MARITIME
REPORTER
AND
ENGINEERING NEWS

INLAND WATERWAYS SHOW ISSUE

Nicor Clipper

Largest Offshore Supply Vessel Built In The United States Delivered By Moss Point Marine

(SEE PAGE 4)

Deck Machinery —A Special Report—

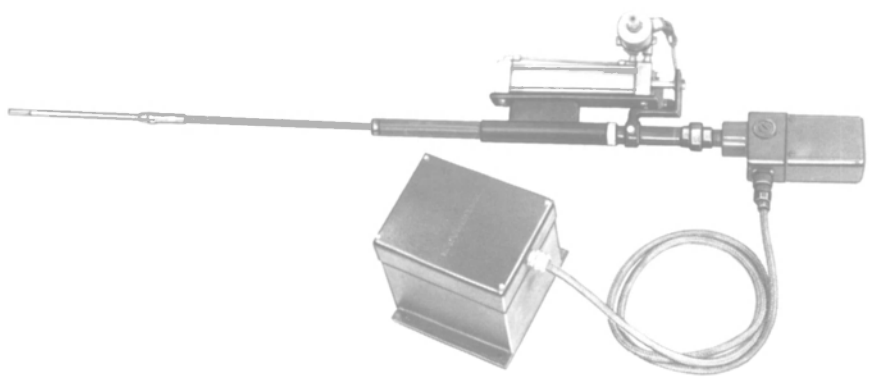
(SEE PAGE 4)

AUGUST 1, 1983

NOW from PENCO . . .

COWAN
POWER ARC IGNITER

PROVEN BY ON-BOARD USE



The Power Arc Igniter is a non-fouling inextinguishable, direct igniter for all fuels, No. 1 through Bunker C, and all common fuel gases. Through an exclusive total energy circuit, a high-temperature arc is created that will ignite heavy fuel oils more efficiently than a gas or torch lighter.

The PAI produces a quenchless arc 15 times per second. With its inherent design characteristics, it makes any fouling by water, oil or carbon completely ineffectual to its operation.

Power Arc Igniters are available in a wide variety of models for all types of applications.

FEATURES OF THE POWER ARC IGNITER

- Non-fouling
- Inextinguishable
- High-temperature Arc
- Total Energy Circuit
- Wide Variety of Models

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Military Ocean Terminal Base (MOTBY) Building #15A
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"Happy centennial, Brooklyn Bridge," from the McAllister Brothers.

The Brooklyn Bridge was completed in 1883 and is celebrating its 100 year centennial this year.
McAllister Brothers was established in 1864. We are proud that our barges played an important role in the building of this bridge.

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ON THE COVER

Cover Photo—John Sims Studio, Lucedale, MS

Newport News Awarded $97.5-Million Increase For Nimitz Overhaul

Newport News Shipbuilding, Newport News, Va., has been awarded a $97,591,800 increase to a previously awarded cost-plus-fixed-fee contract to accomplish the overhaul, alterations, and repairs of USS Nimitz (CVN-68). The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-82-C-2053).

Navy Awards Dillingham $3.7-Million Overhaul Contract For Salvage Ship

Dillingham Shipyard, Honolulu, Hawaii, has been awarded a $3,719,667 firm-fixed-price contract for the regularly scheduled overhaul of USS Reclaimer (ARS-42). The Supervisor of Shipbuilding, Conversion and Repair, USN, Pearl Harbor, is the contracting activity (N65202-70-C-0001).

$7.3-Million Navy Contract Awarded Southwest Marine

Southwest Marine Incorporated, San Diego, Calif. has been awarded a $7,363,779 cost-plus-fixed-fee contract for selected restricted availability program on the USS George Philip (FFG-12) with an option selected restricted availability on the USS Sides (FFG-14). The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-8534).

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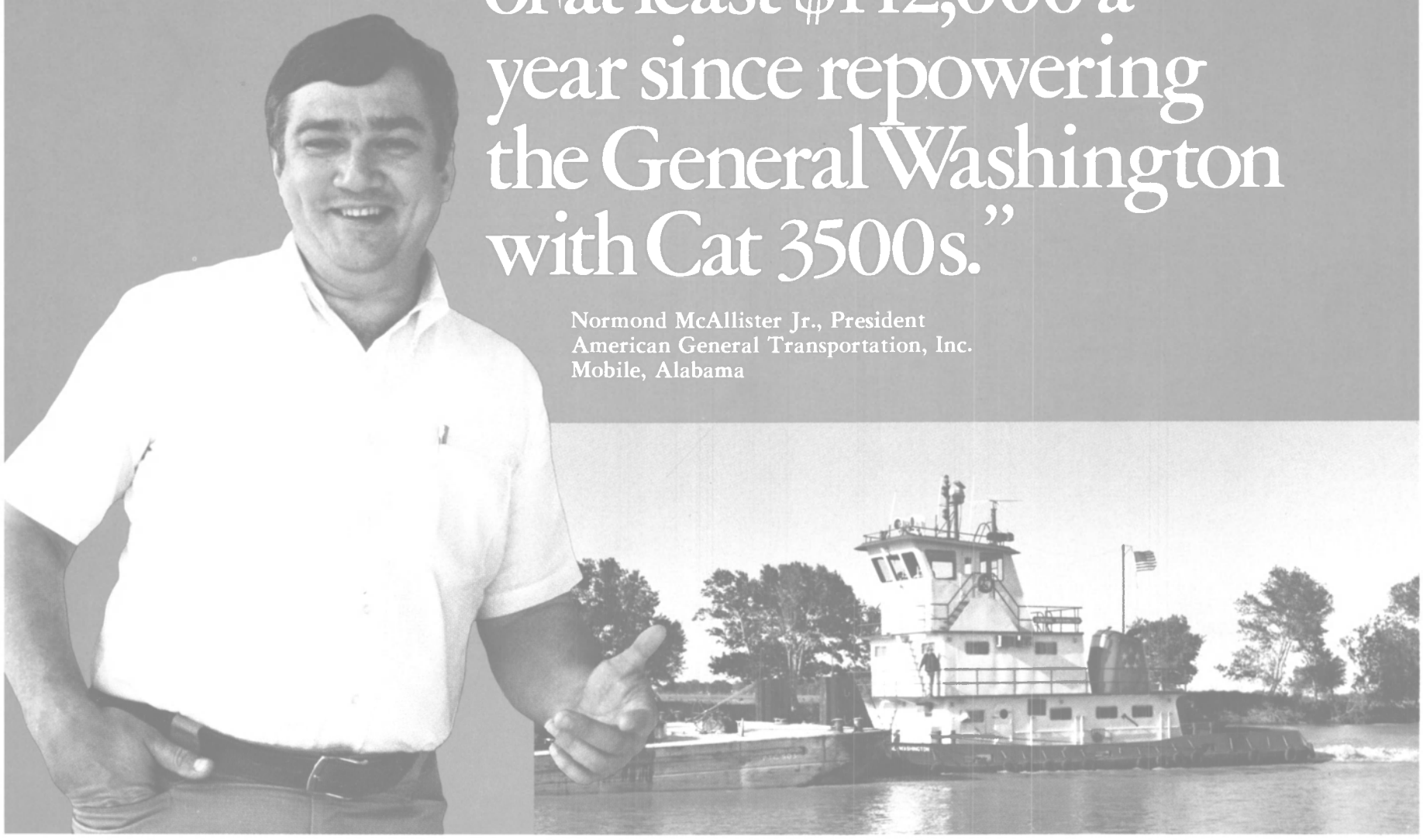
"We project savings in fuel costs of at least $142,000 a year since repowering the General Washington with Cat 3500s."

Normond McAllister Jr., President
American General Transportation, Inc.
Mobile, Alabama



The GENERAL WASHINGTON moves 298-ft tank barges on the inland waterway between Mobile and Tuscaloosa and on the Gulf Intracoastal Waterway between New Orleans and Houston.

After operating 8,700 hours with Detroit Diesels, Normond McAllister repowered the 75-ft towboat with two Cat 3508 Diesel Engines. At the same time, a fuel management computer system was installed. To get baseline data on the new engines — and information for a direct comparison between old and new engines — McAllister ordered his crew to make no changes in operating the GENERAL WASHINGTON. Here's what he found with his new Cat 3508s.

"Turning 1800 rpm like we did with the old engines, we were making much better trip times. When our cargo wasn't time sensitive, we ran them at 1700 rpm . . . and still couldn't tell any difference in trip times. So we backed off another 100 rpm. And our time was as good turning 1600 rpm as with the other engines turning 1800 . . . but we burned only 26 gph per engine instead of 40 gph.

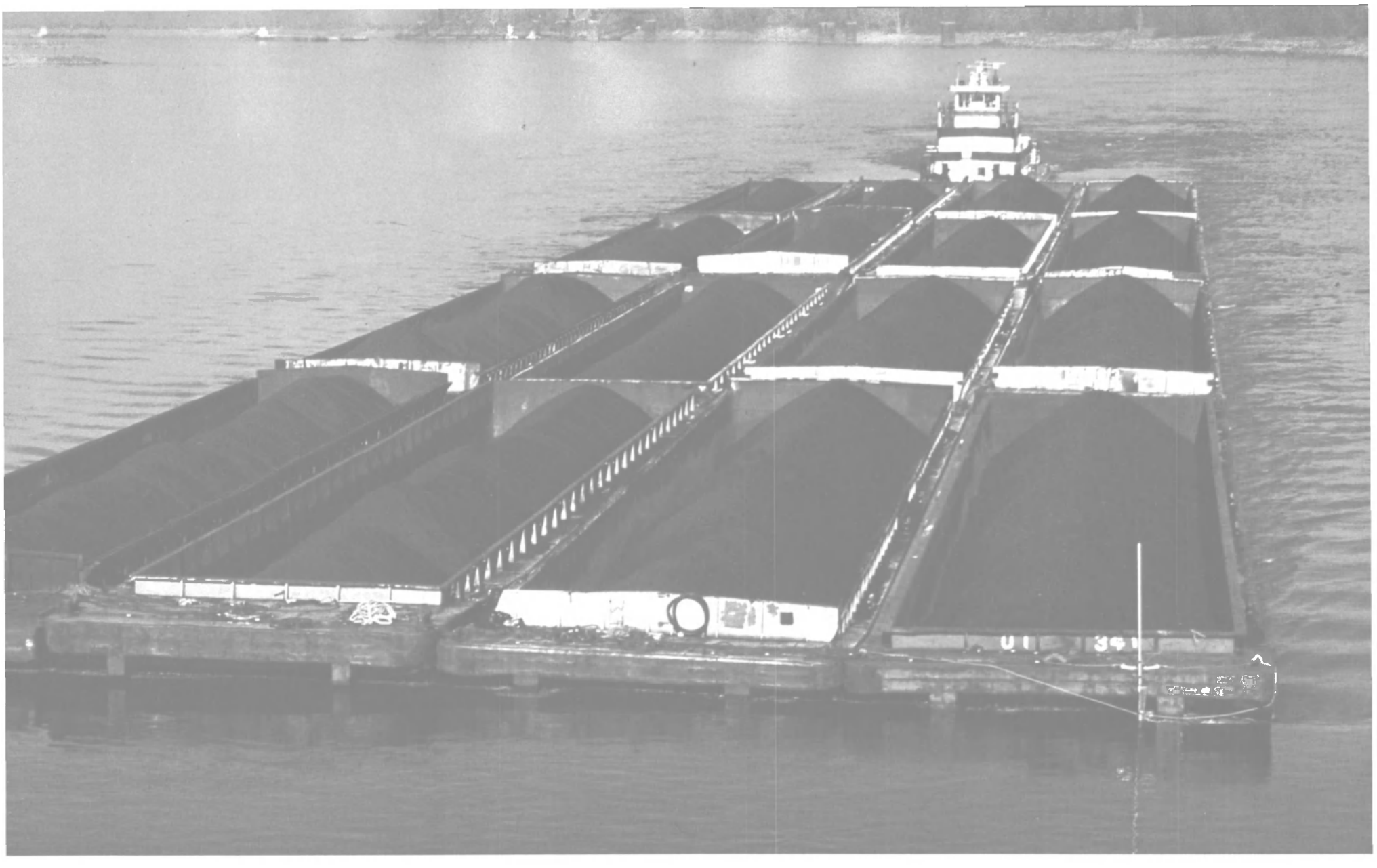
"That's a savings of 14 gph per engine. Based on running each engine 5,100 hrs/yr—and fuel costing about a dollar a gallon — I project saving at least $142,800 a year with the Cat 3508s."

"Our numbers aren't something somebody thinks up. We know within one-half of one percent what our fuel consumption is every day. The savings are there . . . and we have the logs and documentation to prove it."

Outstanding fuel economy isn't the only benefit McAllister is reaping with his Cat 3508s. "We calculate our net lube oil savings each year will be more than $3,200."

If you run your engines as much as Normond McAllister does, you'll find like he has, **Cat 3508s may actually pay for themselves in less than 1½ years.** To get more specifics on the tremendous money saving potential open to you with Cat 3500 Series Engines from 565-1600 hp (421-1194 kW), see your Caterpillar Dealer. Or write Caterpillar Information Services, P.O. Box 3900, Peoria, IL 61614.

CATERPILLAR



The First Annual

International Inland Waterways Conference & Trade Show

August 26-28, Louisville, Kentucky

The first annual International Inland Waterways Conference and Trade Show will take place August 26–28 at the Kentucky Fair and Exposition Center in Louisville, Ky. This conference and trade show, possibly the most comprehensive of its type ever presented, will be of major importance to all rivermen—waterway users, port and waterway builders, operators, maintainers, shippers, and shipyard and repair facility managers.

The sponsors of this ambitious undertaking, which also is seen as providing the industry with a focal point for further development, are the National Waterways Foundation of Arlington, Va., The Waterways Journal, and Inland Waterways Educational Services, Inc., of Louisville, Ky.

"The Foundation's primary aims and desires in sponsoring this conference are to foster a greater understanding and public awareness of the importance of inland water transportation to the growth and economic development of the nation and to advance the waterway industry's technical capabilities and efficiencies through research and educational assistance," said **J. W. Hershey,** board chairman of the National Waterways Foundation.

David A. Wright, vice chairman of the Foundation, stated: "It is absolutely vital to understand the importance of the inland waterways to our nation. If the degree to which waterways are appreciated in other countries can be adequately conveyed to our leaders, we will have taken a giant step toward seeing that our waterway system is kept moving forward."

"Industry people will be able to come to one location to view what's new on the market, attend functional workshops, and hear industry leaders express their opinions on topical subjects," said **Arthur G. Meyer,** executive vice-president of Inland Waterways Educational Services.

Vice-President **George Bush** and many other key figures of national and international prominence will be present to express their views on the future growth of inland waterways. The People's Republic of China is sending a three-member delegation headed by **Ma Xide,** director of administration of inland water transportation, who will talk about the development of water transportation in China. **James B. Newman,** chief of the Ports and Railways Project Division of World Bank, will speak on water transportation

financing in developing nations. **R. De Paepe,** president, Permanent International Association of Navigation Congresses (PIANC) will speak on international financing of ocean, port, and inland waterway transportation.

A three-member panel will address water transportation commodities and the world economy. Dr. **M. J. van Rooijen** with the Royal Dutch/Shell Group in Rotterdam, Netherlands, will speak on coal; **Mashhour Ahmed Mashhour,** chairman of the Suez Canal Authority in Ismailia, Egypt, will speak on oil, and **Lawrence F. Dewitt,** director of commodity marketing for Cargill, Inc., will speak on grain.

Dr. **Mark Baldwin** with the Imperial College of Science and Technology, London, England, will talk on the importance of low-cost waterborne transportation to the future of the U.S. Lt. Gen. **Joseph K. Bratton,** Chief of Engineers, will describe the National Waterways Study.

The morning sessions will be followed by five hours of exhibitor functions in the 130,000-square-foot exhibit area of the Kentucky Fair and Exposition Center. To conclude each day, after the close of the trade show, topical workshops are scheduled (See the accompanying tables listing the schedule and the workshops.)

DINAMO/OVIA Briefing

A briefing for DINAMO/OVIA members will be held August 26, 1983 in conjunction with the "International Inland Waterways Conference and Trade Show" in Louisville, Kentucky.

"DINAMO/OVIA—Joining Together to Improve our Region's Inland Waterways" begins at 11:00 a.m. on the first day of the three-day conference, following a keynote address by Vice President **George Bush.** The briefing will take place at the site of the confer-

(continued on page 8)

SCHEDULE

Friday, August 26

Opening Session
Welcoming address by **J. W. Hershey,** chairman, National Waterways Foundation.

8:30 am–10:30 am
Keynote speaker, the Hon. **George Bush,** vice-president of the United States, speaking on the "Role of Water Transportation to the Future Growth and Development of the U.S. Economy."

10:30 am–3:30 pm
Trade Show

Saturday, August 27

General Session—International Day.

8:00 am–8:45 am
"Water Transportation Financing in Developing Nations" by **James B. Newman,** chief of Ports and Railways Projects Division, World Bank.

8:45 am–9:30 am
"International Financing of Water Transportation: Ocean, Port and Inland" by **R. De Paepe,** president, Permanent International Association of Navigation Congresses (PIANC), Brussels, Belgium.

9:30 am–11:00 am
"Water Transportation Commodities and the World Economy" by
Coal: Dr. **M. J. van Rooijen,** Royal Dutch/Shell Group, Rotterdam. Netherlands.
Oil: Mashhour Ahmed Mashhour, chairman, Suez Canal Authority, Ismoila, Egypt.
Grain: Lawrence F. Dewitt, director of commodity marketing, Cargill Inc.

10:30 am–3:30 pm
Trade Show.

3:30 pm–4:30 pm
Seminar Session

Sunday, August 28

General Session—Water Transportation Systems Day.

7:30 am–8:00 am
Buffet breakfast sponsored by the National Waterways Foundation.

8:15 am–9:00 am
"Water Transportation 2000: How Important is Low-Cost Waterborne Transportation to the Future of Your Nation?" by Dr. **Mark Baldwin,** Imperial College of Science and Technology, London, England.

9:00 am–9:45 am
"National Waterways Study" by Lt. Gen. **Joseph K. Bratton,** chief of U.S. Army Corps of Engineers, Washington, D.C.

9:45 am–10:45 am
"The Development of Water Transportation in the People's Republic of China" by a representative from the People's Republic of China.

10:30 am–3:30 pm
Trade Show.

Inland Waterways Show

(continued from page 7)

ence, the Kentucky Fair & Exposition Center.

Participating in DINAMO/OVIA's one-hour program will be Brig. Gen. **R. S. Kem,** Division Engineer, U. S. Army Corps of Engineers; Rear Adm. **Sidney V. Vaughn,** 2nd Coast Guard District; **R. Barry Palmer,** Executive Director, DINAMO/OVIA; and **C. William Kinzeler,** Deputy Executive Director, DINAMO/OVIA.

The briefing will provide members the opportunity to better understand the implications of the merger of DINAMO and OVIA, and the role members must play if the DINAMO/OVIA effort is to be successful. DINAMO/OVIA members are urged to bring along nonmembers to the briefing.

Those wishing to attend the briefing should contact Peggy Fletcher at the Pittsburgh office, 412/392-4550.

THE RIVERMAN'S EXCHANGE WORKSHOP TOPICS
(3:30 pm–5:30 pm daily)

"Fuel Management/Fuel & Performance Monitoring" (Friday)
1. **William N. Robertson,** vice president, River Operations, Agri-Trans Corporation.
2. **James R. Labit,** assistant director of engineering, National Marine Service Inc.
3. (speaker to be named)

"Fuel Management/Blended Fuels, Part I (Saturday)
1. **R. Peter Spock,** manager of research and development, American Commercial Barge Line Company.
2. Capt. **George Lianopoulos,** George Lianopoulos Corporation, representing SCF Management, Inc.
3. **William S. Smith III,** vice president, Modern Diesel Power, Inc.

"Fuel Management/Blended Fuels, Part II (Sunday)
1. **Kenneth Siegman,** manager, Boat Operations, Midland/Ohio River Company.
2. **W. H. Rice Jr.,** vice president, Operations, Inland Waterways Division, Pott Industries.
3. **Robert H. Livingston,** manager, Boat Maintenance, Dravo Mechling Corporation.

"Using Cash and Futures Markets for River Trade, Strategies for Barge Freight Merchandising and Fuel Oil Hedging" (Friday)
1. **Jay J. Vroom,** executive vice president, Merchants Exchange, St. Louis.

"Avoiding the Pitfalls of Marine Product Liability" (Saturday)
1. **James W. Herron;** Lewis, Rice Tucker, Allen & Chubb.

"How Best to Plan and Construct River Ports and Marine Facilities" (Friday)
1. **James D. Pugh,** Indiana Port Commission.
2. **Paul C. Schnoebelen,** vice president, Massman Construction Company.
3. **Ronald N. Zimmer,** project manager, Sverdrup & Parcel and Associates.
4. **John Berra,** vice president, J. S. Alberici Construction Company.

"Safety Programs—Are Yours Up to Snuff?" (Saturday)
1. **Thomas W. Tooker,** director, National River Academy.
2. **Jerome P. Conrey,** manager loss control, Cargo Carriers, Inc.
3. **Mike P. Sheehan,** director of personnel, safety and contract negotiations, American Commercial Barge Line Company.
4. **John A. Jurgiel,** industrial hygienist, John A. Jurgiel & Associates.

"Tips on Credit Management for the Inland Waterways" (Friday)
1. **Thomas Alcorn,** professor of financial management, Bellarmine College.
2. **William McMurray,** National Association of Credit Management.
3. **Joseph Hammer,** collection attorney.

"Ports & Terminals/Financing" (Friday)
1. **J. Keith Kettering,** Arthur Anderson & Company. (IRS changes in industrial bond coverages.)
2. **Lynn Puryear,** Loan Office, Economic Development, City of Louisville. (Government aids.)
3. (speaker to be named). (State aids.)

"Ports & Terminals/Getting Business" (Saturday)
1. **Robert E. Dowland,** trade specialist, U.S. Department of Commerce-International Trade Development.
2. **Peter Fanchi Jr.,** retired president of Federal Barge Lines. (Selling advantages of waterways transportation.)
3. (speaker to be named). (Topping off the traffic.)

"Ports & Terminals/Problems That Can Slow Port Development" (Sunday)
1. (speaker to be named). (Flood plain regulations and flood insurance.)
2. **J. E. Kiper,** PE, chief, Construction Operations Division, Ohio River Division, Corps of Engineers. (Opposition to terminal permits.)
3. (speaker to be named). (High cost of longshoreman insurance.)

(continued on page 10)

Which heavy fuel purifier belongs on your boat?

Here's some helpful advice about getting the most from your investment in a heavy fuel engine.

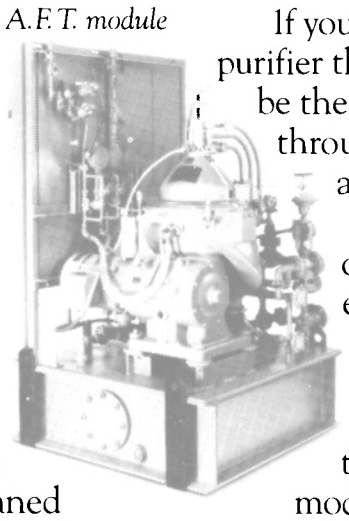
Let's say you've decided to switch to lower cost, heavier fuel.

Now what?

After selecting your engine, you have another key decision to make. Your fuel treatment system.

Which means you should talk to the people at Alfa-Laval. Because from now on, you'll need to purify fuel, on board, with a centrifugal purifier.

A.F.T. module



Not the manual-cleaned centrifuge you're already familiar with. But an Alfa-Laval self-cleaning unit. The purifier choices:

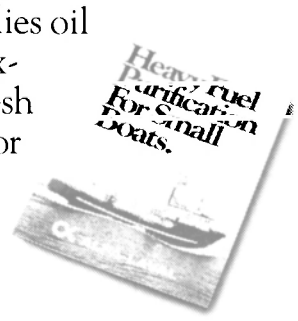
If you need a small heavy fuel purifier with a capacity of up to 320 gph, at 600 SR1, the Alfa-Laval MAPX 204 is your best choice. This unit, as with all self-cleaning centrifuges, automatically ejects sludge every few minutes. There's no need for frequent clean-up.

If you need a larger capacity purifier the MOPX 205 could be the answer. It handles throughputs of up to 575 gph, at 600 SR1.

If you simply want one of the finest purifiers ever made, you'll order an Alfa-Laval WHPX controlled discharge purifier. Unlike conventional self-cleaning models, which allow up to two gallons of fuel to escape with every ejection of sludge, the WHPX eliminates losses of fuel. Result: you can save thousands of dollars each year on fuel and haulage costs. WHPX 505 capacities range to 660 gph, at 600 SR1.

A final important point. Each purifier above can be incorporated into an A.F.T. (Alfa-Laval Fuel Treatment) module, ready for installation. The units are pre-piped and pre-wired, and contain the following components: sludge tank, pumps, controls and complete alarm protection.

To help you decide on the right purifier for your boat, why not do this? Simply call or write Marine Division, Alfa-Laval, Inc., 2115 Linwood Avenue, Fort Lee, NJ 07024. Tel: (201) 592-7800. Alfa-Laval supplies oil purifiers, heat exchangers and fresh water distillers for any size vessel.



Free Guide.

Inland Waterways
Show Booth #817

ALFA-LAVAL 1883 / 100 YEARS

Inland Waterways Show

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ANSCHUETZ OF AMERICA
AURORA TERMINAL
AUTOCATOR CONTROLS DIVISION
BLACKBURN MARINE EQUIPMENT CO.
BRAKE SUPPLY COMPANY
BROWNING MARINE
CENTRICO, INC.
CINCINNATI GEAR
CINCINNATI PUBLIC SCHOOLS
COMMERCIAL DIVER SERVICE
CRAWFORD FITTING CO.
CROWE ROPE COMPANY
CUMMINS ENGINE CO.
CUSTOM HYDRAULICS CORP., INC.
DELANEY OFFICES, INC.
DI FLOW, INC.
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D I N A M O
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DURBIN DURCO
DURO-TEST CORPORATION
EFFICIENCY SYSTEMS, INC.
EPSCO MARINE
FLEET DATA SERVICE
FOSTER MARINE DIVISION
FUEL MANAGEMENT ASSOCIATES
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GENERAL SYSTEMS, INC.
GREAT LAKES POWER PRODUCTS
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KOCH-ELLIS BARGE & SHIP SERVICE
KRUPP ATLAS ELEKTRONIK
KRUPP-MAK DIESEL, INC.
LOUISIANA DOCK
MARINE BUILDERS, INC.
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RACAL-DECCA MARINE
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SMITH & WEST

(continued on page 12)

There's no substitute for an original.

In the world of diesel power, there is no room for error when it comes to replacement parts. That's why smart buyers specify genuine Fairbanks Morse replacement parts for Fairbanks Morse and Colt-Pielstick* Diesel Engines. There is no substitute.

Other parts may "look" like genuine Fairbanks Morse replacement parts. But quality is measured in performance, and downtime is an expensive proposition. Physical and metallurgical inferiorities can cause premature failure and result in other more serious engine problems.

Insist on the original. To assure part compatibility, we supply only parts designed and tested for Fairbanks Morse built engines. And we continually update and improve our products, preserving the intricate relationship between all power assembly parts. Balance, low wear factor and desired efficiencies are obtained through optimum selection of alloys and design characteristics to insure the performance wear life and efficiency of all Fairbanks Morse power assemblies.

For unit exchange, component or full engine overhaul, call our Beloit headquarters or our authorized service shops in New Orleans, LA; Norfolk, VA; and Seattle, WA. Experienced, factory trained technicians will minimize engine downtime and assure new engine reliability. Additional parts facility located in San Francisco, CA.

Genuine Fairbanks Morse replacement parts—anything less is second best. Colt Industries, Fairbanks Morse Engine Division. Beloit, WI 53511. 608/364-4411

AUTHORIZED FAIRBANKS MORSE SERVICE IS AVAILABLE ONLY THROUGH FAIRBANKS MORSE REGIONAL PARTS AND SERVICE FACILITIES AT BELOIT, WI; NEW ORLEANS, LA; NORFOLK, VA; AND SEATTLE, WA.

ADDITIONAL PARTS FACILITY AT SAN FRANCISCO, CA.

THESE ARE THE ONLY LOCATIONS YOU CAN BE SURE OF GETTING PARTS AND SERVICE FOR YOUR FAIRBANKS MORSE ENGINES WITH FACTORY WARRANTY.

Fairbanks Morse
Engine Division

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Inland Waterways Show

List of Exhibitors

(continued from page 10)

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SUN PROPELLERS, INC.
SYNETIX SYSTEMS, INC.
TENNESSEE TOMBIGBY WATERWAY DEVELOPMENT AUTHORITY
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TYSON INDUSTRIES
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U.S. COAST GUARD MARINE SAFETY OFFICE
VAN DER HORST CORP.
WARTSILA POWER INC.
WATERCOM
WELLINGTON PURITAN INC.
WHAYNE SUPPLY COMPANY—CATERPILLAR
WJG RADIO
WOOTEN RIVER SERVICE
XPCL COMPANY

21st ANNUAL LIBERTY BELL CORROSION COURSE

September 21 - 23rd, 1983
Holiday Inn
Independence Mall — Fourth and Arch Streets, Philadelphia, PA.
Sponsored by the Philadelphia Section of N.A.C.E. and the Engineers Club of Philadelphia.

The Liberty Bell Corrosion Course offers five concurrent three-day courses presented by recognized specialists from industry, government, and scholastic areas.

The individual courses provide a systematic and progressive coverage of the developing technology, as well as "State of the Art" expertise.

Each of the courses is a well designed mix of fundamental and advanced information, all presented from a practical point of view. A supplemental educational source is the current literature from industrial firms which are available to all attendees.

COURSE I: **Principles of Corrosion**

Introduction to the basic elements of corrosion and their significance, including specific papers on cathodic and anolic protection, effects of soils, temperature, organic and inorganic coatings, testing procedures, inhibitors, culminating with a panel discussion on failure analysis.

- Corrosion and its Significance
- Inorganic Coatings for Controlling Corrosion
- Metallurgical and Mechanical Aspects of Corrosion
- High Temperature Oxidation
- Cathodic and Anodic Protection
- Methods for Testing Susceptibility to Corrosion
- Corrosion Inhibitors
- Materials Selection
- Engineering Properties of Plastics
- Controlling Corrosion with Organic Coatings

COURSE II: **Marine Seminar**

Broad overview of changes taking place in the marine industry including productivity improvements in ship construction, impact of new regulations on the industry, corrosion problems, improvements in Cathodic Protection systems, training program in surface preparation and application for shipyard personnel and review of generic protective coatings to provide long term corrosion protection.

- Preconstruction Priming in Shipbuilding
- Painting for Corrosion Control in Barge and Towboat Construction
- Corrosion Control of Tanks Aboard Oil Tanker
- Electro-Chemical Testing of Sacrificial Anodes
- Anticorrosive Pigments in Coatings
- An Overview of Epoxy and Coal Tar Epoxy System for Interior/Exterior Service
- Current Trends and Protective Coatings for Offshore Drilling Equipment
- A Practical Review of Paints and Coatings for the Exterior of Marine Vessels
- Overview of Exterior Marine Coatings, Alkyds/Silicone Alkyds & Chlorinated Rubber Systems
- Exterior Hull Coatings for Ice Worthy Ships
- Ultrasonic Thickness Measurement Techniques in use on Marine Structures
- Development and Application of Metal Spray
- Metal Sprayed Coating Systems For Shipboard Corrosion Control
- Painting For Corrosion Control In Barge and Towboat Construction
- Multifunctional Inhibitors for Medium to High Speed Diesel Engine Cooling Systems

COURSE III: **Protective Coatings and Linings**

Surface preparation standards, coatings, tank lining materials, quality control and inspection workshop. Failure analysis will be presented. Government impact will be discussed by a manufacturer, EPA and OSHA.

- A Constructive Conference On The Selection And Use of Protective Coatings
- Surface Preparation Standards, Methods, and Materials
- Coatings For Water Storage Facilities
- Mill Applied Corrosion Coatings
- Government's Impact On The Protective Coatings Industry
- Chemical And Pressure Water Cleaning For Preparation And Preservation Of Coatings
- Coating (Paint) Inspection Instrument — Types, Uses, and Calibrations
- Fiberglass Linings For Petroleum Storage Tanks
- Surface Preparation & Application Of Powder Coating
- Development And Application Of Metalizing Systems

COURSE IV: **Water Treatment**

Fundamentals of Water Technology, cooling water system, industrial boiler systems, waste treatment standards, and fundamentals of ion exchange technology will be presented.

- Introductory Fundamentals for Water Technology
- Pretreatment of Water for Cooling Water and Steam Generating Systems
- Chemical Treatment of Open Recirculating Cooling Water Systems
- Water Treatment for Industrial Boilers
- Fundamentals of Clarification and Filtration
- Fundamentals of Ion Exchange
- Weak Acid Resins in Water Treatment
- Use of Ion Exchange Resins In the Nuclear Industry
- Iron in Water and Processes for its Removal
- Organic Matter in High Purity Process Water System
- Evaluation of Pretreatment Alternatives to Ion Exchange Demineralization
- Evaluation of Ion Exchange Equipment
- Silica in Water and Processes for its Removal
- Factors Influencing Resin Rebed Decisions
- Evaluation of Ion Exchange Resins
- Deaeration and Degassification

COURSE V: **Cathodic Protection of Underground Structures**

This course is designed as tutorial in the design of cathodic protection systems for underground metallic structures such as pipe lines, fuel, oil tanks, structural steel, etc. The course is aimed at engineers employed by utilities, government agencies, architect/engineering firms, and industrial firms who are interested in reducing maintenance cost associated with corrosion.

- Fundamentals of Corrosion
- Introduction to Cathodic Protection Systems
- Electrical Models for Corrosion Circuits
- Introduction to Field Testing
- Interpreting Field Measurements
- Designing a Sacrificial Anode Cathodic Protection System
- Designing an Impressed Current Cathodic Protection System
- Post Installation Testing
- Deep Anode Groundbeds Material and Selection and Economics
- Stray Current Analysis

Fee Schedule:

3 Day Preregistration with Proceedings	$150.00
3 Day Registration with Proceedings	$175.00
1 Day Registration with Proceedings	$100.00
1 Day Registration without Proceedings	$ 60.00
Proceedings (per course)	$ 40.00

For complete information contact:
LIBERTY BELL CORROSION COURSE
c/o Ms. P. Ferlaino
The Engineers' Club
1317 Spruce Street Philadelphia, Pennsylvania 19107 215-735-4234

Atlantic Drydock Awarded $4-Million FFG Contract

Atlantic Drydock Corporation, Fort George Island, Fla., has been awarded a $4,072,151 firm-fixed-price contract for the selected restricted availability of USS Oliver Hazard Perry (FFG-7). The availability includes the drydock and topside portion of the work. The Supervisor of Shipbuilding, Conversion, and Repair, Jacksonville, is the contracting activity (N62670-70-C-0003).

New President Appointed At Fairbanks Morse

Melvin D. Maddox

Melvin D. Maddox has been appointed president of Colt Industries, Fairbanks Morse Engine Division in Beloit, Wisc. The announcement was made by **George W. Townsend,** group president for Colt Industries.

Mr. **Maddox** comes from Salt Lake City, where he has been vice president and general manager for Eimco Mining Machinery International since 1980. Prior to that he was associated with FMC Corporation for 12 years, last serving as division manager of their mining equipment division.

Mr. **Maddox** has a bachelor's degree in Engineering from Ohio State University, and an M.B.A. from the University of Chicago. He will be relocating to the Beloit area from Salt Lake City.

Midland Is Granted Contract Authority Status

The Ohio River Company, a subsidiary of Midland Affiliated, has been granted contract carrier authority by the ICC. It is the first barging firm to hold both common and contract carrier status.

The country's largest barge line, The Ohio River Company withdrew from the Waterways Freight Bureau and began publishing its own tariff in December of 1982. It sought contract authority from the ICC shortly after its withdrawal.

The contract carrier status was approved for the transportation of iron and steel products and scrap iron. An extension of the contract authority has also been applied for in regard to general commodities shipments along the entire inland river system. By this action, company officials believe a more cost-effective service can be provided to their customers.

NASSCO Holds Christening For Second Ingram-Class Tanker

Christening ceremonies were held recently at National Steel and Shipbuilding Company (NASSCO), San Diego, Calif., for the M/V Hunter Armistead, the second Ingram-Class tanker built for American Tankships, Inc., a subsidiary of Ingram Corporation, New Orleans.

The vessel is the latest addition to the U.S.-flag Jones Act tanker fleet and is the final vessel planned for construction in the independent tanker fleet. As soon as the Hunter Armistead goes into service, Ingram Tankships, Inc., another Ingram Corporation subsidiary, plans to offer the ship for hire to major oil companies and the Military Sea Lift Command for transportation of crude oil and/or petroleum products.

The vessel is named for **Hunter Armistead** of Nashville, Tenn., who is chairman of Ingram's Insurance Division and is a member of Ingram's board of directors. His wife, **Clare,** served as the ship's sponsor. Mrs. **Guilford Dudley Jr.** and Mrs. **William F. Earthman Jr.** of Nashville, were matrons of honor. Mr. **Dudley,** a former U.S. Ambassador to Denmark, is vice chairman of the board of directors of Ingram Corporation and Mr. **Earthman** has just been named deputy chairman of the Ingram Group. Others participating in the ceremonies included **C. Larry French,** NASSCO president; **Cyrus E. Webb,** Ingram Tankships president; Adm. **Harold E. Shear,** U.S. Navy (ret.), Maritime Department, U.S. Department of Transportation; and **Alfred W. Lutter Jr.** vice president of marketing for NASSCO.

The keel of the vessel was laid June 10, 1982, by **Fred B. Baldwin,** Ingram Tankships vice-president, who struck the initial arc. **C. Larry French,** president and chief operating officer, represented NASSCO in the keel-laying ceremony. The Hunter Armistead was launched January 29, 1983.

Dignitaries at the christening (left to right): **Eugene Armstrong,** executive vice president, Industrial/Mining Operations, Morrison-Knudsen Company, Inc.; **C. Larry French,** president, NASSCO; **Mrs. Jane Dudley,** matron of honor; **Hunter Armistead,** president, Ingram Group; **Clare Armistead,** sponsor; **Mrs. Dorothy Earthman,** matron of honor; **Cyrus E. Webb,** president, Ingram Tankships Inc.; and Adm. **Harold E. Shear,** (US Navy-ret.), Maritime Administrator, U.S. Maritime Administration.

The Hunter Armistead is of a new NASSCO design and is 658 feet long, 90 feet in beam, with a draft of 36 feet. It will be a U.S.-flag ship, capable of carrying up to 300,000 barrels of refined petroleum and petrochemical products from U.S. refineries to distribution centers in this country. It will be powered by a Sulzer slow-speed diesel.

The vessel will also be a prime candidate for the transportation of Alaska North Slope crude oil and newly discovered offshore California crude. The vessel will incorporate the most modern equipment available and will meet the latest safety and environmental protection standards, including double bottoms, a clean segregated ballast system, an inert gas system, a sewage treatment plant, collision avoidance radar, and a backup steering system.

Cy Webb, Ingram Tankships president, stated that the Hunter Armistead is the type of ship the Department of Defense has said the nation needs in case of a national emergency. The military must have ships capable of entering strategic ports all over the world to deliver fuel and other petroleum products to support military campaigns. Utilization of ships larger than the Hunter Armistead is limited by depth and width restrictions existing in most ports and significant number of tankers of the size smaller to the Hunter Armistead are old and outdated. In recent years, only a few ships the size of the Hunter Armistead have been built.

NASSCO has produced an average of three tankers a year over the past decade in addition to delivering an average of one vessel a year to the U.S. Navy.

M/V HUNTER ARMISTEAD
Major Suppliers

Main Propulsion	Sulzer
Propeller	Ferguson
Generator Engines	Hawker-Siddeley, Detroit Diesel
Panels	General Electric
Steering	Sperry Marine
Motors	Reliance Electric
Automation Systems	Tano
L.O. & F.O. Purifiers	Centrico
Pumps	Worthington
F.O. Pumps	IMO Pump Div/ Transamerica Delaval
Inert Gas System	Holec Gas Generator
Waste Heat/Aux. Boilers	Babcock & Wilcox
Tank Cleaning	Victor Pyrate Co.
Radio & Navigation	ITT Mackay
Radar	Raytheon
CAS	Raytheon
Jib Crane	Lake Shore
Winches	SMATCO
Anchor Windlass	SMATCO
Anchor	Baldt

Dravo Offers Free 66-Page Color Brochure Describing Towboat & Barge Designs

Dravo Corporation, proud of the firm's marine capabilities, recently issued a 66-page, hard-cover, ring-bound brochure describing the company's facilities and its standard towboat and barge designs.

This attractive book contains many color photographs and is divided into six sections covering capabilities, towboats, dry cargo barges, coal barges, tank barges and special purpose barges.

It completely describes the 2,800 hp, 4,200 hp, 5,600 hp, 6,000–6,400 hp, 7,000 hp and 10,500 hp Viking class towboats as well as all the barge designs.

A separate page is included for each towboat and barge containing detailed plans and specifications.

Dravo's Neville Island shipyard is located on the Ohio River, 10 miles downstream from its corporate headquarters in Pittsburgh, Pa. Approximately 70 acres of land accommodate administrative, engineering and sales offices, along with construction facilities for towboats and barges, a barge cover construction and marshalling yard, launching ways, outfitting and loading docks. These facilities also include marine repair services afloat and a side-haul marine railway.

The firm's in-house capabilities make it possible to produce quality marine equipment efficiently and economically to their design or the customer's specifications. The facilities make it possible to build in excess of I½ barges each working day and to launch a towboat every three weeks.

For a free copy of the 66-page Dravo brochure,

Write 94 on Reader Service Card

Hyde Awarded Navy Boat Winch Contract

Hyde Products, Inc. of Cleveland, Ohio, has received contract N00123-83-C-0407 from the Naval Regional Contracting Center in Long beach, Calif. to build a two-speed, 20-hp boat winch for the USS Fox (CG-33).

The winch, used to launch and stow 26-foot personnel boats and 33-foot utility boats, can be operated electrically or manually. It has been designed for maximum operation safety, featuring a mechanical overspeed protection which automatically controls the rate of descent. Additionally, the controls are located well outboard so that the operator can face forward with a full view of the boat at all times.

Winch capacity at high speed is 7,725 lb. pull on each of two lines (15,450 lb.) at 40 feet per minute. Drum capacity is 150 feet (75 feet on each half) of 7/8-inch wire rope. Maximum lowering speed is 100 feet per minute.

For further details on Hyde winches,

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Genstar Appoints West Executive Vice President

Jack A. West has been elected an executive vice president of Genstar Corporation, of San Francisco, Calif. Based in the company's San Francisco executive office, he has assumed responsibility for its marine services group and heavy construction operations.

The marine services group includes Seaspan International Ltd., Genstar Shipping Ltd., and McAllister Towing & Salvage Ltd.

Effective January 1, 1984, he will also be placed in charge of Genstar's U.S. building materials manufacturing operations.

Mr. **West** had joined King Paving Company of Ontario in 1956 and became an executive of the Flintkote Company when that corporation purchased King Paving in 1960. At the time Genstar acquired Flintkote in 1979, he was president of the stone products operation. Prior to this new appointment, he had been president of Genstar Cement & Lime Company in San Francisco.

With annual sales in excess of $1.5 billion, Genstar—a leading supplier of building materials and services—is active in land and real estate development and is engaged in a variety of financial and marine services.

SNAME Panel SP-8 Members Survey NASSCO's Productivity Gains

Recent accomplishments by the industrial engineering staff and Sheetmetal Department at National Steel and Shipbuilding Co. (NASSCO) were viewed by Panel SP-8 of The Society of Naval Architects and Marine Engineers at the spring industrial engineering meeting held recently in San Diego, Calif.

NASSCO is one of six U.S. shipyards currently involved in funded efforts to improve shipyard productivity under the sponsorship of Panel SP-8. Publication of the results and cost saving potential developed through these efforts is generally augmented by actual demonstrations, provided in conjunction with regular panel meetings.

Panel SP-8 on Industrial Engineering is one of SNAME's nine technical and research panels of the Ship Production Committee. Panel sponsored projects are funded by the U.S. Maritime Administration and the U.S. Navy on a cost-shared basis with the shipbuilding and ship repair industry.

The objective of SNAME Panel SP-8 is to assist U.S. shipyards in the development and implementation of an improved industrial engineering capability in order to reduce the time and cost of ship construction and repair.

The present program at NASSCO involves the use of Engineered Labor Standards to facilitate shop loading for the 200 man sheet metal shop. One aspect of the system involves the standardization of 14 ventilation duct shapes which has simplified both the design process and the application of engineered labor standards. A related effort by NASSCO's shop planners has been the development of a Computer Aided Design system which incorporated these standardized shapes.

The 30-member industrial engineering panel represents naval and commercial shipyards, MarAd, the Naval Sea Systems Command, and the industrial engineering profession. Persons interested in SNAME Panel SP-8 activities are invited to contact Panel secretary **Joseph R. Phillips** at (207) 443-3311, ext. 3360.

Durbin-Durco Introduces New Type Of Load Binders —Free Literature Offered

Durbin-Durco, Inc., a St. Louis-based manufacturer of load security products, recently announced a major design breakthrough in load binders. The binder, developed by the company's engineering department, results in a significant reduction of time needed to secure a load, and keep it secured, during transit.

The new binders, manufactured under the "Adjust-Tight" trademark, will be available with a wide range of capacities. Literature is offered describing them. The "Adjust-Tight" binder combines the speed of a lever binder with the flexibility of a ratchet binder, through the incorporation of a threaded barrel. The "Adjust-Tight" binder user does not have to search for the correct chain link to give him the right "feel" or tension when locking down the handle. He grabs the chain once, and twists the barrel one way or the other to set the tension needed.

For complete details,
Write 81 on Reader Service Card.

Canadian Navy Awards $3.85 Billion, Six Frigate Contract To Saint John

The Canadian Government has awarded a $3.85-billion contract to Saint John Shipbuilding & Drydock Co., St. John, New Brunswick, as prime contractor for the construction of six navy frigates. Saint John Shipbuilding will collaborate on the project with Sperry Inc., a unit of Sperry Corp. The government said three of the ships will be built by Saint John Shipbuilding and three by Marine Industries Ltd., Sorel, Quebec.

Oerlikon Opens $7-Million U.S. Manufacturing And Laboratory Plant For Welding Consumables

Dr. **Menzi** throws the switch that started production at Oerlikon's new manufacturing facility in Houston, Texas.

Dignitaries from the international and national welding and business communities recently gathered in Houston, Texas, for the commissioning ceremony of Oerlikon Welding Industries's new $7-million welding consumables manufacturing facility.

Oerlikon Welding Industries (OWI), an Oerlikon-Buehrle Group Company, will serve as the North American headquarters for the welding division of Oerlikon-Buehrle, multi-billion-dollar Swiss parent company with diversified product groups throughout the world. OWI's new 58,000-square-foot manufacturing facility is one of the first new flux manufacturing plants to be built in the U.S. in over 20 years. It utilizes a unique high-temperature flux drying kiln designed exclusively by Oerlikon. In addition to submerged arc flux, OWI will also manufacture a complete selection of covered electrodes.

James T. Hickey, vice president and general manager, introduced guest speakers **M. D. Randall,** 1983–84 president of the American Welding Society, and Dr. **Herbert Menzi,** head of welding industries Oerlikon-Buehrle Ltd. in Zurich, Switzerland. In his speech, Dr. **Menzi** cited Oerlikon-Buehrle commitment to the American market and pledged full support to OWI's product development. He then flicked a switch and Oerlikon's manufacturing facility roared into production.

Following the opening ceremony, guests were taken on tours of Oerlikon's plant and laboratory facilities to become acquainted with the many technical aspects and manufacturing processes associated with the production of submerged arch fluxes and covered electrodes.

According to Mr. **Hickey,** OWI has outfitted one of the most impressive welding laboratories in the Southwest. Analytical equipment includes an ARL inductively coupled plasma spectrometer for analysis of acid-dissolved alloy samples; a DIANO XRD-8565 X-ray fluorescence analyzer for both metallic and non-metallic material analysis; a LECO PTF 700 induction melting furnace; and LECO EC 12 carbon analyzer for infrared analysis of carbon levels down to parts per million.

The Oerlikon laboratory represents a $1-million investment to ensure quality consumables and services. In addition to monitoring its manufacturing procedures, Oerlikon plans to contract technical services to welding fabrication industries, research organizations, metallurgical industries, and steel-making foundries.

Maritime Industries Offers Free Literature On Z-Drive Propulsion

Maritime Industries Ltd., of Burnaby, British Columbia, Canada, is offering free literature describing its 360-degree steerable fixed pitch Z-drives.

The Maritime Z-drives come in a wide range of powers and propulsion package configurations from 120 hp to 2,145 hp. They offer vastly increased maneuverability and withstand arduous operating conditions. Applications range from offshore service craft and systems for drill rigs, to ferries, tugs, and many other commercial and military vessels.

Maritime Industries recently commissioned two model 900 DF deck-mounted 360-degree steerable Z-drive propulsion packages for Manson Construction of Seattle on the 4,000-cubic-yard split hopper dredge Newport. The units integrate the engine clutch shafting on a common base and support the top of the 20-foot leg.

The nozzle is fitted with an anticavitation plate to assist in performance at very shallow draft, such as after dumping. The units are driven by Detroit Diesel 16V149s rated at 900 hp each. Control of the Z-drive is by Maritime joystick control combining the engine, clutch and thrust direction in a single lever.

The excellent Z-drive maneuverability is augmented by a Maritime Industries' 200 TT hydraulically driven bow thruster.

For complimentary copies of informative literature on the Z-drives,

Write 14 on Reader Service Card

Moran Appoints Two Top Executives

Capt. **Russell G. McVay** has been appointed vice president of operations for Moran Towing & Transportation Co., Inc. to succeed Capt. **Leonard G. Goodwin,** it was announced by **Thomas E. Moran,** president.

Captain **Goodwin,** an internationally respected authority on ocean towing and a Moran employee for nearly four decades, has retired but will remain with the firm as marine consultant.

Edmond J. Moran Jr. has been named manager, Moran Barge Division, a new post which includes management of all Moran oceangoing, dry bulk, and tank barges as well as oil transportation barges of Seaboard Shipping Company, a Moran subsidiary in New York.

Both appointments are effective July 1, 1983.

Captain **McVay** is a graduate of the United States Merchant Marine Academy at Kings Point, N.Y. He served as master in Moran offshore tugs until assigned managerial duties with a Baltimore, Maryland affiliate of Moran in 1969. Appointed manager, Seaboard Shipping Company in 1973 with headquarters in One World Trade Center, New York City, Capt. **McVay** moved his family to Manalapan, N.J.

Captain **McVay** was named harbor operations manager for Moran Towing & Transportation Co., Inc. in 1978. He was responsible for the operation of all Moran harbor tugs and oil transportation barges in the Greater Port of New York/New Jersey area, on Long Island Sound, and in adjacent waterways. Moran's board of directors elected Capt. **McVay** as vice president of Moran Towing & Transportation Co., Inc. in 1980.

Edmond J. Moran Jr. is a great-grandson of **Michael Moran,** founder of the Moran firm in 1860, and the youngest brother of its president, **Thomas E. Moran.**

Prior to coming to his new post in New York, Mr. **Moran** directed Moran Maritime Services, Inc. to a new business development office located in Houston, Texas.

Mr. **Moran** graduated from Georgetown University in Washington, D.C. in 1967, completed studies in its Graduate School of Foreign Service the following year and joined the corporate planning division of States Marine Lines in New York.

A member of the U.S. Naval Reserve, he was called to active service and assigned duty at the Navy's nuclear submarine base in Groton, Conn. In 1971, Mr. **Moran** joined the family firm as a member of its sales department in its New York headquarters.

Turning to corporate finance, Mr. **Moran** was appointed assistant vice president of finance in 1973. With Moran's acquisition of the Florida Towing Company in 1976, he was named vice president and general manager of the Jacksonville, Fla., firm.

In 1981, Governor **Bob Graham** of Florida appointed Mr. **Moran** to his Board of Pilot Commissioners as the second maritime-oriented commissioner to serve on the board. He is credited with revitalizing the Florida Towing Company with fresh goals, new operating equipment and with instilling a strong spirit of dedication to the port's needs.

While with the Florida Towing Company, Mr. **Moran** also served as general manager of Moran Towing of Texas, a Gulf Coast subsidiary in Port Arthur.

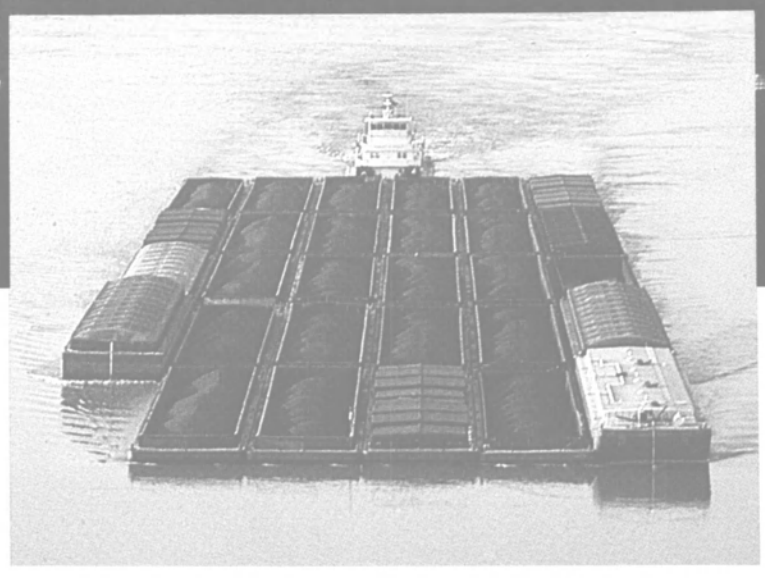
$47-Million Refit Contract For 4 Canadian Destroyers Awarded Burrard Yarrows

Burrard Yarrows Corporation, has been awarded a long-term contract to refit four MacKenzie-class Canadian naval destroyers.

The contract, worth about $47 million (Can.), was signed recently in Victoria, British Columbia, by Supply & Services Minister, **Jean-Jacques Blais,** and Minister of National Defense, **Gilles Lamontagne.**

The destroyer Qu'Appelle, Yukon, Saskatchewan, and MacKenzie will be refitted in that order at Burrard Yarrows Corporation's Victoria Division over the next four years, providing 7½ months' work in each of those years. Work on the first ship, Qu'Appelle, has already begun.

ENERGY FLEXES OUR MUSCLE.



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TeleSystems' New Satellite Terminal Type Approved —Literature Available

Comsat TeleSystems, Inc., of Fairfax, Va., announced recently that its new generation maritime satellite terminal, the MCS-9000, has received an unqualified type approval from Inmarsat and certification from the U.K.

TeleSystems now has free literature available completely describing the MCS-9000.

Following a series of rigorous tests established by Inmarsat, the MCS-9000 was approved by Certificate No. I-15. An unqualified approval signifies that the MCS-9000 meets all of the latest technological specifications that have been prescribed for Inmarsat ship earth stations including full environmental requirements, noise muting, and fleet and national groups calling capabilities.

Although all maritime ship earth stations must meet Inmarsat specifications, individual nations may have additional evaluation criteria. The British Home Office recently granted the MCS-9000 its MPT 1260 certification which grants permission for MCS-9000 ship earth stations to be installed on U.K.-flag vessels.

The MCS-9000's unique features include extremely compact below-deck equipment, simplified operation through advance terminal software, and a highly reliable passively stablilized antenna system.

For free literature containing full details on the MCS-9000,

Write 88 on Reader Service Card

Adams & Porter Elects Valenza To Assistant Vice President Post

Adams & Porter Incorporated, international insurance brokers, recently announced the election of **Joseph G. Valenza** to the position of assistant vice president.

Mr. **Valenza,** working from company headquarters in New York's World Trade Center, is a general lines insurance broker with special training and experience in the field of marine insurance. He is responsible for development of new business, marketing, and servicing of accounts.

Mr. **Valenza** began his insurance career in 1976 working for a marine underwriting management group. He joined Adams & Porter in 1980.

Load Positioner Places 250 Tons Within .03mm —Literature Available

Del Mar Avionics of Irvine, Calif. is offering literature describing its "Hydra-Set" precision load positioner and auxiliary crane control. Del Mar states the "Hydra-Set" provides micro-inching precision placement of objects weighing up to 250 tons to within .001 inches (.03 mm).

When used with a crane or hoist, the company reports, the hydraulically operated tool will precisely raise or lower a load through a 12-inch operating range. The built-in load gauge indicates any strain, binding, or misalignment of the object as it is being raised or lowered into position.

Hydra-Set is available in 10 models with weight capacities ranging from one ton to 250 tons. Models up to 50 tons may be operated manually from up to 50 feet away. The larger capacity DHS series "Hydra-Sets" (75 tons and greater) come complete with electro-hydraulic remote operation from 100 feet away. The DHS series also have preset stalling capabilities; upon meeting the slightest resistance up or down, the unit will sense the resistance and stall automatically before damage can occur.

All "Hydra-Sets" are calibrated to National Bureau of Standard specifications, and can be used to proofload cranes and associated rigging gear. Each unit is portable and comes with its own castered storage stand, providing precise control for every crane or hoist.

For additional details and free literature,

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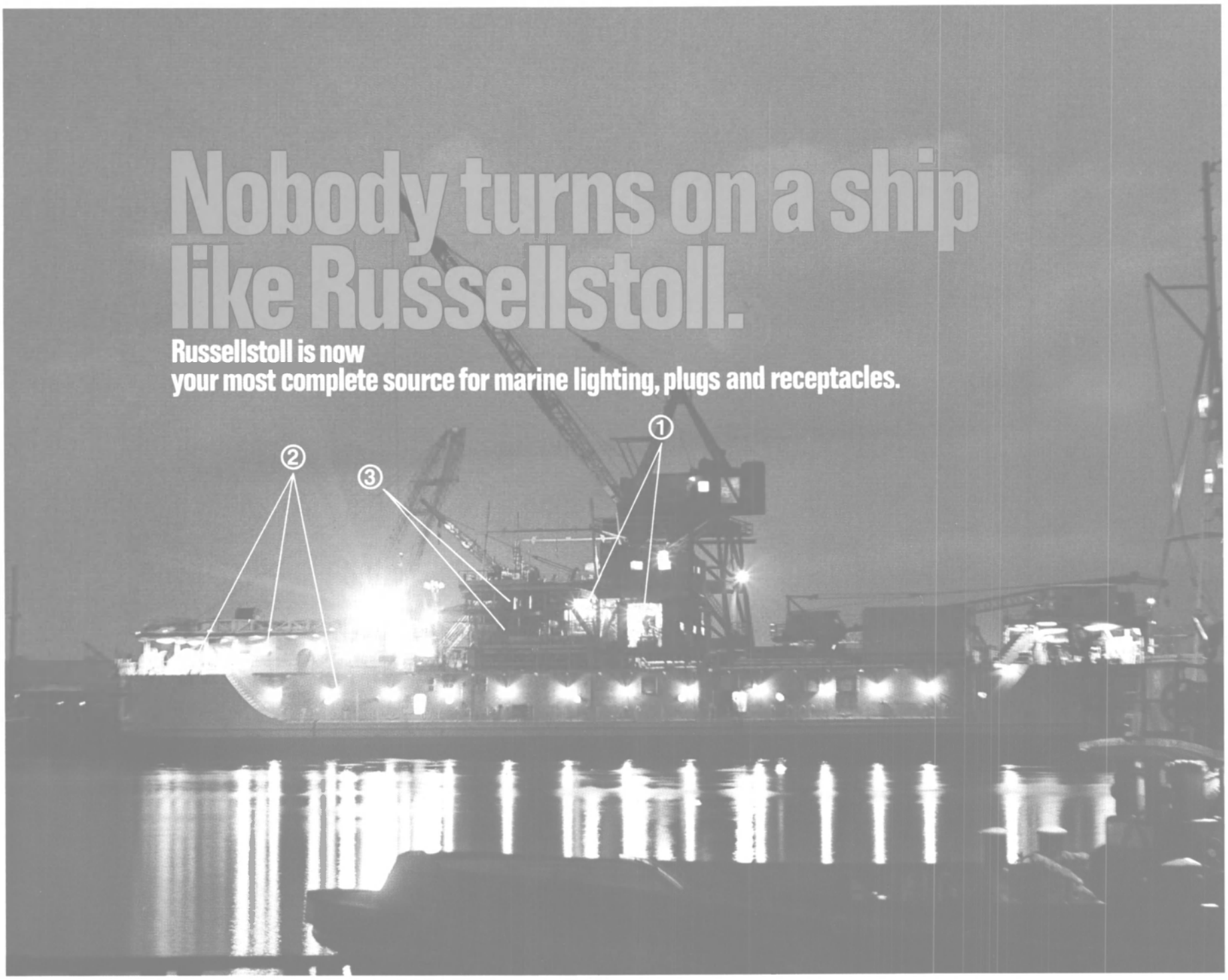

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- Corner Mount Passageway Fluorescent
- Fluorescent Mirror Lights
- Incandescent Table Light
- Fluorescent Desk Lamp
- Incandescent Ceiling Fixtures
- Rotary Switches

② Outside Type Products:
- Incandescent Flood Light
- Vaportight Fluorescents (NRL Products)
- Vaportight Incandescents
- HID Deck Fixtures
- Convenience Outlets
- Max-Gard Plugs and Receptacles
- J-Line Plugs and Receptacles
- Mipco Reefer Power Plugs and Receptacles
- Navigation Lights
- Helipad Deck Lights

③ Hazardous Location Products:
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MIDLAND ROSS

Moss Point Marine Delivers Nicor Clipper— Largest Offshore Tug/Supply Vessel Built In The U.S.

When Moss Point Marine of Escatawpa, Mississippi, delivered the Nicor Clipper to her owners recently, the tug/supply/container deck vessel made the record book.

Delivered to new owner Nicor Marine Inc., of New Orleans, the Nicor Clipper measures an astounding 254 feet in length—believed to be the largest offshore workboat vessel ever built in the United States, according to Moss Point Marine president **John Dane III**. The vessel was delivered to her proud new owner this summer.

The aft-stacks vessel measures 254 feet by 44 feet by 16 feet overall. In addition to her below deck supply vessel mud storage capabilities, the vessel has unique above deck characteristics, too, primarily in the form of a special stern ramp that allows cargo containers to roll on and off the gargantuan deck area for freight carrying. The stern ramp was constructed by the Moss Point Marine work crews.

The vessel actually began life as a more conventionally sized 214-foot vessel. But after construction began, Nicor requested that modifications be made to extend the deck area an extra 40 feet.

"I'm proud of the manner in which our shipyard was able to take on the additional demands of lengthening this vessel once construction was already underway," commented Mr. **Dane**. "Not only have we delivered a first-class vessel for Nicor, but by so doing, we've set a new record in the shipbuilding community around the world."

Powering the Nicor Clipper are a set of EMD 12-567C diesels linked to Falk reduction gears on a 2.968:1 ratio. Engine controls are by Wabco with engine monitoring by Engine Monitor (EMI). A Harbormaster BT-550 bow-thruster will enable the vessel to have extra maneuverability around offshore structures.

Shipboard power is provided by a set of Delco 150-kw generators provided by George Engine Company.

The Nicor Clipper contains 242,430 gallons fuel storage capacity; 24,780 gallons of fresh water; 1,300 bbls. liquid mud storage and 6,000 cubic feet bulk mud capacity.

Her electronics systems were supplied and installed by Marine Electronics and include: a set of Furuno FR-1011 radar sets; Stephens SEA 106 and Sailor RT-144 radiotelephones; a TI 9000 Loran, a Decca 801 Satnav; and Sperry gyrocompass and autopilot.

Deck side equipment includes two McElroy tug winches and an HBL anchor windlass. Other equipment includes Carlisle & Finch searchlights; Kahlenberg horns and Hubbel running and navigation lights.

The vessel is both ABS and USCG certified.

Lehman Named Manager Marine And Industrial Sales At Electro-Motive

Theodore J. Lehman

The appointment of **Theodore J. Lehman** to the position of manager, marine and industrial sales, in the sales department of Electro-Motive Division of General Motors Corporation has been announced by **Warren A. Fox,** director of sales and service.

Mr. **Lehman,** formerly manager of marine sales, is assuming additional responsibility for industrial sales, a position formerly held by **L. Scott Murray** who has transferred to GM of Canada.

Mr. **Lehman** began his career at Electro-Motive in 1967 as a project engineer. In 1974 he was named sales engineer, and in 1978 he became supervisor of sales engineering, followed by his appointment to district manager that same year. Mr. **Lehman** became sales manager, marine sales, in 1981, the position he held prior to his recent appointment. In his new position, he is responsible for worldwide marine and industrial sales.

Midland Affiliated Offers Brochure On Inland Waterways Services

The Midland Affiliated Company, Cincinnati, Ohio, has recently released a new four-page color brochure featuring the diversified water transportation services of its nine companies. The brochure details the specific barging services of the Ohio River Company, Orgulf Transport, and Chotin Transportation, along with the support capabilities of Capital Marine Supply, Port Allen Marine, and Walker Supply.

These companies combine with Red Circle Transportation, Eastern Associated Terminals, and Boston Towboat to form what Midland refers to as "the one best system" of water transportation.

The marine services include barge transportation, new barge construction, marine repair, fuel and food supplies, a full-service shipyard, towing and tug services, blue water barge transportation, and modern dry bulk terminals. Photographs and more information on each company are included in the brochure.

For a free copy and additional information,

Write 85 on Reader Service Card

$10.4-Million Overhaul Contract For USS Shasta Awarded To Triple "A"

Triple "A" South, San Diego, Calif., has been awarded a $10,499,000 firm-fixed-price contract for the regularly scheduled overhaul of USS Shasta (AE-33). The Supervisor of Shipbuilding, Conversion and Repair, USN, San Francisco, Calif., is the contracting activity (N62791-74-C-0030).

Twiflex Forms New Marine Products Division

Twiflex Corporation, of Hornheads, N.Y., recently announced the formation of a new Marine Products Division for marketing of Twiflex marine disc brakes and Twiflex air start clutches for marine applications. Twiflex Corporation is a GKN Company.

Representatives for the new Marine Products Division include: Charles A. Perry & Co., Jacksonville, Fla.; C. B. Darcy Co., Glenhead, N.Y.; JND Company, Inc., Chicago, Ill.; Loman Co., Woodstown, N. J.; Power Products Co., Huntington Park, Calif.; and Special Products Co., Seattle, Wash.

Twiflex Corporation offers a wide range of shaft disc brakes, winch and hoist disc brakes, air start clutches and hydraulic start clutches for main propulsion drives, bow thrusters, and pump drivers.

DECK MACHINERY
A REVIEW

Faster, more efficient cargo handling reduces costs and increases profit opportunities for all vessel owners—inland, coastal and deep-draft. To satisfy the changing needs of these cost-conscious customers, manufacturers of deck machinery and cargo handling equipment are continually improving existing equipment and introducing new models. Lighter weight, increased capacities, safer designs, automation, increased speeds and corrosion resistance are just a few of the areas of advancement.

We surveyed the major designers and manufacturers of cargo handling equipment to learn of their latest developments as well as their proven products. The following review on cargo handling is based on the replies we had received as we went to press.

Brochures and literature describing all of the products manufactured by the companies featured in this article are available free of charge.

FOR MORE INFORMATION

If you wish to receive additional information on any particular products in the following review, write the corresponding reader service card number(s) on the reader service card in the back of this issue.

If you wish to receive information from all the manufacturers and suppliers of deck machinery included in this review,

Write 20 on Reader Service Card

AMHOIST

Write 21 on Reader Service Card

American Hoist & Derrick Company, St. Paul, Minn., designs and builds lifting equipment for every type of energy project. Standard marine cranes come in capacities of 30 to 3,000 tons; larger sizes can be custom-engineered for specific applications. Amhoist products range from huge barge- and ship-mounted revolvers to the Sea Horse pedestal crane for materials handling aboard offshore oil rigs.

Lucker Pullers—linear hydraulic "cable grip" devices—can be used singly or combined in different ways for an endless variety of lifting, pulling, and positioning tasks.

Amhoist also manufactures American stiffleg derricks in many configurations and sizes for use on barges, ships, platforms, or gantries.

Representative of Amhoist's marine revolver cranes is the M-56 supplied to Bouygues Offshore, a French marine construction firm.

The crane, with a maximum capacity of 1,200 tons on the main hook, is mounted on Bouygues Offshore's new combination pipelaying/derrick barge, the BOS-400. The all-electric machine has 235 feet of boom, an auxiliary hook capacity of 350 tons, and a whip hook capacity of 75 tons. It will be ready for operation in early 1984.

APPLETON MARINE

Write 22 on Reader Service Card

A bulk commodities processing vessel working in the Mississippi River is employing three identical Appleton Marine winches to maintain vessel position during cargo transfers between supply barges and ocean-going bulk carriers.

The electrohydraulic, self-contained winches have line pull capable of up to 140,000 pounds at infinitely variable speeds of 30 fpm. The Appleton winches can operate as automatic constant-tension units or can be switched to manual operations as required. Both modes can be achieved at the winch or at a central control room. In addition, the winches provide greater user flexibility in that both the line pull and line speed are infinitely variable from zero to the maximum in any combination.

Appleton (Wis.) Machine Company's Marine Division designs and manufactures a wide range of marine cranes, winches, and deck equipment that are in accordance with the requirements of the USCG and the major classification societies.

Appleton has also added hydrographic launch and recovery systems to its extensive product line which includes offshore mooring winches and anchor windlasses, oceanographic winches, and deck fittings, knuckleboom cranes, diving support winches, and mooring systems control consoles.

BEEBE INTERNATIONAL

Write 23 on Reader Service Card

Beebe International, Inc., Seattle, Wash., offers a series of high capacity air chain hoists that represent an important advance in the air powered hoist industry.

These unique air chain hoists range in capacities from 10 to 50 tons and are powered by a radial piston air motor which provides increased reliability and longer life.

Primary applications for the Beebe hoist include BOP handling systems for the drilling industry and individual hook mount units for the shipbuilding and ship repair industries.

The hoists are very lightweight and compact in design. They also are fitted with lifting lugs which permit easy installation and relocation of all available models. The 7/8-inch chain on all models allows for fewer chain falls than other conventional hoists.

An inherent advantage of air powered units is that they may be operated in explosive environments and the motor will not overheat and burn up.

The horsepower and lifting speed of Beebe's air chain hoists provide more power per unit weight than other hoists. Each of the units is also available with hydraulic motors.

Beebe also recently introduced a low-profile electric barge winch available with a 25-ton dog holding capacity. It has a line speed of 50 feet per minute. The simple design reduces component wear and tear, and also provides for major parts replacement without moving it. The unit can be controlled from the deck or remotely from the pilothouse.

BLOHM & VOSS

Write 24 on Reader Service Card

The winch series offered by Blohm & Voss A.G. of Hamburg, West Germany, comprises large winches of high pulling power and heavy unit weight for applications in the offshore industry, for heavy lift operations, and for use on floating cranes and crane barges. The company is represented in the U.S. by Blohm & Voss Co., of Springfield, N.J.

The Blohm & Voss winches and windlasses can be powered by AC electric or DC traction motors, hydraulic motors, or diesel engines with torque convertor. The winches are designed according to local or customer requirements in accordance with the applicable requirements of the classification societies.

Winch control for speed, engagement of drums, drum dogs, wildcats, brakes, and couplings of Blohm & Voss positioning winches can be effected at the winch from a control console or from a centralized master control.

Blohm & Voss drum winches can be equipped with drum grooves or with a reliable level wind system which is chain driven from the drum with a tension measuring system, line counter, and line speed meters.

B&V also offers other deck equipment such as chain stoppers, chain and rope fairleads, deck or underwater mounted tension measuring systems, deck sheaves, and Kampnagel shipboard cranes.

Kampnagel shipboard cranes are of the four-rope grab type. The arrangements of the cranes—they are mounted on an undercarriage which traverses on a longitudinally traveling portal—provides an optimum operating range over the ship's length and over both sides.

The grab hoist gear is specially designed to ensure filled and securely closed gears without time-consuming readjustments and slack rope. The cranes are electrically driven with a power consumption of about 760 kva for two cranes. The cranes have an outreach of 10m and a lifting capacity of 16 tons during grab operations and 20 tons for general lifting at 16m radius and 25 tons heavy lift at 10m radius.

BRADEN WINCH CO.

Write 25 on Reader Service Card

Braden Winch Co., of Broken Arrow, Okla., a Division of Paccar Inc. is now marketing the second generation of planetary hoists titled the "CH" series.

The "CH" series is four planetary hoists with capacities from 15,000 lbs. to 23,000 lbs. These hoists are offered with four motor options—three single-speed motors and the Braden two-speed motor. The motors have improved starting efficiencies to 84 percent, and the two-speed motor can be shifted on the fly.

The following features have been incorporated in the Braden "CH" series hoists: lower minimum motor speeds—200 rpm for the single-speed motors and 150 rpm for the two-speed motor, anti-friction bearings throughout which improve the hoists' starting efficiency (less motor) to 93 percent; longer life; longer duty cycle; smoother spooling; reduced noise level; improved brake valve stability; improved brake clutch assembly; and faster line speeds.

The accessibility of motor bolts, brake discs, wire rope anchor and fill, level and drain plugs makes the "CH" series more easily serviceable. Maximum interchangeability of parts results in lower parts inventory to service all hoists in the series.

(continued on page 26)

(continued from page 25)

CLYDE

Write 26 on Reader Service Card

Clyde of Duluth, Minn., a unit of AMCA International Corporation, has redesigned its popular line of medium-capacity winches, frame 4 through frame 8 series, achieving greatly improved performance ratings in anchor/mooring service.

This series of winches spools wire rope in the 3/8+ diameter through 1-1/4+ diameter sizes and withstands first layer stall pulls in excess of 50,000 pounds. The winches may be powered by diesel or gasoline engines, or electric or electrohydraulic motors. They are available as single drum units, or as two, three, or four-drum units in waterfall configuration. For effective corrosion resistance the winches are prime coated with inorganic zinc, with a finish coat of marine epoxy enamel.

The literature on Clyde frame 4 through frame 8 winches includes data on wire rope size, drum dimensions, spooling capacities, drum clutch and drum brake specification, as well as dimensional drawings and typical performance data for anchor/mooring service.

Clyde frame 4 through frame 8 winches are available through the 48 contiguous United States from Hydraulic Power Systems, Inc., Kansas City, Mo. In addition, HPSI handles Clyde car pullers and barge movers. HPSI offers full service, dedicated to every phase of the business—sales, rentals, parts, and service.

CONMACO

Write 27 on Reader Service Card

Amcon air-controlled hoists are an exclusive with Conmaco, Inc. of Kansas City, Kan. The flagship of the line is the Amcon 6250, which handles up to 12,000 feet of 3-inch wire rope.

Also new to the 7-hoist Amcon lineup is the Amcon 150. This versatile hoist will handle wire rope up to 1-inch and delivers up to 35,000 pounds of line pull. It has proven itself to be well-suited for anchor-handling applications on small vessels and supply boats, or for mooring small barges on inland waterways.

Conmaco also recently introduced a line of deck-mounted fairleaders, each with the rugged construction to withstand the breaking strength of indicated wire rope. Bearings in the barrel and sheaves are engineered for long life and dependability, even under rapid or severe changes of lead.

New to the Amcon line of winches is the 20C Hydraulic winch with a line pull of up to 40,000 pounds (1-inch wire rope) and spooling capacity of 1,434 feet. An important feature of this winch is that each drum is fitted with a friction clutch allowing the drums to "free wheel" independently.

In addition to a full line of air-controlled winches, fairleads, deck guide sheaves, and chain handling equipment, Conmaco also offers rental, sales, and service on hydraulic continuous pull machines with CPL as high as 1.5 million pounds.

CROSBY GROUP

Write 28 on Reader Service Card

A 180-page, full-color catalog is available from The Crosby Group, a Division of Amhoist, which is comprised of Laughlin®, Lebus®, McKissick, National, and Western. The companies manufacture every conceivable kind of fittings and accessories for deck machinery, cargo handling and other applications, including forged fittings, hooks, blocks, sheaves, pulleys, load binders, chain, etc. The catalog describes all of the products of all divisions in full detail with photos, detailed drawings, all measurements, and full specification charts.

McKissick products, a division

(continued on page 30)

We go to great lengths... at our new Gulfport Shipyard facility.

McDermott's new shipyard facility at Gulfport, Mississippi, expands our capability to build all types of vessels up to 650 feet in length and 40,000 dwt.

Whether it's a coastal or ocean-going deep-notch dedicated tug/barge unit, drill tender/barge, derrick barge, offshore deck cargo barge, or custom designed specialty marine equipment, our Gulfport yard can accommodate the job and deliver it on time.

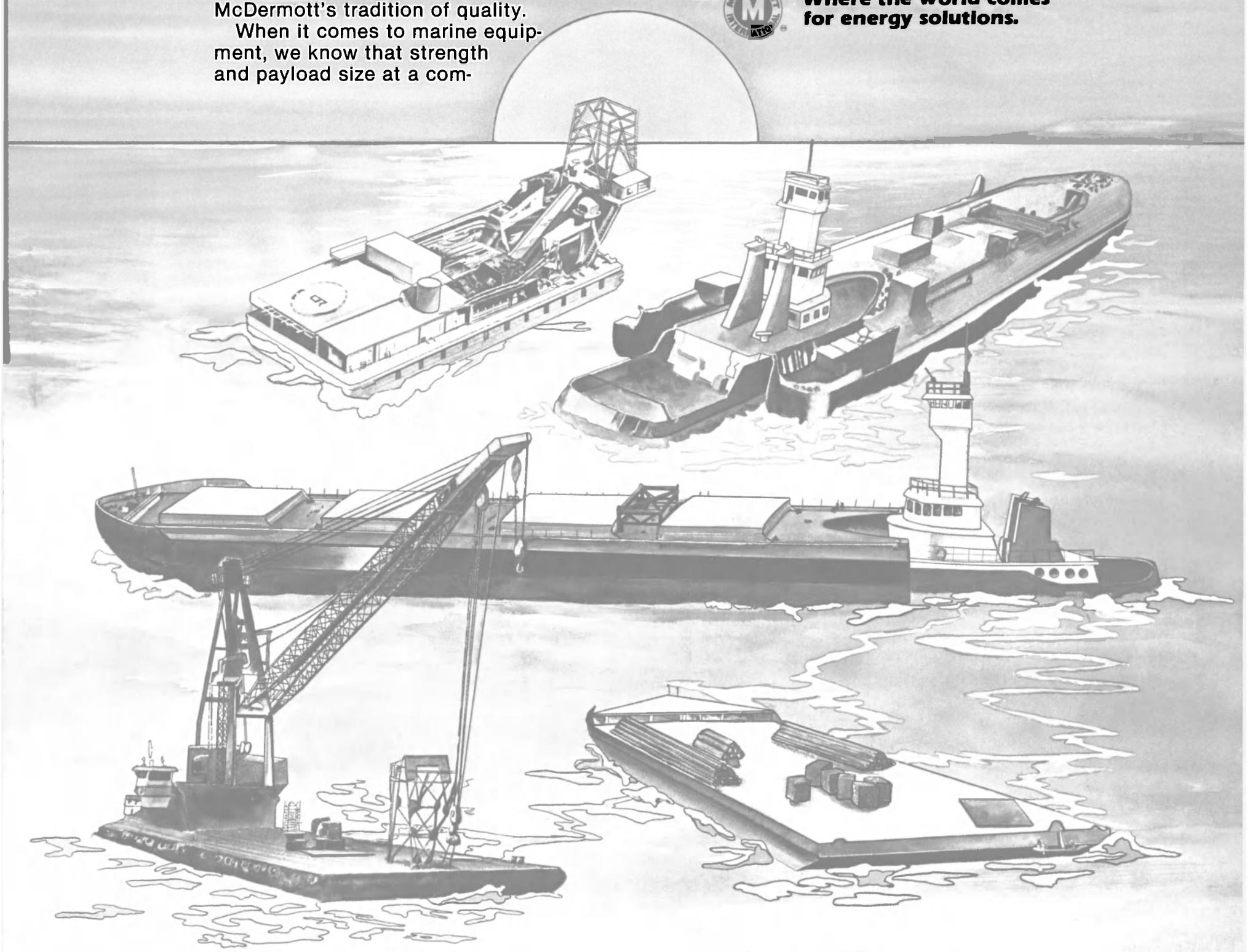
All McDermott vessels have the same reliability and modular construction that have made us the recognized leader in the industry. And with our expanded Gulfport facility, we now offer complete turnkey construction of accurately matched tug/barge units built in McDermott's tradition of quality.

When it comes to marine equipment, we know that strength and payload size at a competitive price are top priorities. That's why we use the latest technology for scheduling, construction, and inventory to deliver a vessel built to your design specifications within your budget.

McDermott's Gulfport Shipyard. Now specializing in all types of sea-going vessels. Drydock and repair facilities also available. For more information contact:

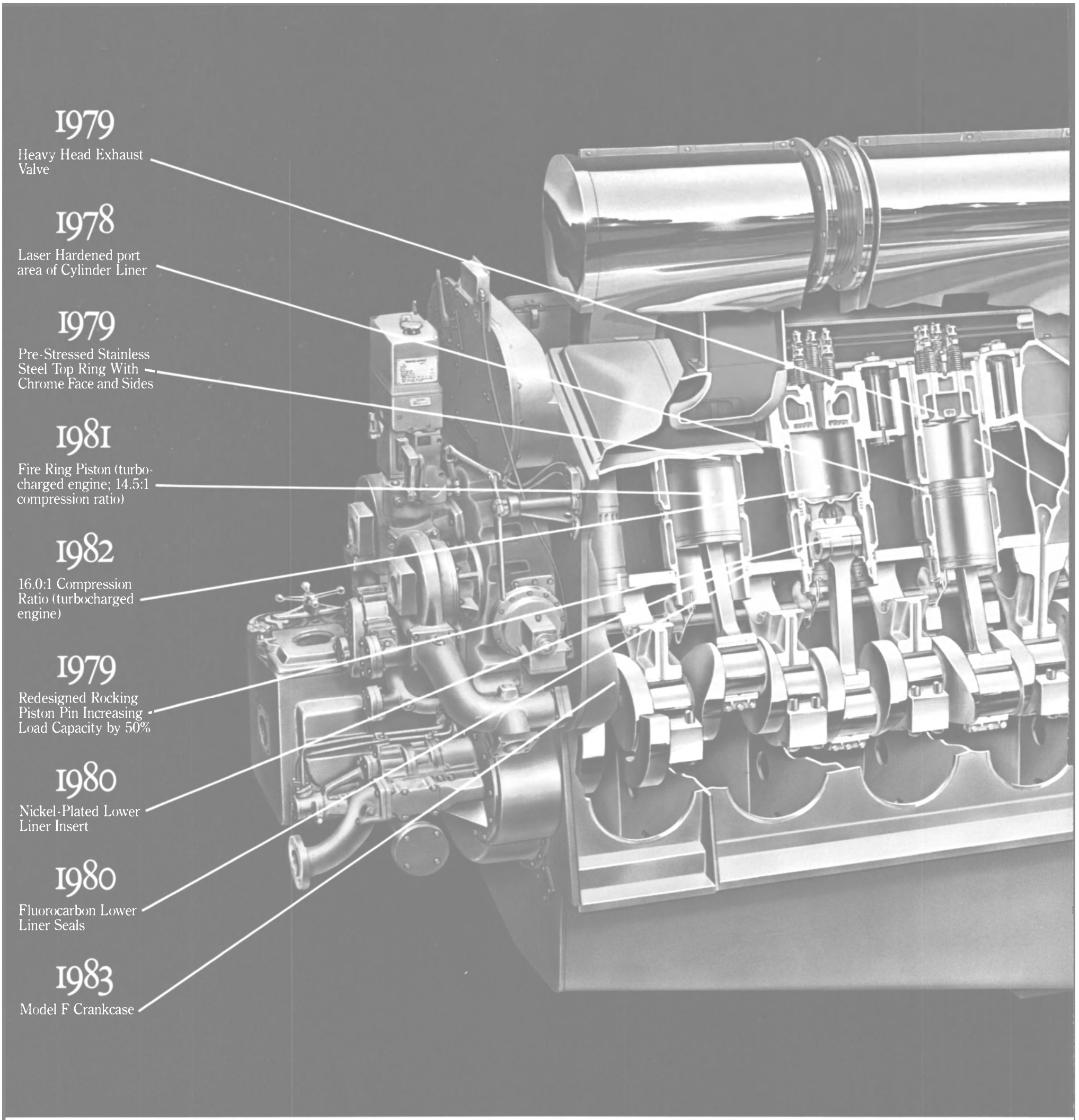
New Orleans—P.O. Box 60035, New Orleans, LA 70160, (504) 587-5762 • **Gulfport**—P.O. Box 2249, Gulfport, MS 39503, (601) 863-5691 **Morgan City**— P.O. Box 588, Amelia, LA 70340, (504) 631-2561 • **New Iberia**—P.O. Box 128, New Iberia, LA 70560, (318) 365-8121

Where the world comes for energy solutions.



McDermott Shipyards

Write **244** on Reader Service Card

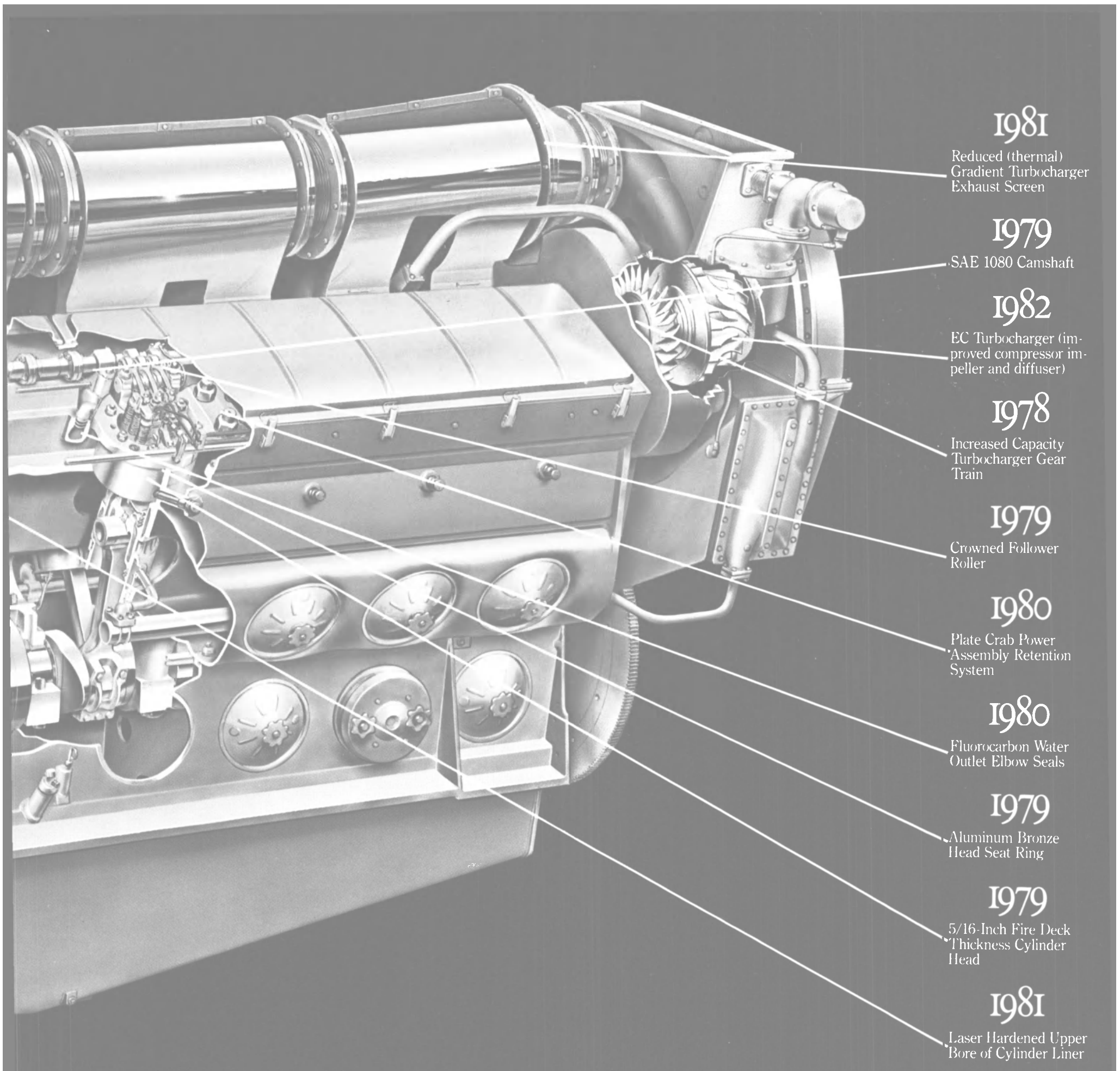


The most fuel-efficient Diesel engine

The newest 645 marine Diesel from General Motors' Electro-Motive Division did not appear overnight. Emphatically not.

It was developed after years of painstaking research and innovative technological improvements because of our absolute determination, in the face of spiraling fuel costs, to reduce fuel consumption in our Diesel engines.

And now it's here. An engine that is some 2.5% more fuel efficient than our 645 EB. Which was 1.5% more fuel efficient than our 645 EA. Which



in EMD history wasn't built in a day.

was 2.8% more fuel efficient than its predecessor.

In short, without sacrificing the dependability, reliability, ease of maintenance and parts interchangeability expected of EMD, we've put features into our 645 series over the years that have reduced by more than 7% the amount of fuel you put in.

And we're shooting, even now, for more reductions in fuel consumption.

If you'd like to know more, contact the Electro-Motive Division, La Grange, Illinois 60525.

ELECTRO-MOTIVE
Division of General Motors Corporation

Deck Machinery

Crosby Group

(continued from page 26)

of the Crosby Group in Tulsa, Okla., now has new Roll Forged Sheaves available in the most complete range of sizes from 12 through 72 inches. The sheaves are an ideal choice for original equipment in self-unloading systems and as replacements.

McKissick sheaves are forged from controlled quality 1035 carbon steel which provides excellent welding and flame hardening characteristics. All incoming steel is tested by chemical and spectrographic methods to insure consistently high quality.

Steel sheaves have excellent flexibility when choosing bearings and also provide better cold weather properties than nylon sheaves.

Crosby links and rings are manufactured in a complete line of sizes and types for almost any application, with working load limits from 1,600 to 232,500 pounds.

Lebus products include lever and ratchet type load binders, grab hooks and tail chains, snatch blocks, and hook latch kits. McKissick specializes in custom designed blocks to any specification, oil field blocks, crane and hook blocks, overhaul balls, swivel hooks, and snatch blocks, as well as many other products. Western manufactures sheaves and sleeves, wood and steel blocks, and cargo blocks and fittings, just part of its extensive product line. National's product line includes steel swaging sleeves, duplex sleeves, swage buttons and furrules, as well as swaging presses in capacities from 500 to 3,000 tons.

DYNAMIC AIR

Write 29 on Reader Service Card

Dynamic Air, Incorporated, St. Paul, Minn., is presently participating in the design, manufacture, and installation of dense phase pneumatic conveying equipment to transfer 2-inch and down stoker grade coal from the primary coal storage bunker to a service bunker above the boiler at the inlet of the stoker equipment.

Coal is gravity discharged out of the primary bunker into the blow tank or transporter. The transporter—which is an ASME coded, National Board Certified vessel—is then sealed and pressurized with compressed air. The coal is pushed out of the vessel and into the conveying line and moves through this line until it arrives at a receiving bin above the service bunker. The coal exits the receiving bin, passes through a crusher which reduces the 2-inch lumps to a maximum of 1¼-inch, and then enters the service bunker.

Dynamic Air's patented Dynachek² booster fittings are provided at strategic locations along the conveying line. These air injection points serve three vital functions: they apply the air, or motive force, at the vessel and across the material in the conveying line to help reduce the resistance that would normally be experienced by a non-booster design system where all of the force or air is put into the blow tank at the origin of the system. This optimizes air consumption. They help balance the system resulting in controlled material velocities, yielding less wear on the convey line components; and they provide optimum reliability. Should the ship experience an electrical failure or a compressor failure, causing the system to stop during the middle of a conveying cycle, the boosters would allow the easy restart of the system after the malfunction has been corrected.

EMMI-PUSNES

Write 30 on Reader Service Card.

Pusnes was founded in 1875 as a shipyard and started deck machinery production in 1890.

Today, Pusnes is one of the few companies in the world concentrating on the development and manufacture of all types of deck machinery for mooring systems used on a broad range of floating equipment. When you board a 540,000-dwt ULCC you will find

◄ Write 722 on Reader Service Card

Pusnes steam deck machinery. Looking closer at the windlass on any of these large tankers you will notice up to 1,000-hp disc brakes used to drop the anchors under finger tip control. Visit a semisubmersible on a drilling station and you will find Pusnes mooring systems for chain, chain-wire combo, or all-wire and moored in depths up to 3,500 feet. Systems for greater depths and hostile environments are under development today.

Pusnes also manufactures mooring equipment for smaller coastal ships, barges, tugboats, offshore supply boats, pipe-laying barges, and similar vessels.

Minimum crew and safety are Pusnes trademarks. The unique roto-bollard for mooring rope handling is a typical innovation.

Mooring systems for chain, cable, and rope employ steam, electric or hydraulic drives. The equipment can be local or remotely controlled and, when necessary, the mooring forces constantly monitored.

Pusnes is part of "SUBTECH" Norway, a firm developing complete diving systems which employ diving bells, underwater vehicles, bell winch systems, divers gas recovery systems, external life support systems, and the "Hyperbaric" saturated divers lifeboat. Concern for offshore personnel resulted in the development of "Pudes," the controlled extendable protected gangway for dry evacuation.

Pusnes has a joint venture company in Japan, Nippon-Pusnes, and both are represented in the U.S. by EMMI Corporation, of Flemington, N.J.

FMC

Write 31 on Reader Service Card

A 22-page full-color guide describing Link-Belt's crane and excavator line is being offered by FMC of Bannockburn, Ill.

The guide discusses FMC's crane operations, engineering and research programs, and the manufacturing and testing programs for structures and components. Within each of eight categories of Link-Belt cranes, such as pedestal mounted hydraulic offshore cranes, is a model number and specifications. The specifications include capacity stated in tons and metric tons; capacity at 50-foot radius; maximum crane boom; main drum line pull/line speed for three speeds; and overall length, width, and working weight.

FMC has added a 33-ton (29.93 mt) capacity API-65 to its Seahawk series of Link-Belt® hydraulic offshore cranes. The lightweight 25,000-pound API-65 is specially designed to perform all the material, equipment, and personnel lifting required on offshore oil production platforms and drilling rigs, and meets API-2C (1982) specifications.

The API-65 features pin-connected components that permit fast modular erection and easy maintenance. The heaviest component weighs just 7,200 pounds. The compact design features a 7-foot 7-inch tailswing with onboard engine and cab, and an overall height of 14 feet 7 inches reducible to 8 feet.

A maximum API rating of 34,200 pounds is achieved with a 50-foot boom at 30-degree radius, best in its class. Superior load handling speed is provided by a matched engine, 3-section pump and winch combination that develops 300-450-fpm maximum line speed with 12,600-pounds maximum line pull on main or auxiliary drums. A horsepower limiter prevents engine stalling due to excessive loads.

Especially designed for easy maintenance and serviceability, the API-65 hydraulic crane features a minus 20-degree boom angle permitting access to head machinery; full access to both sides of the engine; hydraulic filters with visual indicator; pumps all grouped behind the cab; eye-level winch location; replaceable bushings in frame and boom foot; fold down bail; replaceable fuel and oil tanks; and cadmium plated bolts and stainless steel pins. A 3/16-inch plate operator cab permits repeated blasting and repainting.

The API-65 is mounted on a cy-

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FMC

(continued from page 31)

lindrical pedestal base 13½ inches high and 55 inches in diameter with 1¼-inch wall thickness. The A-frame structure is reinforced steel plate with a support frame for main and auxiliary load hoist drums and boom hoist drums. The ball bearing turntable has a 55-inch pitch diameter with an internal ring gear. Inner and outer bearing races are bolted 360 degrees on the mounting plate.

GEARMATIC

Write 32 on Reader Service Card

Gearmatic Co. of New Westminister, B.C., Canada, a division of Paccar of Canada, Ltd., has pioneered many new features in hydraulic winch design such as planetary gearing, totally enclosed construction, automatic breaking, single lever control, mechanical two-speed, and free fall.

Every Gearmatic hydraulic winch and hydraulic drive is virtually custom-built to meet specific performance needs, based on proven modular designs and assembled at the factory from a wide selection of optional features. Representatives of the range of offerings is Gearmatic's model 54 three-speed hydraulic planetary hoist. The model 54 provides speed and flexibility in operation without sacrificing the qualities of simplicity, dependability, and long-life that are hallmarks of Gearmatic.

The model 54 features line pulls up to 56,000 lbs., line speeds of up to 474 fpm, a three-speed power shift, gear changes that can be made under load and with the cable drum in motion, built-in automatic safety brake, and the complete drive train totally enclosed sealed, and running in oil. Options include various cable drum sizes, hydraulic motors, gear ratios, and Gearmatic's free-fall capability.

The model 54 is a result of Gearmatic engineers sophisticated testing both in the lab and in the field that proves out new designs, refines production models, and develops new applications for many industries—including fishing, offshore exploration, oil and gas pipeline, marine, and dock installations.

Gearmatic hydraulic winches and drives are sold and serviced throughout the U.S., Canada, and worldwide through a network of distributors convenient to maritime centers. They offer technical assistance, service, and parts.

HIAB

Write 33 on Reader Service Card

HIAB Cranes & Loaders, Inc. of York, Pa., offers five models of its well-known hydraulic deck cranes. Features and capabilities of HIAB Sea Cranes include ease of operation, light weight, maneuverability, load control and precision placement, compactness, low operating height, horizontal outreach and load carrying capacity, and corrosion resistant construction.

Trim and compact in design, they do not require guide ropes, cables or hand-operated winches to handle. They take up little space and can be mounted anywhere on a boat deck. HIAB cranes are easily operated by one man using positive, direct hydraulic controls. The crane's movements are fast and smooth due to the high-pressure hydraulic system.

On smaller boats, the lightweight feature permits a bigger cargo payload. The cranes have a flexible elbow between the main boom and outer boom, and a telescoping extension boom. (The cranes rotate up to 410 degrees on some models.) These features provide exceptional maneuverability and the capability for lifting heavy loads close in or at maximum horizontal reaches. Outer booms provide a firm, rigid support for the

cargo hook. In conjunction with the flexible elbow, this provides steady load control and the ability to precisely spot the load. The cranes fold down into a compact configuration with a low center of gravity that will not affect vessel stability and provides more cargo space on the deck.

HIAB hydraulic cranes are specifically manufactured for maritime use. Protection against sea and salt corrosion is ensured by the extensive use of galvanized components, waterproof fittings, nickel chrome-plated boom cylinders, and special marine coatings.

Available in various models with different outreaches and load-carrying capacities, HIAB hydraulic marine cranes can be fitted with a wide range of standard HIAB mechanical or hydraulic attachments.

A.C. HOYLE

Write 34 on Reader Service Card

The A.C. Hoyle Company, Iron Mountain, Mich., has been a major supplier of deck machinery and deck fittings to the marine industry for vessel, offshore, dockside, and barge use for nearly a quarter of a century. Unique and special equipment design problems are always welcomed as a new challenge by the A.C. Hoyle Company. As may be required, designs will be approved by regulatory bodies such as ABS and the U.S. Coast Guard.

A.C. Hoyle Company offers a complete product line of marine deck equipment including anchor windlasses, constant tension mooring winches, mooring winches, topping and vang winches, barge haulage winches, towing winches, accommodation ladder winches, capstans, cranes, W. T. bronze master switches, fairleads, chocks, and bitts to both the commercial and naval markets.

Although equipment can be built to numerous existing designs, the company specializes in custom building to customer specifications. A.C. Hoyle Company personnel are available to assist their customers from early preliminary design stages throughout final design, installation, and test. Major consideration is given to providing the best equipment available to meet the customer's requirements at an affordable and competitive price.

Winches, windlasses, capstans, and cranes are available with all electric (A.C. or D.C.), electro-hydraulic, hydraulic, static D.C., or diesel drives. All deck equipment, including fittings, is available in conventional steel construction as well as stainless steel and aluminum. Construction is always of the highest marine standards.

JERED BROWN BROS.

Write 35 on Reader Service Card

Jered Brown Brothers of Birmingham, Michigan, is a major supplier of marine equipment, including deck machinery on naval and merchant vessels in the U.S. and abroad. Products include: anchor windlasses, capstans, deck cranes, deck edge elevators, special deck machinery including nonmagnetic construction on vessels including FFG-7 class frigates, Nimitz class aircraft carriers, and minesweeper classes.

Jered Brown Brothers also offers steering gears, controllable-pitch propellers, bow thrusters, watertight doors, thrust and line-shaft bearings, cargo and passenger elevators.

In addition to the manufacture of new equipment, Jered Brown Brothers maintains a complete and separate facility to supply replacement parts for the broadest spectrum of marine machinery.

Included in the hundreds of thousands of available items are parts for deck machinery, steering gears, elevators, sewage treatment plants, to name a few. Names such as Jered Industries, C. H. Wheeler, American Engineering and Baldwin-Lima-Hamilton are included in the list of companies whose replacement parts are available.

HAGGLUND

Write 36 on Reader Service Card

AB Hagglund & Soner, one of the world's leading manufacturers of marine deck cranes, is a wholly owned subsidiary of the worldwide ASEA Group. Represented in the U.S. by ASEA Stal-Laval Inc., Hagglunds has become well known in the U.S. market through the extraordinary design, performance, and durability of electro-hydraulic G-type cranes. The "G" crane, with 20 to 60-ton capacity and outreach up to 30 meters, is available in single, twin, or team arrangements.

Twenty-four years of crane experience with over 4,000 cranes on the seven seas, coupled with depth of engineering and cargo handling know-how, has resulted in new designs which now complement the G-type crane. Cranes such as the new 25-ton "K" crane, a 4-rope grab crane with all machinery located inside the weatherproof crane house, have recently been manufactured, tested, and delivered from Hagglunds.

Hagglunds product program also incorporates "H" and S-type cranes. The "H" crane has a capacity of 12–16 tons, the "S" crane 2–10 tons. "S" cranes are available in a variety of arrangements, including fixed or articulated jibs for cargo service such as hose handling on tankers. A very unique S-type crane, the SVC 10X20, has a 10-ton capacity, 20-meter outreach. This sizable outreach allows one hose handling crane to service both sides of a ship.

The "S" crane is also available in a number of special designs, e.g. explosion proof and arctic design, suitable for operation in conditions down to minus 40 degrees centigrade. Hagglunds arctic-condition service cranes come equipped with a fully enclosed, heated operator's cab.

Hagglunds hydraulic service cranes are designed to be simple and robust. Each crane is delivered as a complete unit, fully tested and ready for installation on a pedestal or other suitable foundation. Hagglunds has complete resources to assist with the installation of the cranes and a worldwide service organization that insures economy.

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HYDE PRODUCTS

Write 37 on Reader Service Card

Hyde Products, Inc. is a leading supplier of ship's deck machinery and steering gear, serving the marine industry since 1865. Originally founded as the Hyde Windlass Company in Bath, Maine, Hyde today is headquartered in Cleveland, Ohio.

Equipment offered by Hyde includes steering gears, steering systems, vertical and horizontal anchor windlasses, constant tension mooring winches, cargo winches, special purpose winches, capstans, mooring chocks, vacuum and compressor systems, and oil/water separators. While Hyde has a standard product line, custom-designed machinery is its specialty.

In addition to equipment manufacturing, Hyde offers replacement parts and service capabilities. Hyde maintains complete microfilm files of original equipment drawings to provide replacement parts that exactly match original specifications. Hyde also supplies parts made to customer specifications. Experienced Hyde service personnel perform installations, repair, and overhaul work worldwide.

Hyde has recently been contracted by the Naval Regional Center in Long Beach, Calif., to build a 2-speed, 20-hp boat winch for the USS Fox (CG-33).

Hyde has recently begun delivery of a series of steering systems and windlasses to the South Korean Navy. Hyde's contract is for the design and manufacture of steering systems, rudder angle indicating systems, and vertical anchor windlasses.

The anchor windlasses are single wildcat vertical types powered by a multispeed electric motor through triple reduction gearing. The units feature a low above-deck profile, with the speed reducer, motor, brake, clutch, and controls below deck, protected from weather.

The steering gears are of the basic two-cylinder link type. Through the innovative application of modern electronic and fluid power technology, many of the traditional intricate and cumbersome mechanical components have been eliminated. The net result has been a significant reduction in cost and weight without the sacrifice of operational performance or reliability.

The hydraulic power units feature multistage fixed displacement pumps controlled by a system of flow, pressure, and directional valves which regulate speed, direction, and regenerative horsepower. The system is designed to meet current IMO standards and is totally redundant in that each of the power units will develop full speed and torque requirements.

The steering gears are built as duplicates of previous machines and utilize more conventional designs to maintain interchangeability with the originals.

INTERCON

Write 38 on Reader Service Card

Intercontinental Engineering-Manufacturing Corporation (INTERCON) of Kansas City, Mo., has recently added to its existing product line of large towing and mooring winches a series of smaller waterfall configuration mooring winches.

The new series of winches are intended for the requirements of barge and supply vessel mooring needs in the construction and oil field markets. Power source options include diesel, hydraulic, and electric—all designed specifically for the offshore environment. The winch series will handle mooring lines ranging from 1-⅛ inch diameter thru 1-¾ inch diameter. The units are available for lease or immediate purchase.

KOCKS CRANE/ SALZGITTER GROUP

Write 39 on Reader Service Card

Having established itself as a designer and constructor of con-

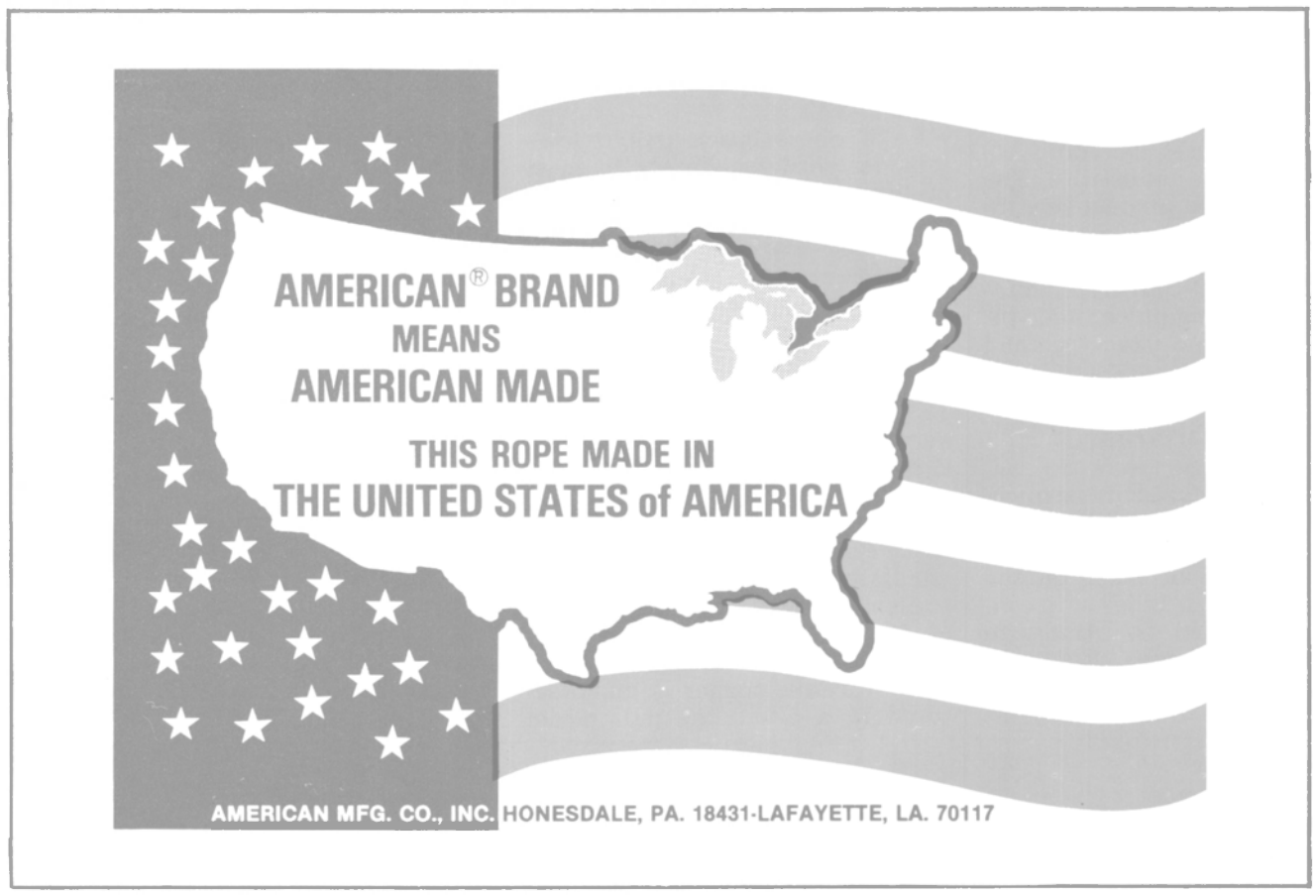
(continued from page 36)

Let's set the record straight...

Word is being spread by some U.S. manufacturers who are producing rope elsewhere, that ALL manila rope is being manufactured outside the United States. THIS IS NOT TRUE!

Some companies are making the bulk of their manila rope, as well as some synthetics, in other countries . . . BUT NOT AMERICAN.

Look for this label



It is your guarantee that every foot of AMERICAN® Brand Rope you purchase from us is made in the U.S.A.

From the smallest to the largest line, if you want the BEST

BUY AMERICAN . . . made by AMERICANS for AMERICANS!

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Kocks/Salzgitter

(continued from page 34)

tainer cranes for seaports, the Kocks Crane and Marine Company (KCM) of Pittsburgh, Pa., has concluded an agreement with one of the Salzgitter Group of companies for supplying all of its bulk materials handling products for the U.S. market. The new venture will be identified as Salzgitter-Kocks Bulk Systems and will operate as a division of KCM.

Richard W. Theobald, executive vice president of KCM, plans to expand the firm's container crane activity and further develop KCM's interests with the major port authorities around the U.S. through bulk handling projects.

Market areas being looked at are seaports, inland terminals, utilities, and general bulk commodities terminals including cement and grain industries. The company's diverse product line includes every conceivable material handling and storage system . . . pneumatics, belt conveyors, mining, ship loading/unloading, indoor storage, and stacking and reclaiming.

LAKE SHORE

Write 40 on Reader Service Card

Among the noteworthy applications of deck cranes from Lake Shore, Inc., Iron Mountain, Mich., were the cranes installed on the Moore McCormack Lines ship conversion performed by American Ship Building, Tampa, Fla., and Lorain, Ohio Divisions. These cranes, rated at 40 metric tons at 65.5 feet radius, are all electric, utilizing solid state SCR controlled General Electric D.C. drives. They have both wide boom tips and tagline winches to reduce load pendulation and were manufactured in Iron Mountain under license from Clarke Chapman Marine—U.K. The first shipset of three cranes was designed and delivered in less than 12 months.

In addition, Lake Shore designs and manufactures a full line of deck machinery, including mooring, cargo, hose, topping, anchor handling, and traction winches; anchor windlasses, life-boat davits; and cranes for cargo handling, hose and stores handling for ocean, Great Lakes, offshore or Navy applications. Types of drive systems supplied include hydraulic, electro-hydraulic, diesel, static D.C., wound roto A.C., and variable frequency A.C.

Lake Shore specializes in custom designed machinery to meet customer specifications.

McELROY MACHINE

Write 41 on Reader Service Card

McElroy Machine and Mfg. Co., Inc. of Biloxi, Miss., began furnishing deck machinery to the offshore workboat industry in early 1980. The company now has three very successful years and has machinery working in all parts of the world.

The latest additions to McElroy's standard line of anchor windlasses, anchor winches, capstans, and towing winches is a line of self-contained electrohydraulic tuggers and a line of stern rollers. The hydraulic tugger is manufactured in a 5-ton line pull model and a 10-ton model. A 15-ton and 20-ton model are on the drawing boards for the future.

The stern rollers are manufactured as a standard model or a heavy-duty model. Custom sizes are also available upon request.

Some of the latest installations have been hydraulic tuggers aboard the last Nicor Boat built at Moss Point Marine in Escatawpa, Miss., anchor windlasses for the Gulf Fleet boats being built at St. Louis Ship, and the Gulf Fleet boats being built at Quality Shipyards in Houma, La.

Additionally McElroy Machine is furnishing the capstan and vertical capstan/windlasses for the split hopper dredge being built at Southern Shipbuilding, Slidell, La., and the vertical capstans for the landing craft being built by Champion Swiftships of Pass Christian, Miss.

McElroy Machine has a complete engineering and design department to assist with special or custom specifications and machinery.

MARATHON LeTOURNEAU

Write 42 on Reader Service Card

Marathon LeTourneau Company introduced its new line of marine pedestal cranes with solid-state electronics at the 1983 Offshore Technology Conference.

The three new solid-state cranes are: the 50-ton-lift-capacity PCM-120SS; the 55-ton-lift-capacity PCM-220SS; and the 75-ton-lift-capacity PCM-350SS. All three can be supplied with standard and optional features that make it easy to tailor the cranes to perform all the materials, equipment, and personnel lifting requirements of offshore drilling platforms.

All three cranes have a single AC power source rather than a motor-generator arrangement. Microprocessors rather than electrical switch gear control power flow to all drive motors. Since each electric motor is individually and precisely controlled by means of solid-state technology, the new cranes function with a high degree of efficiency, offer faster lifting speeds with loads, and feature smoothness of operation. The solid-state controls also provide precise control of current flow, voltage, and operating temperatures. These factors translate into extended service life and minimum required maintenance for motors, gears, and other moving parts.

Electrical power requirements for all three solid-state marine cranes are the same: standard commercial 600-volt, 60-Hertz, 3-phase, 500-ampere external supply. An integrated solid-state S.C.R. control system provides DC power to each drive system. Peak power requirement, under maximum load, dual function, 20-minute continuous duty with DC dynamic braking, is 250 KVA at 0.7 power factor.

All three cranes have regenerative electrical braking during lowering operations. In addition, there is a multiple disc "fail-safe" holding brake for each function which is automatically activated when a particular function is completed. In addition, brakes are also automatically applied if power supply is interrupted.

The power system for all three cranes consists of Marathon Le-

Tourneau N-7 DC electric motors with N drivers for hoist and lifting functions. A D-10 electric motor with #5 gearbox provides power for crane swing on all three units. Remote control is standard on all three cranes, with controls terminating at a spring-centered, infinitely variable potentiometer controller located at the operator's station. All three cranes can be supplied with an operator's cab as an optional item.

MARCO

Write 43 on Reader Service Card

Marco of Seattle, Wash., celebrating its 30th anniversary in 1983, continued its tradition of continual improvements in its lines of deck machinery during the past year. Best known for its worldwide marketing of the Puertic Power Blocks and other fishing deck machinery systems, the company is also the world's largest producer of oil skimming vessels.

In addition to improvements made to existing products, Marco introduced three new pieces of fishing deck machinery recently. First was a new aluminum longline drum, used in a variety of longline fisheries on both coasts of the U.S. and Canada, as well as in other areas of the world. The hydraulically powered drum features gear drive that makes it powerful enough that no secondary hauler is required. The new unit also features a diamond-screw levelwind and a unique declutching motor and adjustable drag brake to controll freewheeling speed.

Marco's San Diego-based subsidiary, Campbell Industries, this year introduced a long-needed product for the world's high-seas tuna purse seine fisheries. Its new purse block for large superseiners is larger and yet 50 percent lighter, at 210 pounds (95 kg), than any other block of its capacity (20T/18mt).

This new, stronger block features a spring-loaded grease reservoir to automatically maintain lubrication under load, eliminating the problem of bearing failure due to inadequate lubrication. The design also handles 1-inch (25 mm) connecting links through its throat, which are necessary to handle the heavier loads on 7/8-inch (22 mm) purse lines with 1-inch center piece.

The most recent introduction by Marco was its unique line of FoamFlo fish pumping systems. Designed to meet the particular needs of the salmon and herring fisheries, the FoamFlo was developed with its chief goal being fish quality. The challenge has been to develop a pump that could handle great quantities of product, and yet treat both small and large species without damage. With its unique combination of injected water and air creating flow, FoamFlo answers this important challenge.

There are no impellers, venturi chambers, valves, or changes of flow direction to damage product. FoamFlo operates without cycling and maintains an uninterrupted flow of product from suction to discharge. One of its unique features is its ability to operate submerged in a pursed net or flooded tank, as well as on the surface of a dry hold.

MARKEY

Write 44 on Reader Service Card

Markey Machinery Company, Seattle, Wash., has been adding to its production capability, to better handle the larger wires and chains which are following the increases in vessel and rig size. A heavy duty long-bed lathe with a 100-inch swing is newly in service, and a horizontal boring mill with increased head travels and a much larger table is being set up.

A Markey side-by-side double drum diesel towing winch to handle 5,000-ft. and 3,000-ft. of 2½-inch wire is under consideration, and double drum units with fore-and-aft drums are being offered. A recently installed 2-inch single drum towing winch provided an under-slung wire lead—an arrangement feature which was selected with vessel stability rules in mind.

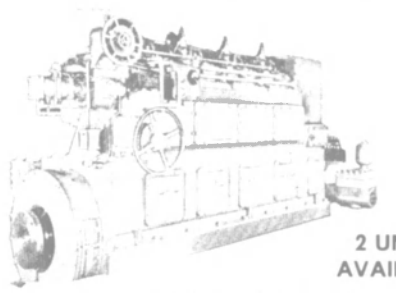
The oceanographic community is expressing renewed interest in research winches utilizing SCR-powered D.C. drives for their excellent speed control, wide speed range, regenerative payout, low

(continued from page 42)

BRONZE HORIZONTAL
10HLV INGERSOLL-RAND
CARGO PUMP

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

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



2 UNITS AVAILABLE

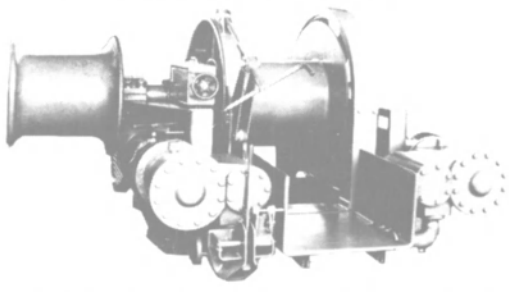
500 BHP @ 400 RPM. 4-Cylinder straight inline type — 12½" X 16" — 2-stroke single acting — liquid cooled — direct reversible — CW rotation. With standard shaft-connected starting air compressor. 46,000 lbs., net weight—228" long—98" wide—132" high. Designed for heavy duty, rugged use, its extreme simplicity will result in lower operating and maintenance costs.

LOUIS-ALLIS M.G. SETS
2.5 KW 120 Volt Single Phase 60 Cycle Output
120 Volt D.C. Input — 1800 RPM
or
230 Volt D.C. Input — 1800 RPM
NEW - UNUSED EX - U.S.N.

2½ KW—115 volts single phase A.C. output. GENERATOR: Type GNA—class 1G— Frame 28A—Form A—1800 RPM—5 KVA—2.5 KW 115 volts AC— 60 cycle —50% PF—43.4 amps. MOTOR: Louis Allis—Type GNA—Class E—Frame 25A—Form A—1800 RPM—115 volts DC—32 amps—shunt wound (with attached Ward-Leonard frequency regulator).

CAN FURNISH WITH 230 VOLT DC INPUT

STEAM MOORING WINCHES
12" x 14" — STEAM OR AIR DRIVEN
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

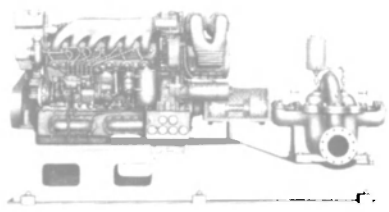
Drum will show 1500 ft of 1⅛" wire in 9 layers. Steam Inlet 3½"-4" exhaust — 171 PSI working pressure. BASE DIMENSIONS: 6' x 6' 3⅛" — overall 8' 4½" wide x 9' long. Mfg. by Friearich Kocks — Bremen, Germany. Recently removed from ARCO "Challenger." Suitable for vessels 75000/200000 tons.

ALSO IN STOCK

12" x 14" Double Gypsy Unit

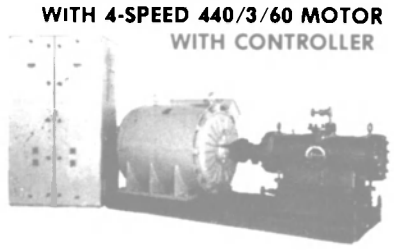
ALL UNITS CAN BE DEMONSTRATED RUNNING

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



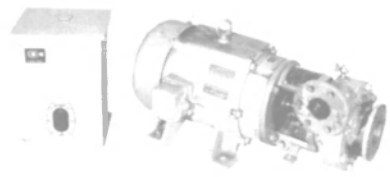
PUMP: Allis-Chalmers — 20' suction lift — 6" suction — 5" discharge. Complete with priming valve, Nash belt-driven priming pump and priming tank. DIESEL ENGINE: Hercules DWXDS — 4-stroke — 150 BHP — 6-cylinder — 4¾" x 4¾" — 1800 RPM. Complete with Roots super-charger — piston displacement 404 cubic inches. Heat exchanger cooled.

700 GPM @ 150 PSI
NEW — EX-USN
DE LAVAL MOTOR DRIVEN ROTARY
HORIZONTAL PUMPS
WITH 4-SPEED 440/3/60 MOTOR
WITH CONTROLLER



Inlet 8" — outlet 6". Powered by 4-speed 440/3/60 motor — 100/75/50/37.5 HP — 1200/900/600/350 RPM — with Cutler-Hammer control. Weight 10,000 lbs. Inquire for complete details.

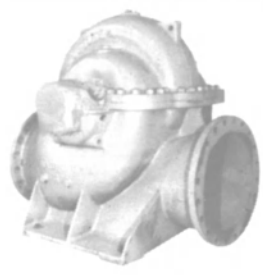
100 GPM CIRCULATING
PUMP



Mfg. by Frederick Iron & Steel. Size 1½ — type N-4. 115 Ft. head — 50 PSI — 3500 RPM. MOTOR: Continental — 7½ HP — 440/3/60 — 9.5 amps — 3520 RPM. With control.

$2450

UNUSED GOULDS HORIZONTAL
24" CIRCULATING PUMP



Ball bearing — Figure 3080. 24 Ft. head — 460 RPM. Requires 125 HP. With 2 new spare impellers.

ALLIS CHALMERS
BRONZE BALLAST PUMPS

12" x 10" — 6000 GPM — 180' head — 340 HP — 500 RPM — 775 lbs/835 lbs — max. temp 530° — reduction gear S-233 — 340 HP — 6997/1225 RPM.

ALSO WORTHINGTON

8LN-18 — 12" x 8" — 1775 RPM — 280' head.

NEW STEEL HATCHES A
(SEE OUR CLASSIFIED AI

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

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

20" ROUND
HATCH

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

QUICK-ACTING
4-DOG HATCHES

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

GENERAL PURPOSE
HATCH

15" X 23" X 5"
WITH
4 STEEL DOGS

TAN
EXPANSIC

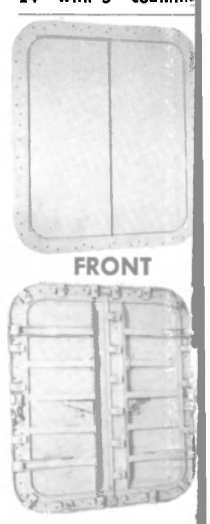
36" Diameter — 26' drop-bolts. Drawing

CARGO I

69" x 75" x 12"
72" x 74" x 12"

QUICK-OPEN

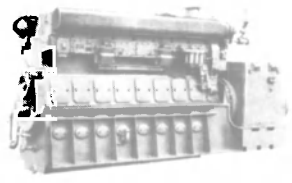
Handwheel top & bo
24" with 5" coamin



FRONT

BACK

500 KW AC GE DIESEL GENERATOR



G.E. ATI — 985Y — 500KW — 625 KVA — 480 volts — 800 amps—3-phase 60-cycle—720 RPM. Self-ventilated — totally enclosed — water-cooled — directly connected to Cooper-Bessemer model G.S.B. 8-cyinder diesel engine — 10½" X 13½" — four cycle — 720 RPM. Air starting — 300 PSI — with Ross water and oil coolers. Total weight 48,700 lbs.

KNOWN 'ROUND THE WORLD

THE BOSTO

313 E. BALTIMORE

Main Office: (301) 539

CABLE: BOSIRON—BALTIMORE.

D DOORS IN STOCK
FOR MORE DOORS)

ER
I TRUNK
coaming — 7-Dog
6/26

ATCHES
48" x 48" x 9"
36" x 30" x 8"

NG HATCH
om. 4 Dogs. 16" :
Drawing #60-40

STORES LOADING PORT

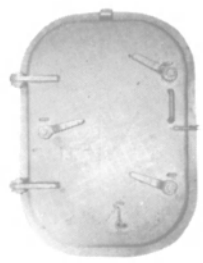
Large side port double door and frame. Clear opening: 7'6" high X 6'0" wide. 24 Dog — fitted with bar strongback. Made of 3/8" steel. Carefully removed from Alcoa "Seaprobe."

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

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

FLUSH HATCHES

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



WATERTIGHT DOORS

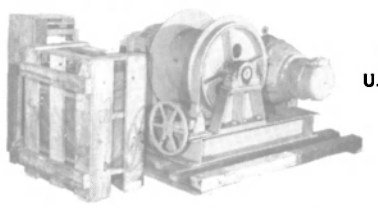
24" x 36" — 3-DOG
Right & Left Hand

NEW 18" & 24" HATCH COVERS

Flush mounting watertight hatch with machined steel mounting ring. T-Handle is recessed and hand tightens against a strongback across mounting ring. Approx. weights, including mounting ring: 18" 60 lbs — 24" 100 lbs.

GENERAL PURPOSE WINCH
3500 LBS AT 200 FPM

NEW UNUSED



EX U.S.N.

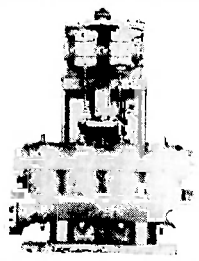
A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB —1750 RPM—type KR—full load amps 32. Motor drives winch through Falk reduction gear. Has compressor hand brake.

n METALS CO.

ST. • BALTIMORE, MD. 21202

-1900 Marine Dept.: (301) 752-1077
MD. U.S.A. TWX 710-234-1637

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



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

RECONDITIONED 1980 ABS — READY TO GO

NEW U.S. MARAD-TYPE AXIAL FLOW FANS

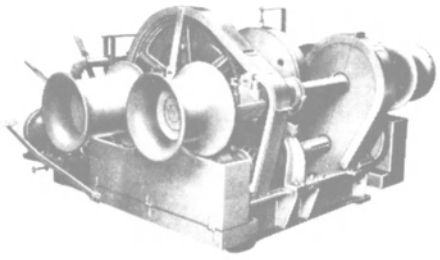
(3) 10,500 CFM Model AF-100, "Baldor" 5 HP motor — 440/3/60 — 40° — 1750 RPM — 7 amps.

(2) 40,665 CFM — size 43AF — 60 HP Baldor Motor — 440/3/60 — 1760 RPM — 75 amps — 50° rise — Frame 364TZ Ins. F

NEW NAVY 12,000 CFM EXPLOSION PROOF AXIAL FLOW FANS

Model A12A4X6 with 10/3 HP 2 speed motor.

7x12 10,000 LB AH&D CARGO WINCHES

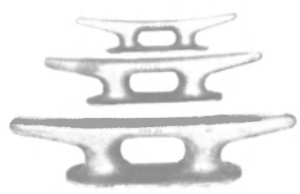


2-Speed — single drum — reverse throttle operation. LINE PULL: low gear 10,000 lbs — high gear 5,000. LINE SPEED: low gear 125 FPM based on 1st layer of 7/8" diam. rope — high gear 250 FPM based on 1st layer of 5/8" diam. rope. DRUM: 26" diam. — 20" long — 26" flange diam. Rope capacity of drum: 7/8" diam. rope in 6 layers — 650'; 5/8" diam: rope in 8 layers 1200'. Steam pressure at throttle 115 lbs. Operating weight 6450 lbs.

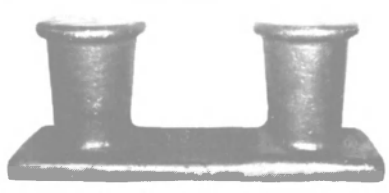
NEW CHOCKS - CLEATS - BITTS CAST STEEL

OPEN CHOCKS

Overall length 2' 3¾" — top opening 6" — width 9"

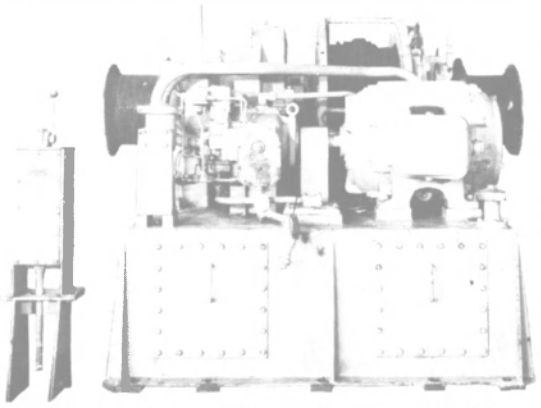


36" - 42" - 48" KEVEL CHOCKS



10" DOUBLE POLE BITTS

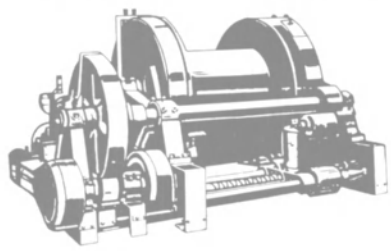
50 HP VARIABLE SPEED ELECTRO-HYDRAULIC SINGLE DRUM CARGO WINCH
with deck controls
SELF-CONTAINED WITH PUMP MOTOR & RESERVOIR IN BASE



Made by Lakeshore. DUTY: 7400 lbs SLP — 220 FPM — drum size 24" diameter — 15" wide. Complete with ratchet & pawl. CAPACITY: 600 ft. of ¾" wire. MOTOR: 50 HP — 440 volts — 66.3 amps — 3-phase 60 cycle — squirrel cage — 1200 RPM constant — Frame CC-445-N — 1 hour duty. Motor drives Waterbury size 5 "A" end — size 5K heavy duty remote servo control 1150 RPM — WP 1900# — test 3000#. "B" End motor — type 5K heavy duty — size 5 1150 RPM. Originally built for U.S. Navy refueling at sea. AVAILABILITY: Some with double gypsy; some with single gypsy; some with no gypsys. Ex-U.S.N.

PLANS ON REQUEST

LARGE STEAM TOWING ENGINE
9 X 10 TWIN ENGINE DRIVE
Air or Steam — 125/250 PSI



Heavy-duty Clyde with 36" diameter X 51" Face single drum. Flanges 68". CAPACITY: Up to 2800' of 2" wire rope. Normal line pull 40,000 lbs@ 50 FPM. Steam or air pressure required 125 to 250 PSI. Can be adapted to electric drive or increased steam or air pressure to a capacity of 82,000 lbs @ 20 FPM. Pawl holds 270,000 lb. pull from any layer. Equipped with level wind device. Approximate weight 30,000. DIMENSIONS: 12'6" wide—6'6" high. Write for details.

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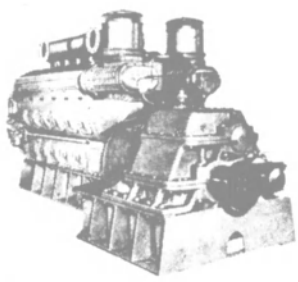

ENGINE: GM 12-567A—8½ X 10—V-type—2-cycle—747 RPM — electric starting. GEAR: Falk AirFlex — reverse & reduction — 2.48:1 forward — 2.52:1 reverse.

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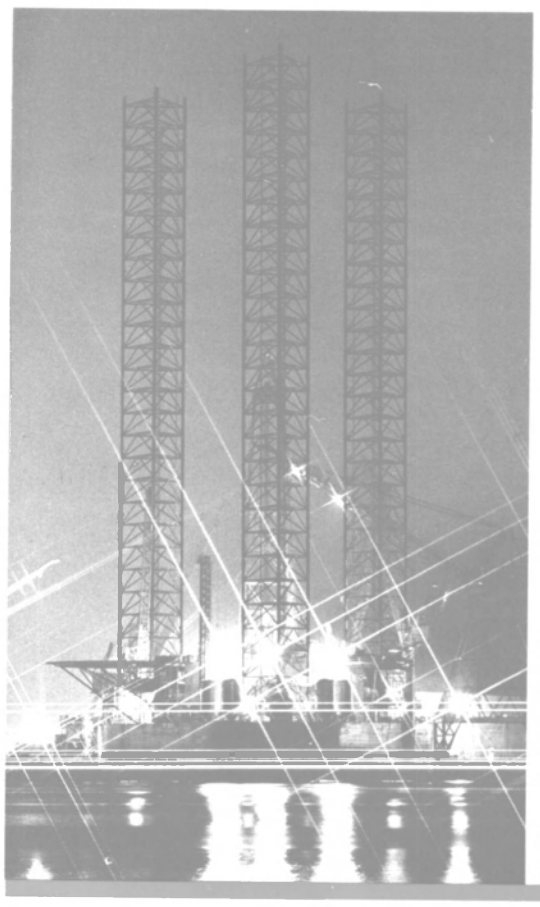

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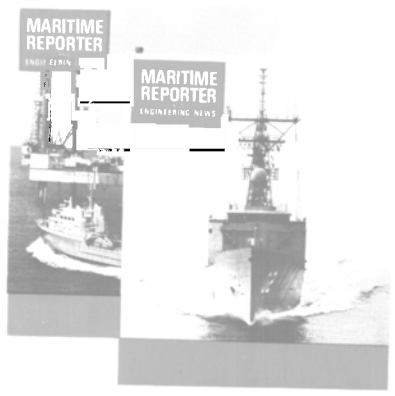

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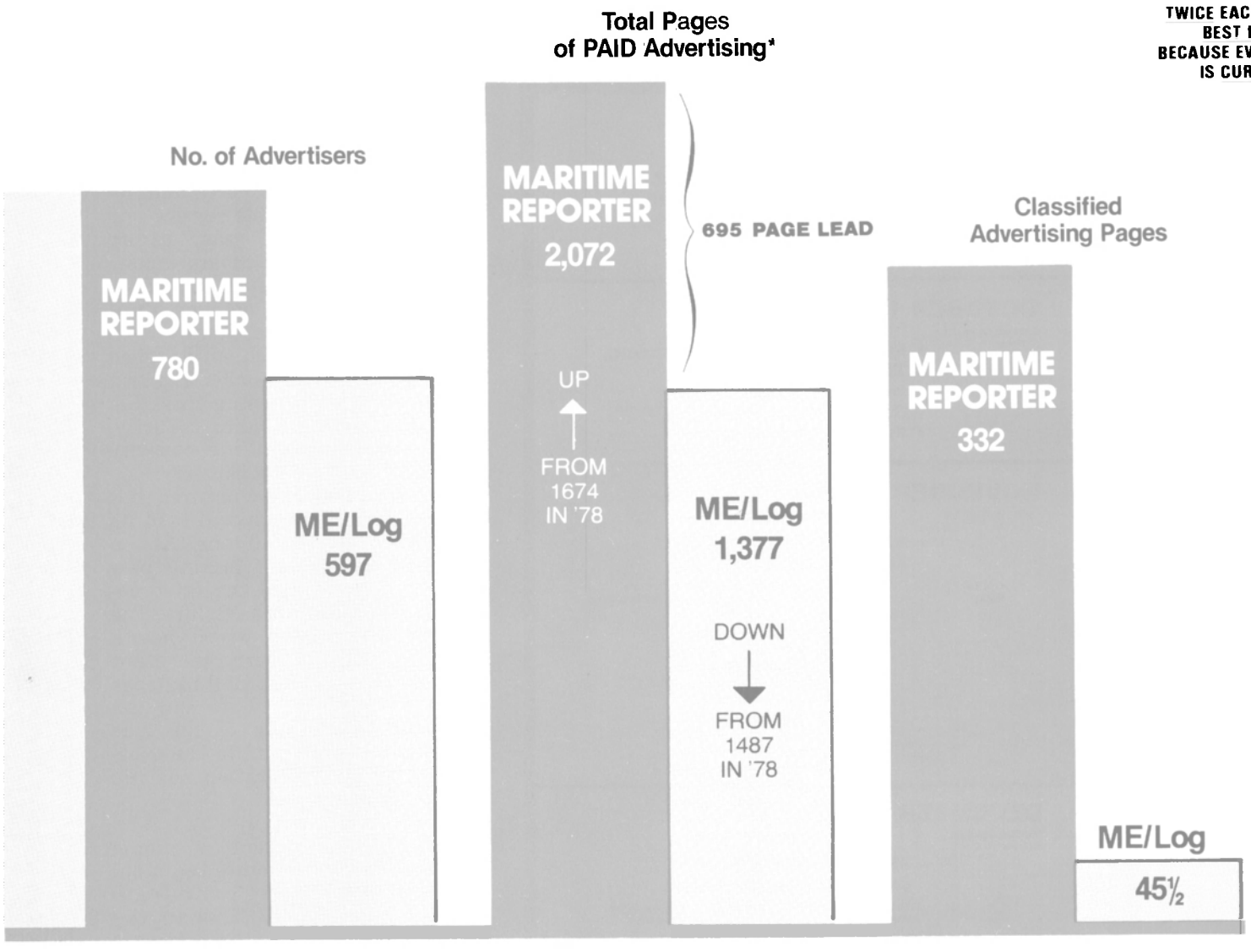

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Deck Machinery

Markey Machinery

(continued from page 37)

noise and long term reliability. Research wires and electro-mechanical cables are growing in diameter. This demands larger drums with tremendous scantlings to resist the spreading forces, as well as larger sheaves to extend the life of the EM cables.

Deepwater high-speed lowering of very heavy anchors is presenting a design challenge which involves multiple brakes, disc brakes, regenerative drives, and high capacity retarding systems. Remote windlass controls and remote monitoring systems are becoming increasingly sophisticated and demanding.

The Markey Machinery Company was founded in 1907.

NABRICO

Write 45 on Reader Service Card

An all-new electric winch designed for long life, easy maintenance and dependable service and an "easy-to-get-off" cast utility twist lock flush hatch are among the latest developments from Nashville Bridge Company (NABRICO) of Nashville, Tenn.

The electric winch is designed for use on towboats or for any sort of intermittent winching operation requiring a large holding capacity. It has a 10-ton pulling capacity and a 40-ton holding capacity.

An oversized brake ensures that the NABRICO winch will hold its rated capacity of 40-tons. And a back-up mechanical locking paw can be used to hold the rated capacity in case of brake failure. The NABRICO electric winch has a free-wheeling feature to allow faster cable pull out. Ball bearings on the highspeed shaft and the precision machining of the side plates and shafts add to the overall efficiency of operation and life of the electric winch.

The winch is powered by a 5-hp motor. It requires only a simple power lead connection to begin operation. All necessary controls are supplied by NABRICO with the winch. In addition, the company stocks all replacement parts to ensure customers minimal down time should any repairs become necessary on the electric winch.

The new cast twist lock flush hatch is designed especially for use by companies involved in the transportation of solid materials, such as rock and gravel or coal. Suitable for any hopper or deck barge application, the cast hatch is sturdy, durable and easy to maintain. Its simple twist lock operation ensures that the hatch will remain easy-to-get-on-and-off for many years.

Headquartered in Nashville, NABRICO is a wholly owned subsidiary of The American Ship Building Company, Tampa, Florida. The company has been in the

marine field for more than 60 years and is primarily concerned with the design, engineering, and construction of grain and coal barges, deck barges, liquid tank barges and cement barges for river and ocean service as well as drydocks and towboats.

With plants in Nashville and Ashland City, Tenn., Nashville Bridge Company is a major supplier of marine deck hardware to the entire marine industry. The company pioneered in the design and construction of much of the modern equipment used on rivers today.

NATIONAL CRANE

Write 46 on Reader Service Card

National Crane's pedestal-mounted cranes are cost-efficient lifting systems for shipboard, dockside, and other marine uses. A wide selection of boom lengths and capacities are available from the 28-foot reach and 10,700-pound capabilities of the Marine 200 to the 75-foot length and 34,000-pound maximum capacity of the 800.

A new addition to National's already popular line of marine equipment is the 400, a medium-duty crane with lighter boom sections and increased capacity.

Each crane from the Waverly, Neb.-based company is built to rigid specifications and strict quality control standards for years of profitable service in harsh marine environments. National Crane booms are built stronger and lighter with box-section construction of high-strength, low alloy steel to handle heavy loads. The sequential extension of the telescoping boom sections interlock for strength and long reach, up to 75 feet. All cranes are fully marine conditioned by a process that includes sand blasting of all external surfaces, an inorganic zinc primer coat, followed by paint and covered with a durable chlorinated rubber topcoat. National turret drives are specifically engineered for fast, smooth controlled slewing and minimum maintenance.

Four models of telescoping marine cranes are available to job-match the best crane for particular lifting needs.

The Marine 200 is an inexpensive, shorter radius machine for use on smaller boats and barges, in general purpose dockside and terminal work, and on offshore platforms. The 200 is ideally suited for many jobs where larger capacity cranes prove inefficient, while still providing the workhorse capabilities of a reach up to 28 feet and maximum capacity of 10,700 pounds.

The National 400 and 600 series provide increased reach and capacity for bigger jobs with maximum reaches of 55- and 56-feet, and load capacities of 16,000 and 25,000 pounds, respectively.

National's 800 series offers some uniqueness in marine applications because of its four-section hydraulic extension capabilities up to 75 feet and 34,000-pound capacity. Heavy-duty construction and tough planetary drive rotation mean more work-time and less down-time, even under extreme duty.

NATIONAL SUPPLY COMPANY

Write 47 on Reader Service Card

A cargo-handling barge has been designed to accept a National Supply Company continuous lift jacking system which enables operators to readily convert the barge into a stable platform for loading and unloading.

The barge uses a rack-and-pinion jacking system originally developed by National for offshore drilling rigs and production platforms, said **Bruce Dawson,** engineer for National's marine equipment.

With the "legs" jacked up, the barge retains its mobility and can be easily transported between shipyards. Once in location, the barge can be jacked up to create a stable platform at various dock levels.

Mr. **Dawson** said the jacking system has a "smooth continuous lifting movement." The system uses an arrangement of horizontally opposed pairs of pinions which

(continued from page 44)

Deck Machinery

National Supply

(continued from page 43)

provide positive engagement with a precision-torch cut, double-sided rack.

The National jacking system has been used in 18 different rig designs and is offered by more than 30 shipyards around the world, according to literature available from National Supply. The literature also contains specifications for various unit arrangements, tensile properties for its components, and a description of other features, including push-button control operation and various safety features.

Eight-pages of text and full-color photographs depict various applications of the jacking system and describe its engineering and safety features. Also, specifications for various unit arrangements are shown in a chart.

National jacking systems use an arrangement of horizontally opposed pairs of pinions which provide positive engagement with a precision-torch cut, double-sided rack. Individual leg control is accomplished in a central operator's console where the operator can operate all legs individually or simultaneously with mixed hull-up and hull-down operations.

Each climbing pinion also has an individual gear motor and gear train drive, with each motor having an electromagnetic-released, spring-set, fail-safe, multi-disc brake.

NAUTILUS CRANE

Write 48 on Reader Service Card

Nautilus Crane & Equipment Company has a modern 50,000 square-foot plant for the manufacture of high-speed cranes for shipboard and offshore drilling and production rigs. The acceptance of the Nautilus hydraulic crane designs since the company was founded in 1973 has been excellent.

Used on drilling rigs, production platforms, jackups, workboats and ships, Nautilus cranes are designed to handle loads from 2 to 100 tons. Features include telescoping or straight booms, hydraulic diesel or electric power, and a variety of mounting and boom length options.

The Metairie, La.-based company is now owned by Beckwith Machinery Company, a Caterpillar dealer serving the northwest Pennsylvania and West Virginia area from Pittsburgh.

Nautilus points out that their present manufacturing facilities occupy eight times the manufacturing space of the previous plant. The present facilities include a CAD/CAM system for computer-aided engineering design and manufacturing.

The system provides faster crane deliveries and the ability to more easily adopt design features to special requirements. Nautilus also uses a computer to analyze a crane design to determine its ability to withstand forces it encounters in severe environments. It can take into account the effect of high winds and seas on the crane and select or modify a design to satisfy the requirements.

The new Nautilus 100-ton lattice boom crane has a unique structural design that aids in transforming loads to the foundation. Other features of the crane include a new type winch which has multiple braking modes, a cylindrical designed pedestal, and a small tail swing working radius.

PACECO

Write 49 on Reader Service Card

In the fall of 1982, O&K Orenstein & Koppel AG of West Germany, and Paceco, Inc., a subsidiary of the Fruehauf Corporation and one of the world's leading manufacturers of container handling cranes, agreed to cooperate in engineering and manufacturing in the U.S.

Among the products involved is the new O&K-designed double-jointed deck crane that is capable of handling cargoes—particularly containers—twice as fast as conventional deck cranes.

In addition to faster operation and greater precision, particular design emphasis was placed on improving the operator's field of vi-

sion and to reducing the overall height of the cranes to improve vision from the bridge.

The new O&K deck cranes guide the cargo loads with short pendulum movements that are absolutely horizontal as on a quay-mounted bridge. The movement is also on selectable lines transverse to the ship while the jib point turntable automatically retains its direction parallel to the longitudinal axis of the ship.

By manual control, the crane operator can additionally bring the jib point turntable into any position. The operator's cabin, always traveling above the load, is attached under the articulated jib and, owing to ideal vision, makes it possible for the operator to handle cargo hatches or containers without assistance to guide it.

The cranes are designed with good accessibility to the machinery, electrical and/or hydraulic equipment accommodated in the jibs. The smooth surfaces of the structure provide for easy and trouble-free maintenance. Hydraulic pipes and equipment are arranged in such a way that all oil-carrying components are located inside the individual crane assembly groups.

The cranes are available with certificates from the requested classification society for a three-phase ship's mains with 440V/60 cycles or 380V/50 cycles, for 5 degree heeling and 2 degree trim for ambient temperatures of minus 25 degrees to plus 45 degrees C, material St52-3.

Crane types include the BEH with electrohydraulic drive with three phase squirrel cage rotor motors, hydraulic variable displacement pumps, closed circuits, electrical controls. The crane type BEE features all-electric drive, statis transformers and DC motors.

The cranes will be manufactured at Paceco's newly expanded computer integrated facility located on deep water near Gulfport, Miss.

REEL-O-MATIC

Write 50 on Reader Service Card

Reel-O-Matic Systems Inc., of Wrightsville, Pa., offers a variety of machinery to the marine industry. One of the most popular pieces of equipment used is the series CPD or custom power drum. This unit is constructed of a fabricated steel drum mounted in bearings with various drive styles available. These machines are built to customer requirements for size and capacity.

The CPD is designed primarily for storage and winching of cables and lines in marine usage.

A special weather proofing package for shipboard environment is also available. This package includes stainless steel shafting, totally enclosed motors and controls, sealed bearings, and galvanized undercoating with rubberized paint. These same corrosion preventive measures can be applied to any of Reel-O-Matic's equipment that have applications throughout the marine industry.

Another frequently used piece of equipment is the RS/VS series of shafted stationary coiling and reeling machines. These units can be bolted or welded to the deck of a ship to pull any flexible material onto a reel or coil. The RS/VS is offered with various drive configurations to suit any particular need.

Reel-O-Matic's HJ/KVS series mobile reeling and coiling machine also is often used aboard ship because it has all of the outstanding features of the RS/VS and, in addition, it is mobile. A configuration of locking wheels and swivel casters allows this machine to be easily moved from job to job.

SCHOELLHORN-ALBRECHT

Write 51 on Reader Service Card

Schoellhorn-Albrecht Division of St. Louis Ship, St. Louis, Mo., is presently concluding fabrication of four 1824 deck capstans for Todd Shipyards in San Pedro, Calif. This family of capstans, which has been in service for over 40 years, is not presently represented in the company's brochure but will be shown in revised literature available later this year.

The deck capstans have fully normalized and stress-relieved cast steel barrels and right-angle worm gear housing. The capstans are driven through a structural frame

(continued from page 46)

Schoellhorn-Albrecht

(continued from page 45)

mounted, spur gear reduced, right-angle worm drive. Worm drive operates in a continuous oil bath and bronze bushings have pressure grease fittings. Primary power is furnished from a 30/30-hp marine electric motor, fitted with a 120 percent torque capacity magnetic disc brake.

Capstan has been designed to provide 10,000 pounds of pull at 55 fpm and 20,000 pounds at 28 fpm. Ultimate pull is 55,000 pounds with an ultimate static holding capacity of 100,000 pounds.

Other deck capstans with barrels of 14 inches to 24 inches and driven either electrically, pneumatically, or hydraulically are available.

Also featured in Schoellhorn-Albrecht's new brochure will be a smaller, totally redesigned capstan/carpuller. These surface mounted units designed for less severe marine and industrial applications will be available with operating capacity of from 5,000 pounds to 15,000 pounds at 30 fpm to 50 fpm.

SMATCO

Write 52 on Reader Service Card

SMATCO, Inc. Division of TBW Industries, Inc., of Houma, La., has recently supplied complete shipsets of Norwinch low pressure hydraulic deck equipment for two ME-303 anchor-handling/tug/supply vessels. The two vessels, built at Halter Marine, Inc. in New Orleans, are 225 feet long, 12,280-hp vessels.

The Kodiak I, recently delivered, and Kodiak II were ordered by Penrod Drilling Corporation of Dallas, Texas. The two boats will be used primarily for long distance towing of semisubmersible rigs and other towing and anchor handling tasks. Each vessel is equipped with the following SMATCO/Norwinch deck machinery: one 4S-250-2T waterfall 250-ton hydraulic anchor-handling/towing winch. The winch is powered by four Norwinch low pressure hydraulic motors and is arranged to enable either of the drums to provide full pulling power. Both drums can provide half pulling power simultaneously and they can be operated independently of each other in either direction of rotation.

The utilization of a four-motor drive provides an extremely flexible winch. Each hydraulic motor has a two-speed/torque range, but in practice five of the totally eight speed/torque ranges obtained by the four-motor drives are sufficient. Therefore additional geartrains are not necessary for high speeds.

The system gives the advantage in allowing a controlled maximum load in the lines—preset by the operator. The winch is also equipped with Norwinch patented high power hydraulic dynamic braking system, which provides a hydraulic braking control of speed and pull. Also onboard is a 30-ton hydraulic anchor winch type S-50-1T bow windlass.

This winch is powered by one Norwinch low-pressure hydraulic motor and consists of one declutchable drum, one declutchable cable lifter for 38-mm 43 chain and two fixed warping heads. The vessels also have two hydraulic tugger winches, type MV-12.

In addition each vessel has two hydraulic capstans, type C-9. Completing the shipset are two cable storage reels, each having one fixed drum divided into two sections and directly driven by one Norwinch low pressure hydraulic motor. All machinery was manufactured by SMATCO, Inc. through a licensing agreement with SMATCO and Norwinch.

SMITH BERGER MARINE

Write 53 on Reader Service Card

Smith Berger Marine Inc., of Seattle, Wash., is well known for its line of durable marine fairleaders.

The fairleaders are designed and built to withstand the rigors of the marine environment and heavy-duty service. The Smith Berger line of fairleaders features heavy one-piece machined steel sheaves that are mounted on heavy duty bearings.

The fairleaders are self-aligning and self-balancing which provides positive smooth seating when used at any line tension and with any lead direction. The Smith Berger staff provides individual service and prides itself on providing deck machinery that fits and particular requirements of each customer.

STANSPEC

Write 54 on Reader Service Card

The Stanspec Corp. of Cleveland, Ohio, designers and manufacturers of materials-handling equipment, offers a line of standard and custom-built "Rightway" deck winches.

The winches are manufactured to customers requirements from interchangeable, standard components. Capacities of the units range from 500 to 50,000 pounds with electric, air, gasoline, or hydraulic power available.

Among the special features of the Stanspec winches are: totally enclosed motors; safety brake; precision gearing; free-spooling drum; and an all-steel fabricated winch base. Optional features include an electric motor brake and a torque limiter clutch.

Stanspec offers catalogs detailing its range of deck machinery. They are available without charge.

SUPERIOR • LIDGERWOOD • MUNDY

Write 55 on Reader Service Card

Lidgerwood Manufacturing Company of New York, was established in 1873 as a continuation of the Speedwell Iron Works of Morristown, N.J. From its standard hoisting equipment, Lidgerwood evolved marine winches.

These were produced extensively for steam power and later were adapted to electric applications. Capstans, anchor windlasses, and marine winches still continue to be a source of pride to Lidgerwood, which has definitely stood the test of time.

The company offers a full range of well-illustrated literature that details the capabilities, special features, and specifications of its line of marine equipment. Included are marine equipment such as integrated barge moving systems; carpullers; capstans; steam hoists; trawling winches; towing winches; mooring bits and winches; cargo winches; gasoline, diesel, or electric hoists; anchor hoists; crane, dock, hatch cover, and dredge hoists, and windlasses.

TIMBERLAND

Write 56 on Reader Service Card

Timberland Equipment Limited of Woodstock, Ontario, now offers a Canadian built choice in mooring and anchoring systems with a wide range of winches that will handle up to 2½-inch wire rope.

Timberland has designed and manufactured powered winches for over 25 years for the construction, mining, and marine industries. Recently they have expanded the product line to serve a wider range of winch applications for mooring, anchoring, and positioning of service vessels. One of these new custom designed winches went into operation in mid-June 1982 on Lake Erie. Timberland's heavy duty diesel powered double drum waterfall-type anchor winch (model #HR-280-2) is being used aboard Pembina Exploration Co. Ltd.'s work barge—the Erie West. The Erie West is laying and repairing underwater pipelines and stimulating gas wells on the lake.

Pembina's Drilling superintendent **J.R. Rouble** said that this winch has performed to their satisfaction and has met their expectations since being installed aboard the Erie West. The principal rea-

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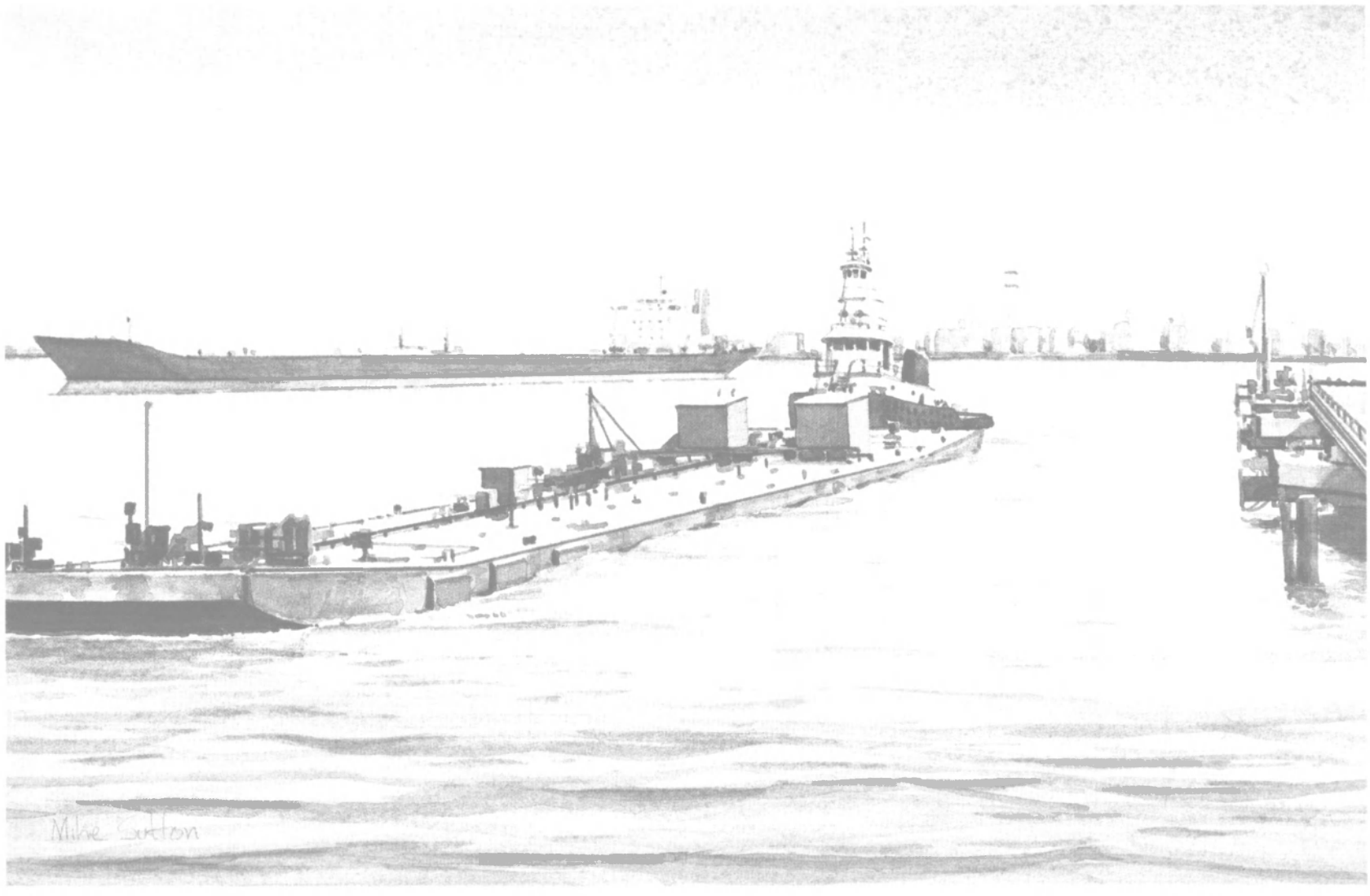

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Write 409 on Reader Service Card

SERVICE WITH ENERGY

Deck Machinery

Timberland

(continued from page 46)

sons for choosing the Timberland design and manufactured winch were the basic economic advantage of acquiring a Canadian built product and the availability of parts and service.

UNIT CRANE

Write 57 on Reader Service Card

A new series of hydraulic Unit Mariner pedestal-mounted cranes that meet 1983 API specifications covering offshore cranes is described in literature offered by the Unit Crane & Shovel Corp., New Berlin, Wisc.

The new Mariner line offers maximum lift capacities of 27,000 pounds; 36,000 pounds; and 55,000 pounds with basic boom lengths at 30-foot radius. Modular design is said to provide fast assembly and easy, accessible servicing. A variety of hydraulic winches is available to meet specific load capacities and line speed requirements.

An exclusive "Power Demand" hydraulic system, powered by diesel or electric prime movers, automatically matches hydraulic working pressures and horsepower to load requirements. Deck configurations include remote or onboard power; "walk around" control; or fully enclosed cab. Detailed specifications are included in the literature.

WASHINGTON CHAIN & SUPPLY

Write 58 on Reader Service Card

A new machine from Washington Chain & Supply Inc., of Seattle, Wash., offers an easy, hydraulically powered method for wire rope socketing. The machine is marketed under the name of Cab-L-Mate and provides a one-man process for positioning wire rope into a socket.

James Ballard, president of Washington Chain, states: "A Cab-L-Mate machine makes it possible for one man, within a few minutes, to accomplish what it would take two or three men to duplicate in one hours time . . . and do it with less effort. Also, unlike the manual or crimping method, the Cab-L-Mate positions the wire rope "broom" into the socket without damage to the wire."

The Cab-L-Mate wire rope socketing machine is offered in two durable models. Model 101 accommodates wire rope up to 2 inches thick and operates with dies in ¼ inch increments. The larger machine, model 201, handles wire rope from 2 inches to 4-¼ inches. Dies for the 201 are made to special order only. Both machines are hydraulically operated with manual control valves.

WASHINGTON CRANES

Write 59 on Reader Service Card

The 150-ton revolver crane installed at Todd Shipyards, Seattle, Wash., is typical of a new generation of equipment manufactured by Washington Cranes, also of Seattle, a division of Ederer, Inc.

Some of the advanced design concepts incorporated include Ederer DC adjustable voltage controls for all motions, all-electric operation, and a high-efficiency operator's cab. The crane has all independent hoists, each with its own solid-state control.

All gearing is in totally enclosed oil baths and all hoist machinery is gear driven. The new revolving cranes have unique travel trucks with each drive motor driving one wheel.

The design allows increased load on existing tracks.

The diesel generator house is located over the portal to isolate noise, lower the center of gravity, and improve accessibility. These design features and others, Washington Crane reports, result in increased reliability, lower maintenance, and more efficient operation due to the resulting greatest possible capacity for a given size.

The main hook lifting capacity of the Todd crane is 150 tons at a 55-foot radius, and 50 tons at 120 feet. The auxiliary hook lifts 15 tons at all radii from 61 to 210 feet.

The main hook speed is 12 fpm while the auxiliary is 100 fpm. The boom can be fully elevated from the fully lowered position in three minutes. The crane can travel at 150 fpm. The Todd crane is powered from an on-board diesel generator set of 685 hp.

WILDEN PUMP

Write 60 on Reader Service Card

The Wilden pump is an air-operated, double-diaphragm, positive displacement pump designed to handle very thick and very abrasive materials. The pump handles up to 90 percent solids to over 250-foot heads in permanent, submerged, and self-priming operations. Simple clamp band construction and one moving part air valve make it virtually maintenance free.

The Wilden pump can run dry indefinitely without damage with no pressure relief valve needed. When discharge pressure equals air supply pressure the diaphragms simply stall out.

Four models are available: the M2, the newest model in the Wilden line, for flow rates up to 30 gpm; the M4, for flow rates to 70 gpm; the M8 for flow rates up to 135 gpm; and, the M15 for flow rates up to 240 gpm. Wilden pumps are used to transfer waste sludges, thickener under-flow, filter press operations, and secondary sewage. Wilden pumps are available in optional alloys and elastomers to handle most erosive and corrosive applications.

(continued on page 51)

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ADAMS& PORTER

We take the myth out of corporate insurance.

(continued from page 49)

MacGREGOR-NAVIRE INTERNATIONAL

Write 61 on Reader Service Card

Formed following the acquisition of MacGregor International by Kone Oy, of Finland, which already owned Navire Cargo Gear International, this new company is a major force in the area of cargo access equipment and systems.

Both partners have developed numerous designs of specialized equipment including, in the area of deck machinery, all manner of hatch covers. The range of covers designed vary from units for the largest bulk, OBO, and ore/oil carriers down to the smallest inland waterway vessel.

Recent innovations for folding covers on medium sized vessels have included the self-engaging auto cleat and the gravity cover. The self-engaging auto cleat system uses angular interlocks, or wedges, on the cover side/coaming and at the cross joints to form the cleats. It has been incorporated in the "Direct Pull," "Foldtite," and "Foldlink" cover designs.

The gravity cover uses wedge line positioners each side of the meeting panels to ensure constant compression while the wheel arms at the leading edge of the panels engage catch devices on the coaming top rails. The end hinges allow lateral movement but can still act as battening hinges together with the center hinge. With this design, only four manual cleats are required for a hatch, drastically reducing securing time.

An area of development for inland waterway vessels and barges has been telescopic covers which effectively concertina when opened. There are designs for two and three panel sets of lightweight construction and available as watertight or raintight units. Others now include a light alloy version significantly lighter than those in steel and with a reduced maintenance requirement. This alloy design is raintight and being lighter, large panel sizes can still be manhandled while the power requirement for driven panels is reduced.

One of the most innovative ideas to emerge in recent years involving hatch covers is their use as cranes. In particular, a system has been developed for vessels without cranage so that they can handle 'tweendeck pontoon covers. Called the rolling crane hatch cover, this unit can be rolled along the weatherdeck coaming like a gantry crane.

Not only is it a straight pontoon cover, it is equipped on the underside with winches and a cable hoist arrangement whereby a 'tweendeck cover panel can be lifted, transported, and stowed. A recess in the top of the cover contains controls and a seat for the crane driver.

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BEN CANDIES
Major Suppliers

Main Propulsion	(2) EMD
Reduction Gears	Reintjes
Propellers	Coolidge
Shafts	Pobe

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For stability, a conventional platform is designed to be rigid when exposed to environmental forces. This causes the platform to be considerably wider at the bottom than at the top. The guyed tower, by contrast, is 120 feet square along its 1,078-foot length and is designed to move with wind and wave forces.

Steel piles attach the tower to the ocean floor similar to a conventional platform. A network of 20 guylines arranged symmetrically around the tower and anchored into the ocean floor keeps the structure from overturning. The guying system allows the tower to comply—to move slightly—and then return to its normal position as environmental forces vary.

Each guyline extends about 1,800 feet from the tower to a 200 ton weight. Known as clump weights, they are built in segments and joined together much like links in a bicycle chain. As waves or winds move the tower, the cable will lift segments in the clump weight and then set them down when the tension relaxes.

A test model's performance indicates that the deck will move less than three feet off center 99 percent of the time. Even in a hurricane with winds of 130 mph and waves about 70 feet high, the tower will be resilient. The deck could move as far as 40 feet off center without damaging the tower's pilings or breaking a guyline.

In 1981, construction of the tower began at Brown & Root's fabrication yard at Port Aransas, Texas, near Corpus Christi. The tower weighs 27,000 tons and has more than 15 miles of welds. Once completed, the structure—with decks and drilling rigs added atop the tower—will be 1,300 feet tall, approximately the height of a 100-story building.

It took a five-day voyage on a launch barge nearly as long as two football fields to carry the tower to a new oil and gas field in Mississippi Canyon Block 280, about 110 miles southeast of New Orleans.

Because of the length of the tower, the launch barge was modified to tip the tower into the Gulf off the side, instead of the end, as is usually done. The side launch reduces the risk of damage to the tower and the barge. It also eliminates the need for about 3,000 tons of additional steel to reinforce the tower for an end launch. After launch, the guylines were securely attached to the tower.

Later this summer the three deck levels will be brought to the site by barge and lifted into place. The two acres of deck space will hold two drilling rigs, production equipment, and living quarters for up to 140 people during the first years of operation.

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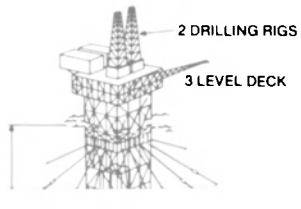
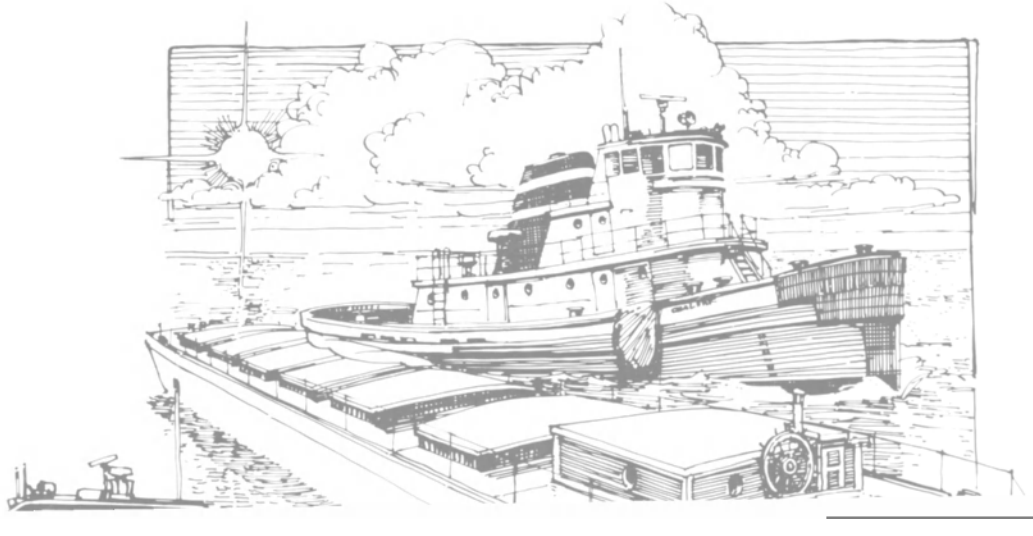


EXXON'S GUYED TOWER



(continued from page 49)

MacGREGOR-NAVIRE INTERNATIONAL

Write 61 on Reader Service Card

Formed following the acquisition of MacGregor International by Kone Oy, of Finland, which already owned Navire Cargo Gear International, this new company is a major force in the area of cargo access equipment and systems.

Both partners have developed numerous designs of specialized equipment including, in the area of deck machinery, all manner of hatch covers. The range of covers designed vary from units for the largest bulk, OBO, and ore/oil carriers down to the smallest inland waterway vessel.

Recent innovations for folding covers on medium sized vessels have included the self-engaging auto cleat and the gravity cover. The self-engaging auto cleat system uses angular interlocks, or wedges, on the cover side/coaming and at the cross joints to form the cleats. It has been incorporated in the "Direct Pull," "Foldtite," and "Foldlink" cover designs.

The gravity cover uses wedge line positioners each side of the meeting panels to ensure constant compression while the wheel arms at the leading edge of the panels engage catch devices on the coaming top rails. The end hinges allow lateral movement but can still act as battening hinges together with the center hinge. With this design, only four manual cleats are required for a hatch, drastically reducing securing time.

An area of development for inland waterway vessels and barges has been telescopic covers which effectively concertina when opened. There are designs for two and three panel sets of lightweight construction and available as watertight or raintight units. Others now include a light alloy version significantly lighter than those in steel and with a reduced maintenance requirement. This alloy design is raintight and being lighter, large panel sizes can still be manhandled while the power requirement for driven panels is reduced.

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Built to ABS classification, Ice Class C, the Ben Candies capacities include 129,000 gallons of fuel oil; 8,500 gallons of ballast; 11,800 gallons of potable water, 3,500 gallons of lube oil; 700 gallons of hydraulic oil; and has accommodations for a crew of nine persons.

Electronic equipment includes two Furuno FR711 radars; a Raytheon Ray 350 loudhailer; a Furuno LC70 Loran; a Panasonic RF4900 short wave receiver; two Apelco Clipper 82 VHFs; a Hull 255 SSB; an Okeanos RS5000 Sat/Nav; and a Datamarine 2650 depth sounder.

The tug is equipped with a single wildcat windlass by Markey, a TDSD32 Markey towing winch; and a Halon fixed flooding fire-fighting system. Vessel coatings are by Ameron.

Immediately after delivery, the tug assisted in the towing of a unique new unloading platform for Exxon Co. U.S.A. The 1,078-foot-tall offshore drilling platform, is designed with guylines that allow it to move slightly in hurricane force winds, 70-foot high waves or strong currents. It is located in the Gulf of Mexico in 1,000 feet of water about 110 miles south of New Orleans. (See story at right.)

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Reduction Gears	Reintjes
Propellers	Coolidge
Shafts	Rabe
Bearings	Goodrich
Generator Engines	Detroit Diesel
Engine Controls	Wabco
Steering System	Sperry
Pumps	Marlow
Fire-fighting system	Halon
Fire-fighting pump	Marlow
Sanitation system	Red Fox
Radar	Furuno (2)
SW	Panasonic
SSB	Hull
VHF	(2) Apelco
Loran C	Furuno
Depth Sounder	Data Marine
Loud Hailer	Raytheon
Sat/Nav	Okeanos
Winch	Markey
Windlass	Markey
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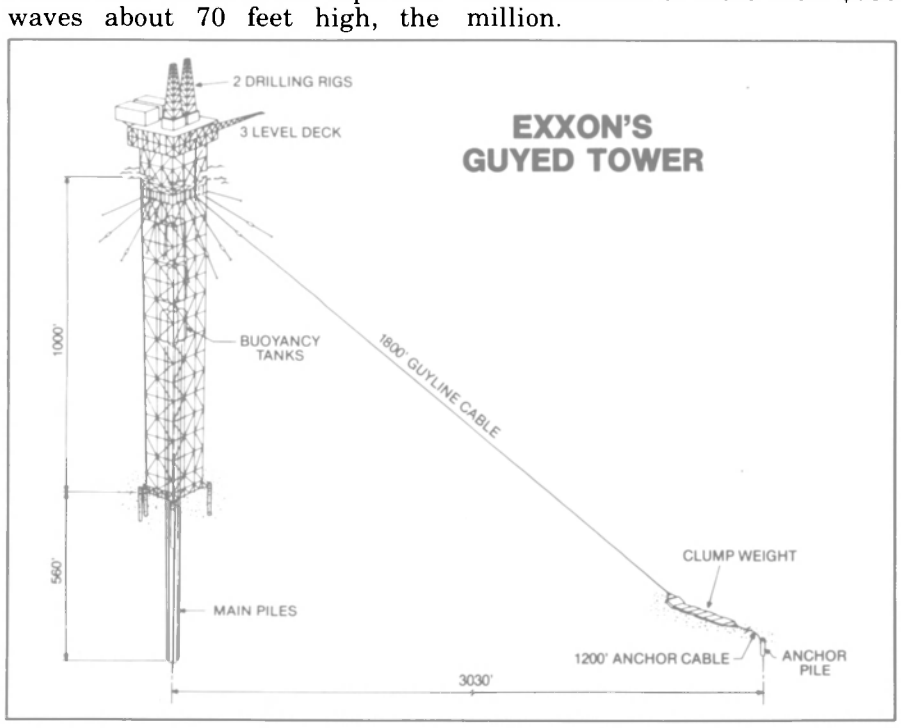


Fairbanks Morse Receives $12.1-Million Diesel Engine Order For Navy's LSD-44

W.T. Hailey, vice president-sales, for Colt Industries, Fairbanks Morse Engine Division in Beloit, Wisc., has announced that a $12.1-million order has been received for diesel engines for the U.S. Navy's LSD class landing ship dock program.

The new order covers a shipset of four propulsion engines and four engine-generators for ship's power. The propulsion engines are Colt-Pielstick 16-cylinder diesel engines rated at 8,500 bhp each, and the engine-generators are Fairbanks Morse opposed piston engines rated at 1,837 bhp each.

This order for LSD-44 is the fourth order from Lockheed Shipbuilding & Construction Company of Seattle, Wash., and brings the total orders received under this program to $58.2 million. Shipment for the eight engines is scheduled for 1984 and 1985.

New Ultra Shallow-Draft Design Form Mitsubishi Described in Literature

Mitsubishi Heavy Industries, Ltd. is offering free literature describing its new design for ultra shallow-draft vessels (USDVs). The design permits a vessel to transport 2½ to 3 times more cargo than conventional vessels on shallow draft routes or in service between shallow-draft ports.

Mitsubishi can provide USDVs in dimensions up to a maximum B/d ratio of 6.5 and a minimum L/B ratio of 3.5. The design is applicable to a wide range of vessels such as tankers, bulk carriers, chemical carriers, RO/RO's, container-ships, and liquified gas carriers.

For complete information,
Write 89 on Reader Service Card

$4-Million Containerships Separator Contract Awarded Alfa-Laval

Alfa-Laval of Fort Lee, N.J., one of the world leaders in liquid separation, thermal, and continuous process technology recently announced it has been chosen by U.S. Lines, Inc. to supply all of the fuel and lube purifiers plus other equipment for 12 jumbo containerships.

The U.S. Lines' contract for the 12 vessels is valued at $570-million and is, according to industry sources, the biggest maritime order in recent history.

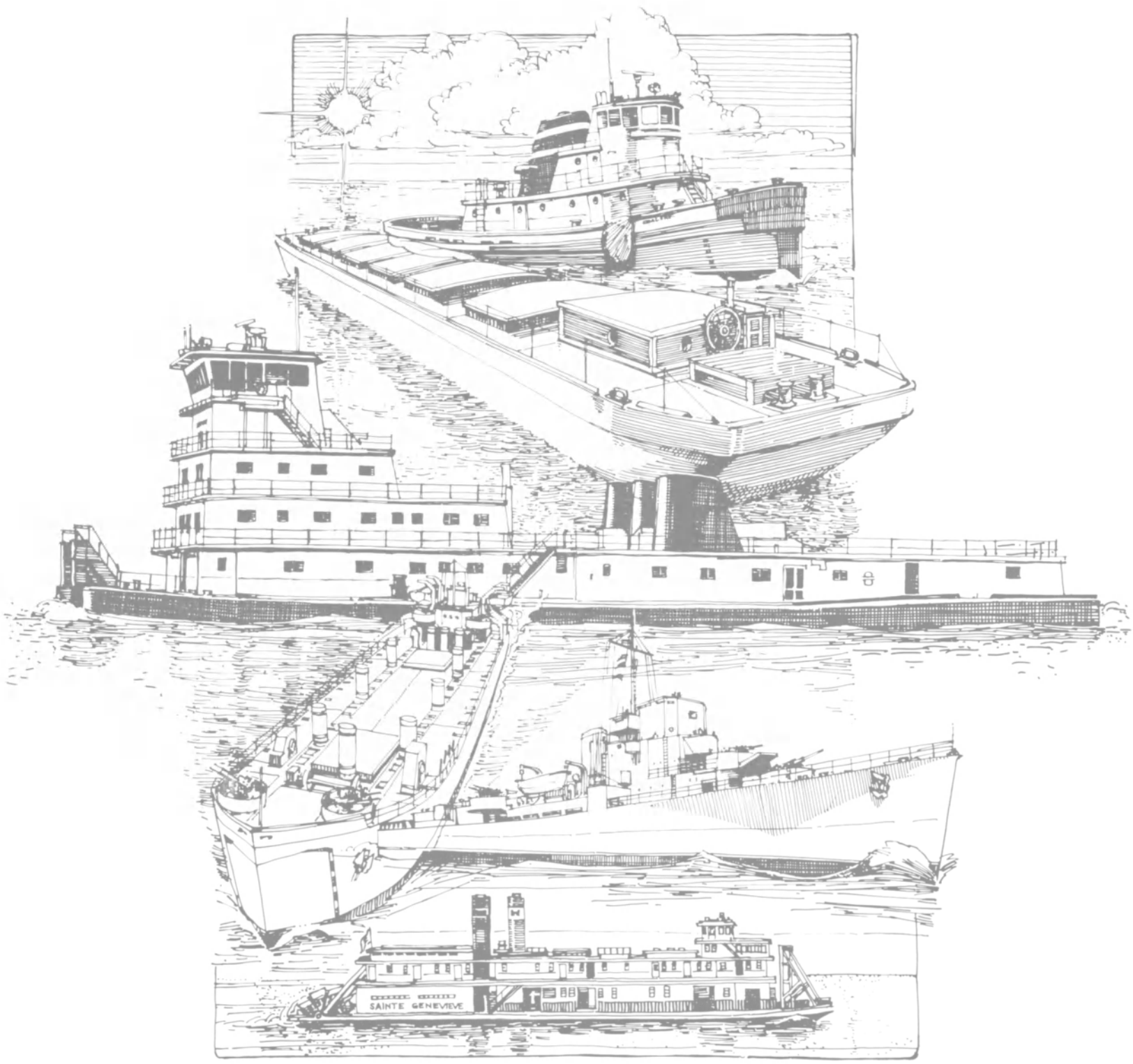
Alfa-Laval will be supplying 84 centrifugal separators for fuel and lube purification plus fresh water generators and plate heat exchangers for central cooling systems.

Robert E. Wiltz, senior vice president and general manager in charge of the Alfa-Laval Industry Group, said the equipment order will exceed $4-million and is subject to final approval by the government of South Korea, where the ships will be built.

"The combination of state-of-the-art Alfa-Laval equipment and new diesel engines will provide significant fuel economies in the operation of these huge vessels," explained **Mikael Ugander,** vice president and general manager of the Alfa-Laval Separation Engineering Group. "Our technology will permit the burning of the lowest grade bunker fuel."

Mr. **Ugander** said the containerships will be "longer than three football fields"—950 feet long by 106 feet wide.

Alfa-Laval, Inc. is part of the international Alfa-Laval Group headquartered in Sweden. The U.S. company, headquartered in Fort Lee, N.J., was established in 1883 to supply centrifugal equipment to dairy farms for continuous cream separation. Today, that original technology continues to find broader application, including food and dairy processing, power generation, chemical processing, and pollution control.



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AWO

Higher User Taxes Would Be Bad Economics

Joseph Farrell, President

American Waterways Operators

Our nation's economic climate is, to a great degree dependent upon its national transportation system which serves as a vital link in the chain of production, distribution and sale of goods in both domestic and export trade. In order to ensure that this vital system continues to accomplish its mission, national transportation policy must recognize *each* mode of transportation as an integral cog in the success of the entire enterprise.

Our domestic transportation system today should exist as a balanced system. No mode of transport should reign supreme: all forms—rail, water, motor, air—have important roles to play. No single one of those transportation modes can meet the needs of all consumers or shippers.

The continued competition between them can only benefit the economic needs of the nation as a whole. So our national transportation policy must promote that competition above all else. Unfortunately, the current economic, regulatory and legislative environment instead tends to diminish competition among the modes where that competition should be natural and unfettered.

We in the barge and towing in-

(continued on page 56)

Joseph Farrell

August 1, 1983

Higher User Taxes Would Be Bad Economics

(continued from page 55)

dustry agree with the principle that the users of a transportation system should pay their fair share of the costs for that system. However, we disagree with the current administration's proposal allocating to the waterways freight industry of 70 percent of total federal expenditures. This, on top of the currently mandated 10 cents per gallon fuel tax, is hardly what anyone reasonably could call a "fair share."

The proposal also would authorize segment-specific ton-mile fees providing for recovery of 70 percent of the capital expenditures of the Corps and TVA assigned to commercial waterways transportation projects. Moreover, the proposal contemplates imposition of congestion fees on top of the rest. Instead of being a compromise in the administration's scheme between the "ideal" and the *status quo,* which is how it is advertised, the level of recovery could actually exceed 100 percent of the costs.

For almost two hundred years, a combination of geographic, political and economic forces converged to forge a principle of federal responsibility for construction, operation, and maintenance of the inland waterways. This policy dates back to the earliest days of the nation when Congress, in order to encourage interstate transportation, forbade any charge for the use of inland waterways. The policy was enunciated, among other places, in the Northwest Ordinance of 1789, which declared that inland waterways "shall be common highways and forever free . . . without any tax, impost or duty therefor."

That policy went out the window, with the Inland Waterways Revenue Act of 1978, which established a tax on fuel used in commercial transportation on 26 inland and intracoastal waterway segments, the revenues from which are deposited in the inland waterways trust fund. The tax, increasing from 4 cents per gallon in 1980, to 6 cents currently, and to 10 cents by 1985, has created a change in national policy so new that the impacts of the legislation have not yet been fully felt, much less analyzed.

The U.S. Treasury is now collecting approximately $5 million for each 1¢ of user tax paid by the barge and towing industry. These trust fund revenues are supposed to be applied to new construction and rehabilitation expenditures for navigation on the 26 segments of the inland waterway system. By the end of FY 83, the fund will have grown to almost $100 million. However, Congress has not authorized construction of any new waterway facilities since 1976, with the exception of Lock and Dam 26, for construction of which the congress imposed the waterways fuel tax in the first place.

The barge and towing industry is paying user taxes, and has been paying user taxes for three years, but not one penny of the trust fund revenues has yet been authorized for use on new projects. If the federal government won't use revenues already collected, what is the rationale for seeking still more taxes?

There are three powerful reasons, any one of which makes the imposition of new and higher waterways taxes bad policy. First, there has been no accurate cost allocation study performed. What is the portion of the Corps of Engineers construction, operation and maintenance cost that should be attributed to the barge and towing industry, and what portion properly should be assigned to the other beneficiaries?

Second, we in the industry feel strongly that all modes of transportation must be treated with an even hand if the nation's interests are to be served. To tax the waterways industry for its services at the same time that the railroads

continue to receive vast federal outlays each year would upset further the imbalance which already exists between these two modes.

Finally, it seems clear that this whole exercise is a part of the administration's laudable attempt to drive down the budget deficits. But, how realistic? And with what effect? The $36 million in user taxes collected this year and applied to federal budget deficits of around $190 billion represents a trivial contribution . . . about 0.02 percent . . . towards balancing the federal budget. To the waterways operators trying to survive in this depressed economy, the increased tax could tip the balance toward bankruptcy.

Ultimately, the combination of increased user taxes on the barge industry, and further deregulation of the railroads would raise the cost of goods shipped domestically as well as making U.S. goods less competitive on world markets.

Water competition currently stimulates efficiency and lower, but still profitable, rates by rail. For example, coal shipped by rail to Tennessee over routes where there is no alternative waterway costs the shipper 5.3 cents per ton mile to ship. Where there is an alternative on the water, rail rates drop to 3.0 cents per ton mile. Both rates involve volumes of well over half million tons per year, or substantial transactions.

Barge transportation currently moves some 46 percent of the grain which is carried to U.S. ports for export. The low cost and efficiency of water transportation keeps our nation's farmers competitive in the world market, thus improving the U.S. balance of payments. Higher costs of water transportation resulting from higher waterway user taxes would have the opposite effect. The cost of shipping grain by barge from Clinton, Iowa, to the Gulf Coast for export is currently $4.07 per ton. Cost recovery of 1.1 mills per ton mile, which is what this administration proposes, would add $1.51, increasing the cost of shipping grain by barge 27%. This figure translates into an increase of 4 cents per bushel of wheat. Who will absorb that cost?

The U.S. has no monopoly on the world's food supply. Buyers go where they can obtain the best price. Our nation needs to meet the prices of competing export countries, or costs will be shifted permanently to foreign customers.

But the economic impact of increased user taxes would go far beyond the freight transportation system. A ripple effect undoubtedly would be felt throughout the economy. Higher transportation costs would not magically disappear. Someone has to foot the bill—producers, shippers, consumers. In the short term, the nature of the market will determine who pays. Strong demand would shift costs to consumers. Weak demand, to producers. In the long term, however, it would be the producers who bear the brunt of higher costs because carriers already operate on such thin profit margins that they cannot possibly absorb them.

With as much as one third of their equipment now idle, barge line operators cannot afford more taxes. Even now, many operators cannot pass on the current level of waterway user tax to their customers, who have already borne the brunt of unemployment, plant shutdowns, and lost earnings as America's primary industrial production has stagnated. In order to maintain a minimal level of activity, our members are absorbing the waterway user tax, along with other operating expenses.

In short, a diverse constellation of conditions makes the imposition of additional waterway user taxes a very unwise move, one which could well result in reduced tax revenues from a great number of other sources.

Artist's conception of the Creole Queen riverboat berthed at the 1984 Louisiana World's Fair. The new "old" boat is now under construction at Halter Marine, Inc., for New Orleans Paddlewheels, Inc., who will operate the boat in conjunction with the Fair.

Halter Marine Building Diesel-Electric Sternwheeler For 1984 World's Fair

What may be the newest "old" boat in the United States is under construction at Halter Marine's Moss Point, Miss., shipyard.

There, a genuine sternwheeler with all the outward appearances of a paddlewheel riverboat of a bygone era is rising on the banks of the Escatawpa River. Appearances can be deceiving however, as its old time outer shell encloses an ultramodern diesel electric propulsion plant linked to a revolutionary new cost-saving paddle drive system.

In making the announcement, **R. J. Shopf,** president of Halter Marine, Inc., said the new 1,000-passenger vessel, the Creole Queen, will be 189 feet long with a 40-foot beam and 8-foot depth. Her normal operating draft will be 5 feet 6 inches. She will be powered by three Caterpillar D353 engines coupled to three 300-kw generators. Together, they will produce 900 kilowatts of electricity for the two 350-horsepower General Electric motors that will turn the paddlewheel.

The Creole Queen is being built for New Orleans Paddlewheels, Inc., who will operate her on the Mississippi River in conjunction with the 1984 Louisiana World's Fair. After the fair she will be berthed permanently at the same site.

"Her design, machinery, equipment, and appointments are a direct result of our own criteria coupled with extensive research and personal visits to nearly every boat of its type in the United States," said **Warren Reuther Jr.,** president of New Orleans Paddlewheels, Inc.

"We wanted a multipurpose boat that could provide unobstructed views of the New Orleans harbor for hundreds of sightseeing passengers, while being able to cater three private parties at the same time," he added. "We have achieved that in the Creole Queen because she has a spacious topside promenade deck which can accommodate up to 125 people, and three separate dining rooms which can host parties of 300, 125, and 100 people simultaneously. Her windows are considerably larger than those on other vessels of her type to facilitate observation and to permit

Signing a contract for a genuine paddlewheel riverboat are **Joseph H. LeBlanc Jr.,** Halter Marine sales representative, **Warren Reuther Jr.,** president of New Orleans Paddlewheels, Inc., and **Rick S. Rees,** Halter vice president of finance. Looking on is **Ralston P. Cole,** Halter sales manager.

more persons to see through them. We think the larger windows will really be appreciated during rainy and cold weather."

Mr. **Reuther** said the Creole Queen will also be the first of its type to use diesel-electric propulsion. "We chose this system because it makes the boat quieter, more fuel-efficient, and vibration free. It also gives us greater safety underway and in docking because of finite controls," he said.

In a diesel electric system the generators feed power into a prefabricated General Electric silicon-controlled rectifier unit (SCR) which converts the AC power into DC power. The power pool thus created is similar to an electrical power plant, from which power can be drawn as required.

The Creole Queen will operate on two of the three generators with the third in reserve as a spare during maintenance or it can be used for additional power. As the generators are linked to the SCR system, one, two, or three can be utilized as needed in several voltages. The SCR system will also provide power to the boat's 200-hp Schottel bowthruster, as well as supply power for all of the vessel's other electrical power requirements.

The diesel electric system allows finite control of the paddlewheel and bowthruster and eliminates costly clutches, and other expensive components while simplifying machinery requirements.

"The Creole Queen will also utilize a new Halter developed drive system to the paddlewheel which eliminates the possibility of water pollution posed by chain, oil, and hydraulic fluid associated with some other systems," said Mr. **Shopf**. "In addition," he added, "it will also eliminate vibration and much of the maintenance required by other methods."

A key element in the Halter system are two totally sealed, high-torque planetary gears. One is located on each side of the paddlewheel and is driven by a D.C. motor. Mr. **Shopf** said the Halter unit is a significant advance and that the company has applied for patent rights on the system.

Beier Radio Appointed Sales Agent For NOS Charts —Literature Available

Frank L. Beier Radio, Inc. of New Orleans, La. has been appointed agent for the National Ocean Survey (NOS) nautical charts. Published by the Nautical Oceanic & Atmospheric Administration, they are the standard navigational charts used by both commercial and pleasure boat interests.

Beier Radio maintains a full inventory of conventional and specialty charts of the Gulf Coast, Atlantic Coast, Pacific Coast, and Alaskan areas; as well as offshore mineral leases, small craft charts, and tide tables.

Beier Radio is the largest marine electronics dealer on the Gulf Coast, with offices in Houston, Port Arthur, Cameron, Lake Charles, Intracoastal City, Morgan City, Houma, Cut Off, Marrero and Mobile.

For additional information,
Write 87 on Reader Service Card

New Juniper Catalog Shows Expanded Ventilator, Watertight Closure Lines

Juniper Industries, Inc. of Queens, N.Y., has announced the expansion of its line of marine watertight closures and ventilation equipment.

A new catalog is available showing not only the expanded section on ventilation equipment, but a much more extensive section on watertight doors, hatches, and scuttles. For those companies doing their own fabrication, Juniper also maintains a large inventory of door parts and assemblies.

The publication includes drawings, dimensional data, material specifications, and an engineering section to assist in design work. In addition to ventilation equipment, doors, hatches, and scuttles, items such as rat guards, lockers, stowage reels, and valves are also covered.

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Newport News Completes Annual Overhaul Of Cruise Liner Veendam In 12 Days

Holland America's liner Veendam recently visited Newport News Shipbuilding, Newport News, Va., for her annual overhaul. The schedule called for 12 days. Even before the 627-foot luxury liner was docked, her lifeboats were lowered and towed away for major repairs. When the ship left the yard 12 days later, the lifeboats had been stored back in position and a total of 117 scheduled maintenance and repair jobs, plus others added on inspection at the yard, had been completed.

More than 700 shipyard employees and the Veendam's crew worked around the clock each day on the ship to get her out on time. Work performed was as major as repairing a 30-foot section of the forepeak, and as minor as repairing the dimmer switch over the captain's table in the dining room.

With the Fitters serving as the lead trade, the 30-foot, 18-ton section was cut loose and taken to the shipyard's steel fabrication shop for internal structural repair. "The internal steel was replaced in record time," says **Marshall Branch,** ship repair manager at Newport News. The forepeak section was then rigged back into position, fitted, and welded in place, using full penetration welds. The welds were then tested ultrasonically.

Another major repair performed during the 12 whirlwind days was replacement of the lignum vitae inside the starboard stern tube and strut bushings. First, the Veendam's wheels and couplings were jumped. Shafting was then removed, providing access to the lignum vitae. Workers from the yard's sheet metal department chiseled out and replaced the wood—no small task in itself as lignum vitae is the world's hardest wood. Other workmen then bored the bushings before replacing the shafting.

Other work included the usual underwater repairs and maintenance, inspection and certification, cleaning and painting of the ship and rooms, laundry repairs, and sewage treatment systems maintenance. "Completing such a vast amount of work in just 12 days was quite a feat," says **Marshall Branch**.

Holland America has been sending cruise ships to Newport News Shipbuilding for routine and emergency maintenance and repairs for years. Two other Holland America liners, the Statendam and Volendam, followed the Veendam to the shipyard for their annual overhauls.

FMC Delivers Third Hydraulic Dump Barge To Smith-Rice

A 258-foot-long hydraulic dump barge was launched recently by the Marine and Rail Equipment Division of FMC Corporation, of Portland, Ore. Smith-Rice Company of San Francisco purchased the barge—its third from FMC—for transporting and dumping dredge material in the San Francisco Bay region.

According to **William R. Galbraith,** FMC's vice president of sales, delivery of the 3,000-cubic-yard-capacity barge was made following operational tests of the dumping mechanism.

Built in two halves along the longitudinal axis, the barge incorporates an unusual self-dumping design. Two giant hinges, fabricated from 14 pieces of nine-inch thick steel plate, connect the barge at either end. Below each hinge, 16-inch diameter hydraulic cylinders control the opening and closing sequence. The system is remotely operated by radio from the attending tugboat.

"The best feature of the self-dumping design is its economy of operation. The barge can be loaded in the conventional way and then dumped at a prime disposal area while underway and without further equipment. Radio control adds to the safety, speed, and simplicity of operation", Mr. **Galbraith** explained.

By design, the hinged dump barge tends to open by itself when loaded and tends to close when empty. This is due to the different transverse locations for the center of gravity and center of buoyancy in each half of the hull. Flotation comes from watertight compartments within each hull half.

When the barge is loaded, its center of gravity is well inboard of the center of buoyancy, thus it tends to open the barge. Dumping the load causes the center of gravity to shift outboard; the resulting moment force tends to close the hull halves. Hinges at the deck connect the two hull sections, allowing each half of the hull to act as an independent unit when rotating. Hydraulic cylinders also connect the two barge halves, primarily to control opening and closing movements, with load and buoyancy providing most of the force.

The barge is 258-feet long, with a molded beam of 45 feet, a mean loaded draft in fresh water of 16 feet 6-inches, and a depth of 20 feet 6-inches at forward and aft deck, 18 feet at port and starboard decks. The hopper is 176 feet long and the barge's light draft is 3 feet in the closed position and 7 feet in the open. The maximum opening of the hull is 12 feet.

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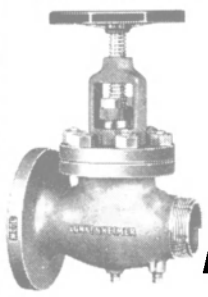

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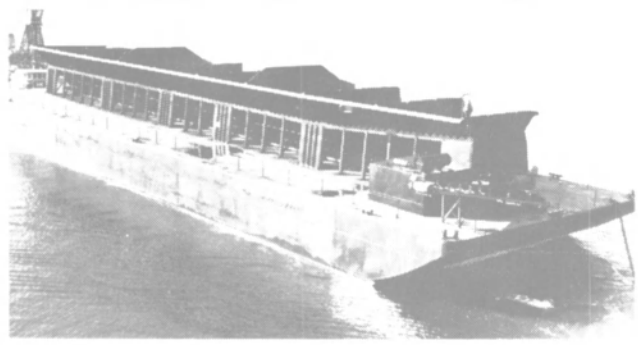

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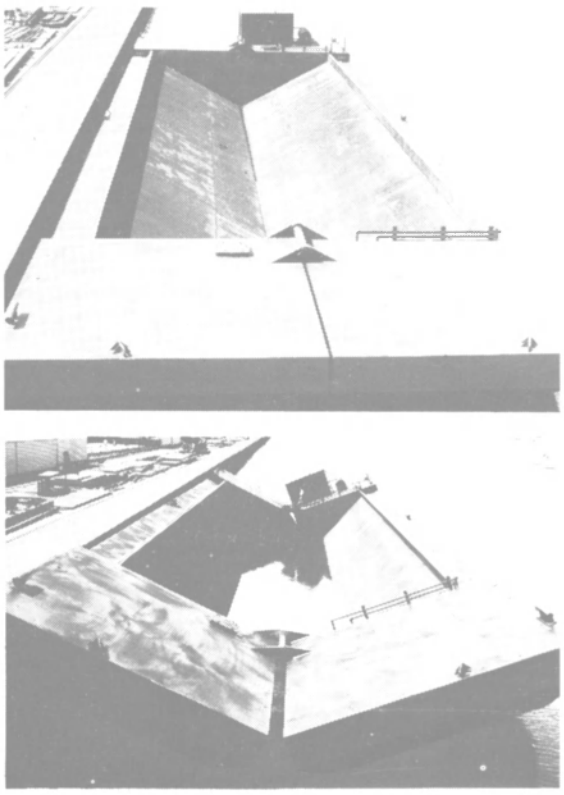

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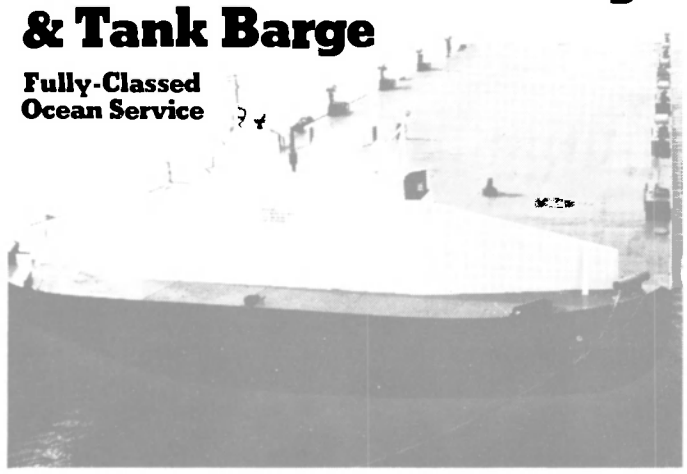

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Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8" ANSI 150# FLG P/S
Heating Coils	2" Sch. 80 Pipe For Shore Steam
Hull Plating	Deck ½", Side Shell ⅜". Bott. ⅜", Shear Strake ½"
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Bender Delivers First Five

$186-Million Contract To Convert Tanker Into Hospital Ship Awarded To National Steel

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A 6-page full-color brochure is available describing the yards and facilities.

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Bender Delivers First Five Of Twenty Shrimp Boats For Guyana

The first five shrimping boats of a 20-vessel contract have been delivered to the Guyana Government-owned Guyana Fishing Company, Ltd., by Bender Shipbuilding & Repair Company, Inc., of Mobile, Ala.

The initial deliveries were made recently to Guyana Fishing representatives at the Bender facility. According to Guyana officials, the project is being funded by the Inter-American Development Bank of Washington, D.C.

Each of the shrimp boats is of steel construction, single hard chine, with dimensions of 72 feet by 20 feet by 10 feet 9-inches. Main propulsion is by a Caterpillar D3408 DITA 365-hp diesel engine rated 1,800 rpm transmitted to a Rice four-bladed manganese-bronze propeller via a Twin Disc MG514C 6:1 reverse reduction marine gearbox.

Main electric power is obtained from a 32V, 100 amp Leece Neville alternator which is driven-off the main engine. A second identical alternator is driven-off a Lister ST2 diesel which also drives an M & P Flomax 5 bilge pump. An identical second M & P Flomax 5 pump is clutched from an auxiliary belt drive from the main engine for bilge and washdown purposes.

The shrimp trawl winch is a mechanically driven double-drum McElroy, Model 504, with bronze brake drums. The trynet winch, also mechanically driven, is a McElroy 501L which is a larger drum version of the McElroy standard unit.

Refrigeration equipment is supplied by TMC of Tampa, Fla., and installed by Marine Refrigeration, Inc., of Mobile. Each boat is equipped with a single TMC unit consisting of one OM636 Mercedes diesel engine and an 05DA Carrier diesel compressor, coupled to a Mercedes diesel. Also installed is one 32-tube condenser cooled by a Jabsco, Model 6400, pump. A standby 05DA Carrier compressor is mechanically driven off one of the main engine's auxiliary drives. Six sets of TMC aluminum freezer plates are installed in the fish hold overhead.

Because there is a strong local market for fish in Guyana and an equally strong Caribbean export market, the intention of Guyana Fishing Company, Ltd., will be to take maximum advantage of the catch of incidental fish. The refrigeration system is designed to freeze 500 pounds of shrimp and 1,000 pounds of fish in 18 hours and to maintain a hold temperature of minus 25 degrees C.

The fish hold is insulated throughout with 8 inches of polyurethane covered with fiberglass.

Shown at the acceptance signing of the five Guyana shrimp vessels are, seated left to right: **Tom Bender Jr.,** president of Bender Shipbuilding and Repair Company; **Gary Clarke,** financial director/secretary of Guyana Fishing Company, Ltd.; **Kurt Arnold,** master fisherman, consultant to Guyana Fisheries, Ltd. Standing, **Roy McArthur,** vice president of Guystac, and **John Logan,** general sales manager for Bender.

Electronics were installed by R.H. Sassaman of Mobile and consist of a Sailor SSB, model R110, receiver and T124 transmitter; a Sailor VHF, model RT144C; a Realistic, model TRC127, CB set; 2 Furuno depth recorders, model FE813 AF; a Magnavox satellite navigator, model MX4102; and a Furuno, model FR711, Radar.

According to Bender president **Tom Bender,** his company's bid for the project was such that it allowed the buyers to procure two additional vessels and remain within the fixed amount of the I.D.B. loan. These vessels are also currently under construction.

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CLEMCO, P.O. Box 7680, San Francisco, CA 94120
Complete Abrasive Blasting Systems, 18250 68th Avenue South, Kent, WA 98031
E.I. DuPont De Nemours & Co., Inc., Starblast Division, Room X39186, Wilmington, DE 19898
Schmidt Mfg. Inc., P.O. Box 37, Fresno, TX 77545

BOILERS
Combustion Engineering, Inc., Windsor, Connecticut 06095
Foster Wheeler Boiler Corp., 110 S. Orange Ave., Livingston, NJ 07039

BROKERS
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004

BRONZES—COMMEMORATIVE
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

BUNKERING SERVICE
Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019
National Marine Service Inc. (Transport Div.), 1750 Brentwood Blvd., St. Louis, MO 63144

CARGO HANDLING EQUIPMENT
Dynamic Air, Inc., P.O. Box 43074, St. Paul, MN 55164
MacGregor-Navire International, Box 8991, S-402 74 Goteborg, Sweden
MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016

CHOCKING SYSTEMS
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CLAMPS
Band-It Company, P.O. Box 16307, Denver, CO 80216

CLOSURES—Marine
Cornell-Carr Co. Inc., 63 Main St., Monroe, CT 06468

CONDENSERS
G & W Acme Division, Gulf & Western Manufacturing Company, Jackson, MI 49202

CONTAINERS—Cargo Container Handling
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CONTROL SYSTEMS—Monitoring
American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906
ARMTEC Industries, Inc., Manchester, NH 03103
Aris Electric Company, 327 Fourth St., Brooklyn, NY 11215
Autronica Marine USA, 280 Industrial Pkwy., Northvale, NJ 07647
Avicon Corp., 7750 East Redfield Rd., Scottsdale, AZ 85260
Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
Fluidyne, a Div. of Electrodata Inc., P.O. Box 11366, Santa Rosa, CA 95406
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431
National Control Systems, Inc., 827 Hanley Industrial Court, St. Louis, MO 63144
Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07605
Norske Telektron A/S, Drammensveien 126, Oslo 2, Norway
Row Computer Automations, Inc., 1085 Rockaway Ave., Valley Stream, NY 11580
Tracor Marcon, Inc., 13433 N.E. 20th St., Bellevue, WA 98005
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

COUPLINGS
SKF Steel, 20 Tower Lane, P.O. Box 745, Avon, CT 06001

CRANES—HOISTS—DERRICKS—WHIRLEYS
American Hoist & Derrick Company (AMHoist), St. Paul, MN 55107
ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Grove Manufacturing Co., P.O. Box 21, Shady Grove, PA 17256
HIAB Cranes & Loaders Inc., R.D. 22 Interchange Place, York, PA 17404
Hertz Equipment Rental Corp., 7 Entin Rd., Bldg # 2, Parsippany, NJ 07054
Marathon LeTourneau Offshore Co., 1700 Marathon Bldg., 600 Jefferson, Houston, TX 77002
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
Matson Terminals, Inc., P.O. Box 3933, San Francisco, CA 94119
National Crane Corp., 11200 North 148 St., Waverly, NE 68462
National Supply Company, 1455 West Loop South, Houston, TX 77027
Phillippi Equipment Company, 875 Colorado Ave. So., Golden Valley, MN 55416
Superior-Lidgerwood-Mundy Corp., 1101 John Ave., Superior, WI 54880
Washington Crane, Div. of Ederer, Inc., P.O. Box 24708, Seattle, WA 98124

DECK MACHINERY—Cargo Handling Equipment
General Hydraulics Corp., A Marotta Subsidiary, P.O. Box 3302, Huntsville, AL 35810
Marine Technical Associates, 195 Patterson Avenue, Little Falls, NJ 07424
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, 50 Broadway, New York, NY 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Haynes Corporation, P.O. Box 179, Jackson, MI 49204
Von der Horst Corp. of America, 314 Penn Ave., Olean, NY 14760

ELECTRICAL EQUIPMENT
NewMar, P.O. Box 1306, Newport Beach, CA 92663
Valad Electric Heating Corporation, 162 Wildey St., Tarrytown, NY 10591
Ward Leonard Electric Co., 31 South St., Mt. Vernon, NY 10550
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS
Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906
Fire-Brite, Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32201

EQUIPMENT—Marine
American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080
Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216
Consafe Inc., P.O. Box 40339, Houston, TX 77040
Donn Corporation, 1000 Crocker Road, Westlake, OH 44145
b.v. Holmatro Industrial Equipment, P.O. Box 33, 4940 aa Roamsdonksveer, Holland
Juniper Industries Inc., 72-15 Metropolitan Ave., Middle Village, NY 11379
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302
John P. Nissen, Jr. Company, Glenside, PA 19038
Softech, 460 Totten Pond Road, Waltham, MA 02154
Stal Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Strachon—Mackoe Corporation, P.O. Box M850, Hoboken, NJ 07030

EVAPORATORS
Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

FANS—VENTILATORS—BLOWERS
American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906
Flexaust Company, 11 Chestnut Street, Amesbury, MA 01913
Hartzell Fan, Division of Castle Hills Corp., 901 S. Downing St., P.O. Box 919, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Marlo Coil/Nuclear Cooling, Inc., P.O. Box 171, High Ridge, MO 63049
Tranter Inc., 6700 Finch Ave. West, Rexdale, Ontario, Canada M9W 5P5
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va 22044

FINANCING—Leasing
A.G. Becker Paribus Inc., 2 First National Plaza, Chicago, IL 60670
Yegen Marine, P.O. Box 25504, Ft. Lauderdale, FL 33320

FUEL OIL/ADDITIVES—Analysis & Combustion Testing
Ferrous Corporation, 910 108th N.E., P.O. Box 1764, Bellevue, WA 98009
Fuji Trading (America) Ltd., 17 Battery Place, New York, NY 10004
New York Mercantile Exchange, Four World Trade Center, New York, NY 10048
Rolfite Products Inc., 300 Broad Street, Stamford, CT 06901

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT
Insinger Machine Company, 6245 State Rd., Philadelphia, PA 19135
Kiefer Corporation, W227 N546 Westmound Dr., Waukesha, WI 53186

GANGWAYS
Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
MacGregor-Navire International, Box 8991, S-402 74 Goteborg, Sweden
MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016
Julius Mock & Sons, Inc., 20 Vesey Street, New York, NY 10007
J.E. Steigerwald Co., Inc., 5515 Belair Rd., Baltimore, MD 21206

HEAT EXCHANGERS
Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
American Standard Inc., Heat Transfer Div., Buffalo, NY 14240

HULL CLEANING
Butterworth Systems Inc., 224 Pork Ave., Florham Park, N.J. 07932
Performance Hull Cleaning Services, Inc., P.O. Box 655, New Orleans, LA 70059-0655
Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044
Stork Services B.V., P.O. Box 2013, 7750 CA Hengelo, Holland
Underwater Hull Maintenance, 104 Waterview Dr., Crownsville, MD 21032

HYDRAULICS
Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202
HRS, Inc., 3334 Victor Court, Santa Clara, CA 95050
Helmut Eller & Son, Inc., 2000 East Bay Street, Jacksonville, FL 32202
Hydronautics, 6338 Lindmor Drive, Goleta, CA 93017
Victor Fluid Power, 7527 Mitchell Rd., Eden Prairie, MN 55344

INERT GAS—Generators—Systems
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906
Salwico Inc., 5 Marine View Plaza, Hoboken, NJ 07030

INSULATION—Cloth, Fiberglass
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y 11231
Superior Energies, Inc., P.O. Drawer 386, Groves, TX 77619

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Assurance Foreningen Skuld, P.O. Box 1376 Vika, Stortingagaten 18, N-OSLO 1, Norway
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER—Watertight Doors—Paneling
Masonite Commercial Division, Dover, OH 44622
Pioneer Industries, Division of CORE Industries Inc., 401 Washington Avenue, Carlstadt, NJ 07072
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

LIGHTING EQUIPMENT—Lomps, Fixtures, Searchlights
ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022
Browning Marine Inc., (Aqua Signal) 33W 480 Fabyan Parkway, Ste 105, West Chicago, IL 60185
Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039
Oceanic Electrical Mfg. Co., 157 Perry St., New York, NY 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209
Port Electric Supply Corp., 157 Perry St., New York, NY 10014
SSAC Inc., P.O. Box 395, Liverpool, NY 13088

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080
Essex Machine Works, Essex, CT 06426
Jered Brown Brothers Inc., 1300 Coolidge, Troy, MI 48007-2006
Scotchman Industries, Inc., P.O. Box 850, Philip, SD 57567-0850

METALS
Bayou Steel Corp., P.O. Box 5000, Laplace, LA 70068
Inland Steel Company, 30 West Monroe Street, Chicago, IL 60603
International Grating, Inc., 7625 Parkhurst, Houston, TX 77028

MOORING SYSTEMS
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAME PLATES—BRONZE—ALUMINUM
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Aero Nov Laboratories, Inc., 14-29 112 St., College Point, NY 11356
American Systems Engineering Corp., P.O. Box 4265, Virginia Beach, VA 23454
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Art Anderson Associates, 148 First St., Bremerton, WA 98310
B.C. Research, 3650 Wesbrook Mall, Vancouver, B.C., Canada V6S 2L2
The Borg/Luther Group, 876 Elm Ave., Carpinteria, CA 93013
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
Bretagne ACB Corp., 344 Camp St., Suite 1000, New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Ste 222, 9951 Atlantic Blvd., Jacksonville, FL 32211
C.T. Marine, 18 Church Street, Georgetown, CT 06829
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Phillips Cartner & Co., Inc., 203 So. Union St., Alexandria, VA 22314
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202
Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
Express Engineering Inc., 33125 15th Ave. So., Federal Way, WA 98003
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman Ltd., 935 Gravier St., New Orleans, LA 70112
GEOD Corporation, 73 Oak Ridge Road, NJ 07438
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001
John W. Gilbert Associates Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
The E.W. Heinrich Co., P.O. Box 91M, Gross Ile, MI 48138
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., P.O. Box 186, Glen Head, NY 11545
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
Capt. Ernest James, 2849 Beovercrest Dr., Lorain, OH 44053
Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
Nils Lucander, 5307 N Pearl St., Tacoma, WA 98407
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Mampaey Marine Engineering B.V., P.O. Box 667, 3300 AR Dordrecht, Holland
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 95 River Rd., Hoboken, NJ 07030
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape Inc., P.O. Box 2366, Littleton, MA 01460
R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
Rothfuss Engineering Corp., P.O. Box 97, Columbia, MD 21045
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
SEACOR Systems Engineering Associates Corp., 19 Perina Blvd., Cherry Hill, NJ 08003 (Publications Division at Cherry Hill location)
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004

George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Timsco, 622 Azalea Road, Mobile, AL 36609
Tracor Hydronautics, Inc., 7210 Pindell School Rd., Laurel, MD 20707
Uhlig & Associates, Inc., 8295 SW 188th St., Miami, FL 33157
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744
Wink, Inc., 7520 Hoyne Blvd, New Orleans, LA 70126
Yacht Design Institute, 9 Main St., Blue Hill, ME 04614

NAVIGATION & COMMUNICATIONS EQUIPMENT
Alden Electronics, 1145 Washington St., Westborough, MA 01581
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Anschutz & Co. GmbH, Postfach 6040, D-2300 Kiel 14, West Germany
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
Cybernet International, Inc., 7 Powder Horn Dr., Warren, NJ 07060
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
EPSCO Marine, 550 Wholesalers Parkway, Harahan, LA 70123
Fleet Marine, 1820 N.E. 146th Street, North Miami, FL 33181
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Japan Radio Co., Ltd., Akasaka Twin Tower (Main), 17-22 Akasaka 2-chome, Minato-ku, Tokyo 107, Japan
King Radio Corporation, 400 North Rodgers Rd., Olathe, KS 66062
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vopenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065
Lorain Electronics Corp., 2307 Leavitt Rd., Lorain, OH 44052
Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Racal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Radio-Holland USA, Inc., One Allen Center, Suite 1000, Houston, TX 77002
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Rivertronics, P.O. Box 247, Godfrey, IL 62035
Robertson Auto Pilot, 135 Fort Lee Road, Leonia, NJ 07605
Selesmar S.p.A., Casella Postale 9, 50020 Montagnana Vol Di Peso, Firenze, Italy
Servo Corporation of America, 111 New South Road, Hicksville, NY 11802
Simrad, Inc., 2215 NW Market St., Seattle, WA 98107
Si-Tex Marine Electronics, P.O. Box 6700, Clearwater, FL 33518
Sperry Corporation, Great Neck, NY 11020
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067

OILS—Marine—Additives
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Mobil Oil Corp., 150 East 42 Street, New York, NY 10017
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS
Biospherics Incorporated, 5001 Forbes Blvd., Lanham, MD 20801
Butterworth Systems, Inc., 224 Park Ave., Florham Park, N.J. 07932
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307
From Industrial, P.O. Box 33210, Tulsa, OK 74135
National Fluid Separators, Inc., 1239 Hanley Industrial Court, St. Louis, MO 63144
Phoenix Oil Refiner Co., Inc., 330 Hill Ave., Nashville, TN 37210

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
Bywater Coatings, 1610 Engineers Road, Belle Chasse, LA 70037
CLEMCO, P.O. Box 7680, San Francisco, CA 94120
"CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S. Franklintown Rd., Baltimore, MD 21223
Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207
E.I. Dupont De Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
Esgard, Box 2698, Lafayette, LA 70502
Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080
Farboil, 8200 Fischer Road, Baltimore, MD 21222
Grow Group, Inc., 200 Park Ave., New York, NY 10017
Hempel Marine Paints, Inc., 65 Broadway, New York, NY 10006; P.O. Box 41, So. Houston, TX 77587; P.O. Box 10265, New Orleans, LA 70181
International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Products Research & Chemical Corp., 5454 San Fernando Rd., Glendole, CA 91203
Salwico Glassflake, Inc., 5 Marine View Plaza, Hoboken, NJ 07030
Seaguard, 4030 Seaguard Ave., Portsmouth, VA 23705
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143
SermeTel, Inc., 4401 SermeTel Dr., Moss Point, MS 39563
Teledyne Metal Finishers, 1725 East 27th St., Cleveland, OH 44114

PETROLEUM SUPPLIES
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIER REPAIRS
Acquatic Marine Systems, Inc., P.O. Box 326, Williamsville, NY 14221

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Hydro-Craft, Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063
Knights' Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Metropolitan Plumbing Supply Corp., 5000 Second St., Long Island City, NY 11101
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
Pioneer Valve & Fitting Co., Inc., 93 Seigel Street, Brooklyn, NY 11206
Selkirk Metalbestos, Box 19000, Greensboro, NC 27419
Stauff Corporation, 21-31 Industrial Park, Waldwick, NJ 07463

PLAQUES—BRONZE—ALUMINUM
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
American Lohmann Corp., 1415 Chestnut Ave., Hillside, NJ 07205
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
Combustion Engineering, Inc., Windsor, Connecticut 06095
Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
Diesel Marine International, Ltd., c/o NORSHIPCO, P.O. Box 2100, Norfolk, VA 23501
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
Escher Wyss GmbH, (Member Sulzer Group), Ravensburg, Germany
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
General Motors, Electro-Motive Division, LaGrange, IL 60525
George Engine Company, Inc., Lafayette, LA
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231
Harbormaster, 36 Hancock St., Quincy, MA 02171
Krupp Mak Diesels, Inc., 4329-33 Di Paolo Center, Glenview, IL 60025
M.A.N.-B&W Diesel, 2, Ostervej, DK-4960 Holeby, Denmark
MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70203; 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington, VA 22209
MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046
Mapeco Products, Inc., 20 Vesey St., New York, NY 10007
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037
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Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054
Propulsion Systems, Inc., 21213 76th Ave. So., Kent, WA 98031
SACM (Societe Alsacienne De Constructions Mechaniques De Mulhouse) 1, Rue De La Fonderie, Boite Postale 1210, 68054 Mulhouse Cedex, France
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Salina, KS 67401
Turbine Specialties/Gulf Coast, Inc., 1900 Industrial Blvd., Harvey, LA 70058
Voith Schneider America, 159 Great Neck Rd., .Ste 200, Great Neck, NY 11021
WABCO Fluid Power, an American-Standard Company, 1953 Mercer Rd., Lexington, KY 40505
Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
Waukesha Engine Division, Waukesha, WI 53187
ZF of North America, Inc., 3225 Commercial Avenue, Northbrook, IL 60062
ZF of North America, Inc. (Motive Power Corporation, P.O. Box 365, Mineola, NY 11501)

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Industrial Products & Engineering Co., Inc., 1 Sawyer Dr., Coventry, RI 02816
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
Naniwa Pump, c/o Maritime Equipment Inc., P.O. Box 537, Flemington, NJ 08822
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Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Warren Pumps Division, Bridges Avenue, Warren, MA 01083
Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

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Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666
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Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105
Tyson Industries, Ltd., P.O. Box 51997, New Orleans, LA 70151
World Wide Pollution Control Tank Cleaning & Lining Corp., 403 St. Marks Ave., Brooklyn, NY 11238

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Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002

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George Fegert Honored For Work With Shipyard Conference

Robert W. Greene (left), president of Jeffboat Inc., presents the AWSC award to the organization's immediate past chairman **George J. Fegert**, president of Gretna Machines & Iron Works Inc.

The American Waterways Shipyard Conference (AWSC) honored its immediate past chairman, **George J. Fegert,** president of Gretna Machines & Iron Works, Inc., Harvey, La., at a recent meeting in Washington, D.C. Mr. **Fegert,** an active supporter of AWSC since its inception in 1976, was presented an award commemorating his tireless service to the shipyard industry.

During his tenure as chairman, Mr. **Fegert** continued to lead the battle to reform the Longshoremen's and Harbor Workers' Compensation Act to obtain jurisdictional relief for the small and medium-sized shipyard industry. Under his leadership, AWSC began work on the development of a comprehensive OSHA vertical standard which would relieve the industry of all inappropriate regulations.

Mr. **Fegert** will join other distinguished colleagues in the past chairmen's advisory committee, the purpose of which is to advise the shipyard steering committee on matters affecting the industry.

The award was presented by AWSC chairman **Robert W. Greene,** president of Jeffboat Incorporated, Jeffersonville, Ind., who praised Mr. **Fegert** for the "dedicated work that he has done on our behalf."

AWSC is a conference of The American Waterways Operators, Inc., the national trade association representing the barge and towing industry.

MSC And Ocean Carriers Sign $250-Million T-5 Tanker Pact

A $250-million agreement between the Navy's Military Sealift Command (MSC) and Ocean Carriers Inc., of Houston, Texas, to charter five diesel powered T-5 tankers was signed in New York recently.

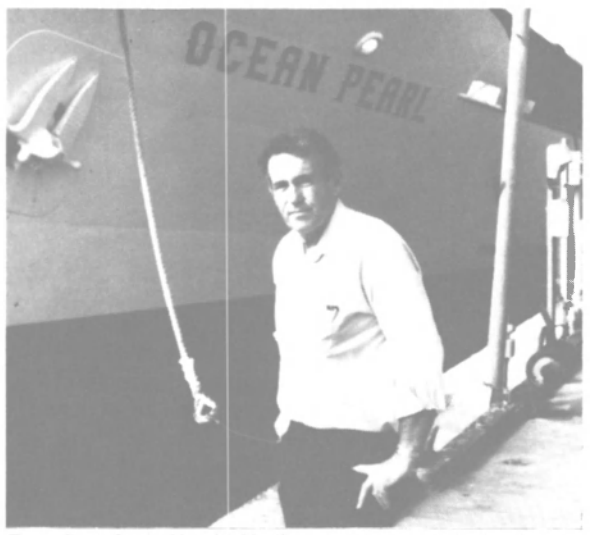
The five new 30,000-dwt clean product, ice-strengthened ships will replace 25-year-old T-5 tankers currently owned by MSC and contract operated. Signing for MSC was Rear Adm. **Warren C. Hamm Jr.,** MSC Commander, and for Ocean Carriers, **Joe F. Vaughan Jr.,** president.

Ocean Carriers was selected in September 1982 to receive a $104.1-million build and charter contract for the initial two T-5 tankers. Options for three more ships were exercised in April 1983 at a five-year charter cost of $149.4 million. Each ship will be chartered for five years with three additional five-year options.

The first two tankers, to be built by American Ship Building Co., Tampa, Fla., will be delivered in January and April 1985, two more in 1985, and the last ship in early 1986.

The new tankers offer greatly increased fuel efficiency from the slow-speed diesel engines, decreased crew size due to automation, and approximately 12-percent greater cargo capacity. After delivery of the new, the older T-5s will be placed in reserve.

Tuna Clipper Saves 80,000 Gallons Of Fuel On One Trip--Literature Available



Tuna fleet Capt. **Harold Medina** saved enough fuel using the Avicon Monitor 205 on one trip to pay for the fuel management system in two weeks.

Harold Medina, a highly respected tuna fleet captain and manager of the Ocean Pearl, owned by Interocean Systems of San Diego, Calif., returned from a recent 24,000-mile trip with a fuel savings of 80,000 gallons, according to Avicon Corporation, Scottsdale, Ariz. This is one of many documented cases where Avicon's Fuel-Efficiency Monitor 205 has saved up to 30 percent in fuel consumption.

Avicon is now offering free literature detailing the potential fuel savings which vessel owners can realize with the Avicon system.

Captain **Medina** found that when using the Avicon system on the 225-foot tuna clipper, its 3,600-hp diesel engine consumed about 3,000 gallons of fuel a day when underway, rather than 4,000 gallons of fuel a day, without the system. On this particular trip from San Diego to South America, Hawaii, New Guinea and back home, the Ocean Pearl—which carries 1,100 tons of fish—consumed a total of 230,000 gallons of fuel. The reported savings of 80,000 gallons of fuel, therefore, when compared with similar conditions on previous voyages without the Avicon system, is substantial.

Avicon's fuel management system helps the operator select the most efficient RPM for running and fuel consumption by monitoring conditions such as load, trim and weather. The Monitor 205 consists of sensors and a microprocessor display unit which provides digital information on fuel-flow, speed through the water, RPMs, propeller slip, and time and distance to waypoint. After initial keyboard programming, the monitor system presents all the data needed for evaluating performance and for setting up fuel saving procedures.

Avicon also provides a Monitor 105 system for measurement of critical engine temperature and other operating data. The Avicon Sonilog Doppler Speed Log, which is an integral part of the Monitor 205 system, is also available as a separate unit, providing accurate measurement of speed through the water, close to the hull.

For more information on how the Avicon Monitor 205 can save fuel, and for more information on other Avicon marine engine management systems,

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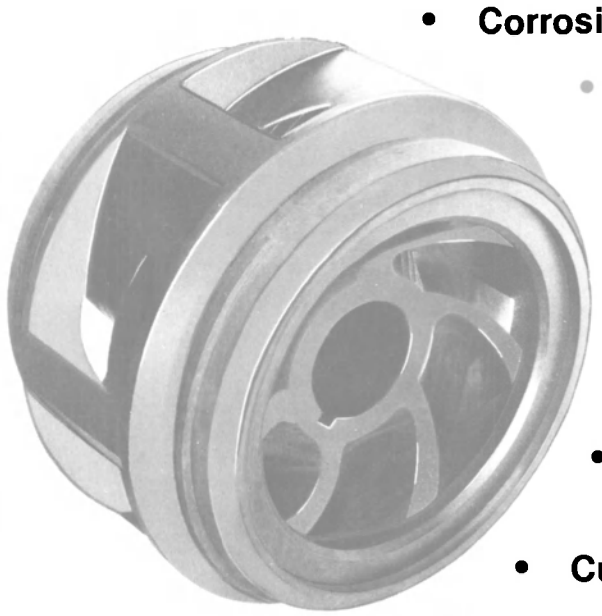

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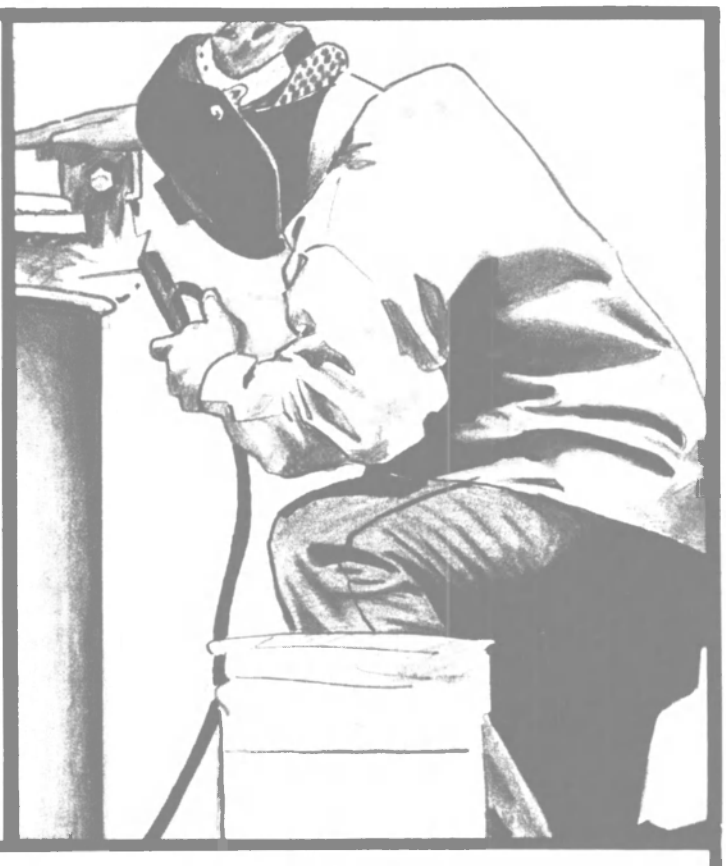

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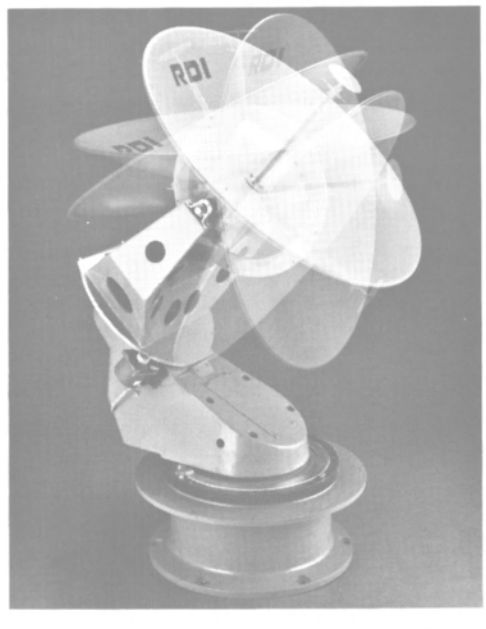

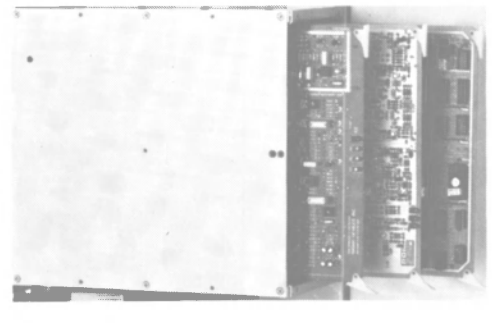

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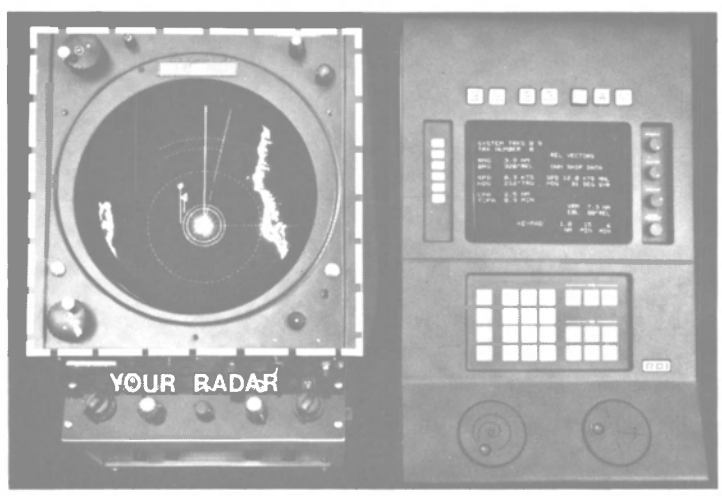

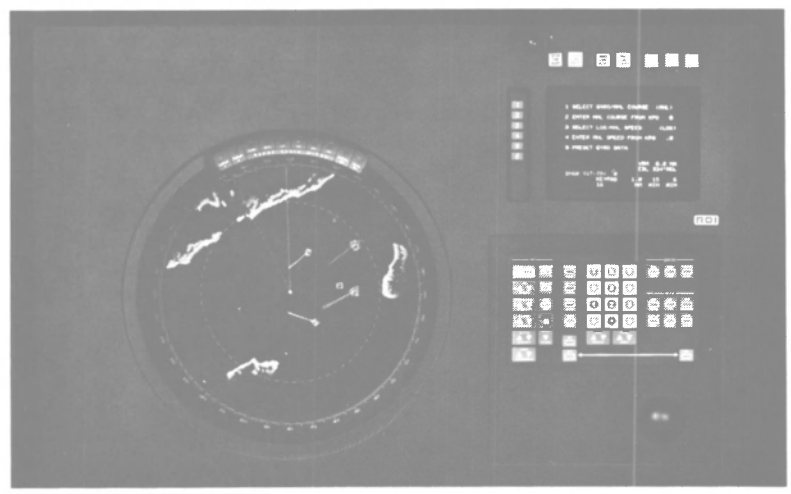

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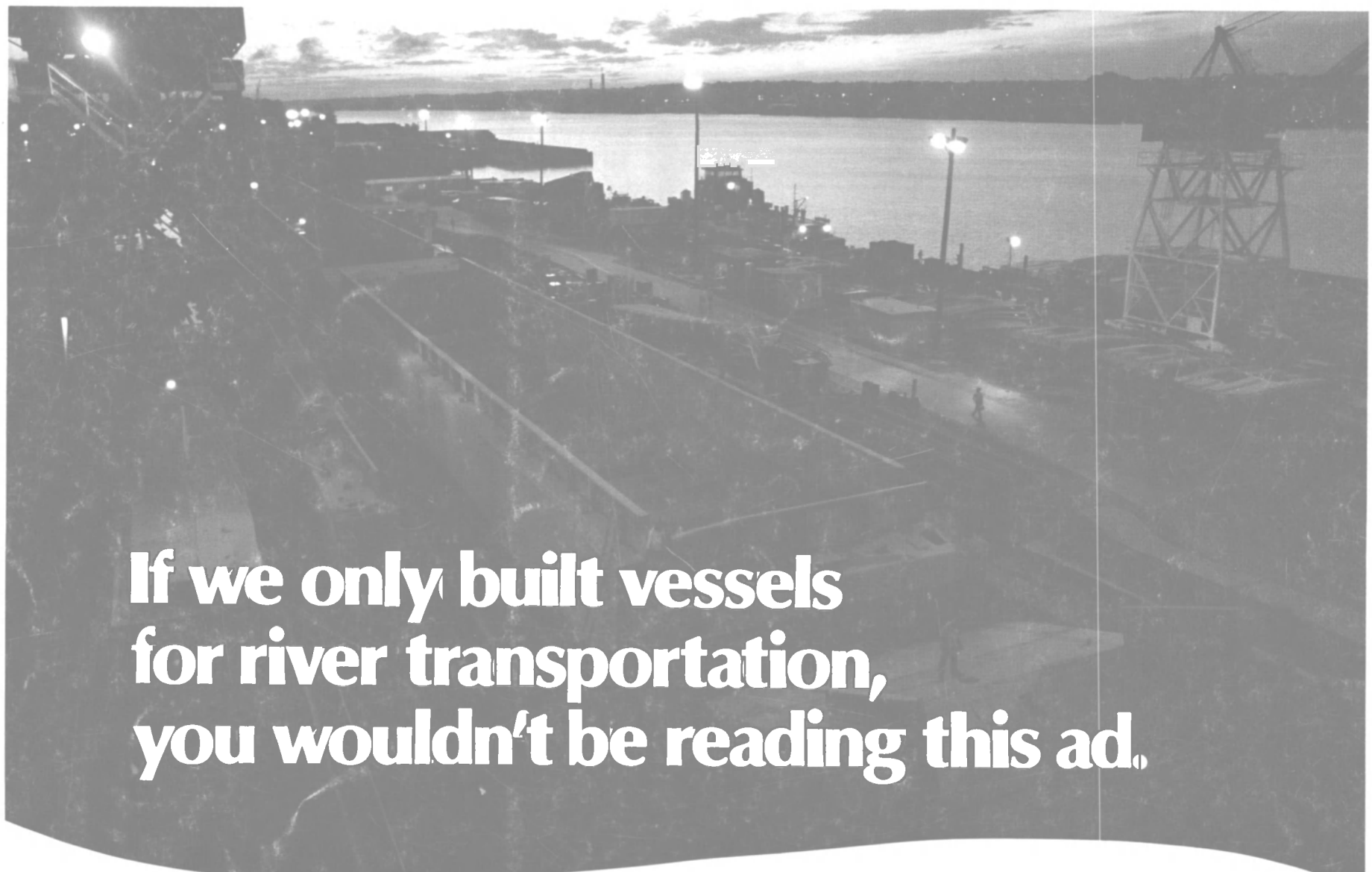

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