

# MARITIME REPORTER

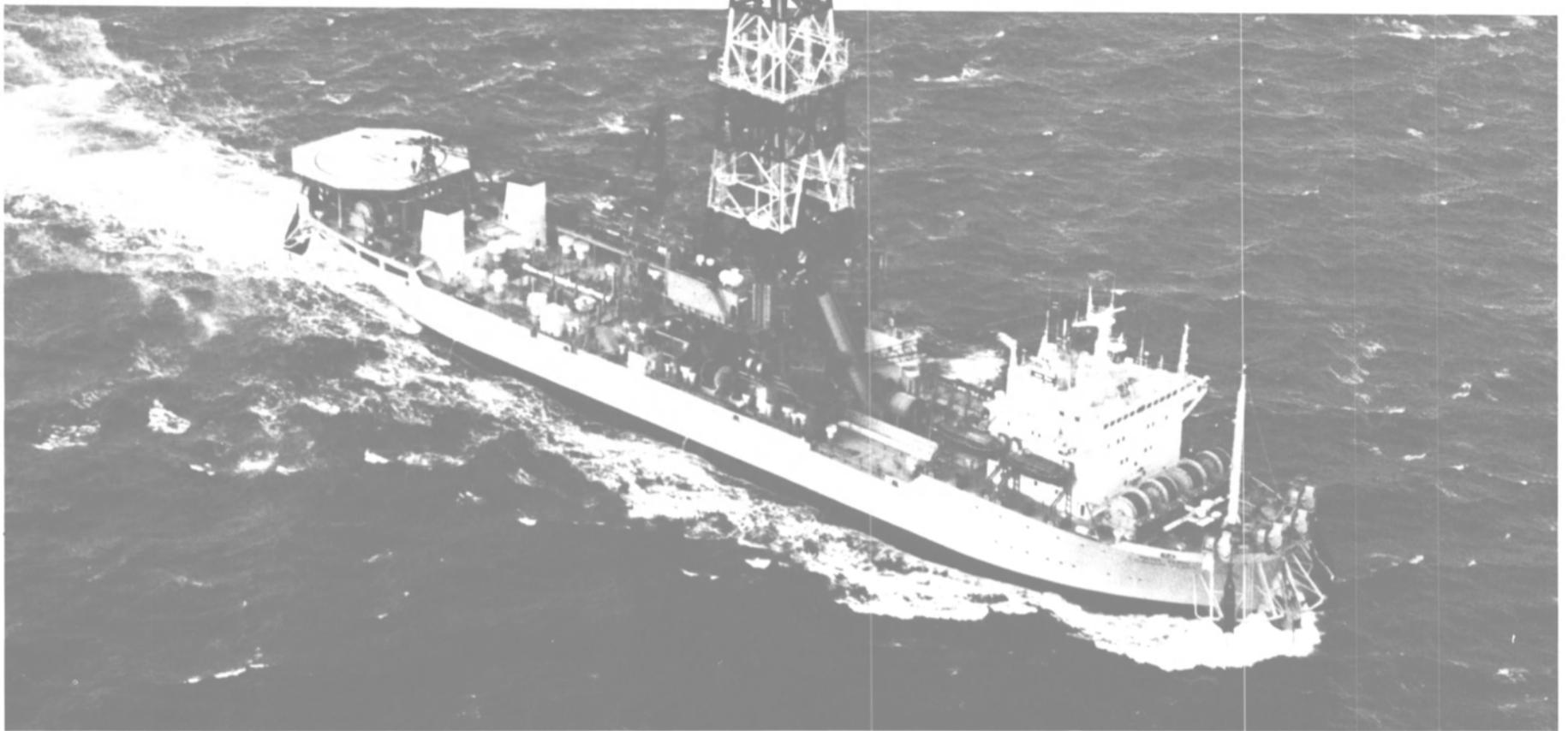
AND  
ENGINEERING NEWS



## OFFSHORE EUROPE '85

AUGUST 15, 1985 ISSUE

# Our experience with oil and water mixed well in this vessel.



Building a drillship calls for a special blend of expertise.

Which is why the Oil and Natural Gas Commission of India called on Hitachi Zosen to design and construct the SAGAR VIJAY — a self-propelled, anchor-moored drillship built under license of Gusto Engineering C.V., Holland.

This vessel had to be able to operate in seas as deep as 300 meters. In waves as high as 4.25 meters. And drill down to depths of 6,000 meters.

Requirements that demanded Hitachi Zosen's vast expertise — as a builder of hundreds of ships. As a top

producer of jack-up and semi-submersible oil rigs. And as a leader in applying advanced electronics to both fields.

Yet in keeping with our experience, we built the SAGAR VIJAY on time, under the strictest quality controls. And are now, in fact, helping India to construct a sister ship.

So if you'd like either an anchor-moored or dynamically-positioned drillship, call on Hitachi Zosen. We can offer what every project needs.

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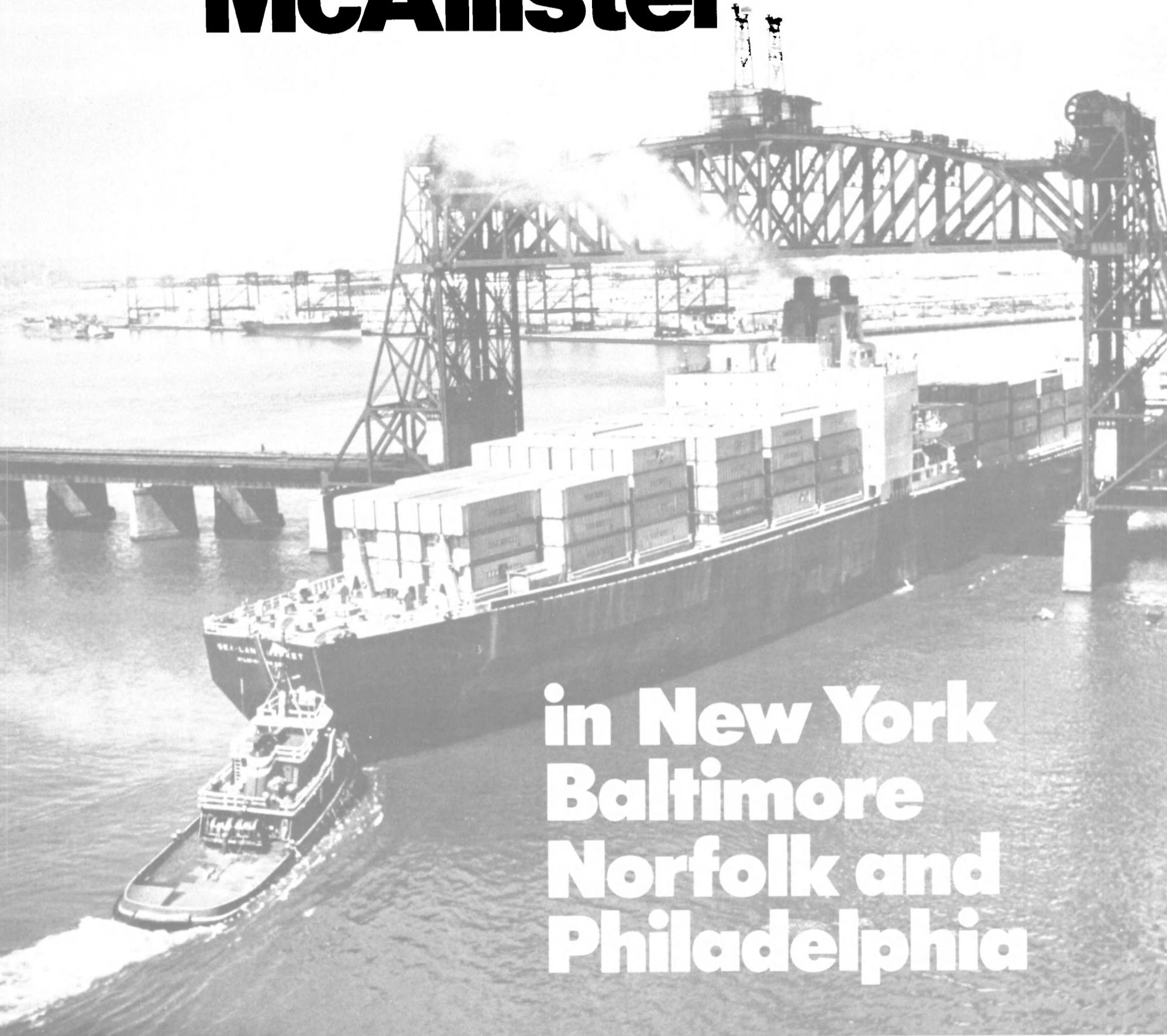
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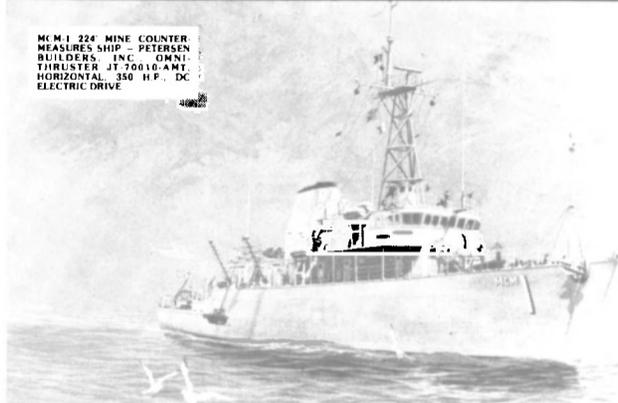
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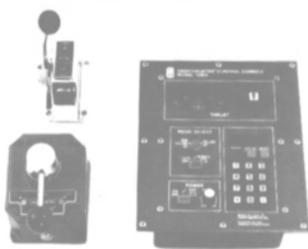


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# ON THE COVER

Cover Photo: The Bay Driller, A Marathon LeTourneau Class 116-C jackup rig shown at work in the Morecambe Bay Gas Project in the North Sea. Photo courtesy of Marathon Manufacturing Company.

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- A Preview -  
PAGE 16

**Naval Shipbuilding**  
Report  
PAGE 30

## Toledo Firm Will Lease & Operate Former American Ship Building Yard

Merce Industries, a construction company based in Toledo, Ohio, has agreed to lease and operate a shipyard at the Port of Toledo. The yard, which has been inactive since 1983, was purchased by the Port of Toledo from American Ship Building Company in March this year.

According to company president **Henry Merce**, the shipyard will be used primarily for repair work, although he may try to win government shipbuilding contracts.

The State of Ohio has provided a \$175,000 grant for the renovation of the yard.

## Todd Seattle Yard Awarded \$15-Million Navy Contract For Destroyer Overhaul

The Seattle Division of Todd Pacific Shipyards Corporation has been awarded a \$15-million Navy contract for the regular overhaul of the Destroyer USS Harry W. Hill (DD-986). The ship is scheduled to arrive at the yard in September this year. The work will have an eight-month duration, with average daily manning of approximately 300.

The overhaul will include modifications to all major systems including propulsion, electronics, habitability, and combat systems. The Hill job will mark the Seattle yard's ninth overhaul to naval combatants in recent years.

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## Contract Awarded To IMODCO/Snamprogetti Joint Venture By AGIP

A joint venture between Snamprogetti of Italy and IMODCO, a unit of AMCA International based in the US, was recently awarded a contract by AGIP S.P.A. covering the supply of engineering, design and project management for a deep-water SALM/Yoke terminal system. The system will produce crude oil from an offshore oil field and will treat and store the product in a permanently moored converted tanker.

Production from the dedicated tanker will be transferred offshore to shuttle tankers.

The SALM/Yoke terminal will be installed in a water depth of approximately 100 meters and will be connected to submarine wellheads controlled from the permanently moored tanker. This system is particularly tailored for the development of marginal offshore oil fields located on the continental shelf and deeper.

## Beth-Sparrows Point Wins \$132.8-Million Contract For Two Survey Ships

Bethlehem Steel Corporation, Sparrows Point, Md., is being awarded a \$132,796,800 fixed-price contract for the construction of two T-AGS-39 class oceanographic survey ships. Work will be performed in Sparrows Point and is expected to be completed in April 1988. Contract funds would not have expired at the end of the current fiscal year. Eight bids were solicited and three offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-2188).

## Marine Transport Awarded \$79.5-Million Contract

Marine Transport Lines Incorporated, Secaucus, N.J., recently received a tentative award of \$79,576,560 fixed-price contract with cost reimbursables for the operation of 12 Military Sealift Command oceanographic vessels. The contract period is three years and began last month. Contract funds would not have expired at the end of the current fiscal year. One hundred and fifteen bids were solicited and four offers were received. The Military Sealift Command, Washington, D.C., is the contracting activity (N00033-84-R-005).

## Navy Announces Homeport Sites In Gulf Coast Area

After reviewing the results of a year-long Gulf Coast strategic study, the Secretary of Defense has announced homeporting decisions affecting nine Gulf Coast cities. The plan, to be implemented in the late 1980s and early 90s, involves some 29 ships and approximately 15,000 personnel.

The current Navy shipbuilding program will add 130 vessels by the end of the decade. Current homeport areas are at or near capacity, and prudent military planning dictates that the Navy disperse its increased fleet. This strategic dispersal, along with the lowest possible cost to the Navy, were the determining factors in the decision.

The Navy's plan calls for the battleship Wisconsin (BB-64), a cruiser, destroyer, and minesweeper, to be homeported in Corpus Christi, Texas. In addition, the Navy train-

ing carrier will be shifted from Pensacola, Fla., to Corpus upon completion of facilities. Two frigates and three minesweepers will be homeported in the Houston/Galveston areas as part of the Surface Action Group initiative.

Five ships will be homeported in Louisiana—two mine warfare vessels and an oiler in Lake Charles, and two additional fast sealift ships in the New Orleans area at Violet.

A decision has also been made to station the 15th Navy carrier battle group in the Gulf. An operational

carrier (replacing the training carrier) and a mine warfare ship will be stationed in Pensacola. Two destroyers, two frigates, and a minesweeper will go to Mobile, Ala. Pascagoula, Miss., will be homeport for two cruisers and two destroyers. A mine warfare vessel will be based in Gulfport, Miss.

Rounding out the Navy's move to the Gulf Coast will be homeporting of a landing craft repair ship, a salvage ship, and the establishing of a shore-based ocean surveillance ship support group in Key West, Fla.



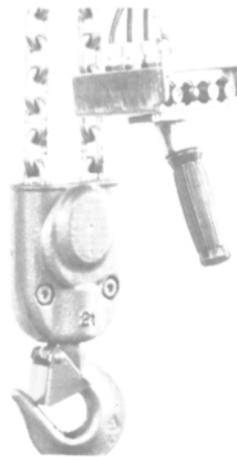
## JDN trolley-mounted air hoists for 4 bar or 6 bar air pressure

All JDN air hoists in the Profi series with lifting capacities from 100 kg to 100 tonnes and an air pressure of 6 bar can be mounted or suspended on trolleys.

As can the JDN air hoists in the B and M series with lifting capacities from 1 to 12 tonnes for 4 bar air pressure. Depending on their lifting capacities they are operated by hand or by reel chain or are fitted with an air motor.

All are particularly suitable for use in confined spaces and wherever there is a risk of explosion (air doesn't spark).

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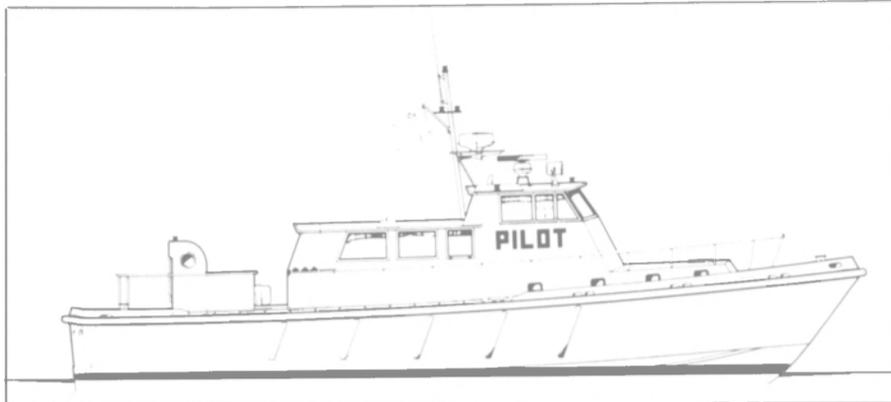


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August 15, 1985

Circle 150 on Reader Service Card



Artist's drawing of twin-engine, all-aluminum pilot boat delivered to Sandy Hook Pilots.

## Hunt Associates And Gladding-Hearn Collaborate On Pilot Boat Design

C. Raymond Hunt Associates, designers of Boston, and Gladding-Hearn Shipbuilding Corporation of Somerset, Mass., have collaborated on a fast, twin-diesel, all-aluminum pilot boat for the Sandy Hook Pilots. The construction contract was awarded to Gladding-Hearn in December 1984, and delivery is scheduled for this summer. She will replace an aging and slow steel-hulled dispatch boat.

The Sandy Hook Pilots wanted a fast boat to cut the commuting time from base to station from one hour to half that time. The boat had to be comfortable and capable of going in any weather all year round into the North Atlantic to transport some 12 pilots plus crews in safety to the station vessel. Finally, the new boat had to be capable of standing in for one of the big station vessels for up to two days in the event that one of them is out of service for repairs in a shipyard.

Hunt Associates and Gladding-Hearn came up with this 64-foot, 20-knot, deep-V-hulled boat, custom designed to do the job. This design is a larger sister to nearly a dozen other Hunt/Gladding-Hearn pilot boats operating on the East Coast.

The boat has a beam of 17 feet (plus 6-inch rubber fender) and a draft of 5 feet 6 inches. Fuel capacity is 1,500 gallons, and 200 gallons of potable water can be carried. Her normal role is as a dispatch/commuter boat from the shore base in Staten Island, N.Y., to the boarding station 12 miles at sea.

In the event that this boat has to be pressed into service as a relief station vessel, she can take aboard another 1,000 gallons of fresh water as ballast to give her the stability of a much larger vessel while holding station off the Port of New York. Main propulsion power is provided by twin M.A.N.-B&W diesel engines delivering a total of 1,080 bhp at 1,800 rpm.

She will carry two Furuno radars, three Shipmate VHF sets, a Northstar Loran C, and two depth sounders, including a survey grade Raytheon for sounding docks, approaches, and suspect areas. Other equipment includes two Northern

Lights gensets, air starting for the main engines, extensive sound insulation, and accommodations for six pilots and four crew.

Pilots will board from the main deck forward, within complete view of the raised pilothouse, which is arranged amidships and has 360-degree visibility. A complete navigation bridge imitates the bridge of a much larger vessel.

Of particular interest are the safety systems incorporated into the design at the request of the Sandy Hook Pilots. Pilots worldwide are sharing information on how to make the very dangerous job of boarding ships at sea safer. The New York-New Jersey Pilots decided to adopt several features suggested by their fellow pilots. Recessed into the transom is a platform near the waterline that would allow a conscious man in the water to pull himself aboard or be aided aboard by crewmen.

## Johnson-Duramax Stuffing Boxes Make Packing Changes Easier

A line of maintenance-reducing stuffing boxes is now available from The Johnson Rubber Company's Duramax Marine Division. In addition to making packing changes easier, several of the company's heavy duty stuffing boxes are specifically designed to cut the need for dry-docking.

Three of the popular types of stuffing boxes feature the exclusive Duramax inflatable "Air Seal" rubber ring which, when inflated, seals itself around the shaft sealing out water when a packing change is required. Packing can be changed even while in the water, eliminating the need for dry-docking. When the repacking is complete, the inflated seal is deflated. At this point, the rubber ring automatically retracts clear of the shaft.

The company offers a broad line of stuffing boxes for many marine applications. For service at forward stern tube locations, stuffing boxes with shaft sizes ranging from 2½ inches to 15 inches provide water/grease lubrication, grease lubrication or water lubrication. Made of cast naval bronze, Duramax stuffing boxes are engineered for extra strength at critical stress points and are precision machined with female recess for mating with Duramax water lubricated flanged type bearings. Stuffing boxes with machined male pilot for use with the Duramax water-lubricated demountable rubber stave bearings are also available.

Split type stuffing boxes, as well as boxes of cast aluminum or mild

steel are also available in certain models and sizes.

Bulkhead or rudder stuffing boxes ranging in shaft sizes 2½ to 7¼ inches are offered in bronze and can be supplied with integral steel flanges for bulkhead welding. Also offered in the line are a series of bronze stuffing boxes and stern castings for shaft sizes ranging from 1 inch to 6 inches, featuring rugged construction with thick mounting flange and thick ribs for better shaft support.

For further information and a free 12-page brochure from The Johnson Rubber Company, Duramax Marine Division,

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Johnson-Duramax stuffing boxes.



## Pennsylvania Shipbuilding. We're big enough

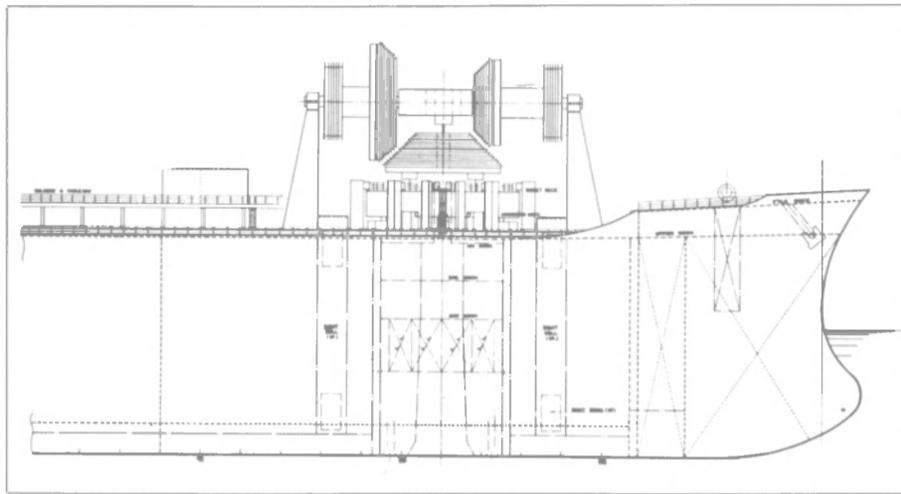
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Today everyone wants a better return from the ships they operate. Two most effective approaches without

Maritime Reporter/Engineering News



## Versatile FPSO Manifold System Eliminates Fluid Swivels

A versatile manifold system for linking floating production, storage and off-loading (FPSO) vessels with their mooring turrets in offshore oil fields, which allows the vessels to weathervane continually without interrupting production, has been developed by the Marine Offshore Division of Mobil Shipping and Transportation Company.

Called the Sealless Rotating Multipath (SRM) manifold, the system eliminates the need for high pressure fluid swivels on ship-shaped FPSO vessels. Worldwide licensing rights for the new technology, for which patent applications are pending, have been assigned by Mobil to Hitachi Zosen Corporation. Under the terms of the agreement, Hitachi has exclusive rights to design, build and install the SRM, and to grant sub-licenses, as appropriate.

All of the major SRM components are standard industry items proven through years of oil field use. In-

cluded among these items are wellhead-type connectors used for repositioning the reeling systems. The SRM handles produced oil and gas, injection water and injection gas.

The SRM can be designed to handle any flow rate, by providing the appropriate number and size of lines. It will also accommodate any working pressure for which flexible pipe and wellhead-type connectors are available.

Hitachi and Mobil are presently developing the detail design for a 50,000 barrel (8,000-cubic-meter) to 120,000 barrel (19,000-cubic-meter) per day SRM that includes 6,000 (410 bar) gas injection and annulus lines, as well as a 4,000 psi (275 bar) water injection line.

For further information on the Mobil SRM, including its applicability to specific offshore producing operations,

Circle 10 on Reader Service Card

## Consolidation Of Chevron And Gulf Fleets Announced

As part of its \$13.2-billion merger with Gulf Corporation, Chevron Corporation has announced the consolidation of the Gulf and Chevron marine transportation organizations. Gulf's fleet of 11 tankers will be consolidated with Chevron's for a merged fleet of 43 operating vessels with a total carrying capacity of about 6 million deadweight tons.

Marine management of the combined fleet, and fleet support activities including engineering and purchasing, will be provided by Chevron Shipping Company in San Francisco. For the present, Gulf Marine's financial accounting functions will continue to be handled from Houston. Vessel chartering activities will be conducted from Chevron Shipping offices in San Francisco and London.

Douglas Wolcott, president of Chevron Shipping Company, said there would be no immediate changes in the trades of the vessels or operational procedures as a result of the consolidation. He noted, however, that Chevron will continue to evaluate the combined fleet operation to determine how its efficiency can be increased.

"While we've assumed control of the Gulf fleet," he said, "the ship management firms retained by Gulf will continue to manage the day-to-day operations of the assigned vessels. Also, in high-activity ports, agents previously appointed by Gulf will continue to represent those vessels to assure continuity and avoid problems in coordination."

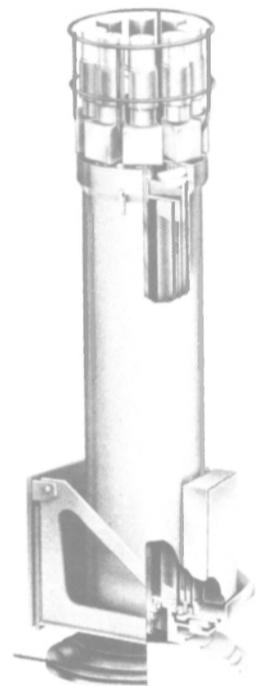
With the addition of the Gulf vessels, Chevron's operating fleet, excluding vessels in layup, becomes the world's largest oil-company-owned fleet in terms of carrying capacity.

## Murdock Engineering Introduces New Tension System Design

"A simple way to solve a complex problem," is how Murdock Engineering Company, Irving, Texas, describes its new tensioning system.

According to the company's engineers, what job tensioners do—maintain constant tension on the riser or guideline as the vessel moves in response to wind and wave action—was an ideal application for their specialty, elastomeric technology.

An elastomeric spring produces the constant force deflection curve needed to maintain uniform tension on the riser or guideline. And a system based on an elastomeric spring would be much simpler to operate than traditional air-hydraulic systems.



Murdock Tensioner

According to the company, the tensioner system design selected has a number of inherent advantages including: passive operation (no compressors and/or hydraulic pumps are required); fast response; light weight; minimal maintenance; elastomeric spring operation; interchangeable (the Murdock system can be retrofitted to existing vessels using attachment pads from the present air-hydraulic system); designed for long life; less deck space required; and special safety features—no power is required for operation, thus unit continues to operate in the event of a total power failure, and if a line or riser break is detected by a monitor, caliper-type brakes act to prevent dangerous line whipping.

For a free brochure or literature on Murdock Engineering's new tensioning system,

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**Pennsylvania Shipbuilding**

August 15, 1985

Circle 171 on Reader Service Card



## Jeffboat Delivers River Towboat M/V Cletus To Luhr Brothers

Jeffboat Incorporated, Jeffersonville, Ind., recently delivered the river towboat M/V Cletus (shown above) to Luhr Brothers, Inc. of Columbia, Ill. Named for **Cletus Whelan**, vice president of Luhr Brothers, the 102-foot-long vessel has a width of 36 feet, depth of 10 feet, and normal operating draft of 7 feet 8 inches. Her hull is of 5/8-inch steel.

Two Caterpillar Model 3516 main engines, providing 1,320 hp each at 1,500 rpm, power the 84-inch (62-inch pitch) four-bladed, stainless-steel Columbian Bronze propellers through Caterpillar 5.55:1 reduction

gears. The two 100-kw, 1,200 rpm, 240-volt Lima generators are driven by Caterpillar Model 3306 engines.

Radio equipment includes Motorola Triton 20 SSB and Standard Horizon International AHF. Radar is by Sperry, searchlights by Carlisle & Finch, airhorn by Kahlenberg, deck winches by BeBee Bros., and capstan by Shoellhorn-Albrecht. Westinghouse supplied the air compressors, and pollution equipment is FAST Unit Model LS.

The M/V Cletus, which has a retractable pilothouse, will be used in service on the lower Mississippi and Red Rivers.

## Reagan Nominates Navy's First Space And Warfare Systems Commander

Secretary of Defense **Caspar W. Weinberger** announced recently that the President has nominated Rear Adm. **Glenwood Clark** for appointment to the grade of vice admiral and assignment as Commander of the Navy's Space and Warfare Systems Command (SWSC), the first officer to hold this new position.

The SWSC expands the scope of the former Naval Electronic Systems Command (NAVELEX), and includes responsibilities for space

operations and integration of command and warfare systems across the entire battle group. As its commander, Admiral **Clark** will have the primary responsibility for development and acquisition for space systems, command, control and communications systems, warfare systems and their integration in maritime operations.

He is currently serving as director of the Strategic Systems Program office (SSPO), and has been responsible for the development, production and fleet support of the Navy's highly successful fleet ballistic missile programs, which include the ongoing development of the Trident II (D-5) weapon system.

## Rockwell Awarded \$3.9-Million Contract

Rockwell International Corporation, Anaheim, Calif., was recently awarded a \$3,925,000 modification to a previously awarded fixed-price-incentive letter contract to exercise options for production of two additional units of AN/BQQ-9 Sonar Signal Processor (SSP) for Trident submarines. The work, which is expected to be completed in March 1987, will be performed in Anaheim. The contract funds would not have expired at the end of the current fiscal year. The contracting activity is the Naval Sea Systems Command, Washington, D.C., (N00024-84-C-6000).

## Total Transportation Systems Acquires Kenmark —Literature Available

Total Transportation Systems, Inc. of Newport News, Va., recently announced the acquisition of Kenmark Industries of Santa Barbara, Calif. Kenmark will become a separate operating subsidiary of TTS, and will continue in its role as a leader in the design and manufacture of custom-made marine heavy-load moving equipment. The acquisition formalizes a longstanding cooperation between the two companies.

The founder and president of Kenmark Industries, **Ben Chambers**, will remain with the company and will continue to head the engineering functions. Prior to founding Kenmark, Mr. **Chambers** was co-founder and for many years a principal of another US firm specializing in heavy-load moving equipment for shipyards. His individual credits include more than 15 years of direct experience in the engineering, manufacturing, and commissioning of rig skidding equipment and heavy-load moving equipment for shipyards. He is responsible for numerous U.S. patents on heavy-load moving machinery.

TTS is known worldwide as one of the leaders in shipyard and offshore material handling and production systems. These systems include panel production lines, beam processing lines and web assembly lines, shotblast and paint lines, and heavy-lift and transport equipment. The addition of Kenmark's know-

how will enable TTS to offer an expanded line of major equipment needed by modern shipbuilding and offshore construction technology.

For free literature on Kenmark Industries and Total Transportation Systems, Inc.,

Circle 44 on Reader Service Card

## Ingalls Awarded \$38.8-Million Contract For Long Lead Time Material

Litton Systems Incorporated, Ingalls Shipbuilding Division of Pascagoula, Miss., is being awarded a \$38,877,700 cost-plus-fixed-fee contract for long lead time material for the LHD-2 Multi-purpose Amphibious Assault Ship (MAAS). Work will be performed in Pascagoula and is expected to be completed in May 1988. Contract funds would not have expired at the end of the current fiscal year. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-2020).

## New Navigation System From Odin Electronics —Literature Available

Odin Electronics, Huntsville, Texas, recently announced a new electronic navigation system. The NCD-39 is a high-quality computer that stores charts digitally in non-volatile computer memory, then presents them at any scale on a bright monochrome CRT display. Loran or satnav position track can be viewed on the chart in real time.

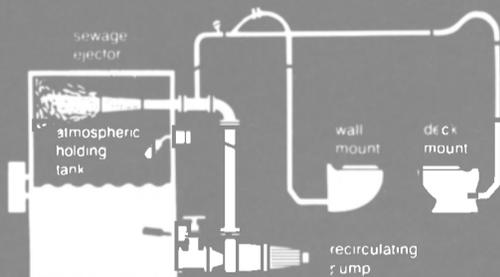
According to the manufacturer, there's virtually no limit to the uses for the NCD-39 system. For coastal cruising, the automatic chart stringing feature brings up the adjacent chart as soon as the vessel's position reaches the edge of the chart in use. For sport or commercial fishermen, charts can be personalized with wrecks, hangs, shoals or any other data of interest. Electronic overlays of loran or lat/lon grids, depth data, aids to navigation, etc. can be selected. In fact, the NCD-39 provides a password security system to protect private chart data. It offers unlimited waypoints, calibration of lat/lon input to a known geographic position, and it supports multiple CRT displays.

Odin's NCD-39 is easy to use, consisting of just three units: the computer for data storage and system control; the keyboard for user interface; and the CRT video display. All system operations are controlled by the three pushbutton switches on the computer unit and the typewriter-like keyboard. The system uses two types of memory—a very high-capacity bubble memory that acts as a scratch pad and stores user-generated data, and the ROM for permanent storage of purchased charts and charts designed by the user with the keyboard and optional digitizer unit.

The NCD-39 is simple to use, compact, rugged and affordable. For further information and free literature on the NCD-39,

Circle 45 on Reader Service Card

## The E-VAC sewage ejector now makes a holding system the sensible choice.



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**ENVIROVAC INC.**

Circle 10 on Reader Service Card

**George Appointed Vice President Of Sales For Falk Corporation**



David L. George

David L. George has been named vice president of sales for The Falk Corporation of Milwaukee replacing Frank H. Frandsen, who has retired. The appointment was announced by J.M. Blank, president.

A graduate of Purdue University, Mr. George joined Falk in 1966. He was appointed a sales representative in the Denver office in 1967, after which he was transferred to the Salt Lake City sales office. He was named manager of the Detroit office in 1975, regional sales manager in 1980, and general sales manager in January 1985.

The Falk Corporation, a subsidiary of Sundstrand Corporation, is a major manufacturer of industrial power transmission machinery.

**Hempel's Announces 'Chromatic Tinting System' —Literature Available**

Hempel's U.S.A. has announced the development of their Hempel's "Chromatic Tinting System" for high performance coatings. The system provides tinting capability for products, such as polyurethanes, epoxies, acrylic, and alkyd coatings in Hempel's warehouses throughout the United States.

The Hempel's "Chromatic" System will provide quick, accurate colors in the generic products normally used in industrial, marine and offshore environments. Over 400 colors, covering many company colors and industry standard colors are already matched to provide quick service for even small quantities of paint.

Hempel's "Chromatic" System utilizes the most current technology in tinting materials and computer aided color matching along with proven base products.

For further literature containing full information,

Circle 21 on Reader Service Card

**Free Brochure On Piston And Plunger Pumps From Cat Pumps**

A free, full-color brochure on triplex piston and plunger pumps is available from Cat Pumps.

The four-page publication has

August 15, 1985

several outstanding color photos of the company's regulators/unloaders, accumulators, pump protectors and gun handles. The brochure also contains handy reference charts of the model, capacity, maximum pressure, maximum rpm and the maximum hp of over two dozen triplex piston, triplex plunger and duplex piston pumps.

According to the brochure, the pumps are constructed of the high-

quality materials such as Cat's Zamak connecting rods, nitrited chrome-moly forged crankshaft, polished solid ceramic plungers and stainless steel valves. The brochure states that each pump is thoroughly tested before shipment and carries a one-year "quality of workmanship" warranty.

Cat pumps perform in a wide range of industry functions such as injecting, metering, cutting, strip-

ping, agitating, compressing, extracting, transferring, water blasting, misting, pressurizing, sanitizing, phosphatizing, homogenizing and purifying. They are said to be ideal for these applications because they are compact, lightweight, energy-efficient and multiple-pump flexibility.

For a free copy of the Cat Pumps brochure,

Circle 18 on Reader Service Card

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Hose-McCann Telephone Co., Inc., originators and pioneers of Sound Powered telephones for marine use, has expanded their product line to include a wide variety of U.S. Navy Electrical and Mechanical products. An assortment of these products are shown here. All Hose-McCann Navy Products are manufactured, tested, and qualified in accordance with the latest Military specifications.

*Please call or write for further information and specifications on these or any other Navy Products.*

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Z33A/B

SOUND-POWERED TELEPHONE JACK  
H27A

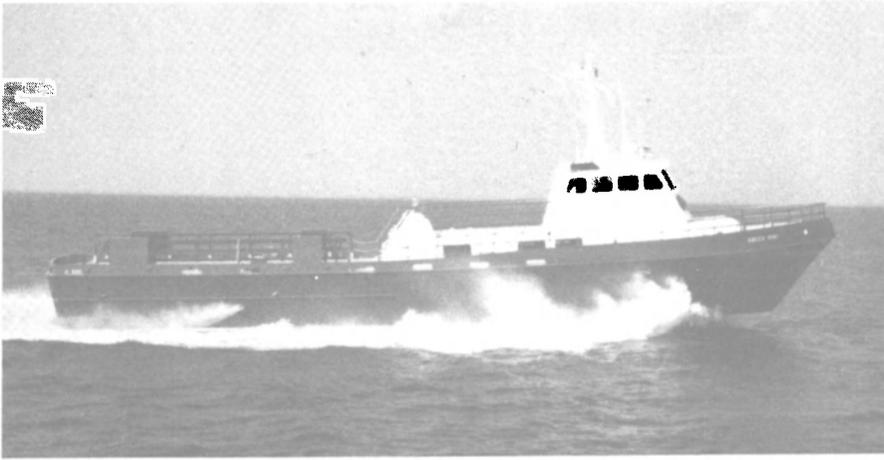
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Circle 299 on Reader Service Card



## Aluminum Boats, Inc. Delivers 'Abeer Nine' To Saudi Arabia

Aluminum Boats, Inc., of Crown Point, La., recently delivered an 85-foot crew/utility boat, Abeer Nine (shown above), to the Barberlines Arabian Navigation & Shipping Company, Ltd. of Saudi Arabia. She is now serving offshore rigs and platforms in the Arabian Gulf from the Port of Dammam.

The all-aluminum Abeer Nine has an overall length of 85 feet with a 20-foot beam and maximum draft of 4 feet.

She is powered by two Detroit Diesel 12V71TI engines developing 510 hp each at 2,100 rpm. Her maximum speed is 25 knots and cruising speed is 21 knots.

The Abeer Nine can accommodate up to 35 persons in aircraft-type seats and has a crew quarters for five and a galley for six. She is fully air conditioned with 5 tons of Carrier air conditioning.

Her flush 20-foot by 18-foot aft deck provides 360 square feet of clear cargo space for a deck load of up to 15-long tons.

Tank capacities are 4,200 gallons fuel; 200 gallons of water; and 3,200 ballast water.

Some of her navigation and communications equipment includes: a Furuno FR-701 radar with 48-mile range; Datamarine 3000 depth sounder; Decca Sailor RF144 VHF; Motorola Triton 20 SSB; a Decca DS-5 satellite navigator; and a Sperry SR 50 gyrocompass.

The Abeer Nine is ABS certified and complies with US Coast Guard and IMCO Solas requirements.

Aluminum Boats, Inc., which occupies the site of the former Camcraft, Inc., was established in 1983. The shipyard builds a wide range of industrial and commercial craft and recently delivered a 94-foot whale watch boat to Provincetown, Mass.

## Maritime Protection Wins Contracts For Inert Gas Systems For Shuttle Tankers

Maritime Protection A/S, Oslo, Norway, was recently awarded orders for their "Flexinert" type inert gas systems for three newbuilding shuttle tankers. The orders have been received from three separate shipyards: Daewoo in South Korea,

Dalian in China, and New Fredrikstad in Norway. The contracts total almost \$600,000.

The shuttle tankers are 117,000 dwt each and are purpose-built for the oilfields in the North Sea. The inert gas systems will have a capacity of some 16,000 Nm<sup>3</sup>/h (Normal cubic meter per hour).

For additional information on Maritime Protection A/S and their "Flexinert" inert gas systems,

Circle 43 on Reader Service Card

## Unique Controllers Operate Cargo Area HVAC System On New MPS

The 2nd Lt. John P. Bobo, the first of five Maritime Prepositioning Ships (MPS) designed and built by General Dynamics' Quincy, Mass., shipyard for charter to the Military Sealift Command, will serve as floating warehouses for vehicles, fuels, ammunition, food, medical supplies, and other temperature-sensitive materials through areas that will range from intense heat and humidity to extremes of Arctic cold. Therefore, their cargo area heating, ventilating, and air conditioning (HVAC) systems have some very special control requirements.

To meet these requirements, General Dynamics engineers have designed a complex system utilizing a single main vent system (MVS) running the length of the ship. Each of the individual cargo areas is served by the MVS, but each has its own independently operated fans, heaters, humidifiers, and air conditioning units. And to prevent overloading of the ship's generating system, all of these components are interconnected through a single control system.

The system is based upon a programmable controller with six remote I/O units, a specially designed alarm and control panel (ACP), and six Telemecanique Inc. programmable motor control centers (PMCC). "We chose a programmable controller because of the logic requirements," says Warren Freeman, manager of electrical engineering at Quincy, "and because of its ease of use at sea. We also had some very tight space restrictions to consider."

The controller is a Modicon 584 from Gould, Inc. It serves to continuously monitor the total system

condition, and drives the seven I/O channels—one local for the ACP, the others in the cargo areas. The I/Os are connected to the controller via coaxial cable. There are two coaxial paths between each I/O and the controller—the redundancy being a safety and damage control consideration. This distributed I/O design also permits maintenance shutdowns on individual subsystems without disturbing the operation of the other components in the system.

The HVAC system components on each of the six remote I/O channels are controlled through the PMCCs. These contain the contactors and starters for each of the components. They also contain manual control pushbuttons for each of the MVS fans. These are used to control the fans when they are not being operated in a group mode from the ACP. All MVS fans are two-speed units, and all speed changes are preprogrammed to go through a "stop" condition. In addition, if CO<sub>2</sub> is detected in the hold area, indicating the presence of fire-fighting vapors, all supply and exhaust fans in that area are turned off automatically.

The PMCCs also start all fans, motors, and heaters sequentially in steps of less than 100 hp or 60 kw. They also serve to interlock many of the other components. For example, the vehicle starting rectifier contactors are interlocked with the motor gas fuel and de-fuel pumps. Any "emergency stop" condition in a vehicle cargo hold will also turn off these pumps. Even cooling-coil solenoids are interlocked with their control contacts and recirculation fans.

In its normal mode, the complete system functions automatically. However, it may also be operated in a manual mode in which all components can be stopped or started individually for maintenance purposes.

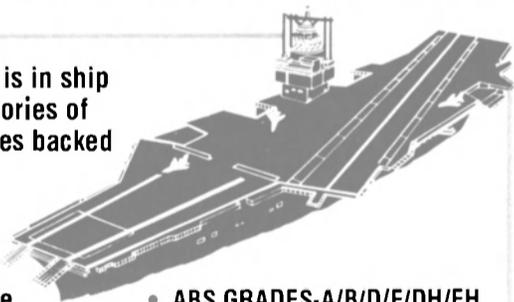
At the time of purchase of this system, the ACP and the PMCCs were furnished by the Industrial Control Division of Gould, Inc. Since that time, however, that division has been sold to Telemecanique Inc., a major supplier of programmable controllers, motor control centers, switches, relays, pilot devices, sensing devices, and power distribution systems.

For additional information on the company and its products,

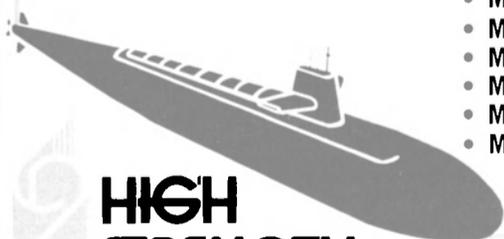
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Alarm and control panel (ACP) aboard the Bobo showing Modicon 584M mounted inside left compartment. Right compartment contains I/O unit for the ACP.



The Cummins-powered 200-foot rocket recovery vessel Independence slices through Gulf Coast waters on a recent early morning sea trial. Built by Halter Marine for Lockheed Space and Exploration Company, she will be operated by Morton Thiokol for the U.S. Air Force 65-95 space shuttle group at Vandenberg AFB in California.

## Halter Delivers Rocket Booster Recovery Vessel 'Independence'

The solid rocket booster recovery vessel Independence, built by Halter Marine, Inc. of Moss Point, Miss., was delivered recently to the Lockheed Space and Operations Company, for whom the vessel was built under a contract from Lockheed Shipbuilding. The 200-foot Independence will perform the key role in the recovery of rocket boosters launched from Vandenberg Air Force Base in California (scheduled for early 1986) as part of the space shuttle program.

Two Cummins KTA50-M diesels, each rated at 1,250 bhp at 1,850 rpm, provide propulsion power for the twin-screw vessel, while two others, Cummins KTA19-M diesels, power bow and stern thrusters.

The Independence is fully equipped to handle all necessary diving evolutions, with complete diving equipment, air refilling systems, and a hyperbaric chamber of decompression. The bow and stern thrusters will be used for propulsion for safety when divers are in the water. A complete electronics system has been installed for navigation, communications, and for locating and recovering the rocket boosters.

The divers will be retrieving partially submerged rocket boosters for

re-use on later missions. The boosters separate after the shuttle has reached a certain altitude and float back to earth via parachutes. Divers will quickly connect special air

### Independence Suppliers' List

Main engines (2)	Cummins
Reduction gears (2)	Niigata
Propellers (2)	Lips
Engine controls	Wabco
Shafts	Halter
Shaft brakes	Mathers
Keel coolers	Fernstrum
Bow & stern thrusters	Elliot White Gill
Generators	KATO
Generator engines	Cummins
Firefighting system	Goulds
Emergency generator	Cummins
Towing winch & anchor windlass	HBL
Satnav & Loran systems	Magnavox
Position plotter	Decca
Radars (2)	Krupp Atlas
Echo depth sounder	Simrad
Auto direction finder	Simrad
Weather facsimile recorder	Alden
Speed log system	Junger
Satcom system	Magnavox
HF/SSB radio	King
VHF radio	Texas Instruments
Aircraft UHF transceiver	Magnavox
General-purpose receiver	Harris
Aircraft VHF radio	Narco
CB radio	General Electric
Hand-held VHF radio	Repco
Lifeboat radio	ITT Mackay

## Arnessen Offers Full-Color Brochure On Atlas-Danmark Freshwater Generators

The Arnessen Corporation of New Jersey, U.S. representatives of Atlas-Danmark Marine & Offshore, a division of Atlas-Danmark A/S, is offering a free, full-color, 12-page brochure on Atlas-Danmark freshwater generators for marine and offshore installations.

The brochure contains charts, "working principle" diagrams, graphs and several full-color photographs. The publication is filled with clear, concise text explaining the capacities and applications of several types of Atlas-Danmark freshwater generators.

According to the brochure, 15,000 Atlas-Danmark freshwater genera-

tors are in service worldwide. The brochure also claims that Atlas-Danmark is "not only the inventor, but also the largest manufacturer of freshwater generators utilizing the waste heat for converting sea water into fresh water." It is said that seven out of 10 new buildings throughout the world have an Atlas-Danmark freshwater generator installed. Atlas-Danmark freshwater generators are approved by all classification societies and maritime authorities.

For a free copy of this detail-filled brochure on Atlas-Danmark freshwater generators,

Circle 57 on Reader Service Card

hoses to the boosters and, using two powerful air compressors on board the vessel, purge the boosters of any water and refloat them.

At the launching of the Independence, Maj. Gen. Donald W. Henderson, officer in charge of the Air Force space shuttle program, stated, "Retrieving the boosters will save \$45 million per mission." General Henderson noted that a new set of solid rocket boosters costs \$67 mil-

lion, while retrieval and refurbishing only costs \$22 million. "The Independence may well pay back its costs in the first few missions," he added.

General Henderson also praised the Lockheed/Halter team responsible for the Independence, in particular the shipyard at Halter Marine's Moss Point yard for building the vessel on schedule and within bud-

## Australia Plans To Build Diesel-Electric Submarines Of European Design

The Australian government has asked two European companies—Ingenieurkontor Lubeck/Howaldtswerke-Deutsche Werft (IKL-HDW) of West Germany and Kockums AB of Sweden—to submit detailed proposals for the design and construction, in Australia, of new submarines for the Royal Australian Navy. The two companies were selected from an original list of seven prominent international submarine designers and builders.

Plans call for the construction of

from five to eight boats, with the most likely number being six. Total cost of six subs at current prices is about \$1.8 billion (US). Plans call for the first vessel to be launched in 1992.

The two European companies have been invited to develop design proposals that would involve Australian industry in the program. They have also been asked to provide data on construction sites in Australia, and to identify logistic support and maintenance requirements.

It is expected that IKL-HDW will offer the IKL 2000 design, and Kockums will submit its type 471 boat.

## The "Little" Giant!



### A 100 Ton Capacity Mobile Boat Hoist From Marine Travelift

The Marine Travelift 100BFM is the newest addition to our complete line of mobile boat hoists. Marinas and boatyards around the world can take advantage of the "little" giant's versatility and be able to handle commercial fishing boats, work boats and pleasure crafts. The wide range of service means more customers and improved yard utilization.

With the 100BFM you receive outstanding STANDARD design features: • "Beam forward" design for more rigging and foredeck structure clearance • All slings power adjustable • High Strength, low alloy main frame construction • Fast, two speed hoisting and travel • Low enclosed operator's cab • Full

instrumentation • Orbital steering with automatic steering realignment • Stainless steel hydraulic tubing • Accurate load weight indicator • New radial tubeless tires • Mechanical anti-two-block system • Fully enclosed, easy access engine and hydraulic compartment • Better boat handling with forward sling adjustment aft of the front beam.

For more information and complete specifications on the 100BFM or our complete line of mobile hoists from 10 to 250 ton capacities, contact your local representative or Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235 • 414-743-6202 • Telex: TRAVELIFT STGB 260056.

**MARINE TRAVELIFT**

Model 100BFM at Anderson Boatyard, Sausalito, CA.

Circle 119 on Reader Service Card

## McMullen Associates Wins \$3.6-Million Contract

John J. McMullen Associates Incorporated, Arlington, Va., was recently awarded a \$3,680,867 cost-plus-fixed-fee contract for contract design services for the reactivation and modernization of the battleship Wisconsin (BB-64). The work will be performed in five different loca-

tions: Arlington (15 percent), Newport News, Va. (40 percent), New York, N.Y. (20 percent), Ventura, Calif. (15 percent) and Pascagoula, Miss. (10 percent). The work is expected to be completed September 30. Contract funds would not have expired at the end of the current fiscal year. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-84-C-2226).

## Copper Blast would like to dust off your blasting budget.



Dust (shown here from silica sand) means lower cutting efficiency and visibility and increased health hazards and clean-up costs



COPPER BLAST (in use here) has very little dust, is low in free silica, cuts 30-50% better than lower-quality slag abrasives and up to four times better than many silica sands.

We can tell you how much the dust in your present abrasive is costing and how much you can save by using COPPER BLAST.

COPPER BLAST is a low free silica, low dust abrasive with a 30%-50% cutting advantage over lower-quality slags. It cuts up to four times faster than many silica sands. With COPPER BLAST, job time goes down and cost effectiveness goes up.

The first step could be our COPPER BLAST Value Worksheet. Using your project figures, you can see how much dust particles — which do no work! — are costing you. We'll also show you how COPPER BLAST can save time and money on your jobs plus the results of laboratory tests on several kinds of abrasives.

COPPER BLAST is manufactured in a new, high-tech plant and adequate supplies are always available throughout the West and Midwest.

For your COPPER BLAST Value Worksheet, or for more information, 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.

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### ROCKY MOUNTAIN ENERGY

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## PROPULSION UPDATE 'FUEL SAV-R'—New Fuel Monitor From National Control Systems

National Control Systems (NCS) of Saint Louis, Mo., has developed a unique new approach to help vessel owners and operators control their fuel costs. The new product, called "FUEL SAV-R," was introduced by NCS at the New Orleans Work Boat Show and has proven to be a useful tool for marine operators.

The NCS Unit gives the operator a digital readout of an engine's instantaneous fuel consumption rate in gallons per hour and also engine speed in rpm. The fuel rack position and engine speed are monitored and the fuel rate is calculated from these measurements using an NCS-developed algorithm.

The difference between the FUEL SAV-R and past designs is that it uses no fuel flow sensors. The design is based on the fact that injectors are positive displacement pumps and that rack position and rpm are accurate indicators of fuel use. The unit uses a small transducer to monitor rack position and a tach drive to compute fuel rate in gallons per hour. There is no "plumbing" to do and no flow sensors to fail. The basic design was developed from a marine proven digital tach using two small printed circuit boards. The only components of the system are the rack and rpm pickups on the engine and the pilothouse-mounted unit containing the electronics and displays. No action is required of the operator ex-

cept to read the displays, one of fuel rate and one of engine rpm. Complexity had been one of the complaints of other units that were eventually abandoned because they were not understood or were difficult to maintain.

The way the unit operates is very simple. Once each second the engine rack position and rpm are read. The fuel rate is then calculated using an NCS-developed algorithm and displayed along with the engine rpm. The entire cycle is repeated and the display updated once each second. Operators can use the information presented by the unit and "learn" to operate their vessel more efficiently.

The FUEL SAV-R is considerably less expensive than other systems, typically one-third to one-tenth the cost and on larger vessels the unit can pay for itself in one fill up of fuel, if used properly, according to the manufacturer.

The first production units were installed early this year on Mid America's Maba Kelce operating between Saint Louis and New Orleans. Based on performance, Mid America is said to plan on retro-fitting all of their vessels to use the FUEL SAV-R as one more tool for better fuel management.

For more detailed information from National Control Systems,

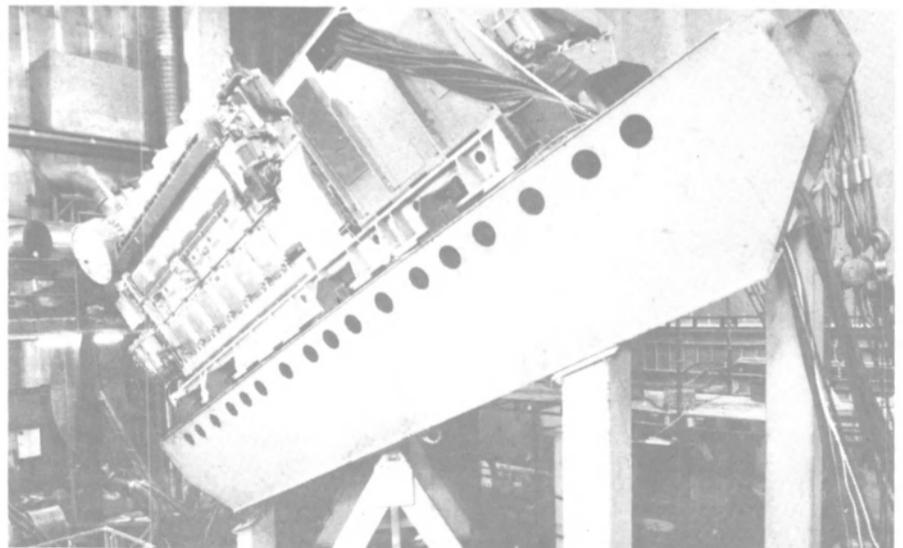
Circle 53 on Reader Service Card

## Wartsila Vasa 32 Engine In Demand For New Generation Drilling Rigs

One of the most popular types of diesel engines for the new generation of semisubmersible drilling rigs is, according to the manufacturer, Wartsila Diesel's Vasa 32. As many as 14 of some 20 deepwater harsh-environment semisubmersibles ordered by such leading Norwegian and U.S. offshore drilling companies as Sonat Offshore Drilling, ODECO,

Reading & Bates Exploration, Smedvig Drilling and Ross Drilling, will be equipped with Wartsila Vasa 32 engines.

The new types of rig, most of which are under construction in Japan and South Korea, are designed for severe operating conditions. Dynamic positioning is one of the main features. The total engine output on



A Wartsila Vasa 32 engine during a 35-degree tilting test. This engine was installed in the Henry Goodrich, the new semisubmersible of Sonat Offshore Drilling Company, Houston.

board these rigs will be from 13,500 kw to 32,500 kw (18,200-43,900 hp).

Reliability and operational economy are most important in the selection of engines for the new generation of semisubmersibles. The advanced technical features of the Wartsila Vasa engines, including the patented pressure lubrication of the piston skirt, a load-dependent temperature control system and a turbocharging system developed for good low-load performance, combined with a long operational experience in the Arctic, make the Vasa engines an ideal choice for these rigs.

The Wartsila Vasa 32, with a bore of 320 mm and a stroke of 350 mm, is one of the most popular diesel engines within its output range at the moment. The output of the Vasa 32 is 1,480-6,750 kw (2,010-9,180 hp) in a speed range of 720-800 rpm. The Vasa 32 is capable of burning fuel viscosities up to 700 cSt/50°C/700 sRI/100°F). The engine manufacturer, Wartsila Diesel, is one of the world's leading suppliers of diesel engines for marine and land-based installations.

For free literature on Wartsila's Vasa 32,

Circle 14 on Reader Service Card

### Wartsila-Normed Joint Venture To Manufacture Diesels In France

The French Chantiers du Nord et de la Mediterranee (Normed) and the Finnish Wartsila Group have recently founded a joint venture company for manufacture of Wartsila Diesel Division's medium-speed heavy-fuel engines at Normed's La Ciotat shipyard. The new company, called Wartsila Diesel Normed SA, will manufacture Wartsila Vasa-type engines for France and some other territories. The Wartsila-Normed joint venture will launch a new generation of French-made heavy-fuel engines on the market. Production at the factory has already started and the first engines have been delivered. The joint venture company also has a large number of engines on order, among them six Wartsila Vasa 6R22 HF engines for the two wind cruisers ordered by Circle Line of US at the ACH Le Havre shipyard in France.

Wartsila Diesel Normed is the fifth Wartsila Diesel engine factory. The other four production plants are located in Finland, Sweden and Singapore. The new company will also be supported by the worldwide sales and service network of Wartsila Diesel.

Normed was founded in 1982 after three shipyards, Chantiers de France Dunkerque (FDK), Chantiers Navals de La Ciotat (CNC) and Constructions Navales et Industrielles de la Mediterranee, (CNIM) merged. The group has three shipyards: one on the North Sea coast at Dunkirk and the others on the Mediterranean coast at La Ciotat and La Seyne.

Wartsila Diesel specializes in pur-

Circle 123 on Reader Service Card →

pose-designed heavy-fuel diesel engines for propulsion and auxiliary installations on different types of vessels and also for power generation on offshore drilling rigs and in land-based installations. The Wartsila Diesel heavy-fuel engine-types are the Vasa 32 and 22HF covering an output range from 560 to 6,750 kw (760-1,980 hp) in a speed range of 720 to 1,200 rpm.

For further information on the Wartsila-Normed Joint Venture,

Circle 15 on Reader Service Card

### Megasystems Introduces Engine Cylinder Pressure Monitoring System —Literature Available

Megasystems Inc., Boca Raton, Fla., recently introduced a new engine cylinder pressure monitoring and alarm system, EPS/256, that is said to be versatile, compact and economical. The unit, which can be installed in a 19-inch rack, monitors

peak cylinder pressures and alarms if the pressure is too high or not balanced throughout the engine. From one to 256 channels can be monitored; more than one engine can be monitored. The unit can operate from 0° to 70°C. The EPS/256 can be used in the field or in the laboratory. The units utilize Megasystems' own combustion pressure sensors.

For more information and free literature on Megasystems and the EPS/256,

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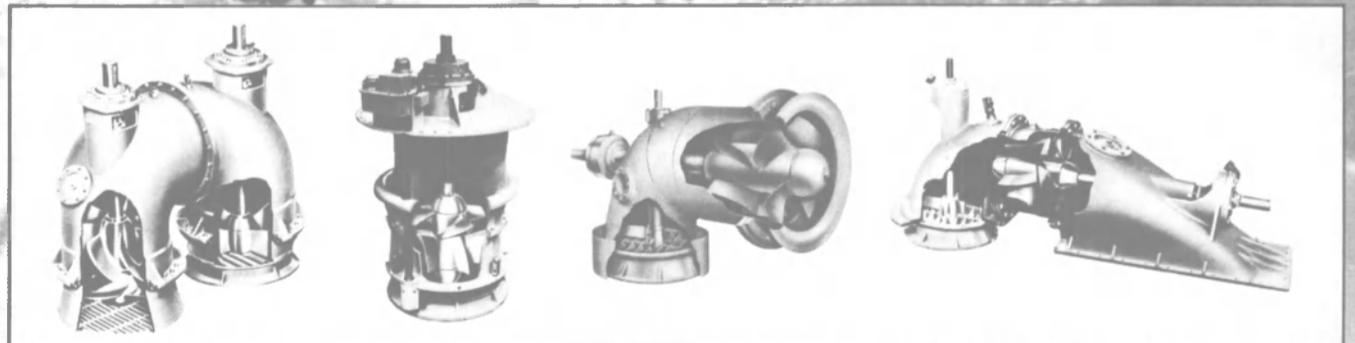


Photo of Stirling Ash courtesy of Stirling Shipping of Scotland.

## Southwest Marine Wins \$14.8-Million Contract For USS Mt. Vernon Overhaul

Southwest Marine, San Pedro Division, Terminal Island, San Diego, Calif., was recently awarded a \$14,878,000 firm-fixed-price contract for the overhaul of the USS Mt. Vernon (LSD-39). The work, which is expected to be completed February 26 of next year, will be performed in Terminal Island. Contract funds would not have expired at the end of the current fiscal year. There were two bids solicited and two offers received. The Supervisor of Shipbuilding, Conversion and Repair, Long Beach, is the contracting activity (N00024-85-H-8222).

## Sembawang Orders Bardex Hydranautics Loadout Systems —Literature Available

Sembawang Engineering Pte., Ltd. has contracted with Bardex Hydranautics, Goleta, Calif., for an additional hydraulic system for module loadout for Sembawang Engineering in Singapore. The new system consists of push/pull gripper jacks and the latest Bardex Hydranautics-designed redundant power unit. Installation of the new system will allow the Sembawang Shipyard to more than double the capacity of its existing Bardex module system. The new system will be first used in mid-September to loadout four new modules for Aramco.

Bardex Hydranautics has offices in London, Singapore and Houston. The company designs and manufactures heavy-load moving equipment for offshore and shipyard-related activities, including systems for applications ranging in size to over 50,000 tons.

For more information on Bardex Hydranautics and their products,

Circle 32 on Reader Service Card

## Racal Wins Contract From State Of Louisiana For Marine Simulator

The State of Louisiana has awarded a contract to Racal Marine, Inc. for an advanced marine radar and electronic navigation aids simulator. The Racal MRNS 9000 simulator will be installed later this year at the Louisiana Marine and Petroleum Institute (LAMPI) in Houma. The system will meet the recommendations of the International Maritime Organization's STCW Convention on standards of training, certification and watchkeeping for mariners.

The Racal MRNS 9000 simulator system includes a comprehensive instructor's console with processor-generated graphics, exercise situation display, simulated communications and intercom facilities. The simulator ordered by LAMPI has eight stations capable of training up to 16 persons simultaneously. Two stations have simulated vessel controls for maneuvering training to

avoid dangerous conditions. Full video, audio and hard copy recording of exercise data is provided.

The simulator software package includes five geographical exercise areas of coastline and offshore regions from Mobile Bay entrance to Galveston Bay entrance, including an area of the Mississippi River within the Port of New Orleans. This will provide realistic courses in radar plotting, blind pilotage, collision avoidance, radar interpretation and radar navigation in local con-

ditioned waters and areas of high-density shipping traffic.

The electronic navigation software package is linked to the geographical exercise areas to provide real navaid training with Loran C, satellite navigation, Omega navigation, radio direction finding, depth finding and VHF procedural training.

The versatility of the system permits training a broad range of students on simulated vessel sizes from 70 tons to 200,000 tons deadweight

with single or two-screw maneuvering capability.

Racal Marine, Inc. is a unit of the international Racal Group, which provides products, systems and services in data communications, radio communications, security, defense radar and avionics, marine and energy electronics, and specialized electronics.

For free literature on Racal Marine products, systems and services,

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## Pettit Paint Expands Antifoulings Market Base

Pettit Paint Company, Inc., Borough of Rockaway, N.J., one of the leading producers and pioneers in the development and manufacture of high-performance and quality coatings for the marine pleasure market for over 60 years, is expanding into the commercial and marine military markets. Pettit is expanding its existing product line for all

shipboard areas. Further, the company also plans to focus on any new, highly specialized and exacting marine coating requirements.

In the antifouling paint field, Pettit products include the company's "Horizons," antifoulings for steel hulls, and "Alumaguard," antifoulings for aluminum substrates. According to the manufacturer, both products have already demonstrated outstanding performance on pleasure craft in heavy fouling waters.

"Horizons" antifoulings provide all the benefits of self-polishing copolymers, plus an ability to prevent fouling during long periods of ship immobility. The product is said to be compatible with most commercial and specification anti-corrosive and antifouling coatings.

Pettit's "Alumaguard" paints are hard vinyl-based antifoulings specifically designed for two coat use on aluminum substrates with excellent adhesion. The hard, abrasion-resistant finish of "Alumaguard" renders

effective-antifouling service with unique "halo" protection—even where the paint has been scraped or nicked down to the bare surface.

The organo tin toxicant used in Pettit's "Alumaguard" paints is not reactive with metal. Therefore, these are said to be the only type antifoulings permissible for safe application on aluminum hulls and underwater metal parts, such as lower inboard/outboard units, propellers and running gear.

For further information on Pettit Paint Company and their products, "Horizons" and "Alumaguard,"

Circle 19 on Reader Service Card

## MarAd Awards Contract To B&A Marine For Repairs To RRF Ships

The Maritime Administration has awarded a \$242,725 contract to B&A Marine, Inc. of Brooklyn, N.Y., for tests, inspections, and topside repairs to the Ready Reserve Force (RRF) vessels Lake, Pride, and Scan.

The work will be performed over a period of 25 working days at the Philadelphia Navy Yard inactive fleet site, where the scheduled tests and inspections required by the U.S. Coast Guard and the American Bureau of Shipping, and repairs necessary to maintain a readiness level for activation of the vessels within five days, will be carried out.

Ships in the RRF, a special component of the National Defense Reserve Fleet, are maintained by MarAd and funded by the Navy.

## Jones Appointed Marine Development Manager For Philadelphia Resins



Brian A. Jones

Philadelphia Resins Corporation has strengthened its worldwide marine activities by designating **Brian A. Jones** as manager of marine business development. He will be responsible for analyzing commercial and military business opportunities and directing the expansion and development of worldwide markets for all marine products, including resin chocks, coatings, adhesives, repair compounds, and other high-performance products.

Philadelphia Resins, headquartered in Montgomeryville, Pa., is best known for Chockfast Orange®, the epoxy resin chocking system that maintains precise permanent alignment of main propulsion engines and auxiliary equipment.

For further information on the company's product line,

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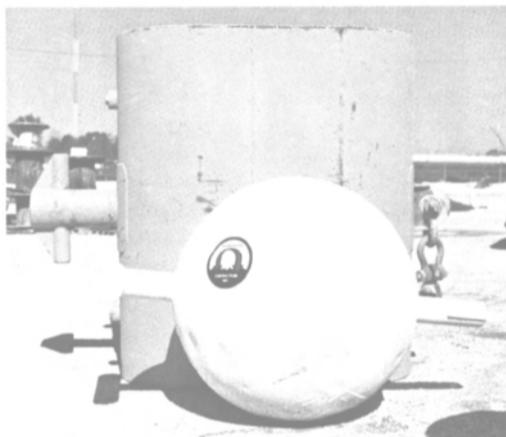
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In riser tensioner applications, ropes of KEVLAR last up to 4 times longer in actual field use, due to their superior cyclic fatigue properties. Ease of handling provides important savings in installation time and labor.

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The small, less expensive buoy handles a pendant line of KEVLAR. A buoy 20 times larger in volume is needed to handle the same length of steel line.

solvents, drilling fluids and lubricants.

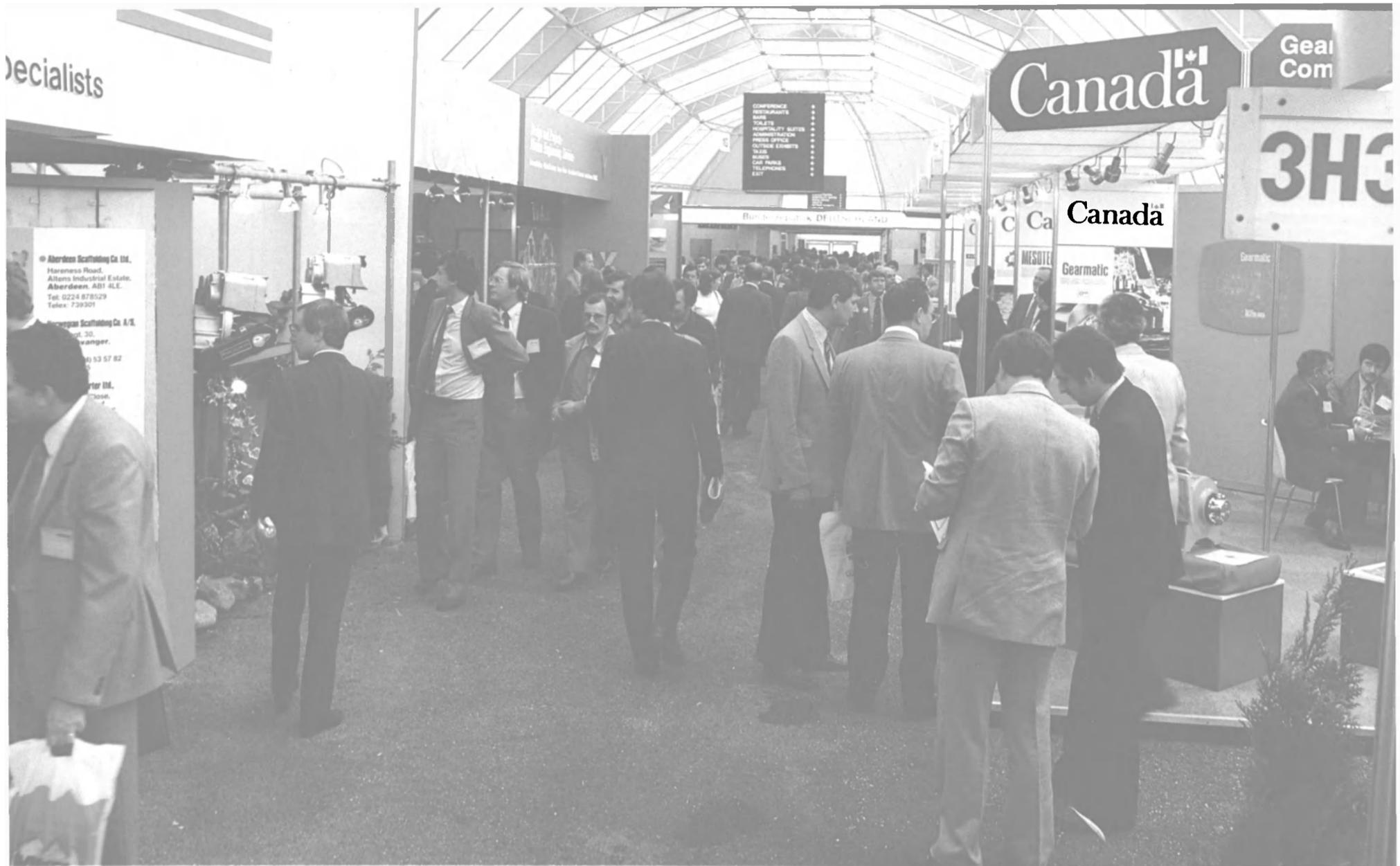
Ropes of KEVLAR are available in wire rope and other constructions to meet your specific needs. For more information and a list of quality manufacturers, call the toll-free number below. Or write: DuPont Company, Room G-15465, Wilmington, DE 19898.

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# OFFSHORE EUROPE 85 Exhibition & Conference

**Aberdeen, Scotland—September 10-13**

Offshore Europe 85, the seventh in the series of biennial, high-technology offshore oil/gas industry exhibition/conferences, will be held September 10-13 at its new permanent home—the Aberdeen Exhibition and Conference Centre at the Bridge of Don.

At this year's event, some 1,100 exhibitors from 18 countries will occupy about 19,000 square meters of space, retaining Offshore Europe's position as the largest show of its kind outside the U.S., and second largest in the world after Houston's Offshore Technology Conference.

As with all previous Aberdeen shows, overseas interest remains high, with exhibitors from Australia, Austria, Canada, Denmark, Finland, France, West Germany, Hungary, Ireland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, the U.K., and the U.S. represented.

All Offshore Europe exhibitors must comply with regulations laid down by the organizer, Spearhead Exhibitions Ltd., governing the types of companies acceptable as exhibitors. Under these regulations, preference is given to companies with equipment and services of

most interest to the technical and operating management of oil companies, drilling contractors, project management contractors, and marine construction companies, which form the major visitor group at the exhibition. More than 24,000 people from 56 countries visited the 1983 show, figures expected to be exceeded this year.

Admission to the exhibition and conference is restricted to those with a serious business interest in the offshore oil and gas industry, and absolutely no access is permitted to anyone under the age of 16.

The new Aberdeen exhibition/conference complex has a major exhibition arena, a smaller multi-purpose hall, a two-story conference building with two halls offering a total capacity of 500 for simultaneous sessions, together with catering, car parking, and administration facilities.

Once again Offshore Europe has attracted the patronage of the United Kingdom Offshore Operators Association and the sponsorship of the Society of Petroleum Engineers. The SPE has developed the technical conference program, which will highlight significant

areas of current technology that will prove of major interest to the technical community involved in European offshore operations.

Sixty-four papers will be presented in sessions on drilling, inspection and maintenance, reservoir management, production operations, fracturing, subsea systems, innovative field development, and safety & the environment. The papers were selected by the Conference Committee from more than 300 abstracts received in response to the call for papers that went out in late 1984.

The conference will begin on Tuesday, September 10, with an eight-paper session on Subsea Systems to be chaired by **L.V. McGuire**, general manager, Hamilton Brothers Oil & Gas Ltd., and **P. Marquez**, supervising operations engineer, Murchison, Conoco (UK) Ltd.

On Wednesday, September 11, there will be three sessions covering Reservoir Management, Drilling, and Safety & the Environment. The 13-paper, all-day Reservoir Management session will be chaired jointly by **J.J. Gilbert**, manager, BP Petroleum Development Ltd.,

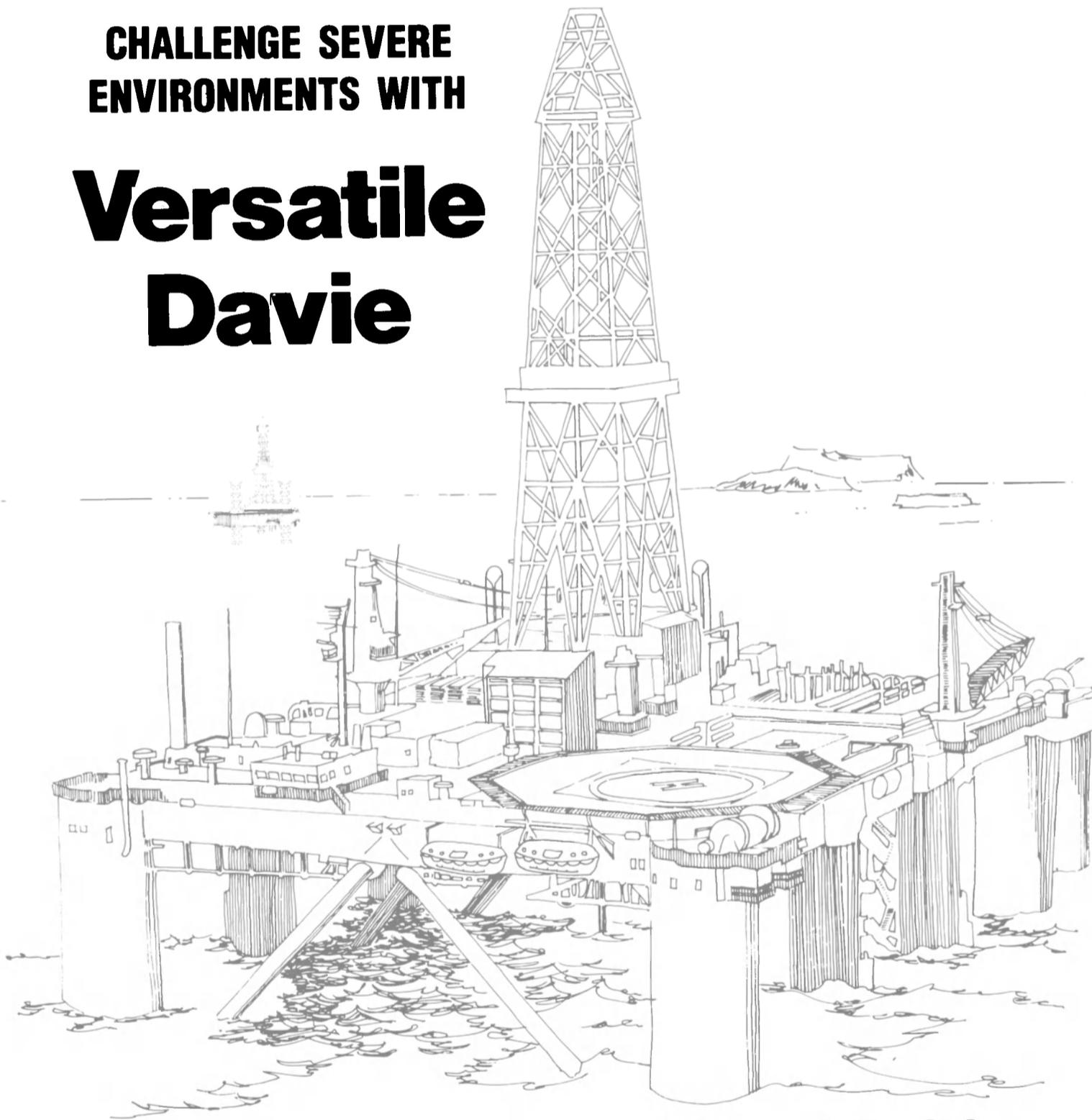
and **R. Hough**, head of petroleum & operational engineering, Shell UK Exploration and Production Ltd. Six papers will be presented in the morning Drilling session to be chaired by **R. J. Rundt**, area manager, Phillips Petroleum Company UK Ltd., and **D. Bray**, drilling manager, Unocal (UK) Ltd. A further six papers will be given in the afternoon Safety & Environment session, for which **T.A.F. Powell**, principal petroleum inspector, U.K. Department of Energy, and **C.P. Penny**, manager, health safety & environmental services, BP Petroleum Development Ltd., are joint chairmen.

There will also be three sessions on Thursday, September 12; these will consider Production Operations, Fracturing, and Inspection & Maintenance. The full-day, 12-paper Production Operations session will be chaired by **W.A. Downie**, production manager, Conoco (UK) Ltd.; and **C.A. Dines**, division services manager, Otis Pressure Control Ltd. The Fracturing session, to be chaired by **D. Davis**, head of stimulation research, Shell International Petroleum Mij bv; and **S. Gibson**, petroleum engineering

(continued on page 18)

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## Offshore Europe

(continued)

manager, Occidental Petroleum (Caledonia) Ltd., will comprise three papers and a 45-minute forum led by the chairmen and speakers. The nine-paper Inspection and Maintenance session that follows will be chaired jointly by Conference Committee chairman **J. Hollis**, technical manager, Britoil Plc; and **T. Ridley**, head of operations-

Brent Field, Shell UK Exploration & Production.

The final session of the conference on September 13 will look to the future with its seven papers under a heading of Innovative Field Development. Joint chairmen for this session are **C. Friedlander**, engineering manager, Conoco (UK) Ltd., and **D. Wootton**, engineering director, Phillips Petroleum Company UK Ltd.

Papers will be delivered by authors from nine countries—Austra-

lia, Denmark, Dubai, France, the Netherlands, Norway, Switzerland, the U.K., and the U.S. The final of the SPE Aberdeen Chapter's Student Paper Contest will once again be held at the Offshore Europe Conference.

### Conference Program Tuesday, September 10 Conference Room One Subsea Systems

Chairmen: **L.V. McGuire**, general manager, Hamilton Brothers

Oil & Gas Ltd.; and **P. Marquez**, supervision operations engineer, Murchinson, Conoco (UK) Ltd.

**11:00 am:** "Overview of the Texaco Highlander Field Development," by **G.D. Smith**, Fluor Ocean Services; and **G.H. Batcheler**, Texaco North Sea UK Company.

**11:30 am:** "An Integrated Subsea Oil Production System for the Duncan/Argyll Fields in the North Sea," by **I.C. Fitzsimmons**, R.J. Brown & Associates (UK) Ltd.

**12 noon:** "Diverless Installation of the Skuld Modular Subsea Station," by **M. Freudenreich**, Elf Aquitaine Norge a/s.

**12:30 pm:** "New Technology for Development of Deepwater Offshore Gas Fields," by **K. Varvin** and **L-P Sollie**, Norsk Hydro a/s.

**1:00 pm:** Lunch.

**2:30 pm:** "Development of a Subsea Wireline Winch," by **J.A. Graser**, Somus Well Services.

**3:00 pm:** "The British Argyll DSV Wirelining System," by **D.S. Huber**, Hamilton Brothers Oil & Gas Ltd.; **W. Turner**, Otis Pressure Control Ltd.; and **C. Baxter**, Advanced Production Technology Ltd./BUE/KD Marine Group.

**3:30 pm:** Coffee break.

**3:45 pm:** "Through-bore Subsea Production Trees," by **D.S. Huber** and **G.F.C. Simmers**, Hamilton Brothers Oil & Gas Ltd.; and **C.S. Johnson**, The National Supply (UK) Ltd.

**4:15 pm:** "Operational Experience with a Long-Range, Multi-Channel, Acoustic Telemetry System for In-Field Pressure Monitoring," by **G. High**, Ferranti ORE Ltd.; and **R.J. Carmen**, Ferranti ORE Inc.

**4:45 pm:** Conclusion of session.

### Wednesday, September 11 Conference Room One Reservoir Management

Chairmen: **J.J. Gilbert**, manager-petroleum engineering, BP Petroleum Development Ltd.; and **R. Hough**, head of petroleum & operational engineering, Shell UK Exploration & Production Ltd.

**9:30 am:** "Factors Controlling the Activities of Sulphate-reducing Bacteria in Reservoirs during Water Injection," by **Dr. B.N. Herbert** and **Dr. H. Stockdale**, Shell Research Ltd.

**10:00 am:** "Use of Reservoir Engineering in the Development of the Magnus Oil Reservoir," by **J.P. Atkinson**, BP Petroleum Development Ltd.

**10:30 am:** "Magnus Field: Surface Stimulation of Water Injection Wells," by **P.F. Dymond**, BP Petroleum Development Ltd.

**11:00 am:** "Statistically Valid Log Analysis Method Improves Reservoir Description," by **B. Moss** and **R. Harrison**, Scientific Software-Intercomp (UK) Ltd.

**11:30 am:** Coffee break.

**11:45 am:** "Probabilistic Hydrocarbon Reserves Evaluation: A Novel Monte Carlo Approach," by **P. Behrenbruch**, **G.J. Turner**, and **A. R. Backhouse**, Woodside Offshore Petroleum Pty Ltd.

**12:15 pm:** "Totally Integrated Data Acquisition & Processing during Well Testing—A Case Study

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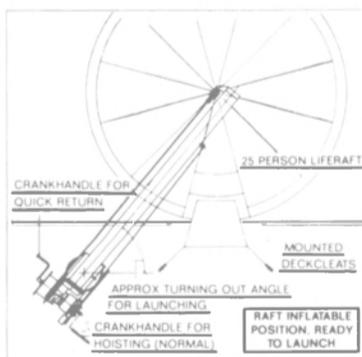
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## Offshore Europe

(continued)

with the Computest System," by **D.G. Clark** and **P. le Foll**, Flopetrol Johnston Inc.; and **A. Harding**, BP Petroleum Development Ltd.

**12:45 pm:** Lunch.

**2:00 pm:** "Development & Use of a 3D Simulator in Evaluating Reservoir Development Options: Fateh Mishrif, Offshore Dubai," by **J. Crick**, Total Compagnie Francaise

des Petroles; and **S.P. Singh**, Dubai Petroleum Company.

**2:30 pm:** "Application of Radioactive Tracers in Oil Reservoir Waterflood Studies," by **V.J. Wheeler**, **T.V. Parsons**, and **S.J. Conchie**, AERE Harwell; and **B. Durham**, Oil Plus Ltd.

**3:00 pm:** "In Situ Stress Measurements in Inclined Holes in the North Sea: Application to Enhanced Oil Recovery," by **L.W. Teufel**, Sandia National Laboratories.

**3:30 pm:** "The Argyll Field after a

Decade of Production," by **R. Bifani** and **C.A. Smith**, Hamilton Brothers Oil & Gas Ltd.

**4:00 pm:** Coffee break.

**4:15 pm:** "Experience with Permanent Bottom Hole Pressure-Temperature Gauges in a North Sea Oil Field," by **J.D. Gallivan**, **L.J. Kilvington**, and **A.J. Shere**, Britoil plc.

**4:45 pm:** "The Thistle Field—An Analysis of Its Performance & Optimization of Its Future Development," by **Dr. M.G. Bayat** and **Prof. D.H. Tehrani**.

**5:15 pm:** "Field Experience in the Bothamsail Surfactant Flood Project," by **M.N. Cooper**, **R.A. Southworth**, and **D.A. Walsh**, BP Petroleum Development Ltd.; and **Dr. J.C. Morgan**, BP Research Centre Ltd.

**5:45 pm:** Conclusion of session.

### Conference Room Two Drilling

Chairmen: **R. J. Rundt**, area manager, Phillips Petroleum Company UK Ltd.; and **D. Bray**, drilling manager, Unocal (UK) Ltd.

**9:30 am:** "Review of Operational Experience Drilling Wells Through an Underwater Manifold Centre," by **R.K. Hodgson**, Shell UK Exploration & Production Ltd.

**10:00 am:** "Subsea Template Drilling in the North Sea—Experience Gained during the Initial Stages of the Balmoral Development," by **D. Thorpe** and **P. Tayler**, North Sea Sun Oil Company Ltd.

**10:30 am:** "Template Drilling—One Stage Further," by **B.H. Van Bilderbeek**, Dril-Quip (Europe) Ltd.

**11:00 am:** Coffee break.

**11:15 am:** "Drilling Vessels Float in Aerated Water," by **D.S. Hammett**, Sedco Forex.

**11:45 am:** "AC Drives for Drilling," by **S. Olsen** and **S. Knudsen**, A/S Norsk Elektrisk & Brown Boveri.

**12:15 pm:** "The Use of Casing Patches to Improve Workover Success Rates," by **J. D. Neely**, BP Petroleum Development Ltd.

**12:45 pm:** Lunch.

### Safety & Environment

Chairmen: **T.A.F. Powell**, principal petroleum inspector, UK Department of Energy; and **C.P. Penny**, manager-health, safety, and environmental services, BP Petroleum Development Ltd.

**2:00 pm:** "Process Systems: The Role of Quality Assurance in Safety," by **F.K. Crawley**, **D.S. Scott**, and **W.A.F. Brown**, Britoil plc.

**2:30 pm:** "The Potential Role of Offshore Standby/Rescue Ships," by **H.G. McDonald**, Offshore Survival Centre.

**3:00 pm:** "Cost Effective Quality Management for All Phases of Offshore Developments," by **N.T. Burgess**, **J. Kitson**, and **M.J. Kemp**, Gilbert Associates (Europe) Ltd.

**3:30 pm:** Coffee break.

**3:45 pm:** "OREDA—The Reliability Data Reference for the Offshore Industry," by **T. Gjerstad**, Technica a/s.

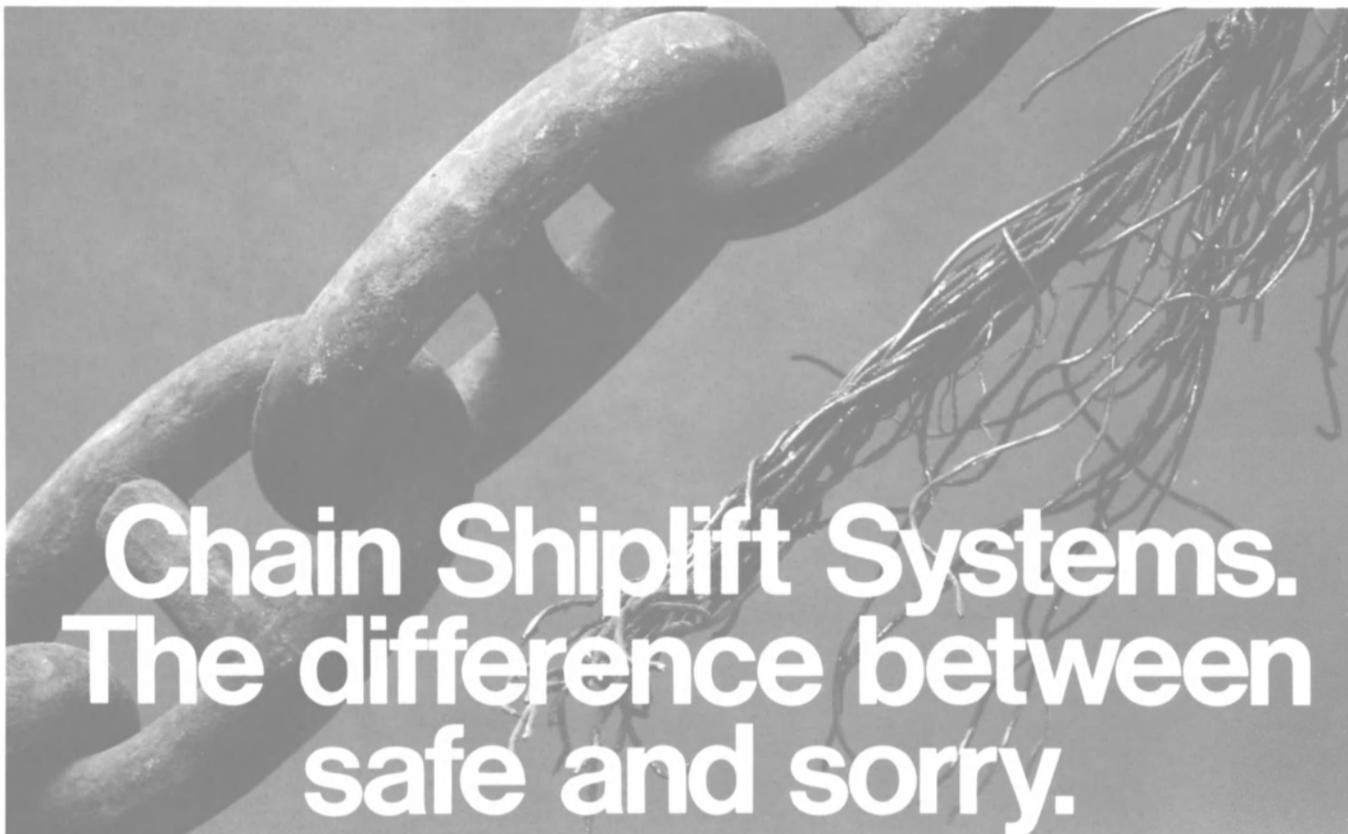
**4:15 pm:** "Safety & Environmental Auditing for Existing Offshore Facilities," by **Dr. C.J. Luck** and **Dr. J.G. Sellers**, Arthur D. Little Ltd.

**4:45 pm:** "Natural Radioactive Scale: The Development of Safe Systems of Work," by **I.M. Waldram**, Britoil plc.

**5:15 pm:** Conclusion of session.

### Thursday, September 12 Conference Room One Production Operations

Chairmen: **W.A. Downie**, production manager, Conoco (UK) Ltd., and **C.A. Dines**, division



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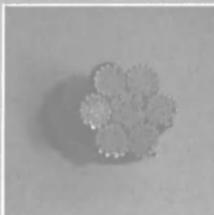
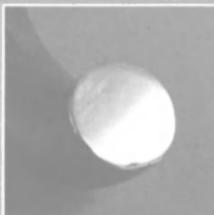
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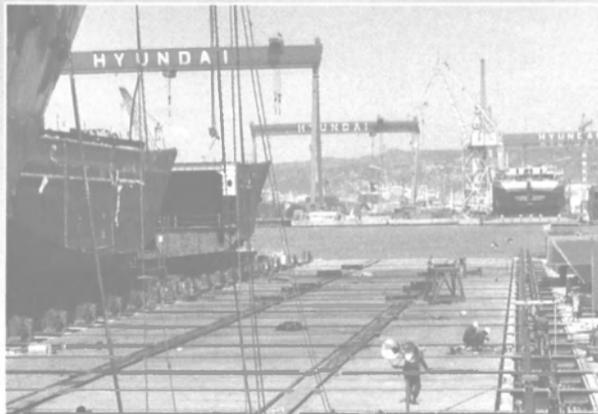
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service manager, Otis Pressure Control Ltd.

**9:30 am:** "Reliability Analysis of Alternative Gas Well Safety Valve Completions," by **P.M. Wilson**, Petroleum Development Oman, and **S.O. Okeke**, Nederlandse Aardolie Maatschappij.

**10:00 am:** "Development of a Deepset Electric Solenoid Subsurface Safety Valve System," by **J.S. Gresham**, Shell International Petroleum Maatschappij; and **T.A. Turcich**, Camco Inc.

**10:30 am:** "Development of Downhole Equipment for Beatrice ESP Wells," by **J.K. Brown** and **D. Bills**, Britoil plc.

**11:00 am:** Coffee break.

**11:15 am:** "Offshore Preparation of Hutton TLP to Minimize Offshore Hookup," by **J. Repon**, Bechtel Petroleum Inc.; and **T.E. McDonald**, Conoco (UK) Ltd.

**11:45 am:** "Ultra-violet Disinfection of Injection Seawater for Secondary Oil Recovery," by **H.W. Brunner** and **H-P Klein**, BBC Brown Boveri & Company Ltd.

**12:15 pm:** "North Sea Produced Water Systems," by **C.R. Bond**, Britoil plc.

**12:45 pm:** Lunch.

**2:00 pm:** "Scale Inhibitor Squeeze Treatment of the High Volume Wells in the Piper Field," by **D.J. May**, **B.A. MacDonald**, and **F.A. Guitart**, Occidental Petroleum (Caledonia) Ltd.; and **G.E. Jackson**, Petrolite Ltd.

**2:30 pm:** "Downhole Scale Dissolution Technology," by **Dr. A.F. Clemmit** and **D.C. Ballance**, Akzo Chemie UK Ltd.

**3:00 pm:** "Technical Advancements in Submersible Pump Power Cables for Harsh Environments," by **R. Guzy** and **J. Vandevier**, Centrilift-/Hughes.

**3:30 pm:** Coffee break.

**3:45 pm:** "Experience of Perforation Under Drawdown Using Tubing Conveyed Guns on the Beatrice Field," by **J.C. Allen**, **G. Weighill**, and **P.C. Moore**, Britoil plc.

**4:15 pm:** "High Differential Pressure, Radial Flow Characteristics of Gun Perforations," by **R.S. Riggs**, Jet Research Center Inc.

**4:45 pm:** "Offshore Pipelines in European Maritime Areas—the Years Ahead," by **C.J. Smith**, Bechtel Great Britain Ltd.

**5:15 pm:** Conclusion of session.

#### Conference Room Two Fracturing

Chairmen: **D. Davis**, head of simulation research, Koninklijke Shell Laboratorium; and **S. Gibson**, petroleum engineering manager, Occidental Petroleum (Caledonia) Ltd.

**9:30 am:** "Techniques for Quantifying Formation Stress & Fracture Fluid Response for Optimum Hydraulic Fracturing," by **R.E. Cooper**, **Dowell Schlumberger**; and **M.R. Frisinger**, Schlumberger Inland Services.

**9:50 am:** "The Influence of Downhole Conditions on the Leakoff Properties of Fracturing Fluids," by **G.S. Penny**, **W.G. Ford**, and **M.W. Conway**, Halliburton Services.

**10:10 am:** "Hydraulic Fracturing—Twenty Years of North Sea

Experience," by **R.W. Stephens**, BP Petroleum Development Ltd.; and **J.P. Martins**, BP Research.

**10:30 am:** Forum led by session chairmen and speakers.

**11:15 am:** Coffee break.

#### Inspection & Maintenance

Chairmen: **J. Hollis**, technical manager, Britoil plc; and **T. Ridley**, head of operations—Brent Field, Shell UK Exploration & Production Ltd.

**11:30 am:** "Collection of Corrosion

Data on Offshore Structures & Use in Planned Maintenance," by **A.R. Yates** and **D.A. Constantinis**, SGS UK NDT Group.

**12:00 noon:** "Cathodic Protection of Offshore Structures—Problems & Solutions," by **D.N.C. Robson**, Britoil plc.

**12:30 pm:** "Underwater Inspection & Surveys Using Computer Management," by **G. Mills** and **D. Ball**, Oceanering International Services Ltd.

**1:00 pm:** Lunch.

**2:00 pm:** "Cold Tapping—Pipeline Subsea Maintenance & Repair Technique," by **R. Quin**, Total Marine Norsk a/s; and **P. Wiet**, Total Oil Marine plc.

**2:30 pm:** "Monitoring of Electro-Mechanical Plant on Offshore Production Platforms," by **J. Penman** and **J.R. Smith**, Marischal College, University of Aberdeen; and **W.E. Bryan**, Diagnostic & Monitoring Services Ltd.

**3:00 pm:** "Review of & Experience

(continued on page 22)

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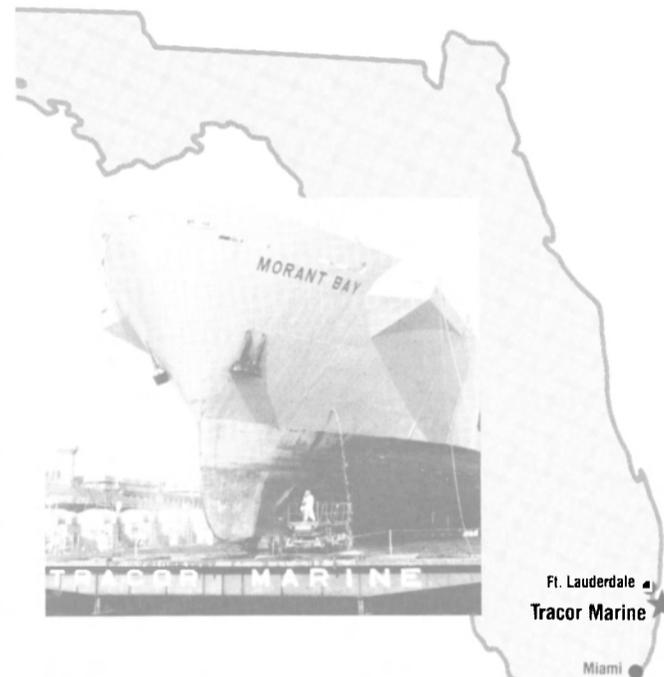
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## Offshore Europe

(continued)

With Emergency Shutdown Systems," by **J.R. Huse**, Det norske Veritas.

**3:30 pm:** Coffee break.

**3:45 pm:** "Engineering Critical Assessment—A Case History", by Dr. **D.M. Wheeler**, Total Oil Marine Engineering & Construction Ltd.; **N. Baker**, Total Oil Marine plc; **S. Nelson**, Occidental Petroleum

(Caledonia) Ltd.; and **D. Shipley**, Oilfab Technical Services.

**5:15 pm:** Conclusion of session.

### Friday, September 13 Conference Room One Innovative Field Development

Chairmen: **C. Friedlander**, engineering manager, Conoco (UK) Ltd.; and **D. Wootton**, engineering director, Phillips Petroleum Company Ltd.

**9:30 am:** "High-Pressure Flexible Pipes for Marginal Field Development," by **A. D. Griffiths**, Oil & Marine Division, Dunlop Ltd.

**10:00 am:** "Conoco Hutton TLP Riser Tensioning System—Design, Development & Testing for Maximum Reliability," by **D.W. Harvey**, Atkins Research & Development; **L.J. Adams**, Vetco Offshore Ltd.; and **R. Myers**, Conoco Inc.

**10:30 am:** "TARA—Tartan Additional Riser Access System," by

**S.A. Wheeler**, Texaco North Sea UK Company; and **R.A.M. Hunt**, Oilfab Group Ltd.

**11:00 am:** "Deepwater Drilling & Production Articulated Column—Water Depth 350 Meters," by **F. Baduel**, Elf Aquitaine; and **A. Figenschou**, ACN Norway A/S.

**11:30 am:** Coffee break.

**11:40 am:** "A Steel Jacket for 1,000-foot Water Depth," by **A.K. Henriksson**, Norsk Hydro A/S.

**12:15 pm:** "Design Considerations for a Deepwater Pile-Founded, Articulated Column Platform," by Dr. **A.K. Sasu** and Dr. **M. Raznahan**, Brown & Root (UK) Ltd.

**12:45 pm:** "Testing Program for Development of a High-Pressure, Multi-Product Fluid Swivel," by **J.W. Key**, Offshore Production Systems Inc.; and **H.O. Mohr**, H.O. Mohr Associates.

**1:15 pm:** Conclusion of conference.

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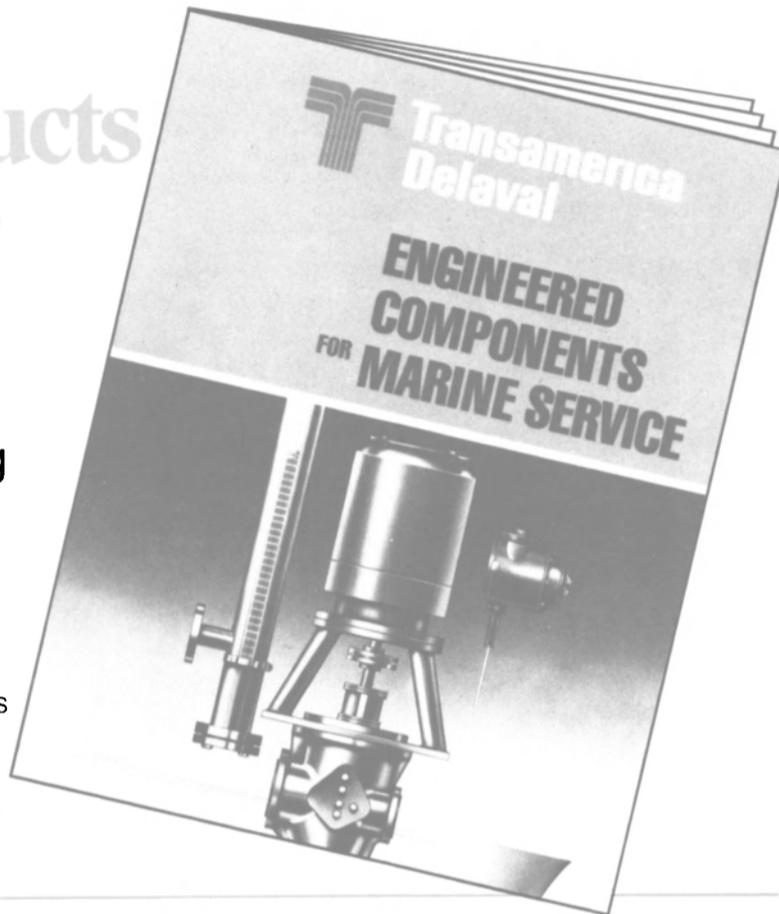
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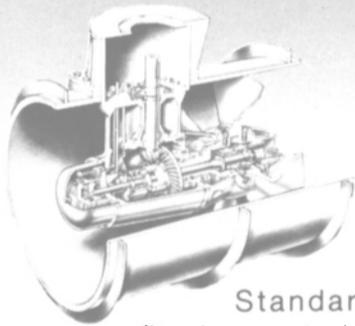
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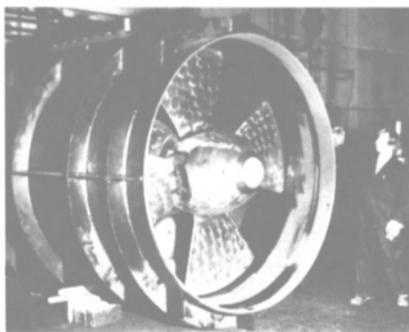
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Furmanite International  
Fylde Coast Development Assoc.  
GAPS  
GB Master  
GD Engineering  
GEC Avionics  
GEC Electrical Projects  
GEC Mechanical Handling  
GEC Turbine Generators  
GEP  
GS-Hydro  
G T C Gas Turbines  
Galveston Houston  
Gam Raccordi  
Gardline Surveys  
Gas Oil Construction (GOC)  
Gateway Plant  
Gauges Bourden (GB)  
Gearhart Geodata Services  
Gearhart Wireline Services  
The General Electric Co  
Geograph Pioneer  
Geophysical Research  
Geosite West Group  
Geoteam UK  
Geo Vann  
Federal Republic of Germany  
Gisma  
Glacier Metal  
Glasgow Reboring & Resleeving  
Works Ltd  
Goldschmidt  
Gordon District Council  
Gotaverken Arendal  
Gothenburg Regional Promotion  
Office  
Grampian Containers  
Grampian Computer Facilities  
Grampian Regional Council  
Graphic Information Systems  
Graviner  
Graystone White  
Gray Tool  
Gt Yarmouth Industrial Corp  
Port & Haven  
Port Labour  
Greenwood Moore  
Griffin-Woodhouse Ltd  
Gulf Publishing  
HBS Alcatel  
HMB Subwork  
HMV Shipyard International  
HT Marlow  
Haig & Ringrose  
Matthew Hall Engineering  
Hallite Polytec  
Handling Engineering  
Services & Conveyors  
Hapag Lloyd Transport  
& Service  
Harrison Group  
Haugesund  
The Harwell Laboratory  
Hauke  
Hawke Cable Glands  
Hawker Siddeley Group  
Dynamics Engineering  
Hayward Tyler  
John T Hepburn  
Jos Heiser Vormals

Hewden-Stuart Group  
Contracts  
Plant  
Heavy Cranes  
Lighting Services  
Hewlett-Packard  
Hiab-Foco  
High Technology Industrial  
Engineering  
Highland Components  
Highland Electronics  
Highland Electro-Optics Ltd  
Highlands & Islands  
Devt Board  
Training & Testing Services

Hindle Cockburns  
Hodge Clemco  
Hoie Fabrikker  
Hoke International  
Holland Region West  
Hollandse Construchie Groep  
Holec  
Honeywell Control Systems  
Hood Offshore Services  
Horstman Gauge  
Hotforge  
Houston Well Screen Europe BV  
Howard Doris  
Howaldtwerke-Deutsche Werft  
James Howden & Co Ltd  
Howst Engineering  
Hughes Tool  
Humbly Grove Airport  
Humphreys & Glasgow  
Huntec (70)  
Domnick Hunter Filters  
Hunting Oilfield Services  
Hurstwell Engineering  
Hycrome (UK)  
Hyde & Partners Ltd  
Hydra Rig  
Hydraulik Brattvaag Hoie Fabrikker  
Hydraunautics Hydraulic Systems  
Hydril  
Hydrolex  
Hyundai Heavy Industries  
IAL  
ICI Acoustics  
ICI Petrochemicals & Plastics  
ICI Physics & Radioisotope  
Services  
ICI Scotoil Services  
IFP  
IMI Bailey Birkett  
IMI Norgren Enots  
IPEC  
IRO  
IRM (Shetland)  
IBAK Helmut Hunger  
Icore International  
Indtec  
Impalloy  
Imperial Chemical Industries  
Impulse Generators  
Industrial Control Services  
Ingersoll Rand  
Institut Francais du Petrole  
Institute of Offshore Engineering  
Instrument Rentals  
Instrumentation Systems Ltd  
Interand  
International Drilling Fluids  
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International Paint  
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Engineering  
Intersub  
Isolated Systems  
Italian Trade Centre  
JW Automarine  
Jamesbury UK  
James Jack (Evanton)  
Jet-Lube (UK)  
Johnsson Metall  
Jotun-Henry Clark  
KCA Drilling Group  
KEW Industry  
KMI Keymed Industrial  
Kaldair  
Karmoy  
Haugesund  
Kommune  
Stalindustri  
Winch

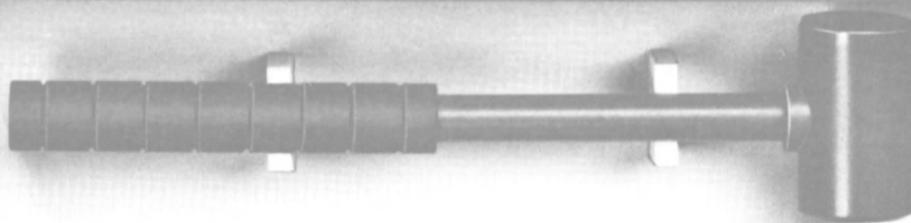
Keeton Sons & Co  
Keld Ellentoft  
Kelvin Diesels  
Kenmac Controls  
Allan Kennedy & Co  
Kent Process Control Introl Valves  
Kent Process Control Site Services  
Kerite  
Kestrel Marine  
Kestrel Subsea Systems  
Kingpull  
Klippon  
Kobelt Manufacturing  
Kolfor Plant  
Kongsberg Group  
Lennart Krusman  
Kuster  
Lancashire Enterprises  
Lancashire Fire Brigade  
Lancashire Fittings  
N E Lancs Development Assoc.  
Land & Marine Engineering  
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Mammoet Transport  
Mannesmann  
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Marex  
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Marske Machine  
Maritime Hydraulics (UK)  
Martin Decker Co (UK)  
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MaxiTorque Drill Systems  
George Meller  
Merpro  
Mesotech Systems  
Metallvorefabrikken  
Meteorological Office  
Metier Management Systems Ltd  
Metool PDS  
Chr Michelsen Institute  
Miljo Export  
Virginia A Miller  
Miros  
AB Momento  
Mobilarc  
Mobitex  
Monkradle Engineering  
Mono Pumps  
Moray District Council  
Moray Firth Service  
Morganite Canada  
John Moritz Rump  
Morris International Trading  
Motherwell Bridge Group  
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Murdock Engineering  
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NCIMB  
NEI  
NESDA  
NKF Groep  
N L Atlas Bradford  
Baroid  
ERCO  
Hycalog  
McMullough  
Shaffer  
Sperry Sun  
Treating Chemicals  
N L Industries  
N S W Offshore  
Nash Shipping Services  
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Nor Mix Industrie  
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Noroil  
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North Sea Oil & Gas Directory  
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Marine Services  
Northern Oceanics  
North Sea Cables

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Govt of Nova Scotia  
Nova Scotia Research Corp  
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Nutec  
Nynas Petroleum  
Nylonic Engineering  
ORFE  
OPI (Cougar Tool Division)  
OPS Holdings  
OSEL Offshore Systems  
Engineering  
Oban Wet Suits  
Ocean Research (Technology)  
Oceanics Communication  
Ocean Instruments  
Oceanroutes (UK)  
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Offshore Northern Seas-City of  
Stavanger  
Offshore Oil International  
Offshore Production Systems  
Offshore Survival Centre (RGIT)  
Offshore Ventilation  
Jonas Oglund  
Oil & Gas Journal  
The Oilman  
Oilfield Control Systems  
Open Tech Unit  
Orbit Valve  
Orion  
Orkney Islands Council  
Osprey Electronics  
Otis Engineering  
Oxybloc  
PA Oil & Gas Division  
PCT Group  
PHB Weserhutte  
Pag-o-flex  
Parker Hannifin (UK)  
Paroscientific  
Parry Corporation  
Peerless Pump  
Pelf  
Pell Frischmann  
Penwell Books  
Pennwell Publishing  
Permal Gloucester  
Perrys  
Peterhead Engineering  
Petrel  
Petroleum Information  
Pewag Steirische Kettenfabriken  
Pflizer Chemicals Europe &  
Africa  
Dennis Pickles Engineering  
Pipetech  
Pirelli  
Plenty  
Ponticelli  
Poppe & Potthoff  
Portable Power Tools  
Port of Tyne Authority  
Portobello Fabrications  
Power-up Canada  
Preussag  
Procean  
Prodorite  
Projekt Lindholmen  
Promac Nederland  
Pronal  
Protectors  
Pulsar  
Pumpen und Maschinenbau  
Fritz Seeberger  
Pyroban  
Qubit  
RMR Measurements  
Racal Avionics (Ground)  
Racal Electronics  
Racal Geophysics  
Racal Marine Radar  
Racal Messenger  
Racal Positioning Systems  
Racal Safety  
Racal Survey  
Raccordi Forgiati/Tecnoforge  
Ramnas Anchor Chain  
Rana  
Rapp Boniek  
Rauma-Repola OY  
Raychem  
Raytheon Ocean Systems  
Rebound Rig Company  
Regal International  
Rentacrane  
Resmastservice  
Reson Systems  
Resource Publications  
RevMarine Equipments  
Rhone Poulenc (UK)  
Rigidized Metals  
Rigserv  
Rigwrights  
James Robertson & Sons  
Robertson Research  
Rockall Data Services  
(Scotland)  
Rockwell International  
Rolatrac  
Ross Electrical  
Rotary Precision  
Rotabolt  
Jacques Rotork

(continued on page 28)

**IN CASE OF NATIONAL EMERGENCY,  
BREAK GLASS.**



## **If only it were this simple.**

A shipyard is not a fire hose. It can't be enclosed in glass, frozen in readiness, until a national emergency reminds us of its importance. When a shipyard is shut down, its assets disperse. Equipment is disposed of, and skilled workers find new jobs in more stable industries.

In the past eight years, 30 private shipyards have closed. Commercial shipbuilding in the U.S. is virtually non-existent today, with no immediate improvement forecast for the near future. As more work is lost to foreign yards, still more American

shipyards will be forced to shut down.

An adequate shipbuilding and repair industrial base is vital to America's defense planning. Foreign yards cannot be counted on to support our navy or our merchant marine.

There is no simple answer to the problem. What must first be realized is that we have a problem.



**BATH IRON WORKS CORPORATION**  
A Congoleum Company, Bath, Maine 04530

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## Offshore Europe

(continued)

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Rural & Industries Bank of  
Western Australia  
Ruston Diesels Ltd  
Ruston Gas Turbines  
Rutter Group Services  
SAI Tubular Services  
SB Offshore  
SPP Pumps  
SMF International  
STC Telecommunications  
STU National Swedish Board  
Safety Air Services  
Saltire Hose Supplies  
Samson Ocean Systems  
Sanders Insulation Systems  
Sandvik Hand Materials  
Sandvik Steel  
Sasakura Engineering  
Sayson Materials Managements  
Systems  
Scan Rope  
Scandinavian Electro Trading  
Scandinavian News Information  
Scandinavian On & Offshore  
Handbook Marco Publishing  
Schlumberger Inland Services  
Scott Mobac  
Schoeller Werk  
Schottel-Lips  
Scientific Drilling Controls  
Scientific Software Intercomp UK  
Scott Greenham Group  
Access Platform Hue  
Offshore Services  
Scottish Development Agency  
Sea Data Corp  
Sea & Land Pipe Lines  
Seaboard Marine (Nigg)  
Seaboard Offshore  
Seafar Engineering  
Sealink UK (Port of Heysham)

Seamark Systems  
Seamatrix  
Seamless Tubes  
Select Oil Tools  
Seling Corporation  
Semperit Technische  
Produkte Gesmbh  
Semperit (UK)  
Serck Heat Transfer  
Sermatech  
Services Dowell Schlumberger  
Services et Equipments  
Servo Mekanikk  
Severn Instruments  
Shearwater Marine  
Sheffield Forgemasters  
Shell Chemicals  
Shell UK  
Shetlands Islands Council  
Siemens  
Sigma Oilfield Products  
Silver Fox  
Simrad Optronics  
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Site Oil Tools  
Skega  
Skypac Containers  
Skytec Aviation  
Slingsby Engineering  
F K Smith  
Smith International  
Smit International Marine Services  
Snamprogett  
Sofregaz  
Sofresid  
Sonardyne  
Sonat Subsea Services  
Sonat Offshore  
Sony (UK)  
Sound Powered Telephone  
Souriau (UK)  
South Wales Switchgear  
Sparekassen SDS  
Sparrows Offshore Services  
Spraytec Engineering  
Springfields Nuclear Power Devt.  
Labs

Stahl  
Stainless Steel Fasteners  
Stalor International  
Standard Telephones & Cables  
City of Stavanger  
Steelproducts Offshore  
Steeltrade  
Steinco  
Steirische Kettenfabriken  
Pengg Walenta Kg  
Stena  
Sterling Greengate  
Stewart Cranes  
Stewart Small Plant  
Stock Alloys Ltd  
Stohtert & Pitt  
Strachan & Henshaw  
Strata Bit  
Strathclyde Industrial Devt  
Strentex Fabrics  
Structural & Piping Inspection  
Services  
Subconn  
Sumitomo  
Sunderland Forge & Engineering  
Sunderland Forge Services  
Survival International USA  
Survival Systems  
Sutec  
Svenkst Stal  
Swagelok UK  
Sweco  
Swedish Trade Council  
Syncom International  
Syrinex  
Systron Donner  
TPS Industries  
TTS International  
TRW Reda Pump  
F Tacke  
Tamtech  
Taurus Hungarian Rubber Works  
Taylor Instrument  
Taylor Pallister Plc  
Taylor Warren  
Tayside Region Ind. Office  
Tech-Star Energy

Techmation  
Techwest  
Tecnomare  
Tecnorex  
Tees & Hartlepool Port Auth.  
Tees Offshore Centre  
Tees-side Airport  
Tehalit Kun St Stoff Werk  
Teleco Drilltech  
Teleco Oilfield Services  
Teltec  
Termi  
Theta Pneumatics  
JG Tinkler  
Thorburn Technics (International)  
Limited  
Thorn EMI Electronics  
Thorn EMI Protech  
Thule United  
Thurley International  
William W Todd Associates  
Torben Schroll  
Torbex Engineering  
Torch Technical Services  
Totco Division of Leutert  
(North Sea)  
TradeARBED  
Transamerica Instruments  
Transmittion  
Travocean  
TrefilARBED  
Trelleborg AB  
Tri-Tech Energy Research  
Trolex Products  
Trouvay L Cauvin  
Trumeter  
Tube Developments (Glasgow)  
Tubiflacco Dalmine Italsider  
Turmeric  
Turner Diesel  
Turner Products  
UDI Group  
US and Foreign and Commercial  
Service  
Uddcomb Sweden  
Underground Mining Machinery  
The Underwater Centre  
Union Carbide  
United Ropewalks/Verito Ropes  
United Wire  
Universal Metallic Packing  
Usinor  
VEW Special Steels  
VO Offshore  
Valmet OY Helsinki Shipyard  
Chambre de Commerce et  
Industrie du Var  
Varco International  
Vauldale Engineering  
Ver de Amsterdamse Haven  
Vereingte Deutsche Metallwerke  
Vereingte Edelstahlwerke  
Aktiengesellschaft (VEW)  
Vereingte Edelstahlwerke  
Veritec  
Versa/Helipebs Controls  
Versatec Electronics  
Versatile Davie  
Vesterreichische  
Vest-Expo  
Vetco Inspection Gmbh  
Vetco Offshore  
Vicnay  
Vickers  
Victor Products  
Vikubo  
Voest-Alpine AG  
Voest-Alpine Ltd  
Vrijhof Ankeps  
WKM (Great Britain)  
Waertsilae Diesel  
Waertsilae OY  
James Walker & Co  
Wallendahl & Son  
Wallsend Slipway Engineers  
Walther Couplings  
Walther Pilot  
Watercraft  
Water Pressurisation Systems  
Engineering  
Wefco Gainsborough  
Weir Group  
Welding Units  
Weldtech Equipment  
Sigmund Wenaas Konf Fabrik  
Werft Nobiskrug  
Wermex  
Westland Helicopters  
Westpac Banking Corp  
Whessoe Dock Point  
Wika Pressure Gauges (UK)  
Wilh Wilhelmson  
Williams Instrument Co  
Wilson Supply International  
Wimpey Offshore Eng &  
Constructors  
Wimpol  
Charles Winn Valves  
Wirth Maschinen-und  
Bohrgeraete-Fabrik  
Richard Wolf UK  
Wolff Davies Tower Cranes  
Woodhouse & Rixson  
Woods of Colchester  
John Wood Group  
Woodside Pneumatics  
Worcester Controls  
Wormald Offshore Services  
Yorkshire & Humberside  
Development Association  
ZF-Herion-Systemtechnik  
Carl Zeiss Jena  
Zunt Italiani  
Zwick Energy Research  
Organisation  
Zycor

## Everett Appointed Director-Marketing/Sales At Sigma Treatment

**Douglas H. Everett Jr.** was recently appointed director of marketing for Sigma Treatment Systems, Inc., Chester Springs, Pa. The announcement was made by Sigma president **William F. Roberts**.

Mr. Everett will be responsible for the sales and marketing of Sigma products in marine offshore, and industrial applications. In addition, he will be involved with the planning and development of long-term marketing strategies and policies.

Prior to joining the company, Mr. Everett was an independent consultant to the marine and submersible industry in the Middle East and vice president of Escape to Paradise, Inc., a Caribbean yacht charter company.

Sigma is a leading US manufacturer of pollution control equipment and oily water separators utilized in a wide variety of marine, offshore and industrial applications.

## Braswell Shipyards Wins \$7.6-Million Contract For USS McCloy Overhaul

Braswell Shipyards, Hoboken Shipyards Incorporated, Hoboken, N.J., was recently awarded a \$7,600,000 firm-fixed-price contract for the regular overhaul of the USS McCloy (FF-1038). The work, which is expected to be completed January 31 of next year, will be performed in Hoboken. Contract funds would have expired at the end of the current fiscal year. There were 15 bids solicited and six offers received. The Supervisor of Shipbuilding, Conversion and Repair, Jacksonville, Fla., is the contracting activity (N00024-84-H-8009).

## Hamworthy Introduces Emergency Fire Pump Set —Literature Available

Hamworthy Engineering Ltd. has recently added an emergency diesel-driven fire pump set to its comprehensive range of marine equipment.

The set has been primarily developed for shipboard emergency fire pump duties and consists of a Hamworthy horizontal centrifugal pump (type B. 80H), close coupled to a Lister marine-type (S.T.2.M.A.) air-cooled diesel engine.

The self-contained unit has a capacity of 20-50 m<sup>3</sup>/hr, is capable of heads of 25-58m and runs at 1,800-2,600 rpm.

The combined unit meets the requirements of the marine classification societies and is supplied with a self-priming option.

A standard set of spares is available and the combined unit can be supplied off the shelf as comprehensive stocks are maintained.

For further information and free literature on Hamworthy's new emergency fire pump set,

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## NMEA Annual Meeting To Be Held October 13-15 In Seattle

The National Marine Electronics Association has finalized plans for its Annual Meeting, which will be held at the Westin Hotel in Seattle, Wash., October 13-15. The program will feature a variety of workshops, forums, technical papers and presentations. As an additional attraction, **Michael Reagan**, son of President Reagan, will be the guest speaker for the annual awards banquet on October 15.

According to NMEA president **Gerald A. Gutman**, a major emphasis for this year's program will be on business planning. Business consultant **Robert M. Donnelly** will conduct a day-long seminar on strategic planning and budgeting basics for growing firms.

Other activities scheduled for the Annual Meeting include technical papers, equipment exhibits, board of directors' meetings and administration of CMET examinations (Certified Marine Electronics Technician).

The highlight of the three-day affair will be the NMEA Product Awards Banquet, at which guest speaker **Michael Reagan**, who is a well-known powerboat racer, will speak on his boat racing experiences and the role played by electronics in his profession.

The NMEA is a professional trade association of manufacturers, distributors and dealers in the marine electronics industry.

## Manitowoc Announces Six New Personnel Additions At Manitek Subsidiary

**Ralph Helm**, president of The Manitowoc Company, Inc., Manitowoc, Wisc., has announced that six key people have joined the company's recently formed subsidiary, Manitek Inc. of McAllen, Texas. All six have had extensive experience and are well known in the offshore market.

**Fred Opredek**, marketing consultant, has been in the top management of offshore hydraulic crane companies for the past seven years, and prior to that served in positions of plant operations manager and chief engineer.

**Earle Bares**, director of engineering, has been involved with offshore products for the past 10 years, including hydraulic cranes and drilling equipment, in positions of engineering director and product manager.

**Jeff Kennan**, project engineer, has held positions as designer, project engineer and industrial engineer with firms building hydraulic offshore cranes, water blasters, power transmission equipment, and hydraulic drilling equipment.

**Richard Kriefeldt**, project engineer, has had 19 years' experience designing pedestal hydraulic cranes,

winches, water blasters and pneumatic tools.

**Dennis Werner**, project engineer, had 12 years' experience in design engineering prior to over 10 years in crane engineering and quality control.

**Lon Miller**, records manager, has over 12 years' experience in export documentation, technical and maintenance manuals, and production scheduling, all in the offshore crane market.

In addition to serving as president

of Manitowoc, Mr. Helm will also serve as president of Manitek Inc. **Frank Stevens**, general counsel for Manitowoc, will serve as secretary-treasurer.

The newly formed Texas corporation will design, manufacture and market a new line of hydraulic lattice boom cranes with capacities from 15 to 150 tons and hydraulic box boom cranes with capacities from 10 to 70 tons.

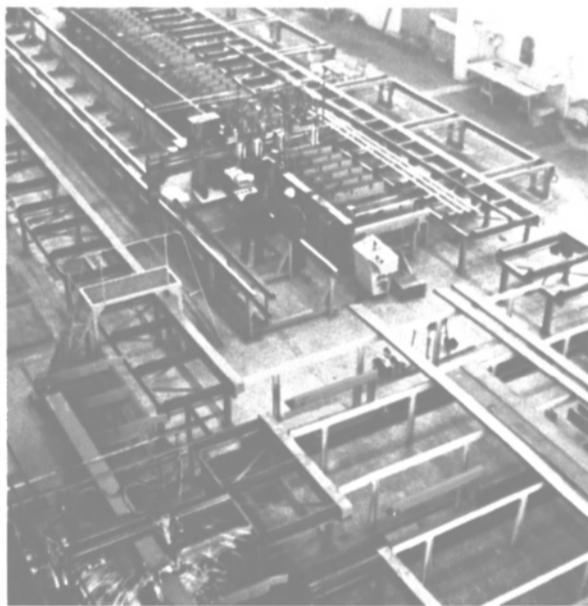
Manufacturing is scheduled to be done in McAllen, Texas and Rey-

nosa, Mexico. Sales offices will be located in The Woodlands, Texas.

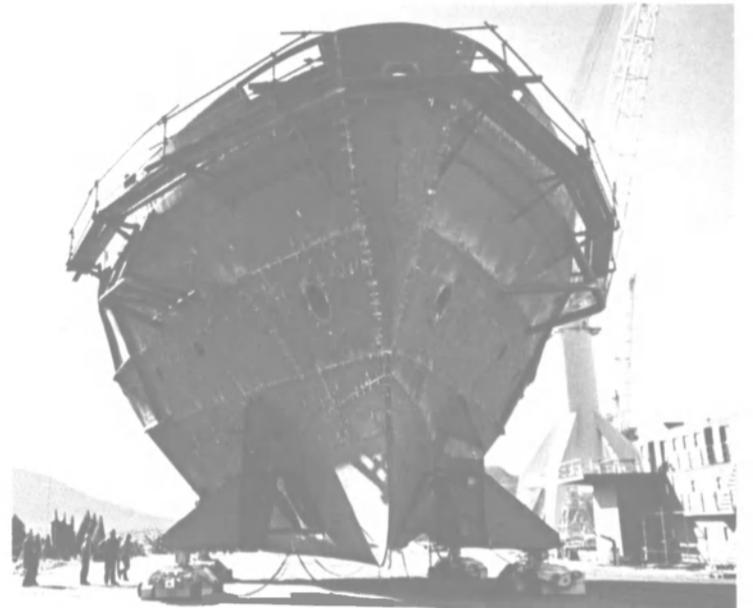
First models of the new line are planned to be on the market in late fall of 1985, with distribution, parts and service provided through an established worldwide distributor organization.

The parent corporation, The Manitowoc Company, Inc., has designed, manufactured and marketed construction cranes for over 60 years, and has designed and built ships and barges for over 80 years.

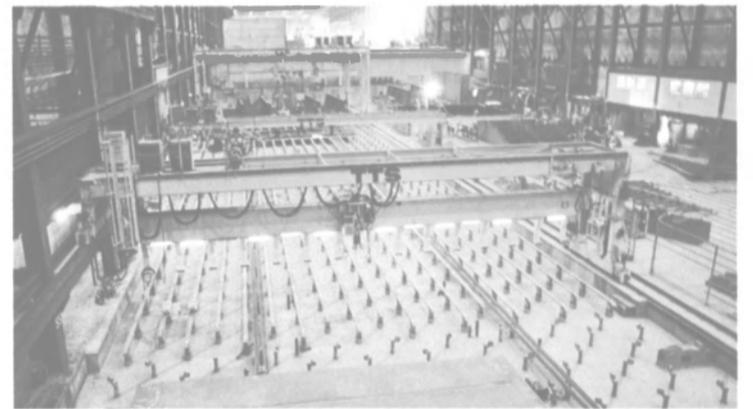
## Production systems for ships, barges and offshore structures.



Beam line.



DWB ship transfer system.



Panel line at Bath Iron Works.

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# NAVAL SHIPBUILDER'S REPORT

June 1, 1985

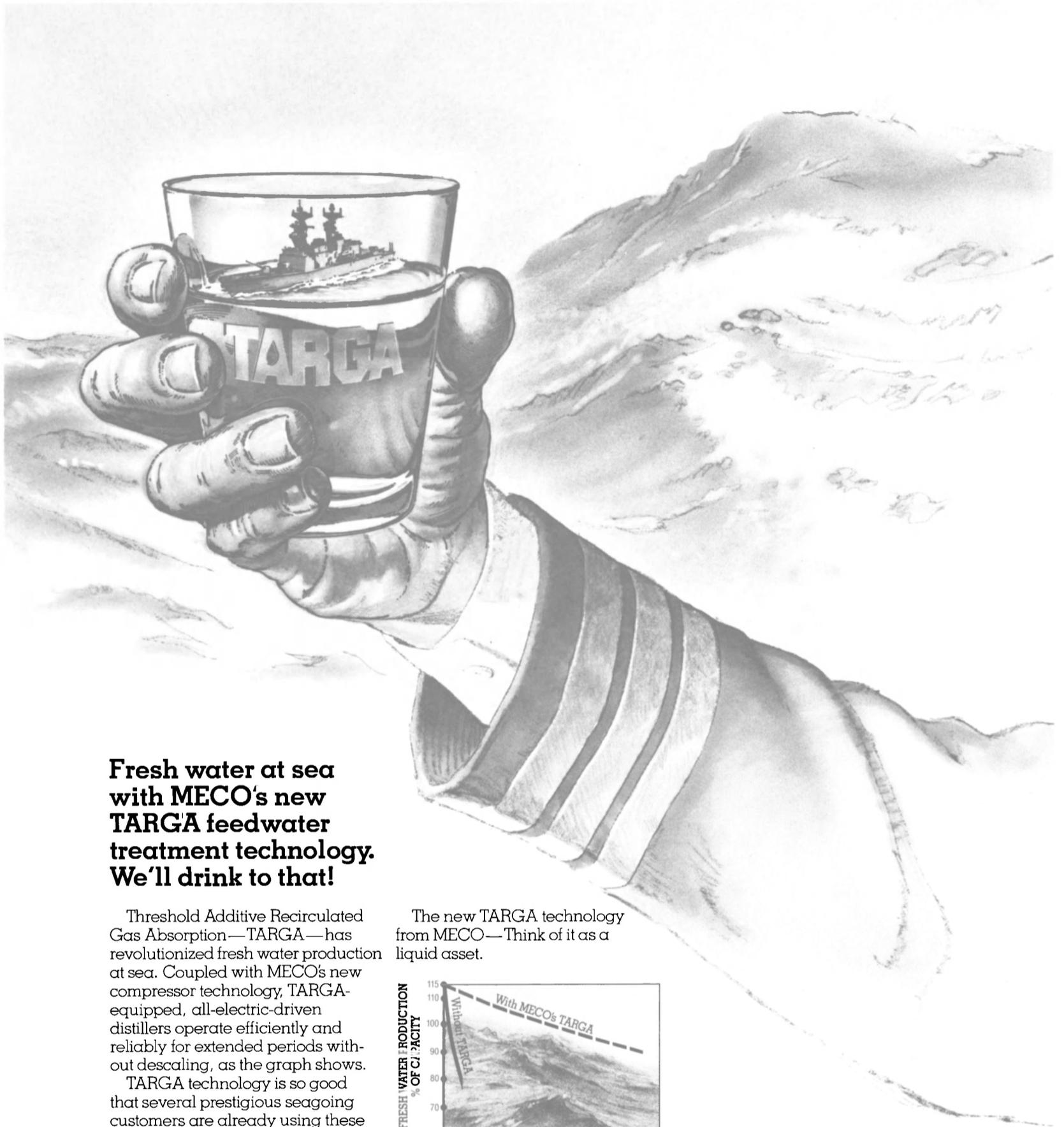
Naval Vessels  
1,000 Light Tons and Over  
Under Construction

Shipbuilder's Council of America

## NEW NAVAL VESSEL CONSTRUCTION June 1, 1985

Shipyard	Navy No.	F.Y. Program	Date	Name	Light Disp. Tons	Actual Launch Date	Estimated Delivery
THE AMERICAN SHIP BUILDING COMPANY Tampa, Florida	T-5	'83	8/83	PAUL BUCK	9,000		6/85
	T-5	'83	8/83	-----	9,000		8/85
	T-5	'83	8/83	-----	9,000		11/85
	T-5	'83	8/83	-----	9,000		2/86
	T-5	'83	8/83	-----	9,000		5/86
AVONDALE SHIPYARDS, INC. Westwego, Louisiana	T-AO-187	'82	11/82	HENRY J. KAISER	9,500	KL	9/86
	T-AO-188	'83	1/83	JOSHUA HUMPHREYS	9,500	KL	1/87
	T-AO-189	'84	11/83	-----	9,500		5/87
	T-AO-190	'84	11/83	-----	9,500		9/87
	LSD-44	'84	11/83	-----	11,100		6/88
	LSD-45	'85	11/84	-----	11,100		12/88
	LSD-46	'85	11/84	-----	11,100		5/89
BATH IRON WORKS CORPORATION Bath, Maine	FFG-56	'82	3/82	SIMPSON	2,727	8/84	8/85
	FFG-58	'82	3/82	SAMUAL B. ROBERTS	2,727	12/84	11/85
	FFG-59	'83	10/82	KAUFFMAN	2,727		10/86
	CG-51	'82	5/82	THOMAS S. GATES	8,910	KL	1/86
	CG-58	'84	12/83	-----	8,910		6/88
	CG-60	'85	11/84	-----	8,910		3/89
	CG-61	'85	11/84	-----	8,910		7/89
	DDG-51	'85	4/85	-----	8,300		9/89
GENERAL DYNAMICS CORPORATION ELECTRIC BOAT DIVISION Groton, Connecticut	SSN-719	'79	4/79	PROVIDENCE	6,000	8/84	6/85
	SSN-720	'79	4/79	PITTSBURGH	6,000	12/84	11/85
	SSBN-732	'78	2/78	ALASKA	12,500	1/85	2/86
	SSBN-733	'80	1/81	NEVADA	12,500	KL	10/86
	SSBN-734	'81	1/81	-----	12,500		12/88
	SSBN-735	'83	11/82	-----	12,500		8/89
	SSBN-736	'84	11/83	-----	12,500		4/90
	SSN-724	'81	2/82	-----	6,000	KL	12/86
	SSN-725	'82	4/82	-----	6,000		8/87
	SSN-751	'83	11/82	-----	6,000		11/87
	SSN-752	'83	11/82	-----	6,000		3/88
	SSN-754	'84	11/83	-----	6,000		7/88
	SSN-755	'84	11/83	-----	6,000		12/88
	SSN-757	'85	11/84	-----	6,000		6/89
	GENERAL DYNAMICS CORPORATION QUINCY SHIPBUILDING DIVISION Quincy, Massachusetts	T-AKX	'83	9/82	PFC DEWAYNE T WILLIAMS	22,700	
T-AKX		'83	1/83	1ST LT BALDOMERO LOPEZ	22,700		6/85
T-AKX		'83	1/83	1ST LT JACK LUMMUS	22,700		9/85
T-AKX		'83	1/83	SGT WILLIAM R. BUTTON	22,700		12/85
HALTER MARINE SERVICES, INC. Moss Point, Mississippi	T-AGOS-13	'85	4/85	-----	1,600		3/86
	T-AGOS-14	'85	4/85	-----	1,600		7/88





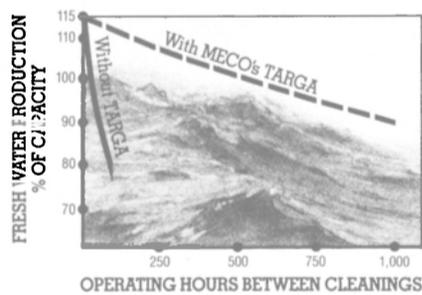
**Fresh water at sea  
with MECO's new  
TARGA feedwater  
treatment technology.  
We'll drink to that!**

Threshold Additive Recirculated Gas Absorption—TARGA—has revolutionized fresh water production at sea. Coupled with MECO's new compressor technology, TARGA-equipped, all-electric-driven distillers operate efficiently and reliably for extended periods without descaling, as the graph shows.

TARGA technology is so good that several prestigious seagoing customers are already using these new vapor compression plants: the U.S. Navy, the U.S. Coast Guard, offshore rig and platform operators, and navies in other countries.

For more information about TARGA, call or write: Mechanical Equipment Company, Inc.; 861 Carondelet Street; New Orleans, LA 70130; Phone (504) 523-7271; Telex 460165 MECO NLN; Cable MECO.

The new TARGA technology from MECO—Think of it as a liquid asset.



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Worldwide Service and Parts Support:  
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• Singapore • Abu Dhabi

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# Navy

Shipyard	Navy No.	F.Y. Program	Date	Name	Light Disp. Tons	Actual Launch Date	Estimated Delivery	
INGALLS SHIPBUILDING DIVISION LITTON INDUSTRIES Pascagoula, Mississippi	CG-49	'81	8/81	VINCENNES	8,910	1/84	6/85	
	CG-50	'81	8/81	VALLEY FORGE	8,910	6/84	12/85	
	CG-52	'82	1/82	BUNKER HILL	8,910	3/85	7/86	
	CG-53	'82	1/82	-----	8,910	KL	2/87	
	CG-54	'83	6/83	-----	8,910	KL	6/87	
	CG-55	'83	6/83	-----	8,910		10/87	
	CG-56	'83	6/83	-----	8,910		2/88	
	CG-57	'84	12/83	-----	8,910		6/88	
	CG-59	'84	12/83	-----	8,910		12/88	
	CG-62	'85	11/84	-----	8,910		10/89	
	LHD-1	'84	2/84	WASP	28,500		3/89	
	LOCKHEED SHIPBUILDING COMPANY Seattle, Washington	LSD-42	'82	3/82	GERMANTOWN	11,100	6/84	1/86
		LSD-43	'83	1/83	-----	11,100	KL	6/87
	MARINETTE MARINE CORPORATION Marinette, Wisconsin	MCM-2	'83	5/83	DEFENDER	1,000	KL	1/87
MCM-4		'84	12/83	CHAMPION	1,000	KL	12/87	
NEWPORT NEWS SHIPBUILDING Newport News, Virginia	SSN-718	'77	9/77	HONOLULU	6,000	9/83	6/85	
	CVN-71	'80	9/80	THEODORE ROOSEVELT	71,000	10/84	9/86	
	SSN-721	'80	8/81	CHICAGO	6,000	10/84	6/86	
	SSN-722	'80	8/81	-----	6,000	KL	9/86	
	SSN-723	'81	8/81	-----	6,000	KL	3/87	
	SSN-750	'82	4/82	NEWPORT NEWS	6,000	KL	5/87	
	SSN-753	'84	11/83	-----	6,000		5/88	
	SSN-756	'85	11/84	-----	6,000		5/89	
	SSN-758	'85	11/84	-----	6,000		9/89	
	SSN-759	'85	11/84	-----	6,000		1/90	
	CVN-72	'83	12/82	ABRAHAM LINCOLN	71,000	KL	12/89	
	CVN-73	'83	12/82	GEORGE WASHINGTON	71,000		12/91	
	PENNSYLVANIA SHIPBUILDING COMPANY Chester, Pennsylvania	T-AO-191	'85	5/85	-----	9,500		3/89
T-AO-192		'85	5/85	-----	9,500		1/90	
PETERSON BUILDERS, INC. Sturgeon Bay, Wisconsin	ARS-50	'81	8/81	SAFEGUARD	2,725	11/83	7/85	
	ARS-51	'82	2/82	GRASP	2,725	4/84	9/85	
	ARS-52	'82	2/82	SALVOR	2,725	7/84	4/86	
	MCM-1	'82	6/82	AVENGER	1,000	KL	6/86	
	ARS-53	'83	10/82	GRAPPLE	2,725	12/84	7/87	
	MCM-3	'84	12/83	SENTRY	1,000	KL	9/87	
	MCM-5	'84	12/83	GUARDIAN	1,000		1/88	
ROBERT E. DERECKTOR RHODE ISLAND, INC. Middletown, Rhode Island	WMEC-905	'80	1/81	SPENCER	1,200	4/84	9/85	
	WMEC-906	'80	1/81	SENECA	1,200	4/84	12/85	
	WMEC-907	'80	1/81	ESCANBA	1,200	2/85	3/86	
	WMEC-908	'80	1/81	TAHOMA	1,200	2/85	6/86	
	WMEC-909	'80	1/81	CAMPBELL	1,200	KL	10/86	
	WMEC-910	'80	1/81	THETIS	1,200	KL	1/87	
	WMEC-911	'80	1/81	FORWARD	1,200		5/87	
	WMEC-912	'80	1/81	LEGARE	1,200		8/87	
	WMEC-913	'80	1/81	MOHAWK	1,200		11/87	
	TACOMA BOATBUILDING COMPANY, INC. Tacoma, Washington	T-AGOS-6	'81	2/81	PERSISTENT	1,600	4/85	8/85
		T-AGOS-7	'81	2/81	INDOMITABLE	1,600	KL	11/85
T-AGOS-8		'81	2/81	PREVAIL	1,600	KL	1/86	
T-AGOS-9		'82	1/82	ASSERTIVE	1,600		3/86	
T-AGOS-10		'82	1/82	INVINCIBLE	1,600		6/86	
T-AGOS-11		'82	1/82	AUDACIOUS	1,600		8/86	
T-AGOS-12		'82	1/82	BOLD	1,600		10/86	
TODD PACIFIC SHIPYARDS CORPORATION San Pedro, California	FFG-57	'82	3/82	REUBEN JAMES	2,727	2/85	1/86	
	FFG-60	'83	10/82	RODNEY M. DAVIS	2,727	KL	11/86	
	FFG-61	'84	11/84	-----	2,727		11/88	
TODD PACIFIC SHIPYARDS CORPORATION Seattle, Washington	FFG-52	'81	5/81	CARR	2,727	2/83	7/85	
	ARDM-5	'83	10/82	ARCO	5,300	12/84	2/86	

## NAVAL VESSEL CONVERSIONS AND MODERNIZATIONS

June 1, 1985

Shipyard	Navy No.	F.Y. Program	Date	Name	Light Disp. Tons	Estimated Delivery
AVONDALE SHIPYARDS, INC. Westwego, Louisiana	T-AKR 290	'84	10/83	POLLUX	55,800	3/86
	T-AKR 291	'84	10/83	ALTAIR	55,800	11/85
BETHLEHEM STEEL CORPORATION Beaumont, Texas	T-AKX	'82	11/82	1ST LT ALEXANDER BONNYMAN, JR.	28,249	9/85
	T-AKX	'82	11/82	PVT HARRY FISHER	28,249	8/85
CONTINENTAL MARITIME OF SAN FRANCISCO, INC. San Francisco, California	T-ACS-2	'85	9/84	GEM STATE	15,060	9/85
NATIONAL STEEL AND SHIPBUILDING COMPANY San Diego, California	T-AH-19	'83	6/83	MERCY	70,000	10/86
	T-AKR 292	'84	10/83	REGULUS	55,800	10/85
	T-AH-20	'84	12/83	COMFORT	70,000	7/87
PENNSYLVANIA SHIPBUILDING COMPANY Chester, Pennsylvania	T-AKR 289	'84	10/83	DENEbola	55,800	10/85
TODD SHIPYARDS CORPORATION Galveston, Texas	T-AVB-3	'85	12/84	WRIGHT	14,000	2/86

# Newport News can breathe new life into your fleet.

To jumboize a ship takes superior technology, facilities and imagination. At Newport News we have them all, more than any other shipyard.

Our plant and our trained people give us a greater capacity to convert your ships for years of extended service.

Integrated Computer Aided Design/Computer Aided

Manufacturing allows us to build more complete, more accurate subassemblies...even 900-ton construction modules that fit together like a glove.

That's why at Newport News, your job is done on time and the way you want it.

So when you've got a problem, come to us. We can handle the toughest jobs,

including some that other shipyards won't even attempt.

Newport News Shipbuilding.  
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TWX 710-880-0007.

**Newport News Shipbuilding** 

A Tenneco Company  
Newport News, Virginia 23607

Circle 185 on Reader Service Card

# Number

## MARITIME REPORTER DELIVERS YOUR ADVERTISING TO MORE MARINE BUYERS THAN ANY OTHER TWO MARINE

in 1985, MARITIME REPORTER's total circulation increased again to a record 24,305 copies every time.

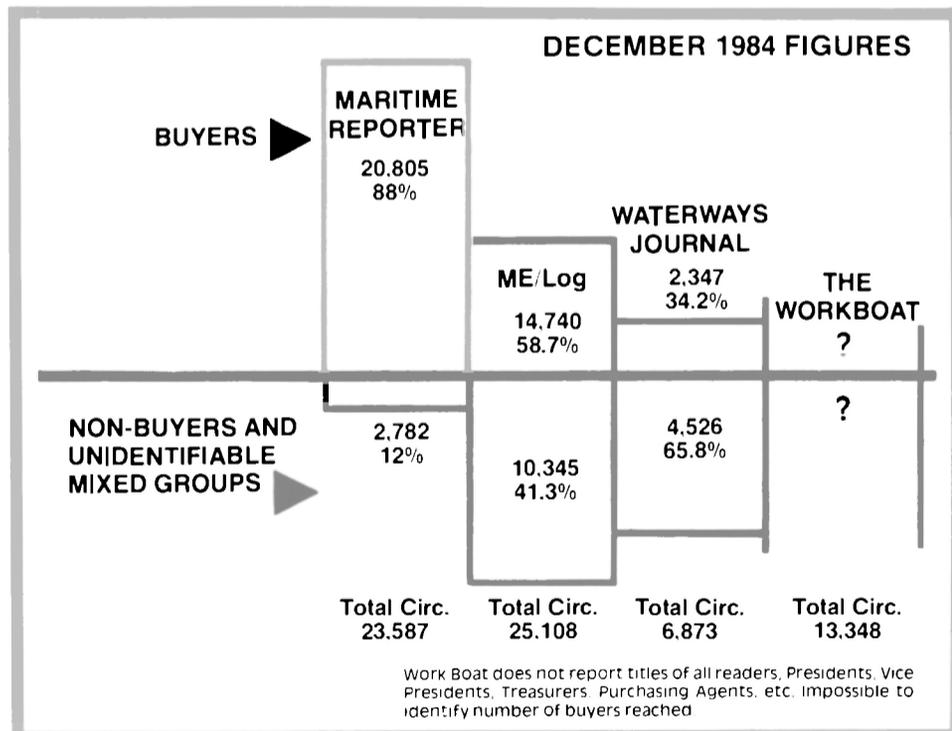
This entire increase consisted of only Buying Influence Readers. MARITIME REPORTER now delivers your advertising to an unequalled 21,609 buying influence readers ... thousands more than any other Marine magazine in the

### WORLD'S LARGEST CIRCULATION TO BUYERS

Now, MARITIME REPORTER delivers your advertising to 21,609 identifiable buyers ... more than any two of the other magazines combined.

### RECORD SALES LEADERS

MARITIME REPORTER produces more advertising sales than any other Marine magazine... two times as much as the number 2 magazine. Each figure listed below is for an individual advertiser by MARITIME REPORTER.



<b>Paints/Corrosion Control</b>	1,033	
	714	
	655	
<b>Shipbuilding/Repair</b>	2,147	<b>Navigation</b>
	613	
	570	
<b>Deck Machinery/Cargo Handling</b>	545	
	415	
	477	

**NEW** — June 1985 - MARITIME REPORTER's total circulation increased to 24,305 including a record 21,609 Buying Influence Readers.

## THE ONLY COMPLETE COVERAGE OF MARINE BUYERS

# FOR ONE



## ORDER ALONE ADVERTISING TO MORE YOU CAN REACH USING MAGAZINES COMBINED.

entire world ... and, more than any other two marine magazines combined.

At one cost, MARITIME REPORTER alone delivers more buyers than you can reach using any other two marine magazines at two costs.

There is complete and unmatched coverage of your entire marine buying market ... for maximum marine sales in '85 and '86.

### LEADS FROM ADS

Worldwide better sales leads than any other magazine represents inquiries produced by MARITIME REPORTER in one year or less.

#### Diesel Engines

1,352  
1,337  
1,168

#### Navigation & Communications

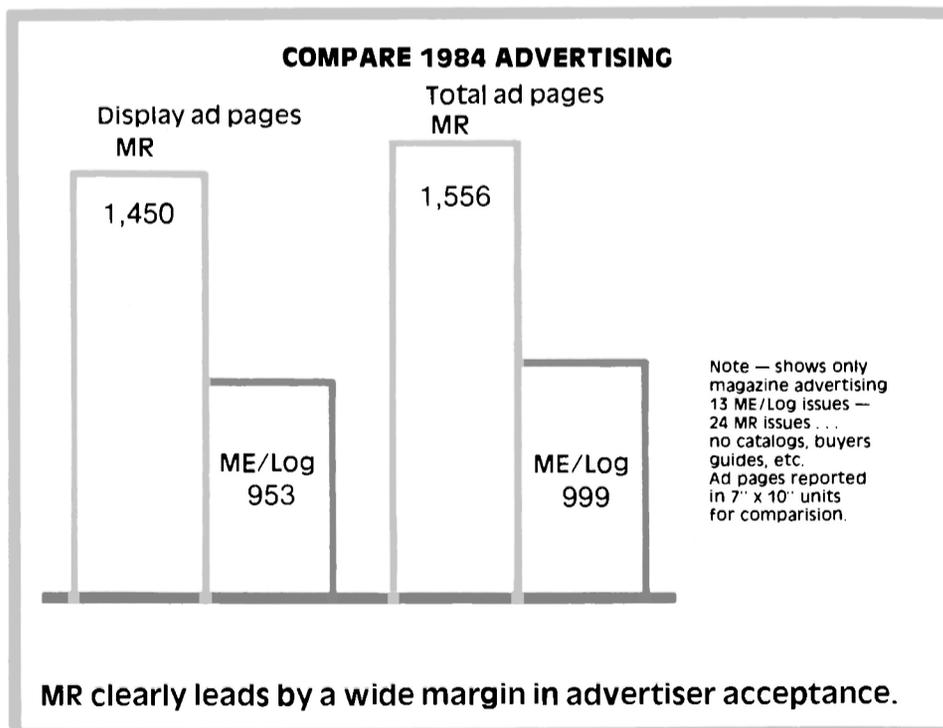
773  
663  
623

#### Oily Water Separators

936  
751  
459

### THE ADVERTISING LEADER

In 1984, and for years, more media buyers placed more pages of advertising, for a larger number of advertisers, in MR than in No. 2 ME/Log.



## FOR MAXIMUM MARINE SALES

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

118 East 25th Street  
New York, New York 10010  
(212) 477-6700

## EVENTS IN APRIL AND MAY 1985

### NEW CONTRACTS

Shipyard	Navy No.	Name	Type	Date
Bath	DDG-51	-----	Guided Missile Destroyer	4/ 2/85
Halter	T-AGOS-13	-----	Ocean Surveillance Ship	4/ 5/85
Halter	T-AGOS-14	-----	Ocean Surveillance Ship	4/ 5/85
Penn Ship	T-AO-191	-----	Fleet Oiler	5/ 6/85
Penn Ship	T-AO-192	-----	Fleet Oiler	5/ 6/85

### VESSELS LAUNCHED

Tacoma	T-AGOS-6	PERSISTENT	Ocean Surveillance Ship	4/ 6/85
--------	----------	------------	-------------------------	---------

### VESSELS DELIVERED

GD. Groton	SSBN-731	ALABAMA	Ballistic Missile Submarine	4/23/85
Tacoma	T-AGOS-5	ASSURANCE	Ocean Surveillance Ship	5/ 1/85
NASSCO	T-AKX	MAJ. STEPHEN W. PLESS	Prepositioning Ship	5/ 1/85
Todd, San Pedro	FFG-54	FORD	Guided Missile Frigate	5/ 3/85
Bath	FFG-55	ELROD	Guided Missile Frigate	5/10/85

## DELIVERIES BY U.S. PRIVATE SHIPYARDS\*

	Actual						Future				
	1980	1981	1982	1983	1984	1985	1985	1986	1987	1988	1989
Jan	1	0	1	5	1	2(1)		3	4	1	0
Feb	2	2	3	2	3	3		4(1)	1	1	0
Mar	1	2	2	0	1	1(1)		4(1)	1	2	3
Apr	1	2	0	2	3(1)	1		1	0	0	0
May	5	5	1	3	2	4(1)		1	3	1	2
Jun	2	1	2	1	6(3)		5	4	2	3	1
Jul	0	3	1	1	4(1)		2	2	1(1)	2	1
Aug	2	2	2	2	0		4(1)	1	2	0	1
Sep	1	2	1	1	4(3)		5(2)	3	2	0	2
Oct	1	2	3	1	1(1)		2(2)	5(1)	1	0	1
Nov	2	2	1	2	5		5(1)	1	2	1	0
Dec	1	3	1	2	1		3	1	1	4	1
<b>TOTALS</b>	<b>19</b>	<b>26</b>	<b>18</b>	<b>22</b>	<b>31</b>	<b>11</b>	<b>26</b>	<b>30</b>	<b>20</b>	<b>15</b>	<b>12</b>

\* Four vessels are scheduled for delivery after 1989.  
( ) Indicates conversions or modernizations.

## PRIVATE SHIPYARDS NEW CONSTRUCTION

Symbol	Type	No. of Vessels	Total Light Disp. Tons
ARS	Salvage Ship	4	10,900
ARDM	Repair Dry Dock	1	5,300
CG	Guided Missile Cruiser	14	124,740
CVN	Aircraft Carrier (Nuclear)	3	213,000
DDG	Guided Missile Destroyer	1	8,300
FFG	Guided Missile Frigate	7	19,089
LHD	Amphibious Assault Ship	1	28,500
LSD	Dock Landing Ship	5	55,500
MCM	Mine Countermeasures	5	5,000
SSBN	Ballistic Missile Submarine (Nuclear)	5	62,500
SSN	Attack Submarine (Nuclear)	18	108,000
T-5	Oiler	5	45,000
T-AGOS	Ocean Surveillance Ship	9	14,400
T-AKX	Prepositioning Ship	4	90,800
T-AO	Fleet Oiler	6	57,000
WMEC	Medium Endurance Cutters (USCG)	9	10,800
	<b>TOTAL</b>	<b>97</b>	<b>858,829</b>

## PRIVATE SHIPYARD CONVERSIONS AND MODERNIZATIONS

Symbol	Type	No. of Vessels	Total Light Disp. Tons
T-ACS	Crane Ship	1	15,060
T-AH	Hospital Ship	2	140,000
T-AKR	Vehicle Cargo Ship	4	223,200
T-AKX	Prepositioning Ship	2	56,498
T-AVB	Aviation Support Ship	1	14,000
	<b>TOTAL</b>	<b>10</b>	<b>448,758</b>



## Bayley Joins Southwest Marine As New Representative



Jack Bayley

Jack Bayley recently joined Southwest Marine, Inc., as their East Coast representative. Mr. Bayley will maintain close contact with his three West Coast counterparts to help keep the West Coast shipyards busy.

He comes to Southwest Marine with 40 years of experience in the industry. He was formerly with Hoboken Shipyard.

## Bailey Technical Center Opens In Beijing, China —Brochure Available

Bailey Controls has announced the grand opening of its first Bailey Technical Center in Beijing, People's Republic of China.

The Center will be used for full service support, training and customer demonstrations for the Bailey Controls Network 90® microprocessor-based distributed control system and the entire comprehensive line of measurement and control products. The Bailey Network 90 system has been applied in various industries throughout China, including installations found in power generation, chemical processing, steelmaking and petroleum refining. Bailey estimates that it has in excess of \$30,000,000 worth of equipment currently committed for shipment to the People's Republic of China. In addition to making it easier to demonstrate the Network 90 system to potential Chinese customers, the Center will provide technical seminars, slide presentations, and training involving the most advanced control systems on the market today.

Heading the Beijing Center will be veteran Bailey employee **Jim McFadden**. He will be assisted by a Chinese employee of the Beijing Instruments Industry Corp. who speaks fluent English.

Bailey Controls is a division of Babcock & Wilcox, and a leading worldwide supplier of instrumentation, controls, and computer systems for power generation, process automation and energy management in the petrochemical, electric utility and process industries. Babcock & Wilcox is a major operating unit of McDermott Incorporated, a subsidiary of McDermott International, Inc.

For free literature containing full information,

Circle 24 on Reader Service Card

## NASSCO Awarded \$3.4-Million Contract For Maintenance Program

National Steel and Shipbuilding Company, San Diego, Calif., is being awarded a \$3,458,254 cost-plus-award-fee contract for the phased maintenance program for four tank landing ships. Work will be performed in San Diego, and is expected to be completed in 1989. Contract funds would have expired at the end of the current fiscal year. Five bids were solicited and two offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-8502).

## Wager Announces New Diesel Exhaust Meter —Literature Available



The Wager Model 650 is a new, portable diesel exhaust meter for use in checking, to air quality standards, the emissions of diesel-powered work boats, fishing vessels, barges, dredges, and offshore drill rigs.

This meter measures the opacity of diesel emissions to within 1 percent accuracy, a precise reference for fine tuning combustion to acceptable emission standards.

The Wager meter, easy to carry about and use, consists of a portable exhaust monitor, cable connected to a portable control unit. The monitor easily clamps to diesel engine exhausts of any configuration, all diameters up to 6 inches. A light sensor in the monitor reads both the opacity and optical density of emissions, continuously relaying its readings to the control unit for large LCD display. A green LED emitter as the monitor's light source insures the 1 percent accuracy of readings, even in artificial light.

The portable control unit, no larger than a hand and weighing under 5 pounds is housed in a lightweight, strong aluminum case. A 25-foot connecting cable allows complete mobility in testing.

The Wager 650 Smoke Meter, which operates on battery power, features solid state components, mil spec throughout. It meets EPA, all ISO and SAE specifications, and comes with 1-year warranty.

For free literature containing complete product details,

Circle 36 on Reader Service Card

## Free 32-Page Full-Color Brochure Details Hagglands Cargo Cranes

ASEA Hagglands, Inc. is offering a free, 32-page full-color booklet on their extensive range of cargo cranes.

The handsomely soft-covered publication is oversized and features several large, outstanding full-color photographs of some of Hagglands' 300 standard type cargo cranes.

The text, which is printed on a high quality paper, quotes several maritime corporation executives, officers, engineers and dock personnel on the advantages of owning and operating a crane made by Hagglands. The text is broken into over a dozen articles with such titles as "Not Every Shipowner Realizes the Economics of Cargo Handling," "Precision in Cargo Handling is Just as Important as Speed," "When it Comes to Easy Handling, Hagglands is One of the Best Cranes Around," and "Quality Translates Into an Attractive Bottom Line."

In addition, the booklet also includes a four-page fold-out section featuring a full-color cutaway drawing of a Hagglands' cargo crane. In the fold-out section, there is a listing of the types of cranes that Hagglands offers. There is the S-Crane, for installation as service cranes on all types of vessels with a safe working load (SWL) of 3-10 tons; H-Cranes, for fast cargo handling (in excess of 50 m/min at full load) on small ships, with an SWL of 12-20 tons; G-Cranes, which are said to be the most popular crane type any-

where in the world, and which are used for bulk cargoes and containers and have an SWL of 20-60 tons; K-Cranes, which are bulk cargo cranes with mechanical grabs—these reinforced, high-output units are made for 24-hour operation and have an SWL of 25 tons; L-Cranes, which are special container cranes with very compact installation dimensions to maximize container capacity on board and which are said to be the only special container crane with all machinery fully enclosed and with internal entry (it has an SWL of 25-40 tons); Gantry Cranes, which are built to suit any ship; Off-shore Cranes, with an SWL of up to 200 tons and are used for drilling rigs, service and diving rigs and MSV platforms; Twin Cranes, which use Hagglands' H, G and L cranes for tandem installation to double lifting capacity; and Team Cranes®, which are used for two-point attachment for long loads or for really heavy work, up to 240 tons—use single or twin cranes operated in coordination.

The booklet says that Hagglands offers the most extensive range of cranes anywhere in the world. A total of about 300 cranes, if all variants are included. The publication also states that "if 300 standard types aren't enough, we'll design and build number 301."

Furthermore, the booklet describes Hagglands' optional four-year guarantee which would extend their product guarantee, and provide extra protection against unforeseen expenditures.

For a free copy of this attractive booklet from Hagglands,

Circle 77 on Reader Service Card



**Supply and Services  
Canada**

**Approvisionnement et  
Services Canada**

### FOR SALE

Canadian Coast Guard Patrol, Search and Rescue Vessel CCGS "DARING", steel hulled, built 1958

Dimensions:	Length	54.25 metres
	Breadth	8.84 metres
	Draft	2.90 metres
Displacement:		676 tonnes
Power:		1.982 kw
Fuel Capacity:		213 tonnes
Max. Cruising Speed:		16.5 knots
Range		4,000 nautical miles
Main Equipment:		Diesel - 2 shafts

**Location:** Halifax, Nova Scotia, Canada

**For additional information, contact:**  
**SUPPLY AND SERVICES CANADA**  
 Disposal Operations  
 Ottawa, Ontario, K1A, 0S5 Canada  
 Telephone (819) 994-0074, Ext. 313/309  
 Telex: 053-3703



Circle 304 on Reader Service Card

# FOR MORE INFORMATION ON EQUIPMENT AND SERVICES ADVERTISED IN THIS ISSUE

CIRCLE THE APPROPRIATE NUMBER ON READER SERVICE CARD OPPOSITE

ADVERTISER	EQUIPMENT CIRCLE /SERVICE NO.	ADVERTISER	EQUIPMENT CIRCLE /SERVICE NO.
ADVANCED STRUCTURES	DOORS/PANELS 245/246	HITACHI ZOSEN	SHIPBUILDING/REPAIR 106
ATKINSON DYNAMICS	COMMUNICATIONS 190	MCALLISTER BROS	TOWING/TRANSPORTATION 313
BAILEY CONTROLS	VESSEL CONTROLS 170	HOSE-MCANN	COMMUNICATIONS 299
BARDEX	SHIFTLIFT SYSTEMS 205	MARINE TRAVELIFT	MOBILE HOISTS 119
BATH IRON WORKS	SHIPBUILDING SYSTEMS 140	MECO	WATER TREATMENT 121
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HIGH STRENGTH QA STEEL, INC	STEEL 101	G J WORTELBOER	ANCHORS/WINCHES/CHAINS 321

## \$23.6-Million Navy Contract Awarded Vitro Corporation

A \$23,610,225 cost-plus-fixed-fee contract for computer program and system documentation for the Initial Operational Capability (IOC) ship CG-26 is being awarded Vitro Corporation of Silver Spring, Md. Work will be performed in Silver Spring, and is expected to be completed in September 1989. At the end of the current fiscal year, \$1,200,000 of the contract funds would have expired. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-5140).

## Carrier Transicold Donates Air Conditioning Units To Cousteau Vessel



Paul Clobridge, left, manager, service parts, United Technologies' Carrier Transicold, and Jacques Cousteau discuss marine air conditioning technology in the cabin of the Alcyone.

United Technologies' Carrier Transicold Division recently donated two water source heat pump systems to The Cousteau Society (Fondation Cousteau) to meet the cabin environmental needs of Jacques Cousteau's new experimental windship, the Alcyone. The two water source heat pump systems will provide the vessel with its only source of heating and cooling.

The Alcyone is an all-aluminum vessel built for the high seas. It is designed with two Turbosail™ (Turbovoile) units that utilize wind as a propulsion source.

The Turbosail system is designed to cut fuel costs for commercial vessels by 15 to 30 percent, depending on the routes sailed and winds encountered. The ship includes a pair of diesel engines for primary power.

The 103-foot-long Alcyone is equipped with a

pair of Carrier 50VQ048 water source heat pump systems. In addition to providing in-cabin comfort for the 12 crew members, the vertically installed Carrier air conditioning helps maintain a proper indoor temperature for a variety of electronic, radar and computer research equipment on-board the Alcyone. Captain Cousteau was pleased with the air conditioning on the ship's recent maiden voyage, adding that without the system the ship would have felt like a "World War II submarine."

Energy conservation was a critical factor in construction of the windship. Due to electrical load requirements for navigation aids, lighting and other functions, maximum generator capacity for the air conditioning was 6 kw. Carrier Transicold specified the two highly efficient, 4-ton, corrosive resistant systems and specially adapted both units to marine configurations. Carrier also provided shipboard spare parts.

Employees at Carrier's Bramalea, Ontario, Canada manufacturing facility have signed a testimonial for Captain Cousteau citing their pride in building the Carrier units delivered to him. The testimonial will be presented to Captain Cousteau by Stephen Munn, president, Carrier Transicold, at The Cousteau Society headquarters in Norfolk, Va.

For additional information on the windship Alcyone, refer to article entitled "Cousteau's Experimental Windship 'Alcyone' Arrives In New York," on page 12 in the July 16 issue of MARITIME REPORTER.

For a free catalog on all Carrier Transicold products,

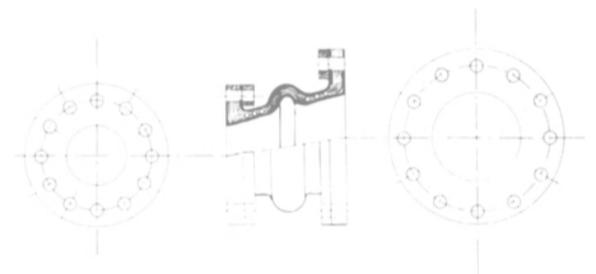
Circle 46 on Reader Service Card

## Dravo Wellman Gets Order From Tampa Electric For Continuous Ship Unloader

Dravo Wellman Company, a division of Dravo Corporation of Pittsburgh, has been awarded a contract by Tampa Electric Company to design and construct a slewing type continuous ship unloader for the utility's Tampa, Fla., generating station. To be designed with a high degree of programmability, the unit will be capable of remote-controlled unloading of coal from ships and oceangoing barges at a rate of 2,300 tons per hour. Vessels of up to 36,000 dwt will be accommodated.

The unloader will incorporate new belt technology developed by Dravo Wellman, reducing its total weight and eliminating the need for any major shoreside modifications. Completion of the new unit is scheduled by the end of 1986.

## Unaflex Introduces 'Supreme' Tapered Expansion Joints —Literature Available



Cross section of the Unaflex "Supreme" Tapered Expansion Joint.

Unaflex Rubber Corporation, Ft. Lauderdale, Fla., recently announced the availability of its "Supreme" tapered expansion joints in reducing type configurations. The joints are available for pressure or vacuum applications found in heating/air-conditioning and ventilating systems, marine systems, sewage treatment plants, power generating plants and many industrial piping systems.

"Supreme" tapered expansion joints are used to connect pipelines of unequal diameters, whether parallel or offset (concentric or eccentric) and even with an initial misalignment of less than 1/8 inch. The "Supreme" expansion joint absorbs sound, vibration and movement in piping systems.

The joints are supplied with 125-pound drilled duck and rubber flanges as standard, but are available with special drilling and non-standard flanges. Other variations include: open- or filled-single or multiple arches; special wide arches; or no arch at all. A wide variety of elastomers for handling fuels, chemicals, water, oils, slurries, etc. is available, including Viton® and Teflon®.

For more detailed information and free literature,

Circle 51 on Reader Service Card

# 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 20 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) 477-6700.

## AIR COMPRESSORS

Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127

Squire-Cogswell Company, 3411 Commercial Ave., Northbrook, IL 60062

## AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

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

Flakt AB, Box 8862, S-40272, Gothenburg, Sweden

Stal Refrigeration AB, Butangsgatan 16, S 601 87 Norrköping, Sweden  
Carrier Transicold Division, Carrier Corp., P. O. Box 4805, Syracuse, NY 13221

## ANCHORS AND CHAIN

Baldt Incorporated, P.O. Box 350, Chester, PA 19016

G.J. Wortelboer Jr. B.V., Eemhavenstraat 4, P.O. Box 5003, 3008 AA Rotterdam, Netherlands

## ANODES—Cathodic Protection

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

Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083

Federal Harco, P.O. Box 40310, Houston, TX 77240

Wilson, Walton International, Inc., 66 Hudson St., Hoboken, NJ 07030

## BALLASTS

Genstar Stone Products Co., Executive Plaza IV Hunt Valley, MD 21031

## BASKET STRAINERS

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

## BEARINGS—Rubber, Metallic, Non-Metallic

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

Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, OH 44309

Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

Thomson-Gordon Limited, 3225 Mainway, Burlington, Ontario, Canada L7M 1A6

Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

## BLASTING—Cleaning—Equipment

Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989

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

E.I. DuPont de Nemours & Co., Inc., Starblast Division, Room X39186, Wilmington, DE 19898

Key Houston Division of Jacksonville Shipyards, 13911 Atlantic Blvd., Jacksonville, FL 32225

## BOILERS

Combustion Engineering, Inc., Windsor, CT 06095

Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

Boiler Tube Company of America, P.O. Drawer 517, Lyman, SC 29365

Murray Tube Works, P.O. Drawer 517, Lyman, SC 29365

Senior Green Economizers, P.O. Drawer 517, Lyman, SC 29365

## BOILER CLEANING

Asea Stal, 50 Chestnut Ridge Rd., Montvail N.J. 07645

## BROKERS

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153

ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401

Mowbray's Tug & Barge, 21 West St., New York, NY 10006

Western Maritime, 701 B Street, San Diego, CA 92101

## BRONZES—COMMEMORATIVE

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

## BUNKERING SERVICE

Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152

Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022

National Marine Service Inc. (Transport Div.), 1750 Brentwood Blvd., St. Louis, MO 63144

## CARGO HANDLING EQUIPMENT

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

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

## CASTINGS/FORGINGS

NKS Industria Pesada, Grupo Industrial, Reforma 404, 140 Piso, Mexico, D.F. 06600 U.S. REP.—Lexington Transport (New York) Inc., 551 Fifth Ave., Room 910, New York N.Y. 10017

## CHOCKING SYSTEMS

Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, PA 18936

## CLOSURES—Marine

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

## COMPUTERIZED INFORMATION SYSTEMS

Marine Management Systems, Inc., 102 Hamilton Ave., Stamford, CT 06902

Maritime Data Network, Ltd., 102 Hamilton Ave., Stamford, CT 06902

Military Contract Information Service, Inc. Dist. by Maritime Reporter/Engineering News, 118 East 25 St. N.Y. N.Y. 10010

TIMSCO, 622 Azalea Rd., Mobile, AL 36609

Veson Systems, 29 Broadway, Suite 1002, New York, NY 10006

## CONDENSERS

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

## CONTROL SYSTEMS—Monitoring

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

ASEA, Inc., 4 New King St., White Plains, NY 10604

Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Biospherics Inc., 4928 Wyaconda Rd., Rockville, MD 20852

Cooper Energy Services, Mount Vernon, OH 43050

Ergon, Inc., P.O. Drawer 1639, Jackson, MS 39205

Failsafe Motor/Generator Protector, Marine Safe Electronics Ltd., 101 Jardin Dr., Unit 24/25, Concord, Ontario, Canada L4K 1B6

Indikon Corp., 26 New St., Cambridge, MA 02138

Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738

Leslie Co., 401 Jefferson Rd., Parsippany, NJ 07054

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

Marine Safe Electronics, 37 Staffern Drive, Concord, Ontario, Canada, L4K 2X2

Pandel Instruments Inc., 2100 N. Hwy. 360, Grand Prairie, TX 75050

Propulsion Systems, Inc., 21213 76 Ave., Kent, WA 98032

Teleflex Inc., 771 First Ave., King of Prussia, PA 19406

Thomas Products Ltd., Flow Switch Div., 987 West St., Southington, CT 06489 1023

Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway

## COUPLINGS

CamLock Flange Sales Corp./Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

## CRANE BUMPERS

Kastalon Inc., 4101 West 123rd St., Alsip, IL 60658

## CRANES—HOISTS—DERRICKS—WHIRLEYS

Allied Marine Crane, P.O. Box 23026, Portland, OR 97233

Appleton Marine, P.O. Box 2339, Appleton, WI 54913

ASEA Hagglunds Inc., P.O. Box 7949, The Woodlands TX 77380

HIAB Cranes & Loaders Inc., 258 Quigley Boulevard, New Castle, DE 19720

Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235

J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany

CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030

Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202

## DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134

Schoellhorn Albrecht, Div. of St. Louis Ship, 3460 So. Broadway, St. Louis, MO 63118

## DECKING—GRATING

Aligned Fiber Composites, Highway 52, South Chatfield, MN 55923

International Grating, 7625 Parkhurst, Houston, TX 77028

Selby, Battersby & Company, 5220 Whiby Ave., Philadelphia, PA 19143

## DIESEL ACCESSORIES—CYLINDER LINERS

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

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

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

Transamerica Delaval Engine & Comp. Div., 550 85th, Oakland, CA

## DIESEL ENGINE—Spare Parts & Repair

Alban Engine Power, Inc., 6455 Washington Blvd., Baltimore, MD 21227

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021

Caterpillar Tractor Co. 100 N.E. Adams Street, Peoria, IL 61629-2325

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

Cummins Engine Co., Inc., Mail Code 40642, Box 3005 Columbus, IN 47202-3005

Granges Repair Service GMBH, Gutenbergring, 64 D-2000 Hamburg-Norderstedt TX.0215553

Schoonmaker Service Parts Co., Inc., P.O. Box 757, Foot of Spring St., Sausalito, CA 94966

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

Transamerica Delaval Engine & Comp. Div., 550 85th, Oakland, CA

## ELECTRICAL EQUIPMENT

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

Newmar, P.O. Box 1306, Newport Beach, CA 92663

Sigmaform Corporation, P.O. Box 515, Richboro, PA 18954

Stewart & Stevenson Services, Inc.—MWM, P.O. Box 1637, Houston, TX 77251-1637

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

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

## ELECTRONIC SYSTEMS

Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217 TX: 125327

## EMULSIFICATION SYSTEMS

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

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

Todd Marine Systems, 61 Taylor Reed Place, Stamford, CT 06906

## ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360

## EQUIPMENT—Marine

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

ASEA Hagglunds Inc., P.O. Box 7949, The Woodlands TX 77380

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

Beaver Tool Co., 1525 SE 29th St., Box 94717, Oklahoma City, OK 73143

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

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

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

Genstar Stone Products Co., Executive Plaza IV, Hunt Valley, MD 21031

Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127

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

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

Raytheon Service Co., 100 Roessler Rd., Suite 103, Glen Burnie, MD

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

Viking Life Saving Equipment, 3305 N.W. 37th Street, Miami, FL 33142

Waterman Supply Co., Inc., 2815 E. Anaheim Street, P.O. Box 596, Wilming

ton, CA 90748

## EVAPORATORS

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

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

Atlas-Danmark Marine & Offshore, Baltorpvej 154, KD-2750 Billerup, Copenhagen DENMARK

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

## FANS—VENTILATORS—BLOWERS

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

Hartzell Fan Company, 901 Downing Street, Piqua, OH 45356

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

Jon M. Liss Associates, Inc., 411 Borel Ave., P. O. Box 5554, San Mateo, CA 94402

## FASTENERS

Hardware Specialty Co., Ships Division, 48-75 36th St., Long Island City, NY 11101

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

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

## FILTERS

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

## FINANCING—Leasing

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

JMJ Marine Investors, P.O. Box 51509, New Orleans, LA 70151

## FIRE PROTECTION, DETECTION & ALARM SYSTEMS

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

Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127

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

## 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

CamLock Flange Sales Corp./Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

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

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

## GAUGES

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

## HEAT EXCHANGERS

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

Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

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

## HOLD LINERS

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

## HULL CLEANING

Aurand 1270 Ellis Street, Cincinnati, OH 45223

Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989

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

Petroferm Marine, Route 2, Box 280, Amelia Island, FL 32034

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

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

Seaward International, 5409 Beamon Rd., Norfolk, VA 23513 TX: 710-881-1182

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

## HYDRAULICS

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

Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116

Cunningham Marine Hydraul

**JOINER—Watertight Doors—Paneling**

Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729  
 Astech, 3030 S. Red Hill Ave., Santa Ana, CA 92711  
 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 COOLERS**

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

**LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights**

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039  
 Perko Inc., P.O. Box 6400D, Miami, FL 33164  
 Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209

**LINE BLINDS**

Stacey/Fetterolf Corp., P.O. Box 103, Skippack, PA 19474

**MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING**

A-C Brake Co., 308 E. College St., Louisville, KY  
 CMH Heleshaw, Inc., 201 Harrison St. Hoboken NJ. 07030  
 Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202  
 Jered Brown Brothers Inc., 1300 Coolidge, P.O. Box 2006, Troy, MI 48007  
 American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080  
 Goltens, 160 Van Brunt St., Brooklyn, NY 11231  
 Rosan, Inc., 2901 West Coast Hwy., Newport Beach, CA 92663

**METALS**

Bayou Steel Corp., P.O. Box 5000, Laplace, LA 70068

**MINING**

Rocky Mountain Energy, 10 Longspeake Dr., Box 2000, Broomfield, CO 80020

**NAME PLATES—BRONZE—ALUMINUM**

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

**NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS**

ACB Industries, 3400 Camp Street Suite 100, New Orleans, LA 70130  
 Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202  
 Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356  
 American Hydromath Inc., Box 2450, Donby-Pawlet Road, Pawlet, VT 05761  
 American Systems Engineering Corp., P.O. Box 4265, Virginia Beach, VA 23454  
 Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, MD 20015  
 Art Anderson Associates, 148 First St., Bremerton, WA 98310  
 B.C. Research, 3650 Westbrook Mall, Vancouver, B.C. Canada V6S 2L2  
 Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130  
 C.A.C.I., Inc., 1815 No. Fort Myer Dr., Arlington, VA 22209  
 C.D.I. Marine Co., 5520 Los Santos Way, Suite 600, Jacksonville, FL 32211  
 C.T. Marine, 18 Church Street, Georgetown, CT 06829  
 Phillips Cartner & Co., Inc., 203 So. Union St., Alexandria, VA 22314  
 Century Engineering, Inc., 32 West Rd., Towson, MD 21204  
 Childs Engineering Corp., Box 333, Medfield, MA 02052  
 Crandall Dry Dock Engrs., Inc., 21 Polttery Lane, Dedham, MA 02026  
 Crane Consultants Inc., 15301 1st Ave., So. Seattle, WA 98148  
 C.R. Cushing, 18 Vesey St., New York, NY 10007  
 Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129  
 Designers & Planners, Inc., 1725 Jefferson Davis Highway, Suite 700, Arlington, VA 22202

ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401

Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706

Capt. R.J. Fearson & Associates, P.O. Box 983, Tampa, FL 33601  
 Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, NY 11050

Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001  
 John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110  
 The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104

Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480

Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107

Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331

J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005

Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921

HydroComp, Inc., 10 Cuts Road, P.O. Box 865, Durham, NH 03824

Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201

R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073

Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, MD 21227

James S. Krogen & Co., Inc., 3333 Rice St., Miami, FL 33133

Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225

Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063

John J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048

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 Technical Associates, Inc., 95 River Rd., Hoboken, NJ 07030

Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217

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

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

Q.E.D. Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455

M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105

Sargent & Herkes Inc., 611 Gravier St., New Orleans, LA 70130

Schmah and Schmah, 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 & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202

Seaworthy Systems, Inc., 28 Main St., Essex Ct. 06426; 17 Battery Place, N.Y. N.Y. 10004, P.O. Box 205, Solomons, MD 20688

Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 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. Stroschein Associates, 666 Old Country Rd., Garden City, NY 11530  
 Richard R. Taubler, Inc., 610 Carriage La., Dover, DE 19901  
 Thomas Coudon Associates, 6655 Amberton Drive, Baltimore, MD 21227  
 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**

Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080  
 British Telecom International, The Holborn Centre, 120 Holborn, London EC1N 2TE

CMC Communications Inc., 5479 Jetport Industrial Blvd., Tampa, FL 33614  
 COMSAT World Systems, 950 L'Enfant Plaza, S.W., Suite 6151 Washington, DC 20024

A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
 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

ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202

Japan Radic Co., Ltd., Akasaka Twin Tower, 17-22, Akasaka 2-chome, Minato-ku, Tokyo 107, Japan U.S. Rep: 405 Park Ave., New York, NY 10022

Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738

Kongsberg Vopenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway

Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065

Micrologic, 20801 Dearborn, Chatsworth, CA 91311

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

Racal Marine Inc., 1 Commerce Blvd., Palm Coast, FL 32037-0029

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

Robertson Autopilot, 400 Oser Ave., Hauppauge, NY 11738

S.P. Radio A/S, DK 9200 Aalerg, Denmark

Sperry Corporation, Great Neck, NY 11020

Standard Communications, P.O. Box 92151, Los Angeles, CA 90009

Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA

Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067

Tracor Instruments Austin Inc., 6500 Tracor Lane, Austin, TX 78725

**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, Inc., 4928 Wyaconda Rd., Rockville, MD 20852

Butterworth Inc. (USA), 3721 Lopus Dr., P.O. Box 18312, Houston, TX 77223-9989

Butterworth Systems (UK), 1233 Beddington Lane, Croydon CR9 4NX, England

Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647

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

Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127

Hyde Products, Inc., 810 Sharon Dr., Westlake, OH 44148

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

NALCO Chemical Co., 2901 Butterfield Road, Oak Brook, IL 60521

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323

**PAINTS—COATINGS—CORROSION CONTROL**

American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111

Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754

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, Bontonn, NJ 07005

E.I. DuPont De Nemours & Co., Inc. Nemours Bldg., Rm. N-2504-2, Wilmington, DE 19898

DuPont Co. MPS, Room X40750, Wilmington, DE 19898

Esgard, Box 2698, Lafayette, LA 70502

Farboil Company, 8200 Fischer Rd., Baltimore, MD 21222

Hempel Marine Paints, Inc., Foot of Currie Ave., Wollington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181

International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083

Jaeleg Paint Company, Inc., 1012 Darby Road, Havertown, PA 19083

Jotun Marine Coatings Inc., 175 Penrod Court N&O, Glen Burnie, MD 21061

Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650

Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203

Selby Battersby & Co., 5220 Whitby Ave., Philadelphia, PA 19143

**PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings**

Amermarine International, P.O. Box 9205, Dundalk, MD 21222

Deutsch Metal Components, 14800 S. Figueroa St., Gardena, CA 90248

Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063

Knights Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567

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

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

Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105

Armco 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

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

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

Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629

Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511

Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520

Combustion Engineering, Inc., Windsor, CT 06095

Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057

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  
 General Motors, Electro-Motive Division, LaGrange, IL 60525  
 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

Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323

M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeby, Denmark

MTU of North America, One E. Putnam Ave., Greenwich, CT 06830; 10450 Corporate Dr., Sugarland, TX 77478; 2945 Railroad Ave., Morgan City, LA 70203, 180 Nickerson St., Seattle, WA 98109; 1730 Lynn St., Arlington, VA 22209

MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046

Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507

Mitsubishi Kakoki Kaisha LTD, Mita Kokusai Bldg. 4-28 Mita 1-chome, Minato-ku Tokyo 108 Japan

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

Skinner Engine Co., P.O. Box 1149, Erie PA 16512

Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637

Telch Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland

Sulzer 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

Ulstein Maritime Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3

Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway

**SHIPBUILDING—Repairs, Maintenance, Drydocking**

Amsterdam Drydock Company, Post Box 3006, 1003 AA, Amsterdam, Holland

Arsenale 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, Valparaiso, Chile, S.A.

Astilleros Unidos De Veracruz, S.A. San Juan Ulua S/N, Apdo. Postal 647 Veracruz, Ver Mexico

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150

Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116

Bath Iron Works Corp., 700 Washington St., Bath, ME 04530

Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235

Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601

Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018

Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1 (In US)-Blohm & Voss CO, Springfield, N.J.

Blount Marine Corp., P.O. Box 368, Warren, RI 02885

Boston Whaler Commercial Div., 1149 Hingham St., Rockland MA 02370

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

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

Chesapeake Shipbuilding Inc., 710 Fitzwater St., Salisbury, MD 21801

Conrad Industries, P.O. Box 790, Morgan City, LA 70380

Coast Iron & Machine Works, 5225-7th Street E., Tacoma, WA 98424

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

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

Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231

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

Industrial Marine Engineering Ltd., P.O. Box 172, Suva, Fiji

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

Jeffboat Inc., Jeffersonville, Ind. 47130

Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057

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

Kone Corp. P.O. Box 6 SF-05801 Hyvinkaa, Finland

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

Main Iron Works, Inc., P.O. box 1918, Houma, LA 70361

Marathon LeTourneau Offshore, P.O. Box 61865, Houston, TX 77208

Marinette Maine Corporation, Marinette, WI 54143

Mitsubishi Heavy Industries, Ltd., 5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo, 100 Japan

MonArk Boat Co., P.O. Box 210, Monticello, AR 71655

Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077

Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552

National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048

National Steel & Shipbuilding Corp., San Diego, CA 92112

Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089

Neorion Shipyards Syros Ltd., Syros, Greece—U.S.A. Agents: Keppel Marine Agencies Inc., 26 Broadway, New York, NY 10004, 6420 Richmond Ave., Houston, TX 77057

Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607

Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249

Pennsylvania Shipbuilding, P.O. Box 442, Chester, PA 19016

Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22

Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905

Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea

Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113

Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601

Thomas Marine, 37 Bransford St., Patchogue, NY 11772

Todd Shipyards Corp., 1 State St. Plaza, New York, NY 10004

Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316

Vanguard Services, P.O. Drawer A, New Johnsonville, TN 37134

Verreault Navigation Inc., Les Mechains, Quebec, G0J 1T0

Waller Marine, Inc. 11777 Katy Freeway/Suite 395, Houston, TX

Westport Shipyard, Inc., P.O. Box 308, Westport, WA 98595

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

**SHIPPING—PACKING**

Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040

**SIMULATOR TRAINING**

Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371

**SILENCERS**

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

**SMOKE INDICATORS**

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, NJ 07928

**STUFFING BOXES**

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

Smith-Meeker Engineering Co., 157 Chambers St., New York, N.Y. 10007

**SURVEYORS AND CONSULTANTS**

Advanced Technologies Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102

Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903

Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073

M.A. Stream Associates, Inc., 400 Second Ave. W., Seattle, WA 98119

**TANK 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

Gamlen Marine Division, 375 Allwood Rd., Clifton, NY 07013

Gamajet Equipment Div., Sybron Chemicals Inc., 121 S. Maple Ave., So. Francisco, CA 94080

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

**TANK LEVELING INDICATORS**

American United Marine Corp., 5 Broadway, Route 1, Sagas, MA 01906

Kongsberg North America Inc., 400 Oser Ave., Hauppauge, NY 11738

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

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

**TORSIONAL VIBRATION SPECIALISTS**

T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2

**TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.**

Bay Houston Towing Co., 2243 Millford, P.O. Box 3006, Houston, TX 77253

Curtis Bay Towing Co., Mercantile Bldg., Baltimore, MD 21202

**Magee Succeeds Timm As Maersk Line District Sales Manager**

**Fredrick C. Timm Jr.**, former sales manager of Maersk Line's district office in Danbury, Conn., has retired and will be succeeded by **Stephen P. Magee**, who has been with Maersk New York sales as an account executive since 1980 and will now be responsible for full sales/service coverage of Connecticut and Westchester County, N.Y.

Mr. Timm joined Maersk in 1975 to open the first New England Maersk Line Agency as regional sales manager, following 20 years as president of Timm Steamship Company, Maersk's first sub-agent for the State of Connecticut and Westchester County. During this time the agency successfully expanded its coverage to include all of New England and the upper half of New York State.

Jan Erik Dyvi A/S, P.O. box 454, Sentrum, Norway

McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004

McDonough Marine Service, P.O. Box 26206, New Orleans, LA

Midland Affiliated Co., 580 Walnut St., Cincinnati, OH 45201

Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, NY 10048

National Marine Service, Transport Div., 1750 Brentwood Blvd., St. Louis, MO 63144

Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767; Walker Boat Yard, P.O. Box 729, Port Allen, LA

Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, TX 77002

Turecamo Coastal & Harbor Corp. 1 Edgewater Plaza Staten Island, N.Y. 10305

**VALVES AND FITTINGS**

Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139

Baily, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056

Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902

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

Jamesbury Corp. 640 Lincoln St., Worcester, MA 01605

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

Nupro Co., 4800 E. 345th St., Willoughby, OH 44094

Parker Hannifin Corp. Rotary Actuator Div., 9948 Rittman Rd., Wadsworth, OH 44281

Pittsburgh Brass Manufacturing, Sandy Hill Rd., R.D. 6 Box 387-A, Irwin, PA 15642

Sno-Trik Co., 9760 Shepard Rd., Macedonia, OH 44056

Stacey/Fetterolf Corporation, P.O. Box 103, Skippack, PA 19474

Stockham Valves & Fittings, Box 10326, Birmingham, AL 35202

Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236

Tate Andale Inc., 1941 Landsdowne Rd., Baltimore, MD 21227

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, NJ 07928

Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186

Whitely Co., 318 Bishop Road, Highland Heights, OH 44143

William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101

Zidell Explorations, Inc. (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

**VESSEL OWNER/OPERATOR**

Wallenius Lines, P.O. Box 17086, S-10432 Stockholm, Sweden

**VIBRATION ANALYSIS**

DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110

**WATER PURIFIERS**

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

Atlas-Danmark Marine & Offshore Baltorpei, 154 DK-2750 Ballerup, Copenhagen, Denmark, TX 35177 Atlas DK

Drew Chemical Corporation, One Drew Chemical Plaza, Boonton, NJ 07005

Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

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

Marland Environmental Systems, P.O. Box 501, Great Falls, VA 22066

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

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

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

**WEATHER CHART RECORDERS**

Alden Electronics, 1145 Washington St., Westborough, MA 10581

**WELDING**

KSM Fastening Systems Inc., 301 New Albany Rd., Moorestown, NJ 08057

Metallizing Co. of America, Inc., 321 So. Hamilton, Sullivan, IL 61951

Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912

**WELDING EQUIPMENT**

Enerjee Ltd., 32 S. Lafayette Ave., Morrisville, PA 19067

**WINCHES AND FAIRLEADS**

Fritz Culver, Inc., P.O. Box 569, Covington, LA 70434

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, W. Biloxi, MS 39531

Nashville Bridge Co., P.O. Box 239 Nashville TN 37202

Schoellhorn Albrecht, Div. of St. Louis Ship, 3460 So. Broadway, St. Louis, MO 63118

Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

**WINDOWS**

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550

**WIRE AND CABLE**

AMP Special Industries, P.O. Box 1776, Southeastern, PA 19399

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, IL 60076

Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008

Delco Wire & Cable, Inc., 257 Rittenhouse Circle, Keystone Industrial Park, Bristol, PA 19007

Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055

Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

**WIRE ROPE—Slings**

Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008

Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018

A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

**ZINC**

The Platt Bros. & Co., Box 1030, Waterbury, CT 06721

Smith & McCroken, 153 Franklin St., New York, NY 10013

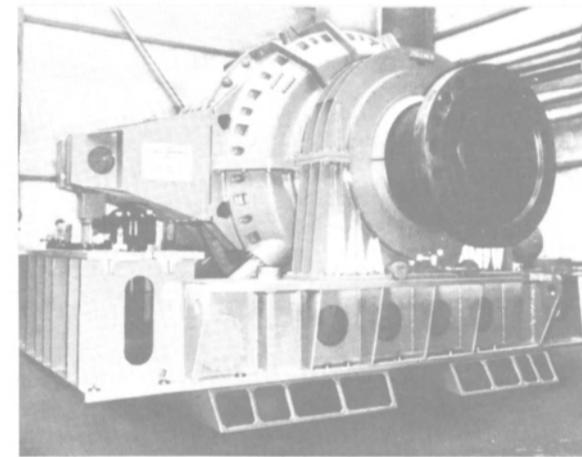
**Bailey Controls To Present Energy Management Seminar In Boston On September 9**

Bailey Controls will present a seminar entitled "Energy Management in Industry," conducted by Dr. Azmi Kaya at the Holiday Inn Peabody in Boston, Mass., on September 9.

The one-day seminar will cover such areas as power generation, cogeneration and energy recovery. Lecture topics include Scope & Benefits of Energy Management, Energy Conservation and Management Opportunities, Methods of Energy Management, and Implementation and Case Studies.

Dr. Kaya is professor of mechanical engineering at the University of Akron and an officer of the Instrument Society of America and the American Society of Mechanical Engineers. As consultant to Bailey Controls, Dr. Kaya has contributed to the development of advanced energy management control and optimization techniques implemented by Bailey systems.

The seminar fee is \$250 per person, payable in advance, and covers seminar materials and lunch. To register or for more information, write the E.G. Bailey Training Center, 2882 Cricket Lane, Willoughby Hills, Ohio 44094, or call (in Ohio) 216-943-5533, (outside Ohio toll free) 800-447-0111.

**World's Largest Dynamometer Will Test Sulzer Diesels**

The largest dynamometer in the world (shown above) was recently installed at the Kobe works of Ishikawajima-Harima Heavy Industries (IHI) in Japan. Constructed by Zollner GmbH of Kiel, West Germany, it will be used for the final acceptance testing of Sulzer large-bore diesel engines being built under license at the Japanese facility.

Hydraulic dynamometers from Zollner operate according to the Foettinger principle. The type 22 n 310 F can accommodate power ratings of up to 100,575 bhp (75,000 kw) and speeds of up to 200 rpm. It is controlled electronically with an overall accuracy of plus or minus 0.2 percent.

Sulzer large-bore diesels with ratings of up to 54,391 bhp (40,560 kw) are employed chiefly as prime movers for oceangoing ships, as well as for power-generating duties in stationary installations. Some 225 of these power plants with thermal efficiencies of more than 50 percent are produced annually, of which about 33 are built by IHI.

For free literature on the Sulzer large-bore diesel engines,

Circle 50 on Reader Service Card

## Mitsui Shipyard Delivers Bulker To Japanese Owner



The 42,489-dwt bulk carrier Yuko Maru (shown above) was delivered recently by the Chiba Works of Mitsui Engineering & Shipbuilding Company to her owner, Central Merchant Marine Inc. of Japan.

The new vessel is of the standard 42,000-dwt class bulk carrier developed by MES. She has the latest energy-saving features including a fuel-efficient Mitsui/B&W 6L60MCE main diesel engine with a maximum continuous rating of 8,420 bhp at 102 rpm. A Mitsui Integrated Duct Propeller further improves propulsion efficiency.

The new vessel has an overall length of 600 feet, beam of 100 feet, depth of 51.7 feet, and full-load draft of 36.8 feet. Cargo hold capacity (grain) is 51,026 cubic meters.

She is capable of transporting bulk cement, packaged lumber, steel coils, and containers as well as grain, coal, and ore. Four electro-hydraulic, 25-ton cranes provide cargo-handling efficiency.

The main engine room is designed to permit unmanned operation and, equipped with various automation systems and safety devices, has received the MO notation of Nippon Kaiji Kyokai.

## WABCO Offers Free Brochure On HelmMaster® Control Systems

WABCO Fluid Power, Lexington, Ky., a producer of engineered pneumatic and electro-pneumatic components and systems, is offering a brochure detailing its HelmMaster™ maneuvering control system for workboats.

The HelmMaster provides one-handed control for close maneuvering operations even in rough weather conditions. According to the brochure, the advantages of the new control system are: simplified maneuvering control; improved vessel response; increased safety; and reduced operator strain.

The four-page, color bulletin describes the many benefits and explains the advanced system utilizes one-handed control.

The HelmMaster system consists of a joystick control unit located at the operator's station that communicates electronically through a separate microprocessor control cabinet to the main propulsion, thrusting and steering machinery.

The operator's control unit is a compact weatherproof assembly containing: the friction joystick maneuver lever; rotary heading control knob; an array of mode and function selection buttons, with indicator lights; and a large LCD data display screen.

Graphics throughout the brochure illustrate a typical system configuration, system components and steering machinery that can be handled with standard HelmMaster maneuvering control systems.

To obtain a copy of the free HelmMaster brochure, number A9-154.00,

Circle 52 on Reader Service Card

## John Crane Bulletin Describes New Compact Package Seals



A new bulletin from John Crane-Houdaille, Inc., Morton Grove, Ill., explains the benefits of upgrading sealing with compact Type 88 and Type 88S package seals.

The publication provides sizing information and diagrams illustrating both Type 88 double or tandem package seals (for more hazardous and abrasive application where multiple seal configurations are needed) and Type 88S single package seals (for single seal applications where limited stuffing box space is available).

According to the manufacturer, Type 88 and Type 88S seals are simple to order, install, maintain and repair or replace. Available from any of the 100 John Crane North American branch offices, these seals can be ordered by knowing the shaft or shaft sleeve size.

The manufacturer contends that the seals are simple to install and maintain because they are factory-assembled and require no alterations in

existing equipment. The seals fit most conventional stuffing boxes, and they are said to be field repairable.

To receive a free copy of the John Crane bulletin on their new compact package seals,

Circle 48 on Reader Service Card

## Hayward Expands Duplex Basket Strainer Line —Literature Available



Hayward Industrial Products, Inc., Elizabeth, N.J., recently added a 3-inch and 4-inch duplex plastic basket strainer to their product line. The strainers are made of polyvinyl chloride and contain no metal, and therefore are corrosion-resistant. They will handle flow rates up to 350 gpm.

The advantages of basket strainers are that they have a low flow resistance, while maintaining high dirt-holding capacities. Duplex strainers operate continuously because when one strainer becomes full, the flow may be switched to the other strainer while the first basket is removed, cleaned and replaced. The line never has to be shut down.

The plastic construction does not corrode, therefore the baskets will not contaminate products passing through them. The strainers will be useful in chemical processing, electroplating, photographic, mining, food processing, water treatment, pulp and paper and other industries.

Hayward already produces plastic duplex basket strainers in sizes up to 2 inches. The company feels that the larger 3-inch and 4-inch units will be valuable additions to and will extend the usefulness of plastic piping installations.

The new strainers are rated at 150 psi working pressure and can be furnished with threaded, socket or flanged-end connections. PVC baskets are available with  $\frac{1}{8}$ -,  $\frac{1}{4}$ - or  $\frac{3}{16}$ -inch perforations. For special applications and when extremely fine straining is needed, baskets can be supplied made of Type 316 stainless steel with 100 mesh linings.

For further information on the new Hayward Duplex Plastic Basket Strainers,

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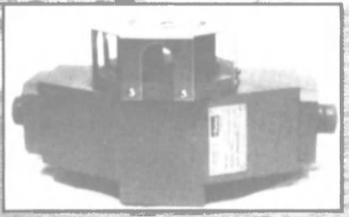
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Circle 341 on Reader Service Card

Maritime Reporter/Engineering News

## Mark Controls Expands SD Butterfly Control Valve Line —Free Literature Available

Mark Controls Corporation's Center Line Series SD butterfly control valve line has been expanded to include the SDT, a heavy duty, 300-psi rated valve. The SDT, as well as the other series SD butterfly control valves, have been designed for low-flow-rate-control applications involving gaseous, liquid or slurry flow media, where tight shutoff is not required. Shutoff leakage capabilities for these valves range from 0.5 percent to 2 percent of the maximum capacity for liquid flow depending on specific materials of construction and temperature parameters.

Series SD butterfly valves are available in standard temperature options of 500°, 850° and 1,200° F, as well as optional configurations for applications up to 1,600° F. All SD Series valves except the SDL and SDM are designed with an outboard combination radial/thrust bearing, which provides easy shaft rotation and allows the valve to be installed with the shaft in either the vertical or horizontal position.

Center Line Series SD valves are wafer style butterfly valves available in sizes ranging from 2 to 36 inches. Standard construction materials are a cast iron body, ductile iron disc and corrosion-resistant steel shaft. The valves are also available in many other material configurations to satisfy the operating parameters of almost any application.

For further information and free literature on the Mark Controls Corporation's Center Line Series SD butterfly valves,

Circle 67 on Reader Service Card

## Fourth SNAME International Maritime Exposition Set For Nov. 13-15 In New York City

The Fourth International Maritime Exposition will be held at the New York Hilton Hotel in New York City on November 13-15, 1985, in conjunction with the 93rd Annual Meeting of The Society of Naval Architects and Marine Engineers.

Industry professionals from around the world and in every phase of maritime life are expected to participate in these meetings. At the 1984 Exposition, 25,000 square feet of floor space was rented to companies that exhibited to 3,251 attendees.

Companies wishing to exhibit during the 1985 Exhibition should get in contact with the management firm, Reber Friel Company, King of Prussia, Pa. 19306, phone (215) 265-0825.

## Shipbuilding Standards Groups Seeking Participants

ASTM Committee F-25 on Shipbuilding, and The Society of Naval Architects and Marine Engineers (SNAME) Panel SP-6 on Marine Industry Standards, are seeking participants to join in their standards development activities.

The two groups are working cooperatively to implement marine industry standards that will result in reduced costs and reduced design, construction, and repair time for marine vessels.

At a recent meeting of F-25 and the SNAME Panel, the objectives of the Department of Defense Value Engineering Committee were dis-

cussed. The DoD is investigating ways to reduce costs and improve quality by adopting ASTM industry standards, wherever possible, in lieu of Navy Military Specifications.

Individuals and organizations interested in the work of Committee F-25 should contact ASTM staff manager **Katharine Schaaf**, ASTM Standards Development Division, 1916 Race Street, Philadelphia, Pa. 19103, (215) 299-5529. Those interested in SNAME Panel SP-6 should contact **Thomas O'Toole**, Bath Iron Works Corporation, Department 56, 700 Washington Street, Bath, Maine 04530, (207) 443-3311, ext. 2943.

## USCG Announces Consolidation Of Three Merchant Marine Technical Branches

The Coast Guard has announced that there will be a consolidation of the Merchant Marine Technical Branches of the Third Coast Guard District in New York, N.Y.; the Eighth Coast Guard District in New Orleans, La.; and the Twelfth Coast Guard District in Alameda, Calif. In addition, a Marine Safety Center will be located in the Washington, D.C., metropolitan area. The plan review duties performed by the consolidated branches will be assumed by the Marine Safety Center.

For further information, contact Lt. Comdr. **Charles D. Bills**, Marine Technical and Hazardous Materials Division (G-MTH-2/12), Room 1216, U.S. Coast Guard Headquarters, 2100 Second Street, SW, Washington, D.C. 20593; (202) 426-2160, or consult the June 20 Federal Register.

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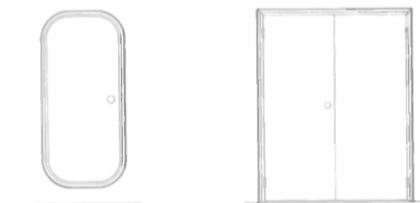


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### Gems Sensors Introduces New Console For Liquid Level Monitoring



Gems Sensors Division, Plainville, Conn., recently introduced new microprocessor-controlled, desktop consoles for use with liquid level monitoring. These units can monitor 16 individual tanks on one panel and signal when alarm points have been reached.

Called the GEMS TD-1000, the receiver can show the level of any tank, one at a time, on a LED digital display built into the front panel. The level transmitters mounted in proximate or remote process tanks are linked to the receiver. Desired tank levels are selected and displayed in addition to the high and low alarms. Alarm settings for all tanks, as well as slosh delay values from 0 to 99 seconds, can easily be set on the keypad.

Installation is simple using only one power supply. The units are also equipped with an RS232C output. Security against unauthorized changes in the alarm setting, slosh delay setting and self-test function is provided. The flexibility of this system permits future upgrade to programmable controllers.

For more information and free literature on the GEMS TD-1000,

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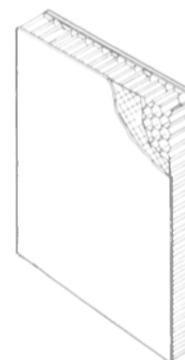
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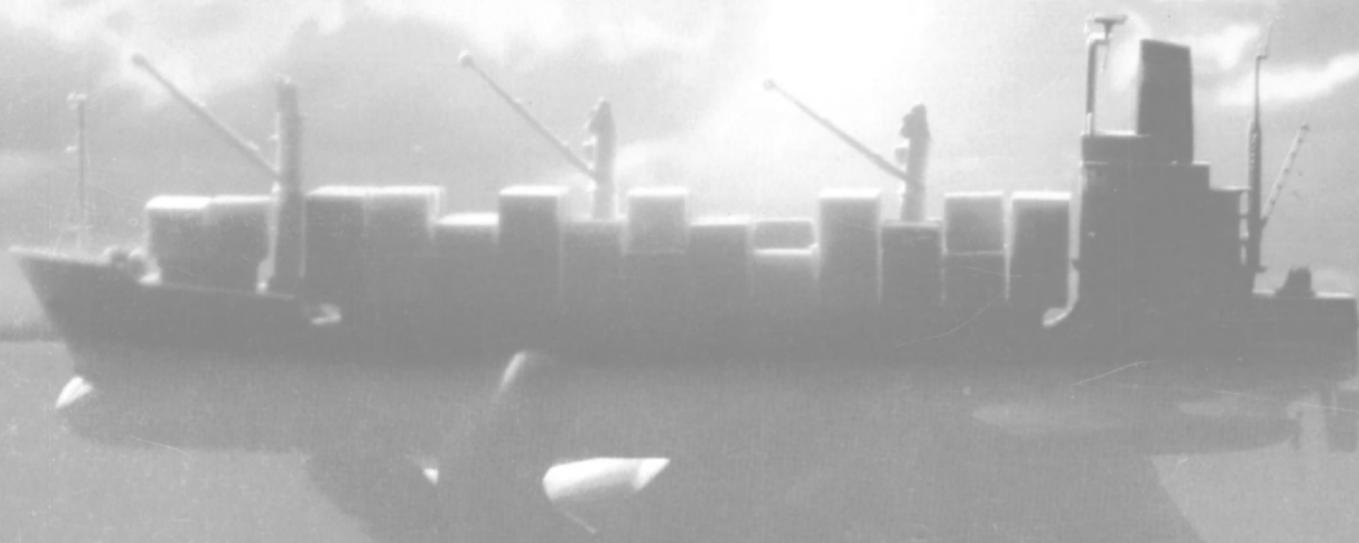
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## Todd Shipyards Corporation

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# Network 90 puts total vessel control at your fingertips.



## Bailey Controls

Bailey NETWORK 90® : A micro-processor-based system so versatile, so adaptable that it delivers what you could only wish for up to now—**total vessel monitoring and control.**

Not just engine room control. But monitoring and/or control of radar, cargo tank level and temperature, inert gas pressure and ballast tank level. Electric control of pumps and valves. Load calculations. Monitoring and alarming for unmanned machinery. The whole ship's log of normally separate control functions—now right at your fingertips. For

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Total-control NETWORK 90. It's for people who want to run a very tight ship very economically. For full details, write us at 29801 Euclid Avenue, Wickliffe, Ohio 44092. Or call us toll-free at (800) 554-9030; in Ohio, (800) 554-9029. Bailey Controls, division of Babcock & Wilcox, a McDermott International company.



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