MARITIME REPORTER
AND
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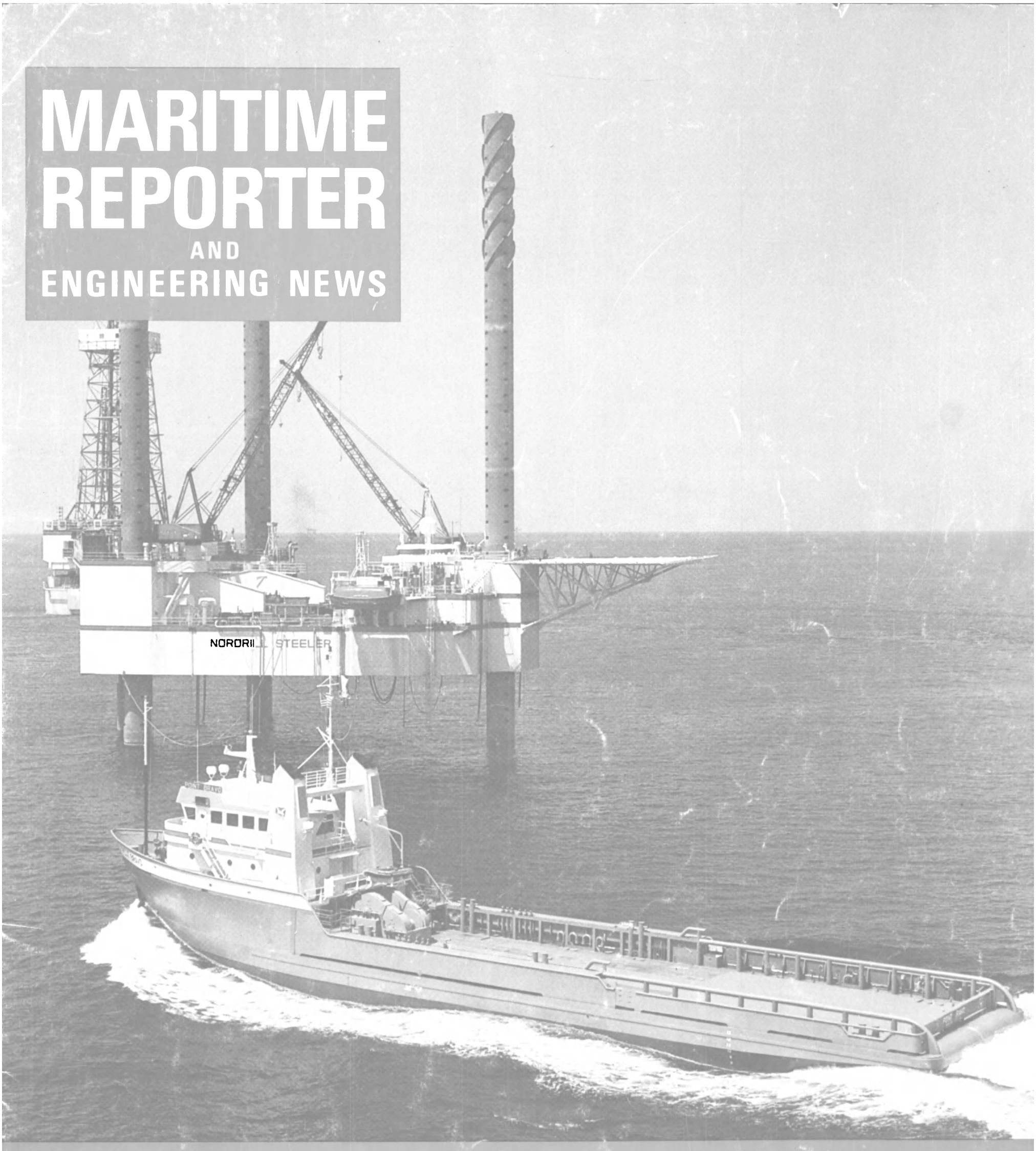


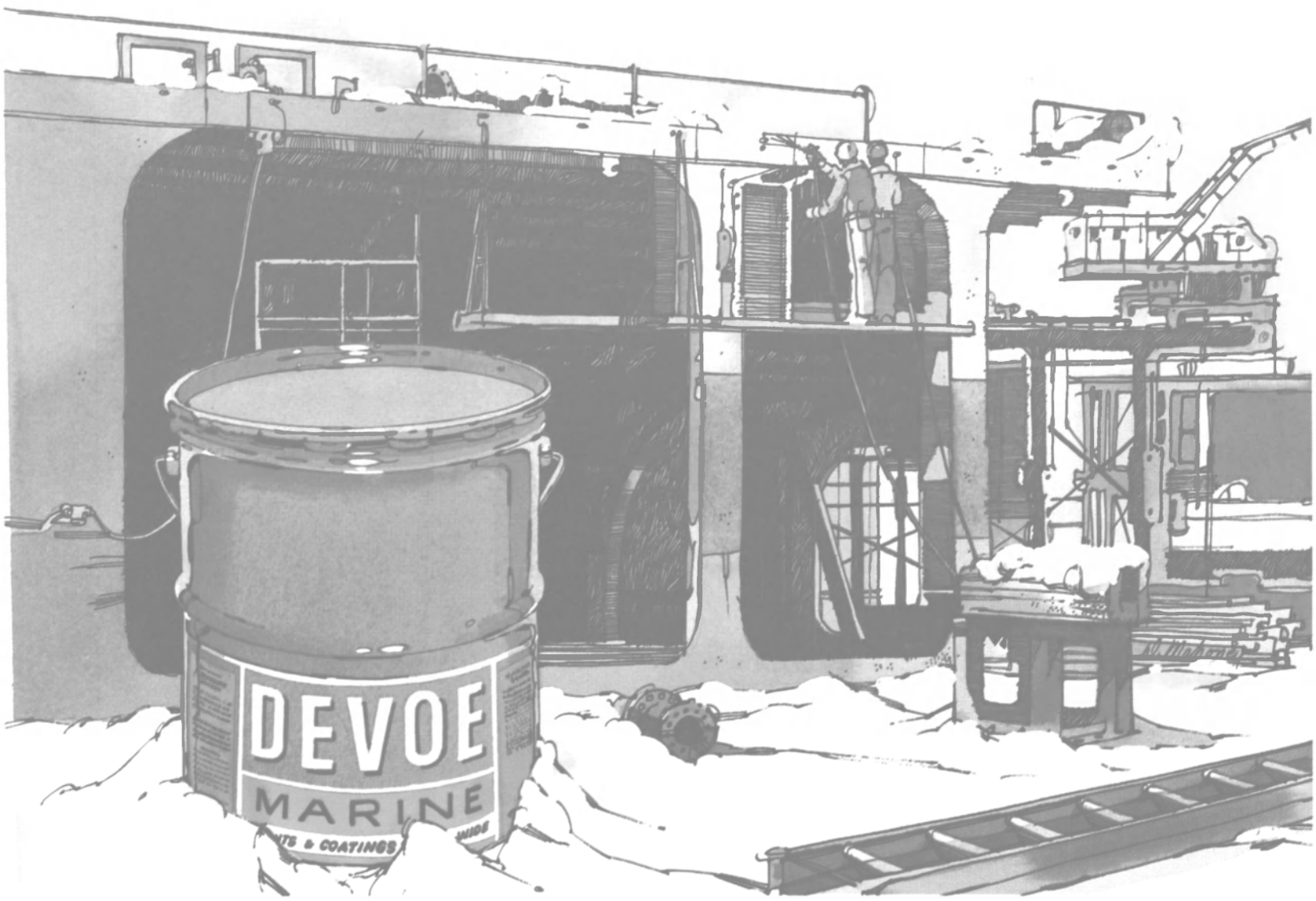
Point Bravo

Point Bravo Delivered To Point Express By Halter Marine
(SEE PAGE 4)

AWO Annual Meeting and 1983 Oil Spill Conference
(SEE PAGE 4)

FEBRUARY 15, 1983

Devoe Marine Coatings...“Out Front” In Technology.



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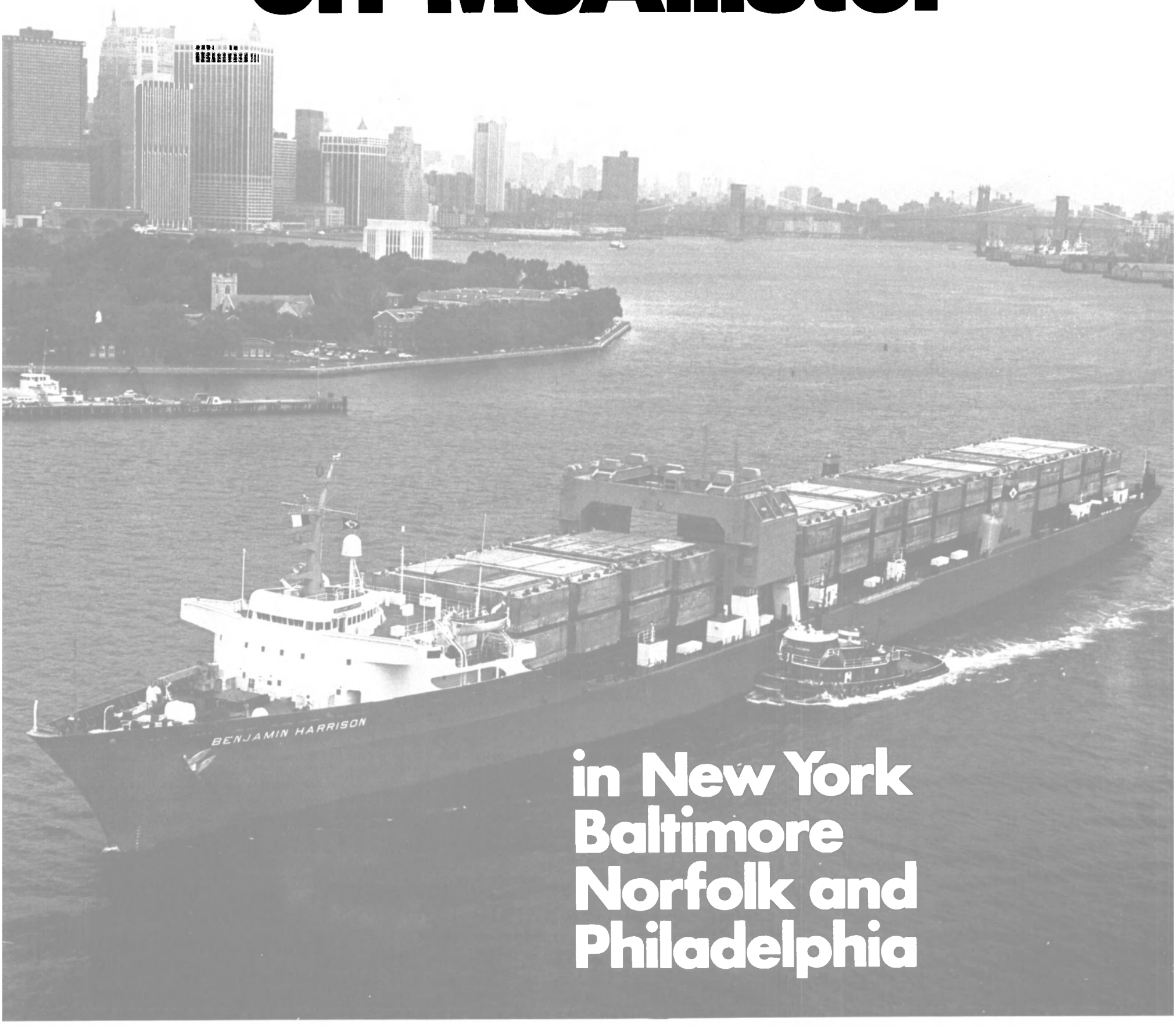

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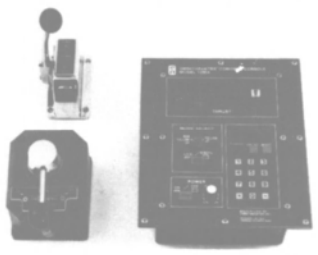

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**Naval Architects: Robert Allan, Ltd., for Gulf Canada Resources, Inc.

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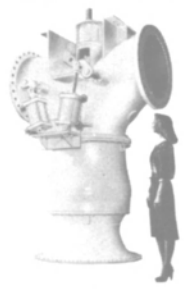

*Covered by U. S. Patents; Foreign Patents Pending

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Write 290 on Reader Service Card

ON THE COVER

Raytheon Service Awarded $1-Million Navy Electronics Contract For Conversions

Raytheon Service Company of Glen Burnie, Md., was recently awarded a contract exceeding $1 million by Bethlehem Steel Corp. as part of the Navy TAK X program. Raytheon Service Company will supply commercial electronic navigational and communication equipment as part of the three Maersk Line ship conversions under the Navy Rapid Deployment Force (RDF).

The nucleus of the electronic system is the Raycon-1RT main radiotelegraph solas console marketed by Raytheon Service Company. The Raycon-1RT features minimum radio room radiation hazard through the use of a unique coupler, latest solid state technology, and high radiation efficiency.

Additional equipment supplied under the contract included 1kw single-sideband, satellite communication, ARQ error correcting teletype system, watch receiver, EPIRB, Loran receiver, weather facsimile, and VHF.

Raytheon will test and prove all equipment operational. Equipment supplied will be serviced by Raytheon Service Company's worldwide service network to insure proper performance at the lowest possible maintenance cost.

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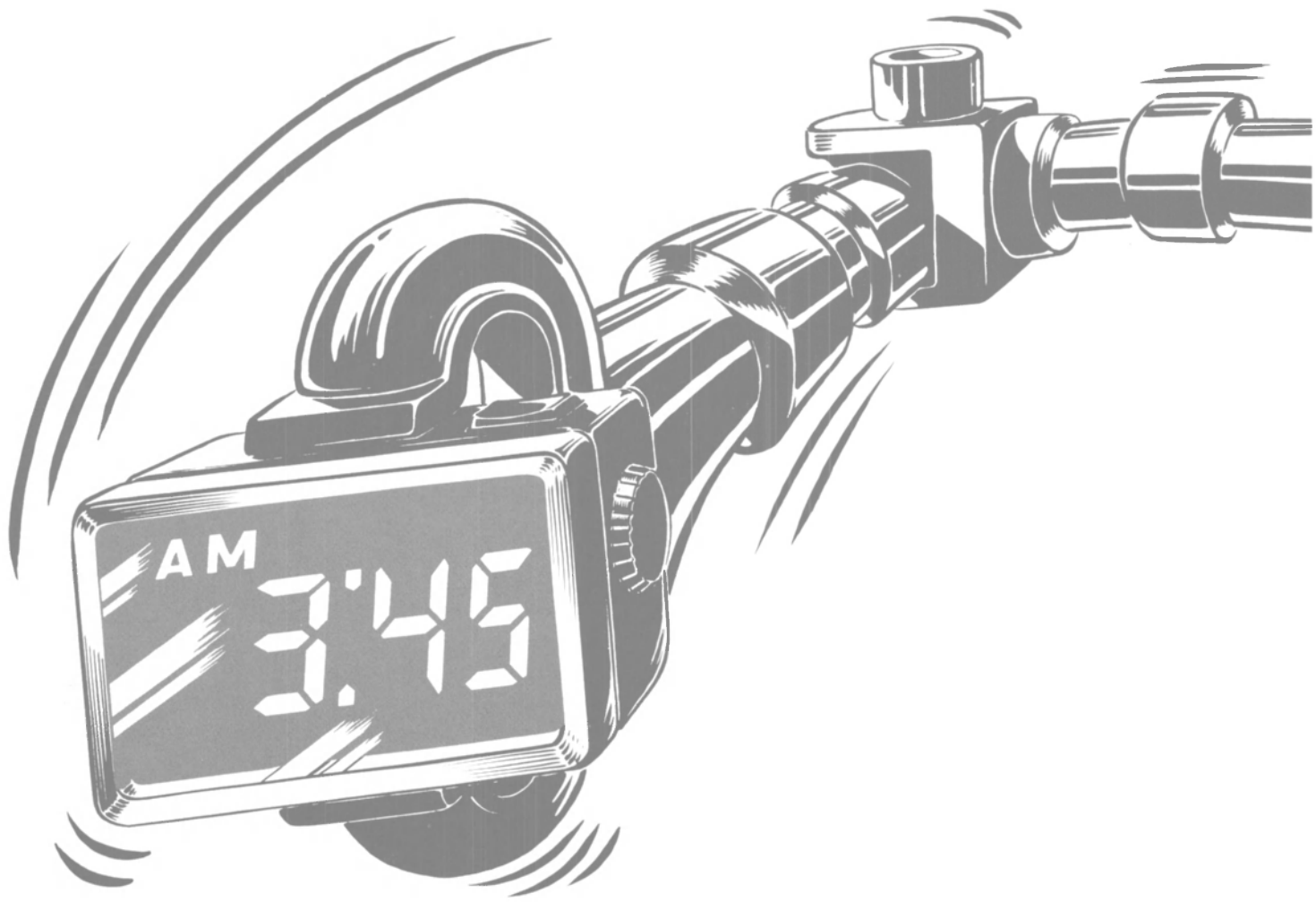

Introducing a timely solution to ship repairs.

Hitachi Zosen is reinforcing its repair facilities to give you even faster service. In July, we're opening a new 60,000 DWT graving dock at our Kanagawa Shipyard, located in the Tokyo/Yokohama Harbor.

With a 235m length, a 37m width, and two traveling jib cranes (45 tons and 25 tons capacity), this new dock can handle any Panamax-size vessels. And because it has a maximum draft of 8m, with a depth of 12m, it can even accommodate container carriers in a half-loaded condition.

These new facilities are also robot-operated for higher speeds. Automated facilities include: 1) automated docking-in/out 2) four closed-circuit blasters 3) four high-pressure hull washers and 4) two multi-nozzle painting devices for applying a uniform paint thickness.

Man-power saving facilities are also a feature of our new dock. They include 1) hydro-electric driven power/water/air/gas supply tower on a self-turning boom system and 2) two embarkation/disembarkation towers on each side of the dock.

In addition, the dock also has an automated keel, and side blocks with height adjustable to 350mm to match carriers' bottom shapes.

So when you need ship repairs, remember Hitachi Zosen's new automated repair yard.

When your ship comes in, we'll get it back out. Fast.

The name of Hitachi Shipbuilding & Engineering Co., Ltd. has been changed to Hitachi Zosen Corporation as of July 1st, 1982.

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Nichols Brothers Designs And Builds Pusher Tug In 30 Days

The tug Eric G is powered by two 6-71 Detroit Diesel engines.

Responding to a customer's special request, Nichols Brothers Boat Builders, Inc., Whidbey Island boatbuilders, Freeland, Wash., designed and constructed a small pusher tugboat in a record 30 days. During this same period, the yard was working long hours finishing up the second of two cruise boats for Exploration Holidays and Cruises, and a marine enforcement vessel for the State of Alaska.

The Eric G, a 36-foot by 4-foot by 4-foot pusher tug, when completed, was equipped with two 6-71 Detroit Diesels with 3:1 gears. The four-blade propellers were 36-inch diameter. Wagner hand hydraulic steering was installed.

Nichols's customer, **Jim Gilmur**, uses this vessel in Alaska in an unusual way. The tug is loaded on a barge and transported to areas with difficult or shallow approaches which prevent normal tug operations. The Eric G is then off-loaded by crane to work in areas inaccessable to the standard tugs.

The Eric G was literally built in a corner of the Nichols facility while construction of the two larger vessels was under way. After 29 days, the new boat was tested in Holmes Harbor before leaving for Alaska.

USCG Uses Faster, Easier Stud Welding System —Literature Available

A new teak deck, expected to reduce maintenance and improve appearance, was installed recently on the Eagle, the U.S. Coast Guard training ship.

Three-inch-thick teak planks were secured to the steel deck by Nelson stud welding — a semi-automatic arc welding process used for fastening applications throughout the industry.

More than 14,000 threaded Nelson studs, ⅛ inch in diameter and 1½ inches long, were welded to the Eagle with portable guns, controlled electronically. The planks, with holes pre-drilled and counterbored aboard ship, served as templates for stud locations. Watertight deck nuts were then run down on the studs. Inorganic zinc primet was applied around the studs and studs and nuts were finally covered by an epoxy sealer and wooden plugs.

Before the recent renovation on the Eagle, studs were welded by hand at the USCG yard at Curtis Bay, Baltimore, Md., whenever wood decks were replaced on icebreakers and other ships. For work on the Eagle, the Coast Guard purchased a TR-2400 stud-welding system, along with studs and accessories, from the Nelson Stud Welding Division of TRW Inc., Lorain, Ohio.

"Stud welding is many times faster and easier than hand welding," says Lt. Comdr. **Joseph Kucinski**, who was in charge of work on the Eagle. "For maximum productivity, we purchased a TR-2400 system which is powerful enough to operate two stud welding guns at the same time."

For full, free literature on the Nelson Stud Welding system,

Write 71 on Reader Service Card

National Marine Opens Dock-Side Diesel Shop In Harvey, Louisiana —Literature Offered

The new engine repair shop at the National Marine Service Canal Yard in Harvey, La.

National Marine Service Inc., St. Louis, Mo., has opened its newly constructed engine shop located on shipyard waterfront property at the junction of the Harvey and Algiers Canals in Harvey, La. The facility services a variety of diesel engines, specializing in EMD, Detroit Diesel, and Fairbanks Morse equipment.

To support the repair activities, an extensive inventory of genuine EMD and Detroit Diesel parts and Reli-A-Bilt exchange components is maintained. **Mike Brinson**, manager of the engine repair facility, adds that National Marine will continue to service deepwater tugs at its Compass Dockside facility.

Complementing the 5,000-square-foot engine shop, National Marine offers: 24-hour service; a 10-ton overhead crane; engine block and parts cleaning facility; a 330-foot dockside facility with shore power and all utilities; and a 40-ton mobile crane.

Literature is available describing its complete engine repair and its range of other services. For a free copy,

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Burrard Yarrows Announces Two Senior Appointments

Burrard Yarrows Corporation of Vancouver, Canada, recently announced two new senior appointments.

Dennis Hall

Roland Webb

Dennis Hall has been appointed director of technical services covering both BYC's Vancouver and Victoria divisions. **Roland Webb** has been named superintendent, new construction at the Vancouver division.

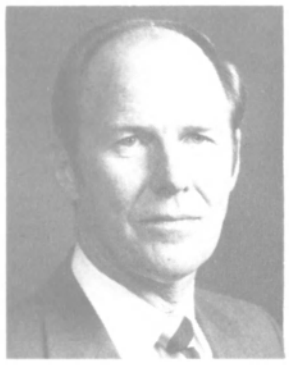
Before joining Burrard Yarrows, Mr. **Hall** was technical director of a shipping company in Suffolk. He joined BYC in 1980 as operations manager at the Vancouver division, a position that he held until his new appointment.

Mr. **Hall**, born in Hull, England, apprenticed as an engine fitter and served six years with the British merchant navy as an engineer officer before obtaining his extra first-class certificate. He served in several marine posts including engineering director for a shipyard in Hull and general manager and ship repair director for a Falmouth repair yard.

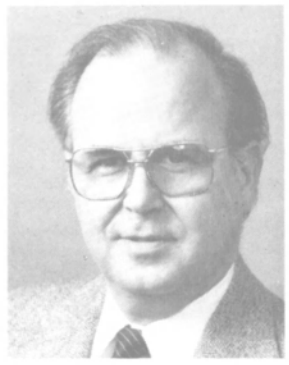
Mr. **Webb**, a native of British Columbia, joined Burrard Yarrows's Victoria division in 1980 as assistant ship repair superintendent. A graduate of the Canadian Coast Guard College with a first-class certificate in marine engineering, he served as chief engineer on various icebreakers, before moving to the Federal Department of Supply & Services as project officer dealing with contract administration for the construction of small ships and workboats. In 1979 he joined Halifax Industries Limited as its manager of planning & production control before joining BYC in 1980.

Raytheon Company Forms New Office Of Corporate Marketing

Raytheon Company of Lexington, Mass., has combined its government marketing, international marketing and government relations activities in a new office of corporate marketing. **Philip A. Phalon**, who has been named vice president-corporate marketing, will head the new staff activity.



Philip A. Phalon



Aldo Massara

Mr. **Phalon** has directed and coordinated Raytheon's international marketing activities since 1973. These duties will be assumed by **Aldo Massara**, formerly director of foreign offices, who becomes director-international affairs.

Raytheon is one of the ten largest suppliers to the U.S. Department of Defense, which accounts for some 40 percent of company sales.

As a major international company, Raytheon provides a wide range of products and services to customers outside the U.S. More than one-fourth of company sales are to customers in other nations.

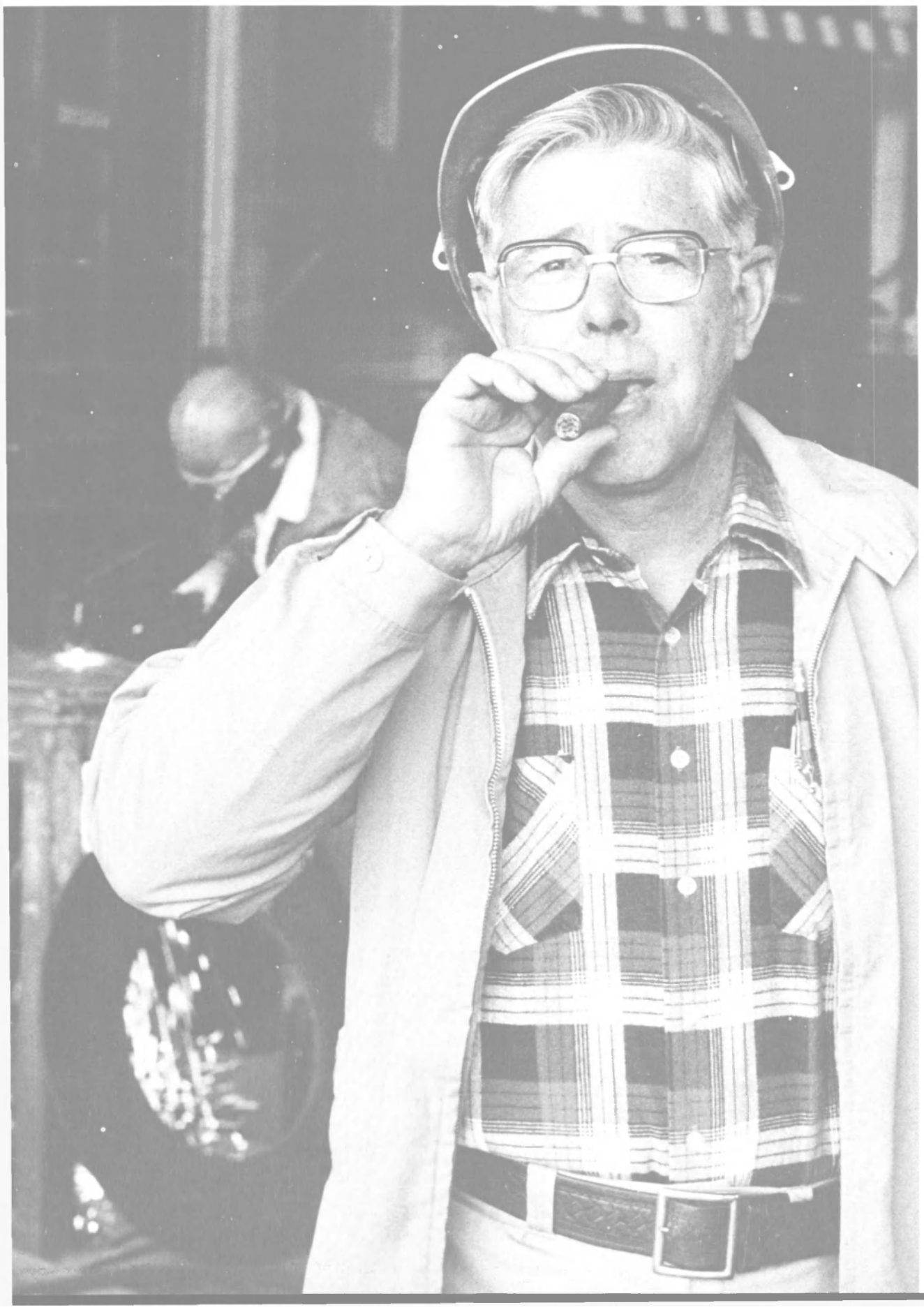
A vice president since 1973, Mr. **Phalon** has held a succession of increasingly important positions with the company. Before heading the international staff, he was manager of contracts for the Missile Systems Division. He first joined the company in 1956.

Aldo Massara joined Raytheon in 1967. After working for two years at corporate headquarters in Lexington, Mass., he served in Beirut, Lebanon, and Athens, Greece, as Raytheon's representative for the Middle East, contributing to the growth of the corporation's business in the area.

Mr. **Massara** returned to Raytheon headquarters in 1977 to assume a position of increased responsibility. He has been director-foreign offices since 1980. From 1958 to 1967 he worked at Selenia, Italy, then an affiliate of Raytheon, except for an 18-month period (1962-63) when he joined RCA-Engineering Product Division, Rome. At Selenia he served in systems engineering, planning, and marketing positions.

Jack W Groover

"DARN RIGHT DILBURN'S GOOD, I TRAINED HIM."



The man with the cigar is Dilburn "Junior" Herrington. He's been with us over 30 years, and is now foreman of our Fabrication shop. The man who trained him is Jack Groover, who recently retired. Jack was foreman of Fabrication. He was with us since the end of World War II.

Dilburn and Jack add up to a tremendous amount of experience, skill and continuous excellence. And that's what you find all over Savannah Shipyard. When a leader retires he passes the torch to a man he's trained.

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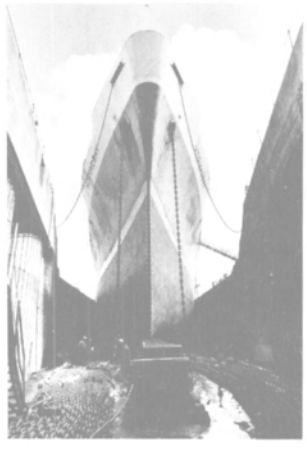


THE SAVANNAH YARD

Write **324** on Reader Service Card

The Sibig Venture submerged to a draft of 15 meters during immersion trials in Cadiz Bay, Spain.

Successful Trials Held For Heavy Lift Vessel Sibig Venture

Constructed by Astilleros Espanoles S.A. (AESA), the heavy-lift vessel Sibig Venture successfully completed sea trials recently. The new ship is owned by International Transport Contractors (ITC) of Haarlem, Holland.

The purpose of the trials was to check and verify theoretical calculations, vessel's maneuvering characteristics in the fully floated condition, and immersion time from ballast to full immersion draft. The vessel can be maneuvered from the bow control station as well as from the conventional bridge aft.

The result of the trials proved successful as reported by the owner in a telex message from the vessel: "All calculations showed stunningly accurate figures." The time for immersion was approximately six hours. The draft conditions in the sailing mode are 8.65m fwd and 10.66m aft. The draft in the fully immersed condition is 18.7 meters fwd and 18.0m aft.

The level master in the cargo control room displays draft readings as well as soundings in the tanks, percent of tank full, filling or draining speed, and heeling angles and trim.

ITC is offering a free eight-page color brochure describing the new vessel and its capabilities. For a free copy,

Write 70 on Reader Service Card

Raytheon Holds SatCom Engineering Seminar

Raytheon Marine Company held a Maritime SatCom Training Seminar at its New York office at Staten Island's Pouch Terminal recently to provide Raytheon technicians with a comprehensive review of installation and service procedures for Satellite Communications equipment. Raytheon recently announced its agreement to serve as exclusive sales agent in the United States, Mexico, and Scandinavian countries for Satellite Communications equipment manufactured by Japan Radio Company (JRC). The SatCom equipment complements the full line of high seas products provided by Raytheon Marine Company, including Bright Display radars, Automatic Radar Plotting Aids (ARPA), SatNav, Loran-C Doppler Speed Logs, and Vessel Tracking Systems, as well as many other commercial and workboat products.

The New York engineering session was part of Raytheon's ongoing educational program to provide highly proficient technicians for service and installation of all its products worldwide.

Earl Gustafson, communications engineer, of Raytheon Marine Company headquartered in Manchester, New Hampshire, conducted the seminar, and JRC's **Tad Hayashi,** U.S.A. representative, also particiated. Attendees from Raytheon's regional service centers were: **William Dilworth,** Houston; **Robert Holley,** Tampa-Miami; **Larry Kinney,** Seattle; **James Medlock,** Manchester; **Tom McDougal,** Torrance; **William Rhoads,** Manchester; **Genaro Rivera Jr.,** New York; **Aldo Simcic,** New York; and **John White,** New Orleans. **Jack Street,** Seattle, and **Michael Mitchell,** New York, sales engineering, were also present.

Two new Inmarsat-approved JRC SatCom models, JUE 15A Mark II and JUE 15A Mark III, now being offered, represent the finest Satellite Communications equipment available today. The units provide speedy, dependable and private communications through the Inmarsat Satellite System by voice, teletype, printer, facsimile or high-speed data from or to ships on the high seas worldwide.

For more information on SatCom and other Raytheon equipment,

Write 83 on Reader Service Card

NABRICO Names Holland Tidewater Area Distributor

The J. Henry Holland Corporation of Virginia Beach, Va., has been named a stocking distributor for Nashville Bridge Company (NABRICO), Nashville, Tenn., products in the Greater Tidewater Area.

One of the largest marine, contractor and mill supply houses on the East Coast, the corporation serves all of the military installations and local, state, and federal government facilities in the area as well as shipyard, ship repair, contractor, tugboat, and barge companies. The Greater Tidewater Area includes Norfolk, Portsmouth, Newport News, Hampton, Suffolk, Virginia Beach, the eastern shore of Virginia, and the Lower Chesapeake Bay Area.

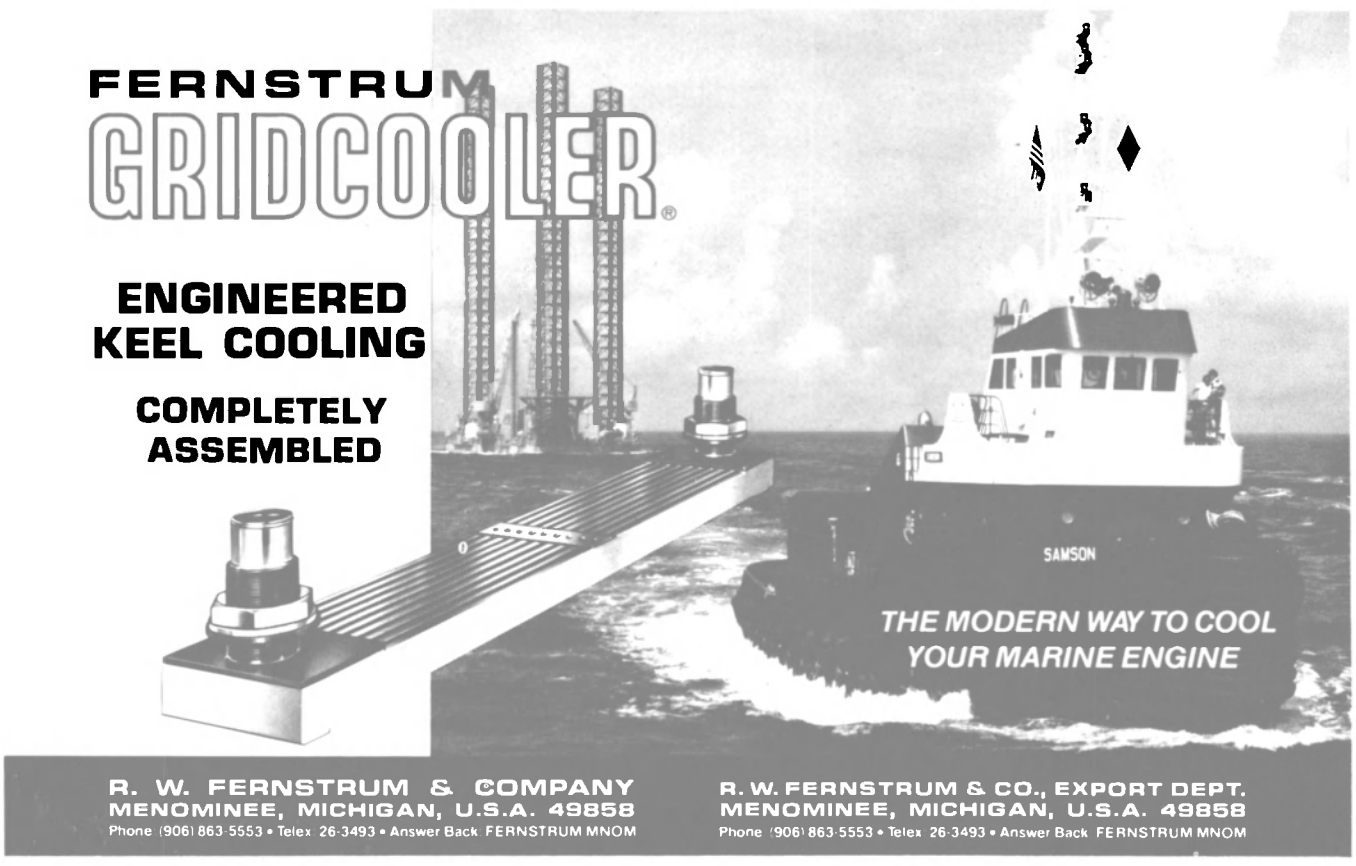
In announcing the appointment, NABRICO vice-president **T. Ray Jackson** said the Holland Corporation will stock a wide variety of NABRICO products, including hatches, winches, and other marine deck hardware. NABRICO currently is increasing the number of distributors the company has nationwide in order to better serve the entire marine industry.

"We are adding qualified distributors both along the inland waterways and along the Gulf and Atlantic Coasts," Mr. **Jackson** explained. "In 1982, we announced the addition of four distributors, three serving various sections of the Gulf Coast and one on the Mississippi River.

"The J. Henry Holland Corporation is the first new distributor to be named along the Atlantic Coast."

$33-Million Increase Awarded GE For Nuclear Propulsion Contract

General Electric Company, Schenectady, N.Y., has been awarded a $33,333,000 face-value-increase to a previously awarded cost-plus-fixed-fee contract for naval nuclear propulsion components. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-74-C-5182).

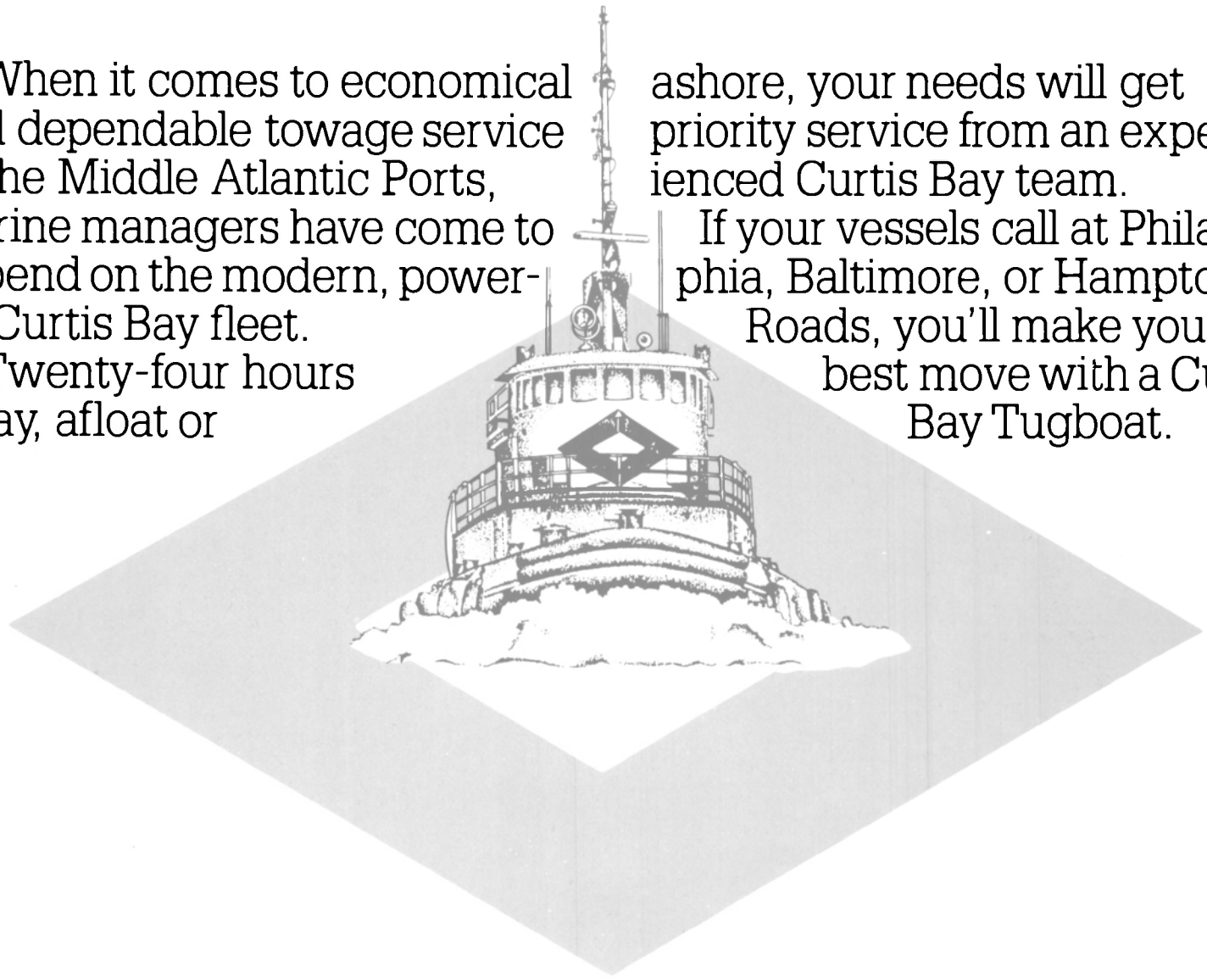


Why so many marine managers want Curtis Bay Towing on their side.

When it comes to economical and dependable towage service in the Middle Atlantic Ports, marine managers have come to depend on the modern, powerful Curtis Bay fleet.

Twenty-four hours a day, afloat or ashore, your needs will get priority service from an experienced Curtis Bay team.

If your vessels call at Philadelphia, Baltimore, or Hampton Roads, you'll make your best move with a Curtis Bay Tugboat.



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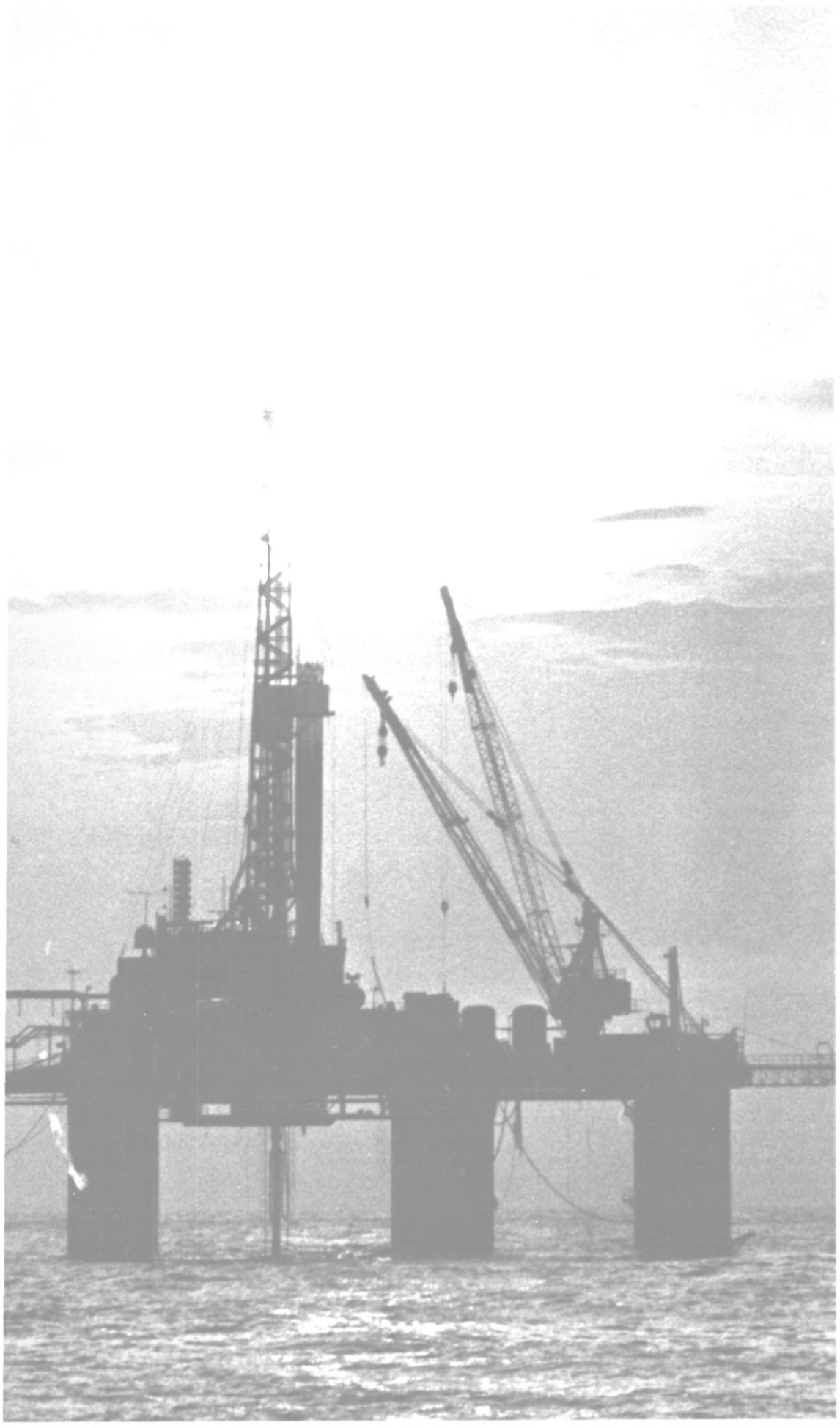

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L APRIL 1st C '83 EW ISSUE OF E REPORTER

ATION TO MARINE/OFFSHORE BUYERS *... IN AT THE OFFSHORE TECHNOLOGY CONFERENCE

This April 1st special issue will feature a full, multi-page preview feature article detailing the entire 1983 OFFSHORE TECHNOLOGY CONFERENCE PROGRAM . . . scheduled for May 2–5 in Houston, Texas.

Over 100,000 of the most important and influential individuals in the worldwide marine/offshore industry are expected to attend the Offshore Technology Conference this year. OTC attendance in Houston is expected to be greater than ever.

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In addition, the April 1st Special will receive extra bonus distribution at OTC in Houston, May 2–5.

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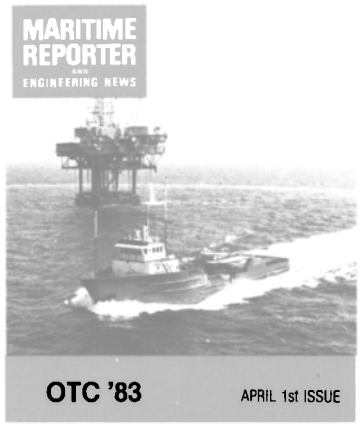
ADVERTISING COPY CLOSING DATE FOR APRIL 1st ISSUE IS MARCH 11th



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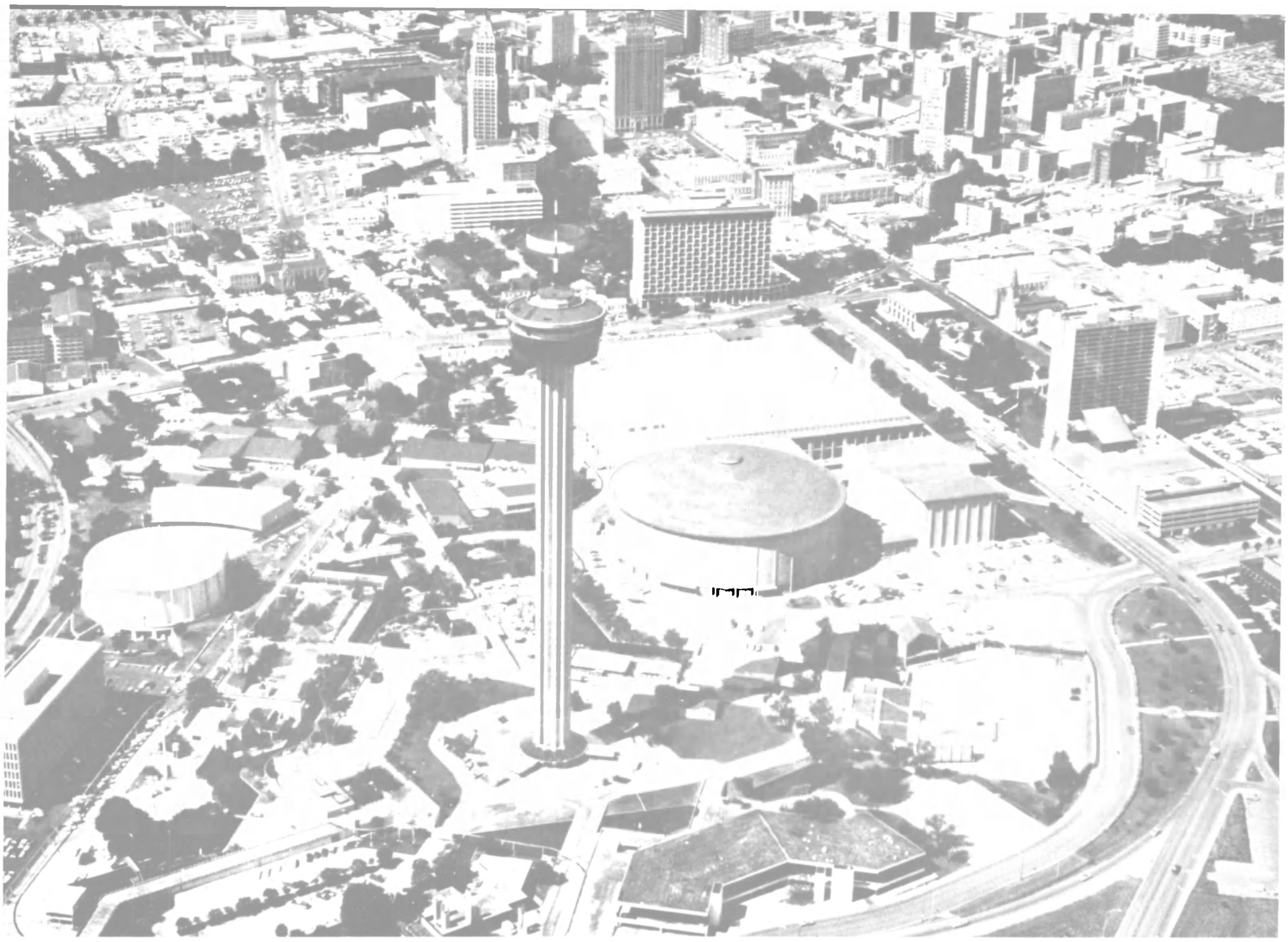

View of downtown San Antonio showing the Convention Center.

A Preview

INTERNATIONAL OIL SPILL CONFERENCE

San Antonio, Texas

The eighth biennial Oil Spill Conference — sponsored jointly by the U.S. petroleum industry and the federal government — will be held February 28 - March 3, 1983, at the San Antonio Convention Center, San Antonio, Texas.

More than 1,500 delegates and exhibitors from all over the world are expected to attend. More than 100 technical papers dealing with the prevention, behavior, control, and cleanup of oil spills will be presented. A number of films will also be shown.

The conference will stress prevention and control techniques; cleanup operations; contingency planning; new equipment development; environmental mapping; offshore operations; computer modeling; and socio-economic-legal aspects.

Poster presentations will add a new dimension to the conference. A Texas spill mapping project, aerial photo surveys of Alaska, and oil spill techniques in Australia are topics featured in the highly-visible poster program.

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

Papers at the conference will be delivered by representatives from 18 countries including Australia, Bahrain, Bermuda, Canada, France, Japan, Malaysia, Mexico, Netherlands, Norway, Panama, Sweden, Saudi Arabia, United Kingdom, the U.S., USSR, Venezuela, and West Germany.

One of the papers "Activities of the USSR Ministry of Merchant Marine Organizations in the field of Marine Environment Protection," by **S.M. Nunuparov,** to be presented by **Oleg N. Khalimonov,** will mark the first time the USSR has presented a paper at this conference, informed sources reported. The Soviet Government has had representatives at prior conferences, it was noted.

(continued on page 18)

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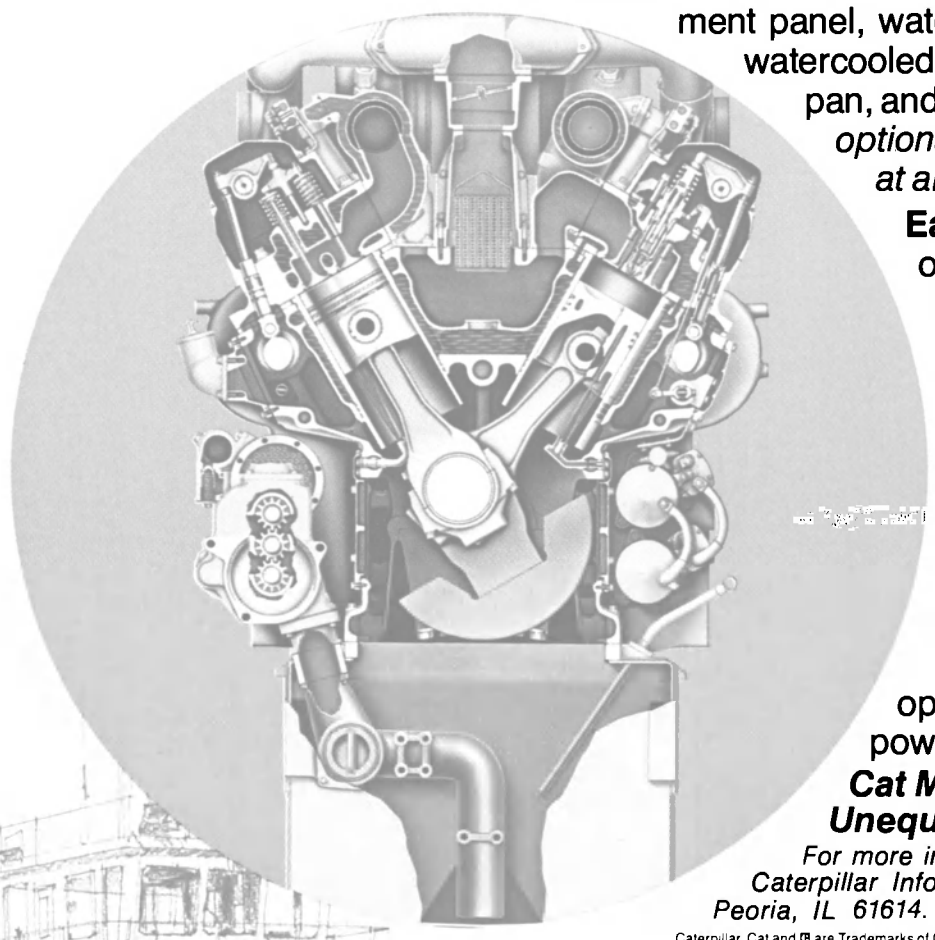
565-1600 HP (421-1194 kW)

Cat 3500 Series Diesel Engines in V8, V12, and V16 configurations deliver the performance you demand plus...

Fuel Efficiency. Low friction three-ring pistons, 4-stroke cycle design, direct injection fuel system and turbocharging and aftercooling combine to meet today's need for high performance. *And at most ratings, they burn less fuel than comparably rated engines.*

No Cost Extras. Standard features include a 13-gauge instrument panel, watercooled turbochargers, air-shielded watercooled exhaust manifolds, deep sump oil pan, and more. *These are probably extra cost options on other make engines–if available at all.*



Easy Maintenance. Large inspection openings to internal components and center-mounted manifolds allow easy access to camshafts and connecting rods. And fuel filters, oil, and oil filters can be changed at the same time. *This reduces downtime and cost.*

Caterpillar 3500 Series Engines are sold and serviced by over 1,100 Cat Dealers worldwide who are in business to help you select, install, operate and maintain your marine power system.

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Unequalled value for your money.

For more information see your Caterpillar Dealer or write Caterpillar Information Services, P.O. Box 3900, Peoria, IL 61614.

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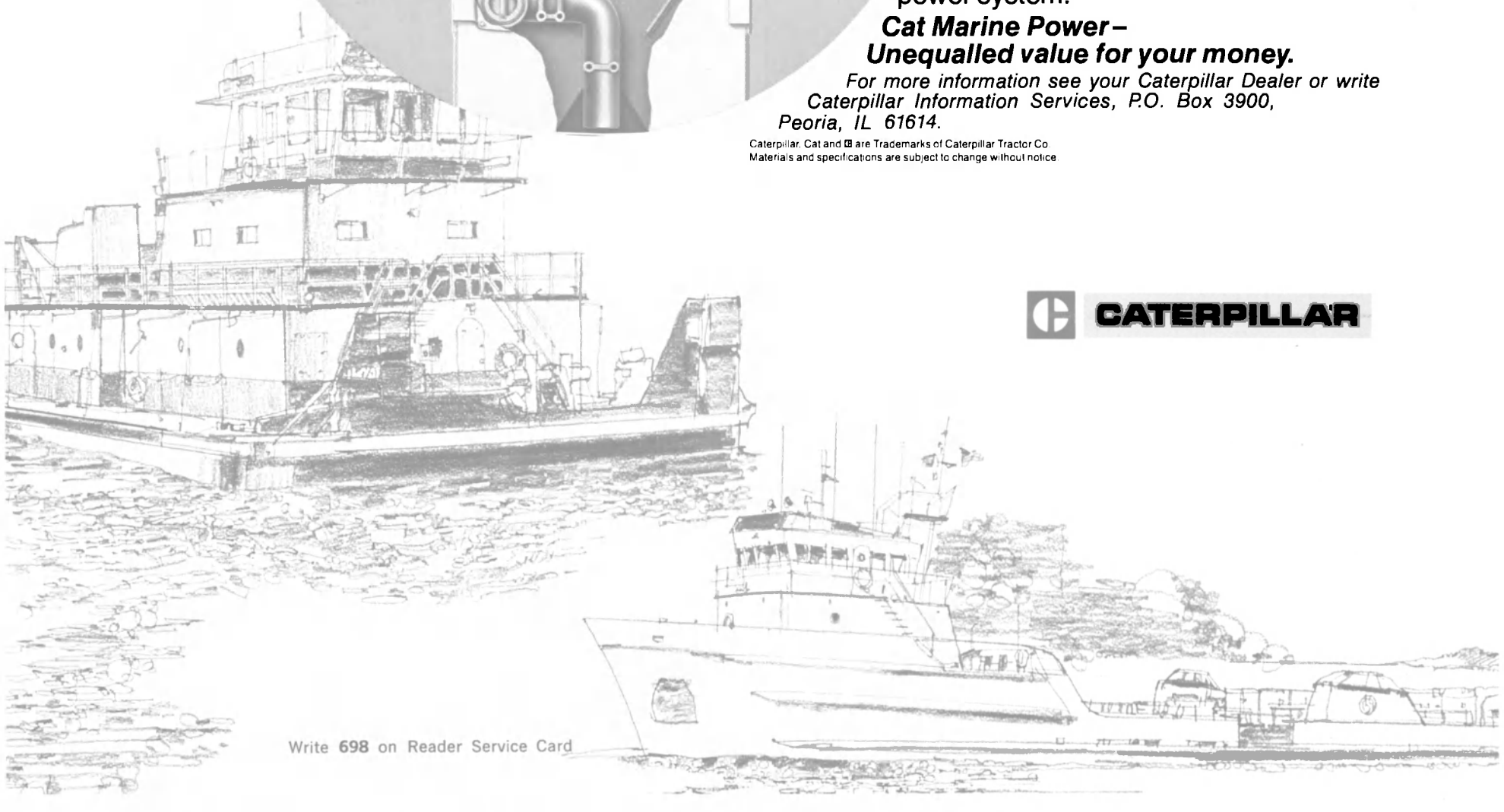

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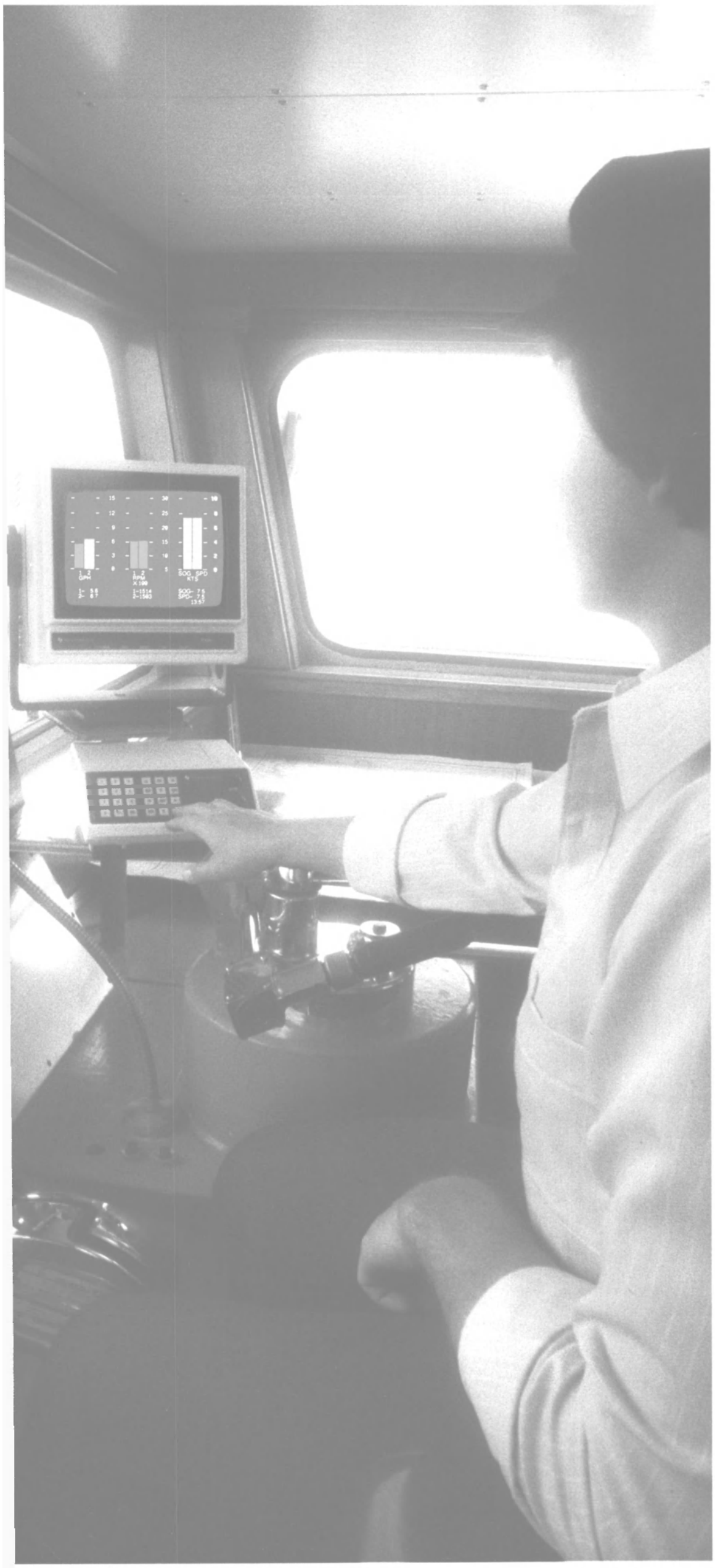


TI's new It puts all

Fuel-management data. Navigation data. Trip data. And vessel monitoring. Now there's a total vessel management system that provides all the vital data you need—at a single point.

There's never been anything like the new TI8000 Integrated Marine System from Texas Instruments.

The unique TI8000 offers you the key to more efficient and economical vessel operation. In the '80s and beyond. It saves time and money, and performs many complex tasks automatically.

Hundreds of readings available

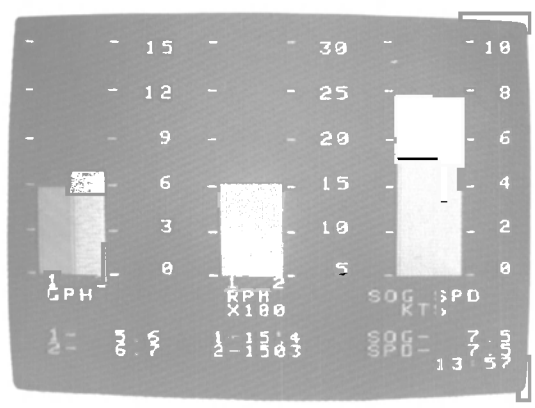
The TI8000 puts hundreds of critical readings at your command. All from a single keyboard.

Simply tell the TI8000 the data you want. And it will instantly display the data—all fully correlated—on a video screen.

Loran C, Transit Sat-Nav, fuel flow meters, fuel level meters, and other sensors all report to the TI8000. And it reports directly to you.

Saves costly fuel

Keeping your fuel costs down gets tougher each year. The TI8000 can help. In a big way.



The first fuel-management display shows the fuel burn rate of engines 1 and 2 in gallons per hour, the rpm of each engine, and speed-over-the-bottom compared with speed-through-the-water.

Its fuel-management system gives you an easy, accurate way to monitor, adjust, and control vessel fuel consumption. And in short, reduce your fuel and operating costs.

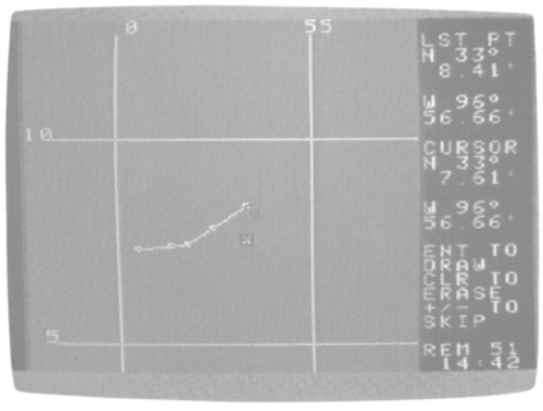
From helping you save fuel... to retracing a profitable fishing run... to alerting you to dangerous on-board conditions, the TI8000 provides the key to efficient vessel management.

©1983 TI

integrated marine system. vital data at your command.

At your command, the TI8000 displays gallons used per hour. Miles per gallon. Speed-over-the-bottom. Speed-through-the-water. Fuel supply remaining. And range and running time remaining at present speed.

By monitoring the fuel consumption of each engine, the TI8000 also gives you an easy way to detect and prevent costly engine troubles.



The navigation plotter uses Loran, Dead Reckoning, Transit Sat-Nav, etc., and displays and logs vessel progress.

Simplifies navigation

The TI8000 also provides a color navigation plotter to help you chart the best course. It simply uses your navigation source: Loran C, Transit Sat-Nav, Dead Reckoning, etc.

When you enter the coordinates of your destination waypoints, the TI8000 will display range, bearing, course-to-steer, and cross-track error.

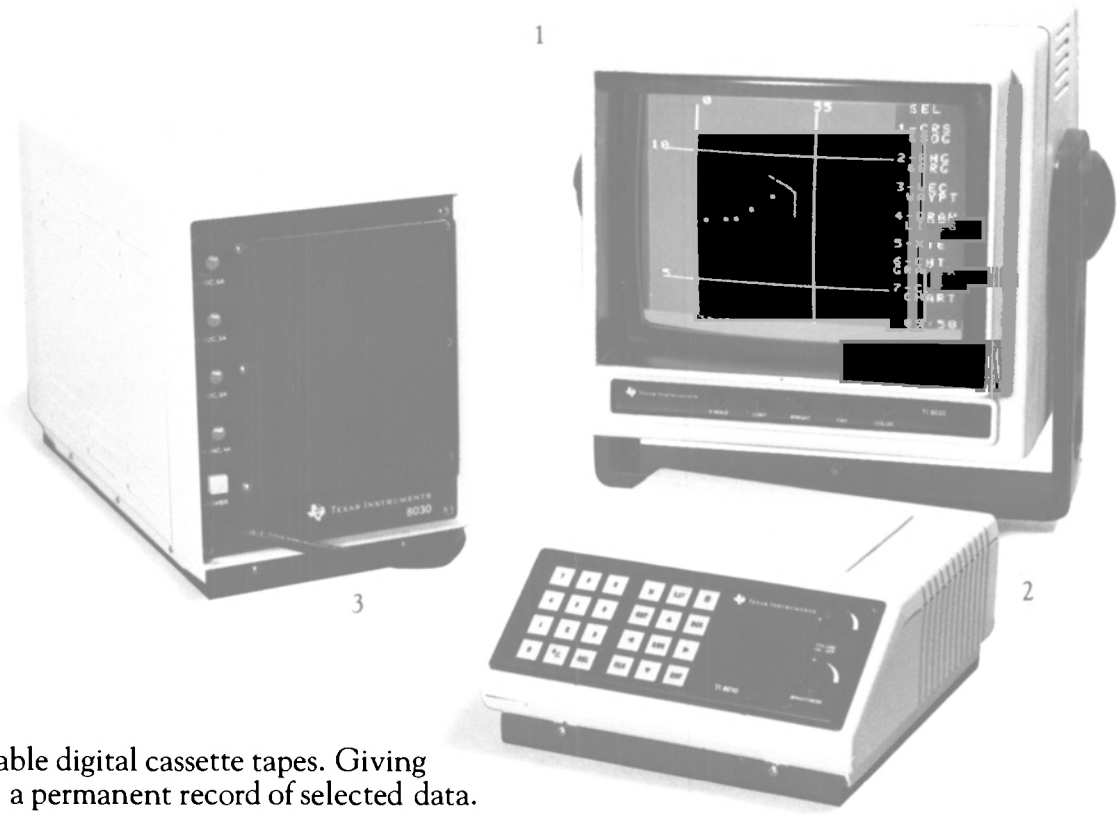
You can input the waypoints for a complete trip, either manually or with a preprogrammed tape. A whopping 100 waypoints can be stored in the system's memory, with virtually an unlimited number of waypoints stored on digital cassette tapes.

By using previous trip data stored on the tape, the TI8000 will help you return to a location. Retrace a good fishing run. Follow a recorded channel. And avoid recorded navigational hazards.

Automatic ship's log saves time and effort

Another TI8000 feature: A state-of-the-art electronic ship's log. This handy feature lets you recall information about prior trips.

It automatically records time, present position, and other selected items on reliable digital cassette tapes. Giving you a permanent record of selected data.



Three compact modules make up the TI8000: 1) Display Module—the size of a 10-inch television; 2) Command Module—a keyboard and cassette tape deck unit; and 3) Computer Module—8 × 10½ × 16 inches.

Compact design saves space

The TI8000 does a lot, but takes up little space.

It consists of three space-saving modules. Information is compiled, recorded, and stored by the Computer Module. The keyboard of the Command Module lets you access this data, which is then presented on the Display Module. What could be simpler?

Rugged to take all the sea can dish out

Built tough by experts, the TI8000 is designed to give you years of dependable service—in the harshest marine environment.

Non-corroding aluminum and stainless steel parts help assure reliable performance. And greater durability results from the use of high-impact plastic for the case and cabinets.

Customized to your vessel

You and your TI dealer together define the sensor inputs, units of measure, vessel requirements, and more. Temperature alarms and many other sensors all can be selected for display and recording.

Equally important, the TI8000 grows with you. It can be expanded easily to meet your future needs.

Complete, affordable, and fully supported

At $9,995.00* plus installation, the value-packed TI8000 includes: Command Module, Display Module, Computer Module, heading reference, fuel flow sensors, and an event marker. The latter records vessel location data when pressed.

Fuel savings alone make the TI8000 a wise investment.

And you can rely on a specially trained, authorized TI dealer to install your TI8000. He is factory supported to provide you with installation, operating assistance, and service.

For more information, write Texas Instruments, Marine Products, P.O. Box 405, MS3438, Lewisville, Texas 75067.

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TEXAS INSTRUMENTS

*Suggested retail price.

27-3859

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1983 Oil Spill Conference

(continued from page 14)

Two special luncheons are planned. On Tuesday, March 1, at noon in the North Banquet Hall, Adm. **James S. Gracey,** Commandant of the U.S. Coast Guard, will deliver an address. On Thursday, March 3, **James H. Gillie,** assistant to the vice president of public affairs of Phillips 66, will entertain the luncheon guests with an address entitled "Right On Instead of Rip Off." This luncheon also will begin at noon in the North Banquet Hall.

The film festival will highlight important technical aspects of the industry. The films will be shown on a scheduled basis in Room No. 25 of the convention center. A brochure listing titles, viewing times, and loan sources will be among the information packets distributed at the conference.

Speaker's breakfasts will be held on Tuesday, Wednesday, and Thursday mornings at 7:00 a.m. in Room No. 31 at the convention center. The conference committee has requested chairmen, speakers, and panel members attend the breakfasts on the day they are speaking or are chairing a session.

The organizers also have arranged for a speakers' practice room, Room No. 12, to be available. The room will be equipped with a slide projector, screen, and electric pointer, and the room will be available on an unreserved basis.

A copy of the Conference Proceedings is included with full registration and will be available onsite. Additional copies ordered in advance also will be available onsite at a pre-publication price of $40. Following the conference, the 1983 Conference Proceedings may be ordered from the American Petroleum Institute, Washington, D.C.

A Hospitality Suite for Spouses and children will be available from 8:00 to 10:00 a.m. from March 1 to March 3 in Room No. 33 at the center. Hostesses familiar with San Antonio will be on hand to offer guidance on tours and other local attractions.

A tour program has been planned with arrangements being made for three tours that include places such as El Mercado, the Institute of Texan Cultures, the Spanish Governor's Palace, the Lone Star Brewery, Mission San Jose, the Alamo, the Southwest Craft Center, and the King William restoration area.

The 1983 Oil Spill Conference general committee is under the chairmanship of **Richard K. Meyers** of Texaco Inc. and co-chairmen Capt. **Charles R. Corbett,** USCG, and **Ronald D. Hill,** U.S. Environmental Protection Agency. Committee members include Comdr. **Frank A. Boersma,** USCG, **Kent G. Drummond,** Marathon Oil Company, **John S. Farlow,** EPA, **Richard W. Kreutsen,** Chevron U.S.A., **Royal J. Nadeau,** EPA, and **Charles W. Sieber,** USCG. The program committee is chaired by Comdr. **Roger T. Rufe Jr.,** USCG, with **William R. Leek** of Chevron USA and **Royal J. Nadeau** of the EPA serving as vice chairmen.

The registration fee for the conference is $200 and includes all technical sessions, two luncheons, and a copy of the proceedings. Additional information on the conference can be received from: 1983 Oil Spill Conference, Suite 700, 1629 K Street, N.W., Washington, D.C. 20006. Tel. (202) 296-7262.

1983 OIL SPILL CONFERENCE

Final Program

Tuesday, March 1

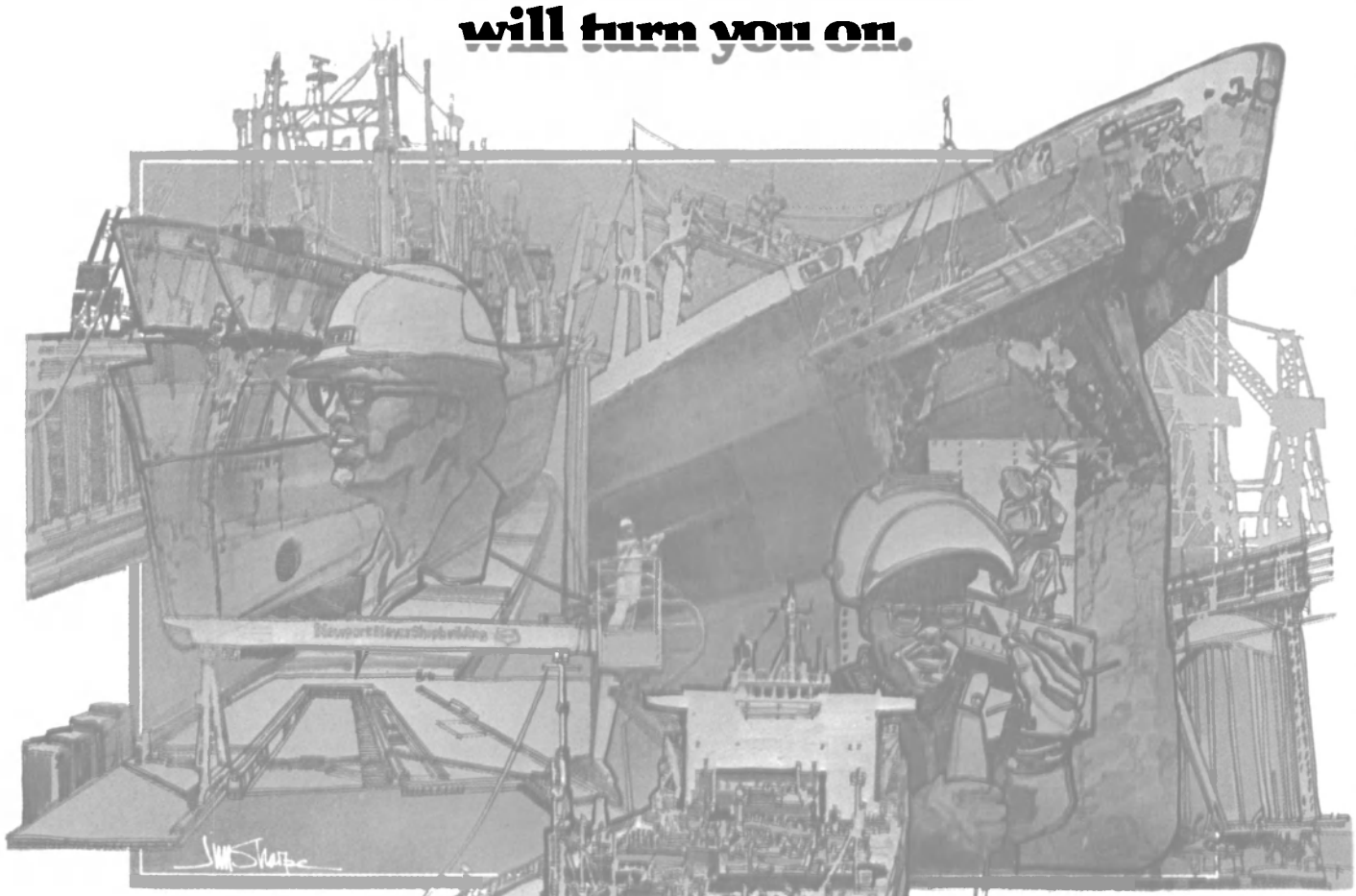
8:30 a.m. — **Theatre**

Plenary Session

Henry Cisneros, Mayor, City of San Antonio

Rear Admiral **Bobby F. Hollingsworth,**

Our turnaround time will turn you on.



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Chief, Office of Marine Environment and Systems, United States Coast Guard

Dick Whittington, P.E., Regional Administrator, Region VI, United States Environmental Protection Agency

Richard K. Meyers, 1983 Oil Spill Conference Chairman, American Petroleum Institute (Texaco Inc.)

9:45 a.m. **River Room**

Session 1: International Contingency Planning

(A Panel Discussion)

Chairman: Captain **Charles R. Corbett,** U.S. Coast Guard, Washington, D.C.

Vice Chairmen:

William L. Berry, Shell Offshore, Inc., New Orleans, Louisiana

Eleanor Swett, Offshore Devices, Inc., Peabody, Massachusetts

Panel Members:

Yoshio Sasamura, International Maritime Organization, London, England

Captain **Jose Orozco Peralta,** Mexican Navy, Mexico City, Mexico

David E.A. Barratt, Canadian Coast Guard, Ottawa, Ontario, Canada

Chris Carven, Exxon Corporation, New York, New York

9:45 a.m. **Mission Room A**

Session 2: Underground Spills

Chairman: **Thomas Massey,** U.S. Environmental Protection Agency, Philadelphia, Pennsylvania

Vice Chairman: **Millard F. Smith,** Slickbar, Inc., Southport, Connecticut

Case History — OPEC in Southern Idaho

James C. Willmann, U.S. Environmental Protection Agency, Seattle, Washington

Case History — Underground Oil Spill Investigation and Cleanup

David McIntyre, U.S. Environmental Protection Agency, Lexington, Massachusetts

A Case History: Cleanup of a Subsurface Leak of Refined Product

Edward M. Minugh, Environmental Emergency Services Company, Portland, Oregon; **Dorothy A. Keech,** Chevron Oil Field Research Company, La Habra, California; **Jeffrey J. Patry,** Chevron U.S.A., Inc., Concord, California; **William R. Leek,** Chevron U.S.A., Inc., San Francisco, California

9:45 a.m. **Mission Room B**

Session 3: Dispersants I

Chairman: **Gerard P. Canevari,** Exxon Research and Engineering Company, Florham Park, New Jersey

Vice Chairman: **Leo T. McCarthy, Jr.,** U.S. Environmental Protection Agency, Edison, New Jersey

Dispersant Use Guidelines for Federal Regions IX and X

Randall W. Smith, U.S. Fish and Wildlife Service, Sacramento, California; **Robert Pavia,** National Oceanic and Atmospheric Administration, Seattle, Washington

Dispersion of Chemically Treated Crude Oil in Norwegian Offshore Waters

Rainer G. Lichtenthaler and **Per S. Daling,** Central Institute for Industrial Research, Oslo, Norway

Review of United Kingdom Oil Spill Response Techniques and Equipment

Douglas Cormack, Department of Trade, London, England

10:00 a.m.-4:30 p.m. **North Exhibit Hall**

Poster Session A

Chairman: **John S. Farlow,** U.S. Environmental Protection Agency, Edison, New Jersey

Vice Chairman: **E.D. Parker,** Marathon Oil Company, Houston, Texas

10:00 a.m.-10:45 a.m. Use of Dracone Barges: A Case History

Peter A. Brunk, Industrial Marine Service, Inc., Norfolk, Virginia

10:45 a.m.-11:30 a.m. Transfer and Storage Systems for the Alaskan Beaufort Sea

Paul C. Deslauriers, Marine Consultants, Anchorage, Alaska

1:30 p.m.-2:15 p.m. A Field Testing and Assessment of Oil Dispersant Efficiency

J.P. Desmarquest, J. Croquette and **F. Merlin,** CEDRE,, Brest, France; **C. Bocard** and **C. Gatellier,** Institut Francais du Petrole, France

1:30 p.m.-2:15 p.m. Underground Gasoline Spill Recovery: A Blending of Science and Engineering

Robert W. Castle, Carl F. Foget and **Martin A. Cramer,** Woodward-Clyde Consultants, Walnut Creek, California

2:15 p.m.-3:00 p.m. The Development of a Dispersant Applicator for Cleaning Oiled Sediments

James Glasgow and **Douglass Gleason,** Maine Department of Environmental Protection, Portland, Maine

3:00 p.m.-3:45 p.m. Emulsions and Debris Tests at OHMSETT

Anibal Diaz, Mason and Hanger-Silas Mason Company, Inc., Leonardo, New Jersey

3:45 p.m.-4:30 p.m. In Situ Sampling for Trace Hydrocarbons

David R. Green and **Blair Humphrey,** Seakem Oceanography Ltd., Sidney, British Columbia, Canada

3:45 p.m.-4:30 p.m. EPA/API Standard Reference Oil Program

Leo T. McCarthy, Jr., U.S. Environmental Protection Agency, Edison, New Jersey and **J.R. Gould,** American Petroleum Institute, Washington, D.C.

12:00 noon **North Banquet Hall**

LUNCHEON

Admiral **James S. Gracey,** Commandant United States Coast Guard

1:30 p.m. **River Room**

Session 4: Contingency Planning I

Chairman: Captain **Gerald J. Hinson,** U.S. Coast Guard, Corpus Christi, Texas

Vice Chairman: **Pat O'Brien,** Chevron U.S.A., San Francisco, California

Oil Spill Contingency Planning for Georges Bank

Elmer P. Danenberger, U.S. Department of the Interior, Hyannis, Massachusetts; Captain **R. Barry Eldridge,** U.S. Coast Guard, Boston, Massachusetts; **Marshall Crocker,** Halliburton Services, Duncan, Oklahoma

Probability of an Oil Spill on the St. Marys River

Robert H. Schulze, ARCTEC, Inc., Columbia, Maryland

New Directions in Navy Spill Contingency Planning

Paul J. Yaroschak, U.S. Naval Facilities Engineering Command, Alexandria, Virginia

An Environmental Impact Study and Pollution Contingency Plan for an Ecologically Sensitive Area in the North Sea

T.G. Wilkinson and **R. McEwan,** Shell, U.K. Exploration and Production, Aberdeen, Scotland

The Venezuelan National Oil Spill Contingency Plan

Ian Achong, Petroleos de Venezuela, Caracas, Venezuela; **John Bennett,** Bennett Environmental Consultants, West Vancouver, British Columbia, Canada; **Chris Hatfield,** Hatfield Consultants Ltd., West Vancouver, British Columbia, Canada; **Noel Boston,** IEC/BEAK Consultants, Ltd., Richmond, British Columbia, Canada

Oil Spill Contingency Planning and Scientific Support Coordination in Bermuda: A Successful Model

Thomas D. Sleeter and **Anthony H. Knap,** Bermuda Biological Station for Research, Inc., Bermuda; **I. Walwyn Hughes,** Department of Agriculture and Fisheries, Bermuda

A $1 Million Spill Drill and Two Tons of Oranges

Stephen Kaufmann, Sunshine Chemical Corporation, West Hartford, Connecticut; **Sal G. Brancato,** United Illuminating Company, New Haven, Connecticut; **Frank Maitland,** New Haven Terminal, New Haven, Connecticut; **Richard Martin,** Gulf Oil Corporation, New Haven, Connecticut

1:30 p.m. **Mission Room A**

Session 5: Coastal Zone Impacts

Chairman: Commander **Frank A. Boersma,** U.S. Coast Guard, Washington, D.C.

Vice Chairman: **J.T. Leigh,** Texaco Inc., Beacon, **New York**

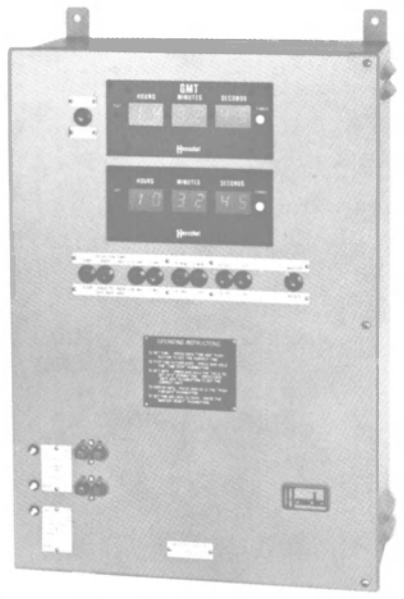
Long Term Investigations on Chemical and Microbial Changes of a Slightly Oil Polluted Beach

Gunter Gassmann and **Wilfried Gunkel,**

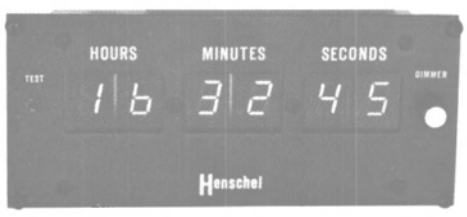
(continued on page 20)

Henschel

Digital Master Clock System



The Henschel Digital Master Clock System provides a synchronized display of time in various shipboard locations. The master clock displays both local time and Greenwich Mean Time (GMT). This crystal controlled, microcomputer based master clock transmits multiplexed time (hours, minutes and seconds) and date (month, day and year) information to a maximum of 40 remote repeater clocks and/or data and bell loggers.



The remote repeater clocks display either local time or GMT in various mounting configurations to suit most applications. Time is continuously displayed on both the master and repeater clocks by red, 6 digit LED displays, easily viewed up to 25 feet away. The date is displayed on the master clock by use of a front panel switch. This calendar function is set to maintain the correct date for changes in month, day, year and leap year.

Battery back-up is provided to maintain both time and date in the master clock and in a few selected repeater clocks during any loss of input power.

Clock accuracy is maintained independent of the input power frequency by a self-contained crystal oscillator. Time and date are easily set by means of pushbuttons on the front panel. When changing time zones, hours may be changed independently of minutes and seconds so that time accuracy is not lost.

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1983 Oil Spill Conference Program

(continued from page 19)

Biologische Anstalt Helgoland, Federal Republic of Germany

Sandy Beach Communities Exposed to Natural Oil Seepage

Dale Straughan, Paramount, California

Potential Damage of Oil Wastes in Coastal Estuary Sediments

Thomas F. Lytle and **Julia S. Lytle,** Gulf Coast Research Laboratory, Ocean Springs, Mississippi

Geomorphological Impact of Cleanup of an Oiled Salt Marsh (Ile Grande, France)

B.F. Long, University of Quebec, Rimouski, Quebec, Canada and **J.H. Vandermeulen,** Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

A Natural Resources Damage Assessment Study: The IXTOC I Blowout

Paul D. Boehm and **David L. Fiest,** Energy Resources Company, Inc., Cambridge, Massachusetts; **Ian Kaplan** and **Paul Mankiewicz,** Global Geochemistry Corporation, Canoga Park, California; **George S. Lewbel,** LGL Ecological Research, Inc., Bryan, Texas

A Spill of Light Fuel Oil in the Baltic Sea

Olof Linden, Jan Mattsson and **Mats Notini,** Swedish Environmental Research Institute, Karlskrona, Sweden

1:30 p.m. Mission Room B

Session 6: Input/Computer Modeling

Chairman: **David E. Thornton,** Environment Canada, Quebec, Ontario, Canada

Vice Chairman: **Gerd Kleineberg,** U.S. Coast Guard, Groton, Connecticut

Study of Wind and Current Datasets for IXTOC Oil Spill Hindcast

Eric L. Anderson, Applied Science Associates, Inc., Wakefield, Rhode Island

First Experiences with the Massachusetts Institute of Technology Oil Spill Model

Harilaos N. Psaraftis and **J.D. Nyhart,** Massachusetts Institute of Technology, Cambridge, Massachusetts; **David A. Betts,** Petro-Canada, Calgary, Alberta, Canada

The Use of Receptor Mode Trajectory Analysis Techniques for Contingency Planning

J.A. Gait and **D.L. Payton,** National Oceanic and Atmospheric Administration, Seattle, Washington

A Review of the State-of-the-Art of Oil Spill Fate/Behavior Models

James C. Huang, Raytheon Company, Portsmouth, Rhode Island

Analyzing the Potential Effects of Operational Discharges of Oil from Ships in the Gulf of Mexico

Charles N. Ehler, Daniel J. Basta and **Thomas F. LaPointe,** National Oceanic and Atmospheric Administration, Washington, D.C.

Testing of Crude Oils and Petroleum Products for Environmental Purposes

Donald Mackay and **Warren Stiver,** University of Toronto, Toronto, Ontario, Canada; Lt. Commander **Peter A. Tebeau,** U.S. Coast Guard, Washington, D.C.

Wednesday, March 2

9:00 a.m.-5:00 p.m. North Exhibit Hall

Poster Session B

Chairman: **John S. Farlow,** U.S. Environmental Protection Agency, Edison, New Jersey

Vice Chairman: **Harold J. Pecunia,** Peterson Maritime Services, Inc., New Orleans, Louisiana

9:00 a.m.-9:45 a.m. Assessing the Impacts of Oil Spills on Georges Bank Fisheries

Mark Reed, Applied Science Associates, Inc., Wakefield, Rhode Island; **Malcolm L. Spaulding** and **Saul B. Salia,** University of Rhode Island, Kingston, Rhode Island

9:45 a.m.-10:30 a.m. Oil Spill Model for Port and Harbor Contingency Planning

Joseph O'Neill and **Raymond Sosnowski,** Normandeau Associates, Inc., Bedford, New Hampshire

10:30 a.m.-11:15 a.m. Computer Prediction and Mapping of Oil Spills in Australia

Terry R. McKay, Department of Home Affairs and Environment, Canberra City, Australia; **Jerry A. Gait,** National Oceanic and Atmospheric Administration, Seattle, Washington

11:15 a.m.-12:00 p.m. Oil Residence and Oil Spill Biological Sensitivity Indices for Coastal Marine Environments

Gordon A. Robilliard, Edward H. Owens and **John Harper,** Woodward-Clyde Consultants, Walnut Creek, California; **Ted P. Winfield,** Woodward-Clyde Consultants, San Diego, California

2:00 p.m.-2:45 p.m. Logistics — An Underdeveloped Link for Offshore Incidents

Lt. Commander **J.L. O'Brien** and DCC **D.A. Jago,** U.S. Coast Guard, Hamilton Air Force Base, California

2:00 p.m.-2:45 p.m. Aerial Photographic Surveys Analyzed to Deduce Oil Spill Movement During the Decay and Break-up of Fast Ice, Prudhoe Bay, Alaska

Ivan M. Lissauer and **Denise A. Baird,** U.S. Coast Guard Research and Development Center, Groton, Connecticut

2:45 p.m.-3:30 p.m. Development of Advanced Oil Spill Dispersant Application System for Fokker F27 Aircraft

Bruce D. Emery, Conair Aviation, Ltd., Abbotsford, British Columbia, Canada and **John Cuddeback,** Arabian American Oil Company, Saudi Arabia

3:30 p.m.-4:15 p.m. State of Texas Spill Response Mapping Project

David Barker and the Spill Response Unit Staff, Texas Department of Water Resources, Austin, Texas

3:30 p.m.-4:15 p.m. Flight Tests of a Self Contained Dispersant Spray System for Cargo Aircraft

Gordon P. Lindblom, Exxon Chemical Company, Houston, Texas; **Stewart A. Horn,** Mobil Oil Corporation, New York, New York; **James C. Jeffries,** Biegert Aviaton, Inc., Chandler, Arizona; **Jerry O'Neal,** Environmental Greenery, Inc., Biloxi, Mississippi

4:15 p.m.-5:00 p.m. MIRG Environmental Element: An Oil Spill Response Tool for the Gulf of Mexico

Bart J. Baca and **Charles D. Getter,** Research Planning Institute, Inc., Columbia, South Carolina; **June Lindstedt-Siva,** Atlantic Richfield Company, Los Angeles, Calfornia

9:00 a.m. River Room

Session 7: Equipment I

Chairman: Commander **Donald Jensen,** U.S. Coast Guard, Portsmouth, Virginia

Vice Chairman: **William C. Park,** Mobil Oil Corporation, New York, New York

On Some Activities in Preventing Sea Pollution Performed in the Merchant Marine of the USSR

Sergei M. Nunuparov, Black Sea Design and Construction Bureau, Odessa, USSR and **Oleg N. Khalimonov,** Ministry of Merchant Marine of the USSR, Moscow, USSR

An Acoustical Method of Burning and Collecting Oil Spills on Cold Open Water Surfaces

John N. Koblanski, Ocean Ecology, Ltd., Vancouver, British Columbia, Canada

Testing of a Prototype Waste Oil Flaring System

Robert L. Beach and **William T. Lewis,** Seaward International, Inc., Falls Church, Virginia

Air Curtain Incinerator Tests

Keith F. Kruk, Exxon Production Research Company, Houston, Texas

An Effective Low-Cost Fireproof Boom

K.M. Meikle, Environment Canada, Ottawa, Ontario, Canada

The Development and Testing of a Fireproof Boom

Ian A. Buist, William M. Pistruzak, Stephen G. Potter and **Nick Vanderkooy,** Dome Petroleum, Ltd., Calgary, Alberta, Canada; **Ian R. McAllister,** McAllister Engineering, Ltd., North Vancouver, Canada

9:00 a.m. Mission Room A

Session 8: Case Histories

Chairman: Rear Admiral **Sidney A. Wallace,** USCG (Ret.), Washington, D.C.

Vice Chairman: **William Walker,** U.S. Naval Sea Systems Command, Washington, D.C.

The Texaco Connecticut's Oil Spill Incident in the Panama Canal

Cesar Von Chong, John C. Jordan, and **Ricardo Gutierrez,** Panama Canal Commission, Panama

Funiwa No. 5 Oil Well Blowout — Interesting Issues

Albert H. Lasday and **Harold J. Weiss,** Texaco, Inc., Beacon, New York

Hasbah 6—Oil Companies Response to Oil Pollution in the Arabian Gulf

P. Bernard Ryan, Gulf Area Oil Companies Mutual Aid Organization, Manama, Bahrain

The Fate of Two Large Oil Spills in the Arabian Gulf

William J. Lehr and **Murat S. Belen,** University of Petroleum and Minerals, Dhahran, Saudi Arabia

The Hasbah 6 (Saudi Arabia) Blowout: The Effects of an International Oil Spill as Experienced in Qatar

Joseph A.C.M. van Oudenhoven, Shell Internationale Petroleum Maatschappij, The Hague, Netherlands

9:00 a.m. Mission Room B

Session 9: Environmental Mapping

Chairman: **Robert Landers,** U.S. Environmental Protection Agency, Washington, D.C.

Vice Chairman: **Edward Gilfillan,** Bowdoin College, Brunswick, Maine

Method for Ranking Biological Resources in Oil Spill Response Planning

J.K. Adams, U.S. Fish and Wildlife Service, Slidell, Louisiana; **A.J. Heikamp, Jr.,** LOOP, Inc., Harvey, Louisiana; **R.P. Hannah,** Louisiana Department of Natural Resorces, Baton Rouge, Louisiana

Ecological Mapping and Cleanup of Oil Spills Onshore

Terje Klokk, Arild Danielsen, Erling Sendstad and **Per Tommeraas,** SINTEF, Trondheim, Norway

Characteristics of Resource Protection Plans: An Analysis of Methods

Randall W. Smith, U.S. Fish and Wildlife Service, Sacramento, California

MIRG Environmental Element: An Oil Spill Response Planning Tool for the Gulf of Mexico

June Lindstedt-Siva, Atlantic Richfield Company, Los Angeles, California; **Bart J. Baca** and **Charles D. Getter,** Research Planning Institute, Inc., Columbia, South Carolina

Oil Spill Protection Planning for Natural Resources in Oregon

G. Bruce Sutherland, Oregon Department of Environmental Quality, Corvallis, Oregon; **Irving W. Jones,** Oregon Department of Fish and Wildlife, Portland, Oregon; **Randall W. Smith,** U.S. Fish and Wildlife Service, Sacramento, California

9:00 a.m. Fiesta Room

Session 10: Experimental Studies of Coastal Zone Impacts

Chairman: **G.R.H. Fern,** Imperial Oil Ltd., Toronto, Ontario, Canada

Vice Chairman: **Joseph P. Lafornara,** U.S. Environmental Protection Agency, Edison, New Jersey

The Port Bolivar, Texas Oil Spill — A Case History of Oiled Bird Survival

Allan J. Mueller and **Carlos H. Mendoza,** U.S. Fish and Wildlife Service, Houston, Texas

A Unique Oiled Bird Rehabilitation Operation — Myrtle Beach, S.C., February 1981

Donald P. Schultz and **W. Waynon Johnson,** U.S. Fish and Wildlife Service, Atlanta, Georgia; **Alice B. Berkner,** International Bird Rescue Research Center, Berkeley, California

Effects of Oil on Growth and Decomposition of Spartina Alterniflora

Steve K. Alexander and **James W. Webb, Jr.,** Texas A&M University, Galveston, Texas

Preliminary Results of Laboratory Testing of Oil and Dispersants on Mangroves

Charles D. Getter, Thomas G. Ballou and **Jeffrey A. Dahlin,** Research Planning Institute, Inc., Columbia, South Carolina

12:00 noon North Exhibit Hall

No-Host Luncheon

2:00 p.m. River Room

Session 11: Shoreline Cleanup

Chairman: Lt. Commander **James T. Paskewich,** U.S. Coast Guard, Washington, D.C.

Vice Chairman: **James Parker,** Industrial Marine Service, Inc., Norfolk, Virginia

Oil Spill on Northern Shorelines — An Evaluation of Some Options Dealing with This Problem

Erling Sendstad and **Per Sveum,** SINTEF, Trondheim, Norway

Shoreline Experiments and the Persistence of Oil on Arctic Beaches

Edward H. Owens and **John R. Harper,** Woodward-Clyde Consultants, Victoria, British Columbia, Canada; **Carl R. Foget,** Woodward-Clyde Consultants, San Francisoc, California; **Wishart Robson,** Petro-Canada Exploration, Inc., Calgary, Alberta, Canada

Oil Degradation and Environmental Impact of Various Co-Disposal Methods

Gerd Halmo, SINTEF, Trondheim, Norway

Beach Cleaning Tests in the Netherlands at Hook of Holland

Captain **A. van Eden,** North Sea Directorate, The Netherlands

New Development in Beach Cleanup Techniques

Richard Pasquet and **Jacques Denis,** CEDRE, Brest, France

The Warren Spring Laboratory Beach Material Washing Plant for Shoreline Cleanup

P.R. Morris, D. Tookey and **T. Walsh,** Warren Spring Laboratory, Stevenage, England

2:00 p.m. Mission Room A

Session 12: Monitoring/Estimation of Oil Effects

Chairman: **Carl Eidam,** U.S. Environmental Protection Agency, Lexington, Massachusetts

Vice Chairman: **Kenneth Meikle,** Environment Canada, Quebec, Ontario, Canada

Biological Monitoring of the Forties Oilfield (North Sea)

J.P. Hartley, Oil Pollution Research Unit, Pembroke, England; **J. Ferbrache,** BP Petroleum Development (U.K.) Ltd., Aberdeen, Scotland

Delineation of Subsurface Petroleum Spills Using Terrain Conductivity Measurements

Wayne R. Saunders, Woodward-Clyde Consultants, Wayne, New Jersey; **Robert W. Castle** and **Carl R. Foget,** Woodward-Clyde Consultants, Walnut Creek, California

Cape Fear River Oil Spill (North Caro-

lina): **Determining Oil Quantity from Marsh Surface Area**

Bart J. Baca, Jacqueline Michel and **Timothy W. Kana,** Research Planning Institute, Inc., Columbia, South Carolina; **Nancy G. Maynard,** President's Office of Science and Technology Policy, Washington, D.C.

Multivariate Analysis of Petroleum Hydrocarbon Weathering in the Subarctic Marine Environment

James R. Payne, Bruce E. Kirstein, G. Daniel McNabb, Jr., James L. Lambach, Celso de Oliveira, Randolph E. Jordan and **Wilson Hom,** Science Applications, Inc., La Jolla, California

Composition and Fate of Clean Ballast Water Discharged from Crude Oil Tankers

Jerry M. Neff, Battelle New England Marine Research Laboratory, Duxbury, Massachusetts; **James P. Marum,** Mobil Oil Company, New York, New York; **Scott Warner,** Battelle Columbus Laboratories, Columbus, Ohio

Exposure of Abarenicola pacifica to Oiled Sediment: Effects on Glycogen Content and Alterations in Sediment-Bound Hydrocarbons

John M. Augenfeld, Jack W. Anderson, Steven L. Kiesser and **Gilbert W. Fellingham,** Battelle, Marine Research Laboratory, Sequim, Washington; **Robert G. Riley** and **Berta L. Thomas,** Battelle, Pacific Northwest Laboratory, Richland, Washington

2:00 p.m. **Mission Room B**

Session 13: Socio-Economic Legal

Chairman: **John Fitzpatrick,** Gulf Oil Corp., Washington, D.C.

Vice Chairman: **Ron DeNoville,** Crawford and Company, Atlanta, Georgia

The Cost of Oil Spills

I.C. White and **J.A. Nichols,** the International Tanker Owners Pollution Federation Ltd., London, England

Method for Conducting Oil Pollution Liability Insurance Survey

Michael K. Breslin, Clean Environment Engineers, San Francisco, California

The International Oil Pollution Compensation Fund

Reinhard H. Ganten, International Oil Pollution Compensation Fund, London, England

Multivariate Analysis of Worldwide Tanker Casualties

Norman F. Meade and **Thomas F. LaPointe,** National Oceanic and Atmospheric Administration, Washington, D.C.; **Robert C. Anderson,** American Petroleum Institute, Washington, D.C.

The Law and Practice of Assessing Damages to Natural Resources

James S. Mattson, Mattson and **Pave,** Washington, D.C.; **Allen van Emmerik,** U.S. Department of Justice, Washington, D.C.

Risk Control Management for Oil Spills

Leo Kiebala, Crawford and Company, Atlanta, Georgia

2:00 p.m. **Fiesta Room**

Session 14: Nearshore Dispersant Experiments

Chairman: **Clayton McAuliffe,** Chevron Oil Field Research Co., La Habra, California

Vice Chairman: **Richard A. Griffiths,** U.S. Environmental Protection Agency, Edison, New Jersey

The BIOS Project — An Update

Peter J. Blackall and **Gary A. Sergey,** Environment Canada, Edmonton, Alberta, Canada

Effect of Spills of Dispersed and Non-Dispersed Oil on Intertidal Infaunal Community Structure

Edward S. Gilfillan, David S. Page, S.A. Hanson, J.C. Foster, J.R. Hotham, D. Vallas and **R.P. Gerber,** Bowdoin College, Brunswick, Maine; **S.D. Pratt,** University of Rhode Island, Kingston, Rhode Island

Long Term Fate of Dispersed and Undispersed Crude Oil in Two Nearshore Test Spills

David S. Page, Edward S. Gilfillan, J.C. Foster, J.R. Hotham, R.P. Gerber, D. Vallas, S.A. Hanson, E. Pendergast, S. Herbert and **L. Gonzalez,** Bowdoin College, Brunswick, Maine

The Use of Flow-Through Fluorometry for Tracking Dispersed Oil

David Green, Blair Humphrey and **Brian Flower,** Seakem Oceanography, Ltd., Sidney, British Columbia, Canada

Thursday, March 3

8:30 a.m. **River Room**

Session 15: Natural Resource Damage Assessment (A Panel Discssion)

Chairman: **George Kinter,** U.S. Department of Commerce, Washington, D.C.

Vice Chairmen:

Nancy Maynard, U.S. Department of Commerce, Washington, D.C.

Jack R. Gould, American Petroleum Institute, Washington, D.C.

Panel Members:

Bruce Blanchard, U.S. Department of the Interior, Washington, D.C.

Ian C. White, International Tanker Owners Pollution Federation, Ltd., London, England

(continued on page 22)

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1983 Oil Spill Conference Program

(continued from page 21)

Eugene R. Fidell, LeBoeuf, Lamb, Leiby and MacRae, Washington, D.C.

Robert C. Anderson, American Petroleum Institute, Washington, D.C.

8:30 a.m. Mission Room A

Session 16: Contingency Planning II

Chairman: **Windsor Williams,** CALTEX Petroleum Corporation, Dallas, Texas

Vice Chairman: **Columbus Brown,** U.S. Fish and Wildlife Service, Washington, D.C.

Applying OHMSETT Data to Spill Contingency Plans

H.W. Lichte and **M. Borst,** Mason and Hanger-Silas Mason Company, Inc., Leonardo, New Jersey

Marine Industry Group (MIRG)

Robert J. Meyers and **Michael R. Bennett,** Exxon Shipping Company, Houston, Texas

Review of United Kingdom Contingency Planning and Resource Capability

Rear Admiral **Michael L. Stacey,** Department of Trade, London, England

Organizational Obstacles to Decision-Making During Oil Spills

H.E. Mew, Jr., North Carolina Department of Natural Resources and Community Development, Raleigh, North Carolina; **Ann Hayward Rooney-Char,** College of William and Mary, Gloucester Point, Virginia; Captain **James D. Webb,** U.S. Coast Guard, Norfolk, Virginia

Offshore Oil Spill Equipment Evolution in Southern California — A Systems Approach?

Commander **Lindon A. Onstad,** U.S. Coast Guard, Long Beach, California

Oil Spill Preparedness in a Tropical Offshore Area

Ging Tuang Tan, Sarawak, Shell Berhad, Malaysia

ABSORB: A Three Year Update in Arctic Spill Response

Sharon O. Hillman and **Richard V. Shafer,** Sohio Alaska Petroleum Company, Anchorage, Alaska

8:30 a.m. Mission Room B

Session 17: Equipment II

Chairman: **John Gilbert,** U.S. Environmental Protection Agency, Cincinnati, Ohio

Vice Chairman: **Keith F. Kruk,** Exxon Production Research Company, Houston, Texas

Self-Contained Oil Recovery System for Use in Protected Waters

Steven Cohen, U.S. Coast Guard, Washington, D.C. and **Stephen Dalton,** Offshore Devices, Inc., Peabody, Massachusetts

OHMSETT Tests of Truck-Mounted Vacuum Systems for Oil Spill Recovery

Donald C. Gates, Kevin M. Corradino and **William R. Senftner,** Mason and Hanger-Silas Mason Company, Inc., Leonardo, New Jersey

OHMSETT Pump Tests

M. Borst, R.J. Cocherell and **H.W. Lichte,** Mason and Hanger-Silas Mason Company, Inc., Leonardo, New Jersey

Research and Development in the Institute of Ocean Environmental Technology

Atsuo Yazaki, Japan Foundation for Shipbuilding Advancement, Tokyo, Japan

A Portable Instrument for Screening Spill and Source Oil Samples

J. Richard Jadamec, Gerd A. Kleineberg, MST2 **Duane A. Marble** and MST3 **Lisa A. Wargo,** U.S. Coast Guard Research and Development Center, Groton, Connecticut

Mobile Command and Communication Systems

J.T. Leigh, Texaco, Inc., Beacon, New York and **William C. Park,** Mobil Oil Corp., New York, New York

Enhanced Oil Biodegradation: A New Operational Tool to Control Oil Spills

Bernard Tramier and **Andre Sirvins,** Societe Nationale, Elf Aquitaine (Production), France

12:00 noon North Banquet Hall

Luncheon

James H. Gillie
Assistant to the Vice President of Public Affairs, Phillips 66
"Right On Instead of Rip Off"

2:00 p.m. River Room

Session 18: Spill Detection and Risk Analysis

Chairman: **Charles W. Sieber,** U.S. Coast Guard, Washington, D.C.

Vice Chairman: **George Clouden,** U.S. Naval Facilities Engineering Command, Alexandria, Virginia

U.S. Coast Guard Progress in Oil Spill Surveillance

Commander **James R. White** and Lt. Commander **Richard E. Schmidt,** U.S. Coast Guard, Washington, D.C.

An Approach to Observing Oil at Sea

Robert Pavia and **D.L. Payton,** National Oceanic and Atmospheric Administration, Seattle, Washington

Second Generation Oil Spill and Maritime Surveillance Systems Now Operational in Sweden

Lars Backlund and **Lars Holmstrom,** Swedish Space Corporation, Solna, Sweden

A Reexamination of Occurrence Rates

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for Accidental Oil Spills on the U.S. Outer Continental Shelf
Kenneth J. Lanfear and **David E. Amstutz,** U.S. Department of the Interior, Washington, D.C.
Statistical Failure Mode Analysis of Submarine Pipeline Accidents
William K. Olender, Technology and Management Systems, Inc., Burlington, Massachusetts

2:00 p.m. Mission Room A
Session 19: Training

Chairman: **Peter Holmes,** British Petroleum, London, England
Vice Chairman: **Andre Zownir,** U.S. Environmental Protection Agency, Edison, New Jersey
Results of a Full Scale Surprise Test of Sun's Major Spill Response Plan
Leon J. Kazmierczak, Sun Company, Inc., Philadelphia, Pennsylvania and **T.A. Crawford,** Sun Refining and Marketing Company, Aston, Pennsylvania
Oil Spill Response Training for Cooperatives and Individual Organizations
Paul C. Deslauriers, Marine Consultants, Anchorage, Alaska
Specialized Training Programs — Oil Spill Simulation Exercises in a Tank Truck Rollover Training Course
Clyde B. Strong, The Texas A&M University System, College Station, Texas
Innovative Training: Computer Assisted Learning
C.H. Peabody and R.H. Goodman, Esso Resources Canada, Ltd., Calgary, Alberta, Canada
The International Maritime Organization Training Program in Oil Spill Prevention, Control and Response for Developing Countries
Terrence M. Hayes and **Bin Okamura,** International Maritime Organization, London, England

2:00 p.m. Mission Room B
Session 20: Dispersants II

Chairman: **Richard T. Dewling,** U.S. Environmental Protection Agency, New York, New York
Vice Chairman: **John P. Bennington,** Standard Oil Company (Indiana), Chicago, Illinois
Operational Considerations for Optimum Deposition Efficiency in Aerial Application of Dispersants
Gordon P. Lindblom, Exxon Chemical Company, Houston, Texas; **Bryan S. Cashion,** Exxon Research and Engineering Company, Florham Park, New Jersey
Performance Evaluation of a New Versatile Oil Spill Dispersant
Kenneth W. Becker and **Gordon P. Lindblom,** Exxon Chemical Company, Houston, Texas
Effectiveness, Behavior and Toxicity of Dispersants
Donald Mackay and **Peter G. Wells,** University of Toronto, Toronto, Ontario, Canada

Irvine Named General Manager And Chief Surveyor For AMT Panama

Archibald (Archie) Irvine has been named general manager and chief surveyor for AMT Panama, S.A.

Mr. **Irvine,** a resident of Panama for the past 30 years, has been working as an engineer and manager of operations for major local and international corporations. He is a licensed surveyor for Lloyd's Register, the American Bureau of Shipping, and other classification societies.

A marine engineer, Mr. **Irvine** also has served as a chief engineer with Esso. He offers assistance to shipowners with technical surveys, advice and port engineering supervision on the repair and maintenance of marine equipment including diesel and steam machinery.

AMT Panama, S.A. was organized and activated in the fourth quarter of 1982 as part of AMT's Inc. of Miami, Fla., marine service network. The new company serves Panama Canal traffic as well as Central American and south Caribbean ports. The office mailing address is P.O. Box 10296. Panama 4, Panama. Tel. (507) 64-1435/21-26-29. Telex 368-2720.

IBM Awarded $3.5-Million Navy Engineering Contract

International Business Machines, Manassas, Va., has been awarded a $3,573,008 cost-plus-fixed-fee contract for an engineering model of the Steerable Hull Array Beam Former (SHAB), AN/BQQ-5B(V). The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-6153).

BIW Awarded $12-Million Contract Modification For FFG-7 Class Ships

Bath Iron Works Corporation, Bath, Maine, was awarded a $12,948,774 cost-plus-fixed-fee modification for LM 2500 gas turbine engines for fiscal year 1983 FFG-7 class ships. The Supervisor of Shipbuilding, Conversion and Repair, Bath, Maine, is the contracting activity (N00024-82-C-2023).

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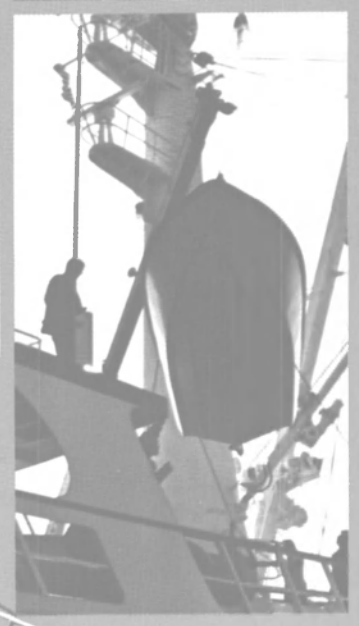


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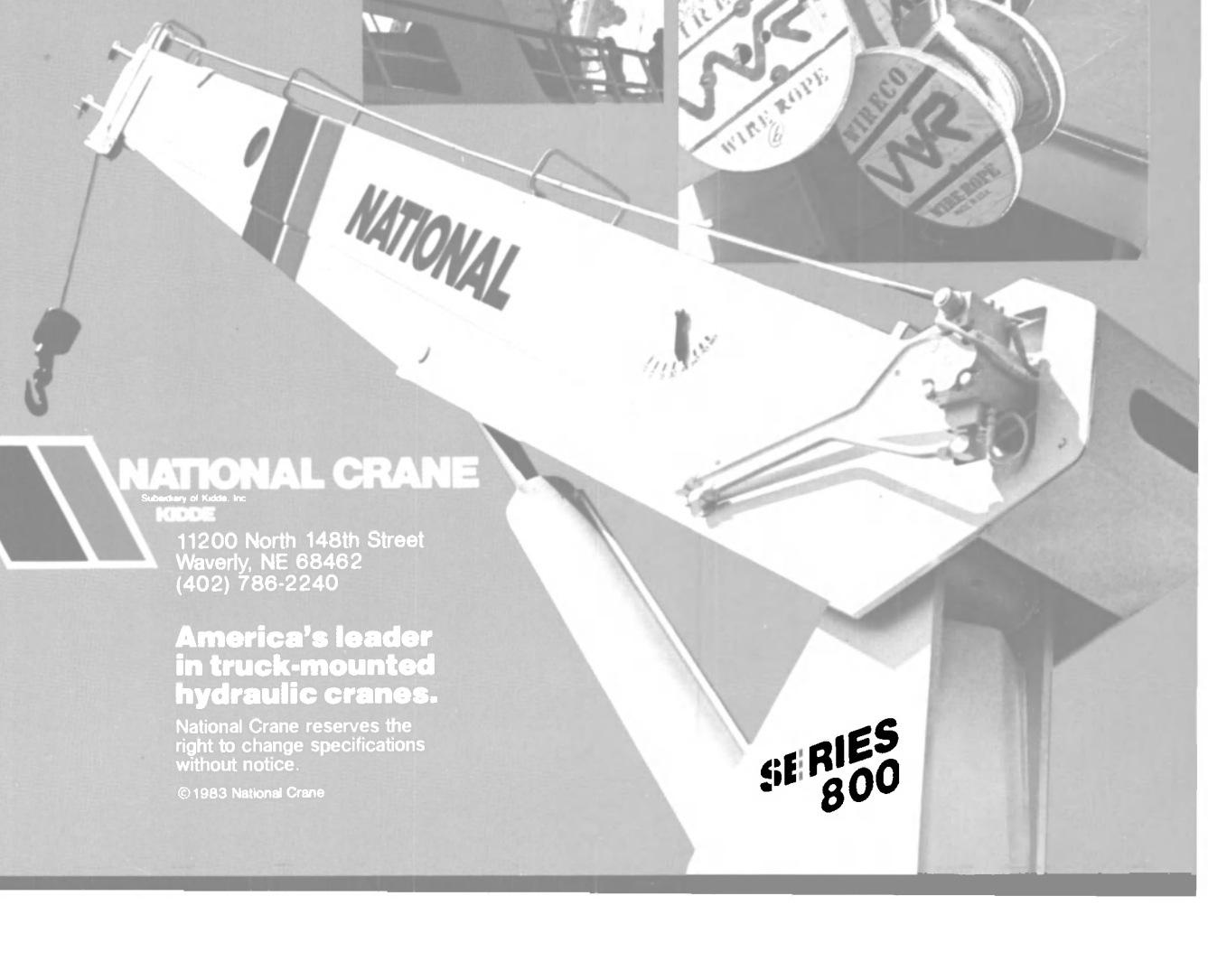

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Free Booklet Offered On Genstar's Range Of Heavy Lift Vessels

Genstar Marine Ltd. of North Vancouver, British Columbia, Canada, a diversified marine transportation, shipbuilding and repair company, has published a 34-page full-color booklet detailing its vessels used in heavy lift transportation.

Included in the booklet are photographs and technical specifications on Genstar's range of oceangoing barges and tugs used to transport heavy-lift and modular cargo. Vessels such as Genstar's 400-foot-long submersible barges (used to carry offshore rigs for example), flat deck cargo barges, and tugs up to 9,000 hp are depicted. Genstar's fleet has 65 tugs and 300 barges.

For a free copy of the booklet,

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Ocean Carriers Seeks MarAd Approval For T-5 Tankers Charter To MSC

The Maritime Administration has received a request from Ocean Carriers, Inc., for section 805(a) permission for its affiliates to be the bareboat charterers of up to five T-5 tankers to be time-chartered by the Military Sealift Command (MSC). The MSC charter agreement specifies that the tankers are to have worldwide trading privileges, which could include operations in the domestic coastal and intercoastal trades.

Ocean Carriers was recently awarded a contract to construct and charter to the MSC two T-5 replacement tankers with options for three more. They will be built by American Ship Building Company for Ocean Product Tankers, Inc., a subsidiary of Ocean Carriers' parent company, Ocean Shipholders, Inc. (see MR/EN November 1982). The vessels, scheduled for delivery in 1984, will be bareboat chartered to other subsidiaries of Ocean Shipholdings and time chartered to the MSC.

Section 805(a) of the Merchant Marine Act of 1936, as amended, prohibits subsidized operators and their affiliates from participating in domestic shipping activities without written permission from MarAd. Ocean Carriers currently operates four subsidized vessels. The written permission from MarAd is requested only because of its affiliation with the bareboat charters of the T-5 tankers. It does not propose to operate its chartered vessels in the domestic trades.

TeleSystems Concludes Distribution Agreement With Grove Of Canada

TeleSystems of Fairfax, Va., a Comsat Company, recently concluded an agreement with Grove Telecommunications Ltd., whereby that Canadian company will become a major distributor for TeleSystems, MCS-9000 maritime satellite communications terminal. Grove, located in St. Johns, Newfoundland, will address the Canadian offshore oil industry as its principal market.

A.W. Perigard, president of TeleSystems, commenting on the agreement, said: "Grove is the only company operating in Canada dedicated exclusively to servicing the area of marine satellite communications, putting them in a prime position to successfully distribute the MCS-9000 in an active market. This agreement is a milestone of our long and mutually beneficial relationship."

The MCS-9000, designed and manufactured by TeleSystems, is a shipboard satellite terminal designed to provide the maritime community with a full range of communications capabilities. The TeleSystems' terminal minimizes operator actions in call establishment and maximizes system availability through reduced complexity. Featuring extremely compact below-decks equipment, advanced terminal software, and a passively stabilized antenna system, the MCS-9000 meets or exceeds all MARISAT and INMARSAT specifications.

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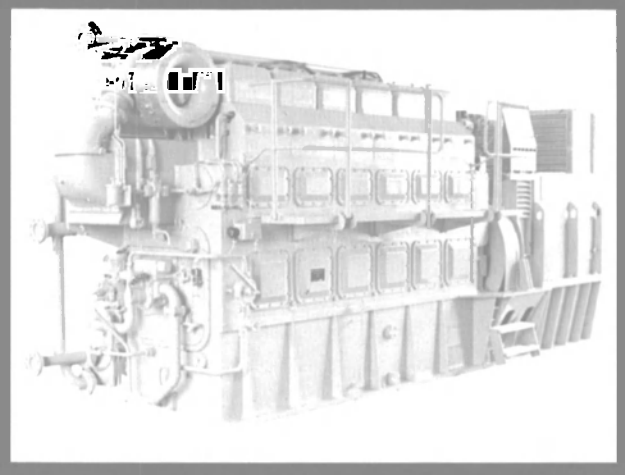

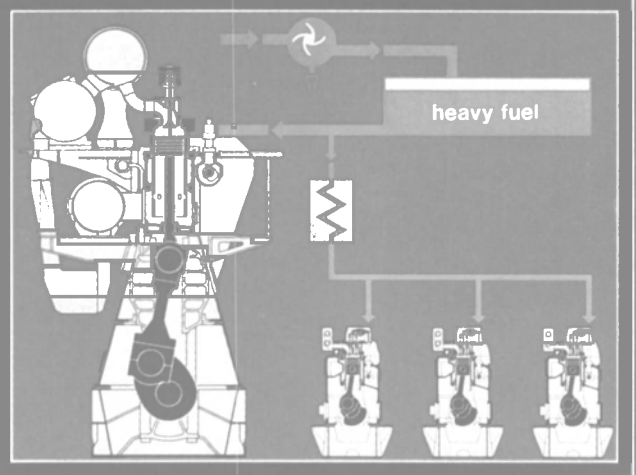

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The Trinity River, built for Transportation Resources of Houma, La.

Eastern Marine Delivers Trinity River To Transportation Resources

Eastern Marine, Inc. of Panama City, Fla., recently delivered the 166-foot supply vessel Trinity River to Transportation Resources, Inc. of Houma, La. The vessel, built at Eastern's shipyard in Panama City, is the fourth of a five vessel package which includes the Leaf River, Pine River, Roaring River, Trinity River and Tellico River.

The Trinity River has a 38-foot beam, a 13-foot depth, and a loaded draft of 11 feet. A clear deck cargo area of 110 by 28 feet can carry up to 550 long tons of cargo.

The vessel is powered by two Detroit Diesel 16V-149 engines delivering a total of 1,800 hp. The engines are fitted with Twin Disc reduction gears and achieve a speed of over 12 knots. The Trinity River is equipped with a Schottel model S-152L bow thruster driven by a Detroit Diesel 8V-71 engine.

Electric service is provided by Delco generators driven by GM 6-71 85-kw engines. Navigation equipment includes Furuno radar, Stevens SSB, Cybernet International VHF, Micrologics Loran C, and an Impulse depth indicator.

Eastern Marine is a growing company which has earned a reputation in recent years as a builder of high quality vessels with exceptionally good workmanship. The company opened their Panama City shipyard in 1978. This 13-acre facility has over 1,300 feet of water frontage and is used primarily to construct medium to small sized boats. Fifteen miles east of the Panama City yard, the company opened another shipyard in Allanton, in 1981. This facility is substantially larger and is used to construct larger vessels. It comprises 135 acres with more than 5,200 feet of water frontage.

In addition to the vessels for Transportation Resources, Eastern Marine also contracted to build eight 192-foot anchor handling tug/supply vessels at the Allanton yard for Seahorse Inc., of Morgan City, La. Four of these vessels have already been delivered to the owner. One of them, the Long Beach Seahorse, is pictured in this article.

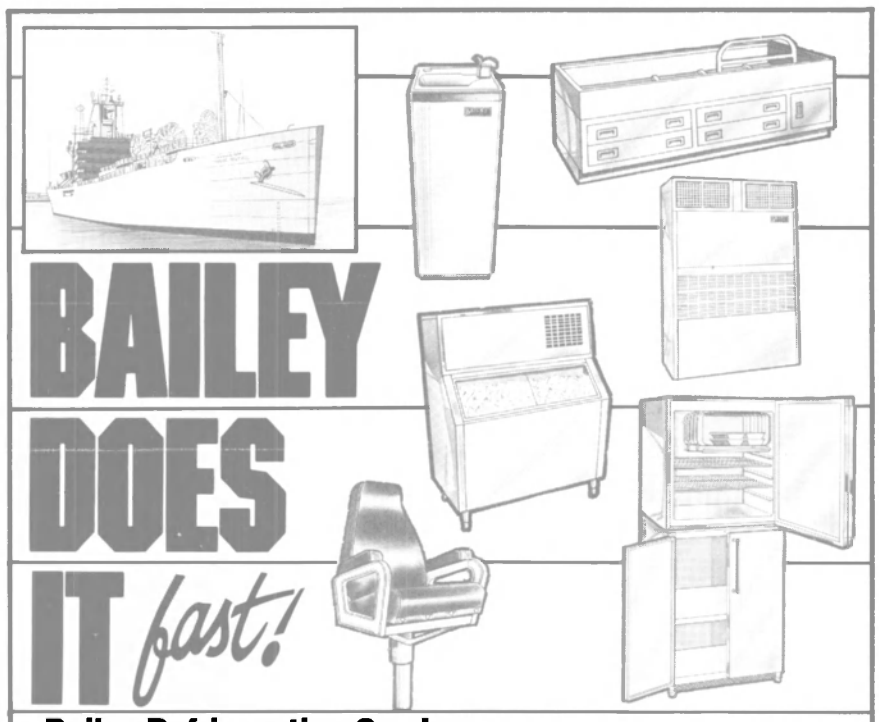
The Long Beach Seahorse shown during launching at Eastern Marine Allanton yard last year (See MR/EN 11/15/82 issue).

TRINITY RIVER
Major Suppliers

Main Propulsion	(2) Detroit Diesel
Reduction Gears	Twin Disc
Propellers	Columbian
Bearings	Johnson Rubber
Generators	Delco
Generator Engine	GM
Panels	Industrial Power Systems
Engine controls	Kobelt
Engine monitors	Int'l. Electronics
Steering	Activation, Int'l.
Bow Thruster	Schottel
Thruster Engine	Detroit Diesel
Pumps	Peabody Barnes, Mission Magnum
Fire Monitor	Elkhart
Air Compressors	Ingersoll Rand
Searchlights	Perko
Radar	Furuno
SSB	Stevens
VHF	Cybernet Int'l.
Loran C	Micrologics
Depth Indicator	Impulse Mfg.
Deck Cargo	550 Long Tons
Clear deck	110 by 28 feet
Fuel Oil	62,600 gallons
Lube Oil	2,552 gallons
Potable water	6,200 gallons
Drill water	120,700 gallons
Liquid mud	1,390 barrels
Anchors	2,000 lb. Danforth
Windlass	HBL
Coatings	Int'l. Paint

Vessels under construction at Eastern Marine's yard at Panama City, Fla.

View of Eastern's Allanton yard, which was opened in 1981, showing Seahorse boats under construction.



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COAL EXPORTS

Substantial Growth Prospects For The U.S. Barge Industry

H.J. Bobzien Jr., President
American Commercial Barge Line Company

H.J. Bobzien Jr.

"What we seem to lack is the determination to combine our brains and our physical resources to make our exports competitive and effective in the real world," declared **H.J. Bobzien Jr.**, president, American Commercial Barge Line Company, in a recent speech to the Kentuckians for Better Transportation's annual Transportation Conference held in Lexington, Ky. His basic theme was based on the necessity and means to expand the export of coal.

Mr. **Bobzien** pointed out that the major industrial countries are switching from high-priced oil to coal and that there is a huge market for coal. However, at the same time, he said, we are not the only suppliers of coal and there is intense competition for these markets from other coal producing countries.

"There is evidence that we are losing out in these markets," he said. "The National Coal Association now predicts a decline from 104 million tons in 1982 and a further decline to 97 million tons this year."

According to the speaker many factors have combined to produce this trend, but study after study singles out the U.S. transport system as a major restriction on the ability of our coal producers to compete in world markets.

Mr. **Bobzien** stated that "the bottom line requirements as to transport are twofold: 1. fully exploiting the enormous productivity and therefore lower cost potential of the water mode and, 2. controlling the excesses of rail monoply." He emphasized that water transportation is only one important part of an overall transport system of railroads, waterways, highways and pipelines, each part competing and coordinating with the other.

This means, he said, that no matter how successful a national waterway policy may be, it can be frustrated unless sound policies are developed for the transport system as a whole.

Last year Mr. **Bobzien** was a member of a delegation of transport officials and coal producers on a tour of European coal markets under the auspicies of the Department of Commerce. Referring to this tour, he said: "There we confirmed that we had indeed been too optimistic about the early development of the coal market, but also confirmed the strong potential for significant expansion of U.S. coal sales following general economic recovery. Expanding European ownership of U.S. coal reserves certainly reinforces this judgment.

"I was impressed on our trip that U.S. coal has a fundamental price handicap compared to Australian and South African coal.

"This is a sobering fact," he said, "and the reason why every statement from the coal industry on its future prospects places heavy stress on the conclusion that full utilization of the nation's plentiful coal reserves can only be accomplished through reduced costs — both production and transportation costs. Transportation is a major part of the total delivered cost."

Following up on this point, he pointed out that the barge industry is looking forward to a very substantial growth in its share of the total coal export market because it is the most reasonably priced means of transportation for the long haul of hundreds of millions of tons of coal. Also of significance, barge capacity can be expanded at less public and private cost than any other mode.

This means, according to the speaker, that barge efficiency acts as a substantial spur to rail efficiency through the natural workings of the market place. Making sure that railroads possessing monopoly power are not permitted to frustrate water transport efficiencies that the coal industry needs is a major priority.

Moving from the barge industry to the ports to handle coal exports, Mr. **Bobzien** pointed out that "on the Gulf Coast—at Mobile and New Orleans particularly—we will see the first breakthrough in the United States in the construction of deepwater ports. The 150,000-dwt ships they will accommodate will permit savings of from $6 to $8 a ton in delivered cost. But, I must remind you that a 55-foot channel for such ships is not enough. We saw coal terminals in Rotterdam preparing to receive 300,000-dwt ships. Anyone with experience in economics can predict how quickly the coal trade will be compelled to use 300,000-dwt ships once they and the ports to handle them are available.

"Mobile and New Orleans between them have a remarkable opportunity in the next decade to become the North American counterpart of Holland's Europort. While the rest of our country seems paralyzed on inland waterway and port development, Mobile and New Orleans could be the first to make the necessary breakthroughs for the nation."

Seeing the port development in Europe made the speaker wonder how it is that the Dutch, the French, the South Africans, and the Australians can make decisions to build ports and inland waterway feeder systems to those ports, and we are paralyzed.

"The difference," it seemed to Mr. **Bobzien**, "is one of determination. We have lived so long in a sort of 'fortress America' economy in which foreign trade accounted for only a tiny proportion of the whole, that we haven't yet fully adjusted our thinking to the new world in which foreign trade is increasingly a life and death matter. We do not say, we must have these markets and we must compete for them as other countries do."

The financing of such projects has been a major deterent according to the speaker. Yet, he feels that it is absurd to believe that the United States cannot work out the financing when much poorer countries have found the means to build the transport projects which serve their national interests.

Mr. **Bobzien** suggests that "rapid progress could be made on formulating a national waterway policy responsive to the needs of the economy if the three following major principles were resolved."

1. We must have a decision-making process that brings on the project within a reasonable time,

2. For the purposes of financial policy making we must separate the social objectives of waterway projects from the commercial freight objectives, and

3. We must develop a consistent policy of cost recovery of the transport industry's drains on the federal treasury. The coal export market will be distorted and proper national resources allocation undermined if cost recovery applies to waterways and not to railroads.

"Taking advantage of the enormous potential for improved efficiency, productivity and dramatically lower costs readily available from the water mode, both inland and at the ports, is a necessary first step," according to Mr. **Bobzien**. "But the water mode and its potential provide only one part of the answer to improving export opportunities for coal. Efficient performance of the rail segment also is essential. And here, priority must be given to moderating monoply pricing of coal transportation."

On this latter point the speaker elaborated by pointing out that barge lines challenged an example of such rail monoply pricing covering discriminatory rail rates to the Ohio River that

had been imposed by the N&W and C&O railroads on coal for export. On this traffic, the rail rates were anywhere from 50 cents a ton to over $5 a ton higher than rates on coal for domestic consumption. According to Mr. **Bobzien** these higher rates were based on the railroads' desire to see the traffic move through Atlantic tidewater ports rather than Gulf ports. He claimed that this showed the railroads' monopoly leverage when it provides the only service to the mine was thus being used to prevent or discourage a competitive rail-water alternative via the Gulf.

On the above defined case, he stated that: "The water carriers, backed by the Eastern Coal Transportation Conference and the ports of Baton Rouge and New Orleans, filed a complaint with the ICC charging that the two railroads were 'undermining competition.' We were preparing our facts to present to the ICC when N&W asked for a settlement. The N&W offered to drop its export rates to the domestic level. Since in some important cases this would mean that the rate to the river would be comparable, cost considered, to the all-rail alternative to tidewater, we agreed to the settlement with the N&W and subsequently, on similar terms, with the C&O."

In conclusion, Mr. **Bobzien** stated: "Whether it is permitting monopoly pricing in coal transportation by rail, or forfeiting the efficiency advantages of deepwater ports and modernized inland waterways, we are clearly allowing our export opportunities for coal to slip away. No one believes our country is unable to perform, that our technology is lacking, or that our institutions are inadequate."

Navy Secretary Says '83 Budget Permits Fleet To Reach 600 Ships

The Administration's budget for fiscal year 1983 will allow the Navy to reach a 600-ship fleet, Navy Undersecretary **James Goodrich** told the Western Shipbuilding Association.

Speaking before the group's recent annual meeting, Mr. **Goodrich** said the Navy currently has 514 ships, up from 460 two years ago. Another 110 are under contract.

Despite cuts in previous budgets, the Navy has been able to stay ahead of its schedule for a 600-ship fleet, he said, attributing this to new procurement and management policies.

Awarding two nuclear carrier contracts this year, in one year instead of in two, will save more than $750 million, Mr. **Goodrich** cited as an example. The Navy has said it would offer fewer contracts on an invitation to bid, fixed-price basis, and that it would award more multi-ship contracts. Such contracts give shipbuilders more time to buy materials and to plan, which lowers costs.

Noting that multiyear procurement is "a key ingredient to stability," he said that the Navy is also writing more "equitable" contracts that divide the risk between contractors and the Navy as fairly as possible.

The main goal of the Navy's current development work is to extend the life and maximize the effect of existing weapons, the naval official said.

"Warriors, not systems, win wars," and only a small fraction of what is technologically feasible is economical or strategically desirable, he said.

Technological improvements have lowered certain costs, said Mr. **Goodrich**. He noted that a battle cruiser 20 years ago required 1,300 sailors and 326 officers. Today the Aegis cruisers need only 300 enlisted men and 26 officers to operate.

The U.S. fleet, which has declined from a force of 1,000 ships in 1969, is about half the size of the 1,000-ship Soviet fleet, which includes aircraft carriers, nuclear cruisers, submarines, and space and oceanic electronic systems, Mr. **Goodrich** emphasized.

CONFERENCE RO-RO '83 PROGRAMME

SVENSKA MASSAN · GOTHENBURG · 17-18-19 MAY 1983

Session 1: World Ro-Ro Trades

Opening Address
Chairman: S. H. Salen, President, Salen Group, Stockholm and former Chairman, Swedish Shipowners' Association

Ro-Ro on the North Atlantic — the future years
Speaker: B. Koch, Managing Director, Atlantic Container Line Services Ltd, Southampton

Liner Shipping — Commercial and Technical Trends
Speaker: P. Carlsson, President-Elect, Rederi AB Transatlantic, Gothenburg

New ships for new routes
Speaker: Dr. A. M. Al-Turki, Managing Director, The National Shipping Company of Saudi Arabia, Riyadh

Ocean transport of cars and vehicles worldwide
Speaker: A. Koch, Managing Director, Wallenius Lines, Stockholm

Ro-Ro Developments in South America
Speaker: R. Klien, Managing Director, Transrol Navegacao S/A, Rio de Janeiro

Semi-bulk cargoes in the Ro-Ro trades — North Sea/Baltic/ Mediterranean/Caribbean
Speaker: B. Aberg, Cargo Traffic Director, EFFOA, The Finland Steamship Co. Ltd., Helsinki

Deployment of the Deepsea Container — Carrying Ro-Ro's
Speaker: Dr. R. Pearson, Marine Transport Centre, University of Liverpool

Session 2: Future Ro-Ro Ports and Terminals *(parallel with Session 3)*
Chairman: S. Gilman, Director, Marine Transport Centre, The University of Liverpool

Linkspans in the future
Speaker: J. Rose, Managing Director, Marine Development (Glasgow) Ltd., Glasgow

Totally mechanised handling of road trailers for coastal Ro-Ro traffic — tomorrow's system?
Speaker: G. Efraimsson, Managing Director, MariTerm AB, Gothenburg

The Ro-Ro multi-purpose terminal of tomorrow
Speaker: F. E. Verkade, Managing Director, Seaport Terminals BV, Rotterdam

Session 3: Ship Design (Part I)
(parallel with Session 2)

The contribution of Fin stabilisers to safety and economy in Ro-Ro operation
Speaker: W. L. S. Wallace, Sperry Marine Systems, UK

The control of air pollution in Ro-Ro cargo spaces — experiences and recommendations
Speaker: A. Adielson, Director, Swedish Shipbuilding Standard Centre, Gothenburg

The future development of Ro-Ro traffic — aspects and problems
Speaker: Prof. R. Schonknecht, Wilhelm-Pieck-Universitat, Rostock, G.D.R.

Session 4: Defence Considerations of Ro-Ro Design

The deployment of Ro-Ro's and merchant vessels for defence needs — experiences in the South Atlantic
Speaker: Colonel J. R. Pitt, OBE, Ministry of Defence, UK

Considerations for a Ro-Ro/Lo-Lo containership with mobilisation capacity
Speaker: J. G. Brown, Managing Director, Seaform Design, Scotland

Defence features for Ro-Ro vessels
Military Sealift Command, Washington DC
(speaker to be announced)

Session 5: Safety Considerations of Ro-Ro Design *(parallel with Session 6)*
Chairman: E. J. B. Pawsey, Director, Hart, Fenton & Co. Ltd., Consulting Naval Architects and Marine Engineers, London

Investigation into the survival capability of Ro-Ro vessels
Speakers: I. O. Endresen and B. O. Jansson, Research Engineers and P. O. Brett, Senior Research Engineer, Det norske Veritas, Norway

Damage Survivability of Ro-Ro Vessels
Speaker: R. D. Tagg, Naval Architect, Herbert Engineering Corp., San Francisco *and* Department of Naval Architecture, The University of Glasgow

Session 3: Ship Design (Part II)
(parallel with Session 6)

Development of Hull Forms for Ro-Ro Ships and Ferries
Speaker: A. Williams, Head of Ship Projects Department, Swedish Maritime Research Centre, SSPA, Gothenburg

Session 6: Ferries and Ferry Ports
(parallel with Sessions 5 and 3 (Part II)
Chairman: C. S. Paterson, Asst. General Manager, North Sea Ferries, Hull, UK

Operation of the 10-terminal ferry port Lübeck/Travemünde for both passenger and freight traffic
Speaker: U. von der Lippe, Managing Director, Lübecker Hafen-Gesellschaft mbH

Measures to make ferry trailer traffic more efficient — comparisons between trailer only/accompanied trailer/barges
Speaker: G. Schrewelius, TFK (Transport Research Commission), Stockholm

Railroad Barge Operations on the West Coast of North America
Speaker: G. C. Snyder, Chief of Consulting Services, Nickum & Spaulding Associates Inc., Seattle, USA

Evacuation of high density passenger ferries — new concepts and their application
Speaker: A. Flising, Chief Naval Architect, Stena Line AB, Gothenburg

Escape slides for Ro-Ro's and Ferries: regulatory recommendations mean different economics for either type of ship
Speaker: D. V. Edwards, Technical Director, RFD Ltd., Godalming, UK

Session 7: Ro-Ro Cargo Safety
(parallel with Session 8)

Introduction by Chairman: International Safety Aspects
Chairman: S. Felding, Maritime Safety Division, Cargoes Section of IMO, London

Lashing of Ro-Ro trailers in a Ro-Ro ship — the latest findings and recommendations
Speaker: P. Andersson, Project Manager, MariTerm AB, Gothenburg

Ro-Ro Transport Problems in the North Sea and Mediterranean
Speaker: Dr. Bauer, Officer in Charge of Ro-Ro Problems, Bundesverband des Deutschen Güterfernverkehrs (BDF), Frankfurt and Member of Ad Hoc Group Trailer Ferry Traffic I.R.U. (Int. Transport Union), Switzerland

The practicalities of securing cargo for door-to-door transport
Speaker: D. W. B. Carr, SpanSet Marine Ltd., London

Damage and Loss Prevention of Ro-Ro Cargoes — methods, equipment and liabilities
Speakers: N-Y. Danielsson, Managing Director, Atlantic Insurance Co. Ltd., Gothenburg *and* S-A. Ulin, Chief Surveyor, Swedish Association of Marine Underwriters, Gothenburg

Session 8: Ro-Ro Handling
(parallel with Session 7)

Chairman: U. Cramer, Chairman of the German Port Engineers' Association's Committee on Mobile Cargo Handling Equipment

A new side loader concept for container handling aboard and in dockside Ro-Ro Operations
Speaker: C. J. Mencel, President, RayGo Wagner Inc., Portland, Oregon

The Evolution of Front-lift truck design for Container Handling and Ro-Ro Operations
Speaker: G. N. Bowman-Shaw, Chairman, LancerBoss Ltd, UK

New Approaches to Safety and Environmental Demands with FLT Ro-Ro Handling
Speakers: L. Lindberg, Product Manager, Volvo Penta, Gothenburg, *and*, O. Oesterlund, Marketing Director, Kalmar LMV, Ljungby, *and*, Transconsultants AB, Gothenburg (speaker to be announced)

Ro-Ro shipboard equipment to maximise space utilisation and productivity — trailer and flat rack designs
Speaker: U. Cramer, Managing Director, Martec, Bremen

Session 9: Propulsion and Fuel Economy

Three leading engine designers will discuss propulsion systems for Ro-Ro ships and give their views on three areas of interest
- **mono fuel Ro-Ro ships — their problems and advantages**
- **the operation of multi-engined ships at partial loads**
- **maintaining ferry machinery on a year-round basis with only a limited annual lay off**

Speakers: P. Schneider, Head of Projects and Installation, Diesel Engine and Marine Department, Sulzer Bros., Winterthur,
O. Grønc, M.A.N. — B & W Diesel, Copenhagen,
S.E.M.T. Pielstick, France *(Speaker to be announced)*

A new concept of computerised control for total shipboard machinery
Speaker: T. K. Siirila, Head of Development, Rauma-Repola Oy, Finland

Session 10: Full Scale Demonstration of Ro-Ro Technologies at the Port of Gothenburg
(Arranged by Gothenburg Stevedoring Co. Ltd)
Coaches to the Skandia and Alvsborg Terminals
Demonstrations of the latest equipment for handling containers, flats and paper: terminal tractors with roll trailers and trailers. The LUF system in action

The Organisers reserve the right to amend this programme if circumstances so require.

Exhibition

Complementing the Conference will be a comprehensive display of Ro-Ro technology and services. The exhibits will be mounted in areas adjoining the Conference Centre providing ready access for delegates and visitors.

REGISTRATION

We wish to make Conference Registration(s) for _____ delegate(s) and enclose our cheque for _____ made payable to BML Business Meetings Ltd.
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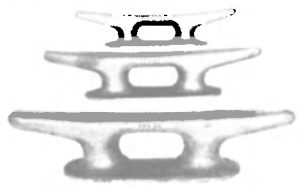
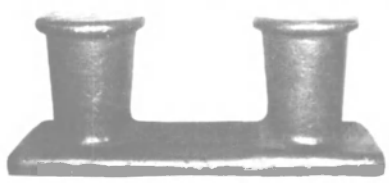


36" - 42" - 48" KEVEL CLEATS



10" DOUBLE POLE BITTS

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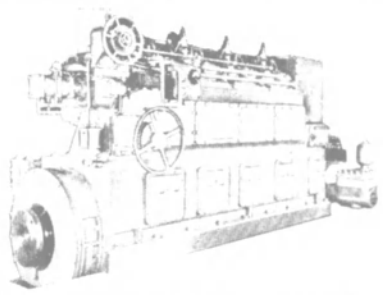
4-CYL. — AIR STARTING



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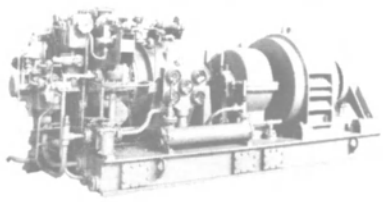
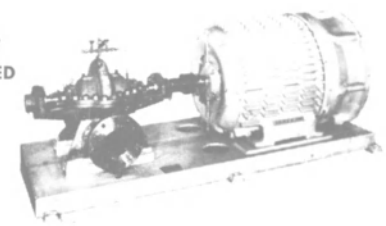
suitable for waste heat
turbo generators on motor ships



For motorship service. 175 PSIG — D&S — 27½" vacuum. GENERATOR: Westinghouse 450 KW — 563 KVA — 450/3/60 — 1200 RPM. GEAR: 6097/1200 RPM. TURBINE: 175 lbs/D&S — 27½" vacuum. Other pressures & temps: 250 lbs @ 40°C — 27½" vacuum. Turbine serial #7801-7802. OAL 13' 1 3/16" — OAH 5' — OAW 5' ⅜". Total dry wt. 17,100 lbs. Plans on request.

NEW 5" ALL BRONZE BALDWIN-LIMA
1000 GPM 150 PSI TOTAL HEAD
CENTRIFUGAL FIRE PUMP

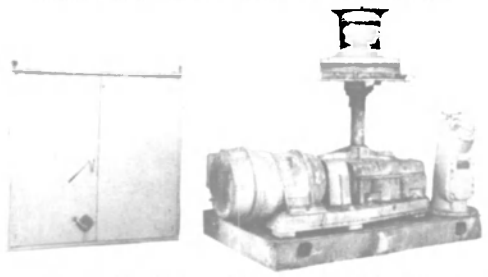
NEW UNUSED



EX U.S.N.

Single stage double suction type with 6" side suction & 5" side discharge. 3600 RPM—test pressure 250 PSIG. MOTOR: Reliance 125 HP 440/3/60—totally enclosed—fan cooled—Frame D-5003-S—50°C.

30 HP—440/3/60—2-SPEED A.C.
MOTOR-DRIVEN CAPSTAN

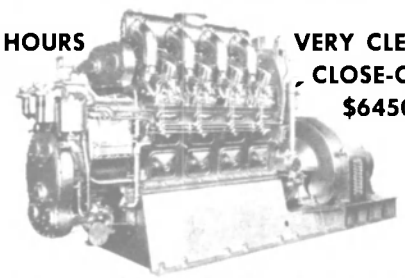


8500 lbs @ 90 FPM or 4250 lbs @ 180 FPM. Barrel size 15". Below-deck mounted motor — 31 HP — 440/3/60 — 42/38 amps — 820/1200 RPM. Squirrel cage — totally enclosed — watertight. Half hour duty 65°C. temp. rise. Base OAL 6'4". With magnetic brake, 2-speed control and master switch.

3 GM 8-278 350KW 440/3/60
DIESEL GENERATOR SETS

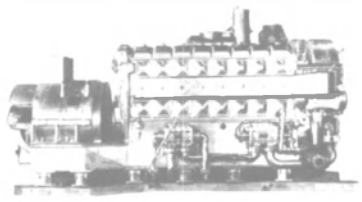
LOW HOURS

VERY CLEAN
CLOSE-OUT
$6450



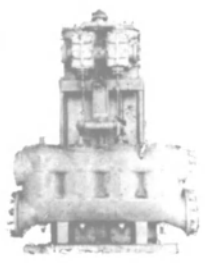
GM 8-cyl engine — 8½x10 — 2-cycle — Vee type driving 350 KW GE generator — 440/3/60 — 600 RPM — 430 KW 2 hours. Used by U.S.N. for standby service.

300KW GM 8-268A 120/240 DC
DIESEL GENERATOR SET



ENGINE: GM 8-268A — 6½x7 — 1200 RPM. Heat exchanger cooled — equipped with heavy duty coolers. Just overhauled and can be seen running. Good condition.
Length Width Height Weight.
IMMEDIATE DELIVERY

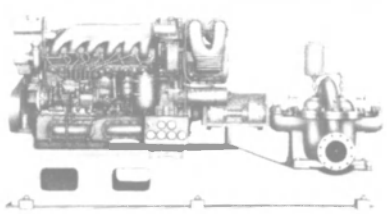
WORTHINGTON 16" X 14" X 18"
VERTICAL DUPLEX STRIPPING PUMP



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

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 supercharger — piston displacement 404 cubic inches. Heat exchanger cooled.

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8" ($433)
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6" ALL BRONZE

FIG. 120

Atmospheric venting—3.0 PSI max. relief setting. Pressure only. Flanged connection. Approx. wt. 140 lbs.

$1200 Reconditioned

FIG.

Closed ven
lifting gea
connection.
settings: 3.0
sure—1.0 PS
Approx. wt

$1200 Recc

BRONZE BA

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.

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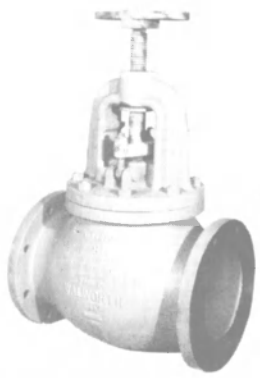

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6″
6″ ANGLE
2″

LAST PUMPS

Allis-Chalmers Model 402-432-501—12″x10″—6000 GPM — 180′ head — 1225 RPM. Impeller diameter 19.75″. TURBINE: GE Model 7DTPY125MR93 — 340 HP — 5000 RPM. Steam pressure 775# — 835# max. — temp. 530° TT—600° max.—exhaust 53 PSIG. REDUCTION GEAR: Type S-233 Form AR — 340 HP — 4997/1225 RPM. Also Worthington Model 8LN-18—12″ x 8″—1775 RPM—280′ head.

2 FIBERGLASS 52 PERSON DIESEL POWERED LIFEBOATS

Built in Norway to Norwegian Veritas. 26′ Long—8.33′ beam—3.74′ depth. Distance between hooks on release gear 21′ 9½″. Tanks filled with polyurethane. ENGINES: SAAD 16HP diesels—air-cooled—type GA—with reversible pitch propeller. Boats built by Bjorke-Batbyggeri, Rosendal, Norway. For tanker use. Serial #2313 and #2314. Typical Lifeboat illustrated.

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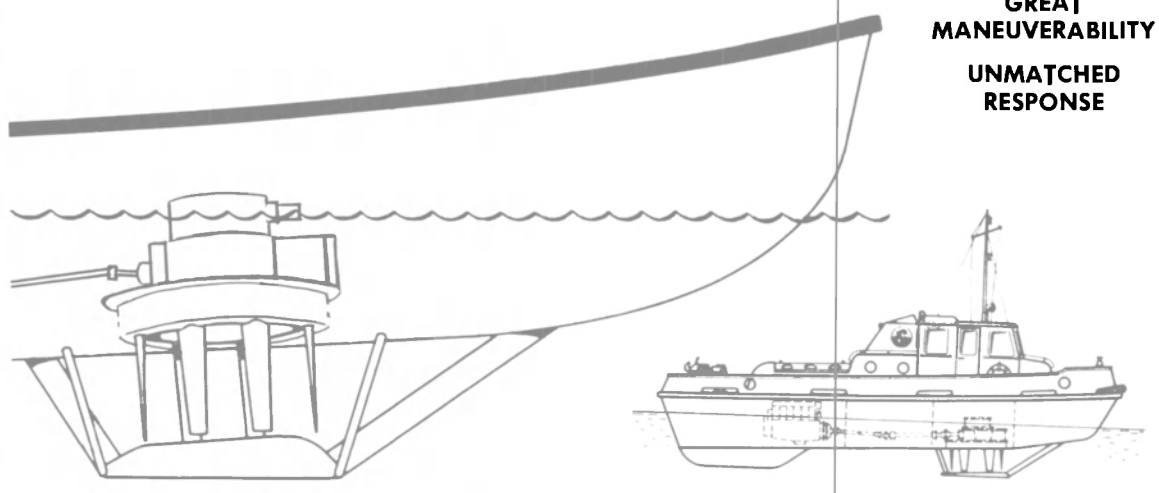


Serial Nos. NR-1783 and NR-1784. Unit size 24/E150. 6 Stainless steel blades each unit — 1500mm blade length — 2400mm blade orbit diameter. PRESENT DRIVE with Voith AD40 reduction gears and heavy duty motor 800/1000 HP — 440/3/60 — 1775 RPM — squirrel cage — 884 amps — frame 23153. Mfg. by Electric Machinery Co. Complete with "Cage Controls" & motor controls. Size 8 — Control volts 120 A.C. — line volts 450 — amps 941/3/60 OR DRIVE DIRECTLY WITH DIESEL ENGINE AND HYDRAULIC COUPLING ARRANGEMENT. UNIT BUILT 1970. COMPLETE WITH HYDRAULIC SERVO MOTORS FOR BRIDGE CONTROL AND 5 SPARE BLADES.

IMMEDIATE DELIVERY

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.

TANKER EXPANSION TRUNK

36″ Diameter — 26″ coaming — 7-Dog drop-bolts. Drawing #36/26

CARGO HATCHES

72″ x 74″ x 12″ 48″ x 48″ x 9″

QUICK-OPENING HATCH

Handwheel top & bottom. 4 Dogs. 16″ x 24″ with 5″ coaming. Drawing #60-40

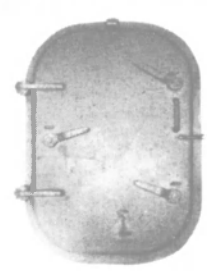
21″ I.D. MAN-WAY 3-DOG HATCHES

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

ON THE COVER

The Point Bravo is powered by two EMD diesel engines.

Halter Marine Delivers First Of Four 191-Foot Supply Boats To Point Express

Halter Marine, Inc. of New Orleans, La., recently delivered the Point Bravo, the first of four 191-foot tug/supply boats to Point Express, Ltd. of Morgan City, La.

The Point Bravo is 191 feet long with a 40-foot beam and a 14-foot depth. She is powered by two EMD 16-645C diesel engines developing 1,950 hp each at 900 rpm. They drive two 90-inch-diameter four-bladed propellers through Lufkin RHS 2120 reverse/reduction gears with a ratio of 3.0:1.

The vessel's six Smatco tanks each carry 1,000 cubic feet of bulk mud and four additional tanks carry 1,344 barrels of liquid mud. Dry mud is moved through the system by a Gardner Denver WCG air compressor and liquid muds are pumped by Mission Magnum pumps.

Some of the Point Barrow's other capacities are: 61,000 gallons fuel oil; 1,824 gallons lube oil; 165,400 gallons ballast water water; and, 16,888 gallons of fresh water. Her aft deck has nearly 4,000 square feet of cargo space.

There are two Westinghouse-equipped control stations aboard and a 56-point engine alarm system provided by EMI. The hydraulic steering system was manufactured by SSI and maneuverability is enhanced by a Bird-Johnson model 20 bowthruster driven by a Detroit Diesel 8V71 diesel engine through Capitol reverse/reduction gears.

The main switchboard and distribution panels were built by Continental Electric.

Auxiliary power is supplied by two Detroit Diesel 8V71-N diesel engines generating 125 kw. Two Quincy model D325 air compressors provide compressed air for diesel engine starting, the pneumatic control system, air whistle, sea chest, and ship service.

Aurora pumps service bilge, ballast, fuel transfer, and the on-ship fire-fighting system, while Viking pumps handle oily bilge and fuel oil standby. The fuel oil separator was manufactured by Westfalia. The sanitary water system contains a Deming pressure set with a vertical 82-gallon tank. Water closets drain into a Microphor MC-200 sewage treatment system.

Satellite navigation is provided by a Magnavox MX4102 direction finder with interface to a Sperry gyrocompass. The VHF radio is a Sailor RT-144 and the SSB radio is a Stevens SEA 106-1. Two Raytheon model 6425-6UP radars are installed. The starboard radar has a Raytheon IBCAS anti-collision unit. The vessel is also equipped with a Raytheon depth sounder, Henchel rudder angle indicators, and a Henschel intercom.

Some of the deck equipment includes a Smatco 66 DAW 200 towing winch, a 5-foot by 8-foot Smatco stern roller, and an HBL electrohydraulic anchor windlass.

Living and working space is heated by Lennox electric strip heaters and cooled by 15 tons of Dunn and Bush water-cooled air-conditioning. Seven staterooms provide berths for 20 persons.

The Point Bravo is American Bureau of Shipping classed A-1, Maltese Cross, full ocean towing, AMS, ice class "C", and carries a Panama Canal admeasurement certificate. She was built at Halter's Lockport, La., division which will soon complete her sister ships, the Point Chaleur, Point Liberty, and Point Normandy.

Halter Marine owns and operates six shipyards in the Southeastern U.S., and is the world's largest builder of supply vessels for the offshore oil and gas industry.

Navy Solicits Qualified Sources To Overhaul Ships Machinery

The U.S. Navy is currently searching for companies capable of performing naval machinery overhaul work.

In an effort to improve the quality of naval machinery Class B overhauls, the Naval Sea Systems Command (NAVSEA) is implementing a program to direct procurement of repair services for selected shipboard mission-critical equipment. Central to the program's implementation is the development of a Qualified Services List (QSL), which will provide an index of industrial activities certified to overhaul specific equipment models.

A Navy briefing for industry on the QSL program will be held at the Crystal City Theatre in Arlington, Va., on March 30, 1983, starting at 9 a.m.

Class B overhauls restore the operational and performance characteristics of equipment to original design and technical specifications. This includes all repair, replacement, and adjustment of parts required to enable the equipment to carry normal loads and function at its rated capacity. Class B overhauls also include post-repair performance testing to ensure operation of the equipment at a level equal to identical new equipment. NAVSEA-approved technical repair standards must be used in the accomplishment of Class B overhauls.

Throughout the preceding decade, NAVSEA has experienced numerous failures of critical shipboard equipment shortly after completion of Class B overhaul. Analyses revealed that the high incidence of failure was due in part to unsatisfactory repair by activities which were not fully capable of overhauling the equipment to Class B standards. The development of a QSL will ensure that only fully qualified activities perform Class B overhaul of mission critical equipment and will expand the industrial competitive base for such overhauls. The QSL will be arranged by equipment nomenclature, manufacturer, and allowance parts list number. Each entry will reference the manufacturer's model number and provide an index of repair activities which have been certified by the Navy to perform Class B overhaul of that specific equipment.

Advertisements soliciting letters of interest from potential Class B overhaul sources have appeared or will appear in future issues of *The Commerce Business Daily*.

In June 1983, NAVSEA will initiate a program to certify activities for accomplishing Class B overhauls of selected equipment. NAVSEA-certified Class B overhaul sources will be indicated on the QSL. NAVSEA field activities will be directed to restrict Class B overhauls of QSL equipment to NAVSEA-qualified sources.

Certification criteria are under preparation for approximately 20 generic equipment types. In each case, the four major qualifying factors are: (1) necessary technical data; (2) shop capabilities such as adequate machine tools and welding facilities; (3) an approved quality assurance program; and (4) test capabilities sufficient to achieve complete testing of the overhauled equipment. Participants must have the capability to comply with military specifications.

The initial QSL will include the following equipment: main feed pumps, other selected unique centrifugal pumps, superchargers, all forced draft blowers (horizontal and vertical), fuel oil service pumps, lube oil service pumps, JP-5 service pumps, synthetic oil service pumps (CRP), oil-free high and low pressure air compressors, oil-free hi-capacity low pressure air compressors (for O2N2 plants), auxiliary turbine drives, submarine reciprocating high pressure brine pumps, and PRAIRIE-Masker air compressors.

For additional information on the Navy's QSL program, contact **B.J. Walsh**, Naval Sea Systems Command, Code 56421, Washington, D.C. 20362, or telephone (202) 692-6826.

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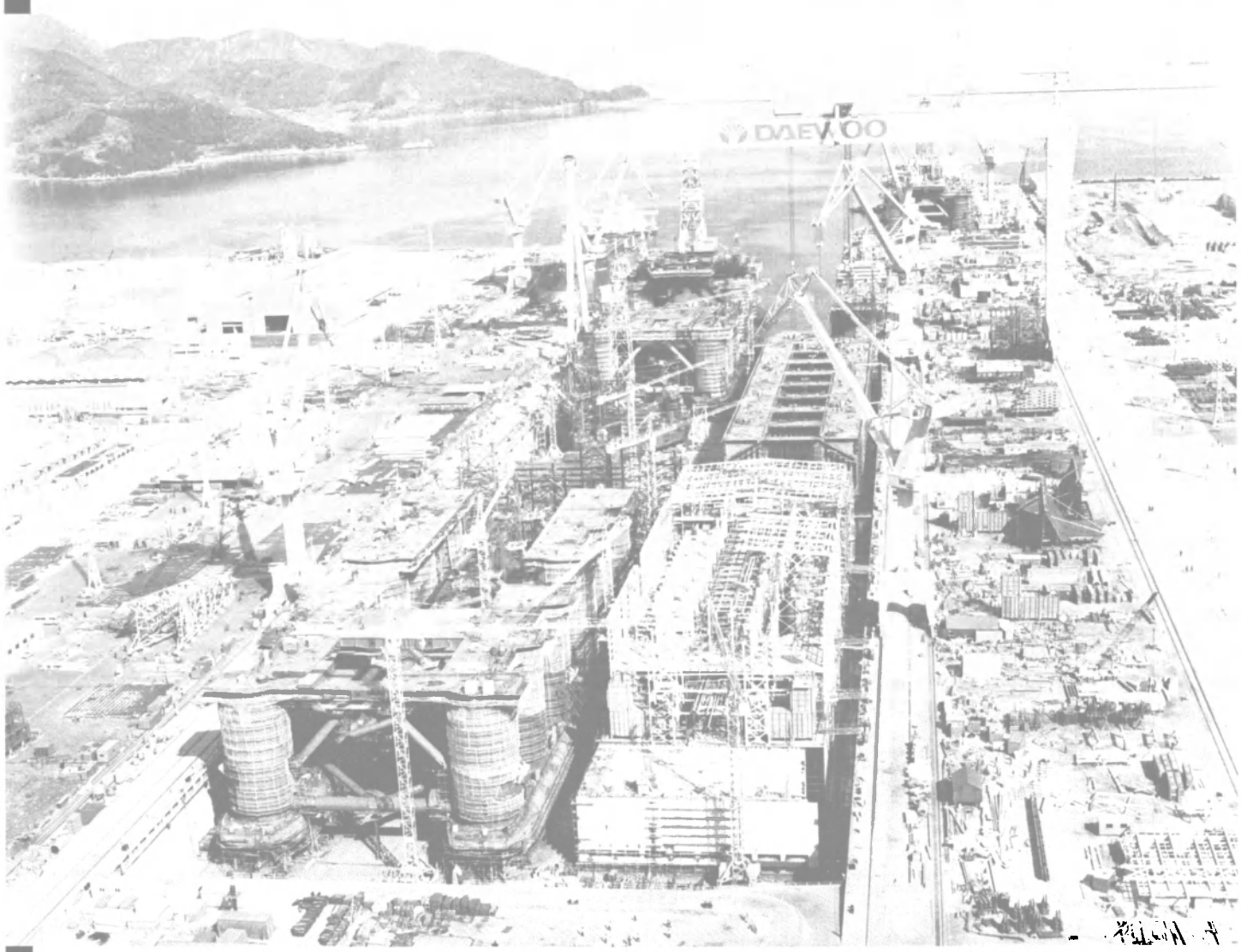

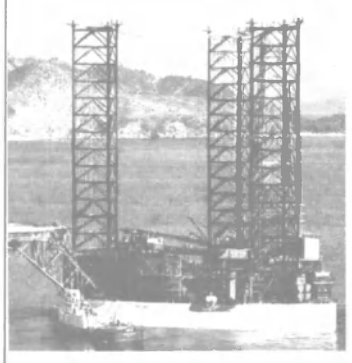

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Last June, through this Batch Production, Daewoo launched three Friede & Goldman world-class semi-submersible drilling rigs, a 128,000 DWT shuttle tanker, and two 22,500 DWT chemical carriers all at once. That fete was followed this January by the simultaneous launching of a barge-mounted seawater treating plant, five drilling rigs, and a 140,000 DWT bulker.
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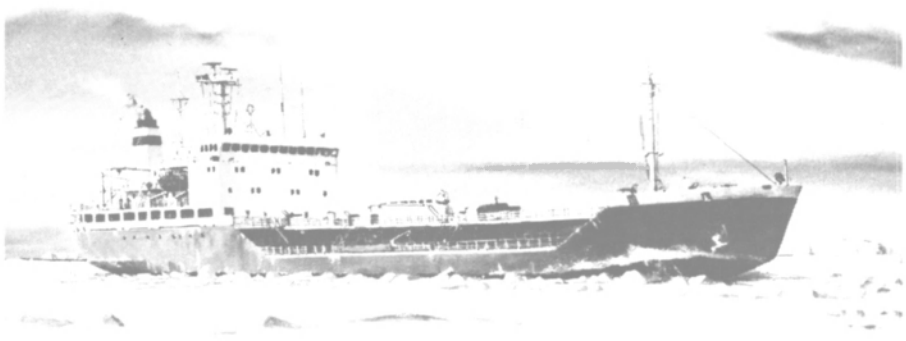

Artist's rendering of The Ventspils. The Arctic-class products carrier is powered by a slow-speed B&W diesel engine.

First Of Five Tankers For USSR Christened At Rauma-Repola Yard

The first in a series of five 5,750-dwt Arctic-class product tankers, The Ventspils, was christened recently at Rauma-Repola Shipyard, Rauma, Finland. The vessel and its sisterships are being built for the USSR's Ministry of Merchant Marine.

The tankers, of a new design, can transport up to four different products simultaneously in ambient temperatures down to minus 40 degrees Centigrade. The Ventspils measures 113 meters long overall, is 18.3 meters wide with an 8.5-meter depth.

The vessel is powered by a slow-speed B&W 6L 45GFCA diesel engine, built in the USSR, with an output of 4,350 kw driving a fixed-blade propeller.

A special feature of The Ventspils and sisterships is the capability to transfer oil without using normal quay facilities. The transfer system comprises 800 meters of 150-mm-diameter hose on reels carried in special containers. The system is fabricated by the shipyard.

LR's Offshore Register Shows Increase Of Over 100 Units In Mobile Drilling Rigs

The continued increase in the number of offshore units around the world is again reflected in the latest (1982/83) edition of the *Register of Offshore Units, Submersibles and Diving Systems*, published recently by Lloyd's Register of Shipping.

The number of mobile drilling rigs listed has grown by more than a hundred to 744, compared with 638 a year ago, while the number of submersibles has increased from 396 to 425. The number of work units, 488, represents an increase of 11 units from the previous year. In addition, the publication includes details of 367 diving systems classed or certified by LR.

Each entry includes comprehensive details of the equipment. In the case of mobile drilling rigs, the information covers full details of drilling equipment, propulsion, cranes, electrical and position fixing equipment, as well as owners, operators, and drilling locations. Similar details are given for submersibles, diving systems, and work units. In addition, the 570-page publication contains a section giving the addresses, telex, and telephone numbers of the owners of the equipment.

Like the *Register of Ships*, LR's *Register of Offshore Units, Submersibles and Diving Systems* is recognized as one of the principal reference works in its field, invaluable to all sectors of the industry. It is issued free of charge to all subscribers to the *Register of Ships*, and is also available for sale separately.

In the U.K., further information and copies of the *Register* can be obtained from: Manager, Lloyd's Register Printing House, Manor Royal, Crawley, West Sussex, RH10 2QN; Telephone Crawley (0293) 26404. Elsewhere, it is available through the local offices of Lloyd's Register of Shipping.

$4.5 Million In Cost Increases Approved By MarAd For Two Ro/Ro's

The Maritime Administration recently approved increases in the actual cost of two roll-on/roll-off containerships being built for Waterman Steamship Corp. by Penn Shipbuilding Co., Chester, Pa. An increase of $2,027,000 was approved for hull 346, and $2,531,646 for hull 347. In applying for the increases Waterman cited higher than anticipated design, engineering, and interest costs.

The increases raised the total actual costs of the two ships to $88,522,746 of which 48.8 percent is covered by construction-differential subsidy and $66,392,000 is guaranteed by Title XI commitments. Both vessels have been time-chartered to the Military Sealift Command for five years, with options to extend the charters for an additional 20 years.

Upon delivery by Penn Shipbuilding, the vessels will undergo modifications for MSC service at the National Steel and Shipbuilding Co. in San Diego, Calif. It is anticipated that all Title XI indebtedness of each vessel will be retired when they are delivered to MSC.

G.E. Receives $15-Million Navy Turbine Order

General Electric Company, Philadelphia, Pa., has been issued a $15,870,000 unpriced order against a basic ordering agreement. The order covers production of four HP-IP turbines, LP turbine rotors, transfer values, and steam seal regulators for the USS Independence (CV-62). Work will be performed in Lynn, Mass. The Naval Regional Contracting Center, Philadelphia, is the contracting activity (N00140-82-G-0176).

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output 1800 gal/min at 120 PSI
foamite output 60 gal/min at 120 PSI
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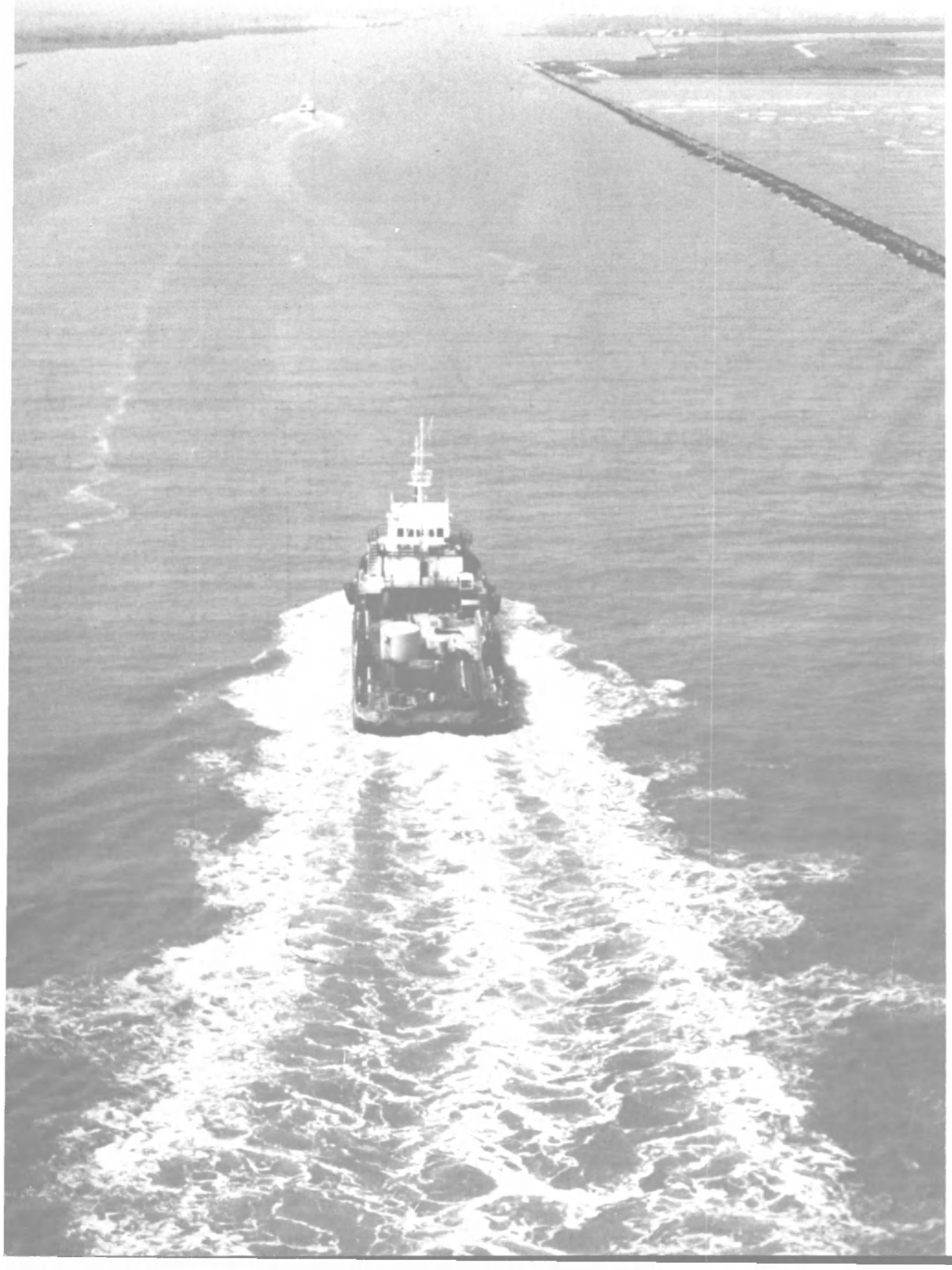

40 YEARS OF PROGRESS

Forty years ago, the American Waterways Operators, Inc., was founded for the purpose of representing the national interests of the inland and coastal marine transportation industry. AWO was incorporated in 1944. On March 3-4, this premier organization will hold its Annual Meeting in Washington, D.C.

AWO's members include not only domestic waterways carriers and tugboat operators, but also the medium and small size shipyards throughout the country which construct and repair all types of equipment for the shallow-draft sector.

AWO closely follows developments that could impact on the industry, and provides its members with timely reports on issues of concern. The association also speaks out on legislative and administrative proposals of interest to the industry. In this regard, AWO places great emphasis on anticipating governmental actions and providing input during the developmental stages.

The primary objective of AWO is to promote the advantages of barge transportation — a safe, fuel-efficient and cost-effective mode — and to inform policymakers and the public of the vital role the industry plays in the nation's integrated transport system.

Association spokesmen frequently testify before Congressional committees and maintain a continuous dialogue with various federal agencies whose activities affect AWO members. AWO keeps members informed through the popular Weekly Letter, and conducts educational, statistical and public relations programs on a national basis.

As everyone in the industry is well aware, two legislative areas of major importance to the waterways industry in the recent past deal with "user charges" and the future of the Title XI

Photo
—Don Allen
Donlen, Morgan City, La.

program. In addition, there is the ever-present competition from the less efficient rail and trucking sectors.

The collective efforts of AWO, along with those of other organizations within the industry, have contributed immensely to the success of the fight to save the Title XI program.

Title XI

The Committee For Title XI Vessel Financing, not a part of AWO, is one such group that has worked diligently over the past months to create a more favorable attitude towards Title XI on the part of the government. **Ben E. Fellows,** president of Twin City Barge, Inc., of St. Paul, Minn., serves as president of the Committee. This group has succeeded admirably in prohibiting the Executive Department from arbitrarily limiting the amount of guarantees which can be issued and limiting the types of vessels which qualify for Title XI financing.

In a recent news brief, the Committee reported that Congress has prohibited Office of Management and Budget (OMB) ceilings or restrictions on vessel type for Title XI financing. Thanks largely to Senator **Robert Packwood** (R-Ore.), the tax/highway repair bill, which was signed into law recently, contained an amended section 1103(f) of Title XI to provide that:

"No additional limitations may be imposed on new commitments to guarantee loans for any fiscal year, except in such amounts as established in advance in annual authorization Acts. No vessel eligible for guarantees under this title shall be denied eligibility because of its type."

Senator **Packwood,** chairman of the Merchant Marine Subcommittee's parent Commerce Committee, is also on the Finance Committee. When the Gas Tax Bill came over from the House, he tacked on the amendment to Title XI. His amendment survived all the parliamentary permutations of the Gas Tax Bill, which was the last measure passed by the Senate before it shut down, December 23. The Title XI amendment was also the only piece of substantive maritime legislation enacted this session.

No longer can the Executive Department unilaterally and arbitrarily decree how much Title XI loan guarantee authority shall be released each fiscal year nor exclude vessels by type such as drilling rigs. The regulating mechanism as to the amount of Title XI financings will be an annual authorization act, first passed by Congress. In the absence of an authorization act (the condition now obtaining for FY 1983), the entire unobligated Title XI statutory authority — roughly $1.3 billion—is available for release. There is thus adequate authority available for the remainder of FY 1983 and part of FY 1984, but the program will have to be enhanced or it will die soon thereafter.

As a practical matter, the market probably will not absorb more than $900 million Title XI authority next year, coincidentally the amount approved by President **Reagan** at the Cabinet Council last August 5. But, the principle has been specifically embedded into law that Congress —not OMB— will have a say in determining the annual level of Title XI utilization . . . one of the Title XI Committee's major goals.

As far as other legislation is concerned, final passage of both the Maritime Deregulatory Bill and the MarAd Authorization Bill was blocked in the last week of the 79th Congress by Senator **Howard Metzenbaum** (D-Oh.), who threatened a filibuster if either were brought up.

House and Senate conferees on the MarAd Bill had earlier met December 10 and agreed to: 1) extend "build foreign" for one year, and 2) release $950 million

(continued on page 36)

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AWO Annual Meeting

(continued from page 35)

Title XI authority for FY 1983. Unofficially, Senate staffers had offered their House counterparts $3 billion in new Title XI authority in exchange for a three-year "build foreign" provision. Because the House Merchant Marine Committee wants to force the Administration to propose an overall maritime program next year, the offer was turned down.

Although the MarAd Conference Report became moot after Senator **Metzenbaum's** refusal to let it come to the Senate floor, the negotiations did illustrate that Title XI had built up much support in both Houses.

One of the real spill-outs of Title XI Committee's lobbying effort this past year has been the education of staffers, members of Congress, Administration officials, who previously had only the vaguest notion of Title XI's mechanics and industry significance. They have now an enormously better understanding and appreciation of the program.

Unfortunately the attention span of the Congress is short on any given issue. It is simply in the nature of things, with so many items clamoring for prominence and action. Persistent pressure of some sort is necessary to keep an idea alive; otherwise it just fades into oblivion.

All of which will confront Title XI Committee members with the question of whether they should now disband (as was the intent when the Committee was originally formed) and trust to luck, or should they maintain their cohesion in order to continue the push to extend Title XI's life.

It appears the recent successes call for more of the same from these dedicated individuals.

User Taxes

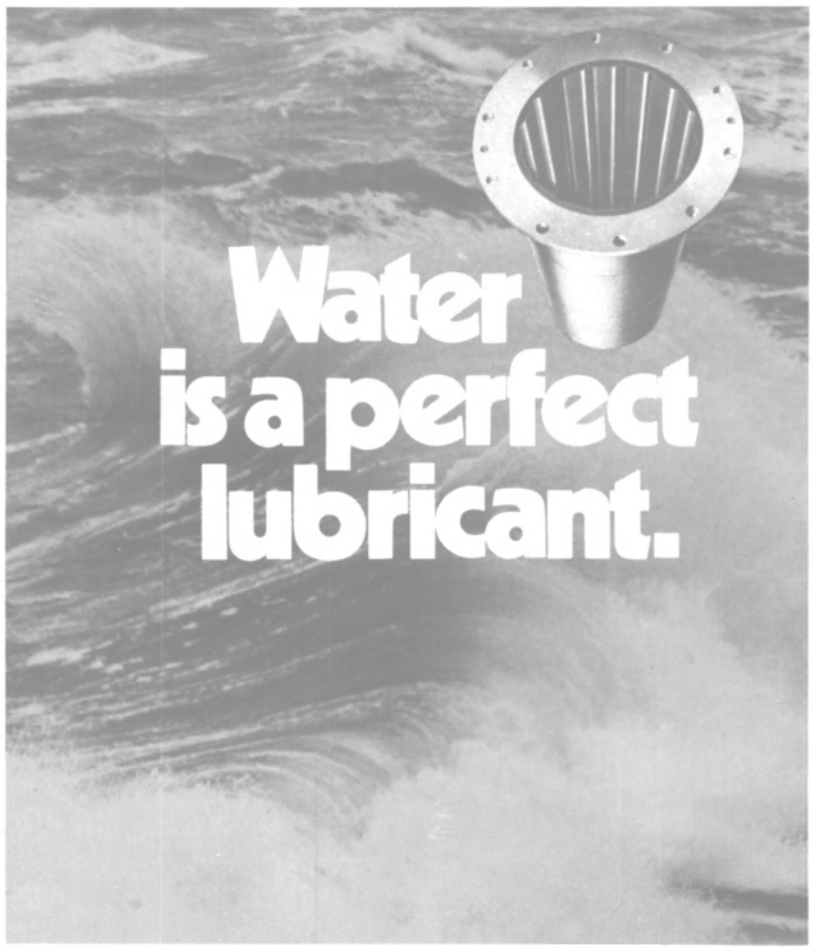
An excellent summary of the situation regarding user taxes was contained in an article by **Thomas L. Gladders**, chairman of the board of AWO and president of G.W. Gladders Towing Company, Inc., which appeared in the January 1, 1983 issue of MARITIME REPORTER.

Mr. **Gladders** stated: "We first have to gain recognition by the policy makers in Washington, D.C., that the barge industry is an important link in the system. We need a national policy that recognizes each mode of transportation has certain advantages, and that maximum benefits accrue from a system of diverse and highly competitive carriers — railroads, trucks, barges and pipelines.

"And to the extent that the federal government decides to recover, through user taxes, its investment in the transportation system, it naturally follows that all modes must be treated equitably. To do otherwise gives the favored industries an unfair advantage that upsets the competitive balance.

"Fairness in cost recovery also requires that the Corps of Engineers and the Coast Guard allocate their expenditures not only to commercial vessel operators, but also among the many other beneficiaries of navigation programs. Frequently overlooked, however, is the fact that these two agencies also perform military and emergency preparedness missions. Their organizational structures and staffing levels exceed the requirements of peacetime operation of the inland waterways system, and certainly should not be subject to cost recovery.

"In fact, it would be wise for the government to consider transferring some federal responsibilities to the private sector to achieve better cost effectiveness. Possibilities include maintenance dredging, aids to navigation and operation of locks. In this vein, the Coast Guard and the American Bureau of Shipping signed an agreement last year to accept



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ABS inspection of many vessel components.

"Finally, the federal government must continue its recent initiatives to reduce the regulatory burden on industry. This is particularly crucial in the area of dredging permits, where the process can hold up development for years on end due to paperwork delays and jurisdictional disputes among agencies."

In his article, Mr. **Gladders** discussed the inland waterways improvement needs, and stated these should be viewed from three perspectives—needed structural improvements—federal policies which should be pursued for a healthy waterways industry — and how to best achieve the type of waterways system we should have.

To achieve these goals, Mr. **Gladders** urged:

- First, continue to raise public awareness of our industry and the essential services it provides. The barge industry suffers from a low level of public visibility and some gross public misconceptions regarding its operations, facilities and economic performance.

The American Waterways Operators has been attacking that problem through an improved publications program, a first-time ever series of radio spots, expanded press contacts, participation in a filmmaking project and an expanded speaker's bureau.

- Second, build even stronger alliances with associated industries, particularly those that depend on waterborne transportation for cost effective movement of their goods. The agriculture industry has been one of the barge industry's strongest supporters in the fight against waterway user taxes.
- Third, continue to participate more actively in the regulatory process, making our views known to federal agencies well before final rules are published.
- "Last, and certainly not least, is that old saw about getting involved in the political process. It may *be* an old saw, but for only for those of you who think I'm just talking about visiting the voting booth once every four years.

"The rest of you know I'm talking about personal visits to Members of Congress — well-planned visits supported by logical factual material designed to help the legislator make an informed decision on key issues. To supplement the periodic visits made by some of our members, our association has organized 'Congressional Visitation' programs during our Washington meetings the last two years. In each case, more than 70 personal visits were held with Senators, Congressmen and key staffers.

"I'm also talking about financial contributions to political candidates, personally and through political action committees. Contributions do not 'buy votes,' but they do help secure access to Members of Congress. And you need that access to effectively voice your concerns about legislative issues."

AWO Structure

The structure of AWO is provided by the Association's strong system of conferences and committees. These groups lend focus and direction to AWO's efforts, and provide the industry expertise necessary to make those efforts a success.

The committees include officers and key professional employees of AWO member companies. Each member offers a high degree of interest in, and technical knowledge of, the particular issues facing the committee.

The Association's committees include Coast Guard Liaison, Corps of Engineers Liaison, Communications, Safety, IMCO, Taxes, Public Affairs, Research, Legislative, MarAd Liaison, Membership, and Budget and Finance.

Committee appointments are made by the new Chairman of the Board following the AWO annual meeting in March. Terms are staggered so that only about one-third of each committee is replaced each year. Unless the subject matter is unique to a geographic area, all AWO regions normally are represented on each committee.

Most AWO committees meet often and rotate the meeting site to different cities. They keep abreast of developments in their fields, and bring them to the attention of the Board of Directors and members. The committees also draft, for Board approval, industry positions on important issues.

Special and ad hoc committees are organized to meet specific needs in technical or specialized areas, frequently focusing on temporary problems. Special committees are terminated at the end of the year unless reinstated by the Board.

In recent years, three AWO conferences have been formed to strengthen Association activities in certain major areas. In 1978, the American Waterways Shipyard Committee was reorganized into a conference. And, in 1979, a Temporary Conference on Tank Barge Construction Standards was formed to address the Coast Guard's proposal to require double hulls on tank barges. Each of these conferences has its own committee structure.

In addition, a Contract Grain Carriers' Conference was formed in 1980 to handle specific issues facing operators carrying dry-bulk cargo.

Navy Exercises Final Options In $1.7 Billion T-AKX Program

Final options for chartering 13 maritime prepositioning ships (T-AKX) have been signed recently by the Navy's Military Sealift Commander Vice Admiral **Kent J. Carroll**. Admiral **Carroll** said the MPS will carry enough cargo to support three Marine amphibious brigades, a total of 46,000 men, and may be prepositioned near potential trouble spots.

Contract options exercised totaling $716,608,000 for the last six ships went to:

— General Dynamics, Quincy Shipbuilding Division, Quincy, Mass., $348,910,000 for the construction and charter of three auxiliary cargo ships (T-AKX);

— Maersk Line, Ltd., New York, N.Y., $257,499,000 for the conversion and charter of two ships;

— Waterman Steamship Corp., New York, N.Y., $110,199,000 to convert and charter one ship.

Bethlehem Steel Corp. at Baltimore, Md., and Beaumont, Texas, will convert the Maersk ships. National Steel and Shipbuilding Co., San Diego, Calif., will convert the Waterman ships.

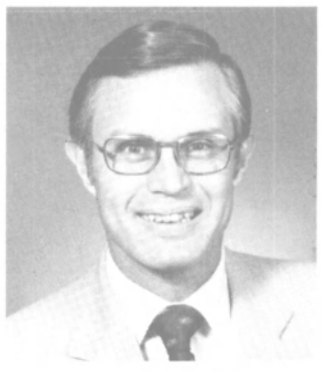
The original contracts were awarded in August 1982; MSC is now declaring its options for a total 13-ship package amounting to approximately $1.7 billion. In all, General Dynamics will build five new ships; Maersk Line will convert five ships; and Waterman will convert three ships.

Delivery of the first ship is scheduled for August 1984 and the last ship by April 1986. When delivered, the Maritime Prepositioning Ships (MPS) will be operated for MSC under long-term charters by U.S.-flag ship operating firms using U.S. merchant marine crews.

"President **Reagan** and the Department of Defense recognize the importance of sealift to this nation's strategic mobility," Admiral **Carroll** said. He added that "not only is more emphasis being put on existing sealift programs than all the years since World War II, but a number of entirely new programs are underway.

"For example, we now have a Near Term Prepositioning Force (NTPF) of 17 ships in place in the Indian Ocean, ready to help out if we should ever have to deploy combat power to Southwest Asia. We will have more than tripled our ability to deploy combat power to that part of the world when our two new programs — this maritime prepositioning program and the SL-7 or fast sealift program — are complete."

En-Mar Resources Opens Headquarters In Houston —Brochure Available



Randolph L. Kelley

En-Mar Resources, Inc., a newly formed energy and marine transportation consulting firm, has opened its headquarters in Houston, Texas.

Randolph L. Kelley, En-Mar's president, recently announced the firm was formed to provide professional, technical, and nontechnical services to companies operating the oil, gas, and marine transportation industries.

Mr. **Kelley**, who was formerly with the El Paso LNG companies for the past 16 years, reported that the firm will specialize in assisting firms concerned with the purchase, marine transportation, and sale of energy. A brochure is available describing En-Mar's range of services.

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Free Literature Offered On New King-Gage Digital Liquid Level Indicator

King Engineering Corporation Ann Arbor, Mich., has developed a new Digital Liquid Level Indicator. The new Series 8900 is a single chip micro-computer that performs liquid level data processing. Literature is available describing how the series accurately gauges contents of non-linear vessels including horizontal cylindrical tanks or even irregularly shaped containers.

King pneumatic sensors at the tank provide a pneumatic signal to the indicator which in turn converts the signal to digital.

The pushbutton selector panel has up to 12 buttons to select any combination of weight, volume or depth, with readouts in gallons, pounds, percent-full, English/metric conversions, and an optional "Ullage" mode, via a pushbutton selector, which displays contents until full.

For a free copy of the literature,

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Detroit Diesel engines supply propulsion power for the Champion Express.

Leevac Shipyards Delivers 165-Foot Supply Vessel To Offshore Express

Dennis Banta, president of Leevac Shipyards of Jennings, La., recently announced the delivery of the 165-foot offshore supply vessel Champion Express to Offshore Express, Inc. of Houma, La. The Champion Express is the first of two sister vessels ordered from Leevac Shipyards by Offshore Express, Inc. The second vessel is named the M/V Diamond Express.

The Champion Express is 165 feet long, has a 38-foot beam, and a 13-foot depth. The vessel is powered by two Detroit model 16V149 diesels, providing 1,860 hp. The engines drive two 74-inch four-blade stainless-steel Avondale propellers through Twin Disc MG 540, 6:1 reduction gears.

Two 8V-71 GM diesel engines provide power for the GE generator of 99 kw. The Champion Express is equipped with a 200-hp, 4,000-pound Jastram bow thruster. The steering system is by SSI.

Vessel capacities include 44,400 gallons of fuel oil; 12,000 gallons of potable water; 132,000 gallons of ballast water; 4 by 750 cubic feet of dry mud; and 4 by 375 barrels of liquid mud. The deck cargo area is 96 feet by 28 feet.

The Champion Express has accommodations for 17 persons.

Leevac Shipyards, one of three operating divisions of the Leevac Corporation, is recognized for its outstanding reputation in design, engineering, and expert craftmanship in the construction of vessels, barges, and crews quarters. The shipyard has the latest in technology in its construction facilities utilizing plasma arc N/C equipment. Together with its sister companies — Leevac Marine Transportation, providing bunkering, lightering and transportation of petroleum products, and Leevac Petroleum, distributors of diesel fuel and lubricants for rig and vessel operation—the corporation is capable of providing its customers with a totally integrated comprehensive package of services.

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Clear deck	96' by 28'
Fuel Oil	44,400 gals.
Ballast water	132,000 gals.
Potable water	12,000 gals.
Dry Mud	4 by 750 cu. ft.
Liquid mud	4 by 375 bbls.

Westinghouse Receives $259.7-Million Nuclear Contract Increase

Westinghouse Electric Corporation, Plant Apparatus Division, Wilkins Township, Pa., has been awarded a $259,784,000 increase to a previously awarded cost-plus-fixed-fee contract for naval nuclear components for Nimitz-class aircraft carriers. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-73-C-5002).

Brown & Root, Mainland China Form Joint Venture

Brown & Root, Inc. of Houston, Texas, and the China Offshore Platform Engineering Corporation (COPECO) of the People's Republic of China (PRC) recently announced the formation of a joint venture company to be named China Brown & Root Marine Engineering and Construction Company Limited (COPECO).

COPECO is a subsidiary of the China State Shipbuilding Corporation (CSSC). Brown & Root, a Halliburton subsidiary, is one of the world's largest engineering and construction companies.

The jointly owned company, to be based in Beijing, PRC, will provide project management, marine design and engineering, procurement, fabrication, offshore installation, and related services to the offshore petroleum industry both in or outside of the country.

Triconn Awarded Brunvoll Thruster Contract For U.S. Navy Salvage Ships

Triconn Corporation of Redding, Conn., has been awarded a major contract by Peterson Builders, Inc. to furnish bow thrusters for the ARS-50 class salvage ships presently under construction for the U.S. Navy.

Each vessel will be equipped with a Brunvoll SPT-VP controllable-pitch bow thruster system rated for 500-hp continuous duty in accordance with the military specification requirements of the contract. Triconn will administer the contract as well as provide engineering services to Peterson Builders, Inc. during installation. Triconn Corporation is the exclusive U.S. representative for Brunvoll thruster systems.

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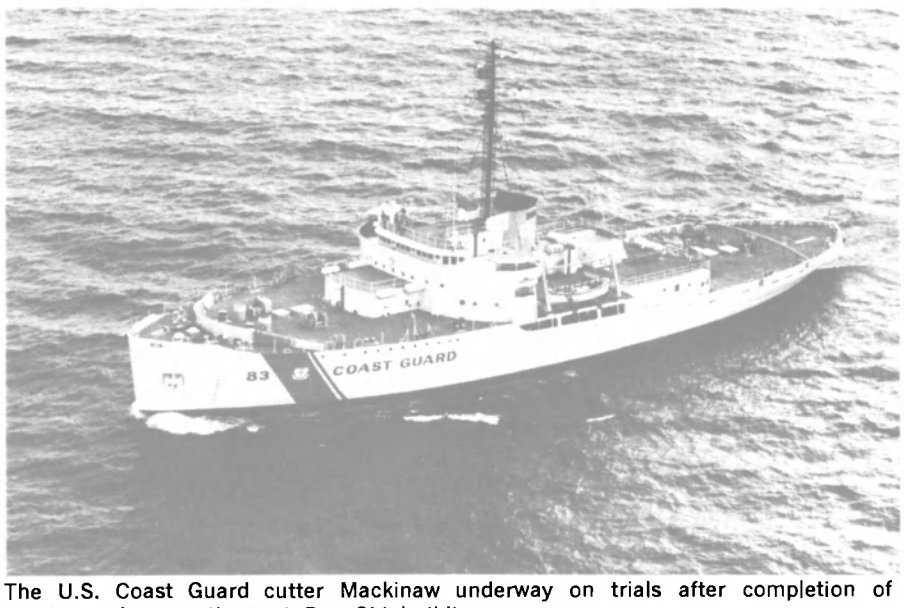

The U.S. Coast Guard cutter Mackinaw underway on trials after completion of repairs and renovations at Bay Shipbuilding.

Bay Shipbuilding Completes Repairs To USCG Cutter Mackinaw Ahead Of Schedule

Bay Shipbuilding Corp. of Sturgeon Bay, Wis., a subsidiary of The Manitowoc Company, Inc. recently completed, ahead of schedule, extensive repairs and renovations to the U.S. Coast Guard cutter Mackinaw. The Mackinaw spent a total of 151 days at Bay Shipbuilding.

Repairs to the Mackinaw included dry docking for complete below waterline maintenance, an overhaul of the main propulsion generators, along with the replacement of the four existing ships service diesel generator sets with three owner-furnished 420-kw Caterpillar diesel generator sets. A new lube oil purification system by Alfa-Laval was installed to service the six main engines, three main drive motors, and the three ships service generator sets.

Six fuel tanks were converted to ballast tanks. The tanks were white-blasted and then painted with a three-coat epoxy paint system supplied by International Paint Company, Inc.

A portion of other miscellaneous work included the removal and replacement of the wood decking on the bridge deck; replacement of stern fenders; new windows in the quarter deck shacks and pilothouse; installation of six new lube oil pumps on the main propulsion motors; and removal of the airplane cranes on the main deck aft.

Free Brochures Available On Types Of Financing Offered By Armco Capital

Fixed asset lending, leasing, and leveraged buy-out are described in two new brochures from Armco Capital Corporation, a commercial financing subsidiary of Armco Inc.

Armco Capital Corporation was formed in 1981 to provide loans and leases to a wide variety of industries including marine, metalworking, manufacturing, construction, energy, transportation, and aircraft.

In addition to lending and leasing, Armco Capital also handles preferred stock investments, syndications, mergers, and acquisitions.

For a free copy of the brochures LACC-391 "Craftsmanship in Term Lending" or LACC-481 "Craftsmanship in Leasing,"

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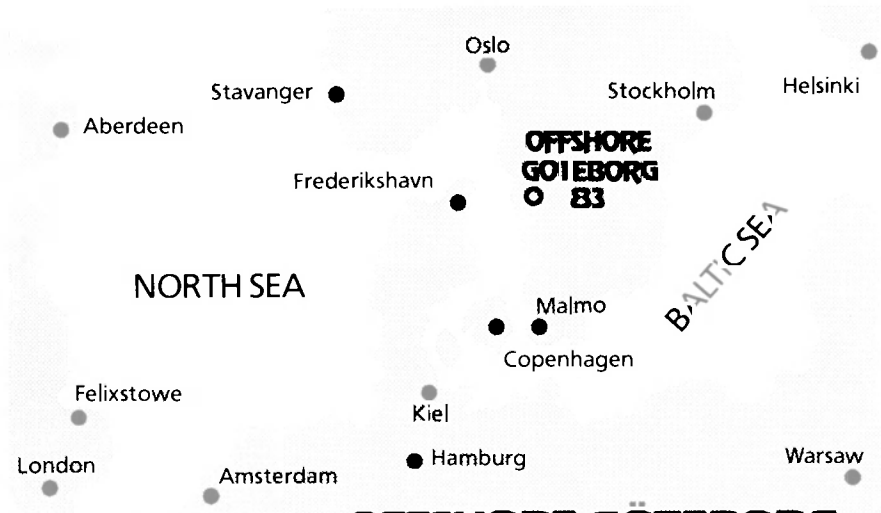

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Newport News Announces Five Executive Appointments

William P. Fricks

James E. Turner

W.R. Phillips Jr.

William T. O'Neill

Herb J. Lanese

Edward J. Campbell, president and chief executive officer of Newport News Shipbuilding, Newport News, Va., recently announced five executive appointments which became effective on January 1.

The appointments were: **William P. Fricks**, formerly vice president, finance, has been named vice president, technical; **James E. Turner**, formerly vice president, technical, has been named vice president, marketing; **W.R. Phillips Jr.**, formerly vice president, marketing, has been named vice president, engineering; **William T. O'Neill**, formerly executive vice president, engineering, continues as executive vice president and will handle special functions and projects assigned by Mr. **Campbell**; and **Herb J. Lanese**, currently vice president, finance, at Tenneco Chemicals Company, another Tenneco Inc. subsidiary, will join the shipyard as vice president, finance.

"These shifts in our top management will build further upon our very successful record of the past several years, and will bring a fresh look at each of our major support areas. All of those involved have contributed greatly to our company's results, and I am sure they will continue to do so," Mr. **Campbell** said.

Mr. **Fricks** joined Newport News Shipbuilding in 1966 as an industrial engineer. He was transferred to the finance organization in 1967, where he held positions in internal auditing, capital budgeting, payroll, and financial controls. He was appointed administrative assistant to the president in 1977, controller and treasurer in 1979, and vice president, finance, in 1980.

Mr. **Turner** first joined Newport News Shipbuilding in 1957, working in ship construction, machine shops, and the steel hull division before being promoted to manager, manufacturing. In 1972 he requested a leave of absence to join Offshore Power Systems, a joint venture between Tenneco Inc. and Westinghouse, as vice president, operations. When that venture was terminated, Mr. **Turner** joined Westinghouse where he was general manager, nuclear components division, until he returned to the shipyard in 1981.

Mr. **Phillips** joined Newport News as an apprentice machinist in 1949. After completing a five-year apprentice program in machinery design, Mr. **Phillips** served with the U.S. Army. He returned to the shipyard in 1957 and won a company scholarship to attend Virginia Polytechnic Institute where he earned a Bachelor of Science degree in mechanical engineering. After again returning to the company in 1960, Mr. **Phillips** held a variety of supervisory positions before being named superintendent of machine shops tool rooms in 1964.

He became general superintendent of the machine shops division in 1966, manager of nuclear construction the following year, director of waterfront operations — nonnuclear in 1972, vice president of yard operations in 1975, and vice president, marketing, in 1979.

Mr. **O'Neill** joined the shipyard in 1974 as senior vice president of administration, and was elected executive vice president in 1976. He has held executive positions at both Colgate Palmolive and International Telephone and Telegraph Corporation before joining the shipyard.

Before joining Tenneco Chemicals in 1980, Mr. **Lanese** worked at General Motors Corporation and B.F. Goodrich Co.

Navy Awards Appleton $3-Million Winch Contract

Appleton Machine Company, Appleton Marine Division, Appleton, Wis., has been awarded a $3,279,850 fixed-price contract for the manufacture of 12 T-AGOS array towing winch systems, with spare parts. The U.S. Navy Military Sealift Command, Washington, D.C., is the contracting activity (N00033-83-C-0126).

National Control Offers Free Brochure On Its New Tachometer Series

A new series of marine tachometers with analog meter readouts, designed by National Control Systems, Inc., of St. Louis, Mo., are featured in a new company brochure.

The tachometers continuously report RPMs from the shaft or main engine. They are built for reliable service in the marine environment of high humidity and constant vibration.

The brochure describes how solid state circuitry is used throughout to assure long, dependable life. The units can be installed in existing equipment, either for flush-mounting in bulkheads or as free-standing instruments.

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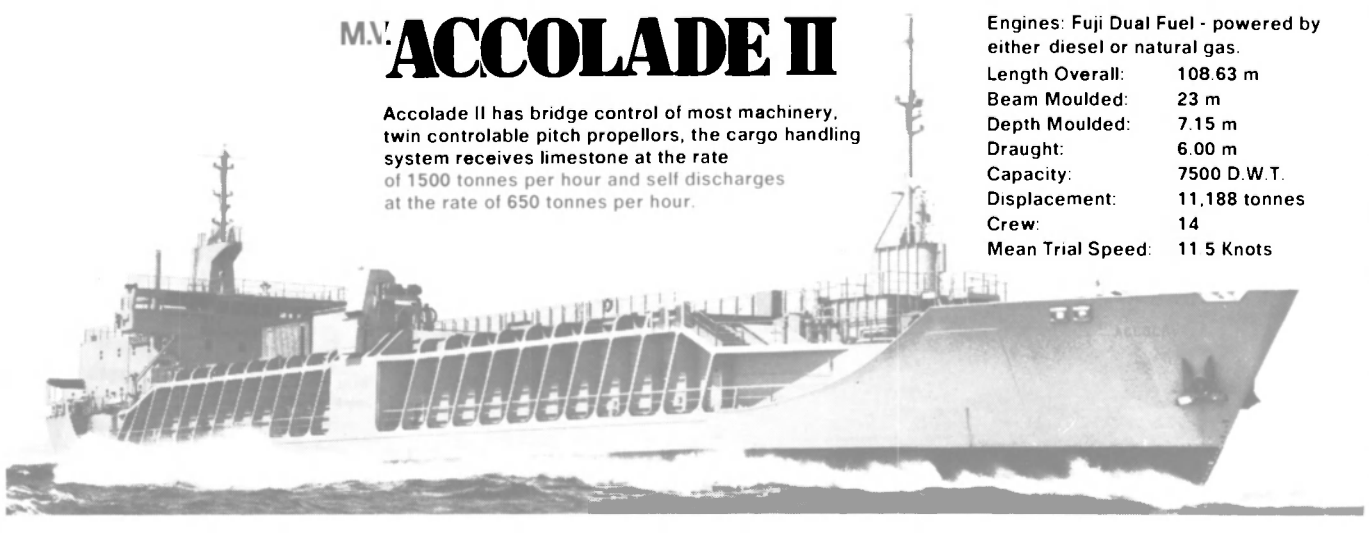
Depth Moulded:	7.15 m
Draught:	6.00 m
Capacity:	7500 D.W.T.
Displacement:	11,188 tonnes
Crew:	14
Mean Trial Speed:	11 5 Knots



The USS Ticonderoga (CG 47), the first of the Navy's new class of guided missile cruisers equipped with the AEGIS combat system, shown during sea trials.

USS Ticonderoga, First Of New Class Of Cruisers, Joins The Fleet

USS Ticonderoga (CG-47), lead ship in the most powerful class of guided missile cruisers ever built for the U.S. Navy, was commissioned recently at Ingalls Shipbuilding Division of Litton Industries, Pascagoula, Miss. Secretary of Defense **Caspar W. Weinberger** was the principal speaker.

The first Navy combat ship to carry the advanced Aegis weapons system, the USS Ticonderoga officially joined the Atlantic Fleet during the ceremony, and Capt. **Roland G. Guilbault** of West Warwick, R.I., assumed command of the 563-foot ship.

Others participating in the commissioning ceremony included: Assistant Secretary of the Navy for Shipbuilding and Logistics, **George A. Sawyer**; Chief of Naval Operations, Adm. **J.D. Watkins**, USN; Commander in Chief, U.S. Atlantic Fleet, Adm. **W.L. McDonald**, USN; Commander Surface Force, U.S. Atlantic Fleet, Vice Adm. **E.W. Briggs**, USN; Deputy Chief of Naval Operations (Surface Warfare), Vice Adm. **R.L. Walters**, USN; AEGIS Shipbuilding Project Manager, Rear Adm. **W.E. Meyer**, USN; Commander Cruiser-Destroyer Group Eight, Rear Admiral **R.C. Berry**, USN; president of Ingalls Shipbuilding **Leonard Erb**; and supervisor of shipbuilding, Pascagoula, Capt. **S.P. Passantino**, USN.

Designed to provide the primary surface ship anti-air warfare protection for the Navy's aircraft carrier battle group, the Ticonderoga as well as her sisterships which will follow, is a potent multiwarfare combatant capable of providing anti-air, anti-surface, and antisubmarine protection. The centerpiece of Ticonderoga's Combat System is the Aegis Weapon System, the most advanced air defense system in the world today which is specifically designed to defeat the current and projected missile threat.

Aegis is a computer-controlled weapon system which can detect, track, and engage hundreds of aircraft and missiles while continuously watching the sky for new targets.

The USS Ticonderoga is the lead ship developed and designed by the AEGIS Shipbuilding Project of the Naval Sea Systems Command. Rear Adm. **Wayne E. Meyer** is the Aegis project manager under whose direction the integration of both the ship and weapon system has been closely coordinated.

The 9,600-ton Ticonderoga is an advanced adaptation of the 31 Spruance (DD-963) class and four Kidd (DDG-993) class destroyers built for the Navy by Ingalls Shipbuilding, which with CG-47 has developed and delivered four classes of ship's for the Navy's Fleets since 1975. Building Ticonderoga cruisers on the same proven ship platform designed for the Spruance and Kidd class is saving the Navy millions of dollars in design costs, Navy officials report, and is providing the opportunity to get larger numbers of proven combatants to sea more quickly than otherwise possible. Particular areas of commonality are the gas turbine engines, main propulsion gear, propellers and shafting as well as the hull, and most auxiliary systems.

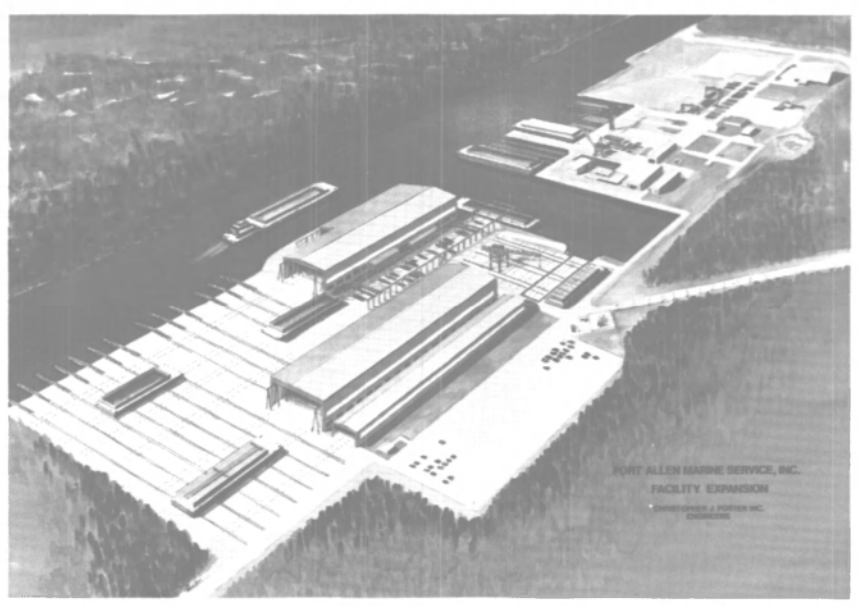
The advanced Aegis weapons system aboard Ticonderoga, designed and built by RCA's Missile and Surface Radar Division in Moorestown, N.J., was tested during the cruiser's second sea trial in August 1982.

Ticonderoga-class cruisers are large ships, 563 feet long with a beam of 55 feet, and are capable of carrying their formidable array of weapons and electronic equipment at high speeds over long ranges. Powered by

(continued on page 42)

USS TICONDEROGA
Major Contractors

General Electric	AN/SQS-53A, AN/SQR-19 sonars
General Electric	propulsion gas turbines
Westinghouse Electric	main reduction gears
Stewart and Stevenson	ship service generators
Bird-Johnson	propellers
Combustion Engineering	auxiliary boilers
Litton Guidance & Control Systems	ship control system
Computer Sciences Corp.	AEGIS computer programming
Raytheon	AEGIS fire control system, AN/SPY-1A radar transmitter and SPS-49 radar system
Hughes Aircraft	combat system operating consoles
Sperry Univac	combat system computers
CDC	combat system peripherals
FMC Corporation	5-inch guns, and guided missile launchers
Northern Ordnance Division	5-inch guns, and guided missile launchers
General Dynamics	SM-2 missiles and Phalanax Weapon System
Lockheed Electronics	MK 86 gunfire control system
Singer Librascope Division	Mark 116 underwater fire control system
McDonnell-Douglas	Harpoon weapon system
IBM Corporation	Seahawk shipboard equipment
Raytheon	AN/SLQ-32 electronic warfare system
General Electric, Ordnance System Division	AEGIS fire control directors
Amecom Division of Litton Industries	radio equipment, damage control, and fuel control consoles
ALS	400-Hz power supply



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USS Ticonderoga Joins The Fleet

(continued from page 41)

four General Electric gas turbine jet engines, which together can produce more than 80,000 shp, Ticonderoga is capable of speeds in excess of 30 knots. Two controllable, reversible-pitch propellers and twin rudders add flexibility and maneuverability.

The size of the crew has been substantially reduced from earlier ships of comparable size and war-fighting missions. Automation and advanced technology in the propulsion, armament, and electronics systems, combined with support systems which require minimum maintenance, permit a crew numbering 350 — 23 officers and 327 enlisted personnel. The usual complement for other cruisers range from 434 to 500 personnel.

Amos Baki Appointed Vice President At Rosenblatt & Son

Lester Rosenblatt, president of M. Rosenblatt & Son, Inc., naval architects and marine engineering firm of New York, recently announced the appointment of **Amos Baki** to the position of vice president of the corporation.

Amos Baki

As manager of the Washington area branch in Arlington, Va., Mr. **Baki** is responsible for the conduct of contracts encompassing total ship design, systems analysis, fleet modernization management support, and economic analysis of marine systems. This office is staffed with over 150 engineers, designers, and management specialists in support of NAVSEA, MSC, DOT, and other clients.

Mr. **Baki** joined M. Rosenblatt & Son, Inc. in March 1973 as manager of ship design and marine economics, and subsequently was appointed assistant vice president and manager of the Washington area branch in 1980. Previously Mr. **Baki** spent eight years in various shipyard design offices including Furness Shipbuilding & Dry Dock, England; Sun Shipbuilding, Pa., and Litton, Advanced Marine Technical Division, Calif.

Frydenbo Names Triconn Licensee In U.S. For Rotary Steering Gear

Triconn Corporation, Redding, Conn., recently announced it has entered into an exclusive license agreement with Frydenbo A/S, Bergen, Norway, for the manufacture, sale, and service of Frydenbo rotary vane steering gear in the U.S.

The Frydenbo rotary vane steering gear system has long been popular among owners and operators for use on oceangoing and harbor tugs requiring rugged and dependable steering systems to crude oil and product tankers having to meet the latest IMCO requirements for reliability and safety at sea.

Over 6,000 vessels operating worldwide have Frydenbo rotary vane steering gear installed, including over 150 vessels built in the U.S., making Frydenbo one of the largest, most experienced and respected manufacturers of rotary vane steering gear in the world.

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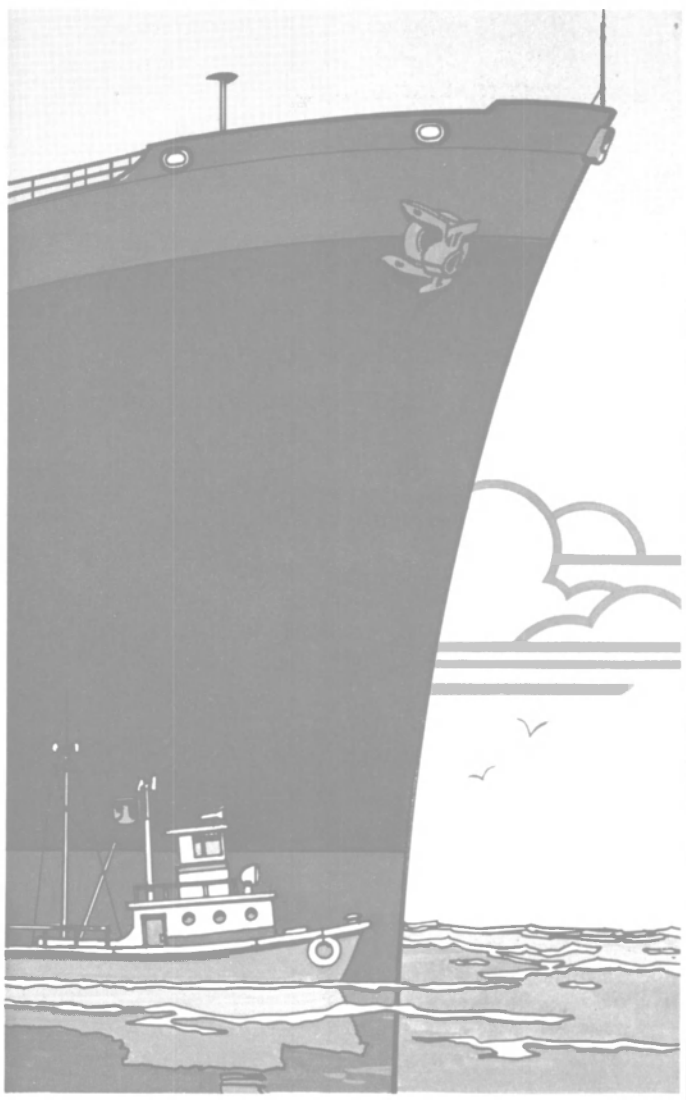

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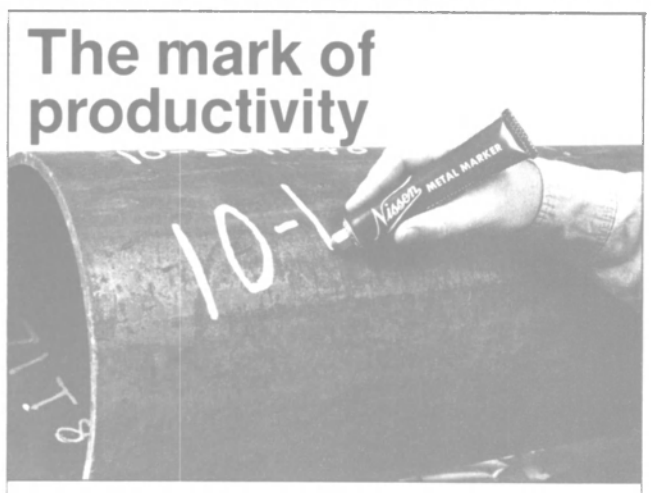

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Report Available On Computer Data Transfer Via Maritime Satellite

Computer data transfer between ship and shore via satellite is completely practical and feasible, according to the results of a series of tests recently completed by Navidyne Corporation, Newport News, Va.

The most recent tests were conducted jointly by Navidyne and Marine Management Systems, Inc., of Stamford, Conn., a leading firm in the development of computer-based management systems for marine applications. Navidyne's ESZ-8000 Satellite Communicator, an INMARSAT Standard A Ship Earth Station (SES), was used to transmit data at 300 bps and at 1,200 bps via the INMARSAT Marces-A satellite over the Atlantic Ocean and the INMARSAT Coast Earth Station at Southbury, Conn.

Equipment used in these tests included two Hewlett-Packard HP-85 computers, a Hewlett-Packard HP82950A 300-bps modem, a Racal-Vadic VA3451 1,200 bps modem and a Navidyne ESZ-8000 Satellite Communicator. Data was exchanged between the two HP-85 computers, and also with the General Electric Mark III Timesharing Network and with a DEC PDP-11 computer system at the New York headquarters of a major oil transportation company.

In other "on-the-air" tests, Navidyne has also demonstrated the feasibility of transmitting data at speeds up to 9,600 bps using satellite voice channels. During these tests, Navidyne's ESZ-8000 was linked with a Codex CS-9600 to transmit data via satellite to a computer in Houston, using a four-wire private line for the shoreside connection.

Today, shipowners and offshore oil companies can consider a wide assortment of approaches to computer-based onboard management systems, using such applications as voice-channel data links, high-speed digital fascimile, electronic mail, automatic position reporting and others.

For complete information and a report on these tests,

Write 76 on Reader Service Card

$8.8-Million Overhaul Contract For USS Kiska Awarded Southwest Marine

Southwest Marine Pier 28, San Francisco, Calif., has been awarded an $8,850,000 firm-fixed-price contract for the overhaul (topside only) of USS Kiska (AE-35). The Supervisor of Shipbuilding Conversion and Repair, San Francisco, California, is the contracting activity (N62798-78-C-0002).

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  (Radio Technical Commission for Maritime Services), April 17-20 (Navigation and Communications)

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- **OTC — '83**
  Annual Offshore Technology Conference Preview — Houston, Texas, May 2-5

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An attractive salary with fringe benefits including car will be negotiated. Company assistance with Housing and Relocation Expenses will be discussed with final applicants.

Preferred age 35 to 50.

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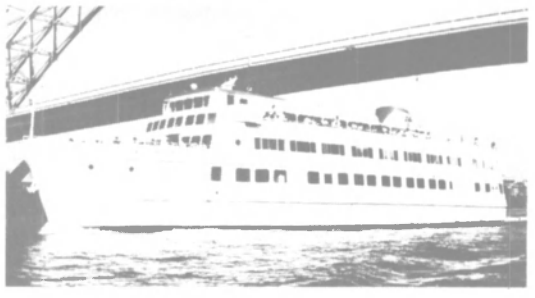

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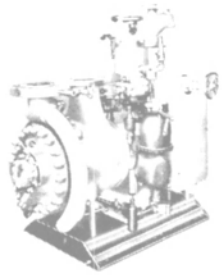

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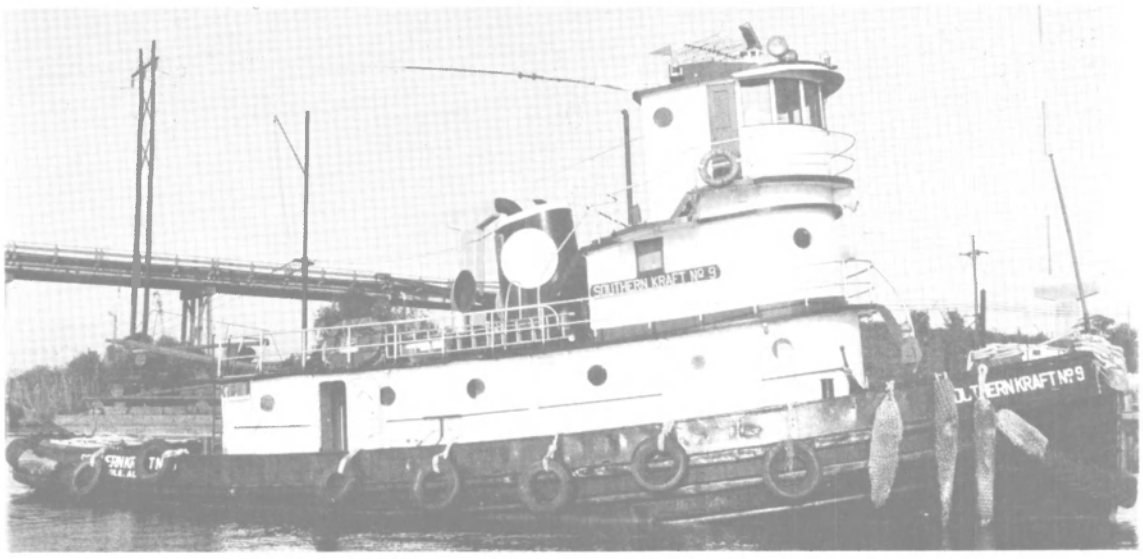

TUG #9

SINGLE SCREW — 73.5ft. LENGTH, 21.7ft. BEAM, 8.4ft. DRAFT — 26ft. EYE LEVEL — MAIN ENGINE 850hp CAT D-398 — GENERATORS 55KW-AC CAT D330 and 22KW-AC DELCO E53-1-1. FULLY EQUIPPED.

TUG #10

PUSHER-TWIN SCREW — 62.2ft. LENGTH, 23.2ft. BEAM, 6ft. DRAFT — 18ft. EYE LEVEL — MAIN ENGINES (2) 340hp DETROIT 12V-71 — GENERATORS 18KW-AC KAYTO 30SX93 and 20KW-AC DELCO Y1-4988. FULLY EQUIPPED.

TUG #6

SINGLE SCREW — 64.8ft. LENGTH, 19ft. BEAM, 8ft. DRAFT — 15ft. EYE LEVEL — MAIN ENGINE 850hp CAT D398 — GENERATORS 15KW-DC SHAFT TYPE, 22KW-DC and 15KW-AC AUXILIARIES. FULLY EQUIPPED.

TUG #1

SINGLE SCREW — 36.8ft. LENGTH, 13.4ft. BEAM, 4.7ft. DRAFT — MAIN ENGINE 165hp GM 671 — 12V-DC GENERATOR. VHF RADIO.

TUG #11

PUSHER — SINGLE SCREW — 32ft. LENGTH, 13.8ft. BEAM, 4.6ft. DRAFT — MAIN ENGINE 165hp GM 671 — 12V-DC GENERATOR.

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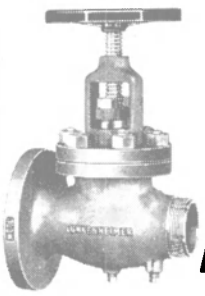

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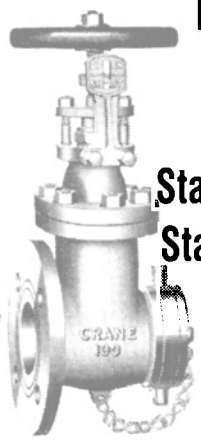

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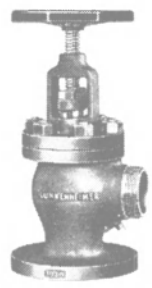

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Depth	25'0
Deadrise	27"
Draft Light	3'11
Draft Loaded	19'4
Transverse Bulkheads	5 O.T.
Length Bulkheads	3 O.T
No. Tanks	20
Rolled Bilge	48" R.
Mich. Bow	60' length
Sq. Raked Stern	80' length

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Open Deck Area	37,886 S.F.
Deck Load	1,500 P.S.F.
D.W.T.	15,800 L.T.

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Oil Cargo	148,500 BBLs 21,000 L.T.
Cargo Piping	14" Mains 10" Suctions

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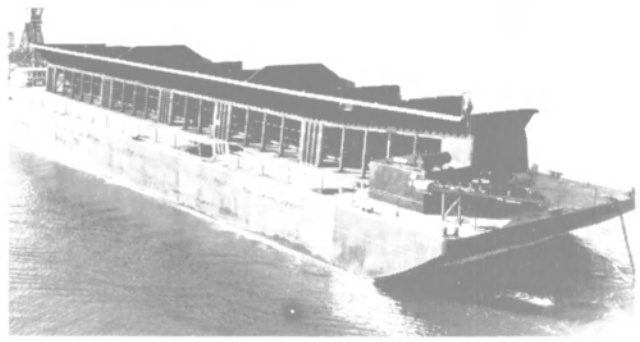

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Length (O.A.)	248'- 0"
Beam	63'- 0
Depth	16'- 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'- 7½
Draft Loaded (F.W.)	11 - 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd

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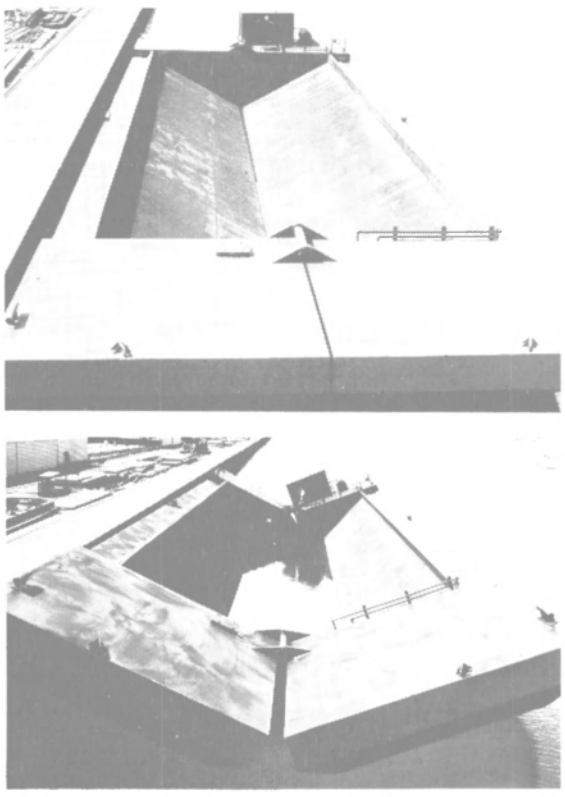

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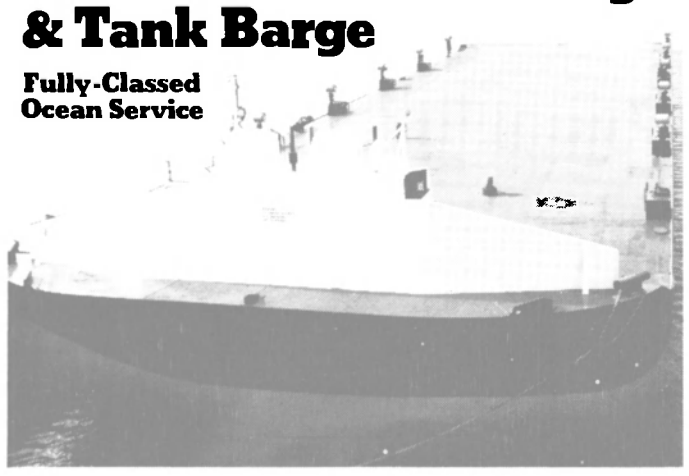
SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (ML D)	180 - 0"
Beam (ML D)	50 - 0"
Depth of Mid-Body (ML D)	14'- 0"
Hopper Length (ML D)	128'- 0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft.	1615 L.T.
Rake Lengths F. & A.	26'- 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up	2'- 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120 Stroke
Plating	
Side	$^{9}/_{16}$"
Bottom	$^{5}/_{8}$"
Hopper	$^{5}/_{8}$"

Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A.	230'- 0"
Beam	60 - 0"
Depth	15 - 6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
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
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TUGS and BARGES

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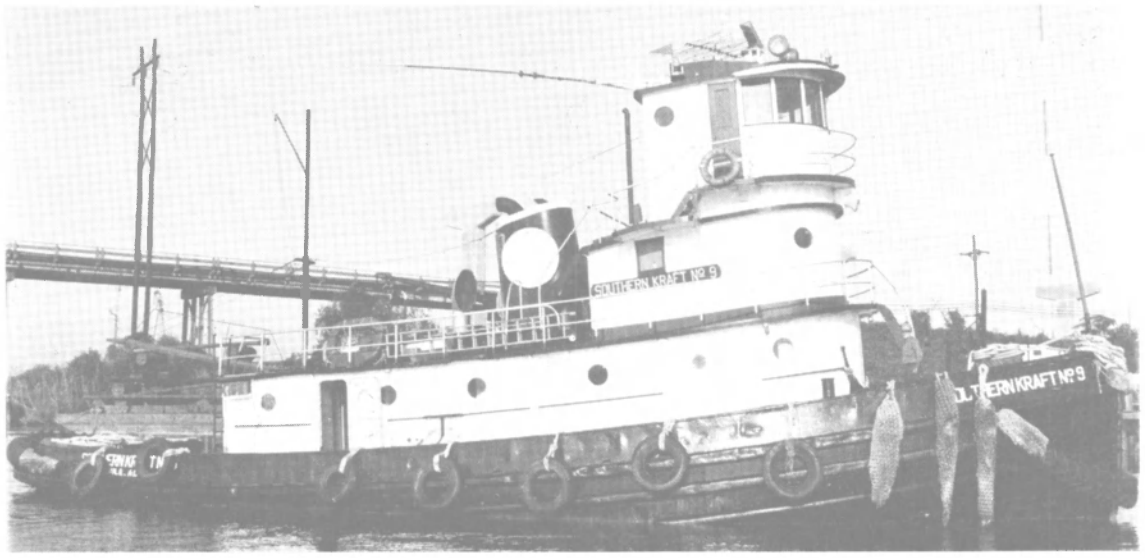

TUG #9

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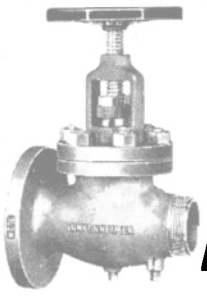

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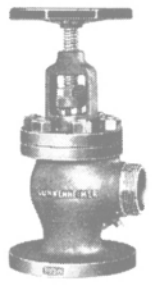

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Oceans
Certificate of Registry
Gross Tons — 8914
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Length	400'0"
Beam	99'6"
Depth	25'0"
Deadrise	27°
Draft Light	3'11"
Draft Loaded	19'4"
Transverse Bulkheads	5 O.T.
Length Bulkheads	3 O.T.
No. Tanks	20
Rolled Bilge	48" R.
Mich. Bow	60' length
Sq. Raked Stern	80' length

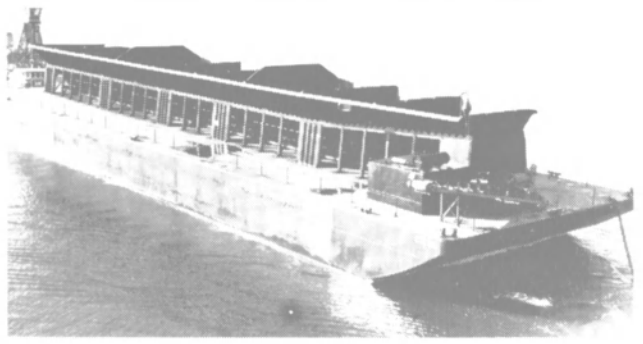
DECK CARGO

Open Deck Area	37,886 S.F.
Deck Load	1,500 P.S.F.
D.W.T.	15,800 L.T.

AS OIL BARGE

Oil Cargo	148,500 BBLs 21,000 L.T.
Cargo Piping	14" Mains 10" Suctions

Self Unloading Aggregate Barge



ZAG-501

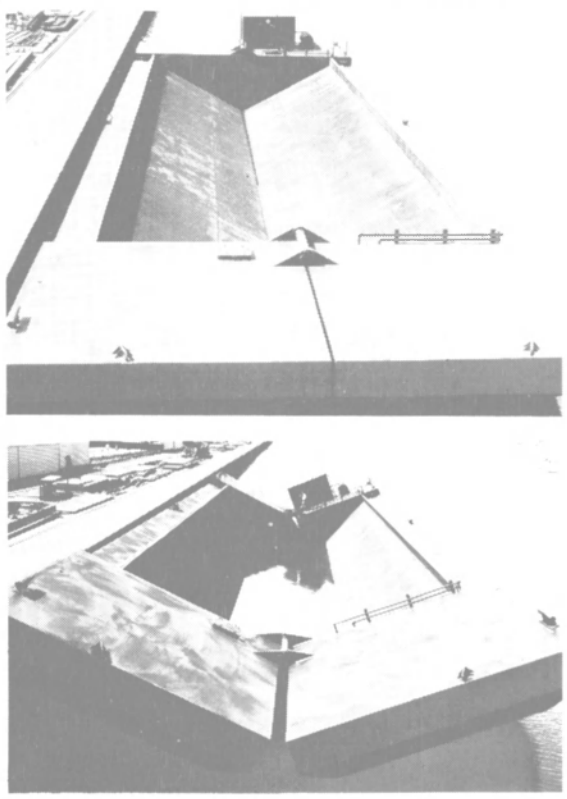
Length (O.A.)	248'-0"
Beam	63'-0"
Depth	16'-0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'-7½"
Draft Loaded (F.W.)	11'-8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd

Hopper Unloading Gates: 27-36" x 36" Horiz. sliding gates w/individual hydr. controls.

Main Unloading Conveyer: 48" wide belt, 30 H.P elect. motor, 250 ft./min. Max. disch. rate – 667 cu. yd./hr.

Transfer Conveyer: 42" wide belt, 10 H.P. elect. motor, 350 ft./min. off loading location – Stbd. side fwd. at 9 ft. above deck.

Hull Plating: Deck, side shell & bott. 9/16"



Split Type Self Dumping Scows

Built 1979. For sale, long or short term charters

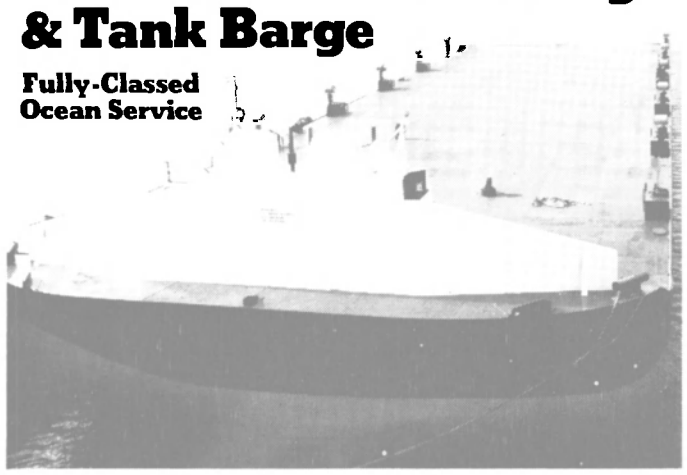
SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (ML'D)	180'-0"
Beam (ML'D)	50'-0"
Depth of Mid-Body (ML'D)	14'-0"
Hopper Length (ML'D)	128'-0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft	1615 L.T.
Rake Lengths F. & A.	26'-0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up	2'-0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec
Time To Close	4 Min. 34 Sec
Hopper Angle Fully Open	53.78
Fuel Tank Capacity	445 Gal
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120" Stroke
Plating	
Side	9/16"
Bottom	5/8"
Hopper	5/8"

Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A.	230'-0"
Beam	60'-0"
Depth	15'-6"
Deadrise	6°
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
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"
Deck Cargo Dwt. at Loadline	3900 S.T.

For additional information or to make an appointment to inspect, call or write:
Tom Sherwood, Andy Canulette, Jr.

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Hitachi Zosen Shipyard Delivers 53,538-Dwt Car/Bulk Carrier

The Co-Op Express II, a 53,538-dwt car/bulk carrier was delivered recently from the Maizuru shipyard of Hitachi Zosen to Kumiai Senpaku Co., Ltd. of Japan. It is a sistership of Co-Op Express I delivered by Hitachi in September 1982.

The ship has a total of nine cardecks in all five holds and is designed to carry a total of 3,570 passenger cars or 77,261 m^3 of grain. The 3rd through 8th fixed cardecks and the lowest hoistable cardeck are constructed of grating to facilitate grain loading. The lowest cardeck is designed to be lifted to the 8th deck level for easy cargo unloading by bulldozer.

The vessel is equipped with a watertight side port at the 4th cardeck in No. 3 hold for access to the internal ro/ro system.

The Co-Op Express II measures 210 meters long overall, with a breadth of 32.24 meters, a depth of 17.82 meters, and a design full load draft of 12.42 meters. The ship is powered by a Hitachi B&W 6L67GA type diesel engine producing a maximum continuous output of 13,100 hp and a trial speed of 16.13 knots.

The Co-Op Express II is powered by a Hitachi B&W 6L6 7GA-type diesel engine.

Blount Delivers Cruise Vessel For Chesapeake Bay Service

Propulsion for the cruise vessel Port Baltimore is supplied by two GM 8V-71 engines.

Blount Marine Corporation of Warren, R.I., recently announced the delivery of the 115-foot Port Baltimore to Harbor Cruises, Ltd., of Baltimore, Md.

The 500-passenger vessel is designed for cabaret style dinner cruises and sightseeing cruises in upper Chesapeake Bay.

Ship's propulsion is provided by two GM 8V-71 engines. Ship's power is furnished by two 40-kw generator sets.

The Port Baltimore has two completely enclosed decks and an open third deck. Her 29-foot beam provides room for bars on both decks and 400 seated at tables. Below deck is a complete modern galley and storage areas. Air-conditioned and heated, the vessel will operate 10 months a year. The vessel complies with all pollution standards.

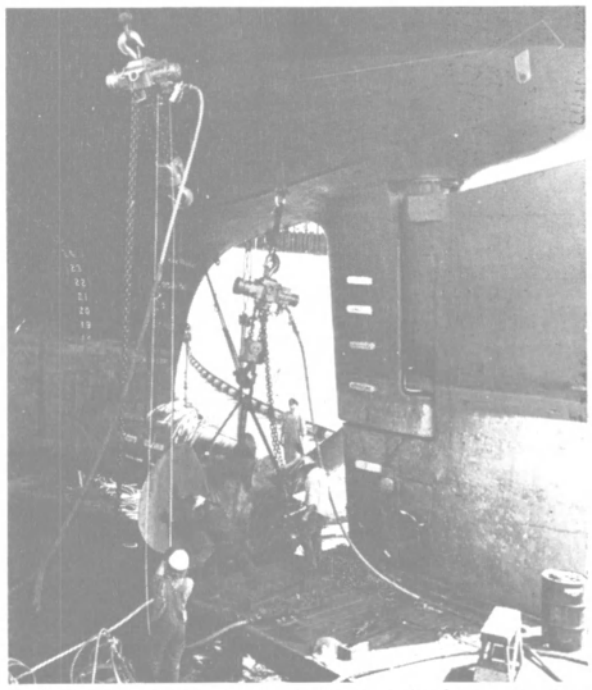
The Port Baltimore was built under U.S. Coast Guard supervision for lakes, bays, and sound service, and admeasures under 100 gt.

The new vessel will be one of two operated by the same owners.

The Port Baltimore is the seventh of the Bay Queen-class vessels pioneered and built by Blount. Previously built vessels are in service from Maine to New Orleans, on the Great Lakes, and in Mexico.

Air Hoists Help Speed Propeller Repair At Todd's Seattle Yard

When a large oil tanker with a broken propeller entered Todd Shipyards in Seattle, Wash., for repairs recently, yard officials moved fast with an innovative plan to get the vessel operable again.



A four-man repair crew replaces a broken propeller held aloft by two Neuhaus America air hoists at the Todd Shipyards in Seattle. The air hoists can raise and hold a 50-ton propeller with ease.

To speed up repairs, the tanker was kept afloat and ballast placed in the bow to raise the stern. Rafts were secured in the stern area from which the repair crew worked.

A critical phase of the project was the use of two 50-ton-capacity air hoists furnished by Neuhaus America Corporation to lift and hold the propeller in suspension. The air hoists, which have a combined weight of 4,000 pounds, were shipped air freight by Neuhaus from its plant in Sparks, Md., near Baltimore. The hoists were in service 24 hours after Todd placed the order.

Each of the Neuhaus hoists is capable of lifting a 50-ton ship's propeller to a height of more than 3 feet in 90 seconds. With easy access to the damaged propeller and the flexibility to readily move or turn it, which the hoists provided, the repair crew completed the job in record time.

For free literature from Neuhaus America,

Write 27 on Reader Service Card

16", 24" POLISHED BRASS
4-DOG MARINE PORTLIGHTS
WITH GLASS

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8" TOWING AND MOORING BITTS
Cast steel—deep pattern—wt. 240 lbs.

D-RINGS
With pad—wt. 50 lbs.

BARGE CHOCKS
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48" — 235 lbs.

SIZE 9 CLOSED CHOCKS
12" X 6" — 190 lbs.

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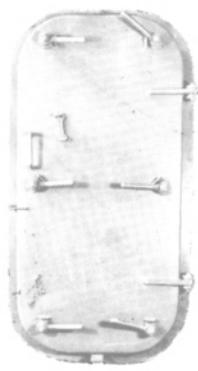
FOR SALE

NEW WATERTIGHT DOORS



Steel Dogs

6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE
26"x48" 26"x66"
26"x60" 30"x60"
EACH DOOR

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS
(MEET PANAMA REGULATIONS)
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With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

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BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. **If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266**

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Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Nance Industries, P.O. Box 1547, Beaumont, TX 77704-1547
York Division, Borg-Warner Corp., P.O. Box 1592, York, PA 17405

ANCHORS AND CHAIN
Baldt Incorporated, P.O. Box 350, Chester, PA 19016
William Pot B.V, Industriele Handelnij., Groothandelsgebouw, 45 Stationsplein, Rotterdam, 3004, Holland

ANODES—Cathodic Protection
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Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083
Kaiser Chemical, Div., of Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., Rm. 1128 KB, Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BASKET STRAINERS
North Star Marine & Industrial Products, Inc., 84 Wall Street, Farmingdale, NY 11735

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Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Thomson-Gordon Limited, 3225 Mainway, Burlington, Ontario, Canada L7M 1A6
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment
Apache Equipment, Inc., 10690 Shadow Wood Dr., Suite 112, Houston, TX 77043
Aurand, 1270 Ellis Street, Cincinnati, OH 45223
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
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 45857, Houston, TX 77254

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

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Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

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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
Navire Cargo Gear (U.S.) Inc., 570 Rahway Avenue, Woodbridge, NJ 07095
Navire Cargo Gear International AB, Box 8991, s-402 74, Goteborg 8, Sweden
W.W. Patterson Company, 3 Riversea Road, Pittsburgh, PA 15233

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CHOCKING SYSTEMS
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Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CLAMPS
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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

CONTRACTORS—LABOR
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Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
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Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07605
Norske Telektron A/S, Drammensveien 126, Oslo 2, Norway
Pan American Systems Corporation, P.O. Drawer 400, Belle Chasse, LA 70037
Sybron Corp., Analytical Products Div., 221 Rivermoor St., Boston, MA 02132
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Tracor Marcon, Inc., 13433 N.E. 20th St., Bellevue, WA 98005
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

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Appleton Machine Co., P.O. Box 22339, Appleton, WI 54911
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Grove Manufacturing Co., P.O. Box 21, Shady Grove, PA 17256
HIAB Cranes & Loaders Inc., Rd. # 22 Interchange Place, York, PA 17402
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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
Nautilus Crane, P.O. Drawer 1287, Metairie, LA 70004
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Superior-Lidgerwood-Mundy Corp., 1101 John Ave., Superior, WI 54880

DECK MACHINERY—Cargo Handling Equipment
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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

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General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Granges Repair Service GmbH, Gutenbergring 64, 2000 Hamburg-Norderstedt, West Germany
Haynes Corporation, P.O. Box 179, Jackson, MI 49204
Twin Disc, Inc., 1328 Racine Street, Racine, WI 53403
UNIPAR Inc., 7210 Polson Rd., Hazelwood, MO 63042
Van der Horst Corp. of America, 314 Penn Ave., Olean, NY 14760

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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

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Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
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 Raamsdonksveer, Holland
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Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302
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MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Navire Cargo Gear (U.S.) Inc., 570 Rahway Avenue, Woodbridge, NJ 07095
Navire Cargo International AB, Box 8991, s-402 74, Goteborg 8, Sweden
Julius Mock & Sons, Inc., 20 Vesey Street, New York, NY 10007

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American Standard Inc., Heat Transfer Div., Buffalo, NY 14240

HULL CLEANING
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Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseil'e, France
Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044
Underwater Hull Maintenance, 104 Waterview Dr., Crownsville, MD 21032

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Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017
Victor Fluid Power, 7527 Mitchell Rd., Eden Prairie, MN 55344

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Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
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Salwico Inc., 5 Marine View Plaza, Hoboken, NJ 07030

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Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Assurance Foreningen Skuld, P.O. Box 1376 Vika, Stortingsgaten 18, N-OSLO 1, Norway
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

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

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R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

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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 Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749
Triboro Industries Inc., 173 Marine Street, New York, NY 10464

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
Granges Repair Service GmbH, Gutenbergring 64, 2000 Hamburg-Norderstedt 3, West Germany
Essex Machine Works, Essex, CT 06426
Jered Brown Brothers Inc., 56 S. Squirrel Road, Auburn Heights, MI 48057
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Triboro Industries Inc., 173 Marine Street, Bronx, NY 10464

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
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

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 Nav 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
Bristolcomp, P.O. Box 450, Bristol, RI 02809
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
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
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
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
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
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
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
Capt. Ernest James, 2849 Beavercrest 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
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., 195 Paterson Avenue, Little Falls, NJ 07424
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
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
Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
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., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
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
Simmons Associates, P.O. Box 760, Sarasota, FL 33578
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
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 Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
Yacht Design Institute, 9 Main St., Blue Hill, ME 04614

NAVIGATION & COMMUNICATIONS EQUIPMENT

AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
Alden Electronics, 1145 Washington St., Westborough, MA 01581
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
Frank L. Beier Radio, P.O. Box 10307, Jefferson, LA 70181
Dantronics Co., P.O. Box 204, Boca Raton, FL 33432
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electric Tachometer Corp., 68th & Upland Street, Philadelphia, PA 19142
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
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
G.E. McKay Company (Dymek), 111 South College Avenue, Claremont, CA 91711
Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
Maritel, Inc., 8230-R Telegraph Road, Odenton, MD 21113
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Northern Radio Co., 14975 N.E. 40th, Redmond, WA 98052
P. J. Plishner Marine, 2 Lake Ave. Ext., Danbury, CT 06810
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 Val Di Pesa, Firenze, Italy
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
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

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
National Fluid Separators, Inc., 1239 Hanley Industrial Court, St. Louis, MO 63144
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

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
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
Fram Industrial, P.O. Box 33210, Tulsa, OK 74135
McTighe Industries Inc., 1615 Ninth Avenue, Suite 1 South, Bohemia, NY 11716
Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425

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
"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
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
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

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
Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
Stauff Corporation, 21-31 Industrial Park, Waldwick, NJ 07463

PLAQUES—BRONZE—ALUMINUM

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

PLASTICS—Marine Applications

Griffolyn Company, P.O. Box 33248, Houston, TX 77033
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
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 & Wcin Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Caterpillar Engine Division, 100 N.E. Adams, Peoria, II 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
Cummins Engine Company, Inc., 40642, 1000 Fifth Street, Columbus, IN 47201
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
Jacuzzi Bros. Division, P.O. Box 3533, Little Rock, AR 72203
Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
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
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
Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
Penske GM Power, Inc., 180 Route 17 South, Lodi, NJ 07644
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
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
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Triconn Corporation, P.O. Box 149, Redding, CT 06875
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider America, 159 Great Neck Rd., Ste 200, Great Neck, NY 11021
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

PUMPS—Repairs—Drives

Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
EMMI Corporation, P.O. Box 955, Flemington, NJ 08822
FMC Corporation, Pump Division, 326 S. Dean Street, Englewood, NJ 07631
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
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
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
Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROLLING SYSTEMS

Hilman, Inc., 2604 Atlantic Ave., Wall (Belmar), NJ 07719

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666

RUDDER ANGLE INDICATORS—STEERING

Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Wm. E. Hough Company, 1129 NW Ballard Way, Seattle, WA 98107
Robertson, 135 Fort Lee Rd., Leonia, NJ 07605

SAFETY EQUIPMENT

Datrex, 3795 N.W. 25th Street, Miami, FL 33142
Elkhart Brass Manufacturing Co., Inc., P.O. Box 1127, Elkhart, IN 46515

SANITATION DEVICES—Pollution Control

Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
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
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111

SCAFFOLDING EQUIPMENT—Work Platforms

Patent Scaffolding Co., One Bridge Plaza, Fort Lee, NJ 07024
Swiss Fabricating Inc., Camp Horne Rd., Emsworth, Pittsburgh, PA 15237
Waco Ladder & Scaffolding Co., Inc., 4315 41 St., P.O. Box 126, Brentwood, MD 20722

SHACKLES

West Footscray Engineering Works P/L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12. Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002

SHIPBREAKING—Salvage

The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
Arsenale Triestino S. Marco, Passeggio S. Andrea 11, 34143 Trieste Italy
Asmar Shipyards Co., Astilleros y Maestranzs de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.
Astilleros Balboa, S.A., c/o Jackson Marine Corp., 17 Battery Place, New York, NY 10004
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Ateliers et Chantiers de Bretagne — ACB, 44040 Nantes Cedex, France
Atlantic Dry Dock, P.O. Box 276, Ft. George Island, Jacksonville, FL 32226
Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 54235
BFC Marine Services, Inc., 25 Fifth St., Brooklyn, NY 11231
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., Bethlehem, PA 18016
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark
Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada
Burton Shipyard, Inc., P.O. Box 3636, Port Arthur, TX 77640
Caddell Drydock & Repair Co., P.O. Box 327, Foot of Broadway, Staten Island, NY 10310
Cantieri Navali Luigi Orlando, Piazza Mazzini, 92-57100 Livorno, Italy
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
China Shipbuilding Corp., 6th Floor, 20 PA Teh Road, Sec. 3 Taipei, Taiwan (105) Republic of China
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO, Koje-Kun, Kyungnam, Korea
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Faustug Marine Corporation, 601 Sawyer, Suite 201, Houston, TX 77007
Golden Gulf Marine Operations, Inc., 814 Howard Avenue, New Orleans, LA 70151
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea
I.N.M.A. S.p.A., 19100 La Spezia, v. le S. Bartolomeo 362, Italy
Jeffboat, Inc., Jeffersonville, Ind. 47130
Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409
Kings Craft, Inc., Industrial Park, Florence, AL 35630
Koch Ellis Barge & Ship Service, P.O. Box 187, Westwego, LA 70094
Leevac Corporation, P.O. Box 2607, Morgan City, LA 70381
Lisnave Estaleiros Navais De Lisboa, P.O. Box 2138, Lisbon, Portugal
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott, Incorporated, 1010 Common Street, New Orleans, LA 77227
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
John Manly Shipyards, 2050 East Kent Ave., Vancouver, B.C. V5P 2T2, Canada
Marathon LeTourneau Offshore Co., 1700 Marathon Bldg., 600 Jefferson, Houston, TX 77002
Marinette Marine Corp., Ely St., Marinette, WI 54143
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Moran Shipping Agencies, 10 Jefferson Blvd., Warwick, RI 02888
Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, Inc., 502 Cypress Street, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Overseas Shipyards, Inc., 21 West St., New York, NY 10006
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
Puerto Rico Drydock & Marine Terminals, Inc., P.O. Box 2209, San Juan, Puerto Rico 00903
Rauma-Repola, 26100 Rauma 10, Finland
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Southbay Boat Inc., P.O. Box 13308, San Diego, CA 92113
Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Thomas Marine, 37 Bransford St., Patchogue, NY 11772
Thunderbolt Marine, Inc., P.O. Box 5628, Savannah, GA 31404
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Umpqua Marine Way, Inc., Port Industrial Park, Reedsport, OR 97467
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Valmet Oy, Helsinki Shipyard, Laivanrakentajantie 2, P.O. Box 910 SF-00101 Helsinki 10, Finland
Waterman Supply Co., 2815 E. Anaheim St., P.O. Box 596, Wilmington, CA 90748

BUYERS DIRECTORY

(continued)

West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

SHIPPING—PACKING
Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
World Courier, Inc., 19 Rector Street, New York, NY 10006

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STEVEDORING
Eller & Co., 701 E. 24th St., Ft. Lauderdale, FL 33316

STUFFING BOXES
Smith-Meeker Engineering Co., 157 Chambers Street, New York, NY 10007

SURVEYORS AND CONSULTANTS
Francis B. Crocco. Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038
M.A. Stream Associates, Inc., 400 Second Ave. W., Seattle, WA 98119

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Penco Division/Hudson Engineering Co., P.O. Box 68, Bayonne, NJ 07002
Sybron/Gamlen, 121 South Maple Avenue, South San Francisco, CA 94080

TANK LEVELING INDICATORS
Kockumation AB, Box 1044, S-212 10 Malmo, Sweden
Norcontrol, 135 Fort Lee Rd., Leonia, NJ 07605
Salwico Inc., 5 Marine View Plaza, Hoboken, NJ 07030
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Atlantic Towing Ltd., 300 Union Pl., St. John, N.B., Canada E2L 1B6
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Ocean Salvors Company, One World Trade Center, New York, NY 10048
Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

VALVES AND FITTINGS
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Litton Industrial Products, Inc. (Contromatics Division), 222 Roberts Street, East Hartford, CT 06108
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Metropolitan Plumbing Supply Corp., 50-09 Second Street, Long Island City, NY 11101
Newmans Inc., 9 Joanna Court, East Brunswick, NJ 08816
Pioneer Valve & Fitting Co., Inc., 93 Seigel Street, Brooklyn, NY 11206
Tate Temco, Inc., 1941 Lansdowne Road, Baltimore, MD 21227
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186
William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101
Winel, Inc., 34655 Mills Road, North Ridgeville, OH 44039
Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

VIDEO TRAINING FILMS
Video Library Systems, 100 13th Ave., Ronkonkoma, NY 11779
Videotel Marine International Ltd., 44 Great Marlborough Street, London W1V 1DB

WATER PURIFIERS
Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Drew Chemical Corporation, One Drew Chemical Plaza, Boonton, NJ 07005
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

WINCHES AND FAIRLEADERS
Appleton Machine Co., P.O. Box 2339, Appleton, WI 54911
Beebe Brothers, Inc., 2724 6th Avenue South, Seattle, WA 98134
CONMACO, Inc., 820 Kansas Ave., P.O. Box 5097, Kansas City, KS 66119
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, W. Biloxi, MS 39531
Reel-O-Matic Systems, Inc., 418 Hellam Street, Wrightsville, PA 17368
Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880
Timberland Equipment Ltd., Box 490, Woodstock, Ont. Canada N4S 7Z2.

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007
Tri-Mark, Inc., 8585 Industry Park Drive, Piqua, OH 45356
Universal Wire & Cable Co., 2930 N. Ashland Ave., Chicago, IL 60657

WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., Bethlehem, PA 18016
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747
I & I Sling Company, 2626 Market Street, Dept. D, Aston, PA 19014

ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

Asia Pacific Launches Supply Vessel For National Marine

The NMS 211 is powered by Cat D399 engines.

Asia Pacific Shipyard, a wholly owned subsidiary of Promet Private Limited, recently launched its fourth supply vessel, NMS 211 — making it the 16th vessel to be built by the Promet Group for National Marine Services, Abu Dhabi.

Measuring 176 by 38 by 14 feet, the $3.5-million (US) vessel is fitted with fire and pollution-control equipment which are suitable for the climatic conditions in the Middle East. Though the vessel is designed for a service speed of 12 knots, it is capable of 14 knots powered by Cat D399 engines.

The primary function of NMS 211 is to service the drilling rigs by carrying bulk cargoes such as cement, drilling mud, fuel, water, passengers, from the mainland to the rigs. It can transport 22 offshore crew and will be used in conjunction with offshore exploration in the Arabian waters. The vessel is constructed to ABS classification and is expected to be delivered this month.

Other projects underway at Asia Pacific Shipyard include two sisterships of NMA 211, two rock carriers, and two anchor-handling tug supply vessels of 5,000 and 8,500 hp respectively.

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Model OP 38D8 1/8 1416 BHP 720 RPM
8⅛" x 10" Air start 2 cycle, 10 cylinder

WESTINGHOUSE GENERATOR
1250 KVA 100KW 720 RPM
450 volt 3ø-60 HZ .8PF

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V-type 8 cylinder 8¾" x 10" 2 cycle Air start

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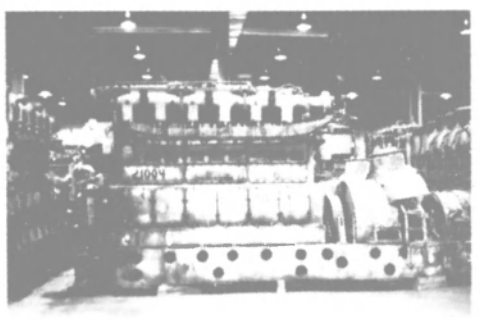

ENTERPRISE
Model DSG-6 650HP 650 RPM 6 cylinder 12" x 15"

With WESTINGHOUSE GENERATOR
410 KW 250 volt, DC 650 RPM
Will sell with or without generator.

Other sizes available
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Portland, Oregon 97201
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Oregon inquiries: 228-8691
Ask for Ace Logan or Darrel Watson

Malcolm Dick Elected President Of Gibbs & Cox Naval Architectural Firm

Richard M. Ehrlich, chairman of Gibbs & Cox, Inc., of New York City, one of the nation's leading independent naval architectural firms, recently announced that the board of directors had elected **Malcolm Dick** president.

Mr. **Dick,** a graduate of the Massachusetts Institute of Technology, joined Gibbs & Cox in 1952, serving in various capacities, most recently as executive vice president and previously as vice president and hull division head. He is a member of the American Society of Naval Engineers, Society of Naval Architects and Marine Engineers, American Management Association, and the Committee on Naval Architecture of the American Bureau of Shipping.

It was also announced that **Thomas M. Buermann,** president, retired effective January 24, 1983. Mr. **Buermann's** retirement comes after serving with Gibbs & Cox for 44 years. He will remain a member of the board of directors.

Gibbs & Cox, Inc., a leading designer of combatant and other ship types, with offices located in New York City, Crystal City, and Newport News, Va., has served the U.S. Navy, foreign navies, and commercial clients for over 53 years. Recent programs include the FFG7 class as class design agent for the U.S. Navy, the detail design of a Spanish aircraft carrier, and the Spanish patrol frigate, working in close association with Empresa Nacional, BAZAN, de Construcciones Navales Militares, S.A.

Free Interface Offered With Texas Instruments' SatNav —Literature Available

Texas Instruments recently announced an introductory offer for its new TI 5000 satellite navigator. The offer, which is in effect until July 31, 1983, consists of a free interface board with the purchase of a TI 5000. Literature is available on the SatNav.

The interface board, designed to be installed in a TI Loran, allows the user to link the TI 5000 to a TI Loran receiver (TI 9000 series) or navigator (TI 9900 series). The combination produces TI's LORSAT navigation system. Present TI Loran owners will be able to upgrade their existing navigation system with the purchase of a TI 5000 and the free interface board. TI Loran units which accept the interface board include the TI 9000A, TI 9000N, TI 9000NS, TI 9000S, TI 9900 or TI 9900N.

The LORSAT integrated navigation system, announced in October 1982, is achieved by combining the TI 5000 satellite navigator with the interface board which accepts external inputs from a TI Loran receiver or navigator. The new system combines the accuracy and worldwide coverage of satellite navigation with the continuous signal of Loran C navigation. The LORSAT system offers extended range and improved conventional Loran C operation, and worldwide transit navigation.

For a free copy of the literature,

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New Managing Director Appointed At Neorion

A & P Appledore International Limited recently announced the appointment of **Donald McLean** as new managing director of Neorion Shipyards Syros Limited.

Mr. **McLean** takes over the role from **Thorsten Andersson** who has been managing director since the re-opening of the yard in February 1979.

Mr. **Andersson** stated: "Neorion owes much of its success to a sensible strong management team with a good background in ship repair, both on the commercial and technical side. We at A & P Appledore are confident that Mr. **McLean** will continue to provide this expertise maintaining Neorion's position as one of the most efficient yards in the Mediterranean."

Donald McLean is a Scotsman who after apprenticeship at Barclay Curle & Co. decided to return to the university to study Naval Architecture. He spent many of his formative years on the N. East Coast working for Swan Hunter and Brigham & Cowan.

He joined A & P Appledore in 1979 and was sent to Neorion as commercial manager. He was promoted to deputy managing director in October 1980.

$10-Million Contract Awarded Electric Boat

General Dynamics Corporation, Electric Boat Division, Groton, Conn., has been awarded a $10,000,000 cost-plus-fixed-fee letter contract for architectural/engineering support for the submarine Improved Performance Machinery Program (IPMP) for the 688-class nuclear attack submarines. The Naval Sea Systems Command, Washington, D.C. is the contracting activity (N00024-83-C-4181).

General Dynamics Elects Fritz G. Tovar To New Vice Presidential Posts

Fritz G. Tovar has been elected a corporate vice president of General Dynamics Corporation and named vice president-general manager, Electric Boat Division, it was announced recently. Electric Boat, in Groton, Conn., builds nuclear-powered Ohio-class Trident missile submarines and SSN 688-class fast-attack submarines for the U.S. Navy.

Mr. **Tovar,** who has been general manager of Electric Boat since November 1981, joined the company in 1975 as general manager of the Quincy Shipbuilding Division's Charleston, S.C. facility. In 1977 he joined Electric Boat's Quonset Point, R.I., facility as general manager.

"**Fritz Tovar** has done an excellent job as general manager of Electric Boat for the past 14 months," said **David S. Lewis,** chairman and chief executive officer of General Dynamics. "We are confident that he will be an outstanding leader for the division in their busy years ahead."

Mr. **Tovar's** extensive shipbuilding and management experience includes positions of increasing responsibility with Davie Shipbuilding Ltd. in Canada, American Transport Corporation in Sharon, Penn., and Marine Transport Lines, Inc., a New York City-based subsidiary of GATX.

Free 24-Page Color Brochure Describes Deutz B/AM 816 Diesels

KHD Deutz Diesel is offering a 24-page full-color brochure on its series of B/AM 816 diesel engines. The series of compact, high-speed diesels feature Deutz' two-stage combustion for a wide range of drive applications.

The brochure includes color photographs, color cutaway drawings and sectional drawings of these engines which are offered in both in-line and "V" configurations. Technical descriptions of the engines and photos showing recent marine applications also are included.

A separate pull-out section of the brochure contains specifications on the B/AM 816 series written in four languages—German, English, French and Spanish. Dimensional drawings and scores of tables pertaining to all aspects of the engines are included.

For a free copy of this informative brochure, including the pull-out specifications section,

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$4.6-Million Navy Contract Awarded To Tracor

Tracor Incorporated, Austin, Texas, has been awarded a $4,660,000 cost-plus-fixed-price contract for engineering technical support to assist NAVSEA 921 in the execution of submarine maintenance and modernization program principles and concepts. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-2009).

New Model Pilot Ladder Has Easily Replaced Steps —Literature Available

The **A.L. Don** Company of Matawan, N.J., has developed a greatly improved version of its pilot ladder which now features steps which can be quickly and easily replaced aboard ship.

The steps are held in place by a mechanical clamp instead of hand serving. As a result, a step can be replaced onboard the vessel without the need to unstring the ladder. The replacement procedure is quick and easy, and can be accomplished using ordinary hand-tools.

"Our new pilot ladder is the only ladder approved by the USCG on the market with steps that can be replaced without having to send the ladder back to the factory or to an assembling distributor," stated **Peter W. Gronbeck,** vice president of A.L. Don Company. This new design simplifies maintenance and reduces costs by extending uninterrupted use.

A number of other improvements are incorporated in the new design including suspension ropes with a white outer jacket and an orange safety core. A visible orange core alerts the user that the rope is worn. Steps are now painted international safety orange, and have safe, nonskid stepping surfaces.

A.L. Don's new pilot ladders are USCG approved and meet or exceed all SOLAS regulations and IMO standards.

For free specification sheets and technical diagrams of A.L. Don's new pilot ladder,

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Navy Awards ITT Gilfillan $4-Million Radar Contract

ITT Gilfillan, Van Nuys, Calif., has been awarded a $4,072,093 letter contract for two AN/SPN-43 air surveillance radars with associated data for shipboard use. The Naval Electronic Systems Command, Washington, D.C., is the contracting activity (N00039-83-C-0004).

NEW & REBUILT EQUIPMENT FOR IMMEDIATE DELIVERY

REFRIGERATION AND AIR CONDITIONING COMPRESSORS

(2) Used, in excellent condition, Navy refrigeration units, 125 tons, York model MTC59 single stage compressor with sealed 125 HP motor complete with cooler, condenser and chillers. New price — $69,000 each. Our price — $9,500 each.

(2) Carrier air conditioning compressors, Model 5H120 complete with 75 HP motor. New price — $19,000. Our price — $6,500.

(2) New Carrier Model 7G8 15 ton compressor complete with 25 HP, 440 volt, AC motors with condenser and spare parts. New price — $18,000 each. Our price — $5,000 each.

We also have a large stock of refrigeration condensers and other parts.

TURBINE ROTORS

We now have the largest stock of turbine rotors in the United States. We have new and rebuilt turbine rotors for G.E., Westinghouse, Allis-Chalmers, Terry, Skinner, Coppus, Whiton, Mitsubishi and others.

(2) 31500 horsepower HP turbines manufactured by G.E.
(1) 30000 horsepower G.E. HP turbine.
(1) 260000 horsepower G.E. HP turbine.
(1) 23000 horsepower G.E. HP turbine.
(1) 19250 horsepower HP turbine.
(1) 19250 horsepower LP turbine.
(1) 11000 horsepower G.E. turbine.
(1) 15000 horsepower turbine, Bethlehem Steel.
(1) 19000 horsepower T-5, Westinghouse turbine, HP.
(1) 8500 horsepower Westinghouse HP turbine.
(1) 8500 horsepower Westinghouse LP turbine.
(1) 22000 horsepower Delaval HP turbine for T-5 vessel.
(1) 22000 horsepower Delaval LP turbine for T-5 vessel.

For the auxiliary turbines:

(4) 1500 horsepower G.E. turbines with reduction gear
(8) 700 horsepower G.E. turbines with reduction gear
(2) 1000 horsepower Skinner turbines with reduction gear to 1800

And hundreds of other smaller sizes. We will sell these units for parts. Call us for your turbine requirements.

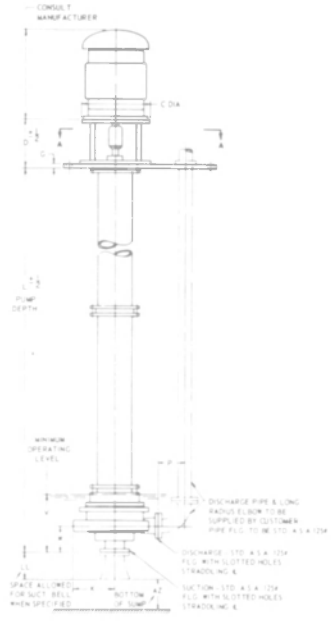
TURBO-GENERATORS

(5) 500 KW Allis-Chalmers, G.E. designed, DORV 325 with reduction gear to 500 KW, 440 volt, AC, Allis-Chalmers 1200 RPM generator, steam 450 to 600 lbs. Used, in excellent condition. $8,500 each.

(2) 750 KW, G.E. turbo generators, FSN3-24 with 750 KW, 1200 RPM generators. Used, in good condition. $15,000 each.

(1) New Elliot 75 KW, 120 lbs. steam pressure, 5" exhaust diameter. G.E. 75 KW, 1800 RPM, 440 volt with exciter. This unit is new and we offer it at $3,900.

NEW ALLIS-CHALMERS VERTICAL DEEP WELL PUMPS



Three (3) new Allis-Chalmers vertical deep well pumps with 15 ft. column, capacity 2500 GPM at 100 ft. head. 12 X 10 complete with 60 HP, 440 volt, 1200 RPM vertical motor.

New cost — $15,800 each.
Our price — $6,900 each.

VALVES

We have a large stock of new and used, steel and bronze valves available:

— (2) 20" 150 lbs. Powell steel valves — $950 each.
— New 6 X 6 X 5 Shutte and Koerting maneuvering valves, 600 lbs.
— New 8 X 8 X 6 Westinghouse maneuvering valves.
— Large stock of parts for these valves.
— 3" and 4" safety valves, 600 lbs. and 900 lbs., new and used, at less than one-half manufacturer's price.
— Westinghouse control valves for tankers, 950 lbs.
— Atwood & Morrelll trip throttle valves, 2 X 2.
— 16" simplex strainer Andale.

Try us for your valve requirements.

NEW HEAT EXCHANGERS AND TUBES

New 2164 sq. ft. lube oil cooler, 90/10 cupro nickel tubes and heads.

New 2200 sq. ft. auxiliary condenser for cargo pump liners.

Cupro nickel tubes and heads — 3000 new 3/4" 16 gauge, 90/10 cupro nickel tubes, 19' long—$1.10/foot.

Hundreds of other heat exchangers in stock.

AMERICAN HOIST & DERRICK WINCHES

Equal to new winches, 5 tons at 118 feet, some without drive. Can be used with gas or diesel engines. New cost — $10,000 each. Our price — $1,500 each.

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(2) 125 KW, G.M. Model 671, emergency diesel generator set, radiator cooled, 440 volt, 1800 RPM. Delco generators. New price — $21,000 each. Our price, rebuilt and guaranteed, $9,500 each.

(2) Cummins VT12-800 generator sets, 450 KW, skid mounted, radiator cooled, 440 volt, 3 phase, 60 HZ. Less than 2000 hours. Price — $35,000 each.

(2) 350 KW General Motors Model 8-278A driving 350 KW, 600 RPM, G.E. generators. Used, in good condition. $9,500 each.

(1) 250 KW Cooper-Bessemer FS6, 720 RPM, 250 KW, 440 volt, in excellent condition with spare parts. $7,500.

(2) Enterprise DSG6 12 X 15 generators, used, with 250 KW Elliot generators. Used for parts. $5,500 each.

PUMPS
NEW AND USED PUMPS FOR IMMEDIATE DELIVERY

(2) Worthington 6 X 5 750 GPM at 150 PSI fire pumps complete with 70 HP, 440 volt, AC motors, new. Cost today $20,000 each. We offer at $4,950 each.

(1) New, 300 GPM, at 100 lbs. head, Worthington pump with 30 HP, 440 volt, AC motor. New price — $3,900. Our price — $2,250.

Turbine-drive feed pumps:

(3) Coffin Type F, 200 GPM at 600 lbs. head, used, in excellent condition. $2,500 each.

(2) Coffin Type T tanker feed pumps, capacity — 250 GPM at 350 PSI. Used, in excellent condition. $3,500 each.

(5) Coffin Type GG feed pumps, capacity — 300 GPM at 750 PSI. Used, in excellent condition. $4,500 each.

(2) Coffin Type DE feed pumps, capacity 500 GPM at 950 PSI. Used, in excellent condition. $7,500 each.

(2) Coffin Type DEB feed pumps, capacity 800 GPM at 1150 PSI. Used, in excellent condition. $9,500 each.

(2) Worthington Type 4UNVX10 pumps, capacity 516 GPM at 950 PSI with Worthington S2R turbines. $7,500 each.

(2) Pacific pumps, 500 GPM at 1000 PSI. $7,500 each.

(1) Ingersoll Rand Type 2CNTAM4 pump, 475 GPM at 1100 PSI. $3,500.

ALL TYPES OF MARINE MOTORS IN STOCK

(2) Vertical 150 HP explosion-proof 1800 RPM G.E. motors.

(6) 50 HP 1800 RPM vertical motors, Westinghouse.

Other motors in stock.

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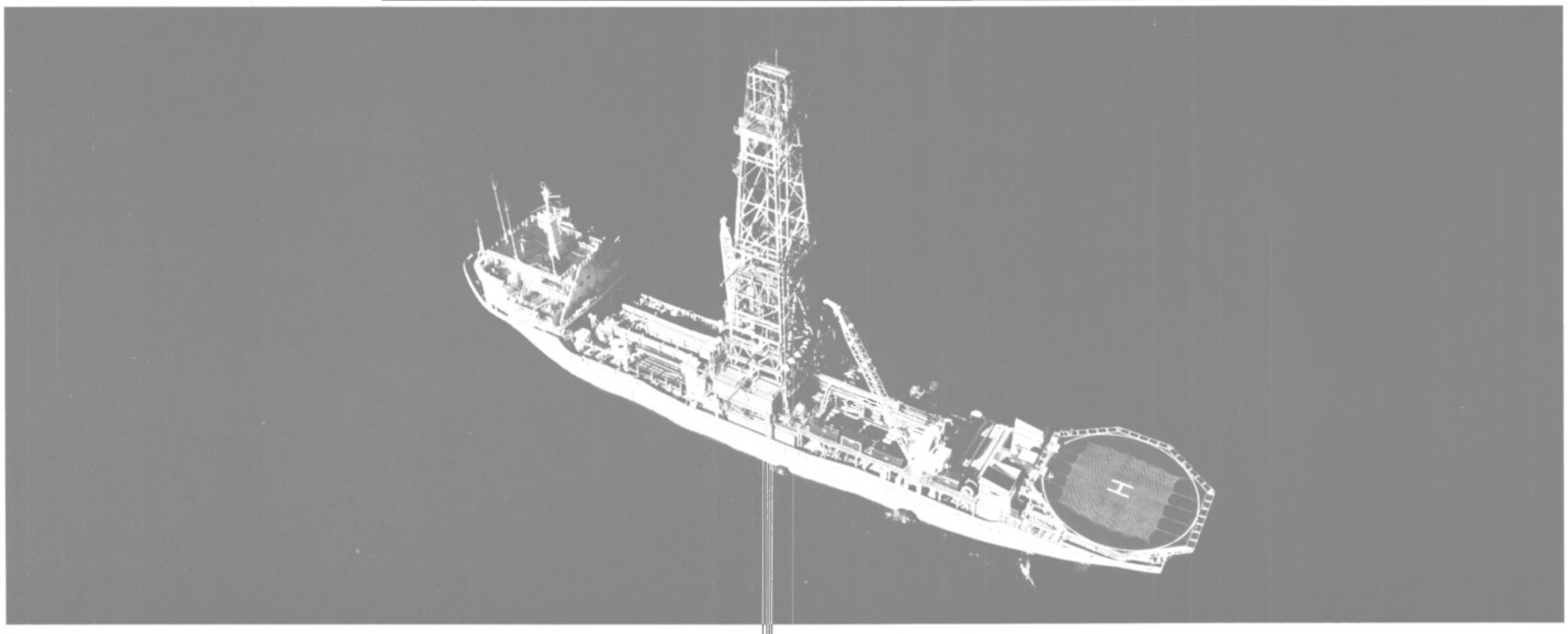

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We've recently established a technical tie-in with Gusto Engineering from Holland to produce their Pelican Type Drillships. Gusto has designed more dynamically positioned drillships than any other engineering company.

And now, with their know-how and our vast experience in building ships, semi-submersible oil rigs, and jack-up type oil rigs, we're more ready than ever to help you with ocean oil drilling.

If you'd like to dig a little deeper into the opportunities a Gusto Type Drillship can provide, call Hitachi Zosen.

We'll put a depth of knowledge and experience to work for you.

We'll improve your bottom line.

The name of Hitachi Shipbuilding & Engineering Co., Ltd., has been changed to Hitachi Zosen Corporation as of July 1st, 1982.

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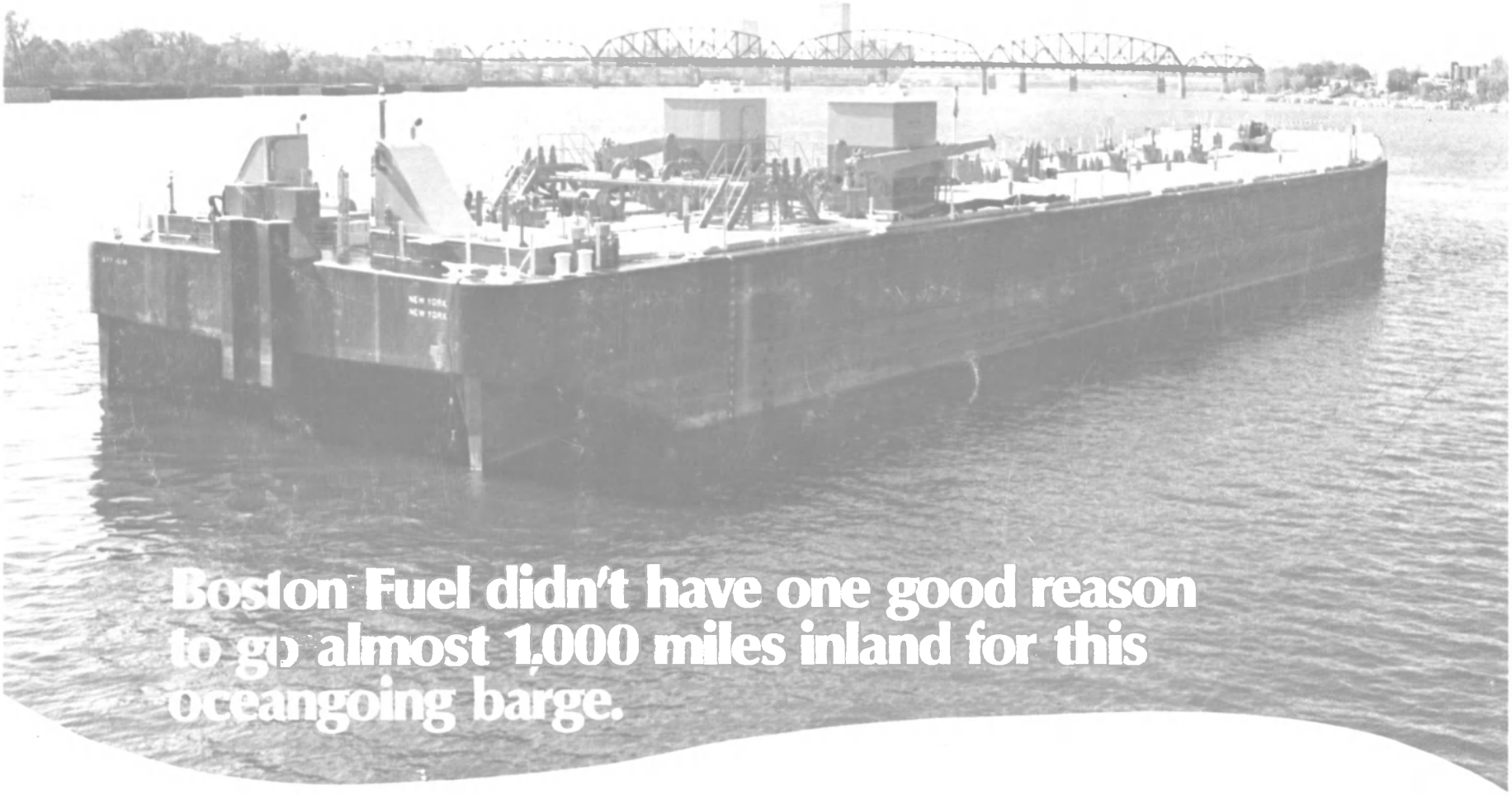

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It had four.

Proven Performance in Ocean Service
We've been building oceangoing barges in our southern Indiana shipyard for nearly 50 years. In addition to Boston Fuel's 40,000-barrel oceangoing tanker barge pictured above, we've designed and built vessels for hauling bulk commodities, chemicals and oil along both the East and West Coasts, the Gulf Coast, and the coastal waters of Alaska.

Manufacturing Versatility
Our manufacturing versatility enables us to build a wide range of standard and custom-designed vessels. Like towboats, offshore drilling rig components, passenger/vehicle ferries and a variety of barges, including one that holds up to 100 rail cars of coal.

Prompt Delivery
Boston Fuel was greatly impressed by our record for prompt delivery. But so are all our customers. That's because we build, launch and deliver vessels according to a strict schedule. . . a schedule which has allowed us to triple our production in the past eight years.

Reputation for Quality
Boston Fuel was also impressed by our nearly half-century reputation for quality. . . a reputation we've maintained by focusing our efforts on offering customers a winning combination of vessel variety and outstanding on-the-job performance.

For more information about the oceangoing or inland waterway vessels we can build for you, contact: Jeffboat Incorporated, P.O. Box 610, Jeffersonville, Indiana 47130. (812) 288-0421.

JEFFBOAT
America's Largest Inland Shipbuilder

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