**

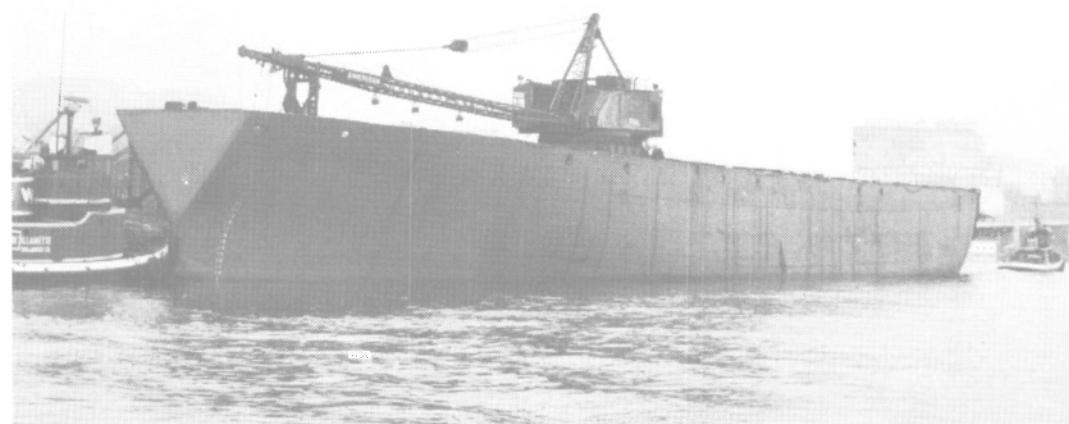
with 50-Ton Whirley Cranes

**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.
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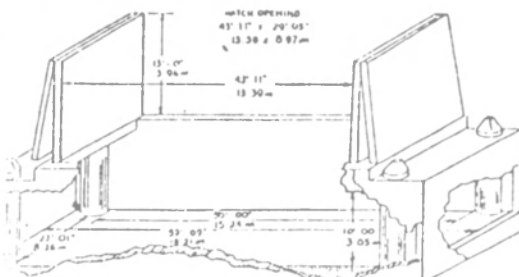
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 LIGHT DISPLACEMENT ..... 2,334 TONS  
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 ELECTRIC REVOLVING TYPE — FULL 360°  
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 MAIN HOIST: 200-Ton—By 2 only, 8 part blocks.  
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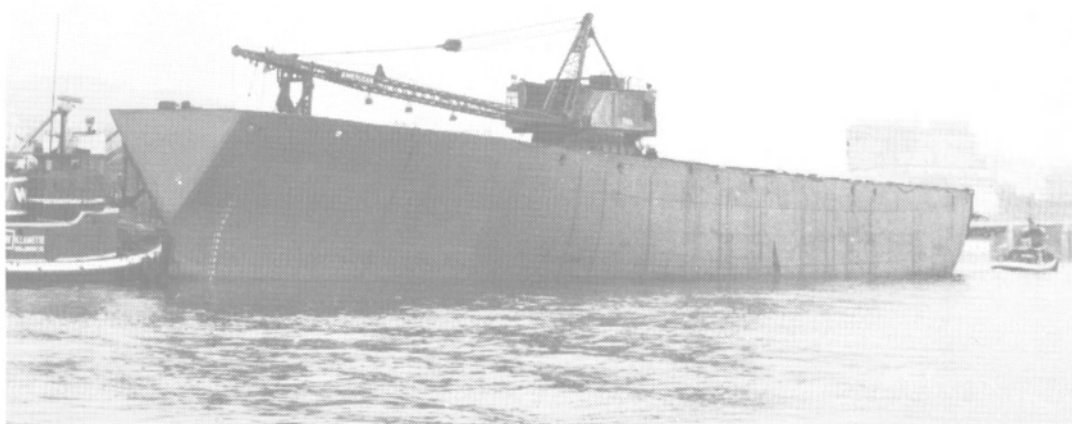
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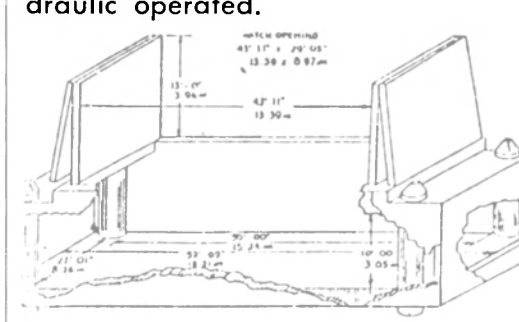
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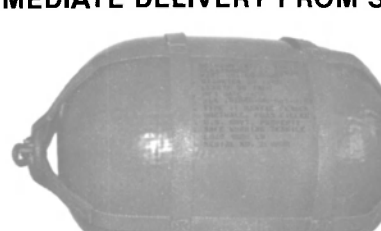
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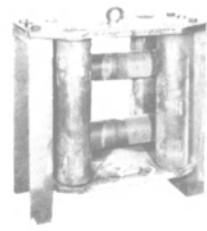


About 58" diam. With tieplates top & bottom. Est. wt 680 lbs each. Price each F.O.B. BALT. **\$349.00**

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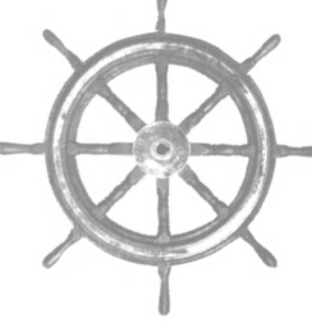


Weight loaded — atmospheric pattern. For tank connection flange size 4". Mfg. by Mechanical Marine Co. Inc. Figure 110 — with lifting gear.

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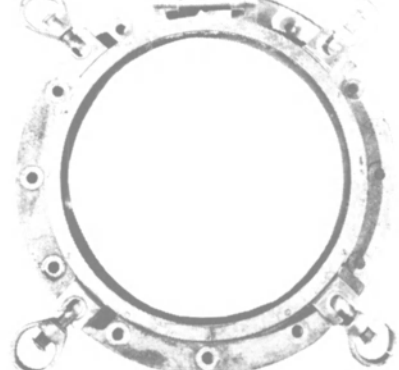


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CLEAR OPENING  
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PORTLIGHTS  
CLEAN BRASS  
all paint removed**

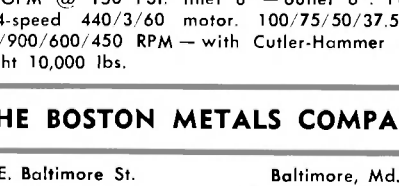


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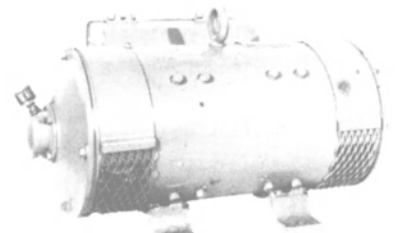


700 GPM @ 150 PSI. Inlet 8" — outlet 6". Powered by 4-speed 440/3/60 motor. 100/75/50/37.5 HP — 1200/900/600/450 RPM — with Cutler-Hammer control. Weight 10,000 lbs.

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James D. Noll Co., Inc., 3195 NW 20th Street, Miami, FL 33142  
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Transmetrix Delval, Inc., Gem Sensors Div., Spring Lane, Farmington, CT 06032

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Alsthom-Atlantique 75, Rue General Mangin, 61 X-38041 Grenoble Cedex, France

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Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark

Caterpillar Tractor Co., Industrial Division, Peoria, Ill. 61629

Colt Industries' Fairbanks Morse Engine Division, Beloit, Wis. 53511

Electro-Motive Division, General Motors Corp., LaGrange, Ill. 60525

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

Mitsui Engineering & Shipbuilding Co. Ltd., 6-4 Tsukiji, 5-chome, Chuo-Ku, Tokyo, Japan

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Seawork International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

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Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027

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Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039

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Gaulin Corporation, Garden Street, Everett, Mass. 02149

Smith Nymegen Corporation, 1511 K Street, N.W., Washington, D.C. 20005

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Dupont Company, Nemours Bldg. RM C3116, Centre Rd. Bldg., Wilmington, DE 19898

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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

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Perko Inc., P.O. Box 64000, 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

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Amrikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015

J.L. Bludworth, 8207 Glen Loch, Houston, Texas 77061

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CCS Marine Associates Ltd., 2784 Crescentview Drive, N. Vancouver, B.C. Canada V7R2V1

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Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
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ITT Decco Marine Inc., P.O. Box 5, Palm Coast, Fla. 32037  
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611  
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780  
Itron Corp., 5 Alfred Circle, Bedford, MA 01730  
Krupp Atlas-Elektronik, A Div. of Krupp Intl. Inc., P.O. Box 68218, Houston, Texas 77058  
Magnox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503  
Maritel Inc., 2510 Riva Road, Annapolis, Md. 21401  
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Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606  
Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311  
North American Philips Communication Corp., 91 Mckee Road, Mahwah, N.J. 07430  
RCA Service Co., Building 204-2, Camden, N.J. 08101  
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Raytheon Co., Submarine Signal Div., P.O. Box 360, Portsmouth, R.I. 02871  
Rockwell International, Collins Telecommunications Products Division, Cedar Rapids, IA 52406  
Rockwell International, Flow Control Division, 400 N. Lexington Ave., Pittsburgh, PA 15208  
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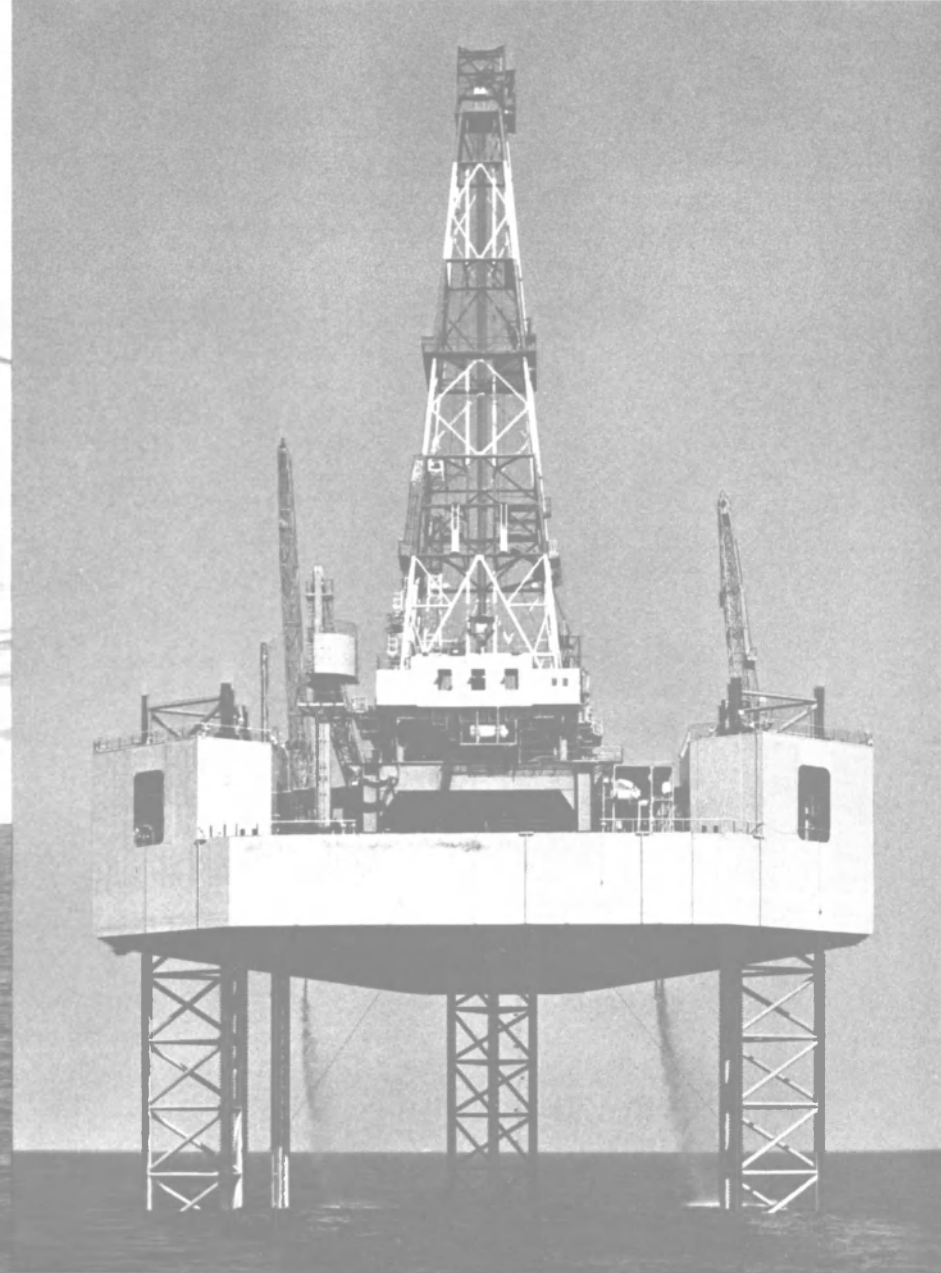
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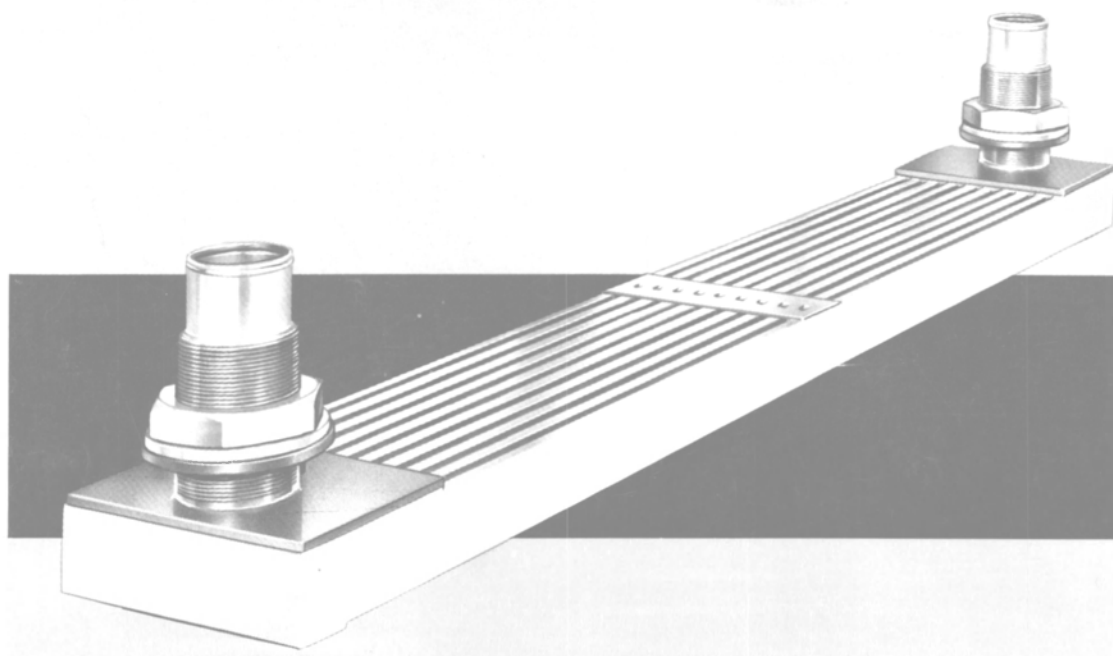
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