

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

**EXPOSHIP
FAR EAST**

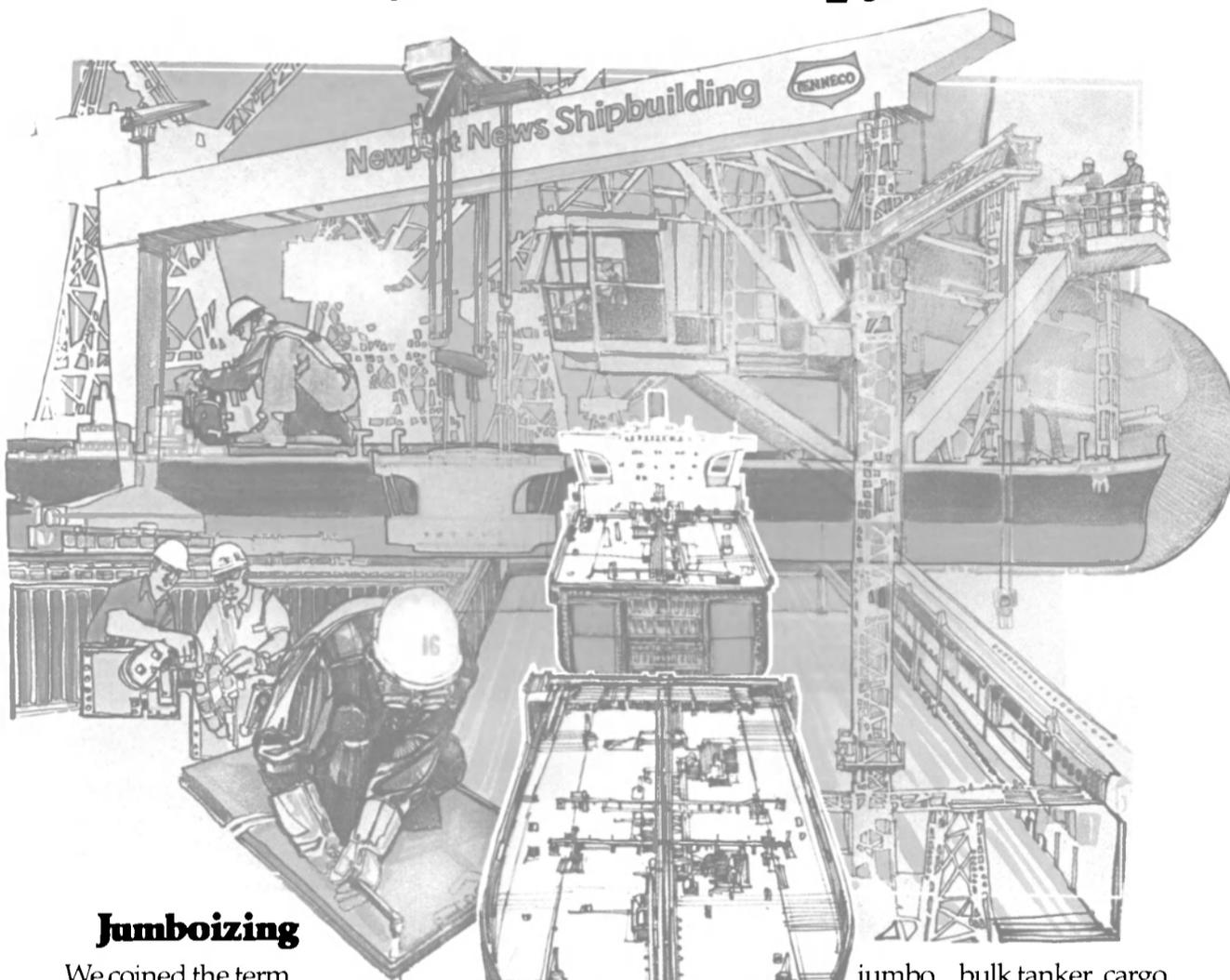
Hong Kong Harbor

**- Previews -
Expoship Far East
& Gastech '84
(SEE PAGE 4)**

GASTECH

OCTOBER 15, 1984

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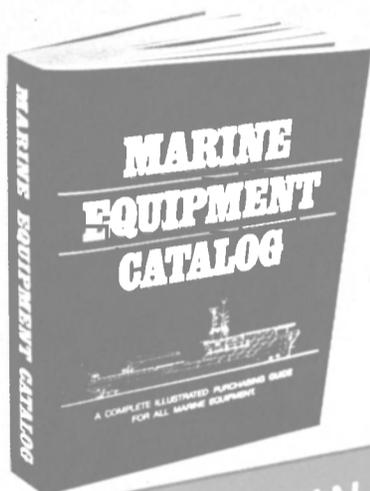
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**ON THE
COVER**

**Gastech '84
--A Preview--
PAGE 18**

**Expoship
Far East
PAGE 32**

**McDermott Scotland Gets
\$85+ Million Order For
Offshore Jacket & Modules**

McDermott International, Inc. of New Orleans recently announced that its McDermott Scotland unit has received a telex of intent from Marathon Oil, U.K., Ltd. for a contract valued at more than \$85 million to fabricate an 18,000-metric-ton offshore platform jacket and two 4,500-ton compression modules for the Brae "B" platform in the North Sea.

The 365-foot-tall, eight-leg, K-braced steel structure will be fabricated at McDermott's yard in Ardersier, Scotland. It is scheduled for installation during the summer of 1987. The two modules will house four centrifugal injection compressors for the field's gas recycling system.

Marathon Oil, U.K., a wholly owned subsidiary of Marathon International Oil Company, is the operator of the Brae "A" platform on the South Brae Field, as well as this second development in North Brae, which will be the first gas cycling development in the North Sea and is expected to produce 75,000 barrels of condensate per day. The Brae "B" platform is due on stream in 1988. North Brae is located some eight miles north of South Brae, 155 miles northeast of Aberdeen, Scotland.

McDermott International is a leading energy services company. The firm and its subsidiaries provide worldwide engineering and construction services for industrial and commercial facilities onshore and to the oil and gas industry offshore.

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Jeffboat president **Robert W. Greene III** accepts plaque made of wood from Nashville's Ryman Auditorium from **E.W. Wendell**, president of Opryland USA, while Grand Ole Opry star **Minnie Pearl** looks on. Plaque will go aboard paddlewheeler General Jackson, a 274-foot showboat now under construction at the Jeffersonville, Ind., yard.

Keel Laid At Jeffboat Yard For Paddlewheeler 'General Jackson'

With an assist from Grand Ole Opry star **Minnie Pearl**, the keel has been laid for the General Jackson, a 274-foot paddlewheel showboat being built for Opryland USA Inc. of Nashville by Jeffboat, Inc. in Jeffersonville, Ind.

Miss **Pearl** joined a Nashville delegation that included U.S. Representative **Bill Boner** at the ceremony on the banks of the Ohio River. She and Opryland president **E.W. Wendell** presented Jeffboat president **Robert W. Greene III** with a plaque made of wood taken from the historic Ryman Auditorium, long-time home of the Grand Ole Opry. The wood for the plaque was taken from the stage of the Ryman and has the General Jackson logo engraved on it.

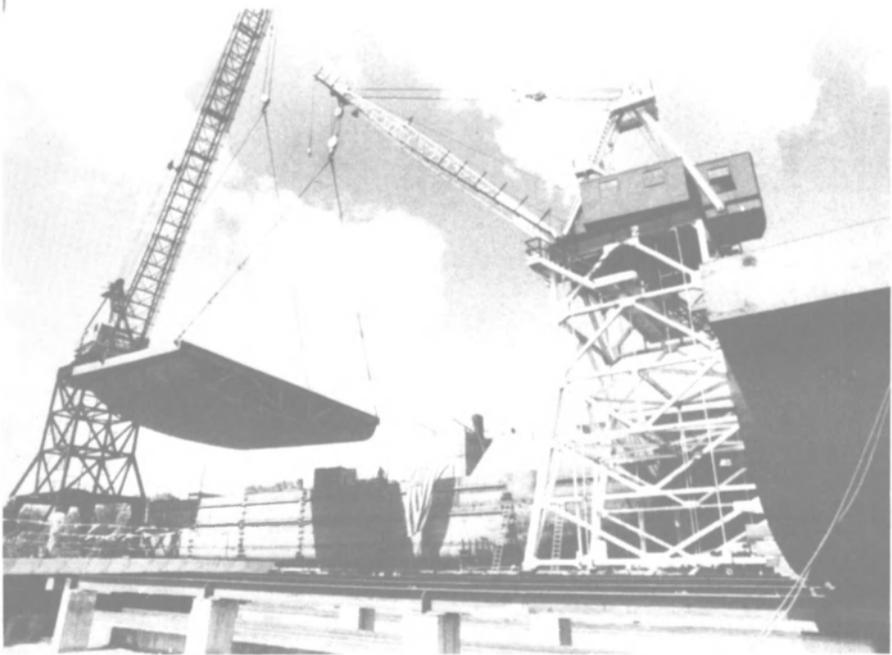
Following the presentation, crane operators lifted a 50-foot-long section of the Jackson's hull and positioned it next to an 80-foot section

already in place at the construction site.

When completed in 1985, the General Jackson will become "America's premier showboat," Opryland officials said. It will operate year-round on the Cumberland River, which flows beside the Opryland USA entertainment complex in Nashville.

The showboat will offer morning, day, and evening cruises, the latter to feature fine dining and an elaborate musical production. The theater in the vessel will seat 670 people for banquets or 1,000 people for theater-style presentations.

Jeffboat, the nation's largest inland shipyard, will assign some 130 employees to the Jackson's construction at the peak of the project. Nickum & Spaulding Associates of Seattle is the naval architecture and marine engineering firm on the project. Opryland has earmarked more



At recent ceremonial keel-laying, 60-ton steel section of showboat was lifted into place on the building ways at Jeffboat yard. Vessels will be launched in February 1985.

than \$10 million for the General Jackson project to cover vessel construction, a dock on the Cumberland River, and passenger loading facilities. The Jackson is scheduled for launching in February 1985, and is expected to be in operation in Nashville by mid-year.

Bender Monitors Protect Offshore Power Supplies —Literature Available

Line isolation monitoring (LIM) has proven to be extremely effective in reducing costly downtime from overload in isolated power systems. Bender, Incorporated of Haverford, Pa., has developed a system said to be ideal for dc power supplies on offshore platforms and other unmanned facilities.

The Bender system integrates a line isolation monitor, a main relay, individual relays for each distribution circuit, and a transducer. This system continuously monitors insulation resistance to earth; sounds an alarm at pre-set, adjustable resistance levels; identifies faulty circuit(s); and determines positive, negative, or symmetrical quality of fault(s).

In addition, the transducer's

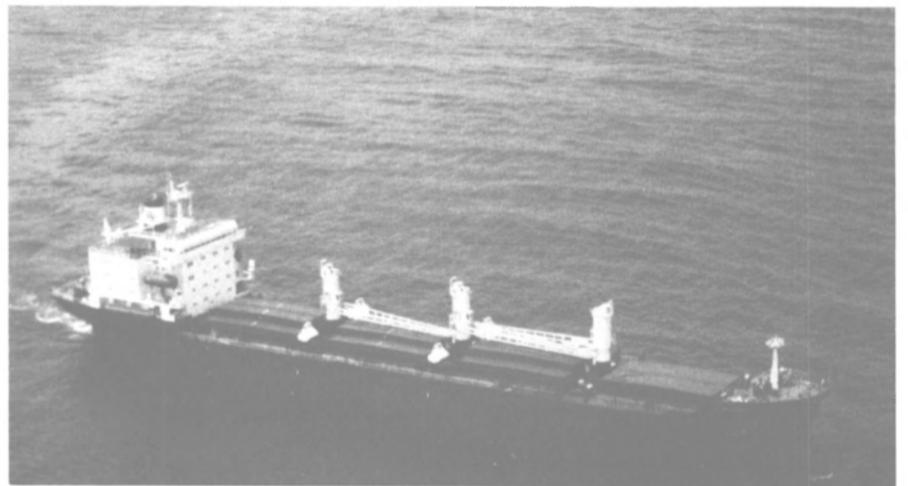
built-in monitoring circuit provides advance warning to the LIM itself. Optional under/over voltage relay and dc/dc converter are available for additional protection and ease of maintenance. The Bender dc LIM system is designed for modular installation conforming to Eurocard specifications. Plug/socket connectors are 15-pole rated at 15 amps each, for easy installation.

For further information on the Bender LIM,

Circle 15 on Reader Service Card

Hoboken Shipyard Gets \$10-Million Navy Contract For Overhaul Of Oiler

Hoboken Shipyard Inc. of Hoboken, N.J., has been awarded a \$9,954,162 firm-fixed-price Navy contract for the regularly scheduled overhaul of the oiler USS Canisteo (A0-99). Work is expected to be completed May 3, 1985. This contract was competitively awarded; nine bids were solicited and nine bids were received. The Supervisor of Shipbuilding, Conversion and Repair, San Francisco, is the contracting activity(N62794-83-C-0001).



Hyundai Delivers First Ship Built In Korea For Australian Owner

Hyundai Heavy Industries Company, Ltd. in Ulsan, South Korea, has recently delivered the 23,500-dwt bulk carrier Kowulka (shown above) to her Australian owner, Gypsum Resources Australia Pty. Ltd. This vessel has special significance, as she is the first built in Korea for an Australian owner. She will ply the Australian Coast carrying mineral gypsum from South Australia to the eastern states to be used in the manufacture of building materials, and will return from the North of Queensland to southern ports laden with sugar. She is also expected to trade between Australia and New Zealand.

Gypsum Resources Australia is a joint venture between Colonial Sugar Refinery Ltd. (CSR) and Boral Ltd., each of which holds 50 percent

of the shares. Austocean Pty. Ltd., a wholly owned subsidiary of CSR, awarded the newbuilding contract in June 1983.

The Kowulka has an overall length of 551.2 feet, beam of 79.7 feet, depth of 45.9 feet, and full-load design draft of 32.15 feet. She is classed by Lloyd's Register of Shipping +100A1 Bulk Carrier, +LMC, UMS, "Strengthened for Heavy Cargoes."

Her main engine is the newly developed, fuel-efficient Hyundai/Sulzer 5RTA58 having a maximum continuous rating of 6,800 bhp at 98 rpm. Operating at the normal continuous rating (80 percent) of 5,400 bhp at 91 rpm, her guaranteed service speed is 14 knots at design draft. Cruising range is about 11,000 nautical miles.

Cantrill Appointed Vice President of Sales For Lister Diesel Inc.



Phillip L. Cantrill

Phillip L. Cantrill has been named to the newly created position of vice president-generating set sales for Lister Diesel Inc, of Olathe, Kansas. He joins Lister after serving as international sales manager for Hawker Siddeley Power Plant, Thrupp, England, where he was responsible for generating set and engine sales in North, South and Central Americas, Europe, and the Far East.

Mr. Cantrill's appointment coincides with Lister's introduction of a new line of generating sets built specifically for the U.S. market. Known as the Hawkpower brand, the line will cover the output range from 3 to 130 kw. The Hawkpower sets are constructed to a modular type design that allows the end user to tailor his purchase to whatever sophistication his particular application requires. Anything from a bare basic unit to a complete package with full control panel and circuit breakers can be specified.

Lister has been supplying air-cooled diesel engines for generation set applications in the U.S. since before World War II, but this is its first attempt to market a competitively priced set under its own brand identity. The Hawkpower line will be sold through Lister's present network of engine distributors, who will also provide back-up parts and service.

Circle 31

Sperry Awarded Contract For Servicing Electronics Aboard U.S. Navy LPD

Sperry Corporation recently was awarded a \$441,000 contract to service the electronic equipment of the USS Trenton (LPD-14), a 17,575-ton (displacement) U.S. Navy amphibious transport dock ship of the Austin Class. This project will be performed by Sperry at its new Navy Repair Facility in Virginia Beach, Va. Metro Machine shipyard in Norfolk awarded the seven-month contract to Sperry.

Sperry recently was designated a Master Ordnance Repair (MOR) organization by the Navy. This designation qualifies the company for various types of electronic repair and servicing of U.S. Naval vessels by certifying that the firm has the necessary equipment, trained personnel, and facilities to perform the work.

Circle 262 on Reader Service Card ➔

Helton Appointed Vice President Of Sea-Land Alaska Division—Other Promotions Announced

Sea-Land Service has named Jack D. Helton vice president of its Alaska division headquartered in Seattle. He will be responsible for

managing the Alaska marketing and operations, as well as the company's Far East operations, through the Pacific Northwest. He replaces Jackson A. Baker, who has been appointed group vice president for Sea-Land's Atlantic division after heading the Alaska division for the past nine years.

Before joining Sea-Land in 1977 as Seattle port manager, Mr. Hel-

ton was with Mukluk Freight Lines in Anchorage and Lynden Transport Inc. in Seattle.

Sea-Land president R. Kenneth Johns also announced the appointment of M.M. Porter as vice president-Japan with headquarters in Tokyo; James D. Hinchcliffe as manager-West Japan, based in Osaka; and Thomas G. Cowan as general manager-Hong Kong.

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Cape-Bay Shipbuilders Offer Free Literature On 'American Tug-Yacht 38'

Cape-Bay Shipbuilders Corp., Marion Drive, Kingston, Mass., has available an interesting six-page brochure devoted to the standard 38-foot-long vessel that is the company's main product—the American Tug-Yacht 38 (ATY 38), which

is also offered in custom, commercial configurations.

The ATY 38 is described as a beefy vessel with a bold mix of business and pleasure blended with genuinely handsome and authentic tug styling and an interior that provides a warm, comfortable cruising or live-aboard atmosphere. As an all 'round cruising and fun yacht, it offers the best in sea or river-going enjoyment, whether cruising, fish-

ing, or simple harbor-hopping, while the tug character of the craft is marked by distinctive appearance, extra rugged seaworthy construction, positive maneuvering response and safe and comfortable accommodations.

"Step aboard the graceful, fan-tailed aft deck for a tour," the brochure invites us, and we are taken on a walking trip through the entire vessel with our "guide" pointing out

important features and details, accommodations, etc. Cutaway drawings and diagrams of the deck plan and standard layout are included to make the "tour" complete.

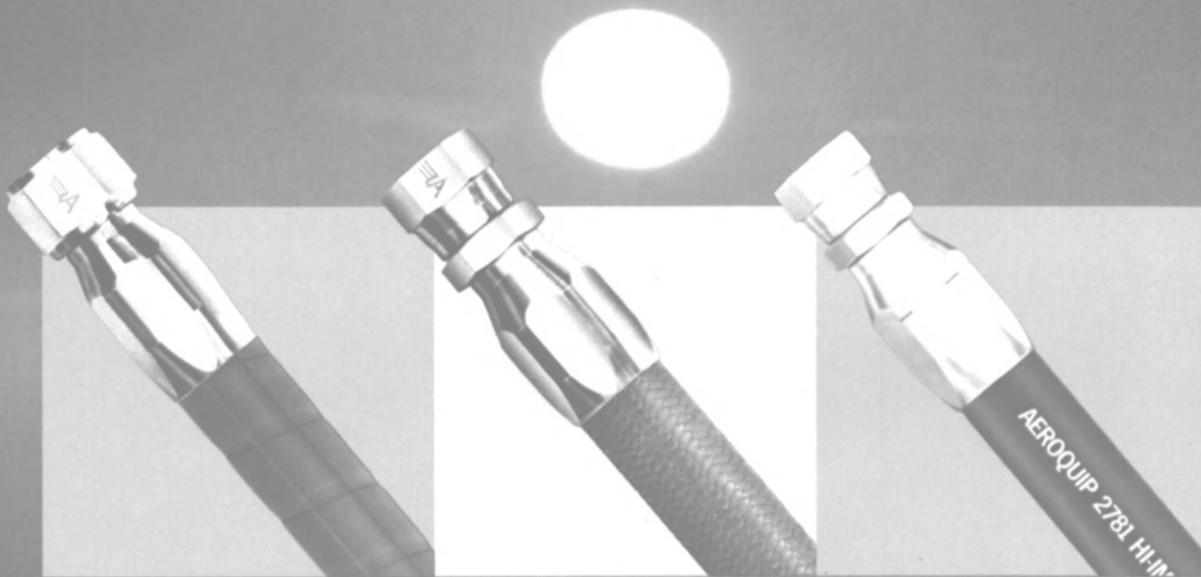
Alternate layouts for the American Tug-Yacht 38 are also discussed and illustrated in the publication.

For a free copy of the brochure and further literature containing full information,

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A view from the bridge

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FREE! Bulletin 5890



Circle 148 on Reader Service Card

2781 HI-IMPULSE™ Exceeds SAE100R2A

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For information about the products shown above, write for the specific catalog or brochure mentioned or ask for Marine Catalog 305B. Aeroquip Corporation, Industrial Division, 300 South East Avenue, Jackson, Michigan 49203, a Libbey-Owens-Ford Company.



Aeroquip turns problems into products



Circle 120 on Reader Service Card

Capital Marine Uses Computer Technology To Streamline Business

Capital Marine Supply, Inc., a subsidiary of Cincinnati-based Midland Affiliated Company, is keeping its business shipshape with the help of computer technology.

Capital Marine is a floating store built on a converted railroad barge on the Mississippi River in Baton Rouge, La. It maintains a varied inventory of more than 3,500 items ranging from paint to potatoes to petroleum. Vessels traveling the river call the store by marine radio from miles away, and orders are assembled and often put on a launch that meets the boats as they go by. "Boats traveling the river often have a daily operating cost of \$9,000, and they depend on us to get their supplies to them on time," said Carl Gerrein, controller of Midland Affiliated Company, which directed Capital Marine's computer acquisition. Mr. Gerrein credits his company's Honeywell DPS 6 small computer system with helping to manage Capital Marine's business more efficiently than before by improving inventory control and billing procedure.

In addition to helping streamline Capital Marine's inventory management, the computer has played an important role in helping to keep the company's prices competitive while still maintaining profits. "Our own boats travel the river constantly and often stop at competing supply stores. They return with price information on equivalent goods at the other stores, which our computer processes to help us keep up to date on how competitive we are," said Dan Johnson, manager of administrative services for Capital Marine.

Mike Spenlau, project manager for Midland Affiliated Company responsible for selecting the computer equipment, noted that Capital Marine experienced many of the usual startup problems associated with new computer equipment, but added that the headaches were minimized by the quick response of the Honeywell customer service representatives. Since then he says that the system has been very reliable.

For details and free literature on Honeywell's computer systems,

Circle 25 on Reader Service Card

For free information on Capital Marine's capabilities and services,

Circle 26 on Reader Service Card

Hale Fire Pump Awarded \$15.7-Million Navy Contract For Shipboard Units

Hale Fire Pump Company of Conshohocken, Pa., has been awarded a \$15,695,000 firm-fixed-price Navy contract for 5,000 P-250 Mod 1 portable firefighting pumps for use aboard surface ships as damage control equipment. Work is expected to be completed in August 1987. This contract was competitively procured; six companies were solicited and eight bids were received. The Navy Ship Parts Control Center in Mechanicsburg, Pa., is the contracting activity (N00104-84-C-0580).

GE Awarded \$7.27-Million Increase To Navy Contract For Spare Radar Antenna

General Electric Company, Syracuse, N.Y., has been awarded a \$7,274,480 modification, on a not-to-exceed basis, to a previously awarded fixed-price-incentive contract for one spare antenna mechanical structure for the AN/TPS-59 radar. The Naval Electronic Systems Command, Washington, D.C., is the contracting authority.

KaMeWa Reports Lively Interest In Water Jet Propulsion Units

After a moderate start at the end of the 1970s, KaMeWa AB of Sweden is now experiencing a spreading interest in the water jet (WJ) for vessel propulsion. Commencing with the delivery in 1980 of two WJ units of 1,600 hp each for the Apollo Jet, the same Hong Kong-based owner now has eight units on four catamarans in service. Additional boats of the same type will operate in various areas. Hong Kong police authorities have ordered 15 WJ units for delivery during 1984.

KaMeWa has booked orders for new geographical areas and new clients as follows: four units for the Finnish Defence Organization; two units for a special service prototype boat for a NATO country in Europe; two units, each of 1,180 hp, for a Singapore-built offshore crewboat of the catamaran type; two units for a Singapore yard, each of 1,420 hp, to be installed in a pleasure craft; two units, each of 690 hp, for a Japanese high-speed passenger boat to be built by Yamaha; and three units, each of 442 hp, for a European navy prototype combined transport and landing craft.

Some 50 WJ units are now in service or on order; the biggest is one 13,400-hp unit. Inquiries are now being received by KaMeWa from all over the world, mainly for high-speed, shallow-draft for military and commercial applications.

For additional information on the WJ units,

Circle 14 on Reader Service Card

Hirt Named West Gulf Operations Manager For Ryan-Walsh Stevedoring

Mobile-headquartered Ryan-Walsh Stevedoring Company, Inc., has announced the appointment of Capt. Ernst Hirt as operations manager-West Gulf. As a senior

member of the company's regional management staff in Houston, he will be responsible for day-to-day operations in the West Gulf Texas ports of Houston, Galveston, Beaumont, Port Arthur, and Orange.

A native of Switzerland, Captain Hirt has an extensive background in international steamship industry operations. A graduate of the Merchant Marine Academy in Rotter-

dam, he holds a Dutch master's license, and served as ship's captain for a Swiss-flag line. After coming ashore as port captain for a major U.S. steamship line, he became involved in a variety of cargo-handling and terminal management activities at a number of world ports, including construction of the first floating dock and container terminal at the port of Khorramshahr in Iran.

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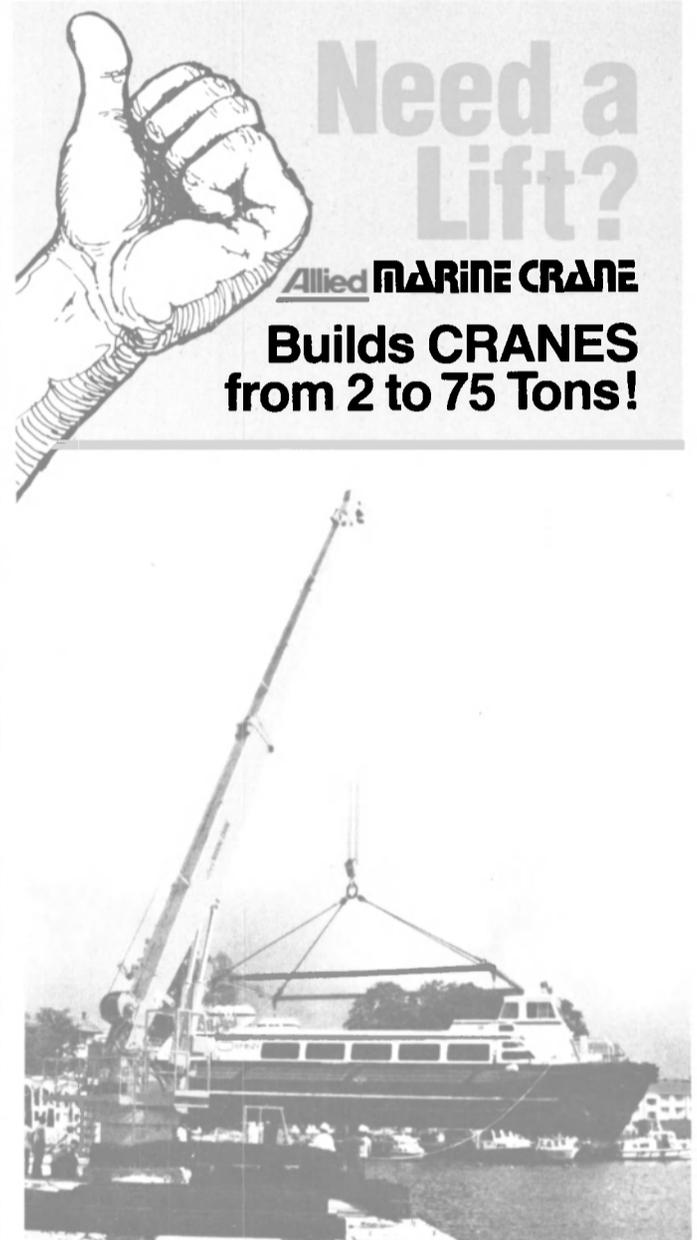
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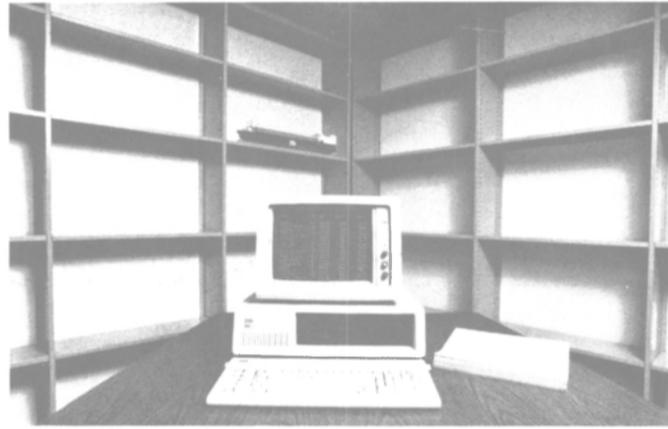
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Ship Characteristics—contains data with over 65 items-of-description on commercial ships over 1,000 GRT.

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*MARDATA is an international partnership including Marine Management Systems, Inc., Lloyd's Register of Shipping and Lloyd's of London Press, Ltd. Marine Management Systems, Inc., is an authorized IBM Value Added Dealer.



The Happy Buccaneer, shown above, is a heavyweight cargo carrier recently completed by Hitachi Zosen for Amstel Tanker Management B.V. (Mammoet Transport) of the Netherlands.

Most Powerful Heavy Lift Cargo Ship Delivered by Hitachi Zosen

The 13,740-dwt Happy Buccaneer, said to be the most powerful heavy lift cargo carrier in the world, was delivered recently by the Hiroshima yard of Hitachi Zosen Corporation in Japan to Amstel Tanker Management B.V. (Mammoet Transport) of the Netherlands.

The vessel is fitted with two heavy lift mastcranes (HLM), a new development of Blohm + Voss of Hamburg, West Germany. Each crane has a lifting capacity of 50 tons, and operated in tandem they can lift loads of up to 1,100 tons at an outreach of 35 meters (about 115 feet). Unlike conventional cranes, the derrick of the HLM slews around a fixed mast. Because of this design, the mast diameter as well as the diameter of the slewing bearing can be relatively small, thereby reducing deck space required.

The HLMs' design and their arrangement at the starboard side of the ship make it possible to provide a continuous and very wide hatch opening for bulky heavy lifts. At sea the derricks will be lashed in a nearly vertical position, permitting the carriage of bulky deck cargoes.

Open hull construction has been adopted for this ship, and no longitudinal bulkheads are present in the cargo hold, thus allowing large-size cargoes of various shapes. The cargo hold is divided into two compartments, upper and lower, by pontoon type hatch covers. The hold is designed so that the vessel can sail while her upper-deck hatch covers are removed. In addition, heavy-weight cargoes can be rolled on and off via the ship's stern ramp. As an alternate cargo, the vessel has a carrying capacity of up to 1,058 twenty-foot containers.

Main propulsion is provided by two Hitachi/Sulzer 6ZAL40 diesels, each with maximum continuous rat-

ing of 5,220 bhp at 580 rpm. Twin controllable-pitch propellers are driven through reduction gearing; a bow thruster is also installed. Together they provide the ship with efficient propulsion and enhanced maneuverability.

The Happy Buccaneer has an overall length of 439.6 feet, beam of 92.85 feet, depth of 48.56 feet, and full-load draft of 27 feet. She is built to Lloyd's Register of Shipping classification.

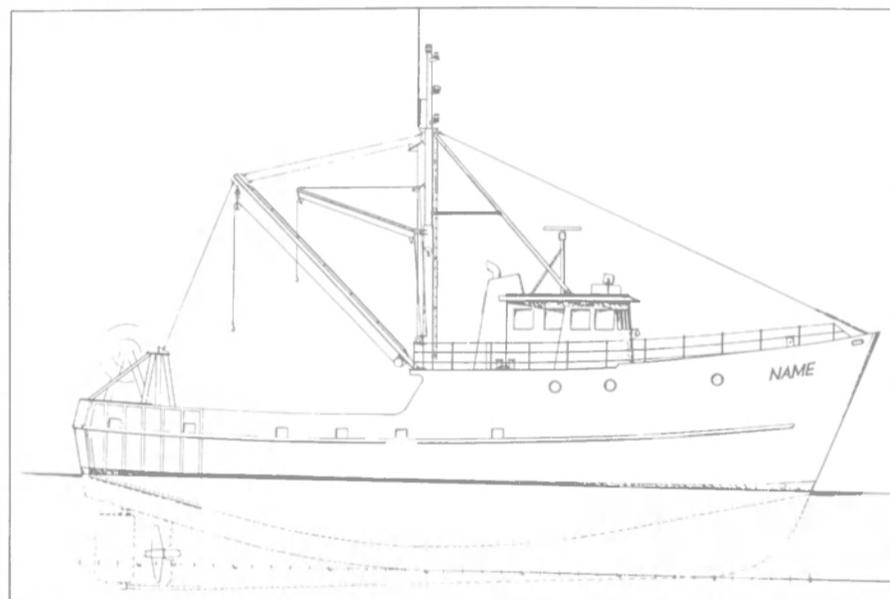
St. Augustine Trawlers Awarded Contract To Build Cat-Powered Vessel

Charles H. Rains, president of St. Augustine Trawlers in St. Augustine, Fla., recently announced the signing of a contract to construct an 85-foot by 24-foot steel trawler for Salvatore and James Bramante of Boston. Designed by John W. Gilbert Associates, Inc. of Boston, the vessel will be powered by a Caterpillar 3508 diesel engine with a rating of 775 bhp at 1,600 rpm, and will have two Northern Lights 40-kw generators. The trawl winches to be supplied by Pine Hill Equipment Company will be driven by power takeoff from the main engine via Marco air clutches.

Mr. Rains said this will be the second vessel delivered to the Bramante family in less than a year. The new vessel is scheduled for

delivery by the end of October this year. He also announced the completion and successful sea trials of the 80-foot by 40-foot Small Water-Plane Area Twin Hull (SWATH) vessel Charwin.

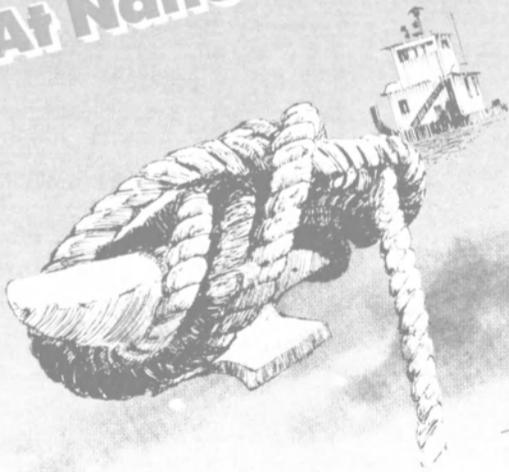
The SWATH craft is a prototype developed by Mr. Rains, and is believed to be the first vessel of its class engaged in commercial fishing in the world. The vessel's stable platform allows it to carry a large deck cargo and work in sea conditions in which conventional vessels could not operate. The Charwin is currently shell stocking scallops out of St. Augustine. Mr. Rains is very optimistic about the adaptability of the SWATH vessel to search and rescue and seismographic applications.



Outboard profile of the steel vessel to be constructed by St. Augustine Trawlers

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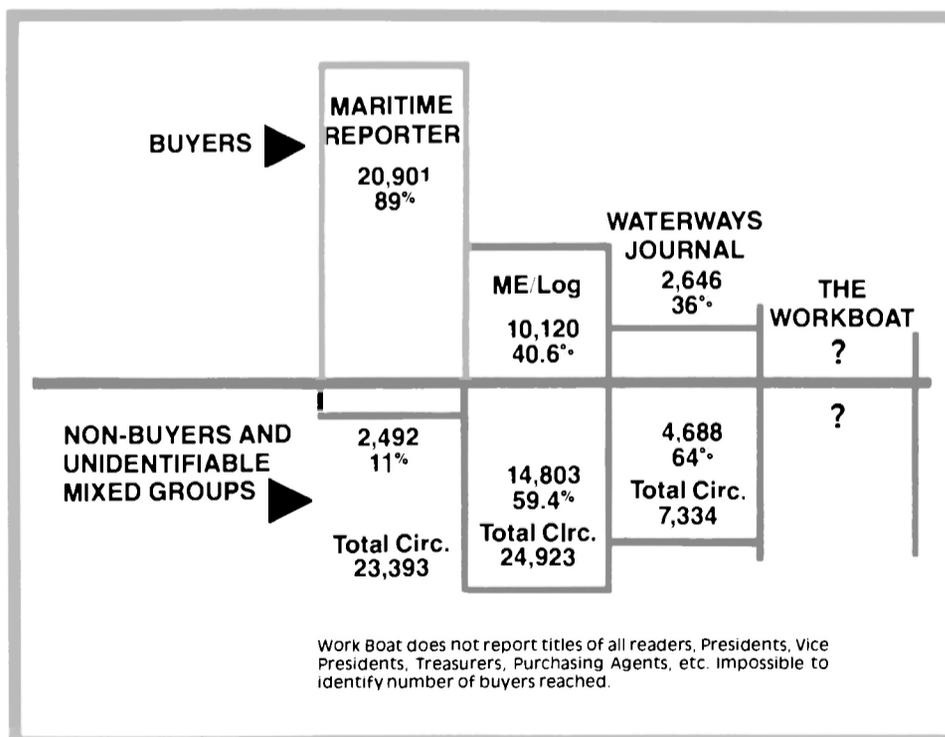
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	657
	655
Shipbuilding/Repair	2,147
	613
	547
Deck Machinery/Cargo Handling	523
	419
	395

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1,153
1,123

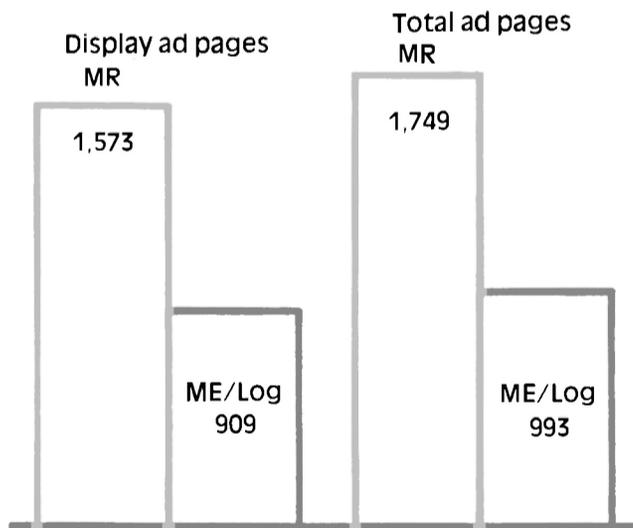
Navigation & Communications

663
621
590

Oily Water Separators

756
459
360

COMPARE 1983 ADVERTISING



Note — shows only magazine advertising
13 ME/Log issues —
24 MR issues . . .
no catalogs, buyers
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for comparison.

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October 15, 1984

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United Technologies Names Skiba Operations Director For Diesel Systems Unit

Donald J. Skiba has been appointed director-operations for the United Technologies Diesel Systems manufacturing facility in Columbia, S.C. He is responsible for

overall operating control and management of the fuel injection pump manufacturing plant. Prior to moving to the Columbia plant, he held the same position at the company's Springfield, Mass., manufacturing facility.

United Technologies Diesel Systems is a leading worldwide manufacturer of diesel fuel injection systems and components for diesel en-

gines used in marine vessels, mobile construction equipment, stationary generator sets, and other applications. The company, a division of United Technologies Automotive, operates two U.S. plants and two in Europe.

For free literature on United Technologies Diesel Systems fuel injection systems and components,

Circle 27 on Reader Service Card

Literature Available On Harbormaster Transverse Mounted Propulsion Unit

Harbormaster of Quincy, Mass., Division of Mathewson Corporation, is offering literature on the company's SW-2000 and SW-3000 series transverse-mounted propulsion unit.

The Harbormaster transverse design propulsion unit makes use of the latest in power transmission technology to allow for mounting the chassis transversely on the vessel to greatly reduce the fore and aft deck space usually required.

In addition to descriptive text, the literature contains specific data on input speeds, lubrication and cooling, elevation, steering thrust, chassis, and propeller, and also a list of available options for controls, stem lengths, anti-cavitation plate, fuel tanks, and propellers. Included is a listing of the Harbormaster SW-2000 and SW-3000 series models and cutaway drawing showing the elevating arc of 90 degrees from the vertical (deck level), which is standard.

For free literature containing full information,

Circle 19 on Reader Service Card

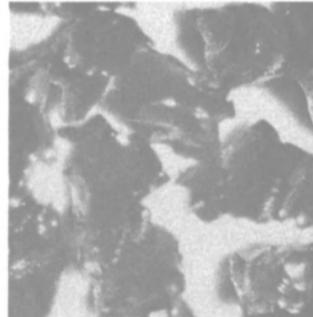
Laboratory tests prove it!

Copper Blast

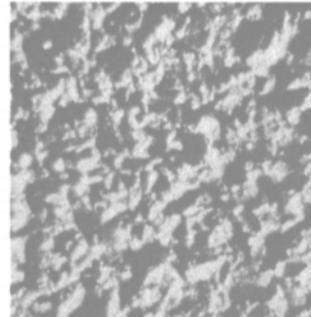
Cuts 30-50% Better Than Lower-Quality Slag And Up to 4 Times Faster Than Many Silica Sands.



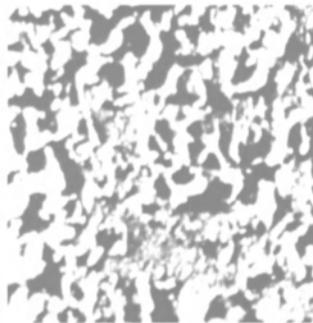
Workers using COPPER BLAST see what they're doing and do more work in less time



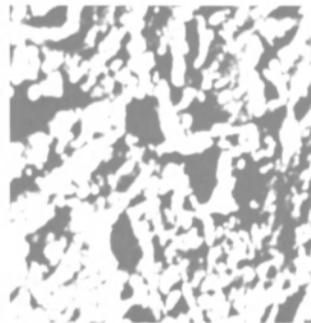
Every edge of a reusable COPPER BLAST particle is a cutting edge (magnified 17 times)



COPPER BLAST creates a uniform anchor pattern which provides good coating adhesion.



These cratered surfaces were made by nickel slag (left) and silica sand abrasives (right). They left more residue and will require more paint.



Once again, lower initial cost doesn't mean lower operating cost.

In recent laboratory tests, COPPER BLAST has a 50% cutting advantage over lower quality copper slags and, on many jobs, could do twice the work in the same time.

These same tests prove COPPER BLAST produces less dust during use than other sand or slag-based abrasives. Less dust means greater visibility and increased productivity. COPPER BLAST is certified by the California and Utah air quality standards boards.

Why all-purpose COPPER BLAST works harder.

Particles are angular. Every surface is a cutting surface. COPPER BLAST is harder so particles are not crushed on impact and can be reused on many jobs.

Because the six grades of COPPER BLAST are uniformly screened, more particles are similar in size. They strike the surface with the same mass and velocity, providing a more even anchor pattern.

COPPER BLAST is safe.

With very little dust, workers can see and have greater protection from silicosis, (a form of lung disease). The free silica content of COPPER BLAST is so low it can't be detected by standard laboratory methods. COPPER BLAST meets all current OSHA, EPA and NIOSH chemical limits.

COPPER BLAST cleans faster at lower cost.

It makes sense. If you blast with a product that cuts better, cuts faster, creates less dust and lasts longer, your work forces will clean more surfaces in less time for less money. This makes premium-quality

COPPER BLAST a very cost-effective abrasive, especially with its safety benefits and low free silica levels.

If you're responsible for specifying or buying blasting material, we have a quality, performance and cost story you should hear. We can also show you how much dust particles cost on *your* jobs.

COPPER BLAST is made in a new, high-tech plant. It is available for immediate delivery throughout the West and Midwest.

Just call or write James D. Hansink, Manager, Construction Materials, Rocky Mountain Energy, 10 Longs Peak Drive, Box 2000, Broomfield, CO 80020.

Or return the reader response card in this publication.

Call toll-free: 800-525-8113. (In Colorado, call collect 303-469-8844.)



ROCKY MOUNTAIN ENERGY

A Subsidiary of Union Pacific Corporation

Circle 26 on Reader Service Card

Navy Awards Lockheed \$9.2 Million For LSD Shipboard Materials

Lockheed Shipbuilding Company of Seattle has been awarded a \$9,227,640 face value increase to a previously awarded cost-plus-fixed Navy contract for coordinated shipboard allowance list materials for Landing Ship Dock (LSD) class ships. Work is expected to be completed in January 1986. This contract was not competitively awarded. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-2018).

Crosby Group Adds New Block To Product Line

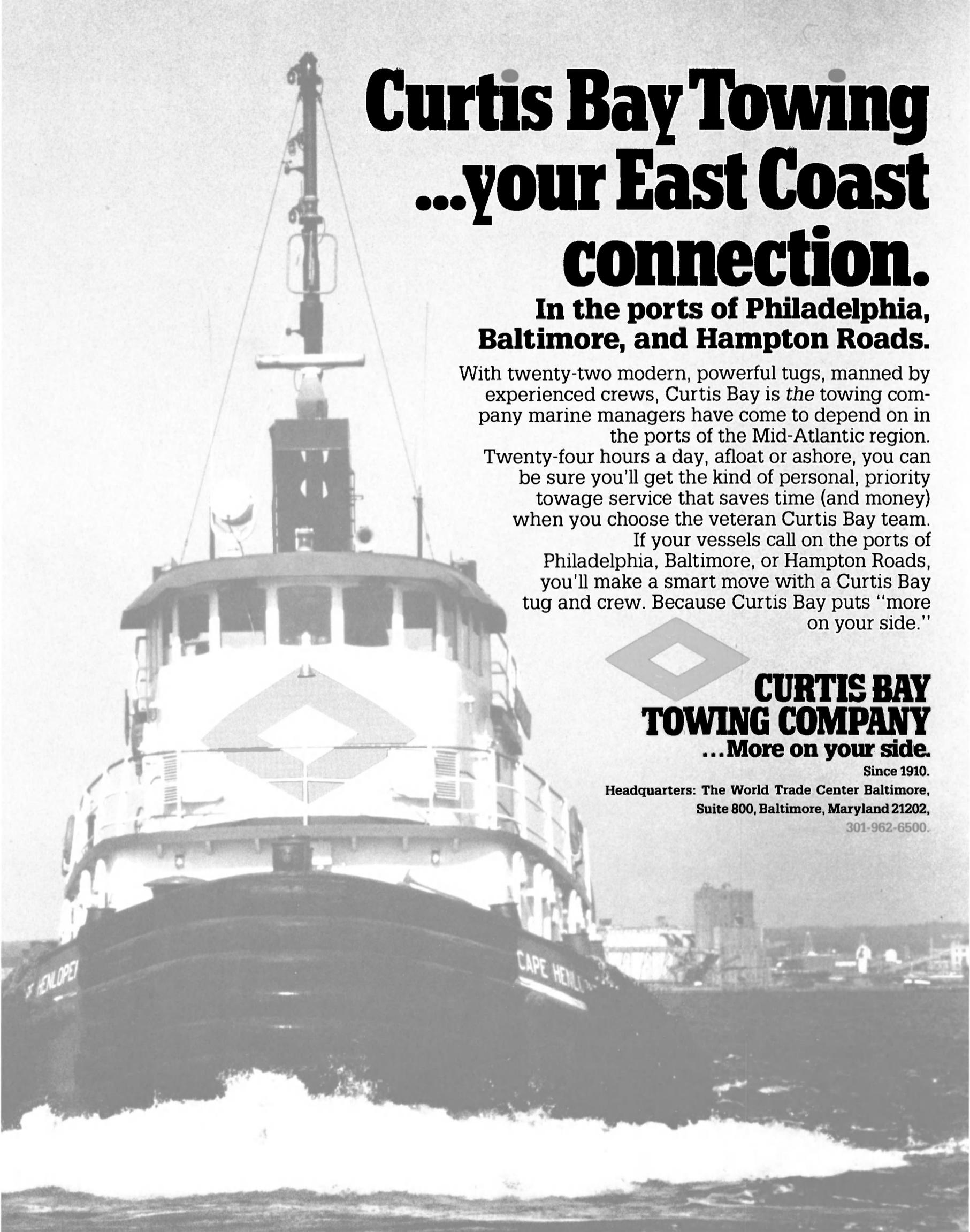
The Crosby Group, Inc. of Tulsa, a subsidiary of Amhoist, has added a new try net block to its line of marine products. The F-453 block with a 6-inch-diameter forged steel sheave having a flame-hardened groove is capable of handling multi-line feeds through its extra-wide throat opening.

Another new feature of the F-453 is the round swivel eye for easier connections. The eye and the center pin are lubricated to facilitate handling, especially in high speeds where salt water affects metallic surfaces. To give longer service, the F-453 is hot-dipped galvanized. Its zinc coating prevents the formation of rust, a common cause of inefficiency in marine operations.

The F-453 try net block has a working load limit of five tons and an ultimate working load limit of 20 tons.

For a free 30-page brochure on Crosby's marine products,

Circle 17 on Reader Service Card



Curtis Bay Towing ...your East Coast connection.

**In the ports of Philadelphia,
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With twenty-two modern, powerful tugs, manned by experienced crews, Curtis Bay is *the* towing company marine managers have come to depend on in the ports of the Mid-Atlantic region.

Twenty-four hours a day, afloat or ashore, you can be sure you'll get the kind of personal, priority towage service that saves time (and money) when you choose the veteran Curtis Bay team.

If your vessels call on the ports of Philadelphia, Baltimore, or Hampton Roads, you'll make a smart move with a Curtis Bay tug and crew. Because Curtis Bay puts "more on your side."



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TOWING COMPANY**
...More on your side.

Since 1910.

Headquarters: The World Trade Center Baltimore,
Suite 800, Baltimore, Maryland 21202,

301-962-6500.

Hyde Awarded Contracts For Deck Machinery On Korean-Built Vessels

Hyde Products, Inc. of Cleveland, Ohio has recently been awarded contracts to supply deck machinery for the first vessels of two new classes to be built in South Korean shipyards. Hyde will build the anti-

magnetic anchor windlass for a Mine Hunting Craft (MHC) and the steering gear, anchor windlass and capstan for a Police Corvette (PCX). These new contracts bring to 19 the total number of Korean built vessels supplied with Hyde deck machinery. In September and October of 1984 Hyde delivered steering gears and anchor windlasses for four ROK navy Corvettes (KCX) and one Frigate (KFX). Ne-

gotiations are currently being concluded for additional KCX equipment to be delivered in 1985.

Hyde steering gears and deck machinery are installed on hundreds of U. S. Navy vessels and on naval and commercial vessels operating throughout the world. Hyde also offers USCG and IMO certified oil water separators, pump systems, marine chemicals, oil spill recovery equipment, replacement parts, ma-

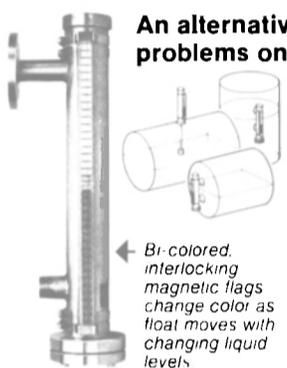
chinery overhauls and modifications, and onboard service anywhere in the world.

For more information and a copy of Hyde's new marine products brochure,

Circle 11 on Reader Service Card

GEMS...unique choices for marine tank gauging.

SureSite Level Indicators



An alternative to cloudy sight glass problems on shipboard day tanks.

Provides highly visible, accurate, safe, continuous indication. Externally-mounted; liquid within float housing. Used with water, oil, or corrosive, flammable or explosive liquids. Can incorporate switches or transducers for remote indication, alarms, etc.

Circle 101

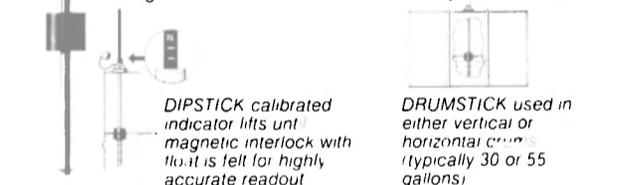
Non-electric DIPSTICK & DRUMSTICK Level Indicators

For on-the-spot use in storage tanks or drums where power is not available.

Operate manually in chemicals, oils, fuels, etc. Only float and stem in contact with liquid. Choice of materials and mountings. Indicating lengths from 6" to 72" in 1/4 increments* Temperatures to 230°F.; pressures to 750 psi.

*Longer units available: consult factory.

Circle 102



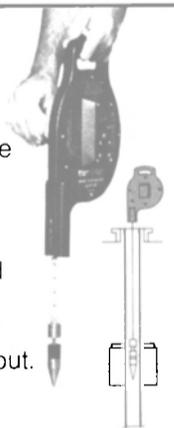
DIPSTICK calibrated indicator lifts and interlocks with float to give highly accurate readout

DRUMSTICK used in either vertical or horizontal orientation (typically 30 or 55 gallons)

Sounding Tope

Portable tank gauging in stationary tanks or barges.

An easy-to-read, fractionally-marked tape reels out of gun into a tank, or hollow nonferrous, tank-mounted tube or pipe. Powered by a 9V battery, unit features a magnetic float which rides with the liquid level and interfaces with a reed switch within the plumb bob to provide physical sounding for accurate (1/8") ullage readout. Coast Guard accepted for restricted or closed loading use. FM-approved for intrinsic safety with hazardous cargoes.



Circle 103

For application information, call toll-free: (800) 321-6070. In Ohio call (800) 441-7733.

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Circle 144 on Reader Service Card

Scientific-Atlanta Gets \$8.5-Million Contract For Shipboard Platform Work

Scientific-Atlanta, Inc. of Atlanta, Ga., has received an \$8.5-million contract from Spar Aerospace Limited of Toronto for the design and development of a three-axis, stabilized shipboard platform to support infra-red sensing equipment. The platforms are part of a Spar contract to supply the full-scale engineering development models of a Naval infra-red search and target designation system (IRSTD). This system is used to passively detect and track infra-red signals generated by aircraft and missiles, and for the observation of surface features such as ships, coastlines, and icebergs. IRSTD complements modern shipboard active radar surveillance systems.

This initial \$8.5-million contract with Spar carries with it the potential for future production to meet the requirements of the U.S. and Canadian navies. Spar is jointly funded by the U.S. Navy and the Government of Canada under the Defense Development Sharing Agreement between the two countries.

New Literature Describes Neese Protective Clothing —Free Copies Available

New free literature is available on the protective clothing manufactured by Neese Industries, Inc. of Gonzales, La.

All Neese protective garments have 100 percent liquid-proof seams, non-conductive, non-corrosive, non-sparking snaps and fasteners, thoroughly coated fabrics, full elastic suspenders, and custom-tailored, generous sizing. The eight-page color brochure from the company gives detailed information on the style, color, and fabric of the various types of clothing available in the vinyl line polyurethane, synthetic rubber, and economy line.

Though most items cataloged in the literature are offered in various colors, the brochure uses "safety yellow" illustrations, "in action" to show the flexibility and freedom of movement the garments provide in extreme weather conditions and in various types of use.

Also included is complete ordering information, and a special flyer on Neese's commercial fishing suit which the company calls "a foul-weather fishing suit for the tough customer."

For copies of the literature and more information,

Circle 28 on Reader Service Card



WÄRTSILÄ DIESEL

The semi-submersible drilling rig Doo Sung* is equipped with four Wärtsilä Vasa 12V22 diesel engines with a total output of 6360 kW/8640 HP.

* Built for Korean Drilling Company Ltd. by Daewoo Shipbuilding & Heavy Machinery Ltd. Designed by Western Services International, Inc.

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Telex 971358 wpi ny

Southwest Marine, Inc., Sand Pedro Yard, 985 So. Seaside, Terminal Island, CA 90731, Tel. (213) 519-0600, Telex 910-345-6638 swm term

Circle 204 on Reader Service Card

GASTECH '84

Amsterdam

November 6-9



The 10th International LNG/LPG Conference & Exhibition, Gastech 84, will be held at the RAI Congress & Exhibition Centre in Amsterdam, Netherlands, November 6-9 this year. It will be the 10th meeting in this series of international LNG/LPG conferences that started in 1972 in London, and which has been held in various major cities in Europe and the U. S.

Until 1976 the Gastech meetings were held annually but since that year have been held in two years out of three to avoid a conflict with the "LNG" series sponsored by the IGU/IGT/IIR and held every three years. The Gastech name was originally coined for the third meeting of the series, held in Amsterdam in 1974. The 10th meeting, therefore, marks 10 years of the Gastech name and a 10th anniversary return to the RAI Congress Centre.

Fittingly, the anniversary conference program is the most comprehensive in scope of the series, with nearly 60 papers scheduled for presentation at seven sessions: World Gas Supplies, LPG Production & Trade, Safety & Training, Trans-

portation Technology & Operations, Commercial Documentation & Contracts, Liquefied Gas Terminals & Storage and Gases as Transportation Fuels.

Dr. **George H.B. Verberg**, director-general for energy in the Netherlands Department of Economic Affairs, will make the opening remarks and chair the first session of the conference. He presides over the Netherlands' gas industry—Western Europe's largest gas producer—that, based on the Groningen gas field, virtually launched the Western European natural gas market in the 1960s. Dr. **Verberg** will address his opening remarks to the global position of the Netherlands as a major gas supplier and consumer, the impact of natural gas on the Dutch economy, and the broad lines of future export policy.

A sizeable part of the international liquefied gas community will be in Amsterdam for the Gastech 84 meeting. Total registration is expected to top 2,000, comprising some 1,500 Conference delegates and 500 exhibitors—a 300-percent increase over the 1974 figure and the highest total ever registered for any meeting in the series.

More than 50 countries will be represented in the Exhibition, with many of the major gas producers—Saudi Arabia, Algeria, Kuwait, Mexico, Canada, Norway, the U.K., the U.S., the Netherlands, Brazil, Qatar, and others—also represented on the Conference program.

The combined South and West Halls of the RAI Exhibition Centre, totaling more than 9,000 square meters, will be the location for the Gastech 84 Exhibition, which is an integral part of the event. Nearly 150 displays from all over the world will be staged in the exhibition halls, making this by far the largest and most comprehensive exhibition of LNG/LPG technology, equipment, and services ever held. Among the notable exhibits will be a number of large, national group displays, including France, Great Britain, and West Germany.

A technical visits program has been arranged to enable groups of delegates to see various aspects of gas industry activities in the Low Countries. Visits include an inspection of the Wieringermeer compressor and blending station of N.V. Nederlandse Gasunie; a tour of the inert gas generator production and

testing facilities of Smit Ovens Gas Generators (formerly Holec) at Nijmegen; and, crossing the Dutch frontier into Belgium, an inspection of the impressive new LPG importation and storage facilities of the Antwerp Gas Terminal Company.

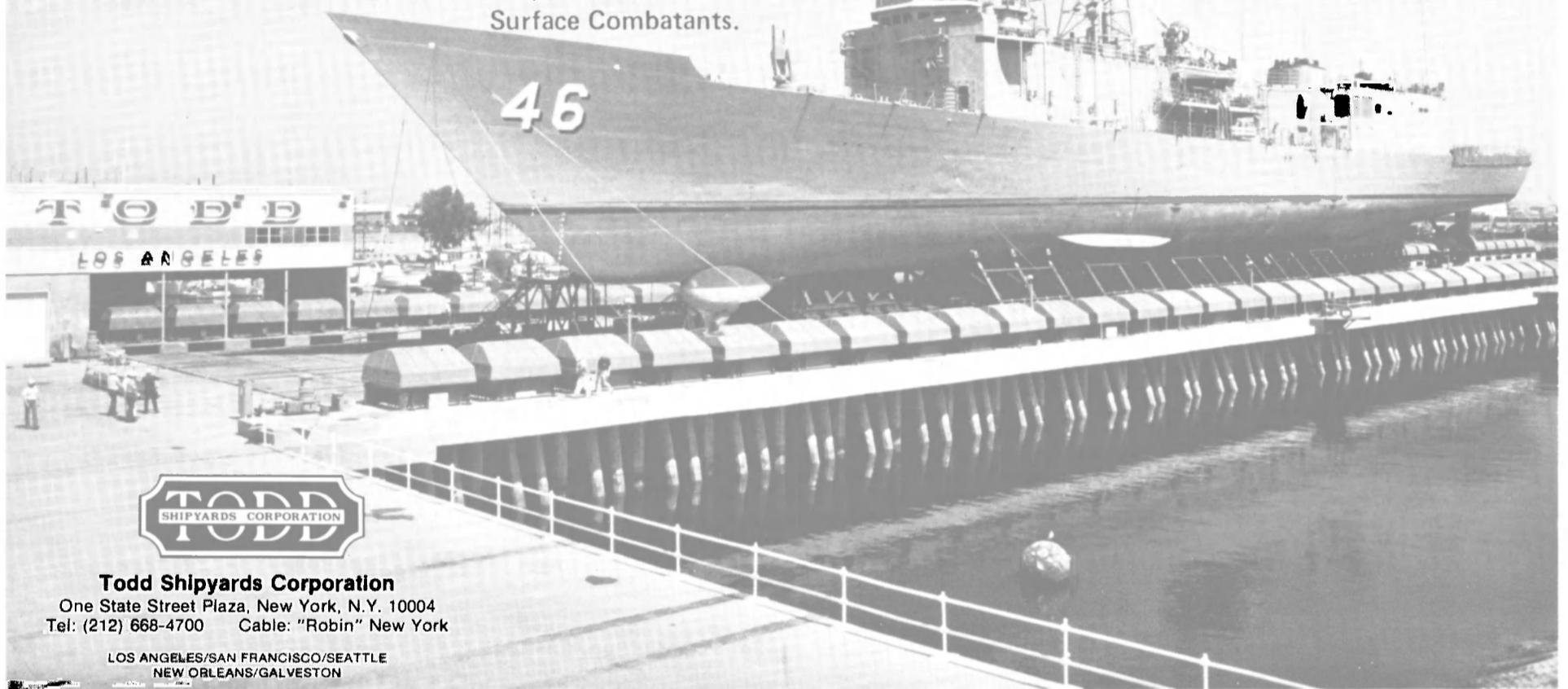
With the intensive Conference program, the comprehensive Exhibition, and the technical visits keeping delegates busy during working hours, they are encouraged to relax and meet other gas industry executives in a convivial atmosphere at two Gastech parties: a Welcome Party on the first day at the conclusion of Conference and Exhibition activities, and an official Cocktail Buffet Reception for delegates and their ladies on the following evening. This latter event, traditionally the social highlight of the Gastech meeting, will be sponsored this year by Poten and Partners, New York and London, and hosted by senior director **Michael Tusiani** and his colleagues.

The Gastech 84 meeting begins with delegate registration in the RAI Congress Centre on Monday, November 5, from 3 to 6 p.m. The Exhibition opens at 9 a.m. on November 6, and the Conference starts

Photo—Amsterdam harbor

THE SYNCROLIFT: One Idea That Will Carry a Lot Of Weight

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at 2:15 p.m. on the same day, closing on Friday, November 9, at about 3:00 pm. Delegates are encouraged to participate in all aspects of the Conference program; as at all previous meetings in the series, pre-prints of the Conference papers are mailed to registered delegates well in advance of the meeting.

Conference Program Tuesday, November 6

Session 1: **World Gas Supplies.**
Chairman: Dr. **George H.B. Verberg**, director-general for energy, Ministry of Economic Affairs, The Hague, Netherlands.
2:15 pm—Opening remarks by Dr. **Verdberg.**
2:30 pm—"Natural Gas Supplies in the World Energy Market," by **A. Grotens**, president, NV Nederlandse Gasunie, Groningen, Netherlands.
3:00 pm—"World Gas Reserves and Availability," by **J.T. Jensen**, J.T. Jensen Associates Inc., Boston.
3:30 pm—Coffee break.
4:00 pm—"The West European Gas Gamble: An Oligopoly versus a Monopsony," by **O. Noreng**, Institute of Energy Policy, Norwegian School of Management, Bekkestua, Norway.
4:30 pm—"LNG Pricing: Past, Present, and Future," by **G.D. Car-**

ameros Jr., International Gas Development Corporation B.V., Houston.

5:00 pm—"Offshore Gas Utilization in Norway, Argentina, and Malaysia," by **W. Prewo**, Deutsche Anlagen Leasing Service GmbH, Munich, Germany; and **F.W. Heirhoff**, Wirtschaftsvereinigung Industrielle Meerestechnik e V., Dusseldorf, Germany.

6-8 pm—Gastech Welcome Party in the RAI Halls for all delegates and exhibitors.

Wednesday, November 7

Session 2: **LPG Production and Trade.**

Note: This is an all-day session, starting at 9:00 am. There will be a break for the Delegates' Luncheon from 12:30 to 2:00 pm. Co-chairmen: Dr. **Youcef Yousfi**, deputy general manager, Sonatrach, Algiers, Algeria; and **Michael Tusiani**, Chairman, Poten and Partners, Inc., New York.

Speakers:

"Pricing Issues: LPG versus Refined Products," by **A.H. Al Roumi**, executive assistant managing director-sales, Eastern Hemisphere, Kuwait Petroleum Corporation, Safat, Kuwait.

"Trends in Gas Shipping Arrangements," by **D.J. Bibby**, chairman,

Bibby Bros. & Company, Liverpool, U.K.

"European Gas Terminals and Inland Distribution Systems," by **J.H. de Sola**, managing director-supply and trading, Shell Nederland Verkoopmaatschappij, Rotterdam.

"Prospects for LPG as an Industrial Fuel in Japan," by **T. Nakazawa**, deputy general manager, Overseas Operations Department, Idemitsu Kosan Company, Ltd., Tokyo.

"Marketing Channels for North Sea LPG," by **J.E. Sandvik**, senior vice president-refining and marketing, Statoil, Stavanger, Norway.

"The Value of LPG as Ethylene Feedstock," by **T.H. Walthie**, director-feedstock supply, Dow Chemical Europe SA, Horgen, Switzerland.

Panelists:

O. Shaban, manager-International Trade Division, General Petroleum and Mineral Organisation (Petromin), Dhahran, Saudi Arabia.

E. Al-Mutawa, acting head-marketing and transportation, Qatar General Petroleum Corporation, Doha, Qatar.

F. Anderiz Cebrian, director, LPG Supply Department, Butano, S.A., Madrid.

J.L. Dupay, vice president-LPG

trading, Contichem Division of Continental Grain Company, New York.

M.K. Faid, manager-gas exports, Sonatrach, Algiers, Algeria.

S. Hamada, LPG coordinator, Gas Department, Mitsubishi Corporation, Tokyo.

M.C. Hoare, manager-LPG, BP Gas Limited, London.

B.W. Kim, president, Jungwoo Energy Company, Ltd., Seoul, Korea.

M. Martinez Kahn, manager-LPG and petroleum products exports, Petroleos Mexicanos, Mexico City.

D. McCoy, LPG manager, Exxon International Company, Florham, Park, N.J.

H. Monteiro da Silva Porto, deputy general manager-petroleum products, Petroleo Brasileiro S.A., Rio De Janeiro.

K.J. Vaughan, general manager-LPG trading and land pipelines, British National Oil Corporation, London.

Wednesday, November 7

Session 3: **Safety and Training.**
Workshop Session in Glass Hall.

Chairman: **D.R. Tucker**, consultant, Merseyside, U.K.

11:30 am—"A Safety Review of Ships for Liquefied Gases and Fu-

(continued on page 20)

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ture Legislative Needs," by **D.S. Aldwinckle** and **D. McLean**, Lloyd's Register of Shipping, London.

12:00 noon—"A Review of the Developments in LNG Storage Safety as Reflected by Risk Assessment," by **D.A. Jones**, health and safety executive, London.

12:30 pm—Luncheon for delegates.
2:00 pm—"The Filling Limitations of Cargo Tanks: A Review of the IMO Gas Carrier Code Requirements," by **M. Bockenbauer**, Germanischer Lloyd, Hamburg.

2:30 pm—"On-board Operations and Safety Training for Liquefied Gas Tanker Personnel," by **G.B. Angas**, College of Nautical Studies, Warsash, Southampton, U.K.

3:00 pm—"Safety in the Design of Gas Terminals," by **A. Valk**, Comprim BV, Amsterdam; and **R. Sylvester-Evans**, Cremer & Warner, Ltd., London.

3:30 pm—Coffee break.
4:00 pm—"Operation and Maintenance Safety Audit during the Design and Construction of a Major Natural Gas Liquids Facility," by **J.G. Sellers** and **C.J. Luck**, Arthur D. Little, Ltd., London; and **M.F. Pantony**, health and safety executive, London.

5:00 pm—"Rapid Assessment of the Consequences of LPG Releases," by **M. Considine** and **G.C. Grant**, UKEA, Safety and Reliability Directorate, Culcheth, Warrington, U.K.

7:30 pm—Cocktail Buffet Reception for all registered delegates and spouses.

Thursday, November 8

Session 4: Transportation, Technology & Operations.

Chairmen: **Roger C. Ffooks**, consultant, London; and **R.J. Lakey**, Robert J. Lakey & Associates, Inc., Houston.

9:00 am—"An Up-date on the Activities of the Society of International Gas Tanker and Terminal Operators Ltd.," by **M.P. Holdsworth**, SIGTTO, Bermuda.

9:30 am—"The Interdependence of Plant, Port, & Shipping Customers' Facilities in an LNG Scheme," by **D.B. Jenkins**, Shell International Gas Ltd., London; and **C.C. Woodward**, Shell International Petroleum Company Ltd., London.

10:00 a.m.—"Gas Transportation from Northern Norway: a Presentation of Possible Options," by **J. Bakke**, Moss Rosenberg Verft A.S., Stavanger; and **R.F. Schrader** and **G.A. Amundsen**, Kvaerner Engineering A. S., Lysdaker, Norway.

10:30 a.m.—"IHI SPB LNG Carrier Fatigue Strength: Quality Control and Recent Design Development," by **A. Ando** et al, Ishikawajima-Harima Heavy Industries, Tokyo.
11:00 a.m.—"A 30,000-m³ Semi-pressurized Ethylene Carrier," by **H. Backhaus** and **R. Olschlager**,

LGA Gastechnik GmbH, Ramagen-Rolandseck, Germany.

11:30 a.m.—"Optimization of LPG Carrier Design and its Influence on Long-term Operating Costs," by **V. Puklavec**, Liquid Gas International Ingenieurgesellschaft mbH, Bonn; and **D.P. Lindenau**, Paul Lindenau Shipyard, Kiel, Germany.

12:00 noon—"The Prediction of Sloshing Pressure in Prismatic Tanks of LNG Carriers," by **T. Tanaka** and **N. Umekawa**, Nippon Kokan KK, Tsu Research Laboratory, Tsu Mie, Japan.

12:30 pm—Luncheon for delegates.
2:00 pm—"Trends in NGL Recovery from Natural and Associated Gases," by **C. Collins**, Davy McKee (London) Ltd., London; and **R.J.J. Chen** and **D.G. Elliot**, DM International Inc., Houston.

2:30 pm—"Fuel Cost Optimization in LNG Transport," by **M. Godin**, Chantiers de l'Atlantique; and **J. Tessier**, Chantiers du Nord et de la Mediterranee, France.

3:00 pm—"A New Generation Of LNG Carriers Based on a Proven Cargo Containment System," **P. Jean** and **M. Bourgeois**, Gaz-Transport, Paris.

3:30 a.m.—Coffee break.

4:00 pm—"Refrigerated LPG Loading/Unloading System Using a CALM Buoy," by **J.M. Chauvin** and **J.M. Simon**, Entreprise d'Equipments Mecaniques et Hydrauliques, Saint-Cloud, France; and **E. Bonjour**, Compagnie Francaise des Petroles—TOTAL, France.

4:40 pm—"LPG Carriers at Nord Mediterranee: Experience and New Trends," by **J. Buret** and **Y. Herivo**, Chantiers du Nord et de la Mediterranee, France.

5:00 pm—"On the Structural Details of Gas Tankers," by **P.-J. La-treille**, Bureau Veritas, France.

Thursday, November 8

Session 5: Commercial Documentation & Contracts.

Workshop in the Blue Hall.
Chairman: **J.M. Soesan**, consultant, Coventry, U.K.

10:30 a.m.—"LPG Spot Price Assessment: Bulk Market NWE & Mediterranean," by **K. Potter**, consultant, West Horsley, Surrey, U.K.

11:00 a.m.—"LNG Contracts in a Period of Energy Surplus," by **G.B. Greenwald**, Arent, Fox, Kintner, Plotkin & Kahn, Washington, D.C.

11:30 a.m.—"A General Outline of Shipping and Trading Documents Needed for the International LPG Market," by **H. Vallery-Masson**, Naftomar Shipping & Trading Company, Paris.

12:00 noon—"The Gentle Art of Broking," by **F. Baudu**, Petromar S.A. (BRS), Paris.

12:30 pm—Luncheon for delegates.

Friday, November 9

Session 6: Liquefied Gas Terminals & Storage.

Chairmen: Morning session—**A. Pasturhov**, AVP Corporation, Newburyport, Mass.; afternoon session—**W. Brumshagen**, LGA Gas-

technik GmbH, Remagen-Rolandseck, Germany.

9:00 a.m.—"Dynamic Load Attenuation for Double-Wall Tanks," by **R.A. Vater**, Pittsburgh-Des Moines, Neville Island, Pa.

9:30 a.m.—"A New Method of Applying Protective Insulation to the Inside of the Outer Wall of Double-Walled Installations for Cryogenic Storage," by **R. Krause**, G + H Montage GmbH, Ludwigshafen am Rhein, Germany.

10:00 a.m.—"Experimental Dynamic Compaction of Perlite Insulation," by **T. Kaups**, CBI Industries Inc., Oak Brook, Ill.

10:30 a.m.—"Ultrasonic Testing of the Wall-to-Bottom Weld in a Nickel Steel Storage Tank," by **J.P. Capdeville** and **A. Goy**, Gaz de France, Paris.

11:00 a.m.—"An Experimental Study on the Behavior of the Outer Concrete Wall of a Double-Wall LNG Storage Facility under Extreme Thermal Loads," by **S.R. Speidel**, Bilfinger + Berger Bau, Mannheim, Germany.

11:30 a.m.—"The Planning and Building of Antwerp Gas Terminal," by **M.S. McKinney**, UER International Ltd., London; and **J. Oerlemans**, Transol Holding BV, Ridderkerk, Netherlands.

12:00 noon—"Design and Contruction of the Port Botany, Australia, LPG/Butane Import Terminal," by **G.M. Howell** and **M. Schuller**, PDM-Johns Perry Pty. Ltd., South Perth, Australia.

12:30 pm—Luncheon for delegates.

2:00 pm—"Design of an In-Ground Storage Tank for Refrigerated Propane," by **Y. Sugawara** and **K. Minegishi**, Tokyo Gas Company, Tokyo.

2:30 pm—"Internal Pressure Equalizing System for Liquefied Hydrocarbon Storage Tanks," by **T. J. Marchaz**, Preload Technology Inc., Garden City, N.Y.

3:00 pm—"A Concrete Storage Barge: Results of a Large-Scale Off-shore Model Test," by **E. Fluggen**, LGA Gastchnik GmbH, Remagen-Rolandseck; and **M. Sussbaumer** and **K. Reuter**, Ed. Zublin AG, Stuttgart, Germany.

3:30 pm—"Calibrating Accurate Level Gauges in Partly Filled LNG/LPG Tanks—the Transfer Calibrator," by **R.L. Blanchard**, The Arlby Company, Lexington, Mass.; and **A.E. Sherburne**, The Foxboro Company, Foxboro, Mass.

4:00 pm—"Verification of Polyurethane Foam Insulation Reliability," by **M. Huther**, **P. Anslot**, and **M. Zehri**, Bureau Veritas, Paris.

4:30 pm—"Vapor Recovery from Liquid Hydrocarbon Storage Tanks," by **C.A. Durr**, M.W. Kellogg, Houston; and **F.H.L. van Laerhoven**, Kellogg Continental B.V. Amsterdam.

5:00 pm—"A New Concept for Large and Safe LPG Storage Terminals," by **P. Morand** and **J. Claude**, Technigaz, Maurepas, France; and **A. Herbretau**, Compagnie Francaise des Petroles—TOTAL, Paris.

Friday, November 9

Session 7: Gases as Transportation Fuels.

Workshop session in Glass Hall.

Chairman: **T.J. Joyce**, T. Joyce Associates, Fairfax, Va.

11:00 a.m.—"European Automotive LPG: Prospects for Growth," by **W.C.F. Arnold**, UER International Ltd., London.

11:30 a.m.—"Propane as a Transportation Fuel and Its Effect on Demand in the United States," by **S. A. Vogel**, Synergy Gas Corporation, Farmingdale, N. Y.

12:00 noon—"Ford's Experience with Gaseous Fuels," by **J.M. Lapetz** and **R.J. Nichols**, Ford Motor Company, Dearborn, Mich.

12:30 pm—Luncheon for delegates.

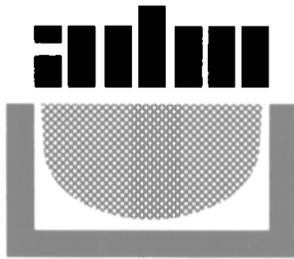
2:00 pm—"Canadian Prospects for Natural Gas Fueled Vehicles," by **J.S. Heenan**, Transportation Energy Division, Ministry of Mines, Energy & Resources, Ottawa, Canada.

2:30 pm—"Marketing Natural Gas as an Alternative Automotive Fuel in New Zealand," by **A. Veart**, Auckland Gas Company Ltd., Auckland, New Zealand.

Gastech 84 Exhibitors

- Australia**
- Westpac Banking Corp.
- Belgium**
- Antwerp Gas Terminal
- Beolwerf
- Depauw & Stokoe
- G & G International
- Pittsburgh Corning
- Canada**
- British Columbia Research Council
- Denmark**
- Svanehoj Pump Factory
- Finland**
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- GEP
- Arab Oil & Gas
- Auxitrol
- Bureau Vertas
- Chantiers de l'Atlantique
- Chantiers du Nort et de la Mediterranee
- Cryostar
- Equipments Mecaniqueset
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- Eurotainer
- FMC Europe
- Gaz de France/Sofregas
- Gaz Transport
- Geostock
- LeTerre Armee
- Masonelan
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- Petrole Informations
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- Nippon Kikan KK
- Luxembourg**
- TradeARBED

(continued on page 22)



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Telex 0215588 pega d

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N. Bogdanos Marine Bureau
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(continued from page 20)

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Norway

Moss Rosenberg
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Kidde Offers Free Brochure On Marine Fire Protection

Walter Kidde, Division of Kidde Inc., 375 Main Street, Belleville N.J., is offering a free four-page brochure on the company's marine fire protection equipment for vessels, facilities, and other marine applications.

Decorated with a blazing circle of flame as a reminder of the staggering financial and ecological losses a single marine fire can cause, the publication is illustrated with color photos of various types of vessels and fire protection systems. The text states that through the years Kidde's fire protection experts have met the challenge of total marine fire protection by designing systems to protect thousands of merchant ships, tankers, icebreakers, aircraft carriers, LNG tankers, container-ships, roll-on/roll-offs, etc., utilizing a variety of extinguishants and the most advanced fire protection technology available.

The different Kidde Marine fire protection systems are discussed, such as Halon 1301, classified as "least toxic" and considered the safest gaseous extinguishing agent, providing greater personnel safety; Dry Chemical, which when used by itself or in conjunction with foam can provide ideal fire protection on any vessel where flammable liquids present a potential fire hazard; LO-EX™ foam which is an excellent extinguishing agent against fuel fires that develop on tanker decks, fuel pumping facilities, off-shore platforms and other marine facilities; HI-EX® foam system, which is particularly effective in extinguishing fires in inaccessible areas of marine vessels; and Kidde's automatic carbon dioxide systems for the protection of contained areas such as

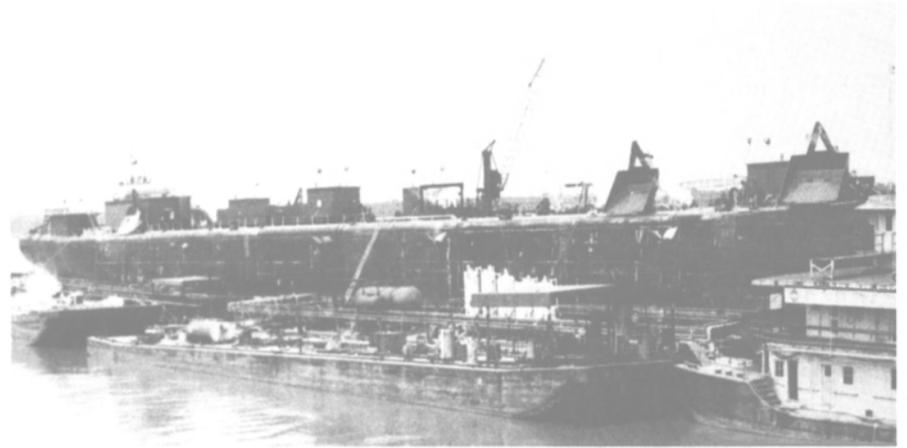
machinery spaces, engine and boiler rooms, etc.

The company's smoke detection systems are also discussed, as well as Kidde's total marine capability to custom-design the ideal system to meet every marine fire protection need, and the domestic and interna-

tional network of qualified experienced distributors to install and service these systems.

For a copy of the Walter Kidde brochure,

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The Ocean 211, owned by Sonat Marine, is the largest barge ever cleaned at PAMS' Cleaning Plant.

PAMS Installs New Drydock At Its River Plant

Two significant events occurred at Midland/Port Allen Marine Services (PAMS) recently. The Baton Rouge-based firm announced the installation of a new dry dock at its River Plant, located at Mile 224 on the Lower Mississippi River. The 1,200-ton drydock measures 56 feet between its wingwall and 155 feet in length. Since its placement, a series of barges has been drydocked including the Union Carbide barge. With the drydock in place, PAMS has expanded its capabilities by offering quick turnaround to a variety of boats and barges in the Baton Rouge Harbor.

The company's River Plant continues to offer topside repair work with over 600 feet of repair dock space available. In addition, PAMS will continue to provide midstream repairs to deep-draft oceangoing vessels.

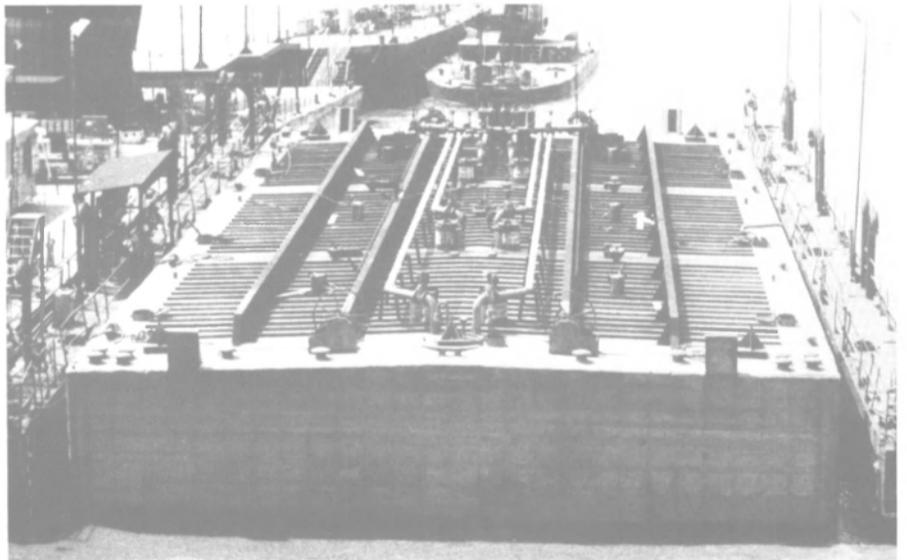
The Baton Rouge Harbor is also the site of PAMS Gas Freeing and

Cleaning Plant which is capable of handling some 117 different chemical and petroleum products. In July, this facility reached a milestone. The Cleaning Plant cleaned the largest barge to date, the Ocean 211, belonging to Sonat Marine. The barge, which is 500 feet long, 76 feet wide and 40 feet deep, was cleaned for taking on jet fuel.

PAMS Cleaning Plant treats and disposes of wash waters in strict adherence to all regulations established by the Louisiana State Department of Natural Resources and the U.S. Environmental Protection Agency.

PAMS continues to expand its service and facilities to meet the needs of its customers. A "total service shipyard," Port Allen Marine is a subsidiary of Midland Affiliated Company, Cincinnati, Ohio.

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The recently installed 1,200-ton dry-dock at PAMS' River Plant.

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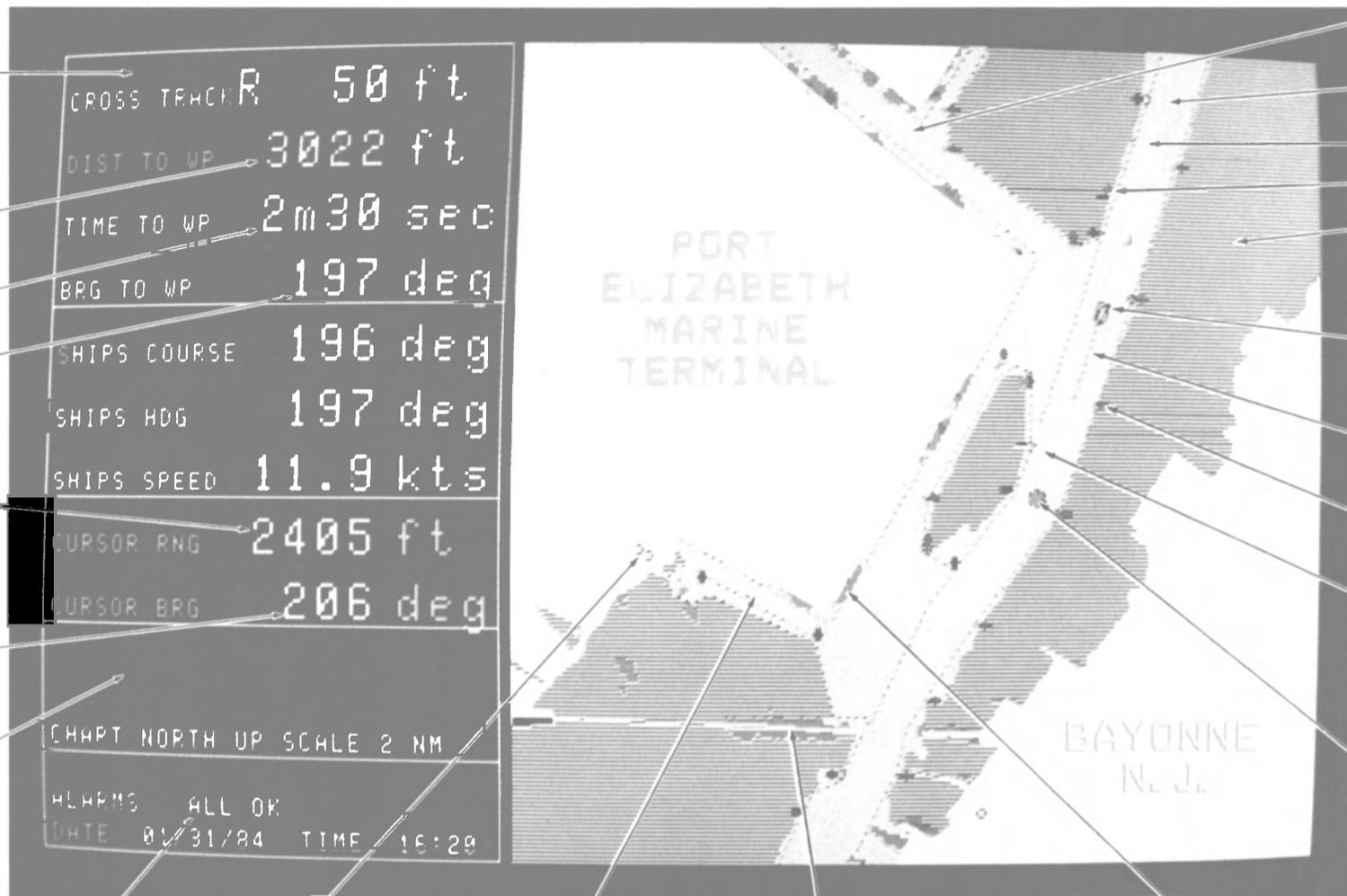
Time to waypoint

Bearing to waypoint

Distance to cursor

Bearing to cursor

Readout space reserved for special messages or conditions



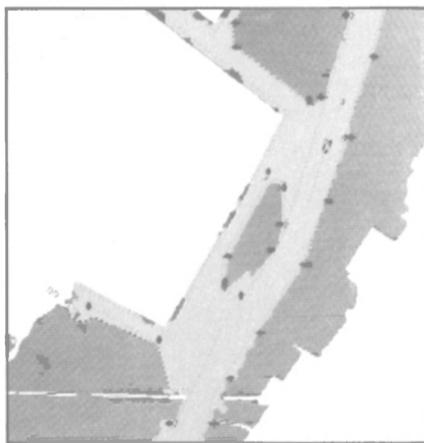
System self-check

Fixed navigation points ashore are clearly marked

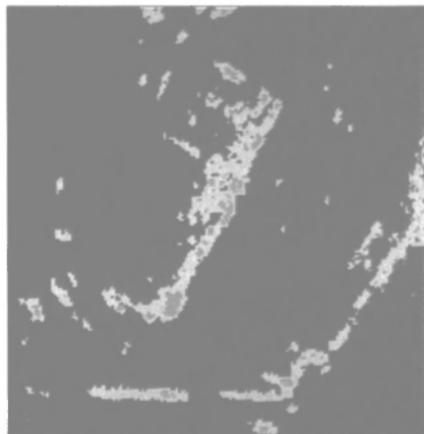
South Elizabeth Channel

Railroad bridge with center span removed

Radar image of container ship at dockside. Note that radar is blocked in land areas



By combining the Electronic Chart with radar images, VIEWNAV Master Mariner gives you the best of both. Here, own ship has reached the Port Elizabeth Marine Terminal and is now headed back to sea.



Radar display alone of the same location shown above. With images from land cluttering the screen, and no chart superimposed, the identification of useful information can be difficult.

HARBOR ACCIDENTS SHOULDN'T HAPPEN

Deprived of visibility by fog, darkness or storm, ships are more apt to collide or run aground. Radar is a great help, but when man fights the perils of nature, he needs a strong edge just to break even. Countless lives and billions of dollars in damage are being lost due to such tragedies. Now, many can be avoided...

A LIFE-SAVER AND A MONEY-MAKER!

Although the VIEWNAV System warns of impending danger even in zero visibility, it pays big dividends during routine trips. You'll buy it for safety, but it earns its keep by improving operations every day. Not only because it helps protect your valuable property from collisions and groundings. It also increases productivity by allowing your ships to operate more days per year. Now, even the poorest visibility or missing buoys won't lower earnings by forcing you to drop anchor or take a longer route.

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The VIEWNAV System is not like any other navigational tool available today. It is a unique, easy-to-use interactive computer system which does far more than any previous navigational instrument could. Imagine having a precise Electronic Chart system at your disposal. It provides regularly updated NOS chart information for each harbor and uses differential Loran-C* to obtain repeatable position accuracy of own

vessel to 15 feet. Radar is displayed on the full color Electronic Chart to furnish additional vital information. Analyzing the results in microseconds, the VIEWNAV System immediately shows in words, numbers and pictures what you need to know to help you stay safe and on course. The large, full color video display constantly updates the waterway and traffic conditions. It's a window to the world that provides greater detail than NOS Charts, radar or loran. The VIEWNAV System is so precise it helps the pilot guide your ship through the most grueling harbor conditions.

EASIER, MORE ACCURATE NAVIGATION

A single glance at the screen clearly shows own ship location in relation to other vessels, hazards, land navigation points, water depth and the position of on and off-station buoys in their actual colors. Bearing, distance, speed, and arrival time to waypoints and cross-track deviation from channel center line are indicated alphanumerically on the display. A movable cursor

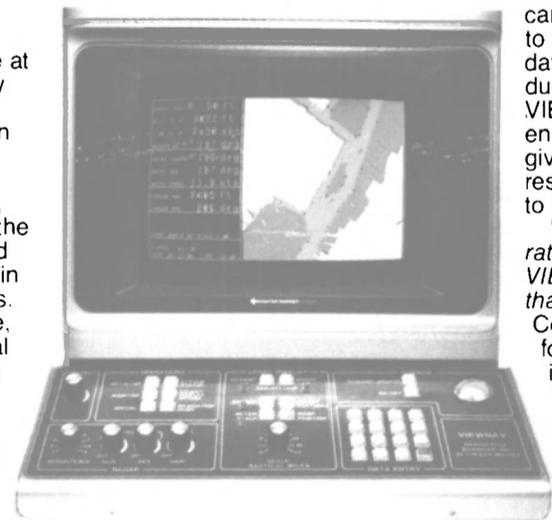
provides bearing and range to any other point. Depth contours, Mercator grids, location names and landmarks can be incorporated.

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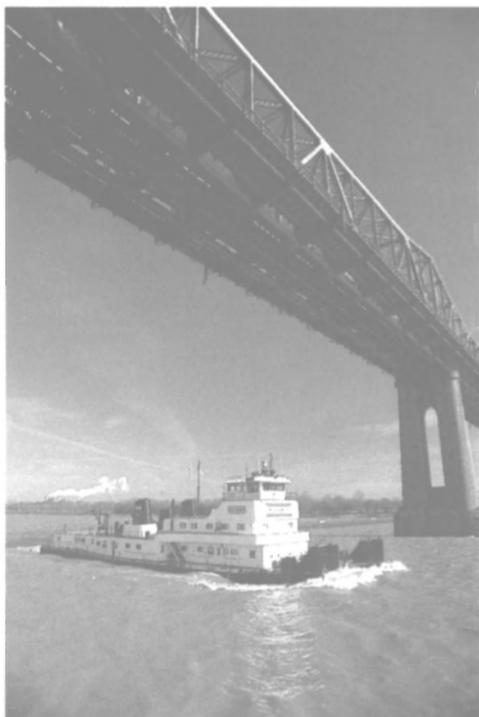
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*In areas where Loran-C is not available, SATNAV or DECCA inputs can be used

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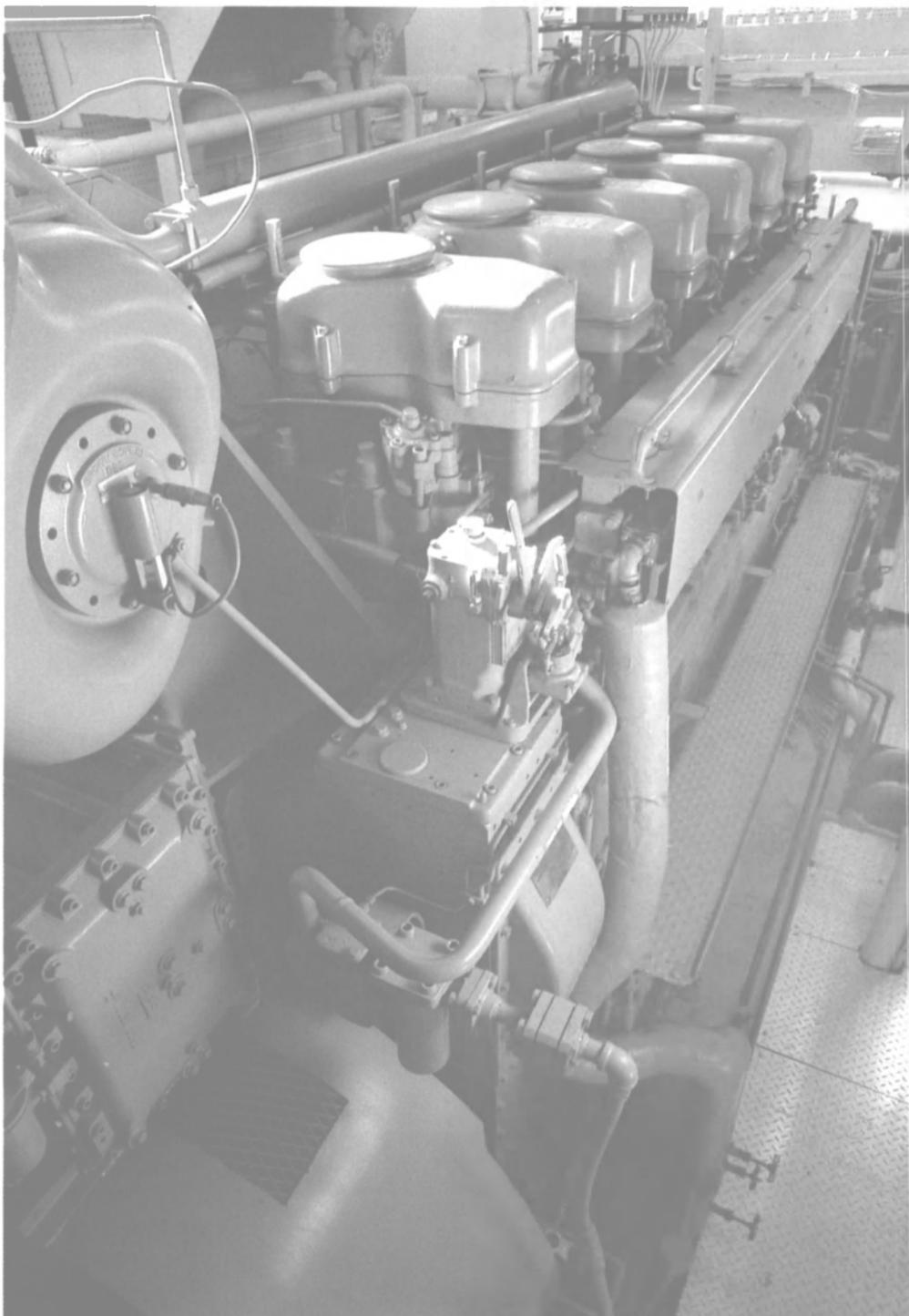


The Bill Elmer visited New Orleans for the 1984 Work-Boat Show.

"Repowering the M/V Bill Elmer with these Krupp heavy fuel engines didn't happen overnight," recalls Butch Barras of ACBL. "We studied this move for a long time; serious study for 2½ years, and dyno testing for close to a year before putting a heavy fuel engine in the boat.

"All through that, Gulf was a constant source of information and advice. Gulf helped determine power requirements and fuel mixtures, and provided a lot of information on the kind of lubricants we'd need to keep things running burning 1500 Redwood fuel with its high vanadium and carbon deposits."

With 1320 hours on the engines, the rings remain clean and free, and piston skirts show minimal scuffing.



One of three Krupp MaK 453 inline 6 cylinder engines now powering the M/V Bill Elmer. ACBL repowered the vessel after studies showed the probability of significant fuel savings from heavy fuel engines.

Barras continues, "It's no exaggeration to say we wouldn't be where we are on this without Gulf. They work hard to help, and their Harmarville lab is an excellent research facility.

"Along with the advice and information, Gulf provides excellent lubricants. Gulftow Select 40 is our main engine oil, and look at these engine parts. We were planning to pull the heads and check all the valves at 2,500 hours. After looking at one cylinder here

in New Orleans during the Work-Boat Show, with 1320 hours on the engines, we'll

Gulf representatives Warren Eise and Sam Ross with Butch Barras, ACBL Assistant Superintendent of Boat Maintenance, in the Bill Elmer pilot house.





**"We're looking at saving
\$200,000 a year."**

Butch Barrag, Asst. Superintendent of Boat Maintenance, American Commercial Barge Line Company.

probably wait until 4,000 hours before we even have to check for wear."

Butch concludes, "We're projecting a savings of about

Gulf pro R.O. Whelchel and ACBL Senior Vice President, W.N. Whitlock.



\$200,000 a year in fuel cost alone due to repowering with the heavy fuel engines. Gulf helped make the transition a lot smoother."

For products to help save your machinery, and information to help you save money, ask your Gulf pro, or write, Gulf Oil Products Company, P.O. Box 1563, Houston, Texas 77251.



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Sternwheeler 'Music City Queen' Delivered By Marine Builders

The new 400-passenger Music City Queen (shown above) was christened recently in her home port of Nashville, Tenn., according to Dr. Hugh D. Claughton, owner and president of Belle Carol Riverboat Company of that city. His daughter, Carol Ann Claughton, was the vessel's sponsor.

The 135-foot luxury riverboat was built by Marine Builders in Utica, Ind. She sailed down the Ohio River

to Paducah, Ky., then up the Cumberland River to Nashville. The fourth vessel in the company's fleet, the Queen sails on regularly scheduled cruises from Nashville's Downtown Riverfront Park, which was the original site for docking of steamboats about the turn of the century.

"The Music City Queen has been created in the tradition of the sternwheeler riverboats that dominated

Southern rivers in the 1800s," explains Dr. Claughton, and has a decor designed to transport passengers back in time to an era in history when riverboats were the source of entertainment, fine dining, and escape from the fast pace of life."

The first deck houses a catering area, bar/lounge, dining room, and stage for the variety of musical groups and entertainers who appear nightly. The second deck has its own bar, lounge, and dining area. From this deck passengers can observe the entertainment on the main deck. These two enclosed, air conditioned decks provide year-round comfort where passengers can enjoy dining then take moonlight walks on the two upper decks.

The new Queen, which has an 85-foot hull and beam of 35 feet, completed a rigid U.S. Coast Guard inspection prior to entering service, and has the most up-to-date safety features.

Northwest Sections Of ASNE And SNAME Meet At Puget Sound Naval Yard

The final meeting of the Puget Sound Section of the American Society of Naval Engineers for the 1983-84 season was held at the Officers' Club of Puget Sound Naval Shipyard. More than 100 members and guests of ASNE and The Society of Naval Architects and Marine Engineers gathered for the traditional joint meeting and banquet.

A paper titled "Propeller Design and Evaluation Using the Advanced Surface Ship Evaluation Tool (ASSET)" was presented by Shou-Kuo Tsao and Charles F. Beyer. Both authors are employed by the Federal Systems Group of Boeing Computer Services in Seattle, and have experience in computer-aided support for the marine field.

COMO Roger B. Horne Jr., commander of the Puget Sound Naval Shipyard, welcomed the group and spoke briefly on the Navy's need to have the support and professionalism of technical societies such as ASNE and SNAME.

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70-Page Color Brochure And Orderbook Chart Available From Samsung

Samsung Shipbuilding & Heavy Industries Co., Ltd. (SHI), one of Korea's largest industrial groups, is now offering, free a new 70-page color brochure on its modern shipbuilding and related facilities.

SHI established shipbuilding activities in 1977 on Koje Island off the southern coast of the Korean Peninsula. The yard comprises 2.8 million square meters, with 160,000 square meters of it reserved for plant space. Such a vast area lends itself to ideally situated buildings, and makes for an efficient, uncrowded work area. All shops are located in such a manner as to allow ease and efficiency in handling the large variety and volume of equipment and materials during routine work procedures.

The ideal layout of the Koje shipyard, and a production control system designed to facilitate procedures from steel cutting to assembling and outfitting, insures efficiency, high quality, and cost savings in ship construction.

The recently updated Performance Record is a four-page folder that lists all the vessels completed by SHI thus far, as well as ships on order. It includes vessel types, names of owners, principal particulars, engine types, and delivery dates.

The first vessel built at the Koje yard was an anchor-handling/supply craft delivered in July 1980. The most recent delivery was the sophisticated containership Humboldt Express built for Hapag-Lloyd.

For free copies of the SHI brochure and Performance Record,

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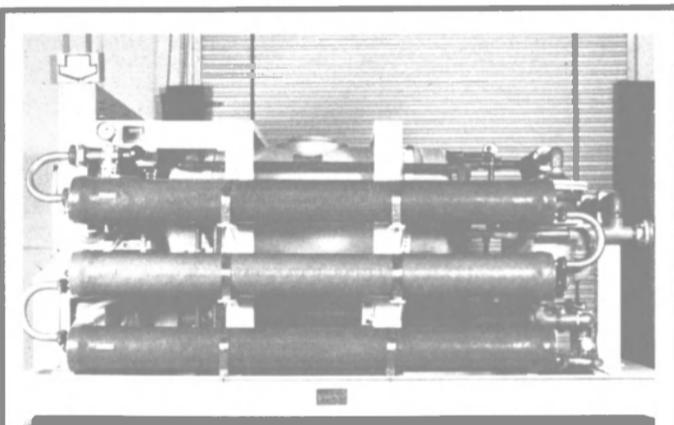
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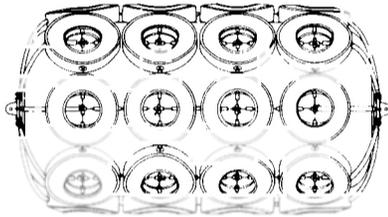
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Furuno Appoints New Direct Sales Force



Roy Thompson



James Atteridge



Howard S. Palmer

Furuno U.S.A., Inc. of San Francisco recently announced the appointment of six direct Furuno employees as regional managers. These men, all with years of experience in the industry, will provide more effective communication between Furuno and the dealers, thereby meeting the needs of customers most efficiently.

Hugh R. Zeller, covering the Northeast U.S. and Canada, has

worked in marine electronics for 20 years. He served as northeast sales manager and product manager for Raytheon Marine, and most recently was president of Dolphin Electronics.

Roy E. Thompson, covering New York, Connecticut, and the Great Lakes, has spent most of his adult life in the marine electronics industry, beginning with five years in the U.S. Navy as an electronics

technician. He has conducted geophysical surveys aboard an oceanographic research vessel and worked in field service and sales for both Raytheon and Decca.

James Atteridge, covering the Mid-Atlantic region, has been involved in marine electronics for the past 11 years. His experience includes the position of national sales manager for Raytheon and group vice president for Cibernet International.

Howard S. Palmer, covering the Southeast, has been employed in the retail marketing of marine electronics for the past five years, and served nine years in the U.S. Navy.

A.A. Weghorst, covering the Gulf Coast and inland rivers territory, served four years in the Navy as a radio operator, and has been in the marine electronics industry for a total of 16 years.

David M. Quarders, covering the Northwest, has been a field sales representative with Furuno for a number of years, and will take on additional responsibilities as western manager.

Meyer Werft To Build Gas Carrier For German Owner

GTS Gastransport-Schiffahrtsgesellschaft M.B.H. & Company of Hamburg (managing owner Friedrich A. Detjen GmbH & Company) has placed with Jos. L. Meyer GmbH & Company (Meyer Werft) in Papenburg, West Germany, a contract (subject to owner's subsidy) for the construction of a liquefied gas carrier, delivery of which is scheduled for the end of 1985.

This is the 36th and largest (30,000 cubic meters) gas tanker ordered from Meyer Werft. The ship will have an overall length of about 600 feet, molded beam of 98.4 feet, and draft of 37.7 feet. She will be powered by a diesel engine having an output of 12,766 bhp, providing a speed of 16 knots.

Together with the big cruise ship ordered by Home Lines in the spring of this year, this new contract will guarantee full employment at the Papenburg yard through the fall of 1985.

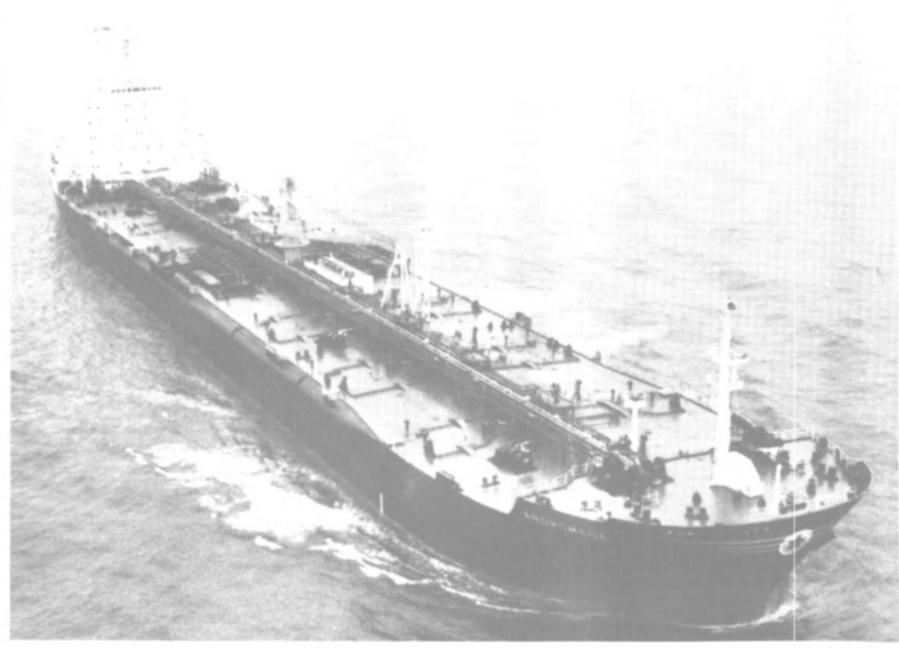
Hitachi Completes Crude/Products Carrier For Arapaho Shipping

The 63,953-dwt crude/products carrier *Andromeda* (shown below) was delivered recently by Hitachi Zosen's Ariake Works to the owner, Arapaho Shipping Corporation (Liberia). A Panamax type developed by Hitachi, the tanker is designed to carry crude oil and refined petroleum products.

The vessel has an overall length of 718.5 feet, beam of 105.6 feet, depth of 62.3 feet, and full-load draft of 42 feet. She is powered by a low-speed Hitachi/B&W 7L60MC diesel engine having a maximum continuous output of 12,800 bhp at 99 rpm. A large-diameter propeller along with the Hitachi-developed stern bulb improves propulsion efficiency while reducing noise and vibration. In addition, self-polishing anti-fouling paint on the underwater hull has been applied to further improve propulsion efficiency and thus save fuel costs.

The *Andromeda* has been constructed in conformity with the rules and regulations set by the International Convention for the Prevention of Pollution from Ships (MARPOL). Moreover, double hull construction has been adopted that uses wing tanks for ballast only and the center tanks for cargo oil, thereby minimizing oil spills from the cargo tanks in the event of collision or grounding. Cargo tanks designed to carry refined petroleum products are coated with pure epoxy paint over the entire interior bulkhead surface to insure the quality of the cargo oil. Four cargo oil pumps are installed so that different types of products can be efficiently carried simultaneously.

The vessel has been built to Lloyd's Register of Shipping classification, and will be operated with a complement of 32.



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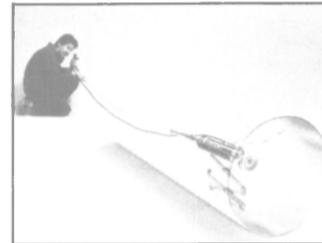
The Abrasive Blast Performance System By Clemco



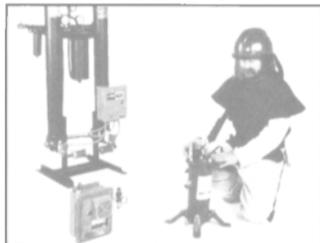
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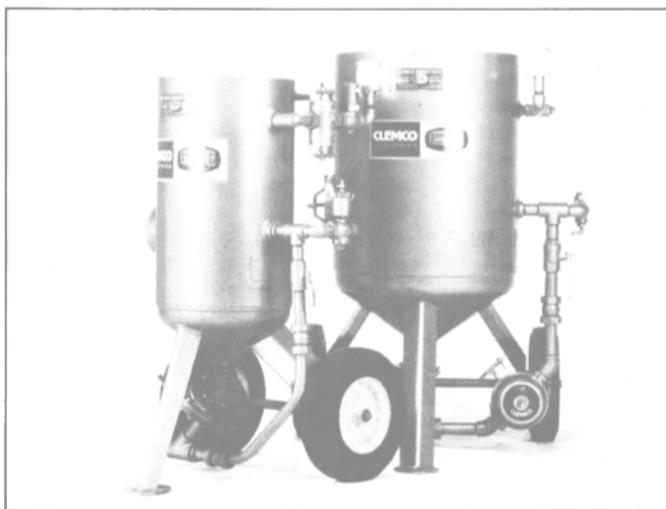
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Versatile, efficient products tanker Kihu, built by Wartsila's Turku Shipyards, is powered by Wartsila/Pielstick diesel engine with maximum continuous rating of 9,776 bhp.

Crude/Chemical/Products Tanker Delivered By Wartsila's Turku Yard

The Turku Shipyards of Oy Wartsila ab in Finland recently delivered the 19,999-dwt products tanker Kihu to Neste Oy, the national oil company of Finland. Less than a year elapsed between her keel laying and delivery. The ship is classed by Lloyd's Register of Shipping +100 Al, Chemical Tanker, +LMC, IGS, Ice Class 1A. She is an IMO type II/III chemical tanker for worldwide trading of crude oil, refined petroleum products, and type II/III chemicals including benzene, styrene monomer, caustic soda, molasses, urea, solvents, and alcohols.

The vessel has an overall length of about 528 feet, molded beam of 75.8 feet, molded depth to upper deck of 46.6 feet, and draft of 33.2 feet. Total cargo tank capacity (100% full) is 26,644 cubic meters.

Main engines, auxiliary engines, boilers, and inert gas generator are

all designed to run from start to stop on one grade of fuel oil—3,500 seconds Redwood at 100 F.

The Wartsila/Pielstick 6PC4.21-570 main engine is coupled through a reduction gear to a KaMeWa controllable-pitch propeller. The engine has a maximum continuous rating of 9,776 bhp at 400 rpm; service speed operating at 82 percent of mcr is 15.5 knots. The ship is fitted with a controllable-pitch bow thruster powered by a 1,340-hp electric motor.

Three Wartsila-Vasa 6R22HF auxiliary diesels are direct-coupled to Stromberg alternators of 935 kva, 450 volts, 60 Hz each. Two oil-fired steam boilers and one exhaust gas steam boiler are installed for ship's service, which include heating of cargo and ballast tanks and cargo tank washing water.

The hull is divided, by two longi-

tudinal and 11 transverse bulkheads, into 10 center tanks and eight wing tanks for cargo, six wing tanks for water ballast, and two slops tanks. Transverse bulkheads are stiffened by corrugations; longitudinal bulkheads in the center cargo tanks are smooth, with stiffeners in the wing tanks. The center tanks are coated with pure epoxy; cargo side tanks are coated with zinc silicate.

Despite being a ship of less than 150 meters BP (492 feet) and less than 20,000 dwt, the Kihu incorporates some of the more stringent requirements applicable to larger vessels. Her damage stability meets most requirements valid for ships above 150 meters; she is fitted with crude oil washing and inert gas systems; and she has segregated ballast water tanks with capacity sufficient for the ship to operate in heavy ice conditions. Hull and propulsion machinery are designed for these conditions, above the requirements of Lloyd's Register Ice Class notation.

The four segregated cargo system are designed for efficient operation; discharging time is about 12 hours, and loading and deballasting time is about five hours. A cargo computer is connected on-line with level transmitters of cargo, ballast, and bunker tanks, cargo tank temperature system, draft sensors fore and aft, and an inclinometer.

Each cargo tank is equipped with one vertical, centrifugal, hydraulically driven pump of Thune Eureka manufacture. For cargo heating, 18 Sunrod heaters are installed on the main deck. One Maritime Protection inert gas generator is installed in a deckhouse aft. Its capacity is 3,300 cubic meters per hour with a maximum pressure of 0.2 bar.

Big Ship Radar Line Introduced By Furuno

Furuno is now offering a full line of 12 and 16-inch radars designed to meet all current IMO requirements for ocean-going vessels. These new radars offer the most modern technology, with features such as digital signal processing for an extremely bright steady picture, an interscan system for continuously visible electronic bearing line, "echo stretch" technique for positive target definition, video processing for clutter suppression, hybrid microwave IC receiver circuitry for high sensitivity, and log amplifier for enhanced target detection at all ranges, even during heavy weather.

Furuno can provide a variety of system configurations: the transceiver may be mounted aloft in the scanner gearbox or below in a separate enclosure; both 25-kw X-band and 60-kw S-band frequencies are available and can be interswitched; X-band antennas can be specified from 6.5 to 10 feet, while the S-band units feature a 12-foot antenna. All models offer dual VRM's and 10 range scales to 120 n.mi., plus a 12-mile True Motion scale. The presentation can be head-up, north-up or course-up and the picture can be offcentered by as much as 70 percent in any direction. The 12-inch units are used as primary radars for vessels under 10,000 grt or secondary radars for vessels over this size. The 16-inch units have been developed as primary radars for vessels of any size.

Convenient options include antenna de-icer, radar alarm, reflection plotter, North-up and True Bearing modules, performance monitor, inter-switch, and ARPA interface.

For complete information and prices,

Circle 18 on Reader Service Card

CSSRA Annual Conference Scheduled For February 19 1985 In Montreal

Plans are moving ahead for the 37th Annual Technical Conference of the Canadian Shipbuilding and Ship Repairing Association to be held at the Queen Elizabeth Hotel in Montreal, Quebec, on February 19, 1985. The program will be presented in two separate halls—one primarily for the shipbuilders, the other of more general interest to both shipbuilders and allied industries.

This annual conference, always held in Montreal, is by far the largest and best-known CSSRA event, and is well attended by members of the marine community.

For additional information on the conference, contact CSSRA secretary/treasurer **Mrs. Joy MacPherson** Suite 801, 100 Sparks Street, Ottawa, Ontario, Canada K1P 5B7; telephone (613) 232-7127, telex 053-4848.



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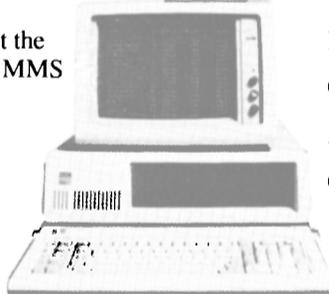
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EXPOSHIP

Far East 84



Hong Kong—November 12-16

Expoship Far East 84, a maritime exposition organized by Seatrade Far East and sponsored by the Hong Kong Shipowners Association and the Hong Kong General Chamber of Commerce, will be held at the Hong Kong Exhibition Center November 12-16 this year. Complementing the exposition will be a Seatrade Conference to take place at the Regent Hotel in Hong Kong November 14 and 15.

Expoship Far East has become established as the premier maritime exhibition in the Far East—an area of major activity in world shipping. The show provides an opportunity to make important business contacts in the stimulating atmosphere of Hong Kong's thriving shipping community. The conference will bring together top people in the international shipping industry to discuss vital issues, including the financing and politics of shipping. It will be opened by his excellency Sir Edward Youde, Governor of Hong Kong. Conference chairman is Frank Chao, president of Wah Kwong & Company (Hong Kong) Ltd.

Wednesday, November 14 Shipping and the Financier

The spate of shipping bankruptcies and near bankruptcies over the past two years is forcing some traditional lenders to the industry to reassess their presence in this volatile market. Can the shipowners and shipbuilders still take it for granted that necessary financing will be available to meet all the needs of the industry, or will the small non-corporate owners be squeezed out by the blue chip borrowers? This first day of the conference will look at the potential changes to traditional lending patterns and examine the available alternatives.

Following the opening address by Governor Youde, an introductory address will be made by M.H. Liang, chairman of the Hong Kong Shipowners Association and executive director of Island Navigation Corporation. Speakers on the first day's program will include J. Graham Day, chairman and chief executive of British Shipbuilders, and Y. Miyauchi, president of Orient Leasing Company Ltd.

Thursday, November 15 The Politics of Shipping

The failure to achieve a satisfactory compromise at UNCTAD's recent conference on the registration of ships seems to have confirmed fears that the views of the developing countries are irreconcilable with those of the established maritime powers. Is the shipping industry doomed to further confrontation over the open registry question—both at intergovernmental and union level?

The second day of the conference will establish the relative positions of the parties to the dispute and explore the chances of a compromise being reached at either the political or commercial level. Speakers will include: P. Geraghty, federal secretary, Seamen's Union of Australia; R.A. Humphrey, head, Maritime Transport and Tourism Division, OECD; A.S. Price, chairman, Liberian Shipowners' Council Ltd.; C. Salen, chairman, Intercargo; and R. Vogel, a COSCO executive and acting director, Shipping Division, UNCTAD.

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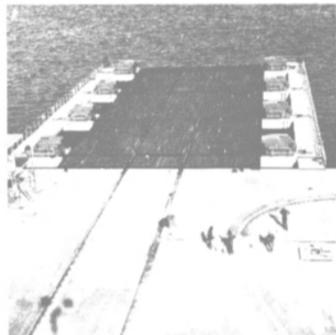
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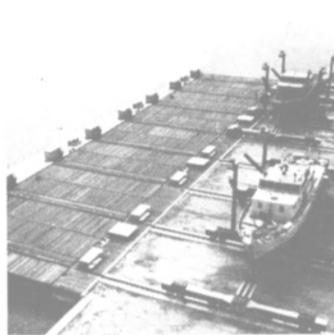
Bath Iron Works Awarded \$4.5-Million Navy Contract For Work On Frigates

Bath Iron Works Corporation of Bath, Maine, has been awarded a \$4,500,000 cost-plus-fixed-fee Navy contract for the post shakedown availability of the guided missile frigates USS Taylor (FFG-50), USS Hawes (FFG-53), and USS Elrod (FFG-55). Work will be performed at the company's Bath yard and is expected to be completed in March 1986. This contract was not competitively awarded. The Supervisor of Shipbuilding, Conversion and Repair, Bath, is the contracting activity (N00024-80-G-2146).

gates USS Taylor (FFG-50), USS Hawes (FFG-53), and USS Elrod (FFG-55). Work will be performed at the company's Bath yard and is expected to be completed in March 1986. This contract was not competitively awarded. The Supervisor of Shipbuilding, Conversion and Repair, Bath, is the contracting activity (N00024-80-G-2146).



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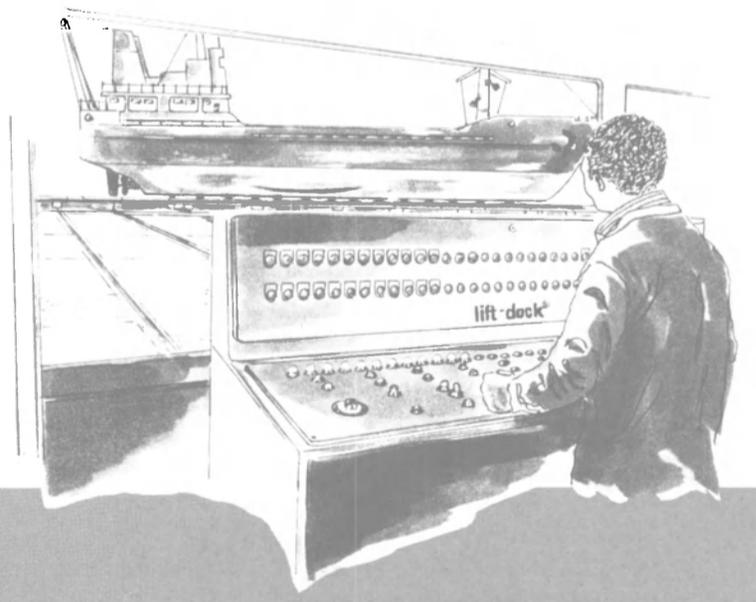
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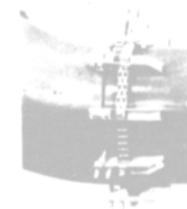
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Literature Available On Supercompact Radar From Furuno

The new Furuno Model 2000 is a highly innovative, solid state marine radar that significantly advances performance vs. cost standards in this class of product.

Designed for small vessels—and particularly attractive for use on sailboats—the Model 2000 provides typical Furuno award-winning performance in a package that fits just about anywhere. The display cabinet, for example, occupies less than one cubic foot, yet features a full-sized 7-inch CRT, seven range scales from 1/4 to 24 nautical miles, illuminated control panel for night-time use, and a built-in universal 10.2 to 40-VDC power supply.

The radome is equally impressive at just 25 inches in diameter, weighing only 24 pounds. There's no skimping in operation, though, with full 3 KW peak power, dual pulse-lengths and PRF's, and Furuno's custom-designed hybrid microwave IC system that greatly enhances receiver performance while reducing routine maintenance needs.

The Furuno Model 2000 is exceptionally compact and lightweight, the most advanced electronics package available in any radar in this price range, and is ideal for sailboats or small power vessels because of the low 45-watt power drain.

For further information on the Furuno Model 2000 radar,

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New Brochure Describes Heat Exchanger Designs —Free Copies Offered

American-Standard Heat Transfer Division of Buffalo, N.Y., is offering a new eight-page brochure on the large selection of heat transfer equipment the company has available for specific needs of customers.

Shell-and-tube heat exchangers for general heating and cooling applications as well as for CPI process applications are pictured with a description and use recommendation for each. Also covered in the same manner are packaged steam condensers; plate and frame heat exchangers; FanEx® models to cool oil or other fluids with air; and heavy duty heating coils that are primarily used for heating air, but can be used in other applications where air is being used to cool fluids.

The three-ring-binder brochure contains a guide and charts that enable the customer to determine the heat exchanger needed. Listed in the guide are heat exchanger models, construction, advantages, limitations, and selection tips. The accompanying charts give all necessary technical information needed for proper selection according to the desired purpose.

For a copy of the brochure and further literature containing full information.

Circle 29 on Reader Service Card

Etheridge, Mangum And Brightwell Join SOFEC In Houston Office

SOFEC, Inc., a Vickers Marine Engineering Division company, has announced the addition to its Houston engineering staff of **Charles Etheridge** as engineering manager, and **Charles Mangum** as

chief engineer. Mr. **Etheridge** was previously manager of projects, Marine Division, of Williams Brothers Engineering in Houston; Mr. **Mangum** had been vice president-engineering for Bawden Drilling of Houston.

David Brightwell has joined SOFEC as manager of special projects; he will provide marketing coordination for Vickers' Marine Engineering Division products.

Prior to joining the company, he was marketing manager-Southeast Asia for Oceanering International in Singapore.

Gerald Broussard, SOFEC vice president previously stationed in Singapore, has returned to the Houston office to direct the domestic sales effort.

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North American Marine Jet, Inc., of Little Rock, Arkansas, has purchased the entire product line of Jacuzzi Marine Jet, including all manufacturing rights, from the Jacuzzi Bros. Division, also of Little Rock.

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North American Marine Jet
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Circle 165 on Reader Service Card

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HOW TO PLACE CLASSIFIED ADVERTISING: Mail clearly written or typed copy to: MARITIME REPORTER, 107 East 31st Street, New York, N.Y. 10016. Include any photos, drawings or logos if required. Specify size of ad and number of insertions....Classified Advertising — Per Issue Rate: Classified advertising is sold at a rate of \$70 per column inch....MARITIME REPORTER'S classified section carries more advertising and sells more products than any other publication in the marine industry. MARITIME REPORTER is published the 1st and the 15th of each month. Closing date for classified advertising is 20 days prior to the date of the issue. For further details contact John C. O'Malley at (212) 689-3266. Send all advertising material to MARITIME REPORTER and Engineering News, 107 East 31st St., New York, N.Y. 10016.

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LARGE SWING ENGINE LATHES: 36" x 35" SUMMET ENGINE LATHE: S/N C050572 (1974) • 36" x 60" LODGE & SHIPLEY HEAVY DUTY ENGINE LATHE: S/N 24101 • 26" x 72" LODGE & SHIPLEY HEAVY DUTY ENGINE LATHE: S/N 27331

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New Division Formed By Ingram Barge Company— Ingram Terminal Operations

Peter J. Kopcsak, president of Ingram Barge Company, recently announced the formation of a new division, Ingram Terminal Operations. The newly formed Ingram division will be headed up by veteran terminal operator **David S. Field**, former general manager of Little Rock Terminal Company. Mr. Field has more than 20 years' experience in marine and intermodal transportation and terminal management.

A top priority of the operation will be spearheading the development of Ingram Terminal at the Clark Maritime Centre in Jeffersonville, Ind., where Ingram was recently appointed the general cargo stevedore. "Clark and several other terminal sites under study for development or acquisition will form the nucleus of Ingram Terminal Operations," Mr. Kopcsak said.

Ingram Barge, headquartered in Nashville, operates 20 boats and 500 barges on the inland waterway.

Halifax Shipyard Gets Contract For C\$10.7 Million To Modernize Canadian Coast Guard Tender

Halifax Industries Limited of Nova Scotia, Canada, has won a C\$10.7-million contract to carry out the mid-life modernization of the Canadian Coast Guard's Narwhal, a 2,222-dwt NavAids tender. Nine shipyards competed for the contract, which was awarded on the basis of competitive bidding. The vessel was built in 1963.

The modernization work will take 12 months, with redelivery scheduled for mid-August 1985; it will require 125 man-years to complete. Major refurbishing will include the complete removal

and replacement of the living accommodations including bulkheads, flooring, and furniture; stripping out and replacing all electrical systems including generators; and replacing and modifying various steel structures and plating.

Machinery onboard will be extensively replaced, and modifications will be carried out to the piping systems. In addition, a completely new heli-deck and retractable hangar will be installed, and the entire hull exterior will be blasted and recoated.

Mid-life modernization is done once during the lifetime of a ship of this type.

Pientka And Brooks Named Vice Presidents At Comstat TeleSystems

Comsat TeleSystem, Inc. of Fairfax, Va., announced recently that **John M. Pientka** has been elected to the newly created position of vice president, Mobile Satellite Systems, and that **B.L. (Pete) Brooks** has been named vice president of the company's newly established Systems Support and Field Integration Group.



John M. Pientka



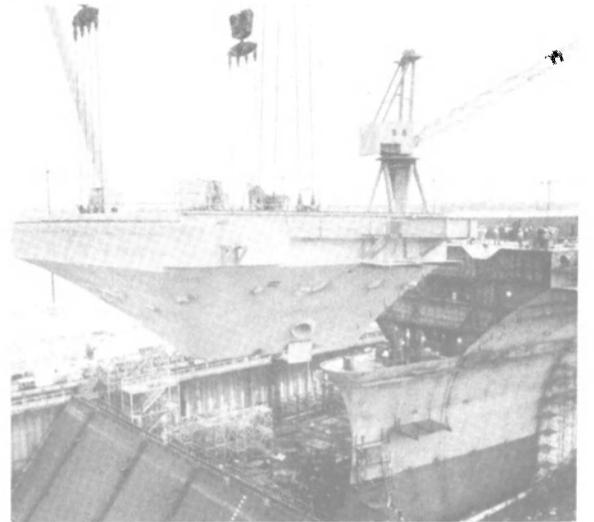
B. L. Brooks

Mr. Pientka will direct the activities of TeleSystems' maritime satellite mobile communications systems for the transportation, oil exploration, and other industries. Since joining Comsat in 1981, he has held various managerial level positions within the firm's corporate development department, most recently serving as assistant vice president of marketing for Comsat Technology Products.

With the selection of Mr. Brooks to head the new Systems Support and Field Integration Group, TeleSystems is establishing a worldwide organization for the system installation, maintenance, training, and repair service of a wide variety of satellite telecommunications equipment. He will be responsible for all aspects of the development, implementation, and direction of this organization.

Mr. Brooks joined TeleSystems in 1981, and has held the position of vice president-product support and maritime systems, for the past two years. He has also served in various management positions in the area of maritime satellite communications systems and services with Comsat General since 1974.

Newport News Shipbuilding Readies Roosevelt For Launch



Aircraft carrier Theodore Roosevelt attained her full length with superlift of 700-ton bow assembly.

With the recent addition of the 418-ton island house assembly, Newport News Shipbuilding completed the final construction superlift for the aircraft carrier Theodore Roosevelt (CVN-71). The 1,092-foot ship is coming together in time for her scheduled launching October 27 this year at the Newport News, Va., shipyard. About 25,000 people are expected to attend the launch.

The Roosevelt attained her full length earlier this year when the yard superlifted the 700-ton bow assembly (photo) and added it to the already mammoth structure. The bow section alone is made up of 265 subassemblies, and contains five deck levels reaching from the hangar deck to the flight deck.

Using new carrier construction technology and superlift capacity, the Virginia shipyard intends to deliver the Roosevelt to the Navy 17 months ahead of schedule.

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Multipurpose Vessel 'Hoegh Dyke' Delivered By Wartsila's Turku Yard

The 41,600-dwt multipurpose cargo ship Hoegh Dyke (shown above) was completed recently by the Turku Shipyard of Oy Wartsila Ab in Finland. Ordered by the Norwegian shipowner Leif Hoegh & Company A/S of Oslo, the vessel is the third and last in a series intended to transport containers, heavy bulk cargo, grain, long timber, special cargoes, and cars. Container capacity is 1,620 TEUs.

Main propulsion is by a low-speed Wartsila/Sulzer 4RLB90 diesel engine with a maximum continuous rating of 16,000 bhp at 102 rpm. It will be operated at the economy rating of 13,600 bhp at 90 rpm, producing a service speed of 16.4 knots on a draft of 30 feet. A 1,475-hp bow thruster is installed for enhanced maneuverability. The vessel has an overall length of 647.5 feet and

beam of 105.6 feet. Electrical power is generated by two Wartsila Vasa 4R32 diesels and one Wartsila Vasa 8R22 engine, the three having a total output of 3,865 kw (5,215 bhp).

The underwater area of the hull is coated with self-polishing antifouling to improve fuel efficiency. The vessel has a very large bunker capacity, enabling her to take on fuel wherever it is cheapest. The cargo spaces, hatch covers, and cargo-handling equipment are designed specially for the owner's special cargoes in worldwide trading. The ship is fitted with a Jastram-T rudder having a rotor in the leading edge and flaps at the rear edge. With rudder and the bow thruster, it is possible for the vessel to turn practically in place.

Hugh Morgan Elected Vice Chairman And A Director Of Sonat Inc.

Ronald L. Kuehn Jr., president and chief executive officer of Sonat Inc., announced that **Hugh J. Morgan Jr.** has been elected chairman and a director of Sonat Inc., and chairman of Southern Natural Gas Company, a Sonat subsidiary.

Mr. Morgan is currently executive vice president of Sonat, chairman of Sonat Marine, also a Sonat subsidiary, and president of Southern Natural Gas. In his new position, he will remain as chairman of Sonat Marine and will continue to have operating responsibility at the Sonat Inc. level for Southern Natural Gas and Sonat Marine.

He joined the legal staff of Southern Natural Gas in 1960. He progressed through various positions in the company and was elected vice president-pipeline affairs, and later to the additional position as senior vice president of Sonat. In 1981, he was named president of Southern Natural Gas and continued as senior

vice president of Sonat. This past June he was named executive vice president of Sonat and chairman of Sonat Marine, while maintaining his position as president of Southern Natural Gas.

Mr. Morgan earned his BA degree from Princeton University and is a graduate of Vanderbilt Law School. He completed the Advanced Management Program at Harvard Graduate School of Business Administration.

Motorola Gets \$4-Million Navy Award For Shipboard Digital Display Units

Motorola Incorporated, Government Electronics Group, Tempe, Arizona, has been awarded a \$4,370,958 firm-fixed-price contract for 46 digital display units to be used for the LHA, LHD, CVN-72, and CVN-73 intelligence centers. The Naval Surface Weapons Center, Dahlgren, Va., is the contracting activity.

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New Full-Color Brochure Available From PACECO

PACECO, Inc., a subsidiary of the Fruehauf Corporation, has recently published a new full-color brochure describing in detail its newly expanded, computer-integrated manufacturing facility located in Gulfport, Miss.

Originally built in 1971, the facility was expanded in 1981 at a cost of \$30 million to include a 400,000-square-foot, under-roof fabrication

facility; a 58,000-square-foot, environmentally controlled blast and coating facility; and a 44,000-square-foot engineering and administration center, which is equipped with CAD/CAM.

PACECO, formerly Pacific Coast Engineering Company of Alameda, Calif., has specialized in contract manufacturing since 1923, and is well known in the maritime industry for its giant container cranes.

For a free copy of the new brochure,

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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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General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360

Haynes Corporation, P.O. Box 179, Jackson, MI 49204

Illman Jones, 1111 Green Island Rd., American Canyon, CA 94589

DIESEL ENGINE—Spare Parts & Repair

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Granges Repair Service GmbH, U.S. Rep: Field, Wigham and Co., Inc., 200 Middleneck Road South, P.O. Box 2123, Great Neck, NY 11021

ELECTRICAL EQUIPMENT

Jergens Inc., 19520 Nottingham Rd., Cleveland, OH 44110

Volad Electric Heating Corporation, 162 Wildey St., Tarrytown, NY 10591

Ward Leonard Electric Co., 31 South St., Mt. Vernon, NY 10550

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

EMULSIFICATION SYSTEMS

Cleanodan A/S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906

Fire-Brite, Hoffert Manufacturing Co., Inc., 3749 Progress Rd., Norfolk, VA 23502

S/S Research & Development Inc., 1050 State St., Perth Amboy, NJ 08862

EQUIPMENT—Marine

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Thomas Caudon Associates, 6655 Amberton Dr., Baltimore, MD 21227

Fitz-Wright Suits Ltd., 17919 Roan Pl., Surrey, B.C., Canada V3S 5K1

Genstar Stone Products Company, Executive Plaza IV, Hunt Valley, MD 21031

Harvey's Commercial Marine Div., 2505 S. 252nd St., Kent, WA 98032

Imperial Manufacturing Co., P.O. Box 4119, Bremerton, WA 98312

Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

EVAPORATORS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201

MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

FANS—VENTILATORS—BLOWERS

American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

Gaylord Industries, Inc., P.O. Box 558, Wilsonville, OR 97070

Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

Zidell Explorations, 3121 S.W. Moody St., Portland, OR 97201

FASTENERS

Sales Systems Limited, 7006, 700 Florida Ave., Portsmouth, VA 23707

FENDERING SYSTEMS—Dock & Vessel

InterTrade Industries, 15301 Transistor Lane, Huntington Beach, CA 92649

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Samson Ocean Systems, Inc., 99 High St., Boston, MA 02110

Seaward International, Inc., 6269 Leesburg Ave., Falls Church, VA 22044

FILTERS

Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307

Mueller Steam Specialty, P.O. Box 1569, Lumberton, NC 28359

FINANCING—Leasing

A.G. Becker Paribus Inc., 2 First National Plaza, Chicago, IL 60670

Gulf Western Leasing Corp., 1500 City West Blvd., Suite 300, Houston, TX 77047

Yegen Marine, P.O. Box 25504, Ft. Lauderdale, FL 33320

FIRE PROTECTION, DETECTION & ALARM SYSTEMS

Gulf Publishing Company Video (Firefighting Videotape), P.O. Box 2608, Houston, TX 77001

Walter Kidde, Walter Kidde Dr., Wake Forest, NC 27586

FUEL OIL/ADDITIVES—Analysis & Combustion Testing

Ferrous Corporation, 910-108th N.E., P.O. Box 1764, Bellevue, WA 98009

McTigue Industries Inc., 1615 9th Ave., Bohemia, NY 11716

U.S. Borax, 3075 Wilshire Blvd., Los Angeles, CA 90010

FURNITURE

Bailey Carpenter & Insulation Co., 74 Sullivan Street, Brooklyn, NY 11231

Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT

Insinger Machine Co., 6245 State Rd., Philadelphia, PA 19135

GANGWAYS

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

HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207

Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

MacGregor-Navire International, Box 8991, S-402 74 Göteborg, Sweden

MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016

Mack Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

HEAT EXCHANGERS

Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024

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

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

HOLD LINERS

Himont U.S.A., Inc., 1313 N. Market St., Wilmington, DE 19894

HULL CLEANING

Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-

9989

Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England

Gulf International Divers, P.O. Box 1342, Gretna (New Orleans), LA 70052

Pacific Maine Services, TLX: 664540 searserv, Long Beach, CA 90802

Petrochemical Services, Inc., 3820 Dauphine St., New Orleans, LA 70117

Phosmarine Equipment, 21 Bd. de Paris, 13002, Marseille, France

Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044

Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

HYDRAULICS

Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224

Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

INERT GAS—Generators—Systems

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

Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

INSULATION—Cloth, Fiberglass

Bailey, Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, NY 11231

Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

Waco Inc., 5450 Lewis Rd., P.O. Box 836, Sandston, VA 23150-0836

INSURANCE

Adams & Porter, 510 Bering Dr., Houston, TX 77057-1408

Adams & Porter, 1 World Trade Center, Suite 8433, New York, NY 10048

MGA International, 419 Park Avenue South, New York, NY 10016

United States P&I Agency, Inc., 80 Maiden Lane, New York, NY 10038

JOINER—Watertight Doors—Paneling

Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729

Bailey Distributors, Inc., 74 Sullivan St., Brooklyn, NY 11231

Masonite Commercial Division, Dover, OH 44622

Megadoor Inc., 441 Lexington Ave., Suite 903, New York, NY 10017

Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOKERS

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

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123

McLear & Harris, Inc., 28 West 44 Street, New York, NY 10036
 Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401
 Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, OH 44114
 Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, NY 11746
 Marine Power Associates, 4475 Mission Blvd., Suite 235, San Diego, CA 92109
 Marine Technical Associates, Inc., 95 River Rd., Hoboken, NJ 07030
 George E. Meese, 194 Acton Rd., Annapolis, MD 21403
 R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003
 NKF Engineering Assoc., Inc., 8150 Leesburg Pile, Vienna, VA 22202
 Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
 New England Engineering & Marine Services, Rt. 2, Box 50, York, ME 03909
 Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121
 Northern Marine, P.O. Box 1169, Traverse City, MI 49685
 Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, LA 70114
 PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
 Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156
 S.L. Petchul, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317
 Precision Systems Engineering, 8248 Eastgate Dr., Mt. Laurel, NJ 08054
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
 Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316
 SEACOR Systems Engineering Associates Corp., 19 Perina Blvd., Cherry Hill, NJ 08003 (Publications Division at Cherry Hill location)
 STV/Sanders & Thomass, Inc., 1745 Jefferson, Davis Hwy., Arlington, VA 22202
 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, NY 10007
 Simmons Associates, P.O. Box 760, Sarasota, FL 33578
 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
 J.F. Strascchein Associates, 666 Old Country Rd., Garden City, NY 11530
 Richard R. Taubler, Inc., 610 Carriage La., Dover, DE 19901
 Timco, 622 Azalea Road, Mobile, AL 36609
 Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707
 Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, NY 12526
 Anschutz & Co., GmbH, Postfach 6040, D-2300 Kiel 14, West Germany
 Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
 CMC Communications Inc., 5479 Jetport Industrial Blvd., Tampa, FL 33614
 COMSAT World Systems, 950 L'Enfant Plaza, S.W., Suite 6151 Washington, DC 20024
 Cybernet International, Inc., 7 Powder Horn Dr., Warren, NJ 07060
 A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway
 Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
 General Electric Company, Mobile Communications Division, Lynchburg, VA 24502
 Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
 Henschel Corp., 9 Hoyt Drive, Newburyport, MA 01950
 Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
 King Radio Corporation, 400 North Rodgers Rd., Olathe, KS 66062
 Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738
 Kongsberg Vopentfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
 Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065
 Lorain Electronics Corp., 2307 Leavitt Rd., Lorain, OH 44052
 Magnum Distributors Inc., 1000 S. Dixie Hwy. #3, Pompano Beach, FL 33060
 Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729
 Navigation Sciences Inc., 6900 Wisconsin Ave., Bethesda, MD 20815 TX: 705999
 Perko Inc. (Lights), P.O. Box 6400D, Miami, FL 33164
 Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033
 Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103
 Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
 Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
 Servo Corporation of America, 111 New South Road, Hicksville, NY 11802
 Simrad, Inc., 2208 N.W. Market St., Suite 600, Seattle, WA 98107
 Sperry Corporation, Great Neck, NY 11020
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
 Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067

OILS—Marine—Additives

Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77001
 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., 535 Madison Ave., New York, NY 10022
 Mobil Oil Corp., 150 East 42 Street, New York, NY 10017
 Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 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 Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989
 Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England
 Centrica, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
 Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307
 Hyde Products, Inc., 810 Sharon Dr., Westlake, OH 44148
 Microphor, Inc., P.O. Box 490, Willits, CA 95490
 Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

PAINTS—COATINGS—CORROSION CONTROL

American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
 Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
 A.W. Chesterton Co., Middlesex Industrial Park, Rt. 93, Stoneham, MA 02180
 Chugoku Marine Paints (U.S.A.) Inc., 1290 Ave. of Americas, New York, NY 10104
 CLEMCO, P.O. Box 7680, San Francisco, CA 94120
 "CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S. Franklinton Rd., Baltimore, MD 21223
 Dampney Company, Inc., 85 Paris St., Everett, MA 02149
 Devoe Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207
 Drew Ameroid Marine, One Drew Chemical Plaza, Boonton, NJ 07005
 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
 Glidden Coatings & Resins, Architectural & Maintenance, 925 Euclid Ave., Cleveland, OH 44115

Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 2425 Fountainview, Suite 340, Houston, TX 77057; P.O. Box 10265, New Orleans, LA 70181

International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
 Jaegle Paint Co., Inc., 1912 Darby Rd., Havertown, PA 19083
 Jatun Marine Coatings Inc., 840 Key Hwy., Baltimore, MD 21230
 Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470
 Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
 Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203
 Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143
 Sermatech International, 4401 SermeTel Dr., Moss Point, MS 39563

PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings

Amermarine International, P.O. Box 9205, Dundalk, MD 21222
 Crawford Fitting Company, 29500 Solon Rd., Solon, OH 44139
 Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063
 Knights Piping Inc., 5309 Industrial Rd., Pascagoula, MS 39567
 Selkirk Metalbestos, Box 19000, Greensboro, NC 27419
 Tioga Pipe Supply Co. Inc., 2450 Wheatstheaf La., P.O. Box 5997, Philadelphia, PA 19137

PLASTICS—Marine Applications

Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231
 Norton Chemplast, 309-150 Dey Rd. Wayne NJ 07470

PLYWOOD

Simson Timber Co., Third and Franklin, Sheton, WA 98584

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

Armo Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 Bergen Diesel Inc., 2110-10 Service Rd., Kenner, LA 70062
 Bird-Johnson Company, 110 Norfolk St., Walpole, MA 02081
 Bombardier, 1051 Dickson, Montreal, Quebec, Canada H1N 2H7
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
 Capitol Gears, 349 N. Hamline Ave., St. Paul, MN 55104
 Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629
 Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
 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, CT 06095
 Daihatsu Diesel (USA) Inc., 180 Adams Ave., Hauppauge, NY 11788
 Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
 Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505
 George Engine Company, Inc., Lafayette, LA
 Golden Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231
 Isotta Fraschini S.p.A., c/o Italian Aerospace Industries (U.S.A.), Inc., 1235 Jefferson Davis Hwy., Suite 500, Arlington, VA 22202
 KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada

KaMeWa, P.O. Box 1010, S-68101, Kristinehamn, Sweden
 KaMeWa, 1800 West Loop So., Suite 1620, Houston, TX 77027
 Krupp Mak Diesels, Inc., 4329-33 Di Paolo Center, Glenview, IL 60025
 Lips Propellers, 3617 Koppers Way, Chesapeake, VA 23323
 M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeyb, Denmark
 MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70203; 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington, VA 22209

MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046
 Mapeco Products, Inc., 20 Vesey St., New York, NY 10007
 Maritime Industries Ltd., 6307 Laurel St., Burnaby, B.C., Canada V5B 3B3
 Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
 National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037
 North American Marine Jet P.O. Box 1232 Benton, AR 72015
 Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
 Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054
 Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201

Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032
 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 St., Miami, FL 33166
 Karl Senner, Inc., P.O. Box 10055, New Orleans, LA 70181
 Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
 Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637
 Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
 Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414
 Transamerica Delaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
 Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, NJ 08650
 Turbine Specialties, Inc., P.O. Box 207, West State Street Road, Salina, KS 67401
 Turbine Specialties/Gulf Coast, Inc., 1900 Industrial Blvd., Harvey, LA 70058

Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway
 Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021
 Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647
 WABCO Fluid Power, an American Standard Company, 1953 Mercer Rd., Lexington, KY 40505
 Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
 Waukesha Engine Division, Waukesha, WI 53187

PUMPS—Repairs—Drives

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
 Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
 Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
 Sims Pump Valve Co., Inc., 1314 Park Ave., Hoboken, NJ 07030
 Transamerica Delaval, Pyramid Pump Div., P.O. Box 447, Monroe, NC 28110
 Vita Motivator Company, 200 West 20th St., New York, NY 10011
 Warren Pumps Division, Bridges Avenue, Warren, MA 01083
 Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231

ROPE—Manila—Nylon—Hawsers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, PA 18431
 Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
 DuPont Co., KEVLAR Aromid Fiber, Room G-15465, Wilmington, DE 19898
 Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110
 Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621

SANITATION DEVICES—Pollution Control

Davit Sales Inc., P.O. Box 232, Jefferson Valley, NY 10535
 Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
 FAST Sewage Systems, Div. of St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111
 Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway
 Marine Moisture Control Co., Inc., 60 Inip Dr., Inwood, LI, NY 11696

National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105

SCAFFOLDING EQUIPMENT—Work Platforms

McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238
 Trus-Joist Corp., P.O. Box 60, Boise, ID 83704

SCUTTLERS/MANHOLES

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

SHIPBREAKING—Salvage

The Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
 Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

SHIPBUILDING EQUIPMENT

Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156
 Total Transportation System Inc., 813 Forest Dr., Newport News, VA 23606
 Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 248, N 5201, Os, Norway

SHIPBUILDING STEEL

Armo Steel Corp., 703 Curtis St., Middletown, OH 45042
 Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
 United States Steel Corp., Christy Park Plant, 2214 Walnut St., McKeesport, PA 15132
 Welded Beam Company, P.O. Box 280, Perry, OH 44081

SHIPBUILDING—Repairs, Maintenance, Drydocking

Advanced Technology, Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102
 Amsterdam Drydock Company, Post Box 3006, 1003 AA, Amsterdam, Holland

Arsenal Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep: Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066

Asmar Shipyards Co., Astilleros y Maestranzas 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

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 Bath Iron Works Corp., 700 Washington St., Bath, ME 04530

Bay Shipbuilding Corp., 605 North 3rd Ave., Sturgeon Bay, WI 52435
 Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601
 Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018

Burmeister & Wain Skibsvaerft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark

Burrard Yarrow Corporation, P.O. Box 86099, North Vancouver, B.C., Canada

Cantieri Navali Riuniti, Via Cipro, 11, 16100 Geneva, Italy

Carrington Slipways Pty. Ltd., Old Punt Rd., Tomago NSW Australia 2322
 Conrad Industries, P.O. Box 790, Morgan City, LA 70380

Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10040

Daewoo International (America) Corp., 437 Madison Ave., New York, NY 10022

Daewoo Shipbuilding & Heavy Machinery Ltd., Ayangri, Changsung-PO Kaje-Kun, Kyungnam, Korea

Davie Shipbuilding Ltd., P.O. Box 130, Levis, Quebec, Canada G6V6N7

Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London, Republic of South Africa

Dravo Marine Equipment Company, Neville Island, Pittsburgh, PA 15225

Dubai Drydocks, P.O. Box 8988, Dubai, United Arab Emirates—U.S.A. Agents: Keppel Marine Agencies, Inc., 26 Broadway, New York, NY 10040, 6240 Richmond Ave., Houston, TX 77057

Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401

FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, OR 97208

Far East Levingston Shipbuilding Ltd., 31 Shipyard Rd., Jurong Town, Singapore 2262

Genstar Marine, 10 Pemberton Ave., No. Vancouver, B.C., Canada V7P 2R1

Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, MA 02725

Goitene Marine Co., Inc., 60 Van Brunt St., Brooklyn, NY 11231

HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219

Halter Marine, Inc., P.O. Box 29266, New Orleans, LA 70189

Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan

Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, Korea

Jakobson Shipyard Inc., P.O. Box 329, Oyster Bay, NY 11771

Jeffboat Inc., Jeffersonville, Ind. 47130

Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409

Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094

Paul Lindenau GmbH & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134

M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany

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ASMAR Completes Repairs To Chilean-Owned Freighter

ASMAR, Chile's leading shipbuilder and repairer, recently completed repairs to the 14,160-grt Villarrica owned by Sociedad Naviera Ultragas S.A. of Chile. The vessel was dry-docked at the Talcahuano yard, where the 15-ton rudder was dismantled and repaired. This involved removing the complete rudder and rudderstocks to the workshops in order to check the misalignment.

After a thorough inspection, it was necessary to renew all 12 fastening bolts and rectify the adjusting faces of the rudder and rudderstock,

which involved machining these pieces twice during the check-up stages. It was also necessary to check the conicity and ovalization of the fastening holes between these pieces, both in the workshop and afloat, which meant taking a portable lathe to the dock and installing it at a height of 10 meters so that the rectification could be carried out continuously for a period of 50 hours.

In addition, two 415-mm-diameter bushings had to be cast for the rudderstock, and the stock deflection had to be checked and corrected by machining and polishing. The rudder blade assembly and rudderstocks were later put together and the alignment rechecked once it had been reassembled onboard the vessel.

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Rising 643 feet above seabed, unmanned articulated tanker loading platform loads produced crude into shuttle tankers modified to accept bow hose connection. The Statfjord "C" ALP was engineered, constructed and installed by Single Buoy Moorings, Inc., of Switzerland.

Articulated Loading Platform Now Operating At Mobil's Statfjord "C" Site

Shuttle tanker loading has begun from Mobil's North Sea Statfjord "C" articulated loading platform (ALP)—a completely unmanned single point tanker mooring termi-

nal. Remote control of ALP operations resides principally with the tanker as the telemeter command unit, although the production platform located 1.13 nautical miles



Rotating superstructure of ALP is joined to riser column by 640-mm-diameter double roller bearing. Column attaches to anchor base via a 200-ton universal joint.

away can also control valves and positioning of the rotating mooring head.

After berthing and connection of the bow loading hose, the tanker's master gives the go-ahead signal to the platform to commence pumping. Cargo transfer can continue uninterrupted around the clock in winds up to almost 50 mph and waves of about 20 feet. During cargo transfer the superstructure of the ALP is free to rotate so that the tanker may weathervane in response to changes in wind, waves, and current. The Statfjord "C" ALP, like its sister Statfjord "B" platform, is designed to berth and transfer cargo to dedicated shuttle tankers in the 150,000-dwt class.

The Statfjord "C" ALP was engineered, built, and installed by Single Buoy Moorings, Inc., of Marly, Switzerland, under terms of a turn-key contract awarded by Mobil Oil acting as operator for the Statfjord Group. Major components such as the rotating head and base were built in Norway by Aker Stord and Haugesund Mekaniske Verksted, respectively. The 551-foot column was manufactured by SNCMP in Dunkirk, France, and floated to a Norwegian fjord where the ALP was assembled prior to being towed to the North Sea installation site.

For further information,

Circle 10 on Reader Service Card

Smeehuijzen Named Executive Vice President At Holmatro's U.S. Office

Kees Smeehuijzen has been appointed executive vice president of the American sales company, Holmatro Incorporated, USA, that was established earlier this year by the Netherlands-based Holmatro group of companies.

The U.S. sales office, in Severna Park, Md., is intended to serve the American and Canadian markets in a more efficient way for the sale of Holmatro hydraulic rescue equipment and hydraulic industrial tools—equipment for lifting purposes and specific systems for petrochemical plants and the shipbuilding industry. The Holmatro equipment is manufactured by a wholly owned sister company in Holland.

Circle 21 on Reader Service Card



Wartsila To Build 2,500-Passenger Ferry For Rederi AB Slite

Rederi AB Slite of Gothland recently placed an order with Wartsila Turku Shipyards for a high-speed car/passenger ferry. The 36,400-grt vessel with accommodations for 2,500 passengers is a sister ship to the ferry ordered from the Turku yard by SF-Line in December last year. The Slite ferry will be built in accordance with high Scandinavian standard, and will provide employment for more than 2,000 workers at Wartsila and at subcontractors for a full year. Delivery is scheduled for the spring of 1986.

This order is the first that Wartsila has received from Slite, and the 11th big ferry contracted by the yard within the past six years. In addition to the 2,500 passengers, the vessel will carry 600 automobiles and 16 trailers or, alternatively, 62 trailers. The ferry will have 10 decks, two stern ramps, and a forward

gate with driving ramp. Passengers will be accommodated on four decks, with public spaces on the deck above. There will be 11 conference rooms with a total capacity of 650 persons.

Propulsion will be provided by four medium-speed diesel engines with a total output of 31,280 bhp driving two controllable-pitch propellers through reduction gears. Speed will be 22 knots. Three diesel generators will supply 6,135 kw of electrical power, and two shaft generators will have an output of 3,250 kw.

Recreation areas will include a dining room, a la carte dining room, pub, casino, bar saloon, cafe, and discotheque. In addition, saunas, children's playrooms and nurseries, tax-free shops, hairdressers, and other passenger services will be provided.



Mitsui Completes Big Products Tanker For Olympos Trading Corporation

The 66,800-dwt petroleum products carrier Urania Coulouthros (shown above) was delivered recently at the Tamamo Works of Mitsui Engineering & Shipbuilding Company in Japan to Olympos Trading Corporation of Liberia. The Panamax tanker is equipped with a crude oil washing (COW) system to permit carriage of crude as well as oil prod-

ucts. All her cargo tanks are coated internally with pure epoxy.

Designed in accordance with not only the requirements of the 1973 International Convention for the Prevention of Pollution from Ships and the 1978 Protocol relating thereto; the 1974 Convention for the Safety of Life at Sea, and its 1978 Protocol and 1981 Amendment; but

also meets the pertinent rules of the U.S., Canada, and the Panama Canal Commission, qualifying the vessel for service anywhere in the world.

Cargo oil pumps and the principal valves of cargo oil lines are controlled remotely from the cargo control room, and oil levels and temperatures in cargo tanks, pump pressures, and the draft of the hull are displayed remotely in the same room.

The tanker is powered by a fuel-efficient Mitsui/B&W slow-speed 7L67GBE diesel having a maximum continuous output of 15,200 bhp at 123 rpm. Maximum trial speed was 15.8 knots. An engine control station with monitoring and control systems, including data logger and CRT displays, carries out remote monitoring and control of engine room machinery. The machinery and other equipment in the engine room qualifies for the UMS Notation of Lloyd's Register of Shipping, allowing unmanned engine room operation even at night.

The ship's electronics include a satellite navigation system, Decca Navigator, facsimile receiver for meteorological data, and a collision-avoidance system intergrated with a radar for better navigational safety.

The Urania Coulouthros has an overall length of 754.58 feet, beam

of 105.64 feet, depth of 61.68 feet, and full-load draft of 42 feet. Cargo oil tank capacity totals 73,801 cubic meters.

New ABS Book Lists Approved Equipment

The American Bureau of Shipping, 65 Broadway, New York, N.Y. 10006, has announced the availability of its 100-page book, List of Approved Equipment, at a cost of \$10 in the U.S.

Divided into two sections, one part contains the equipment and components certified by the Bureau's Equipment Type Approval Program for use aboard ships or marine structures classed by ABS. The second part lists all ABS-approved internal combustion engines. Still under development for future issues is a third section listing approved reduction gears.

The new book will aid shipowners, builders, and manufacturers in their selection of products. In addition, it will reduce plan review time for ABS, the designer, and the shipyard.

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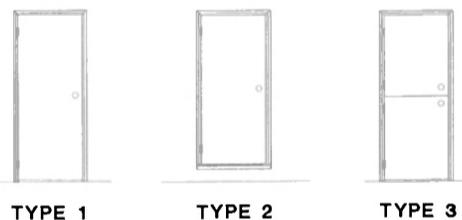
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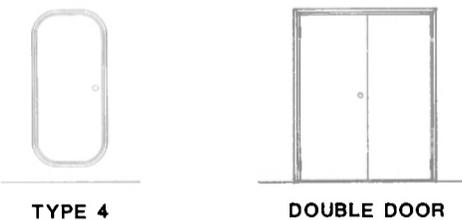
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U.S. Navy Ship Overhaul Market

A Marketing Guide To The \$6.8 Billion
Navy Ship Repair And Alteration Program

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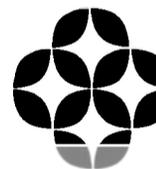
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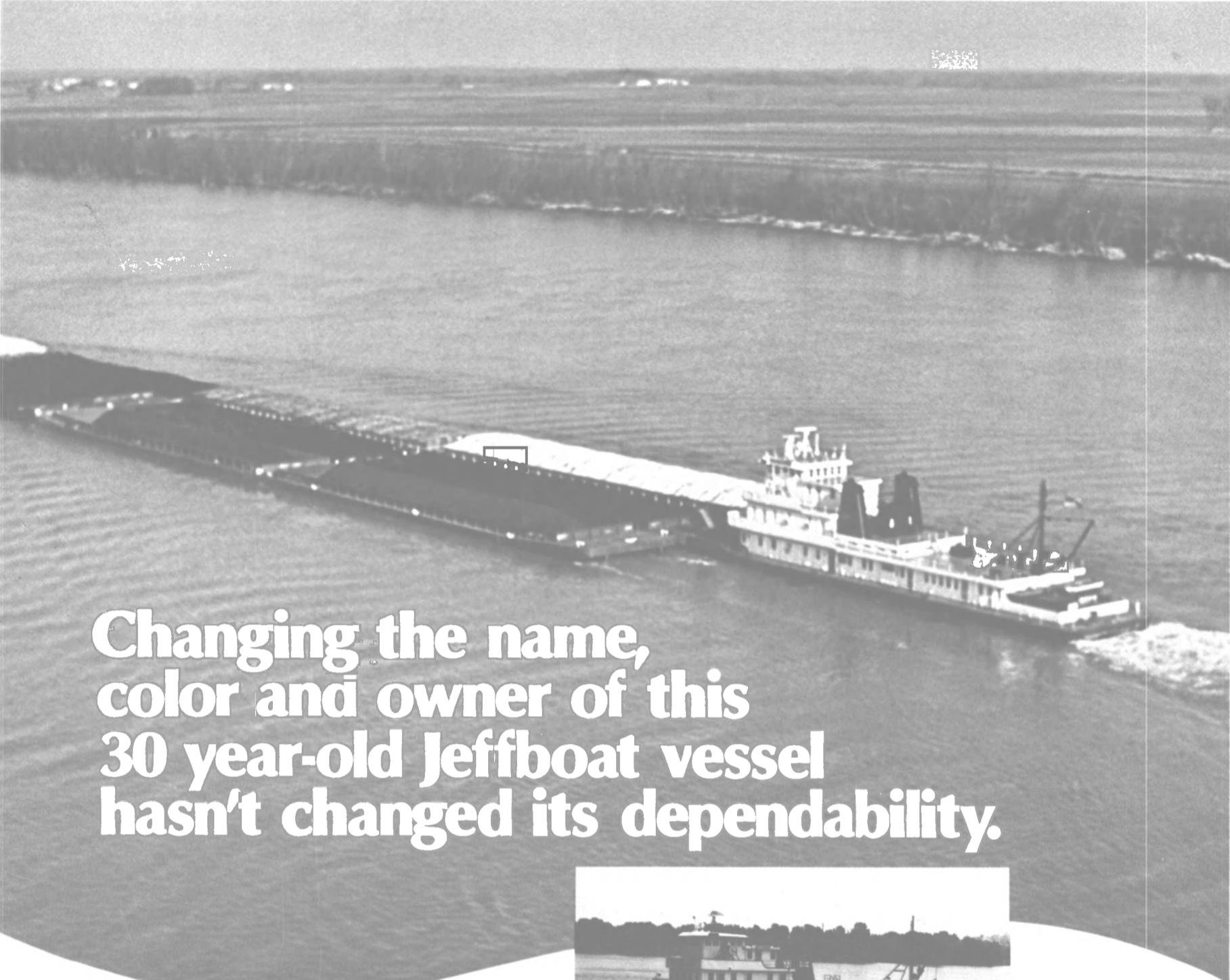
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