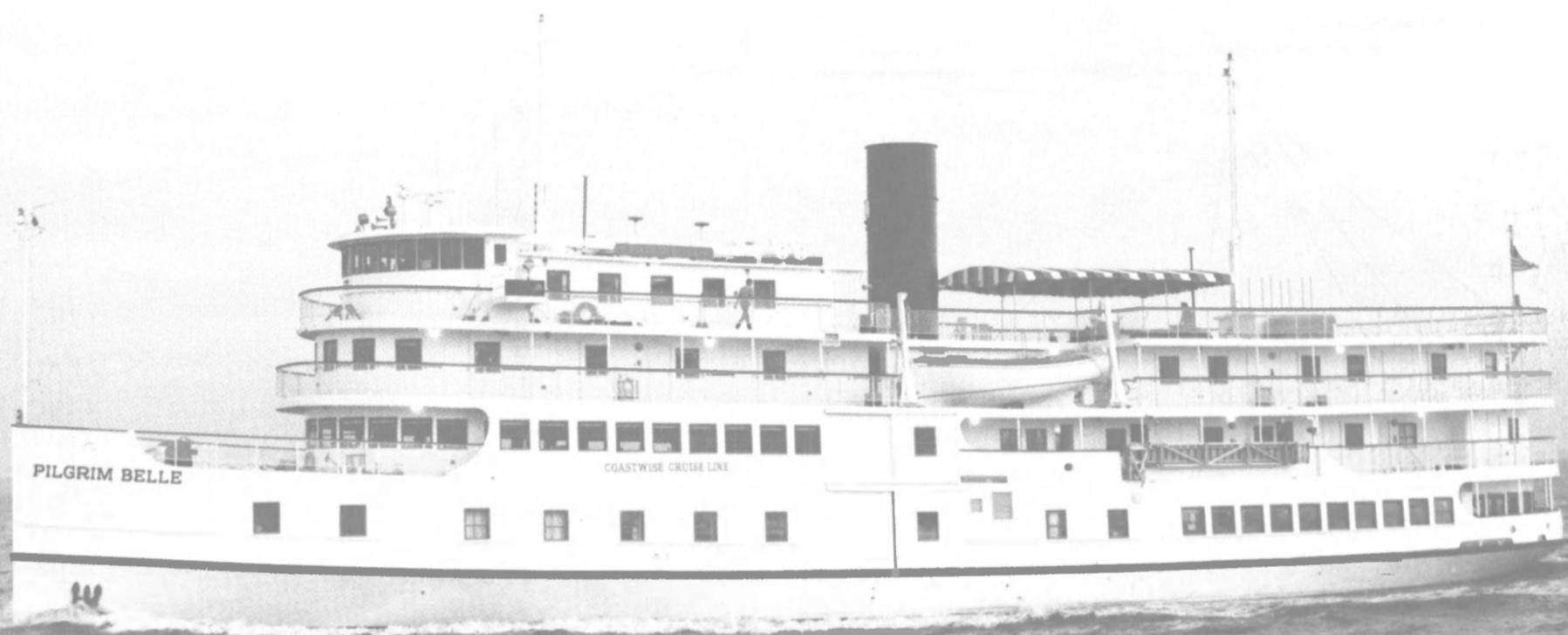


MARITIME REPORTER AND ENGINEERING NEWS



OUTSTANDING OFFSHORE/SHALLOW-DRAFT VESSELS OF 1984

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WORKBOAT INDUSTRY ISSUE
JANUARY 1, 1985



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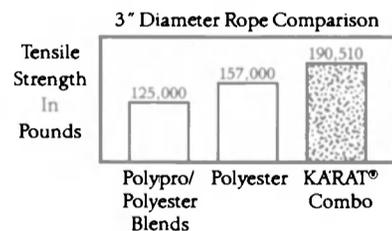
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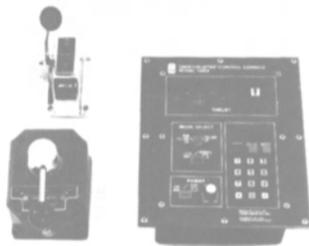


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ON THE COVER

Cover Photo: Aaron Tesney

Outstanding Offshore/ Shallow-Draft Vessels Of 1984

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AWO Industry Report

PAGE 8

Lindstrom Appointed Vice President For General Steamship

Gary W. Lindstrom has been named vice president-southern district by General Steamship Corporation, Ltd. of San Francisco. During the past 15 years he has been involved with the full spectrum of liner shipping. Most recently he was director of marketing-trans-Pacific services for Kerr Steamship Company. Prior to that he held traffic, equipment, and marketing positions with Lykes Bros. Steamship Company and States Steamship Company. He has traveled extensively in the Far East, and while employed by States Lines he lived in Tokyo for four years as owners representative.

U.S. Lines Gets \$14-Million Navy Contract For Charter Of Breakbulk Freighter

United States Lines Incorporated of Cranford, N.J., has been awarded a \$14,178,060 Navy contract for the charter of the breakbulk cargo vessel American Trojan. Delivery port is Subic Bay, Republic of the Philippines. The charter period is 18 months beginning in December 1984. Twenty-five companies were solicited and two offers were received. The Military Sealift command, Washington, D.C., is the contracting activity (N00033-85-C-1001).

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Westinghouse Awarded \$165-Million Navy Contracts For N-Propulsion Components

Westinghouse Electric Corporation, Plant Apparatus Division, Wilkins Township, Pa., has been awarded two cost-plus-fixed-fee Navy contracts totaling \$164,685,000 for naval nuclear propulsion components. Work will be performed in Wilkins Township and at other locations, and is expected to be completed by September 30, 1990. 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-4015 [\$23,805,000]) and (N00024-85-C-4017 [\$140,880,000]).

Navy Awards \$4-Million Increase To RMI For Special Patrol Boat

RMI Incorporated of National City, Calif., has been awarded a \$4,247,062 face value increase to a previously awarded fixed-price-incentive Navy contract for the lead craft construction of the special warfare multi-mission patrol boat. Work will be performed in National City and is expected to be completed in November 1985. Contract funds would not have expired at the end of the current fiscal year. Four bids were solicited and four proposals were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-2182).

AT&T Technologies Gets \$3-Million Modification To Navy Research Contract

AT&T Technologies Incorporated, Whippany, N.J., has been awarded a \$3,248,044 modification to a previously awarded cost-plus-fixed-fee Navy contract for oceanographic research. Work will be performed in Whippany, and is expected to be completed by October 1, 1985. Contract funds would not have expired at the end of the current fiscal year. The Naval Electronics Systems Command, Washington, D.C., is the contracting activity (N00039-84-C-0198).

Newman's Revises Catalog On NEWCO Cast Steel/Pressure Seal Valves

Newman's Inc., Tulsa, Okla., now has in its division offices a new 70-page catalog featuring NEWCO International Cast Steel and Pressure Seal Valves. This updated and completely revised catalog has been designed to be a valuable working tool for the engineering as well as the sales departments.

Special features are metric valve dimension and weight charts, NACE material chart, pressure/

temperature rating charts and Flow Coefficient tables applicable to NEWCO pressure seal valves.

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WELDED BEAM COMPANY

Northrup Gets \$3.78-Million Navy Contract Covering Gyroscope Repair Program

Northrup Corporation, Precision Products Division, Norwood, Mass., has been awarded a \$3,781,000 cost-plus-fixed-fee Navy contract for the

FY-85 V7 gyroscope repair program for the Polaris, Poseidon, and Trident programs. Work will be performed in Norwood, and is expected to be completed by September 30, 1987. 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-4005).

Northwest Marine Awarded \$6-Million Navy Contract For Ship Overhaul Work

Northwest Marine Iron Works of Portland, Ore., has been awarded a \$6,001,841 firm-fixed-price Navy contract for the overhaul and upgrading of the Military Sealift Com-

mand Missile Range Instrumentation ship USNS Observation Island (AGM-154), ex Empire State Mariner. Work will be performed in Portland, and is expected to be completed by March 18, 1985. Twelve bids were solicited and four offers were received. The Military Sealift Command, Washington, D.C., is the contracting activity (N00033-70-C-0075).



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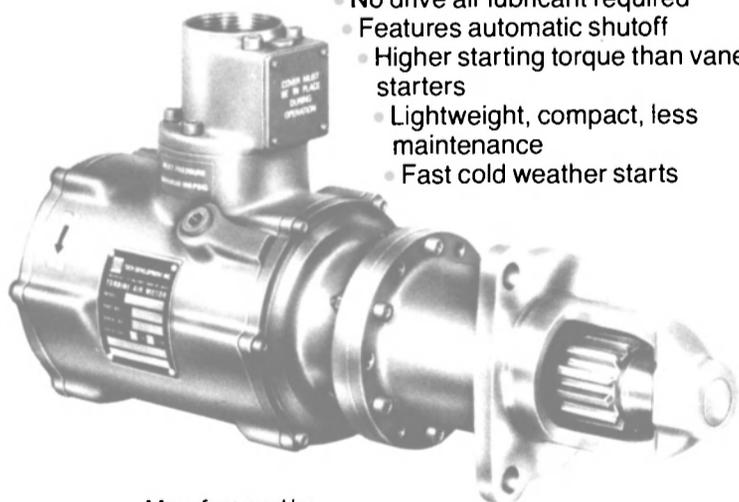
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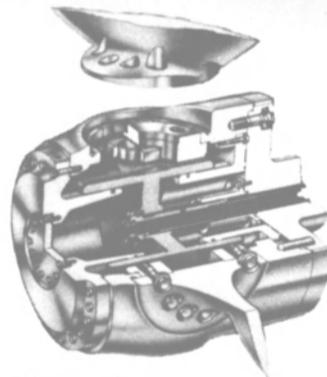
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INTRODUCING: CSV

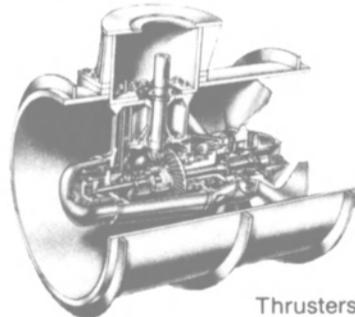
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Arcwell Gets \$4-Million Navy Contract To Overhaul Tank Landing Ship

Arcwell Corporation of San Diego has been awarded a \$4,076,386 firm-fixed-price Navy contract for the overhaul of the tank landing ship USS Schenectady (LST-1185). Work will be performed in San Diego, and is expected to be completed by June 3, 1985. Contract funds would not have expired at the end of the current fiscal year. Ten bids were solicited and four offers were received. The Supervisor of Shipbuilding, Conversion and Repair, Portsmouth, Va., is the contracting activity (N62678-84-B-0136).

Perkins Joins Seaward International As Senior Sales Engineer



Garry W. Perkins

Garry W. Perkins has joined Seaward International, Inc. of Falls Church, Va., as senior sales engineer. He will be responsible for product selection and recommendation to customers, bid and proposal preparation, government marketing and project management, as well as in-house sales support.

Mr. Perkins was previously employed by Ingersoll-Rand as assistant to the worldwide marketing manager for Navy/marine centrifugal pumps, and product manager for Navy pumps. His marketing responsibilities included matching customer requirements with specifications, and preparing cost estimates. He was also application engineer for utility pumps and various international projects during his tenure at Ingersoll-Rand.

He earned a BS degree in mechanical engineering at the Massachusetts Institute of Technology and a master's degree in mechanical engineering at Cornell University.

Maritime Reporter/Engineering News

Shaft Coupling Saves Time And Money For Northwest Boatbuilder

The marine industry is now successfully using an "unconventional" shaft coupling combining a high torque-carrying capability with ease-of-mounting and dismounting. Classified by Lloyd's, ABS, and DNV, among others, SKF OK couplings prove to be a simple, safe and fast way of connecting two shafts.

OK couplings are manufactured by the Coupling Division of SKF Steel, Inc., whose U.S. headquarters are in Avon, Conn. The coupling's range includes more than 100 standard sizes for shaft dimensions from 25 mm to 1,000 mm; torque transmission capacities range from 350 Nm to 26,000,000 Nm.

Located on the Guemes Channel, Port of Anacortes, Wash., Dakota Creek Industries, Inc. uses ASK OK170HB couplings in the manufacturing of their commercial marine vessels. According to Dakota Creek president **Dick Nelson**: "We presently save 50 percent of our machinist's time during installation because the couplings have no flanges, don't need bolts, nuts, or keyways, and eliminate the need for thrust rings." Because split bearings are unnecessary and the coupling uses less space than a flange, machinery room layout is simpler.

Dakota Creek was founded in 1977 by a group of boatbuilding veterans. Coached by their fathers and grandfathers, they learned their crafts in Northwest shipyards. Their boats fish the waters from the Puget Sound north to the Bering Sea; their tugs work on the North Slope and berth tankers.

The Dakota Creek Industries' production yard comprises facilities for new construction and repair. It is equipped with platens, 250-foot building grids, mobile cranes, back-

up outfitting, repair piers, and marine railways. The yard has built 21 hulls, among them, the 123-foot crabber/trawler Morning Star, the 100-foot bowpicker Alliance, and the 95-foot harbor tug Philip W. "We accommodate the owner's design wishes when laying out the vessel," says Mr. Nelson. "We take pride in our work, and that pride shows up in our boats."

Built for Alyeska Ocean, Inc. and launched recently for its maiden voyage to Alaska, was the 131-foot trawler Aldebaran, which is the brightest star in the constellation Taurus. Aldebaran's diesel engine propeller shaft is low in the hull to leave more cargo room topside. Used in constructing the Aldebaran were three SKF OK170HB couplings, interconnecting the line and tail shafts and one OKF170HB coupling at the reduction gear box and C.P. unit. The whole shaft-line was installed through the stern-tube. Elimination of keyways meant a reduced shaft diameter and as much as 25 percent savings in machining costs.

The ASK OK170HB coupling has a thin inner sleeve with an external taper; the tough outer casing has a correspondingly tapered bore. The bore diameter of the inner sleeve is larger than the diameter of the shafts, allowing the coupling to slide easily over the shaft joint. Actual connection is made when the outer sleeve is pressed up over the tapered sleeve with the aid of oil under pressure; oil injected between the tapered surfaces eliminates friction when mounting. The oil is drained away when the outer sleeve reaches its correct position, and a powerful interference fit grips the shafts. Torque transmission capacity is



The trawler Aldebaran, built by Dakota Creek Industries.

128,000 Nm.

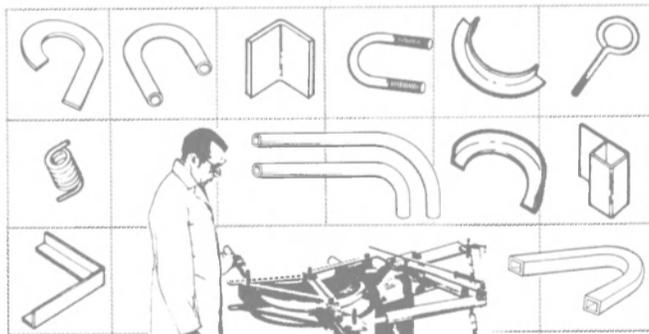
The yard stated they first used the SKF coupling in 1981, and it is low maintenance, dependable, effective and trouble free. In spite of the fact that the OK coupling is more expensive to purchase than some conventional couplings, Mr. Nelson stated he looked forward to

saving 25 percent in the long run and to continue increased production because of decreased installation time.

A free color brochure is available describing the SKF170HB coupling in full detail. For a copy,

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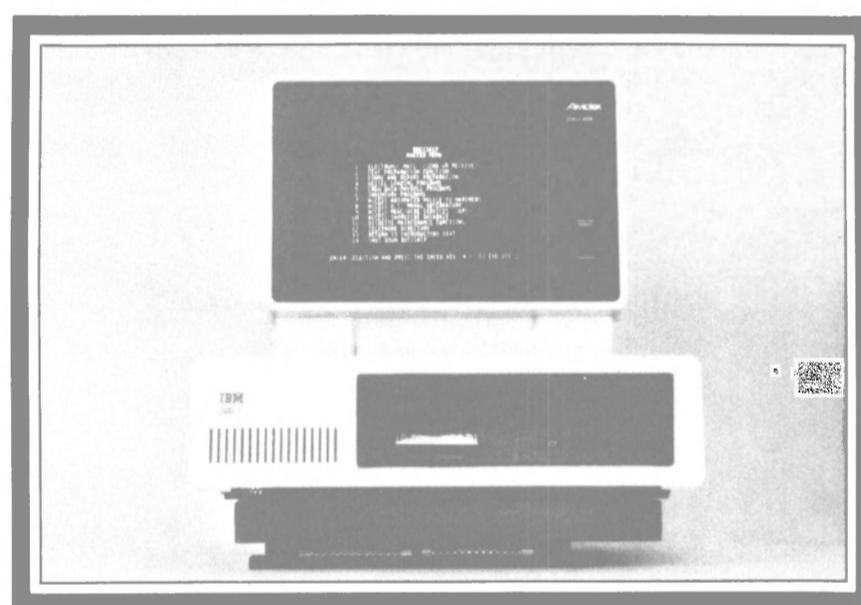
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1985

A YEAR OF CHANGE AND CHALLENGE

Joseph Farrell, President
The American Waterways Operators, Inc.

Excerpted from a speech to the
American Association of State Highway
and Transportation Officials
Annual Meeting



Joseph A. Farrell

AWO is the National Trade Association representing over 300 members active in various facets of the inland and coastal barge and towing business. Our members include carriers who bring direct service to 41 states on more than 25,000 miles of navigable waterways. Our membership also includes over 50 small to mid-size shipyards which build and maintain the equipment for our industry. Overall, the industry employs nearly a quarter of a million people if all direct and ancillary enterprises are considered.

Our industry is in severely bad shape. The inland and coastal carriers remain mired in a deep and continuing state of depression—untouched by the much-vaunted revival of the economy in other sectors.

There are three particular issues of immediate concern to us. These issues are a landmark case involving intermodal transportation; the issue

of revenue adequacy as it ought, equitably to be applied to water carriers; and the pork barrel image associated with water project legislation.

A particular case now before the Sixth Circuit Court of Appeals sitting in Cincinnati, Ohio, proves illustrative of the basic issue of intermodal transportation.

In June 1983, the CSX Rail Conglomerate, the nation's second largest railroad, signed an agreement to acquire Texas Gas Resources, the parent company of American Commercial Lines Inc., which owns American Commercial Barge Lines Company (ACBL) the nation's largest independent barge interest.

Pending approval by the Interstate Commerce Commission (ICC) of an outright takeover of the operations of the barge company, CSX agreed to place American Commercial Lines, Inc., and by extension, ACBL, into a separate voting trust.

On July 24, 1984, the ICC approved the acquisition of the barge company asserting that no reduction in competition would result despite the fact that CSX and ACBL do in fact compete, and serve much of the same areas and in several cases have parallel routes competing primarily for the transportation of coal.

Our organization and other interests have appealed this decision to the sixth circuit court of appeals. Written arguments in this case were placed before the court in December. The challenge to this acquisition is time consuming, costly and multifaceted. It is also vitally important. Because it involves monopoly power and restraint of trade. It is not about deregulation, as some would have us believe. It is, in fact, all about monopoly power in the

transportation marketplace.

Monopoly power has no home in a free enterprise system. Quite the opposite. Monopoly power is antithetical to free enterprise. It is in effect corporate regulation. CSX by its action proposes to supplant government regulation of interstate commerce with its own brand of commercial regulation. I can imagine CSX feels impelled to do so seeing the void left by the ICC's flagrant indifference to the exercise of its legislated mandate to promote healthy competition which benefits the nation.

Our history is replete with examples of individuals and corporations who have hidden behind the mantle of free enterprise while consciously setting about to disrupt free trade through monopolistic practices. These individuals and companies do not wish to merely participate in the market; they wish to corner it, to control it, to extinguish it for all but themselves. A note from history may be of interest here.

The most formidable monopoly which was ever conceived was the Standard Oil Trust.

In March of 1911 when the Supreme Court finally dissolved the Standard Trust, Chief Justice **Edward Douglas White** wrote the final words in a case which featured years of protracted, costly and nationally divisive litigation.

Justice **White**, writing for the majority, observed in dissolving the monopoly that "no disinterested mind can survey the jungle of conflicting testimony relating to the innumerable complex and varied business transactions existing over a period of forty years without being irresistibly drawn to the conclusion that the very genius for commercial organization soon begot an interest

and purpose to exclude others." (emphasis added)

And that is precisely what the present CSX/ACBL case is all about: a commercial enterprise in this case seeks to increase its own size and strength and, at the same time, muscle out others from participation in the marketplace. The CSX/ACBL merger represents a monopolistic power play, it is unlawful under the Panama Canal Act and it will greatly inhibit the choice of shippers in considering their most cost effective transportation options. But the battle we must now fight in the courts at great expense in time, energy and money is a battle we ought not have to fight. This merger should justly never have progressed past the administrative level.

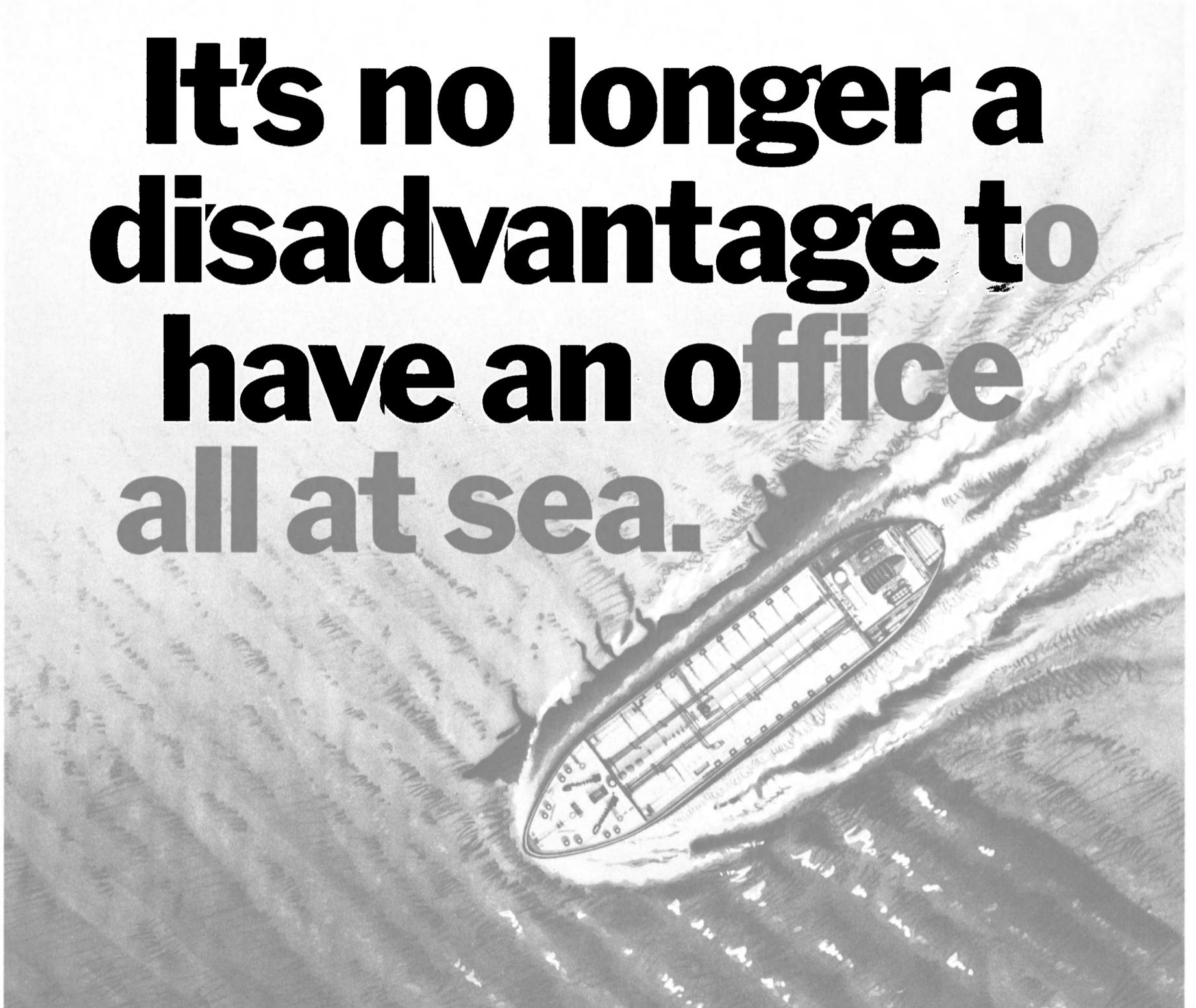
The Staggers Rail Act of 1980 deregulated the nation's railroads and I believe that was wise legislation. While there are aspects of the Act which need fine tuning and modification, I am in substantial agreement with the major thrust of the legislation.

But one goal of the Act—the concept of revenue adequacy—for the freight rail industry—needs to be briefly considered here because it has ramifications which impact our industry and the other modes as well.

Revenue adequacy means making your basic costs as well as a reasonable profit margin on employed capital outlay. In deregulating the railroads, the Congress recognized that the precipitous decline in rail profitability justified the concept of revenue adequacy. Put another way, if a particular railroad is not revenue adequate, it can increase prices to shippers beyond the threshold (continued on page 10)



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And being available 24 hours a day the Service provides reassurance should difficulties arise, or, for example, to re-route suddenly to cash in on a better commodity price.

To find out more about BTI's Inmarsat Service take one of the offices simplest procedures, call the number below. Or alternatively write to the address: British Telecom International, Maritime Service Marketing, 43 Bartholomew Close, London EC1A 7HP, ENGLAND. Telephone: 01-936 4996. Telex: 916554 BTIMRG and Fax: 01-606 4640.



British TELECOM International - The International Division of British Telecom

AWO

(continued from page 8)

which would otherwise be permissible until, under the complex formulas employed in the Stagger's Act, the carrier has achieved an acceptable level of profitability.

I am in no way advocating that the water carrier industry needs an equivalent to the Staggers Act. Only

about 9% of our products move in a regulated environment.

What the water carriers and other modes do need is parity and uniformity in government conduct toward all the transportation modes.

Clearly, the water carrier industry is not now revenue adequate. We ask that the government, when it embarks upon policies such as grain embargoes and payment-in-kind programs, which drastically reduce

the movement of grain and fertilizer products, recognize the severe financial impact of these programs on our industry. Will these programs and ever escalating user tax proposals help the water carriers to become revenue adequate? Just the opposite.

Revenue adequacy is a philosophical concept and a good one in the abstract. But in practice for this concept to be a benefit and not a

hinderance to the nation's transportation system it must be equitably and universally applied. It must not be a special perquisite for a single carrier mode.

But underlying perhaps all other problems, our inability to articulate persuasively our vital interests is intimately linked to the perpetuation of the myth that all water projects are, per se, pork barrel designed to line the pockets of certain favored interests.

Mr. Webster's Dictionary defines pork barrel as "a government project or appropriation yielding rich patronage benefits." One of our greatest challenges as an industry is to undo the damage done by the synonymous association of the terms "water project" and "pork barrel" in the standard political vocabulary.

While it is certainly true that there have been initiatives enacted, and probably others will be proposed, which would authorize pork barrel water projects, water project does not automatically mean pork barrel, anymore than highway repair, airport maintenance or rail crossing projects are necessarily pork barrel.

Our primary dilemma is that given the nasty connotation that water projects have taken on, some in the political arena and the more facile media types have forfeited their vital capacity to discern between that which is patronage and that which is in the public interest when they consider water project legislation.

Nowhere is this inability to equitably discern between good and bad parochial and national interest more evident than in the current user fee controversy involving who should pay for needed improvements in the waterway system.

There is virtual unanimity that the transportation infrastructure of the United States is aging and beginning to fail. All politicians of whatever stripe and ideology agree that something drastic needs to be done—and done soon—about this looming catastrophe. However, there is no such unanimity as to who should pay for these repairs and improvements.

Opinion ranges from the extreme of those who suggest that the transportation system is a quasi-public utility and all costs should be funded totally by the public, to those who argue that the commercial navigation interests should underwrite the entire cost of all improvements. I believe most right-minded individuals, when conversant with the facts, would shun both of these arguments.

I am not against the concept of user fees in the absolute. Our industry has been paying a user tax since 1980. I am, however, against proposed user fees which are excessive, financially crippling or which seek to divorce government from its rightful role in promoting the national interest—not merely the interests of commercial warriors, political expediency and ideological orthodoxy.

Put simply there are those—mostly blind fiscal ideologues, green eye-shade accountant types, some envi-

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ronmentalists and errant lobbyists who argue that we—the commercial navigation industry—should pay for all needed repair, expansion, improvement and maintenance of the waterway system, regardless of who benefits from the system, regardless of regional economic sustenance, regardless of protection of life and property afforded by this work.

What higher user fee proponents fail to understand or admit is that there is direct taxation—flowing from the explicit actions of government, and there is indirect taxation—flowing from the reactions of industry to government policy. Whether these waterway levies are called a fee or a user charge, they are in reality a tax. Let's not delude ourselves: the water carriers cannot realistically be expected to absorb these costs and write them off.

These taxes will ultimately have a direct impact on all American consumers, in very specific ways. The vital, life-sustaining freight we carry will increase in price at the retail level as a result of these taxes.

A recent user charge "impact" assessment conducted by **Walter J. Willis**, Economics Professor Emeritus at Southern Illinois University's School of Agriculture, warns that increasing user taxes on waterway transportation could damage the coal industry in the "Eastern Interior Basin" as well as increase electricity rates. Professor **Willis'** studies indicate that if the Administration's user tax plan would prevail, it would result in an 85¢-\$1.30-per-gallon tax. Such a tax would increase consumer's electricity up to 33 percent."

Leaving aside that aspect of the argument, whatever happened to the notion that we are a United States with profound, common interests? Do these few men of limited vision who today sometimes hold sway in the national economic debate ever pause to consider that a healthy, integrated transportation network is in the national interest, and vital to our national survival? Or are they, as I sadly suspect, captive of their eyeshades, obsessed only with raising taxes, but not through raising personal income taxes?

Our industry only appeals for equity. Our service is an essentially simple one: moving products of great importance to the nation from point to point over water. The nation's physical plant is in need of repair and maintenance. We cannot afford nor should we be asked to shoulder disproportionate costs.

The message of the biased or the narrow minded to the water carriers appears to be: free enterprise for your competitors, onerous and burdensome taxation and indifference for the barges. Who can wonder why we languish in depression.

It is crucial to remember that we serve the nation, not merely our own commercial interests. Therefore, it is appropriate that the proposed improvements be viewed for what they are: preserving the nation's treasure and therefore funded mostly from the national treasury.

There have been numerous specific proposals and an omnibus

water bill considered and passed in the House and another taken up in various Committees of the Senate, only to fall short of adoption. And, as the 98th Congress prepared to adjourn, water project authorizations—minus cost-sharing policy—were stripped from the continuing resolution. Why? For the most part because of the awful, subliminal spectre of the equation: water project = pork barrel.

Until that equation is demolished

and the misunderstanding inherent in it is purged from the political lexicon, real progress will be inhibited in setting in motion a comprehensive and equitable waterways policy in the United States.

And we must have such a policy. Our industry is in a depressed state. President **Carter's** Grain Embargo of 1980 still generates seismic aftershocks. While President **Reagan** has lifted the embargo, the Soviets now see us as an unreliable source of

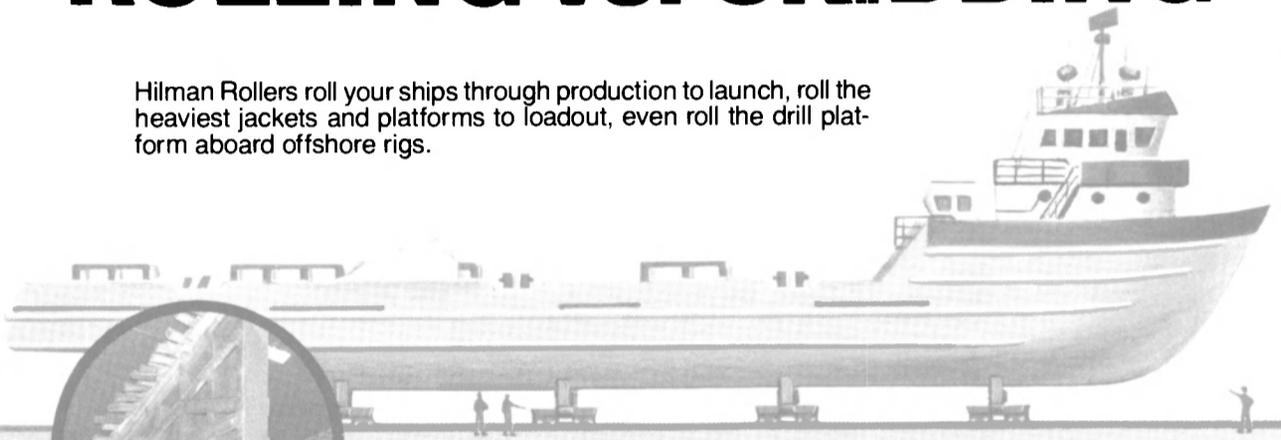
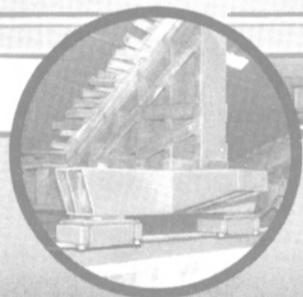
supply and have made contingency plans with other nations that have resulted in significant loss of U.S. market share.

Moreover, pre-embargo high export expectations of grain shipments and projections of record exports for U.S. coal generated a massive overproduction of waterway capacity and equipment—further encouraged by seductive tax shelter

(continued on page 12)

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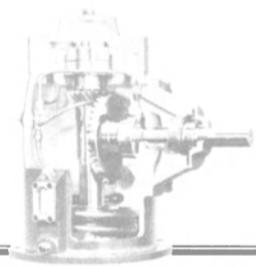
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AWO

(continued from page 11)
positions enacted by a Congress then eager to encourage equipment production. This capacity, born of these false expectations, now lies fallow. Government imposed higher user taxes would truly add insult to injury and risk sinking the commercial barge industry.

At AWO we have our work cut out

for us exorcising the pork barrel demon as an accepted synonym for any waterway project. We also need to work harder on improving our industry's image and elevating its profile. And we need to get the Government to take a sensible look at some of the existing programs and proposed policies which have already had, or which would have, the effect of wreaking more havoc on our industry.

We seek partnership with govern-

ment to achieve a water carrier version of revenue adequacy.

But the battle before which all the others pale is the battle over the proposed CSX/ACBL merger/acquisition. The stakes are very high for all of us. The stakes are literally monopoly versus free trade. Our industry pleads for and respectfully demands that the Government turn about and act to maintain a balanced transportation system which gives no unfair advantage to any

segment: a system which is passive in its encouragement of competition but which is aggressively active in its discouragement of monopoly power.

Burrard Yarrows Awarded \$1-Million Navy Contract To Refit Cable Ship

Burrard Yarrows Corporation of North Vancouver, British Columbia's largest shipbuilder, recently won its first contract from the U.S. Navy—a \$1-million refitting job on the cable repair ship USNS Neptune (ARC-2). The Canadian yard has bid unsuccessfully on six Navy contracts during the past three years. Burrard is able to bid on selected categories of U.S. Navy repair work under a U.S.-Canada defense work-sharing agreement. The recent contract will provide 30,000 man-years of employment at the BYC yard.

In announcing the contract, Burrard's marketing director **Quintin Watt**, said: "We have been trying to get involved on this work since 1981. We bid six contracts before we got the price right and landed this one. Now that we know we can do it, we hope to get more work of this sort."

Commissioned in 1953, the Neptune is operated by the Navy's Military Sealift Command.

Armco Offers Brochure On Bigger And Better Aquamet Boat Shafting

"How Armco Now Provides You Bigger And Better Aquamet Boat Shafting" is the title of a new brochure published by Armco's Specialty Steels Division headquartered in Butler, Pa.

The four-page color folder says that to make Armco Aquamet shafting even more appealing to boatbuilders and naval architects, Armco provides shafts with four different combinations of properties, each offering special advantages in either properties or price. Aquamet 17, 18, 19, and 22 are explained along with the varying degrees of strength, toughness, corrosion resistance and cost that meet customers' specific boat shafting requirements. The four combinations of Aquamet offer a variety of applications, from use on patrol, pleasure, or commercial boats to tugs.

Current mill modernization combined with free design assistance and ready product availability make Armco a leading choice in boat shafting, according to the brochure, and new Armco facilities and equipment give new sizes and better quality and precision.

The publication features a postage-paid response card for requesting more technical and application information.

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tions or locations require it. HX500U UHF model features **2 watts** RF power.

The HX500 Series feature a choice of readily changed 500 mA and 900 mA Ni-Cad battery packs, plus several charger options including a desktop model, gang charger and slave charger. By keeping a spare battery pack fully charged, the HX500 can be used 'round the clock.

The HX500 handhelds have been tested by Factory Mutual Research, and are approved as intrinsically safe for Class I, II, and III, Division 1, applicable groups C, D, E, F and G, and nonincendive for Class I, Division 2, Groups A, B, C and D hazardous locations.



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Maritime Reporter/Engineering News

Recent Order For Two Schottel Thruster Units A First In U.S. Market

An order received recently by Schottel of America, Inc. of Miami, Fla., for its new SPJ-32 Pump Jet thruster units to be installed in two 92-foot line-handling tugs, marks the introduction of the 360-degree steerable, centrifugal-pump water thruster to the American market, and represents the first application of this design concept in the U.S.

Under construction at Moss Point Marine in Escatawpa, Miss., the 2,350-bhp Heimo Tide and Ade Tide will be operated by Tidewater Marine Service in West Africa, and will utilize the Pump Jets as bow maneuvering aids.

The new water jet product line, originally developed by Schottel Werft of Spay, West Germany, in conjunction with NATO Army Engineers for their "Bridging Equipment of the 80s" program, was designed as either a main propulsion unit or maneuvering aid for extremely shallow-draft vessels.

Schottel, a world leader in the field of steerable propulsion equipment, is very experienced in the design of water jet thrusters. More than 250 Schottel cone and bow jet units are in service in vessels operating on Europe's inland waterways system, where draft restrictions make conventional tunnel thrusters impractical due to cavitation and low efficiency.

The Tidewater Pump Jet units will be powered by hydraulic motors developing 120 hp at 2,800 rpm, although electric or diesel prime movers can be utilized in other applications as required.

For additional information on the new SPJ-32 thruster units,

Circle 16 on Reader Service Card

Weld Fittings Available From Cajon Company —Literature Available

The Cajon Co., of Macedonia, Ohio, now has available tube butt weld and socket weld fittings for use in systems fabricated with automatic orbital head welding equipment or done manually.

The fitting series, designated ATW and ASW, are extremely compact. Both series are made of 316L stainless steel for maximum protection against stress corrosion caused by high welding temperatures. Except for the Swagelok to ATW connectors, the fittings are made from fully traceable materials.

The ATW has an enlarged end which aligns the tubing and speeds welding setup. ASW fittings feature a thin wall which is useful for socket weld applications using automatic or manual equipment. Both fittings measure .750 inches from the shoulder to the welding point, allowing for use with most automatic welders.

January 1, 1985

Both fittings are intended for use with automatic welding systems, but are easy to weld manually. They are available in a variety of shapes, including manifold and reducing tees, unions and ATW to Swagelok connectors.

For further literature containing full information on the ATW and ASW fitting series,

Circle 26 on Reader Service Card

Rockwell Gets \$17-Million Navy Contract To Provide Engineering Services

Rockwell International Corporation, Autonetic Marine systems division, Anaheim, Calif., has been awarded a \$17,067,000 cost-plus-fixed-fee Navy contract for FY 85 engineering support services, shipyard overhaul of Poseidon submarines, and field engineering services

for the MK-2 Ships Inertial Navigation Systems (SINS) and the Electrostatically Supported Gyro Monitor, including associated data and reports. Work will be performed in Anaheim, and is expected to be completed by September 30, 1985. 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-4000).



The Fast Cats From Down Under Are Now Being Built Over Here.

Economics, not adjectives, sell vessels. Even though this Nichols Brothers' 72-foot catamaran offers commodious capacity . . . stimulating speed . . . operational simplicity . . . rough water safety . . . striking appointments . . . a rugged work platform . . . operators may be more interested in some stark figures. This catamaran carries 210 passengers, at 26 fuel thrifty knots, with a pair of 800 hp engines, at a decidedly pedestrian construction price.

Behind the design lies a remarkable story. International Catamarans of Australia performed a rare feat of synergy in the design

of a catamaran ferry for Tasmania. So successful was this design, a growing number of descendants are in service around the world as ferries, tour boats, offshore and utility boats, and patrol boats.

Production has been licensed on three continents — including, now, North America with Nichols Brothers as the lead yard. Designs range to 120' or more feet, 30-knot speed, and 500 or more passengers.

Initial Nichols' catamarans include the *Klondike* for Alaskan service, and the *Alderbrook* on Puget Sound. Like others of the family of catamarans from Down Under, Nichols' boats include

unique design features: Water slicing hulls . . . A cabin to hull mounting that dampens sound and vibration . . . A lifting rudder that reduces drag . . . and more.

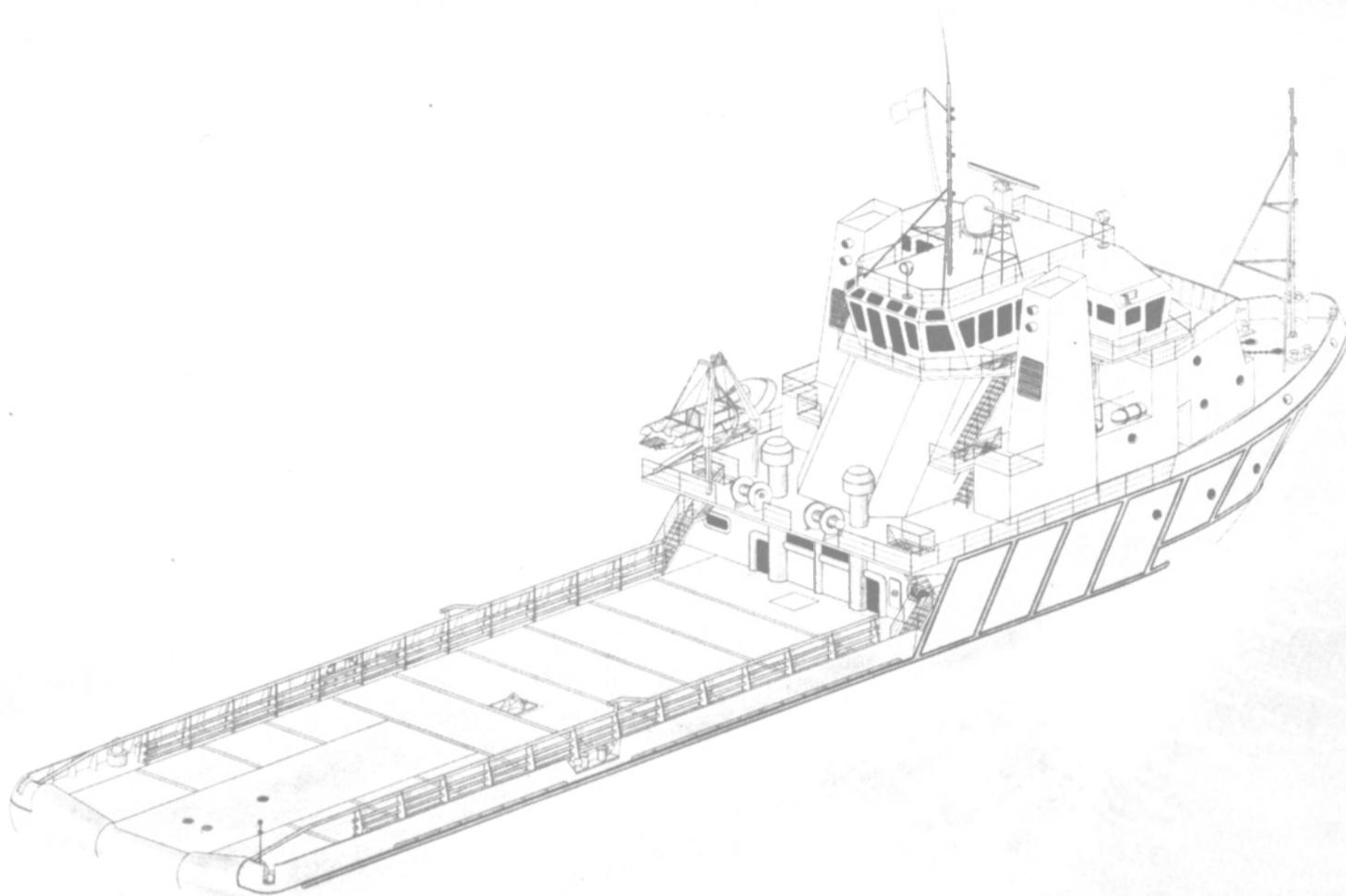
For additional information about these colorful, economical, and working catamaran designs, or to talk about a place in the order book, contact Matt Nichols.

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Artist's rendering of 225-foot tug/supply vessel now under construction at Marystown Shipyard in Newfoundland, Canada. Of the yard's own design, the ship will be powered by four Deutz diesel engines in a unique "father and son" arrangement with a total output of 12,860 bhp at 900 rpm.

Marystown Shipyard Building 225-Foot Deutz-Powered Tug/Supply Vessel

During the past year, Marystown Shipyard Limited in Newfoundland, Canada, has been developing an all-purpose anchor-handling/tug/supply vessel design designated the M68 (LOA is 68.48 meters), capable of being fitted out with a number of options to suit almost any requirements for the various charter requirements worldwide.

The Marystown board of directors recently decided, after investigating worldwide supply ship requirements, to build one of these vessels for its own account, with the view to obtaining an owner before completion. Designated Hull 37, the

vessel will be built to Lloyd's Register of Shipping classification +100A1, Offshore Tug/Supply Ship, Ice Class 3, Deck Cargo (5 tons per square meter), +LMS, UMS, Unrestricted Service, Oil Recovery.

Hull 37 will have an overall length of 224.67 feet, beam of 49.21 feet, depth to main deck of 23.79 feet, and design draft of 18 feet. The vessel will be capable of discharging potable water, drill water, fuel oil, liquid mud, and two types of bulk cargo simultaneously to the highest existing drilling platform, and will also be capable of transshipping reclaimed oil in emergency spill condi-

tions.

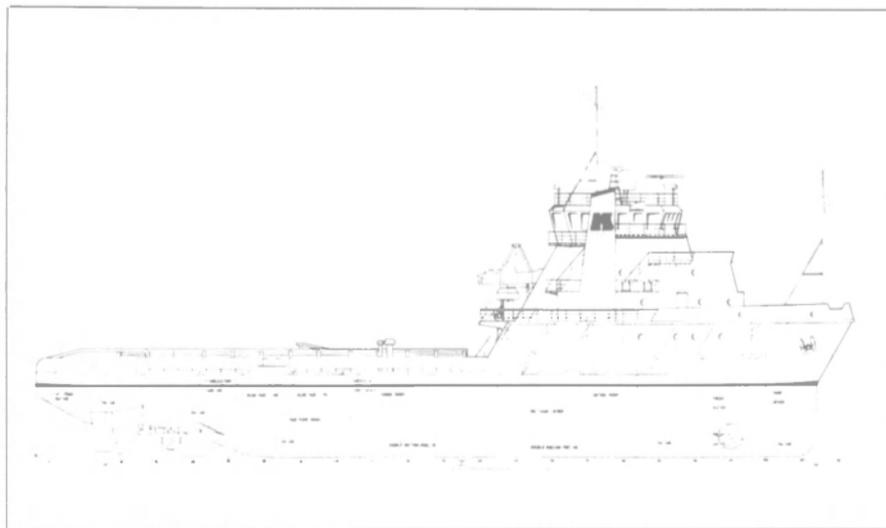
The vessel will be powered entirely by four Deutz diesel engines in a unique "father and son" installation with a total of 12,860 bhp at 900 rpm. The propulsion plant comprises two Deutz SBV 16M 628 engines, each with an output of 4,150 bhp at 900 rpm, and two SBV 9M 628 engines, each producing 2,280 bhp at 900 rpm. These will drive two lips controllable-pitch propellers in fixed nozzles at 180 rpm, via two twin-input, single-output reduction gearboxes, each rated for 6,430 bhp. Each gearbox will be provided with two power take-offs, one to drive the 1,400-kva alternator and one to serve future installation of a 2,400-hp fire-fighting pump. The entire Deutz propulsion package is arranged to provide maximum

fuel efficiency, with ideal top-end power potential. One Ulstein 800-hp bow thruster and one 600-hp stern thruster will be installed.

Deck machinery will include one heavy-duty, fully enclosed, hydraulic anchor-handling/towing winch with a maximum pull of 300 tons and static rating of 350 tons. Other deck gear comprises twin cable lifters, two 12-ton tugger winches, two 10-ton capstans, two double-drum wire storage reels, one set of towing pins, and one set of anchor-handling tongs.

Navigation and communications systems will include: Simrad 100 automatic direction finder and ED161 navigation sounder; JRC speed log type JLN203, and JMA 510 and JMA 630 radars; two Sailor RT 144C VHF radiotelephone; two

Aerial view of Marystown Shipyard, (below left), located on southern coast of Newfoundland. Yard is equipped with Syncrolift marine elevator with side transfer system.



CMC DN15 portable VHF radios; one MCS 9000 satellite communications system; and a Skanti watch receiver. Other equipment will include gyrocompass with autopilot, portable joystick, emergency locator/transmitter, and crewcall/talk-back system.

Accommodations will be provided for six officers and six crew, all in single cabins, along with space for 12 supernumeraries. The accommodations will be fully air conditioned and designed for electric heating.

Marystown Shipyard management is very excited about the potential for this new vessel of its own design, and is confident that a buyer will be found before the vessel is completed in the fall of 1985.

Hull No. 37

Partial Suppliers List

Main engines (4)	Deutz
Reduction gearboxes (2)	Lohmann & Stolterfoht
Propellers & shafts (2)	Lips
Bow & stern thrusters	Ulstein
Shaft alternators (2)	Siemens
Diesel generator engines (2)	Detroit
FO & LO purifiers	Alfa-Laval
Pumps	Allweiler; Viking
Deck machinery	Hydraulik Bratvaag
Radars (2) & speed log	JRC
ADF & depth sounder	Simrad
Radiotelephones (2)	Sailor
VHF radios (2)	CMC
Satcom system	MCS
Watch receiver	Skanti

Todd Awarded \$96-Million Navy Contract To Build Guided-Missile Frigate

The Los Angeles Division of Todd Shipyards Corporation has been awarded a \$96.1-million U.S. Navy contract for the construction of another guided-missile frigate of the Oliver Hazard Perry (FFG-7) Class. This brings to 31 the number of FFGs awarded to Todd. The Los Angeles Division has completed 14 of the 18 contracted for, and the Seattle Division has delivered 12 of the 13 awarded there.

BIW Will Get \$383.6-Million Navy Contract To Build Two Aegis CG-47 Cruisers

Bath Iron Works Corporation (BIW) in Maine is the apparent successful bidder for two of the three Aegis guided-missile cruisers of the Ticonderoga (CG-47) Class that the U.S. Navy ordered recently under the FY 85 shipbuilding program. The other ship was awarded to Ingalls Shipbuilding, which was chosen as the lead yard when the Aegis cruiser program began in 1978. The latest contract brings to four the number of cruisers ordered from BIW; Ingalls has received orders for a total of 13.

According to BIW president William E. Haggett, price was a key factor in the Navy's decision on the latest contracts. "BIW has undertaken major efforts to contain costs, and our pricing on these ships reflects a management commitment

to continue with every initiative necessary to remain ahead of the competition," he said.

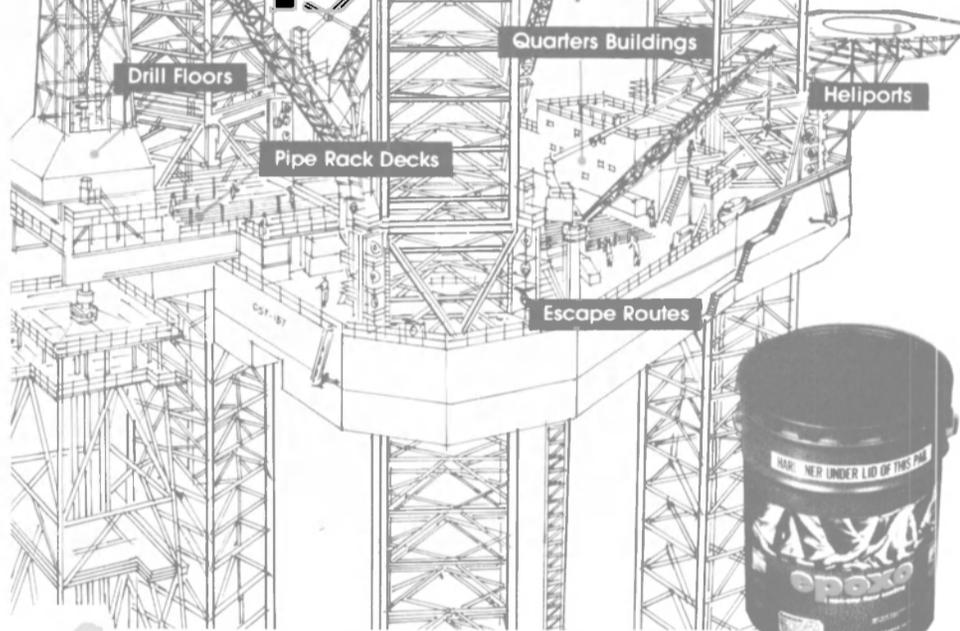
BIW, Ingalls, and Todd Shipyards Corporation are all bidding for the construction of the DDG-51, lead ship in the new Arleigh Burke Class Aegis guided-missile destroyers. Authorized in the FY 85 shipbuilding program, the contract for the DDG-51 is scheduled to be awarded in January 1985.

Westinghouse Receives \$3.2-Million Navy Order For Turbogenerator Work

Westinghouse Electric Corporation, Marine Division, Sunnyvale, Calif., has been issued a \$3,200,000 firm-fixed-price order under a basic ordering agreement to furnish components and services for the upgrading, repair, and modification of four

Westinghouse ship service turbine generators to be utilized in the overhaul of the USS Lexington (CV-16) at the Philadelphia Naval Shipyard. Work will be performed in Sunnyvale, and is expected to be completed in May 1985. Contract funds would not have expired at the end of the current fiscal year. The Naval Regional Contracting Center, Philadelphia, is the contracting activity (N00400-82-G-5009).

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Nantucket Clipper—Jeffboat: details page 37

OUTSTANDING OFFSHORE/SHALLOW-DRAFT VESSELS OF 1984

A portfolio of the most important offshore and shallow draft vessels featured during 1984 . . . selected because of unusual and superior characteristics of design, purpose or performance.

ASIE DUA Halter Marine

The second of Halter Marine's new high-speed Sea Shuttle class crewboats was delivered last year to Asie Crewboats SDN BHD of Kuala Lumpur, Malaysia. The all-aluminum Asie Dua, like her sister vessel Asie I, is 112 feet long with a 25-foot beam and 11-foot depth. Her spa-

cious 60- by 20-foot aft deck can carry up to 80 long tons of cargo together with 15 tons of consumables below deck. She can accommodate 55 passengers and has quarters for a crew of five.

Asie Dua is powered by four Detroit Diesel 12V71TI diesel engines developing a total of 2,040 bhp. They drive two Federal propellers through Twin Disc MG514 reverse reduction gears with a ratio of 2.5:1.

An interesting feature of the new vessel is her 1,200-square-foot aft deck, which is completely level and not cambered as on many other vessels engaged in similar work.

Another design innovation of the Sea Shuttle crewboat is the placement of the passenger compartments. All are above the main deck and away from the engine room. This reduces noise and allows rig crews to arrive fresh and ready for work. Passenger well-being is also enhanced by large windows providing excellent visibility and lighting

of the spacious, airy passenger compartments.

The extended visibility is carried through in the pilothouse high atop the passenger compartment, where the captain has a 360-degree view through extra-large windows. Also

fitted in the pilothouse is an aft pilot station with duplicate controls for backing down on rigs. This permits dry, comfortable, and safe operation in foul weather.

The Asie Dua was built at Halter's Chalmette, La., division, one of six shipyards operated by the company in the Southeastern United States. Halter builds more than 30 different types of vessels, and is the world's largest builder of supply boats for the offshore oil and gas industry. Halter was purchased recently by Trinity Industries, Inc. of Dallas.

ASIE III Fjellstrand

Fjellstrand A/S of Omstrand, Norway, recently completed the 96-passenger crewboat Asie III. An all-aluminum, semi-planing catamaran with asymmetric hulls, the vessel was handed over to the owner in (continued on page 18)

ASIE DUA Major Suppliers

Main Engines	(4) Detroit Diesel
Generator Sets	(2) Delco
Propellers	(2) Federal
Hydraulics	Orbitrol
Engine Controls	Kobelt
Capstan	Skipper
CO ₂ Flooding System	(supplied by) Safety Services & Supply Co.
Air Compressor	Quincy
Main Switchboard	Continental Electric
Paint System	Imperial Coatings
Electronics:	
Decca Sailor 144 AC, 12VDC VHF radio	
Phelps Dodge 6-5 Antenna (11 foot)	
Motorola D80J Main 19AZ 2-18MHZ SSB radio	
Shakespeare 390 Antenna	
IDM RD 150—40A with VP3, VRM, 4-ft antenna	
Radar	Decca

HOW TO TURN A MONSTER INTO PRECIOUS CARGO.

There's hardly a soul in the marine industry who doesn't recognize six-oil residues in barge bottoms as a man-eater of prehistoric proportions. To remove



this kind of heavy sludge devours days of back-breaking labor, not to mention the hazardous nature of the working environment and the puzzle of what to do with the huge amounts of waste water generated by conventional cleaning methods.

Now Petroferm Marine, using a biopolymer from nature, offers a closed system of cleaning that fluidizes residual oil, pumps it out, and stores the recovered hydrocarbons for burning at the cleaning site or elsewhere. The shipyard or repair service can then move right into hotwork in a gas-free atmosphere, and in most cases,

make interior repairs much sooner than could normally be expected.

Petroferm's system, including pumps and spray technology, has proven itself on real-time jobs at Mainstream Shipyards in Greenville, Mississippi, and we will be most happy to share our findings, the system's benefits and what we know of its limitations, with persons interested in acquiring this capability derived from biotechnology.

For more details, please write Mr. Kimble Lehman, Petroferm Marine, Route 2, Box 280, Amelia Island, Florida 32034, or call (904) 261-8286. We believe the monster that's draining off a lot of your time could reshape itself into some very liquid assets.



Petroferm Marine



Asie III

(continued from page 16)

Omstrand, then shipped as deck cargo to Singapore, where it was christened.

Asie III has a one-year contract of affreightment with Esso Production Malaysia Inc. (EMPI), with an option for an additional year. The vessel will operate in the South China

Sea transporting personnel and light cargo between installations in the Semangkok, Irong Barat, and Tapis oil fields. This entails the vessel being stationed offshore for periods of 6-8 weeks. EMPI will also use the boat to evaluate the feasibility of using a high-speed vessel such as the Asie III between the shore base and the offshore installations.

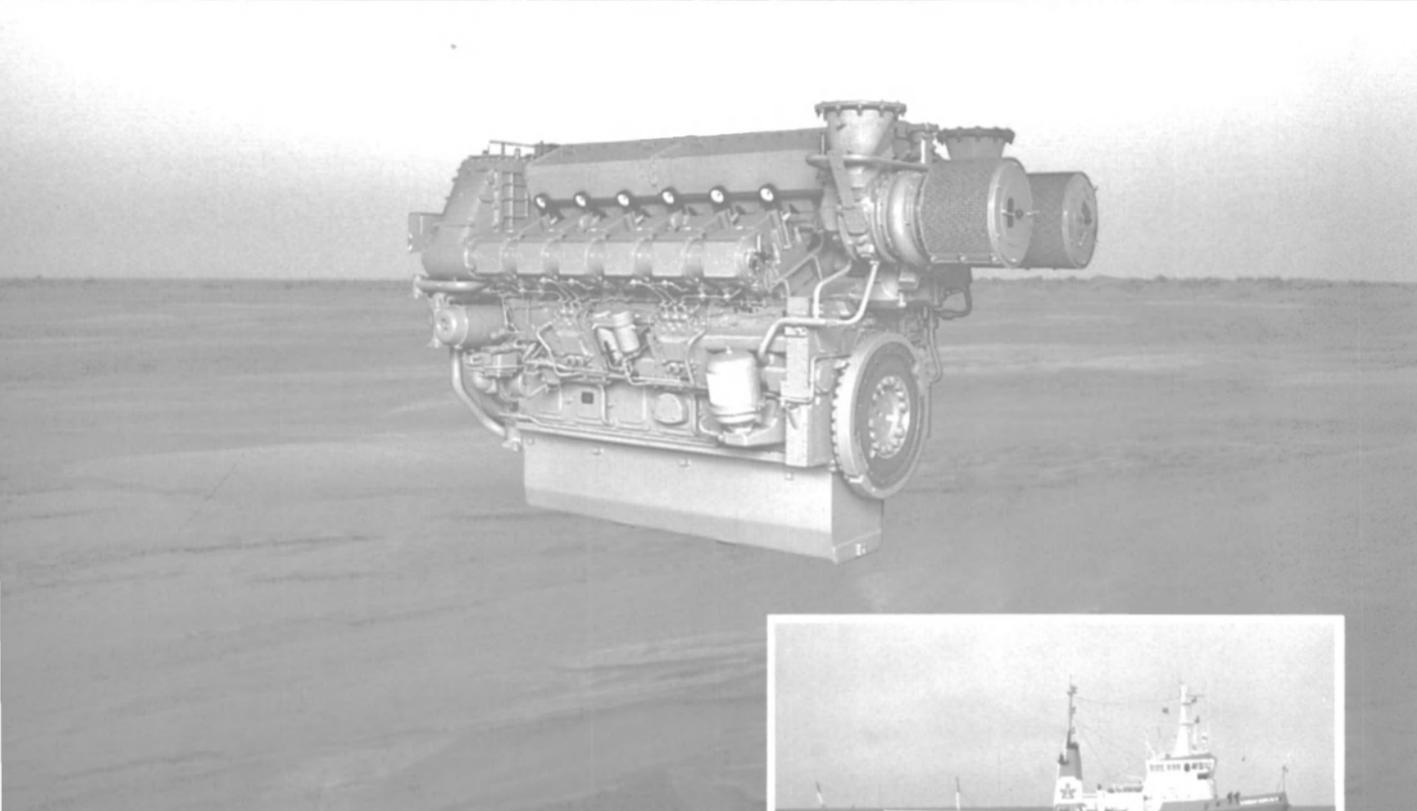
The vessel has an overall length of 103.35 feet, beam of 30.84 feet,

depth of 11.48 feet, and maximum draft of 7.38 feet. She is powered by two MTU 16V 396 TB 83 diesel engines, each developing 2,010 bhp at 1,940 rpm, driving Liaaen/Helix controllable-pitch propellers through Reintjes reduction gears with a ratio of 2.5:1. A water jet, hydraulically operated bow thruster supplied by Frank Mohn is installed in each hull. Electric power is provided by two Mercedes Benz/Stamford diesel generators, each of 50 kw.

During trial runs the boat's speed was measured at 29.1 knots, 0.5 knots above the speed specified in the contract. Fjellstrand's 103-foot catamaran has been subjected to extensive tests in extremely rough sea conditions.

The vessel has two single cabins, one double cabin, and one four-man cabin forward on the main deck. Crew quarters also contain a galley, messroom, and a shower/lavatory. The passenger lounge has adjustable seats and two lavatories with showers. The cargo deck aft has an area of about 1,075 square feet and a capacity of 40 tons.

Built to Det norske Veritas classification 1A2, Light Craft, R150, Passenger Catamaran, the Asie III is the third 103-foot offshore catamaran built by Fjellstrand. Of the previous vessels, one was delivered to Brazil and one to France. In addition to the three offshore boats, the shipyard has sold seven 103-foot passenger catamarans to Chinese and Norwegian shipping companies.



DEUTZ DELIVERS ANYWHERE ...even across the frozen Beaufort Sea

The Repowering Mission:

To deliver two Deutz SBV 12M 628 diesel engines (total 6,000 hp) to the Canmar Supplier VII in the frozen Beaufort Sea in the dead of winter.

The Deutz Response:

The Deutz engines were hauled overland to the highway's end, then trucked on the same flatbed trailer across 200 miles of ice to man-made McKinley Island at 140° W, 70° N, in record time.

The Operation:

The Deutz team was on hand to supervise all phases of shipment, receipt, and installation. We were delighted that with some added manpower, the Canmar crew easily installed the new Deutz 628s under our engineer's supervision.

Conclusion:

No repowering challenge is too chilling for Deutz!

ASIE III Major Suppliers

Main engines (2)	MTU
Reduction gears (2)	Reintjes
Propellers (2)	Liaaen/Helix
Generators (2)	Mercedes Benz/ Stamford
Steering gear	Servi
Anchor winch	Petter
Air conditioning	Semco
Radars (2)	Deberg
Gyrocompass, autopilot	Robertson
Echo sounder	Simrad
Satnav, wind meter	Walker
HF/MF radiotelephone, VHV (2)	Sailor
Radio direction finder	Deberg
Speed log	Ben Athena
Intercom system	Vingtor

For the Deutz sales/service team nearest you, contact:

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Doraville, Ga. 30340
Telephone: (404) 449-6140
1-800-241-6320
Telex: 0070-7478

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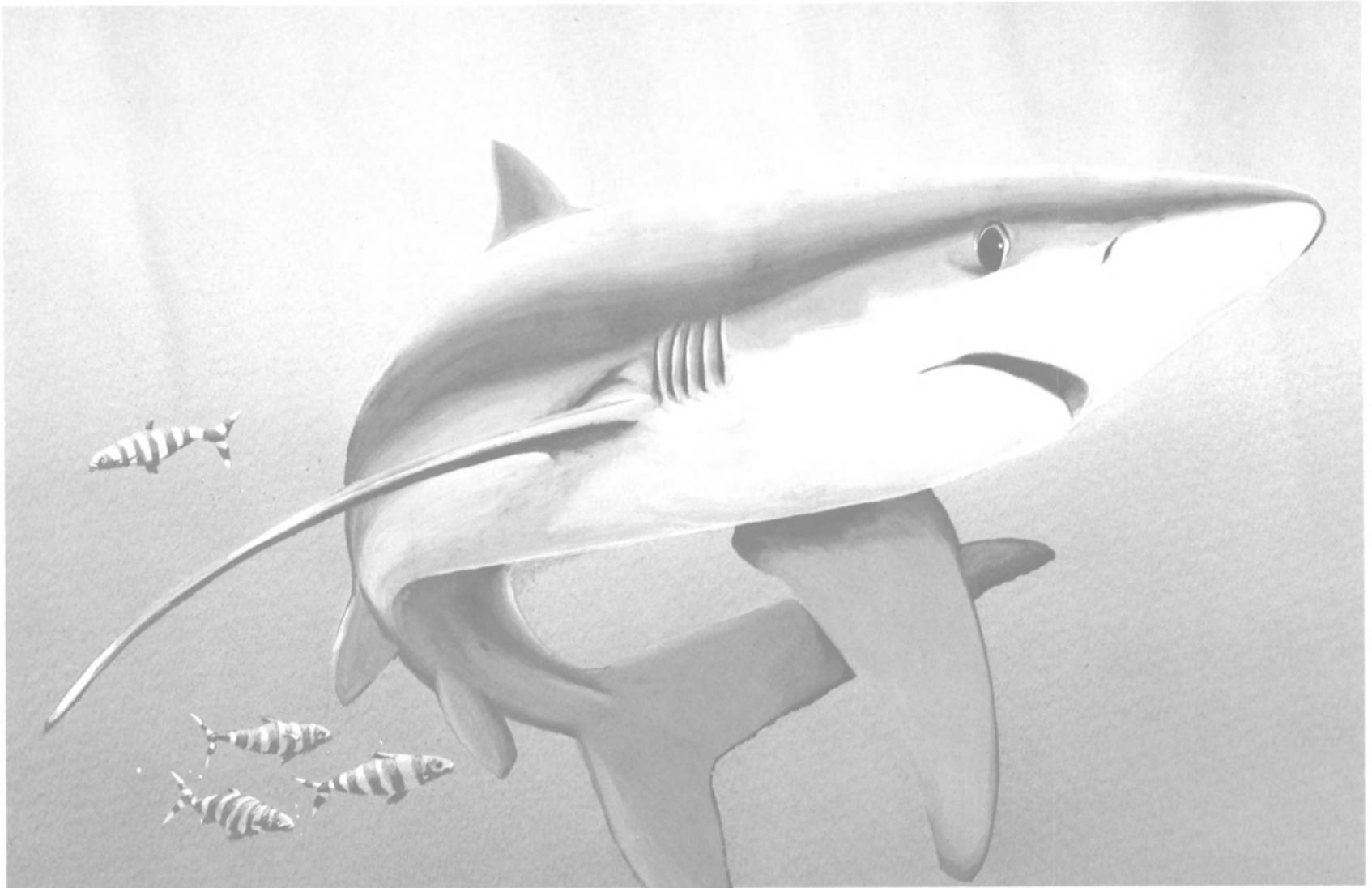


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Asie Dua—Halter Marine: details on page 16



SPECIAL SENSES FOR SURVIVAL

For more than 140 million years the shark has relied on an unusual range of very special senses to survive. Evidence accumulated to date is impressive. A shark will, for example, detect and follow scents for a quarter mile. At over 600 feet, he will react sharply to audible noise, and minute pressure variations are sensed by lateral line organs at 100 feet. Then, at 50 feet, a highly reflective eye structure identifies shapes and detects motion in the feeblest light. The shark can detect weak electric fields and possibly even be able to orient himself to the earth's electromagnetic field. In fact, there's probably no other creature in the sea so completely aware of his environment.

Furuno provides tremendous sensory input to operators of just about any vessel. Our radars offer the best of modern technology, including bright displays that show targets in colors based on return echo strength, custom designed microwave circuitry to enhance receiver performance, even color radars that can also show loran or other navigational track plots on the same screen. And our most recent innovation is a group of digital, or raster scan, radars that use advanced multilevel signal processing to show even weak targets as bright, steady pictures on the CRT.

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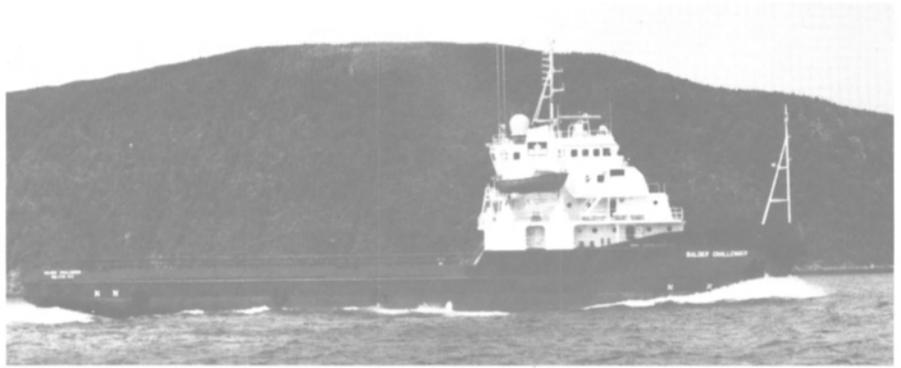


BALDER CHALLENGER
Marystown

The first of its new M9700 diving support/supply vessel design, the Balder Challenger, has been delivered by Marystown Shipyard Limited of Marystown, Newfoundland, to Labrador Offshore Shipping Company Limited. The 2,300-dwt vessel was originally ordered by Petro Canada Exploration Inc., then

sold during the construction period to Labrador Offshore.

The vessel is constructed to the latest regulations of Lloyd's Register of Shipping, and is classed +1A Offshore Supply Ship, Ice Class 3, +LMC, UMS, Unrestricted Service, and is in compliance with Canadian Steamship Inspectorate Regulations, SOLAS 1974, and Damage Stability to IMO Regulations and Norwegian Regulations 1980. Construction cost was C\$21.4 million.



Balder Challenger has an overall length of about 236 feet, molded beam of 52.5 feet, depth to main deck of 23.8 feet, and design draft of 18.9 feet. Her main propulsion plant comprises two MLW (Bombardier) diesel engines, each with an output of 2,712 bhp at 1,100 rpm, providing a service speed of 14 knots.

Electrical power is provided by two 1,360-kva alternators driven by power takeoffs on the gearboxes via flexible couplings. Also installed are three diesel-driven alternator sets for ship's service duties, each rated at 490 kva, and a 12-kw emergency diesel generator set.

For diving support applications, the vessel is fitted with a fully redundant dynamic positioning system that meets the Lloyd's Register A-A classification. Three independent reference systems are provided: a vertical taut wire system, an Artemis microwave system, and a hydro-acoustic positioning system, the latter a dual system with full transducer/transponder back-up.

All sensitive equipment is located in an independently air-conditioned computer room. To aid maneuverability and offer full redundancy, the vessel is fitted with two 800-hp bow thrusters and two 600-hp stern thrusters. A moonpool is installed amidships, fully serviced with compressed air, fuel, and electric power outlets.

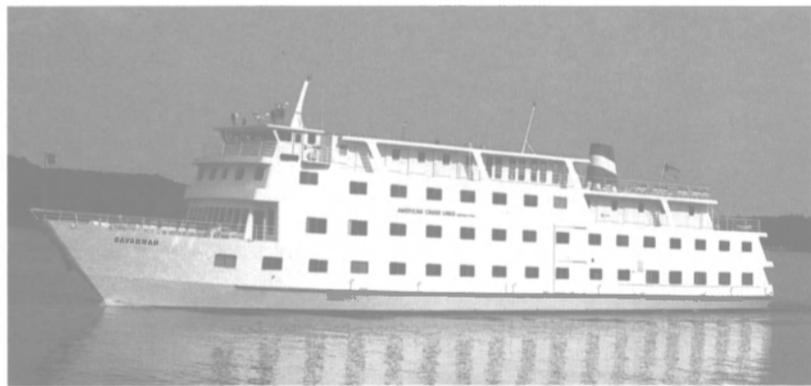
During the initial design stage, emphasis was given to an optimum hull shape producing good seakeeping qualities in marginal weather conditions, and best utilization of space for liquid and dry bulk cargoes. For offshore supply work, the vessel has the following capacities: 800 tons of drill/ballast water, 1,000

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"Outstanding Shallow Draft Vessel" — *Maritime Reporter*, January 1985

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Sales & Engineering Office
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BALDER CHALLENGER
Major Suppliers

Main engines (2)	MLW/Bombardier
Gearboxes, propellers, nozzles & shafts	Hjelset
Bow & stern thrusters	Maritime Industries
Dynamic positioning system	Kongsberg
Generators	Newfoundland Tractor/BBC
Steering gear	Tjenford
Remote controls	Asea
Purifiers & separators	Alfa-Laval
Air compressors	Sperre
Water, bilge & fire pumps	Peacock Bros.
Compressors & fittings	Ingersoll-Rand
Spindles, gears & rods	Crosbie
Halon & CO ₂ systems	Pratt
Paint & coatings	International
Ventilation	Norris Warming
Watertight doors	Allied
Windows & sidelights	Beclawat/Lan
Sewage units	Vacusan
Tanks	Easteel
Insulation	Guildfords
Space heating	Norris Warming

Circle 182 on Reader Service Card

tons of fuel oil, 550 tons of potable water, 12,000 cubic feet of cement/bulk cargo, and 1,000 tons of deck cargo.

The vessel has high cargo discharge rates, and the capability to deliver potable water, drill water, fuel oil, and two types of dry bulk cargo simultaneously. A Kongsberg portable joystick provides a high level of control during maneuvering.

The latest electronic navigation and communications equipment is installed, including two independent gyrocompasses, autopilot, Simrad ADF and navigation sounder, JRC speed log and two radars, an emergency located/transmitter, crewcall/talkback system, two Sailor VHF radiotelephones, two CMC portable VHF radios, Skanti watch receiver, and Sailor tandem main radio station with full back-up.

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Heat is provided by 30,000-Btu truck type heaters fed by the main engines and equipped with 12-volt fans. This heating system is backed up by 220-volt electric heaters. Two Carlisle & Finch incandescent searchlights are installed, one 120-volt and one 12-volt. The vessel has two all-channel Raytheon 53 VHF radios, a Raytheon 400 loudhailer/intercom, and complete engine alarm system. All navigation lights, pilothouse lights, and some deck

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The bilge pump is designed so that any compartment of the vessel can be either pumped or ballasted (continued on page 22)



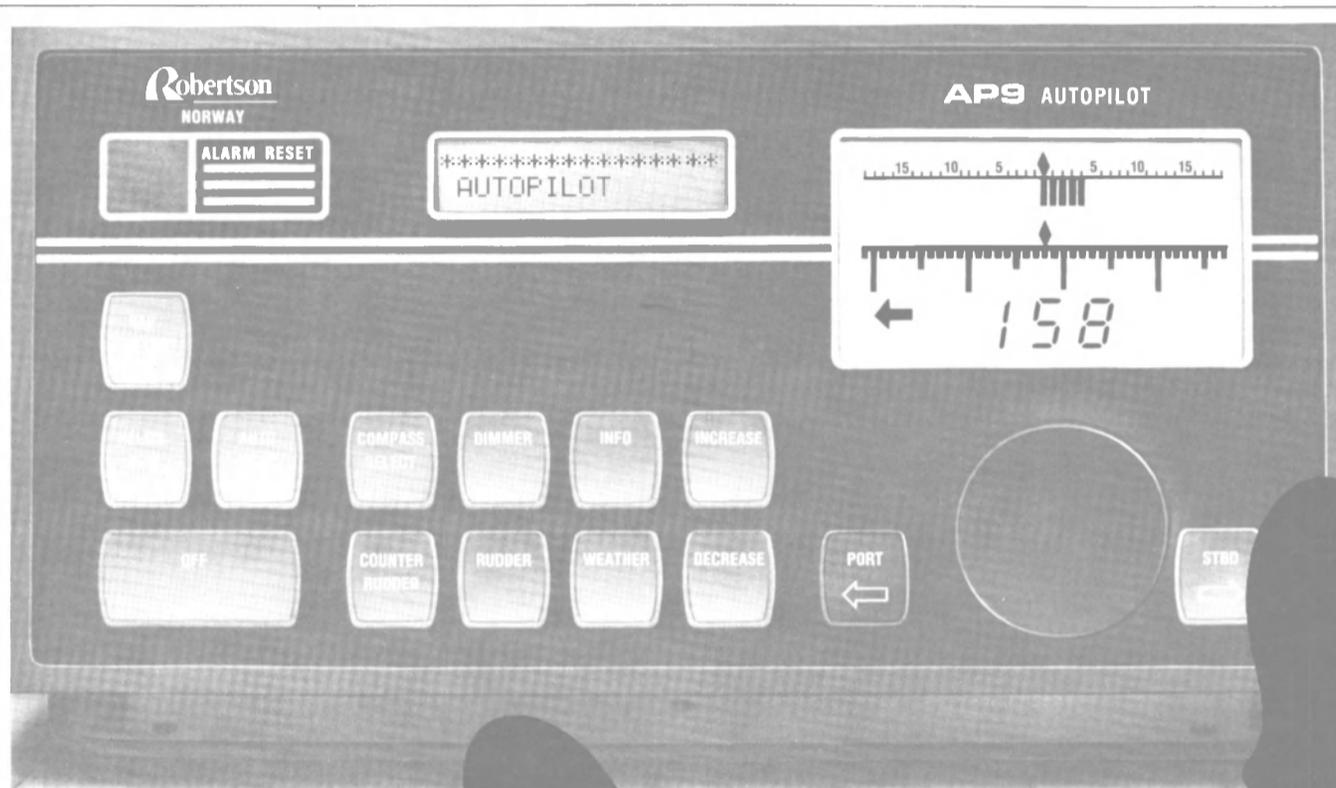
BETTY EDWARDS
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The new vessel is named after the mother of Tom Edwards, Iowa Marine's board chairman. She has a length of 50 feet, beam of 22 feet, and depth of 7 feet; the pilothouse has an eye level of 25 feet.

Twin Cummins NTA-855 main diesel engines develop a total of 650 bhp at 1,800 rpm. Two Twin Disc 5.17:1 reduction gears turn 54-inch Kahlenberg propellers through 5-inch shafts. Electrical power is provided by a 25-kw Lima generator driven by a 3-cylinder Duetz air-cooled diesel. Other equipment includes a Dayton air compressor, Humphrey sanitary system, hot water heater, air conditioners, electric range, and refrigerator.

The vessel has many innovative design features that add to her versatility and ease of maintenance. The pilothouse measures 8 by 8 feet and has deep windows that provide complete visibility to all four corners of the boat from the operator's seated position. The second deck is equipped with a full fleet deck, specially designed for strength and



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any pilot
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Just about any medium or large vessel can benefit from the AP9. Course, system status and user-selected operating mode are clearly shown on two crisp LCD's. The AP9 has such standard features as built-in interfaces for magnetic compass, any brand gyrocompass, and any NMEA-compatible Loran C/satnav receiver. Backlighted pushbuttons control all operating functions. However, the familiar rotary knob is retained for easy course selection. Other conveniences include a complete range of options to tailor the AP9 to the specific requirements of any class of commercial vessel or large yacht.

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Betty Edwards

(continued from page 21)

by using the sea cock. A 12-volt Jabsco automatic pump, separated from the engine room bilge, pumps the stuffing box drain water directly overboard even with the vessel completely shut down.

A spacious, paneled bunk room with a full head is located on the main deck, and a small, fully

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BIG ORANGE XXI Moss Point Marine

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tons of fuel oil, 550 tons of potable water, 12,000 cubic feet of cement/bulk cargo, and 1,000 tons of deck cargo.

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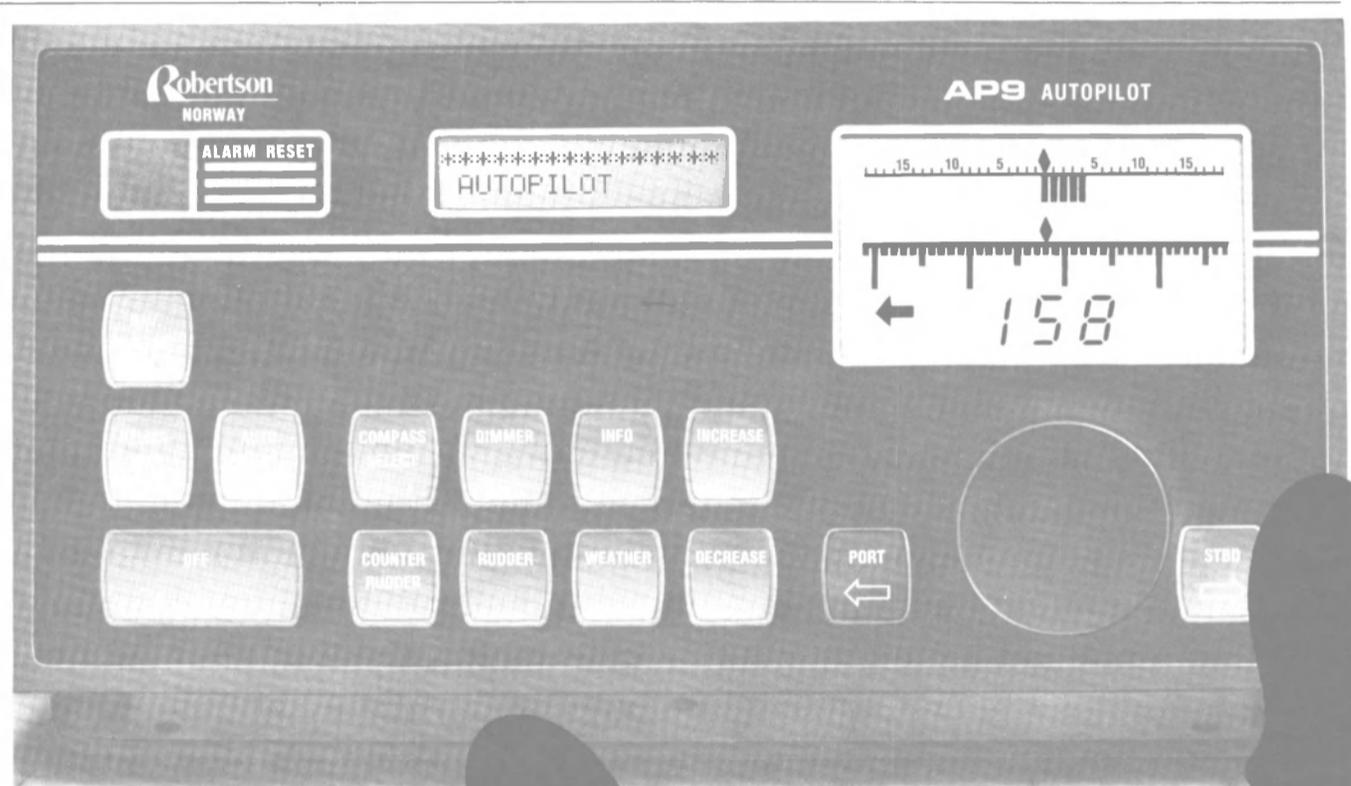
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Navigation equipment on the ves-

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your boat's reliability ...**

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sel includes Furuno radar, two USA Standard Horizon VHF's, Micro-Logic loran, and Datamarine depth sounder. Monitors and alarms are International Electronics Ltd./16-point system, horns are by Kahlenberg, and running and navigation lights are by Perko.

The Carol Jean has the capacity for 5,100 gallons of fresh water and 9,320 gallons of fuel.

Eastern Marine is a growing company that has earned a reputation as a builder of high-quality vessels with exceptionally good workmanship. The company operates yards in both Panama City and Allanton, Fla.

"FIREBOAT" MonArk Boat

The City of Memphis, Tenn., at mid-84 placed in service a new fireboat built by MonArk Boat Company of Monticello, Ark. The Memphis Fire Department specified two major requirements when ordering the new boat; the craft should be small enough for trailer mobility but also large enough to handle the variety of marine fire problems that confront the department.

The all-aluminum vessel is powered by twin Cummins model 6BT high-speed, marine diesel engines. Each engine has an output of 152 bhp at 2,500 rpm. A third identical diesel drives the boat's fire pump, Hale model 60FJ-M rated at 1,200 gallons per minute. These diesels are the first Cummins engines of this model and type installed in a workboat application; they are part of the new Cummins small B-series, fuel-efficient engines.

The new craft, which has attained a speed of 28 mph upstream and 33 mph downstream, will be based at the Memphis Fire Department's downtown headquarters. It will remain on the trailer at all times except when it is responding to fire



emergencies on the Mississippi River and McKellar Lake.

The boat is equipped with a forward deck monitor, Elkhart model 294-11X, rated at 1,100 gpm; the monitor is fitted with a CSW Select-O-Flow nozzle and foam stem. Two spill fire protection sprays, 1-inch Elkhart model NTL-CF 1, are located under the forward deck, with remote controls at the operator's console. The boat is fitted with a 100-gallon foam tank capable of discharging 3- or 6-percent concentrate

through the forward monitor or spill protection nozzles.

Electronics aboard include a Raytheon model 1200 radar and a Raytheon D250 Fathometer.

GLOMAR BALTIC I Marathon LeTourneau

The Glomar Baltic I, first Marathon LeTourneau Super 300 Class jackup drilling rig, recently began

its first drilling assignment in the Gulf of Mexico. The rig, which is being operated by Global Marine Company, was built at Marathon's Gulf Marine Division in Brownsville, Texas. A new design, the Super 300 is a large jackup designed to work in locations with water depths and environmental conditions too severe for standard 300-foot water depth jackups but not hostile enough to require a Marathon Gorilla Class rig.

(continued on page 24)

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Glomar Baltic I

(continued from page 23)

The Glomar Baltic I is fitted with the Super 300's optional leg length of 515 feet (the standard length is 448 feet).

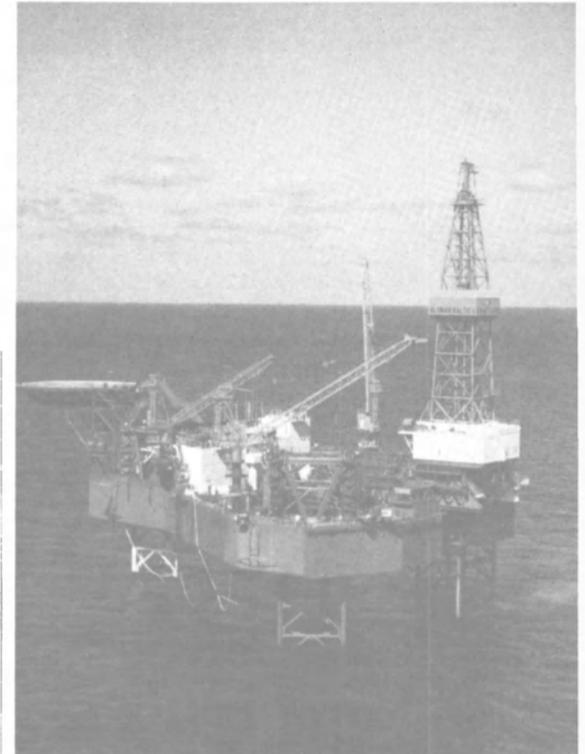
In this enhanced configuration, the rig can drill in 350 feet of water with 100-knot winds and 55-foot-high waves.

Like the Gorilla rigs, the Super

300 utilized the Marathon LeTourneau Slotilever™, which allows drilling in both the slot and cantilever positions. With the derrick package over the slot, the rig's drilling mode and survival mode are the same.

The new rig's hull is 270 feet long by 268 feet wide by 28 feet deep. It is designed for a normal elective variable load capacity of 4,250 tons plus 650 tons derrick pull-in load.

The Super 300 is classed + A1 by the American Bureau of Shipping and built in accordance with the Mobil Offshore Drilling Unit Regulations of the U.S. Coast Guard. When required by the customer, the Super 300 can be constructed to meet the requirements of the U.K. Department of Energy, the Netherlands Department of Mines, and other regulatory bodies.



HALEAKALA
McDermott

A unique self-loading/unloading container barge, the Haleakala, was delivered to Matson Navigation Company recently by McDermott, Inc., followed soon after by a sister barge, the Mauna Loa. Each barge is capable of carrying 216 containers of various sizes, including dry and refrigerated boxes and auto frames, plus 1,700 long tons of molasses in bulk.

Total cost of each barge, which has a beam of 64.5 feet, was about \$9.5 million, including the revolving container-handling cranes that will travel atop massive steel girders supported by pillars rising from the deck. The cranes were built in Japan under a separate contract, and will be installed when the barges arrive in Honolulu following a 7,200-mile tandem tow that is expected to take about 34 days.

Innovations designed by Matson engineers include adjustable cell guides for securing containers and a remote-controlled stern thruster to aid in docking.

The new barges were built in three sections at different McDermott yards—the bow sections in New Iberia, La., the stern sections with machinery at Morgan City, La., and the midbodies at Gulfport, Miss., with final assembly at Morgan City.

The Haleakala and Mauna Loa will operate in Matson's "Neighbor Islands" feeder service between Honolulu and Hilo, on the Island of Hawaii; Kahului in Maui; and Nawiliwili in Kauai.

KLONDIKE
Nichols Brothers

A hallmark event for Nichols Brothers Boat Builders of Freeland, Wash., was the recent christening of

(continued on page 26)

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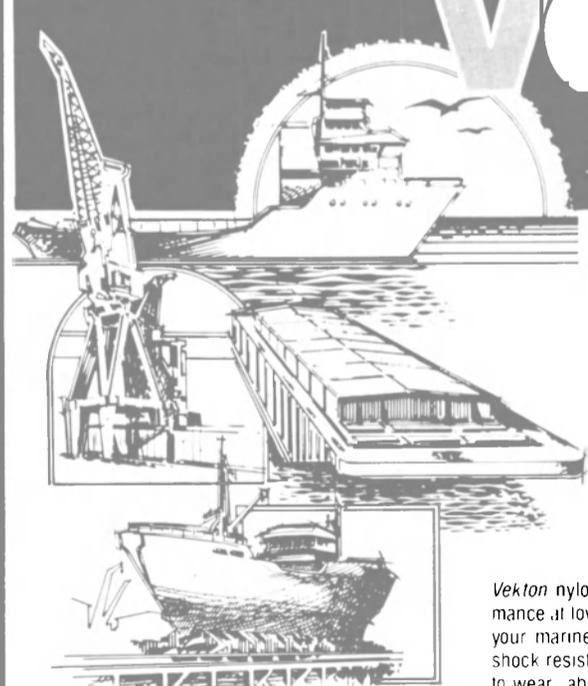
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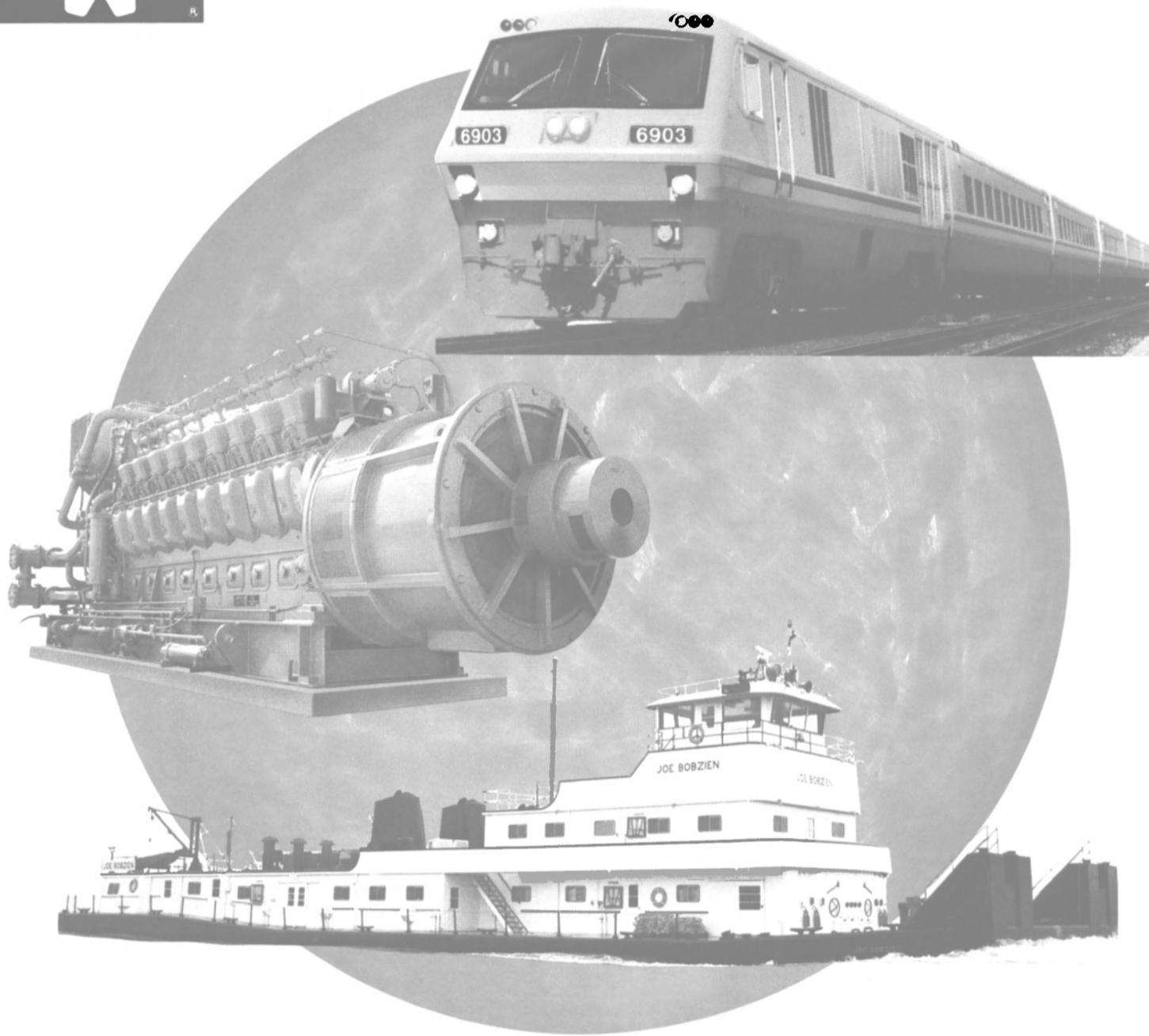
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Alco Power Inc.
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Klondike

(continued from page 24)
the M/V Klondike, a unique 72-foot high-speed catamaran built for Yukon River Cruises of Alaska. The first of its kind to be built in the U.S., the vessel, which can carry 210

Haleakala-McDermott: details on page 24



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passengers, is powered by two Caterpillar 3412 TA main engines (Nigata 2.5:1 reverse reduction gear) and can reach a cruise speed of 28 knots. The hull and superstructure was specially designed by Nichols Brothers to allow for convenient landings on the banks of the Yukon where the vessel will cruise during 1985. Until then, after carrying passengers between Long Beach and Catalina Island during the Los Angeles Olympics, it moved to San Francisco for a season of dinner cruises.

On hand to celebrate its maiden voyage was designer **Philip Hercules** of International Catamarans, Australia as well as 150 passengers from the government and private sectors invited to enjoy the ride to Seattle. A rubber buffer positioned between the hull and passenger cabin ensured a smooth, quiet ride. Deluxe appointments include two carpeted decks, upholstered seating, oversized windows for outdoor viewing, gift shop, and full bar and galley.

LANDING QUEEN Walker Marine

The 500-passenger Landing Queen, a 290-ton displacement sternwheel riverboat, was christened recently at the Landing at Seven Coves, a country club/resort hotel on Lake Conroe, Texas. The vessel is owned by **Wilburn S. Bruce**, owner of the resort.

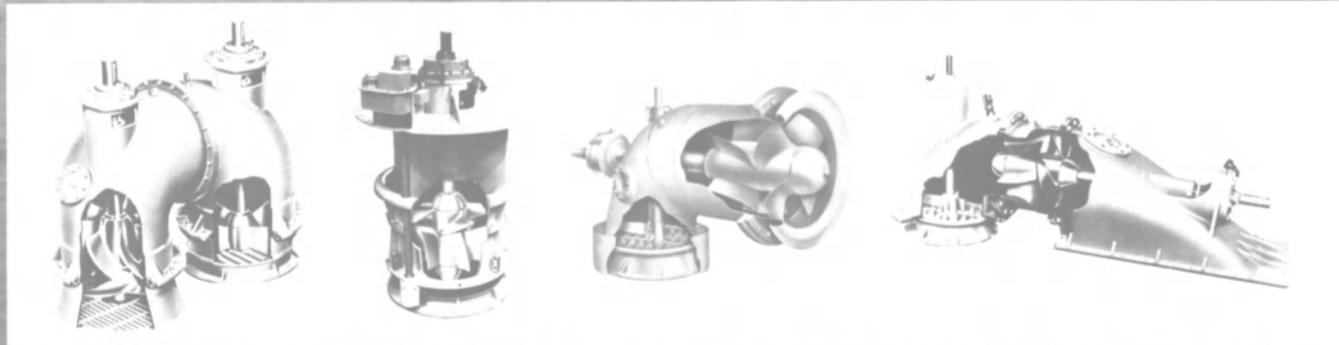
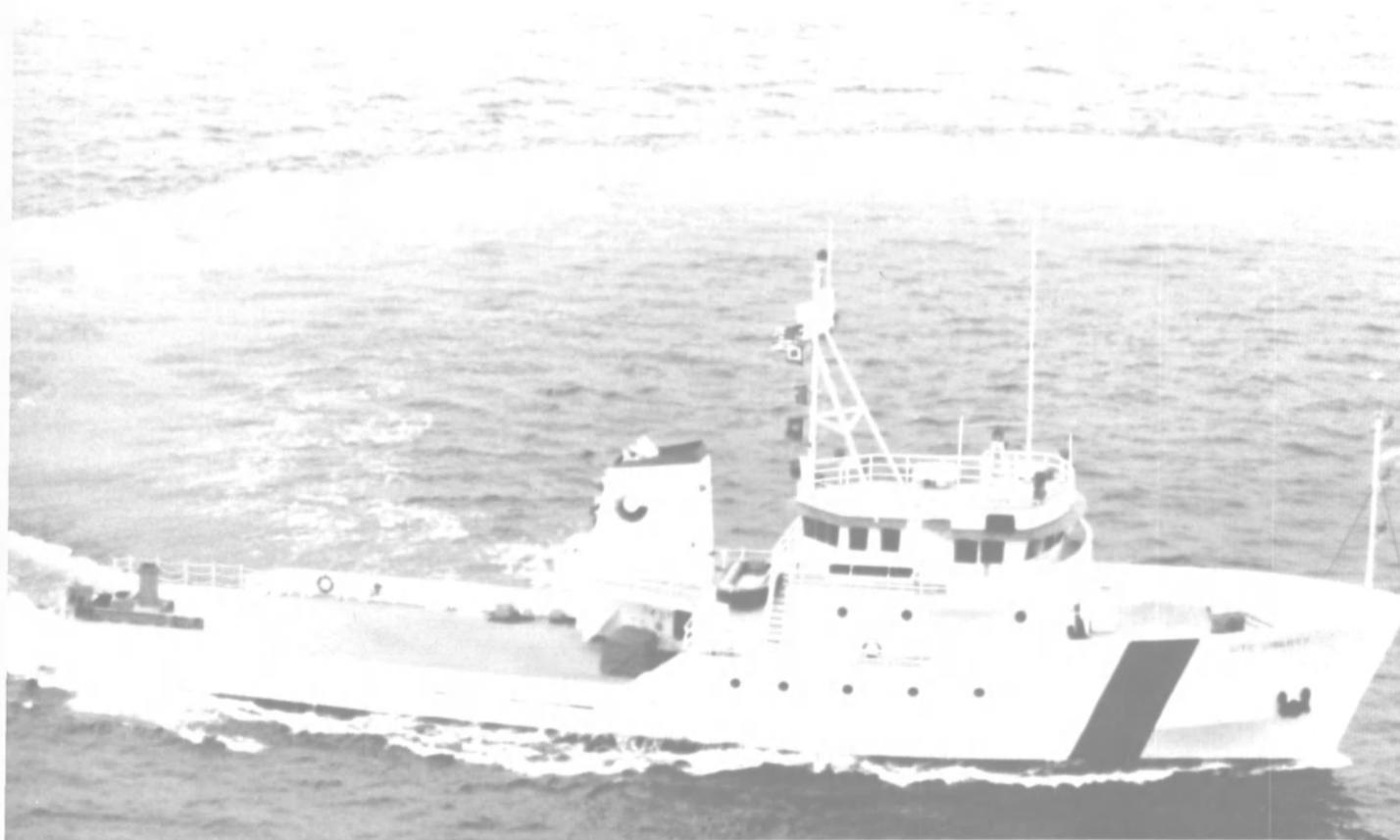
The Landing Queen measures 120 feet from bow to sternwheel, has a 38-foot beam, and is 38 feet from her keel to the top of the pilothouse. The boat is said to be one of the largest to navigate any inland lake in the U.S.

The all-steel vessel was constructed by James K. Walker Marine, Inc. of Moss Point, Miss. It was built in modular sections that were then tack-welded together. After approval by the American Bureau of Shipping it was disassembled and shipped overland by truck to the Landing's site on Lake Conroe, where it was reassembled and permanently welded by Walker craftsmen. Finish carpentry and outfitting were done locally.

The Landing Queen is distinguished from other paddlewheelers in Texas because she has an authen-

(continued on page 32)

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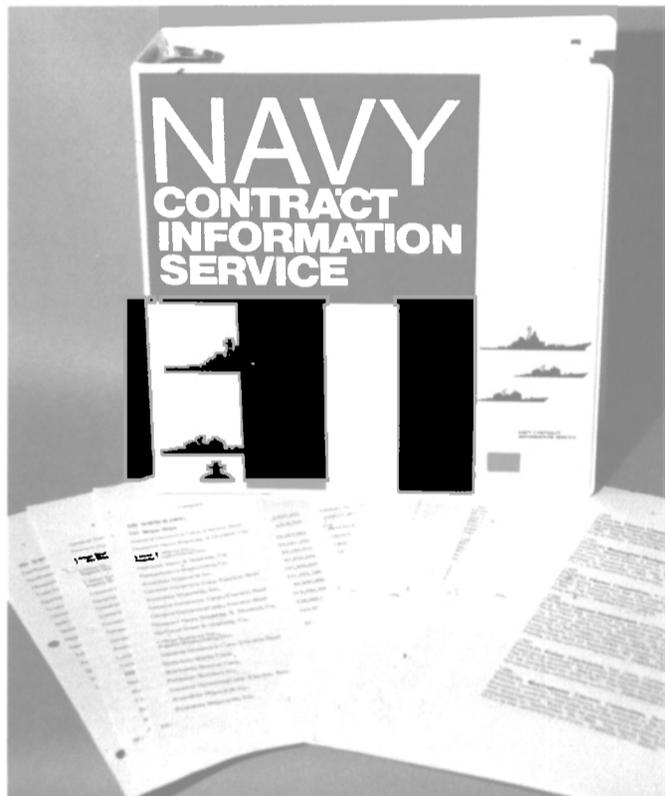
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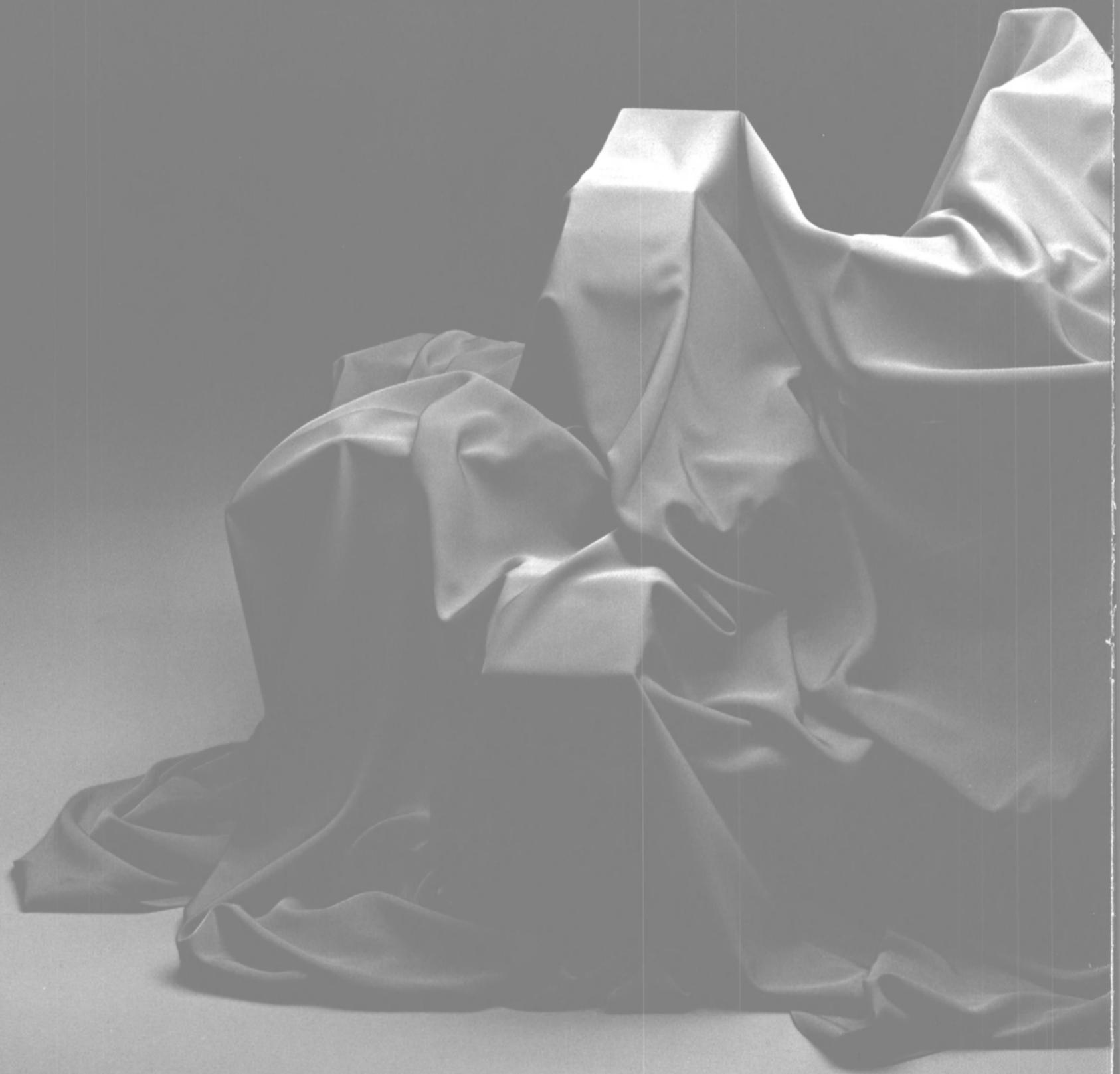


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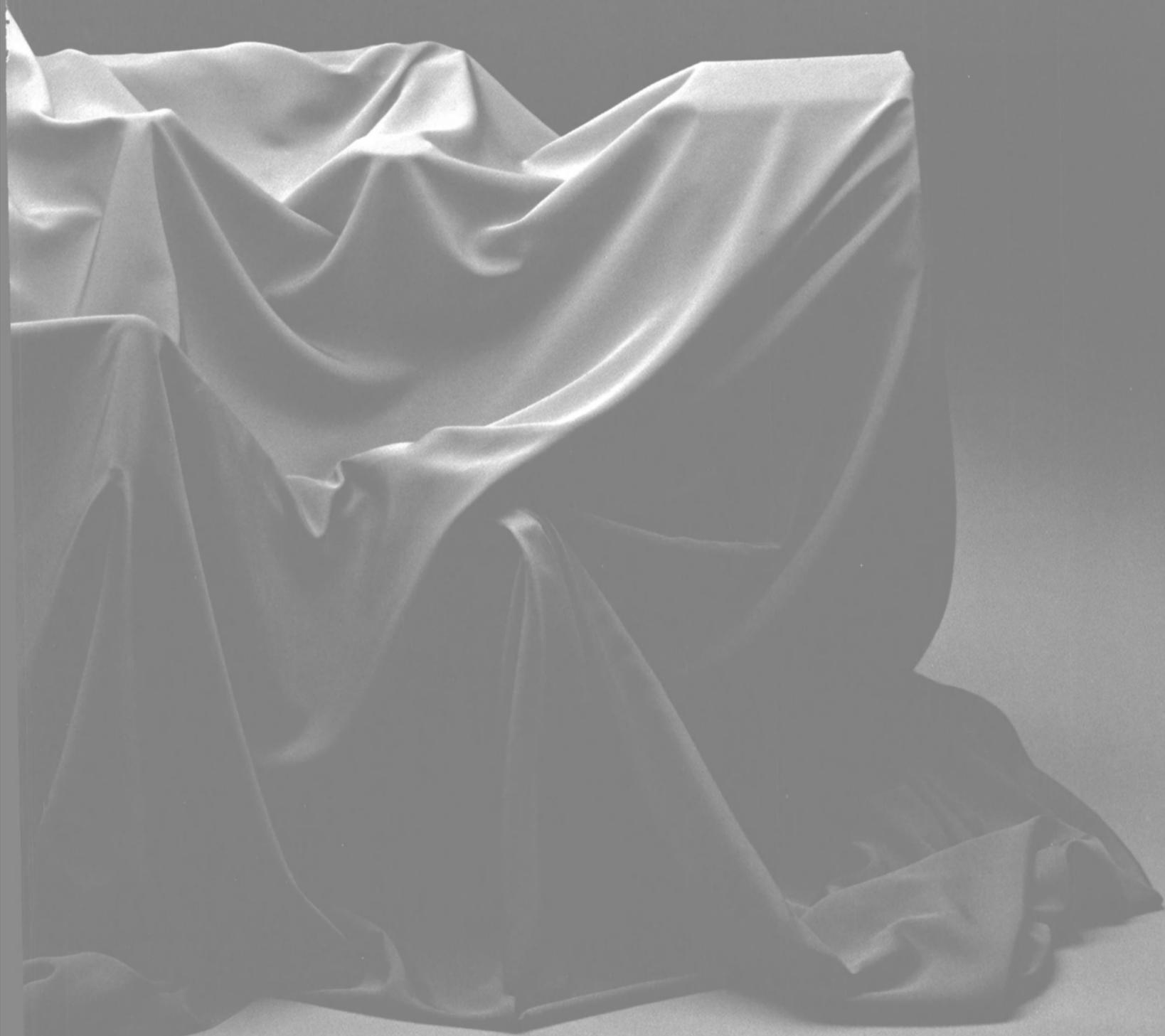
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Landing Queen

(continued from page 26)

tic riverboat structure, rather than a superstructure built on a barge. Her curvilinear design is dictated by the fore-and-aft sheer and the side-to-side camber of the decks, which is the mark of all true riverboats. The vessel was designed by naval architect **William G. Preston**, owner and president of Marine Power, Inc., Gulf Breeze, Fla.

Beneath the elegant Victorian facade, the Landing Queen is as modern as she is beautiful. The vessel is powered by two 18-foot-diameter paddlewheels that are independently controlled and fully reversible for maximum maneuverability. The paddlewheels are driven by two variable-speed hydraulic motors that are powered by two 200-bhp GM Detroit Diesel engines. Each engine drives a 40-kw electric generator, providing 120- or 220-volt power.

The Grand Salon on the Main Deck is enclosed, with year-round Carrier air conditioning. It seats 124 for dinner, features a stage for plays and musical entertainment, and has an antique-style bar. Five brass and cut glass chandeliers, 26 sconces, Encarnex marble, custom-cut leaded and beveled doors and windows, antique-style floral carpets, and 80,000 linear feet of solid oak moldings and rift-cut raised oak paneling are blended in a rich setting of colors and textures.

The Boiler (second) Deck is covered by the third deck but the sides are open to the lake breezes. This deck is for moonlight cocktail dance cruises. It is appointed with Honduran mahogany decking, carved glass panels, antique-style bar, authentic embossed tin ceilings, a bandstand for live music, and imported marble restrooms.

The Hurricane Deck and the Texas Deck form the split-level third deck. The Texas Deck is the uppermost deck upon which the pilot-house is installed. The Hurricane Deck wraps around the Texas Deck and is the favorite for observation, as it is the highest public deck and is open. Another antique-style bar is located on this deck.

MISS JULIE Gladding-Hearn

Designed by **Robert Henry** of Bay Marine, Inc. and built by Gladding-Hearn Shipbuilding Corpora-

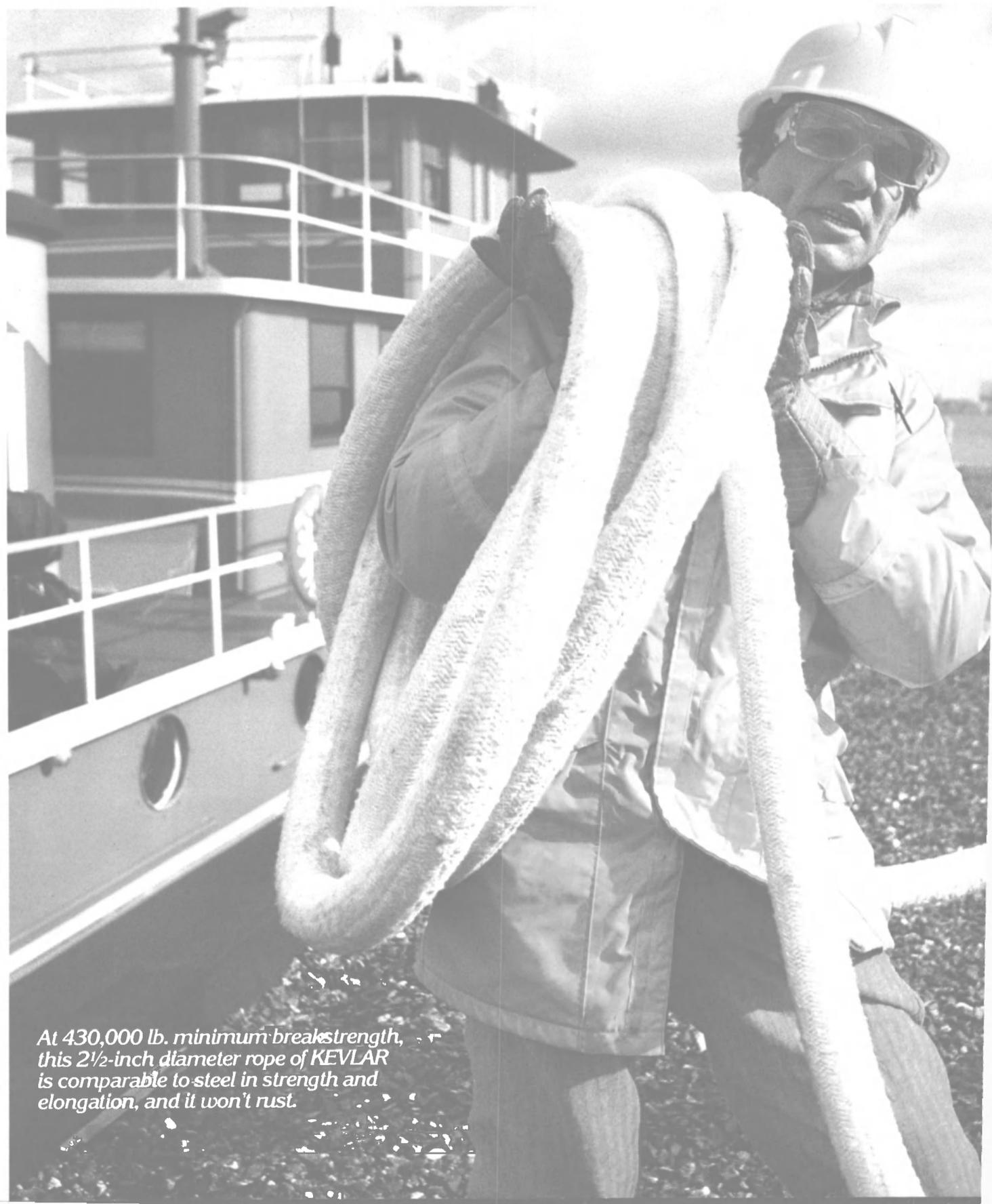
tion for **Robert P. Stevens** of Buzzards Bay, Mass., the lobster boat Miss Julie is an all-aluminum, 65-foot single-screw vessel that combines speed, maintainability, economy of operation, and comfort in a lightweight but rugged boat.

The Miss Julie has some definite differences from the usual lobster boat design. Her unpainted aluminum hull is a rarity for offshore fishing vessels. An aft-mounted, 12-cylinder diesel, together with light-

weight construction, provides significant speed and fuel-saving advantages. Up-and-down, amidships lobster tanks are designed for ease of unloading, and controlled water levels provide added weight savings. These features, among others, will provide longevity of service, speed enhancement, low maintenance requirements, and operational efficiency.

The vessel's M.A.N. diesel engine, model D-2543-MLE, is rated 515

Ropes of Kevlar offer at 1/5 the weight topside

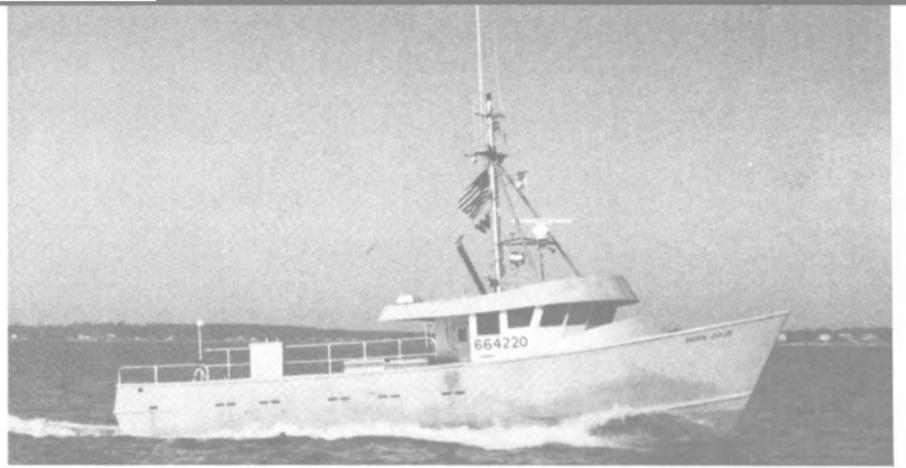


At 430,000 lb. minimum break strength, this 2 1/2-inch diameter rope of KEVLAR is comparable to steel in strength and elongation, and it won't rust.

bhp at 2,100 rpm. Cooled by a heat exchanger, the engine drives a Columbian Bronze 40-inch, 4-bladed stainless-steel propeller through a Twin Disc 3:1 reduction gear and Armco Aquamet-17, 3½-inch-diameter shafting. This efficient propulsion system moves the lightweight boat at speeds up to about 14.5 knots.

Topside, the Miss Julie has a 19-foot beam, with a spacious deck aft capable of accommodating 40-50

lobster traps. A 14-inch hydraulic pot hauler, driven off the main engine and controlled from the pilot house, is fitted to the aft bulkhead of the cabin. Amidships are two fully insulated holding tanks with a combined capacity of some 16,000 pounds of lobster. The tanks and their piping systems are designed so that the level of the holding water is held at just what is needed to cover the quantity of lobsters caught. Both tanks are fitted with bottom



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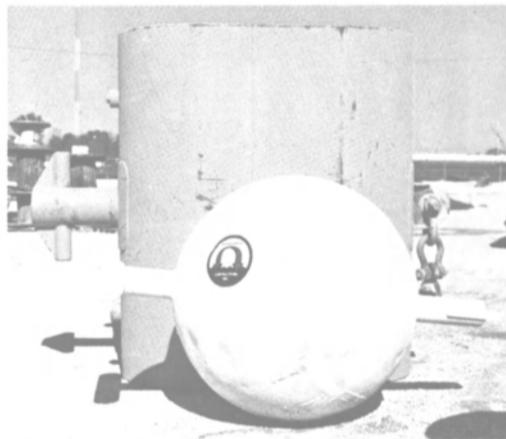
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The small, less expensive buoy handles a pendant line of KEVLAR. A buoy 20 times larger in volume is needed to handle the same length of steel line.

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aluminum trays that are raised and lowered by an electric hoist to bring the catch to the surface for ease of unloading. A circulating water system, as well as a backup aeration unit that infuses filtered air into the holding water, serves both tanks.

In addition to her functional efficiency, the Miss Julie offers a full range of amenities for convenience of operation and crew comfort. She has a spacious, well-insulated and electrically heated pilothouse fitted with starboard control station, charting area, captain's berth, day galley, and locker area with access to the engine room. The front of the pilothouse is of "West Coast" design, with forward-slanting windows and protective visor. This arrangement allows more space for overhead mounting of electronics, and generally enhances visibility in bad weather. Crew quarters in the forecastle has accommodations for four hands and includes a galley area, mess table with settees, bunks, head/showers, and storage area.

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Radars	Raytheon & Furuno
Fathometers	Furuno
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Anchor	Danforth
Searchlight	Perko
Navigation Lights	Aqua-Signal

MOBIL JOLIET St. Louis Ship

The 3,600-bhp towboat Mobil Joliet, designed and built for Mobil Oil Company by the St. Louis Ship Division of Pott Industries Inc., features the St. Louis Ship exclusive Super Hydrodyne hull. The new vessel, which replaced the Mobil La-Crosse built by St. Louis Ship in 1951, will operate out of Mobil's Joliet, Ill. refinery.

Mobil Joliet has an overall length of 140 feet, beam of 44 feet, depth of 10 feet 6 inches, and normal operating draft of 8 feet 6 inches at her design draft. The all-welded steel hull is heavily framed longitudinally and transversely, with the aft deck raised to provide additional strength to the stern.

There are 11 fuel oil bunkers with (continued on page 34)



Mobil Joliet

(continued from page 33)
 a total capacity of some 75,000 gallons, two wash water tanks having a total capacity of 7,000 gallons, two potable water tanks with a total capacity of 9,000 gallons, a 2,600-gallon bilge holding tank, one 1,800-gallon sewage holding tank, two 1,300-gallon lube oil storage tanks, and a 2,600-gallon dirty oil holding tank, all built into the hull.

NEW HIGH EFFICIENCY ON THE HIGH SEAS

WITH MAXIM® HEAT RECOVERY SILENCERS AND MAXIM® HEAT RECOVERY EVAPORATORS

ENERGY CONSUMPTION = ZERO

These small Maxim Heat Recovery Silencers also include spark arresting, and generate over 6,000 #/hr of 60 psig steam from propulsion engine exhaust heat.

Units are aboard the Falcon Leader, built by Bath Iron Works Corporation. Steam produced is used for the tanker's heating system, evaporators, and for tank cleaning.

HEAT SOURCE = FREE

Maxim Thermal Circulation Flash jacket water heat recovery evaporators each provide 11,000 gpd of 2 ppm fresh water. Two units are aboard this Atwood Oceanics, Inc. rig. Shenandoah, shown operating in the Arabian Sea. All material in contact with sea water is of 90-10 copper nickel alloy for maximum corrosion resistance.



Propulsion power is provided by two Wartsila 12V22HF diesel engines capable of burning blends of residual fuel, each developing 1,800 bhp at 900 rpm. These drive two five-bladed, stainless steel 102-inch propellers through Lufkin RHS 3022 offset reduction gears. The engines and gears are cooled with water circulated through a St. Louis Ship-designed skin cooling system. The engines can be started from the engineer's control booth or the pilothouse, and are controlled by Tracor Marcon equipment installed in both locations.

The new towboat is equipped with a Tracor Marcon monitoring system that features a video monitor in the engineer's control room, the pilothouse, and the engine room. The system is designed to accept information from 168 sensor inputs, which include various parameters such as pressures, temperatures, switch closures, rates, voltages, etc.

A Matthews electro-hydraulic, two-speed power package having two service and one standby dual-output pumps provides the power to the hydraulic system for the two steering and four flanking rudders. This system provides for electrical wiring and mechanical linkages for follow-up in the steering compartment.

Electric power is supplied by two GM Detroit Diesel 125-kw diesel generator sets. A Simplex deadfront switchboard is wired for parallel operation of the generators.

The engine room is soundproofed and is provided with overhead trolleys and hoists port and starboard. Each generator room is partitioned off by soundproof panels for isolating the diesel generator sets.

Deck machinery consists of one Schoellhorn-Albrecht 10-hp, motor-driven, double-barreled capstan; two Beebe 5-hp, motor-driven winches; and a Sasgen derrick boat davit located aft on the second deck to handle supplies and a small workboat.

A FAST Model L4 sewage treatment plant processes the sewage (continued on page 36)

MOBIL JOLIET Major Suppliers

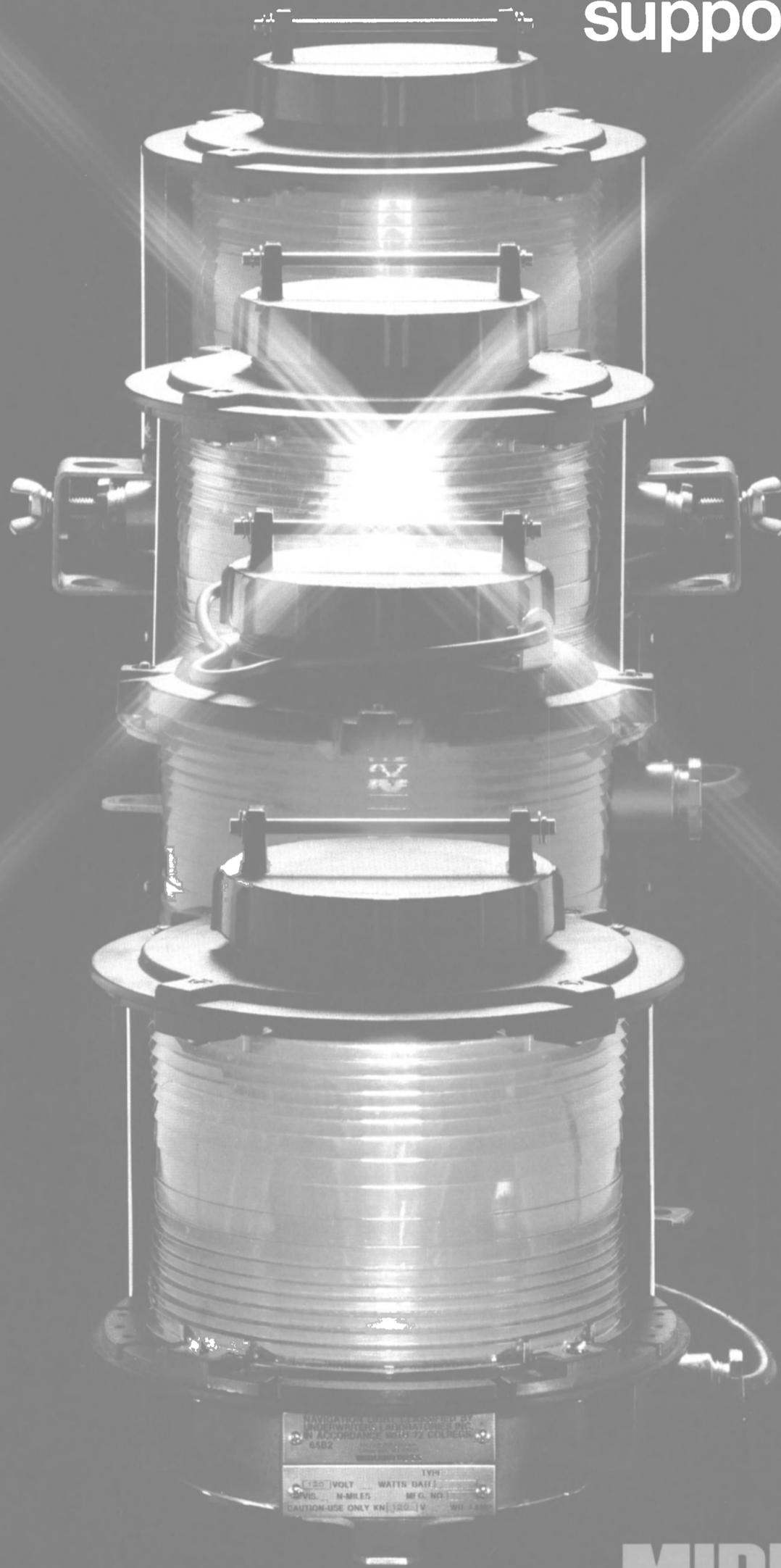
Main engines (2)	Wartsila
Reduction gears (2)	Lufkin
Engine controls, monitoring system	Tracor
E-H power package	Matthews
Generators (2)	Detroit Diesel
Switchboard	Simplex
Halon & CO ₂ systems	Kidde
Auto. lube system	Lincoln
Bearings	Thordon
Air compressors	Quincy
Hot water heaters	Hatco; A.O. Smith
Oil/water separator	Bowser Briggs
Heat exchanger	Alfa-Laval
Oil-fired boiler	Keewanee
Air conditioning	Carrier
Fan coil units	McQuay and Burnham
Searchlights (2)	Carlisle & Finch
Air horn	Kahlenberg
Radars (2)	Decca
Radiotelephones (2)	Uniden
SSB radio	Motorola
Swingmeter	Anschutz
Sound-powered telephones	Hose McCann
Intercom & PA systems	Dukane
Pumps	Deming; Granco; Marlow; Viking

P.O. Box 31115, Shreveport, Louisiana 71130-1115. Phone (318) 865-6351. Telex 50-7472.

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Circle 326 on Reader Service Card

The Long Life LiteTM from Russellstoll. Because we don't think lamps are supposed to break.



Maybe you expect navigation lamps to fail. After all, seaworthy vessels rock, shake and vibrate—and how much punishment can a lamp be expected to take? Chances are you just allow for the expense of breakage and a reduced safety factor while the lamps are out.

At Russellstoll, we don't think you should make such allowances—or waste your money. That's why we developed the new Long Life Lite. It's actually a complete new family of navigation lights with a shock- and vibration-proof lamp holder that extends lamp life dramatically because it reduces the chance of failure due to external vibration or shock. *No competitive navigation light offers this protection.*

An unbroken list of benefits.

The lamp holder features a tight rubber gasket that lets the lamp reach its rated life, saving you time and money. What's more, the Long Life Lite is dust-tight and water-proof so it resists the direct spray of seawater under pressure.

From the lightweight polyester housing that resists temperature extremes to a virtually unbreakable polycarbonate lens that fights off saltwater, the Long Life Lite is a study in smart design. Even down to the smaller details, such as our brass fittings and mounting plates.

U.L. listed in accordance with 72 COLREGS.

The Long Life Lite has been thoroughly tested and meets all international regulations. It's U.S. Coast Guard approved. Previously, only one other navigation light was rated acceptable by 72 COLREGS.

See the light.

Start saving money. Get the Long Life Lite at your local Russellstoll Marine distributor, or call your Russellstoll representative.

Midland-Ross Corporation
Russellstoll Division
530 W. Mt. Pleasant Avenue
Livingston, NJ 07039
Phone: 201/992-8400
Telex: 13-8403

MIDLAND ROSS

Mobil Joliet

(continued from page 34)

from the toilet drains, and is valved to discharge to the sewage holding tank, overboard, or to a flanged connection on the main deck.

Seven staterooms are provided on the second deck for the captain, pilot, guest, and four crew cabins. All living quarters, lounge, galley, mess, and pilothouse are air condi-

tioned with either hot or chilled water circulated through McQuay and Burnham fan coil units. A combination heating and air conditioning system is installed. The primary source of heating is circulating water through an Alfa-Laval heat exchanger utilizing the generator diesels' cooling water system. The secondary source of heating is by a Keewanee oil-fired boiler. The air conditioning system is a Carrier 20-ton, packaged liquid chiller refriger-

ation unit with two 10-hp electric compressors.

Navigation and communications equipment includes two Decca radars, two Uniden VHF-FM radio-telephones, one Motorola Modar Triton SSB radio, one Anschutz swingmeter, one Elac LAZ depth sounder, a Hose McCann sound-powered telephone system, and Dukane intercom and public address systems.



MUSIC CITY QUEEN Marine Builders

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

The 135-foot luxury riverboat was built by Marine Builders in Utica, Ind. She sailed down the Ohio River to Paducah, Ky., then up the Cumberland River to Nashville. The fourth vessel in the company's fleet, the Queen sails on regularly scheduled cruises from Nashville's Downtown Riverfront Park, which was the original site for docking of steamboats about the turn of the century.

"The Music City Queen has been created in the tradition of the stern-wheeler riverboats that dominated Southern rivers in the 1800s," explains Dr. **Claughton**, "and has a decor designed to transport passengers back in time to an era in history when riverboats were the source of entertainment, fine dining, and escape from the fast pace of life."

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

The new Queen, which has an 85-foot hull and beam of 35 feet, com-

Let's face it. In order to stay afloat today, shipping companies need to squeeze the most out of every dollar spent and continue to find ways to make their fleet more efficient.

One way to protect profits is by upgrading a vessel's conventional bottom paint to Farboil's Sta Clean. Sta Clean, a chlorinated rubber coating, provides longer exposure time... as much as 30 months! That means extended periods between those costly drydockings

And Sta Clean reduces expensive labor time by going on 5 mls. thick with one coat and can even be applied over existing paint. Since it's a one-pack system, Sta Clean requires no pre-mixing and dries quickly at most temperatures

So the next time you're concerned about cutting costs, don't cut corners — use Sta Clean and protect your bottom line now and later.

Farboil

COMPA
Committed to your future...
today.

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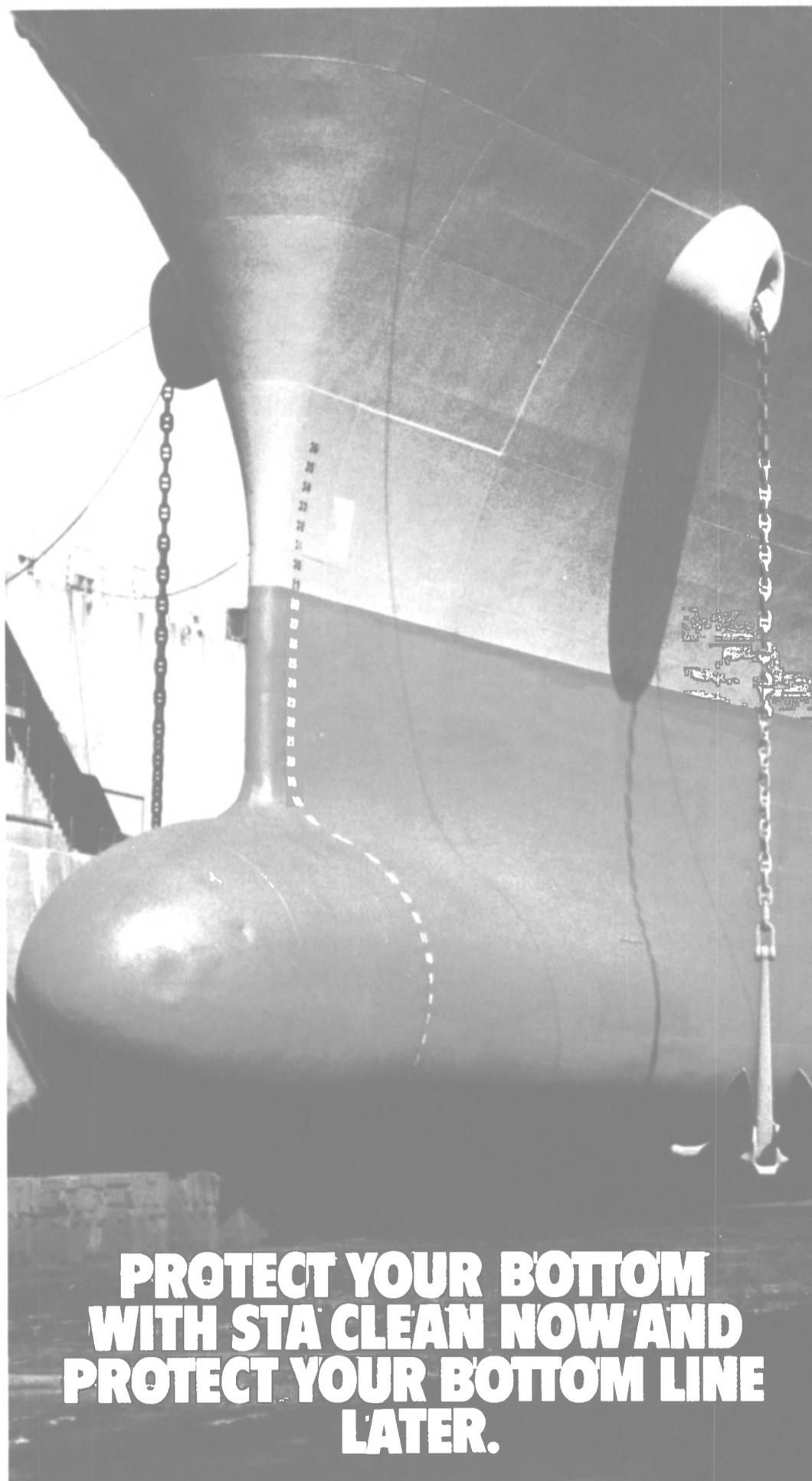
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Telex: WU1 6849014

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New York, NY 10004
Tel.: (212) 344-2070
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New Orleans, LA 70161
Tel.: (504) 525-1307
Telex: 58-4224



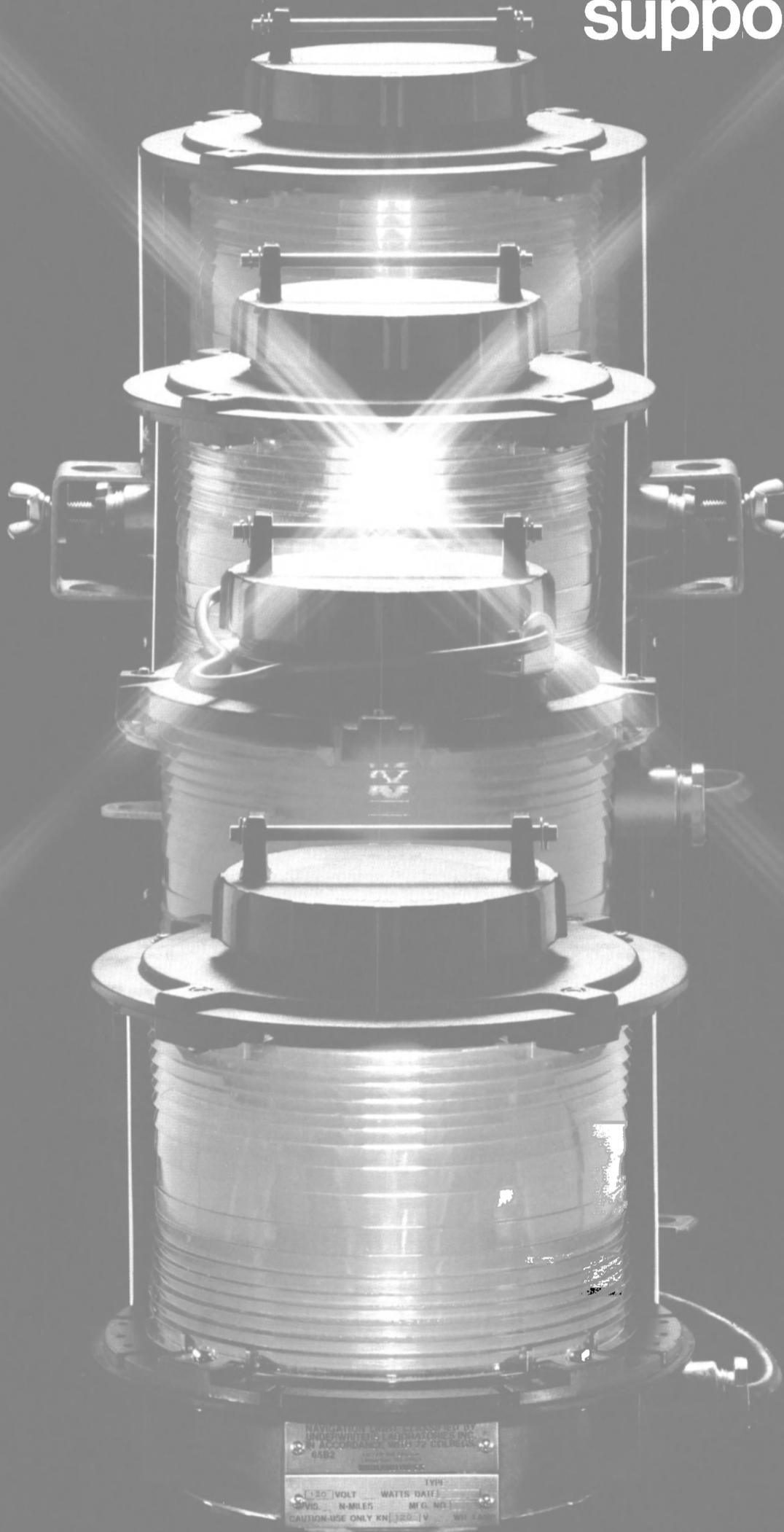
**PROTECT YOUR BOTTOM
WITH STA CLEAN NOW AND
PROTECT YOUR BOTTOM LINE
LATER.**

MUSIC CITY QUEEN Major Suppliers

Main engines (2)	...	Detroit Diesel
Reduction gear	...	Twin Disc
Control Stations	...	Kobelt
Generator	...	Lima
Generator engines (2)	...	Detroit Diesel
Radar	...	Sperry
VHF-FM Radio telephones	...	Raytheon
Loudhailer	...	Apelco
Searchlights	...	Carlisle & Finch
Water chiller (30 Ton)	...	Bohn
Fan coils	...	International Environmental Corp.

Circle 115 on Reader Service Card

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MIDLAND ROSS

Mobil Joliet

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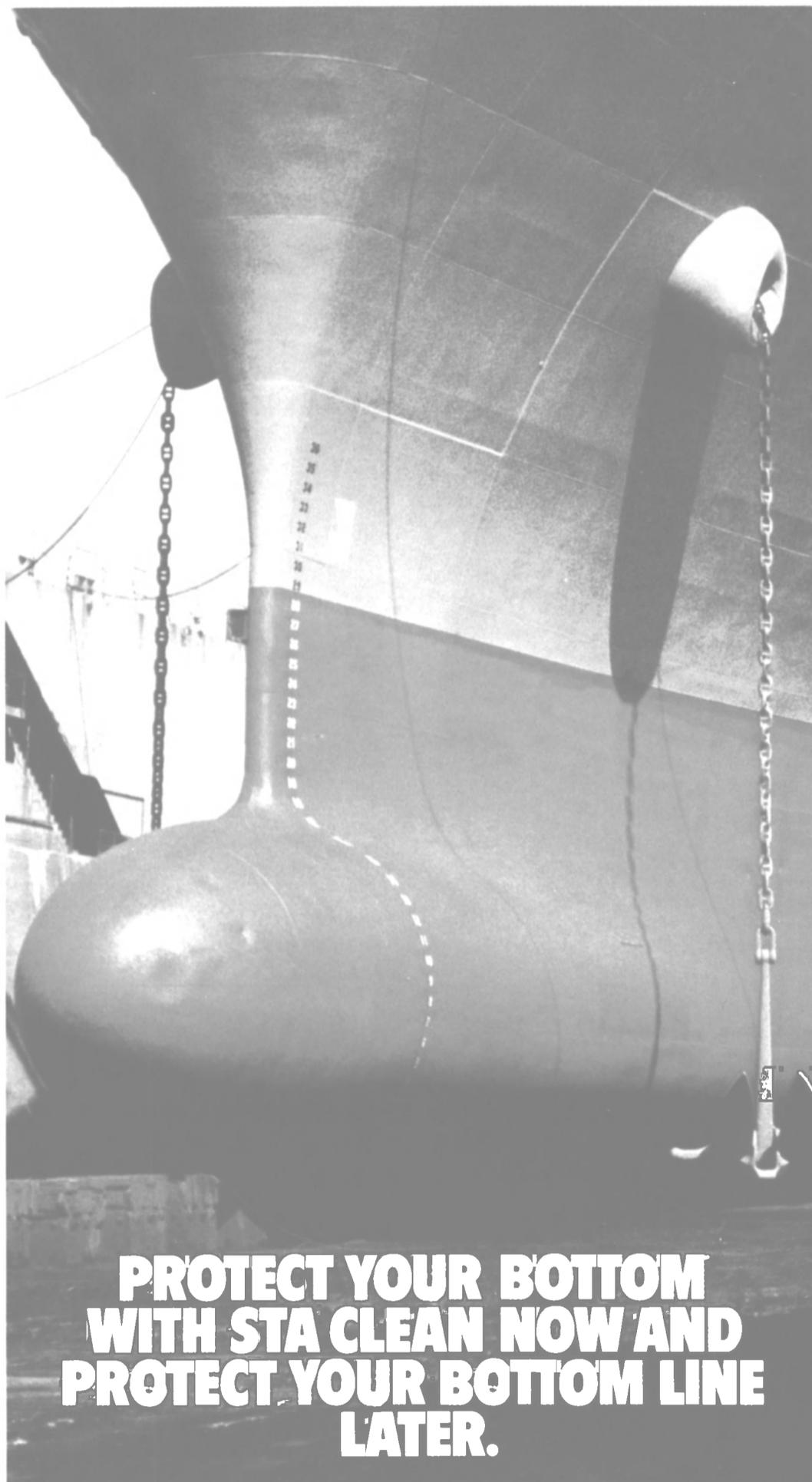
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MUSIC CITY QUEEN Marine Builders

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The new Queen, which has an 85-foot hull and beam of 35 feet, com-

MUSIC CITY QUEEN Major Suppliers

Main engines (2)	.....	Detroit Diesel
Reduction gear	.....	Twin Disc
Control Stations	.....	Kobelt
Generator	.....	Lima
Generator engines (2)	.....	Detroit Diesel
Radar	.....	Sperry
VHF-FM Radio telephones	.....	Raytheon
Loudhailer	.....	Apelco
Searchlights	.....	Carlisle & Finch
Water chiller (30 Ton)	.....	Bohn
Fan coils	.....	International Environmental Corp.

pleted a rigid U.S. Coast Guard inspection prior to entering service, and has the most up-to-date safety features.

NANTUCKET CLIPPER Jeffboat

Jeffboat, Incorporated of Jeffersonville, Ind., recently completed the "ultra-yacht" cruise vessel Nantucket Clipper, second of its type built at the Indiana yard. Constructed for Clipper Cruise Line of St. Louis, the new vessel will operate on seven-day cruises along the Eastern Seaboard, with a winter schedule in the Virgin Islands. Following her December 9 christening in New Orleans, the Nantucket headed for St. Thomas where the inaugural cruise departed on December 23.

The Nantucket Clipper has an overall length of 207 feet, beam amidships of 37 feet, depth of 11½ feet, and draft of 7½ feet. Gross tonnage is 100 and displacement is 1,000 long tons. The hull is constructed of ½-inch steel plate throughout except for the bow and stern, which are ¾-inch plate.

Propulsion power is provided by two GM Detroit Diesel 12V-92 engines, each rated 520 bhp at 2,100 rpm, providing an average cruising speed of 10 mph. The main engines drive, via two Twin Disc reverse/reduction gears with a ratio of 4.06:1, two Columbian four-bladed, stainless steel propellers having a diameter of 48 inches and 39-inch pitch. The console-mounted steering system by SSI has full follow-up control. An Omnithruster bow thruster is powered by a 200-hp electric motor.

Electric power is supplied by three 220-kw International Electric generators driven by Detroit Diesel 8V-92 engines, with Con-Select generator controls. Raw water Alfa-Laval heat exchangers for engine cooling are mounted on each propulsion and generator unit.

In addition to the ICOM M-80

VHF and Motorola SSB communications equipment, the vessel is fitted with two radars satellite navigation system, and Loran C, all manufactured by Furuno.

The Nantucket Clipper's four passenger decks contain 51 state-rooms, all outside with large windows. Normal passenger capacity is 102, but 111 could be carried if upper berths that are fitted in some cabins were used. The vessel has a crew of 25, and is of U.S. registry.

NENE MARCO Seattle

MARCO Seattle recently delivered its second vessel to the Hawaiian Islands, this one a 64-foot steel work boat named Nene. Built for Uaukewai Diving, Salvage and Fishing Co. of Honolulu, the new vessel is named for the now-rare wild goose that is the state bird of Hawaii.

Uaukewai president **Jimmy Smith** points out that the Nene is not a tug, but rather a specialized workboat with a specific mission. She is designed for use in the petroleum industry as a mooring assist, diving, and emergency standby vessel to be stationed at an offshore oil terminal at Barbers Point, five miles off the island of Oahu.

The Nene is 64 feet 3 inches long with a beam of 21 feet and a depth (continued on page 38)

WorkBoats



QuickBoat

MonArk Patrol boats are built to deliver speed without sacrificing durability. We can build the boat to get you there faster, safer and more economically.



LoadBoat

At MonArk, we build boats and barges to fit any operation or certification requirement. We can build one to carry your load faster and more efficiently.



BusBoat

Once your crew is on the boat, their time translates to money. MonArk builds crewboats that get them to the job quicker and more economically.



ToughBoat

MonArk boats are engineered and manufactured to perform under the harshest conditions, day in and day out. A MonArk boat puts a lot of protection between you and rough water.

NANTUCKET CLIPPER Major Suppliers

Main engines (2)	.....	Detroit Diesel
Reduction gears (2)	.....	Twin Disc
Propellers (2)	.....	Columbian
Engine controls	.....	Wabco
Stern bearings	.....	Johnson Rubber
Steering system, autopilot	.....	SSI
Bow thruster	.....	Omnithruster
Generators (3)	.....	International Electric
Generator engines	.....	Detroit Diesel
Generator controls	.....	Con-Select
Heat exchangers, separators	.....	Alfa-Laval
Radars (2), SatNav, Loran	.....	Furuno
SSB radio	.....	Motorola
VHF radio	.....	ICOM
Depth sounder	.....	Datamarine
Gyrocompass	.....	Sperry
Weather facsimile	.....	Furuno
Searchlights	.....	Carlisle & Finch
Navigation & running lights	.....	Perko
Air horn	.....	Kahlenberg
Sewage system	.....	Omnipure

MonArk makes boats that fill just about any job description you can think of. Aluminum hull construction makes MonArk boats faster, tougher and more economical. We've been building tough workboats of all kinds for clients around the world for over twenty years. We've proven that a MonArk boat will provide durability through the years and a better price at resale time.

MonArk offers the industry's largest selection of stock designs, and we can custom design and build to meet your specifications, no matter what the demands of the job. Call us. We'd like to tell you more.

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MR



Nene
(continued from page 37)

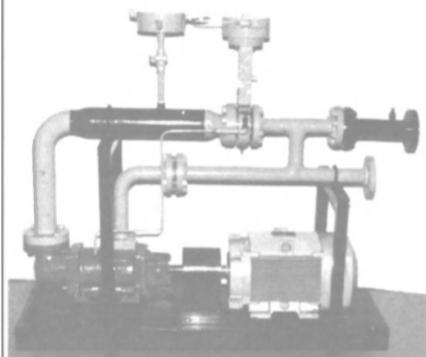
of 8 feet. She is powered by a pair of GM 12V71 diesels with a combined 800 horsepower, driving Coolidge 42-inch four-blade bronze propellers through Twin Disc marine gears. Auxiliary power is provided by two Nissan diesels coupled to 20-kw Lima generators. Hydraulic power comes from a MARCO Hy-

draulic Pump Drive connected to the starboard main engine. The switchboard and electrical system were provided by Harris Electric, and the engine controls by Mathers.

Deck machinery aboard the Nene consists of a 22-ton hydraulic winch built by Lentec of Canada.

Below her raised pilothouse, the Nene boasts some very comfortable and thoughtfully laid-out accommodations, including a complete galley,

**WATER
IN OIL
EMULSIFICATION**



S/S R & D, Inc.
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This A.B.S. and U.S.C.G. approved unit was designed and patented by Chief Engineer **Dannie B. Hudson**. S/S R & D, Inc. developed and perfected this system.

Start-Up: One button, system will adjust to psi and temp.

Combustion: the explosion of water droplets creates secondary combustion.

Excess Air: is reduced by 1/3. Consequently, stack temp. is reduced 20 to 25°F.

Vanadium: secondary combustion eliminates scale. All deposits on water wall tubes are soft.

Sulphuric Acid: is reduced by approximately 50%.

Stack Gas: O₂ is more compatible to IGS.

Fuel Additives: are eliminated.

Savings: 2% to 4% in fuel and 2% to 3% in maintenance.

Track Record: More than 20 systems: Arco, Amerada Hess, Apex Marine, Exxon, Bay Tankers, Petrofina and National Gypsum.

Warranty: One year on material and workmanship.

Data: Available on request. S/S R & D, Inc. 1050 State St., Perth Amboy, N.J. 08862 — (201) 826-1200.

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**Blount Marine: The experienced, flexible designer/builder
of innovative vessels since 1949.**

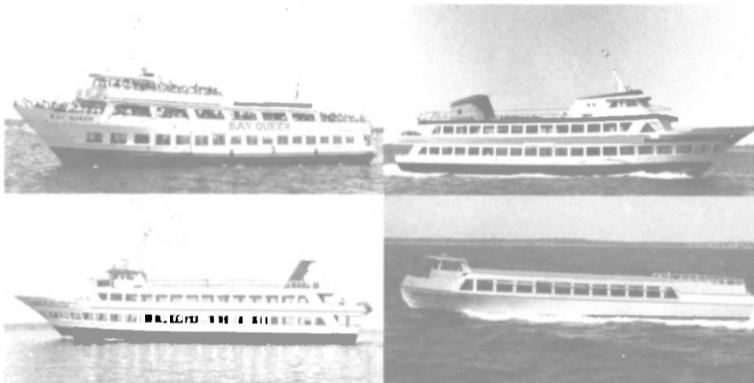
Our versatile marine architects have proved themselves over and over again when it comes to design flexibility. Some of our many engineering firsts include our bow-landing concept which enables passengers to walk directly onto shore or sandy beach via a bow ramp. For over thirty years, Blount vessels have been carrying commuters, supplies, cargoes, vehicles and vacationers in comfort and safety. Specialists in vessels ranging in length from 65 to 250 feet, we can give you just about any options you may want.

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Blount's newest and most versatile fast commuter boat and water taxi. Construction from 38" to 85" long with passenger capacity from 45 to 149. Will travel at speeds up to 40 mph and docks automatically in seconds.

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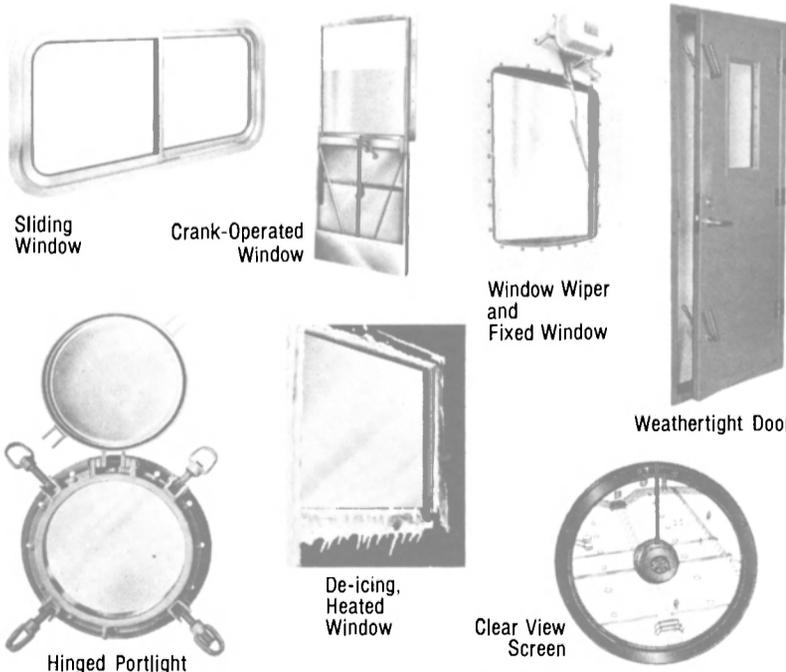
Originators of the bow-landing concept.

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Catalog showing complete line of marine products furnished upon request.

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dinette area, and berthing for a crew of three. In keeping with her working environment, the new boat's interior is fully air-conditioned.

Electronics and navigational aids aboard include radar and two VHF radios by Raytheon, a Northern SSB radio, a Ross depth sounder, a Furuno satellite navigation system, a Wagner Mk 4 autopilot and compass, and a Raytheon three-station intercom system.

PAULA MCCALL Gulf Craft

The 145-foot Paula McCall, said to be the world's largest aluminum crewboat, was completed recently by Gulf Craft, Inc. of Patterson, La., and delivered to McCall Boat Rental, Inc. of Cameron, La., a firm owned and operated by **Norman McCall**.

Mr. McCall has been in the offshore boat rental business for 18 years and has grown to a fleet of 30 vessels. Gulf Craft has built 20 of the 22 aluminum crewboats owned by McCall Boat Rental, and presently has two more McCall vessels under construction—125-foot and 145-foot aluminum crewboats. Gulf Craft designed and built the first 110-foot, quad-screw aluminum crewboat for McCall in 1975, and in 1981 delivered the first five-screw, 125-foot crewboat to the same company.

The Paula McCall is U.S. Coast Guard-approved to carry 75 passengers, 200-mile ocean service, and her stability letter allows 150 tons of deck cargo. She attains a speed of 27 knots from the five Cummins KTA 1150 M diesel engines that develop a total of 3,400 bhp, driving five Columbian propellers through Twin Disc gears.

With the five-engine concept, she can lose an engine and still be a very fast vessel to transport personnel and supplies offshore, and suffer no downtime. The five engines also

allowed the shipyard to design a more maneuverable vessel by locating a rudder behind each of the three aft propellers. This allows the captain to safely position the vessel precisely at the rigs for loading or unloading personnel and supplies.

The Paula has a beam of 28 feet, depth of 11.5 feet, and fully loaded draft of 8 feet. The aft cargo deck is 82 feet long and 22 feet wide. It has the conventional cargo guard rails on each side, center line tie-down

pads, and a cargo guard across the back of the passenger cabin to prevent anyone from being trapped inside in the event of an accidental cargo shift towards the cabin.

In addition to transporting supplies and personnel, the vessel is capable of offloading fuel and water. Fuel capacity is 10,000 gallons, 8,000 of which can be transferred through a fuel meter. Fresh water is also important on the offshore rigs, and the Paula has the capability of off-

loading 20,000 gallons. All perishable supplies such as meat, milk, and groceries are carried in a 252-cubic-foot walk-in cooler.

Other safety features of the vessel include three Carlisle & Finch searchlights to provide more than ample light when loading or unloading at night, a stern personnel loading ramp with safety rails, a Gulf Craft-designed aluminum man overboard rescue ladder, and a PTO (continued on page 40)

Radio Holland. Total shipboard communications center.

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Engine controls	Kobelt
Shafting	Aquamet
Generator (40-kw)	Cummins
Generator controls	Power Panels
Steering	Charlynn Orbitrol
Stuffing boxes, keel coolers	Gulf Craft
Fresh water pressure set	Fairbanks Morse
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F-O blender	Cummins
Air compressors	Quincy
Radars (2)	Racal-Decca
Loran	SiTex/Koden
SSB radio	Motorola
VHF radio	Standard/Horizon
Depth sounder	Datamarine
Gyrocompass & autopilot	Sperry
Anchor winch	McElroy
Horns	Buell-Air
Searchlights	Carlisle & Finch
Running/navigation lights	Perko
Lifesaving gear	Plastic-Kraft
Walk-in cooler	Climate Control

Paula McCall

(continued from page 39)
fire pump with fire monitor mounted on the aft deck.
The electronics outfit includes two radars, Loran, SSB, VHF, depth finder, and autopilot. Another first incorporated in the Paula is a lube oil blender supplied by Cummins that blends the used engine oil with diesel fuel; the mixture is burned in the diesel engines.

During the past 20 years, Gulf Craft has grown from a small aluminum boat-building yard into a multi-faceted organization equipped to construct all types of aluminum vessels. In addition to the main shipyard in Patterson, the company has other facilities in Abbeville and Simmesport, La. The yard can construct crewboats, passenger ferries, party fishing and sightseeing boats, research vessels, and diving support craft.

PILGRIM BELLE Bender Shipbuilding

Bender Shipbuilding and Repair Company of Mobile, Ala., recently delivered the 150-passenger mini-cruise vessel Pilgrim Belle to Coastwise Cruise Line, a new service of Hyannis Harbor Tours. Her appearance is in the manner of a 1925 coastal steamer, with a decor and

ambiance that her owner has dubbed the Steamer Class™.

Designer of the new vessel was John W. Gilbert of Boston, a naval architect recognized internationally as one of the leading designers of commercial craft in this size range. Interior design was assigned to Interior Design International of Seattle and Copenhagen.

The Pilgrim Belle has an overall length of 192 feet, beam of 40 feet, and draft of 7½ feet. She is powered by twin Caterpillar diesel engines, each with an output of 1,055 bhp. A 300-hp bow thruster aids in docking and undocking. Electric power is provided by two 390-kw Caterpillar-driven generators.

The vessel's hull was built upside down from the stern forward. After the framework was plated over, the hull was rolled over into an upright position for completion.

The 49 outside cabins all have private bathroom facilities and individually controlled air conditioning and heating. An elevator is installed serving three passenger decks.

The Steamer Class coastal cruise vessel is the first of its type to be constructed by Bender. The Mobile yard specializes in construction and repair of fishing vessels, supply boats, large tugs, and a wide variety of inland and oceangoing commercial vessels.



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PILGRIM BELLE Major Suppliers

Main engines (2)	Caterpillar
Propellers (2)	Columbian
Bow thruster	Harbor Master
Generators (2)	Caterpillar
Air conditioning	Carrier
Radar, Loran, VHF	Raytheon
Paint	Devoe
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PLAYA DEL CARMEN St. Augustine Trawlers

In 1983 the Jacksonville, Fla., naval architectural firm of DeJong & Lebet, Inc. signed a contract with Transportes Maratimos de Yucatan y del Caribe S.A. to design a 600-passenger ferryboat for fast service between Cozumel and Playa del Carmen, Mexico. A combined effort with St. Augustine-based shipbuilder St. Augustine Trawlers, Inc. resulted in a remarkable elapsed time between contract signing and the 1984 delivery of about three months.

The vessel was further designed to receive passengers from visiting cruise ships while at anchor at sea. Special hull construction and a high degree of maneuverability make this operation possible in complete safety under most sea conditions.

The Playa del Carmen has an overall length of 121 feet, beam of 27 feet, depth amidships of 11 feet, and full-load draft of 6 feet. She is powered by three GM Detroit Diesel 12V92-TA engines, each rated 600



bhp at 1,800 rpm. Power is transmitted to the 4-bladed Columbian Bronze propellers through Twin Disc reduction gears. Shafting is 4-inch Armco Aquamet; engine controls are by Kobelt. The bow thruster is a Schottel Model S-51, driven

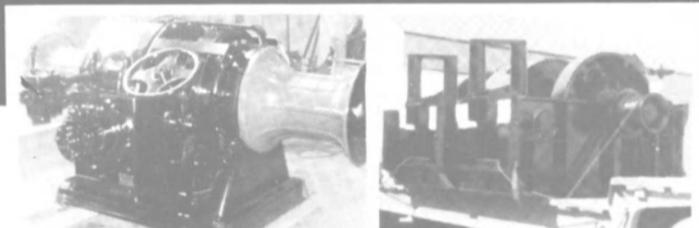
by a Detroit 3-71N diesel. Cruising speed is 15.7 knots.

Two Lima generators are driven by Detroit 3-71N engines. The captain was supplied by New England Trawler, and air supply fans are by Hartzell.



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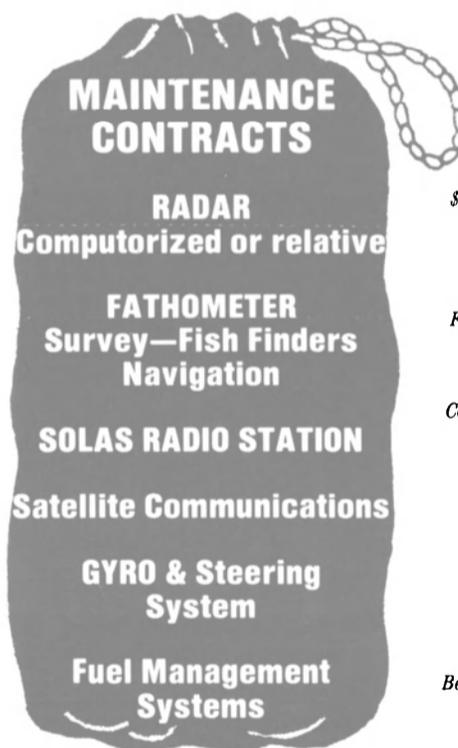
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RIONI Valmet Oy

Valmet's subsidiary yard, Valmetin Laivateollisuus Oy in Turku, Finland, recently delivered the first unit in a four-vessel series being built for the Ministry of Gaz Industry of the USSR. The supply/anchor-handling vessel Rioni incorporates a number of interesting features, like the "father and son" ma-

chinery installation, as well as one-compartment structural subdivision to provide extra safety for operations in harsh conditions such as the Arctic.

The Rioni is the lead vessel in the series that will be delivered during 1984-85. Behind the customer's decision to place the order with the Valmet yard was, among others, the fact that Laivateollisuus already had good experience with such craft. In the mid-70s the Turku yard built a series of Ulstein type UT 704 vessels for I.M. Skaugen in Norway and The Offshore Company of Houston. The Rioni type, however, is the yard's own design and is tailor made to meet the stringent requirements of the USSR rules and specifications.

The Rioni type is intended to serve the needs of offshore installations with the transport of pipe, bulk material, fresh and potable water, fuel, cement and mud, as well as food provisions in refrigerated containers. She will also be able to tow drilling rigs and other structures. In addition, she will be able to carry and handle anchor chains and cables of the offshore structures, as well as take the drill sludge ashore in containers.

The Rioni has an overall length of 220.8 feet, beam of 45.6 feet, and design draft of 16.4 feet. Storage capacities are designed to give 30 days of uninterrupted operation with a complement of 24 and at an 85-percent machinery output.

The machinery arrangement comprises two separate propeller shafts, each driven via a reduction gear by two diesels of different sizes. Each diesel is coupled to the reduction gearbox by flexible couplings; in addition, the smaller engines are coupled from their front ends to separate alternators. Thus the smaller engines serve a dual purpose—as a main engine or as a generating set, either coupled independently.

All four diesels are of Wartsila type 22, the two larger in V form with 22 cylinders each and the two smaller units in R form with six cylinders each. The corresponding outputs are 2,420 bhp and 1,200 bhp, respectively, for a total vessel output of 5,330 bhp. Both of the smaller engines are fitted with 550-kva alternators. One generator is needed to serve the vessel in all conditions except when the 1,000-hp bow thruster and the towing winch or the cargo-handling equipment are in operation.

The two propellers are of controllable-pitch type fitted in fixed nozzles. They can be controlled by joystick type operation from both ends of the bridge. Also on the bridge are remote controls for the towing winch, and alarm stopping of the cargo pumps.

The one-compartment structural subdivision is achieved by careful placement of the bulkheads and tanks. As a result, either of the compartments may be flooded without causing danger to the vessel.

RIVERANDA Blount Marine

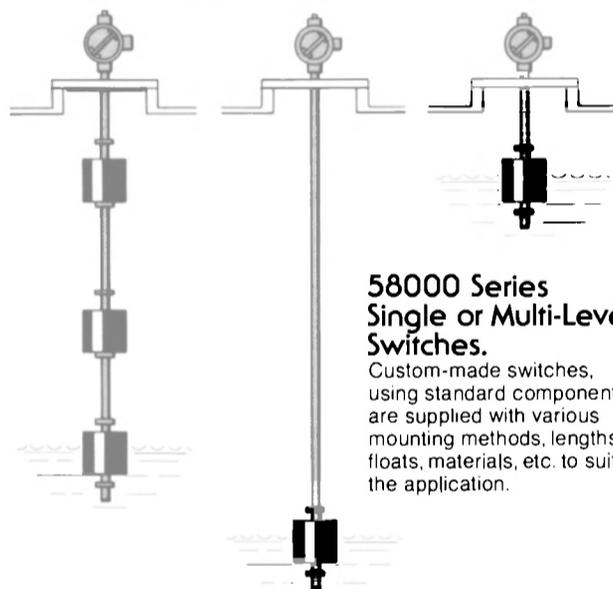
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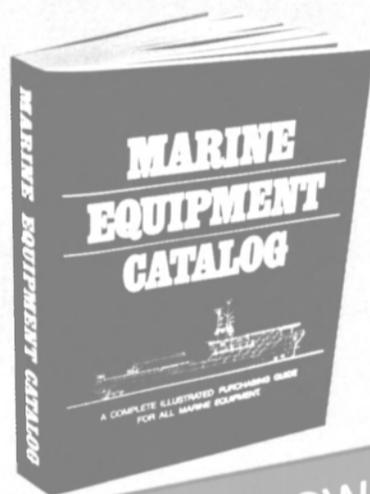
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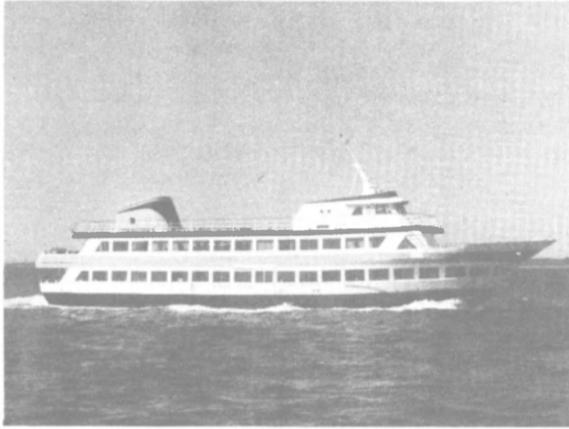
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Riveranda—Blount Marine

Warren, R.I., last year delivered the 425-passenger, U.S. Coast Guard-approved dinner cruise vessel Riveranda. Designed and constructed for World Yacht Enterprises, Ltd. of New York City, the new 145-foot vessel is a close sister ship to the Spirit of Philadelphia, delivered earlier in the year.

The Riveranda's passenger capacity has been limited to 425 in order to provide an atmosphere of spacious luxury. She will seat a total of 350 persons in two carpeted, air-conditioned dining rooms and will accommodate dinner parties on both main decks as well as on the open third deck in good weather.

Both enclosed decks feature a complete bar, with portable bar facilities on the third deck. All equipment was designed and installed to enhance the interior and exterior appearance, as well as to lower noise levels throughout the vessel.

While the primary operation of the vessel is deluxe dinner cruises, she will also cater to wedding receptions and other social functions, and



SB406—Rauma Repola

serve as a conveyance for corporate gatherings.

Main propulsion is provided by two GM Detroit diesel 8V-92 engines, and ship's electrical power is supplied by two 125-kw diesel generators. Steering is Wagner hydraulic with an optional joystick control. A Morse single-lever, twin-control system is used for engine rpm and gearing. The large galley is equipped for complete preparation of meals comparable to fine restaurants.

Pilothouse equipment includes a Furuno radar, Polaris Regency VHF radio, Wagner rudder angle indicator, Ritchie 5-inch compass, automatic fog horn timer, air-operated windshield wiper, and an intership talkback system. A complete stereo and public address system with optional individual deck control is also installed.

SB 406 Rauma-Repola

The Rauma-Repola shipyard in



Seward Johnson—Atlantic Marine: details page 44.

Uusikaupunki, Finland, last year handed over to its Soviet trading partner, V/O Sudoimport of Moscow, a type SB 406 ocean-going salvage tug, the 14th ocean-going tug delivered by that yard to the USSR. Construction of the series started in 1976; four 3,500-bhp vessels were completed in 1977-79, and nine in the 1980s. The new 7,800-bhp SB 406 tug is bigger, more powerful, and more comprehensively equipped than the previous vessels. A second SB 406 is under construction.

The SB 406 is powered by two Wartsila 3,900-bhp diesel engines. Her length is 225.72 feet, beam is 50.85 feet, and draft is 16.73 feet. She has twin screws and a bow thruster. The strength of her ice reinforcement is shown by the UL1 classification given her by the USSR Register of Shipping, a rating exceeding even the highest Finnish ice class.

The new tug is the product of collaboration in many ways. Design and construction were based on Rauma-Repola's own know-how

and on the experience gained in foreign markets. V/O Sudoimport is very strict in insuring that the final product corresponds to the original designs. It also knows exactly what makes a good tug. This presents the builder with the challenge of carrying out the plans scrupulously.

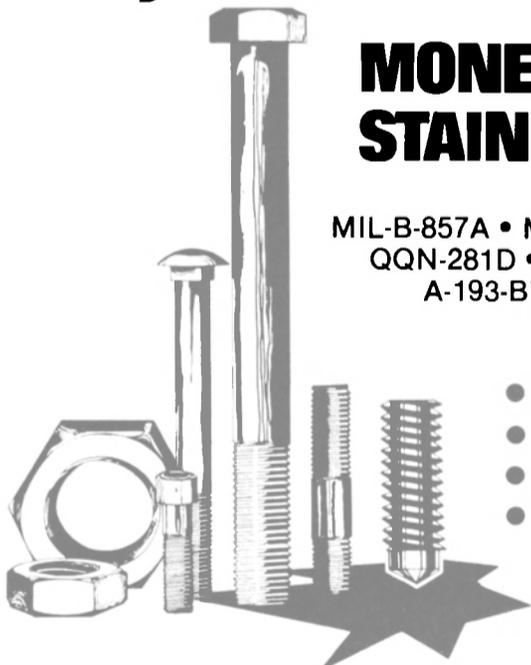
She has ultramodern diving, pumping, and fire-extinguishing equipment needed for rescue and salvage operations. Using the pinpoint accuracy of her four water/foam monitors, the SB 406 can take shelter behind her own water screen while putting out fires on other vessels up to 260 feet distant. One of the monitors is telescopic, and can be raised hydraulically to a height of about 100 feet. The tug also has equipment for the dry powder extinguishing that has proved most effective for fires aboard tankers.

Using the special equipment on board, salvage diving and technical work can be carried out up to a depth of almost 200 feet. The tug has two diving stations, and both a (continued on page 44)

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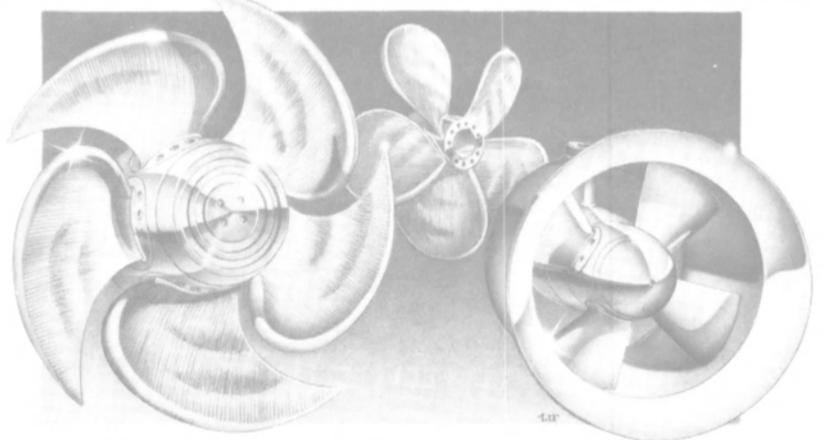
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SB 406

(continued from page 43)

fixed and a portable decompression chamber.

Towing is one of the SB 406's main operations. She is equipped with two Rauma-Repola winches, one pulling 60 tons and the other 30 tons. The 2.20-inch and 1.57-inch diameter towing cables are 2,460 feet long. The towing hook, designed and developed in collabora-

tion with the supplier, can be remote-released from the tug's stern control room.

There is a fast-acting, 5-ton articulated-boom crane installed on the stern deck; this is used for various hoisting jobs. The crane can withstand rolling caused by even the heaviest swell. It can be used for the lifting operations involved in diving work, and carries a "basket" for lifting up to eight people at a time from the water.

**R/V SEWARD JOHNSON
Atlantic Marine**

The advanced research vessel R/V Seward Johnson was delivered by Atlantic Marine, Inc. of Jacksonville to Harbor Branch Foundation of Fort Pierce, Fla. Named for pharmaceutical heir **J. Seward Johnson Sr.**, who with famed engineer and inventor **Edwin A. Link** was

co-founder of the Foundation, the 176-foot ship can carry two Harbor Branch-designed submersibles capable of diving to 2,640 feet. Following completion by Atlantic Marine the vessel was taken to Fort Pierce for fitting of a specially constructed aluminum A-frame that was designed and built by Harbor Branch engineers.

The new ship is the first to be built specifically for the Foundation. Each of the other seagoing research vessels in the Harbor Branch fleet is capable of carrying a single submersible. They are the Johnson, a former Coast Guard cutter, and the 100-foot Sea Diver, originally built for underwater archeological research.

Designed by Rodney Lay & Associates of Jacksonville, the Seward Johnson has a beam of 36 feet and draft of 12 feet. The 295-grt vessel has a capacity of 60,000 gallons of fuel, giving it a range of 8,000 nautical miles at a speed of about 14 knots.

Main propulsion is provided by two Caterpillar 3512 DI diesel engines, each with an output of 850 bhp at 1,200 rpm. Electrical power is supplied by three Caterpillar/Kato diesel generators, each rated 295 kw. Two Elliot White Gill thrusters are installed, each with a thrust of 7,000 pounds, and 360-degree rotatable.

Accommodations are provided for a normal complement of seven operating crew, six submersible crew, and 10-14 scientists. A briefing room is equipped with video recorders, video monitor, projection screen, and conference table. There is also a quiet lounge with technical and science library. Laboratories include a submersible maintenance lab, submersible electronics repair lab, compressor room with dive locker, operations electronics lab, and wet and dry labs.

Navigation and communications electronics include: Sperry gyro-compass with three repeaters, autopilot, and magnetic compass; two Furuno radars; RDI collision-avoidance system; Northstar Loran with Epsco plotters and Digitac printers; Navidyne satellite navigation unit interfaced to gyro and speed log; Harris SSB transceivers; Sailor VHF; Regency Polaris VHF with ADF; Sea Lab portable radios; EDO depth recorder; Furuno depth sounder; Data Marine depth sounder; Klein side-scan sonar; Aldin weather facsimile recorder; and Dytek sea temperature recorder.

In addition to the special A-frame for submersible launch/recovery, deck machinery includes an Appleton 5-ton crane, SMATCO anchor windlass, Boston Whaler small boats, constant-tension towing winch for submersible recovery, and three capstans.

**SMIT SINGAPORE
Niester Sandery**

Smit Tak International Ocean Towing and Salvage Company of Rotterdam recently added a third 22,000-bhp unit to its fleet of large oceangoing tugs. Named the Smit

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Singapore, the new tug was built by Niestern Sander b.v. of Delfzijl, Netherlands, a member of the Conoship Group.

While basically similar in design to the Smit Rotterdam and Smit London, the Smit Singapore incorporates a number of modifications, most notable of which is the layout of the aft part of the vessel for special anchor-handling duties and salvage assistance to ships in distress. She can also tow heavy objects over

long distances. The aft deck is fitted with a stern roller and towing winch of Machinefabriek IJmuiden manufacture, designed in close cooperation with the owner.

The ship has an overall length of 246 feet, extreme beam of 51.5 feet, molded depth of 25 feet, and maximum draft of 22.3 feet. Main propulsion is provided by two Stork-Werkspoor 9TM410 diesel engines, each with an output of 11,000 bhp, driving two controllable-pitch Lips propellers in Hodi nozzles via Van Tol reduction gears and Lohmann & Stolterfoht pneumatic clutches.

The main engines can run on heavy fuel up to 1,500 sec Redwood. Each gearbox is provided with a power takeoff shaft driving a 1,000-kva Indar generator; the portside PTO also drives the firefighting pump. Electricity is also generated by auxiliary sets consisting of Stork-Werkspoor DRO-218 K diesels driving Indar 740-kva generators. The harbor/emergency set consists of a Scandia DSI-14 diesel driving a 312-kva Indar generator. All auxiliary engines run on gasoil.

STAR OF DETROIT Chesapeake Shipbuilding

The 400-passenger dining cruise vessel Star of Detroit was delivered at mid-84 by Chesapeake Shipbuilding, Inc. of Salisbury, Md., to Star Line Corporation of Williamston, Mich. Designed by the firm of Knud E. Hansen of Copenhagen, the ship's sleek exterior and plush interior distinguish her from most other vessels of this type.

The new vessel has an overall length of 162 feet, beam of 45 feet, and draft of 6 feet. Propulsion is provided by twin GM Detroit Diesel 8V-71N engines, each with an output of 230 bhp at 1,800 rpm. These drive two Jastram rotatable rudder/propeller units. Utilizing joystick control from the pilothouse or bridge wings, propeller thrust can be obtained in any direction, greatly enhancing the vessel's maneuverability. Electrical power is supplied by two 150-kw generators driven by Detroit Diesel engines. Maximum continuous speed is 11 knots. The

engine room is located on the main deck aft.

The spacious galley is installed below the main deck, with food service to the main and upper decks provided by a dumbwaiter supplied by Dan Elevator of Denmark. Extensive fire, noise, and vibration control insulation is installed throughout the ship. The upper deck has a dance floor, with a raised ceiling forward.

The Star of Detroit operates from a site at Hart Plaza in downtown Detroit, offering lunch and dinner cruises in a unique environment.



ELECTRONICS UPDATE

KHD Introduces Two Systems For Worldwide Engine Monitoring Via Satellite Communications

Klockner-Humboldt-Deutz AG (KHD) of Cologne, West Germany, has recently introduced two centralized service systems for the owners of Deutz marine diesel engines. Called Ship Information Service (SES) and Ships' Information Processing System (SIPS), they are designed as a new method for lowering engine operating cost, increasing operational reliability, and reducing workload for shipboard personnel.

How does the SIS work? The ship's engine plant is fitted with a number of sensors that record the characteristic engine operation data. These data are transmitted via satellite to the KHD computer center, where the computer compares the periodically transmitted operating data with the figures recorded in the test report made at the time of engine acceptance at the KHD works, and the basic data entered

during engine commissioning by the customer.

The results of the individual data comparison are evaluated by skilled KHD engineers, who prepare an engine status report with trend analysis, which is sent to the shipowner together with recommendations regarding necessary maintenance work. Based upon the information received, the shipowner will decide on the measures to be taken.

The SIS system further includes an individual maintenance schedule tailored to the actual operating conditions of a particular engine installation, providing a base for long-term planning.

SIS furnishes the shipowner not only with an efficient means for cost-saving planning of maintenance and service work, but also with engine records over long service periods. Unforeseen lay days can be avoided, and the engine can be put to optimal use. Participation in the SIS system will allow the application of centrally accumulated experience to individual engine plants.

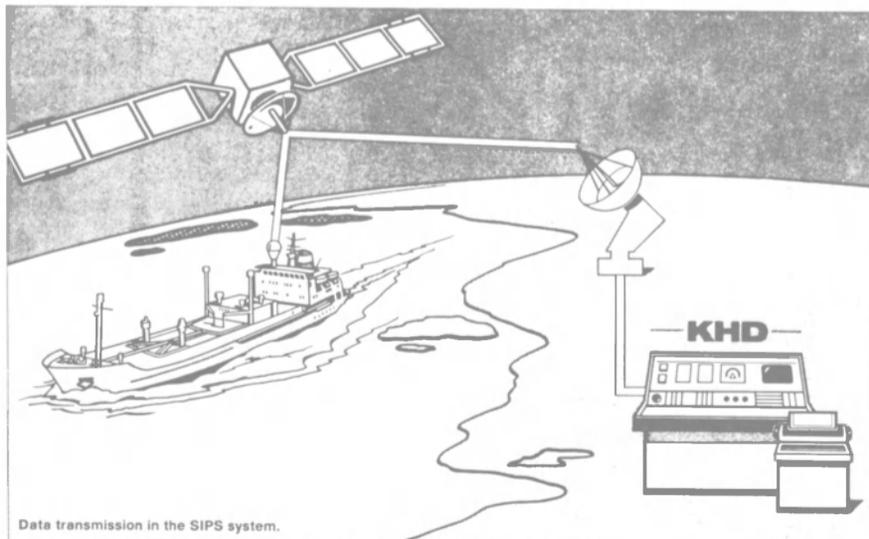
have been obtained with the SIS system on a number of tankers. As a member of a shipping consortium, KHD is installing a SIPS unit on the motor vessel Epsilongas. Apart from engine data, the system can also transmit other information of interest to the shipowner, such as crew, navigation, and cargo data.

The benefits of the SIPS system, in addition to speed, greater safety, and lower labor costs, are in the ability to control maintenance activities accurately, i.e., plan the place and time of the work in advance, and organize the necessary manpower and spares.

The continuing spread and efficient utilization of microelectronics are undoubtedly playing their part in achieving these goals.

For additional information and free literature on the KHD systems,

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Data transmission in the SIPS system.

SIPS Sends Data Automatically

Whereas the SIS system depends on the crew taking a log of the engine readings and then transmitting it to the KHD computer by radio for evaluation, the "big brother" Ships' Information Processing System makes maximum use of microelectronics and the latest forms of data transmission. Thus, the engine data is acquired by sensors and pickups and then transmitted via satellite by a microprocessor on board direct to the central computer for processing.

Extremely encouraging results

Navy Awards \$8-Million Increase To General Ship For Destroyer Overhaul

General Ship Corporation of East Boston, Mass., has been awarded an \$8,150,212 face value increase to a previously awarded firm-fixed-price contract for the overhaul of the destroyer USS Edson (DD-946). Work will be performed in East Boston, and is expected to be completed by July 14, 1985. Contract funds would not have expired at the end of the current fiscal year. Three bids were solicited and three proposals were received. The Supervisor of Shipbuilding, Conversion and Repair, Boston, is the contracting activity (N62665-81-C-0001).

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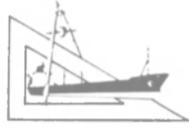
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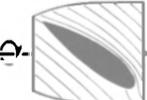
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Armco And Oerlikon Sign Joint Manufacturing/Marketing Agreement

Dr. John Garland, executive vice president of Oerlikon Welding Industries, has announced the finalization of an agreement with Armco Steel to market the seven grades of submerged arc welding wire produced by their Union Wire Rope Division. In a meeting with Dr. Garland, Union Wire Rope's general manager David C. Wineland said this agreement is particularly advantageous for the user since the fluxes produced by Oerlikon complement the benefits of the wire. A one-source supply of the correct wire and flux for a wide range of submerged arc welding requirements is now assured.

All of Armco's seven grades of wire (W-11,

W-15, W-18, W-19, W-22, W-24 and W-25) have gained wide acceptance throughout the industry for the fabrication of alloy plates, pipe, castings and forgings requiring high strength/low temperature toughness. All have AWS classifications, one has U.S. Navy approval as a Qualified Product, and those designed for marine applications have American Bureau of Shipping listings.

Under the Oerlikon/Armco label, the seven wires will be marketed exclusively by Oerlikon and their authorized distributors, together with the complete line of Oerlikon electrodes, fluxes, wires, and strip cladding electrodes. Oerlikon Welding Industries opened their new headquarters/manufacturing facilities in Houston on April 1, 1982, to better serve their customers and their distributors throughout the U.S. and Canada.

Full literature on the complete line of Oerli-



Union Wire Rope general manager David Wineland (left) is shown shaking hands with Dr. John Garland, executive president of Oerlikon Welding Industries.

kon/Armco welding wire is available at no cost. For a copy,

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New 'Air Starter Selection Guide' Offered By Tech Development

Tech Development Inc. of Dayton, Ohio, manufacturer of the TDI Turbostart™ air starter, has issued a new edition of the "AirStarter Selection Guide." The 70-page, three-hole-punched publication serves as a cross-reference of engine manufacturers to the appropriate TDI Turbostart air starter model.

Included in the guide are specifics for each starter model and separate listings of diesel and gas engine models by manufacturer. All Turbo-start market applications are covered in the

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Carroll And Tomlin Named Vice Presidents At National Marine's Shipyard Division



Robert E. Carroll



Stephen Tomlin

Robert E. Carroll has been promoted to hull group vice president, and **Stephen L. Tomlin** named engine group vice president for the Shipyard Division of National Marine Service Incorporated. The announcement was made by **W.A. Creelman**, president.

Mr. **Carroll** joined National Marine in 1968 after many years as a towboat pilot and captain. He has held the positions of general foreman, superintendent, manager operations, general manager, and vice president at the company's Hartford, Ill., shipyard. He will have overall responsibility for hull repairs and associated activities throughout the Division.

Mr. **Tomlin** will have overall responsibility for all engine- and parts-related activities of the Division. Since joining National Marine in 1978 he has held the positions of assistant coordinator of planning, coordinator of planning, and most recently, vice president-administration of the Division.

Both of the new vice presidents will remain at the Shipyard Division offices in Hartford, where they report to Division president **C.H. Walters**.

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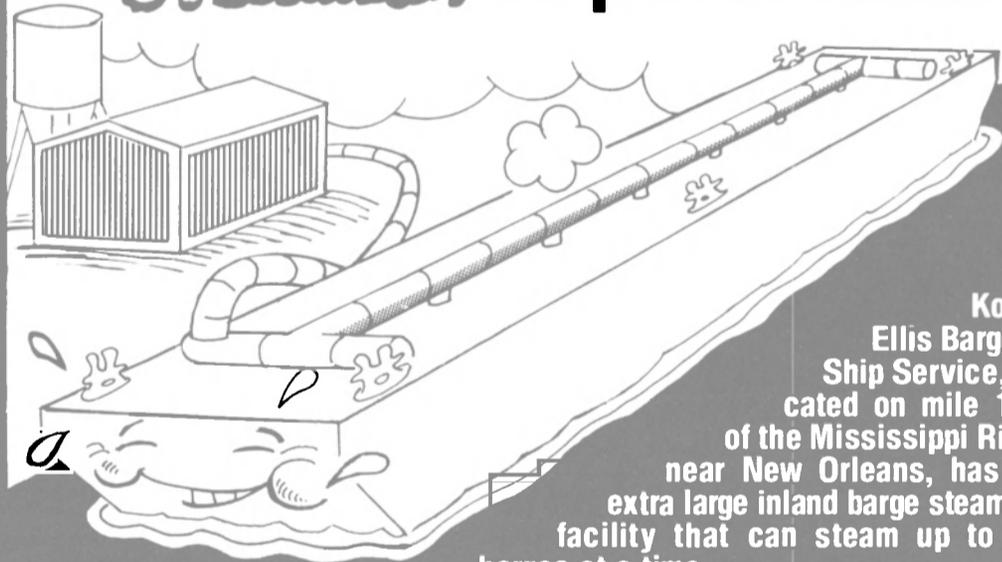


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The Naval Engineering Division, Design Branch is seeking a GS-9/11/13 * Mechanical Engineer for piping systems design for new construction and alteration of Coast Guard's own cutters and icebreakers. Experience in contract or detail design of shipboard fluid systems for commercial or naval vessels is essential. The work is varied and problems challenging. Submit a current SF-171 to:

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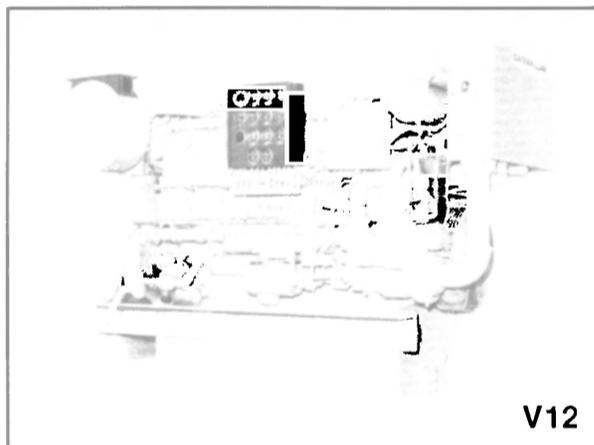
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Puroflow Marine Introduces New Integrated Power-Line Protection System—Literature Available

Puroflow Marine Corporation, Newport News, Va., has announced the development of a centralized power-line protection system for shipboard electronics. It is the industry's first comprehensive, integrated package for protection of a ship's total electronics suite against harmful voltage surges and electromagnetic interference (EMI).

Puroflow's new system includes a central control panel, which provides convenient remote monitoring of multiple circuits, plus as many as 75 separate power-line filters, which may be installed throughout the ship's power lines as needed. Thus, all bridge, radio-room and engine-room electronics can be linked into a single integrated system.

According to **G. Howard Warren**, vice president of marine marketing, Puroflow has taken the industry's first truly integrated approach to solving the problem of "dirty" power aboard ship, rather than the usual piecemeal solution, in which filters or suppressors are added here and there aboard ship when problems occur.

"The marine industry is becoming more aware of the vital need for adequate power-line protection for modern marine electronics," **Mr. Warren** stated. "Voltage surges can have devastating effects on solid-state circuitry, causing electronic devices to 'lock up' without warning, losing data in memory and giving faulty output to other devices. As ships become more dependent on sophisticated computer-based electronics for navigation, communication, automation and monitoring, it becomes imperative to take a comprehensive approach to power-line protection."

Puroflow's new system provides centralized control and monitoring of up to 75 separate surge suppressors. Lights and audio alarms alert ship's crew to problems anywhere in the electrical system. Crew members can quickly identify and isolate problems and effect repairs without manually tracing through scores of circuits. This assures minimum downtime for essential electronics, which may be needed for safety at sea.

Puroflow developed the new centralized system from a prototype originally created for a U.S. Navy installation, which had been experiencing serious problems with outages resulting from lightning. Other approaches to solving the problem had proved ineffective. The Puroflow system was 100 per cent successful in eliminating outages, and the Navy is placing orders for additional systems, according to **Mr. Warren**.

Puroflow is a leading manufacturer of power-line protection devices for the commercial and military marine industry. The company's products have been independently tested to meet the most stringent requirements for voltage surge and noise protection, meeting all U.S. Navy



specifications, including those for shock and vibration.

For more information on the new system from Puroflow Marine Corporation,

Circle 18 on Reader Service Card

Navy's New Double-Deck Pier To Be Fitted With Sea Guard Fenders

A new double-deck pier has been designed to meet the changing needs of U.S. Navy ships, and Navy engineers believe it could become the prototype for worldwide Navy facilities.

Known as Pier Zulu, the facility will be built at the U.S. Naval Station in Charleston, S.C., and will be outfitted with 16 of Seaward International's 7- by 14-foot Sea Guard dock fenders. These fenders are constructed of the same energy-absorbing foam interior, covered with a rugged urethane, filament-reinforced jacket, as all of Seaward's marine fenders.

Pier Zulu will be a concrete structure 1,245 feet long and 76 feet wide, compared with conventional pier width of 100 to 120 feet. The cost for the new pier will be slightly higher than a conventional-width, single-deck structure, but less maintenance and more efficient operations are expected to reduce its long-term cost to the Navy.

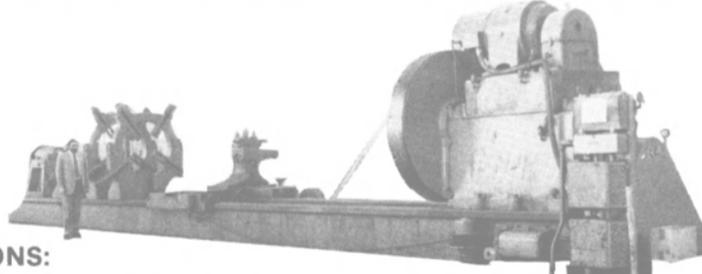
The upper deck of the pier will be eight feet higher than conventional piers—about 20 feet above mean low water level—providing easier access to the quarterdecks on new Navy ships. The lower deck will contain utility outlets, cables, and transformers in order to make line handling and equipment and vehicle operations easier. It will also be accessible to pickup trucks and forklifts to allow maintenance and repair of utility services, leaving the upper deck free for ship and pier operations.

Pier Zulu was designed by Gee and Jenson Engineers of West Palm Beach, Fla., in conjunction with the Southern Division of the Naval Facilities Engineering Command. H.G. Harders and Sons of Charleston will construct the pier, which is scheduled for completion in March 1986.

For additional information on Seaward's complete line of marine fenders,

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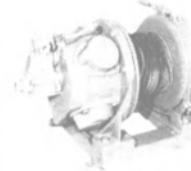
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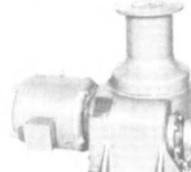
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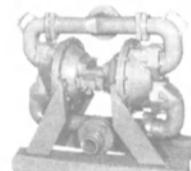
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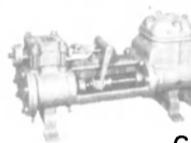


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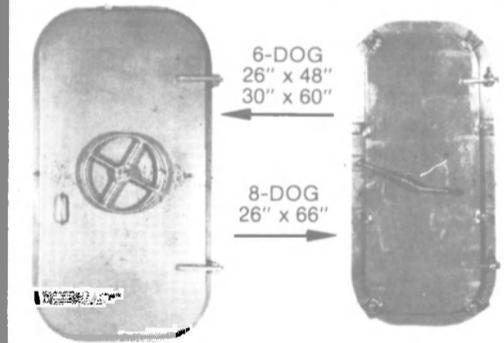


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60' x 150'
50' Between
Wing Walls

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50' x 80'
40' Between
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Founded in 1948, Main Iron Works, Inc. s current facilities are available for construction of new vessels ranging in size from 45' to 250' in length. Dry docking and a full range of repair services are also available, including a complete machine shop facility, sandblasting and painting services.

With over thirty years experience and our record of service to the towing industry, Main Iron Works, Inc. is ready to serve the needs of our past, present and future clients.

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Hydraulic mechanics
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Complete wood working shop

Four Dry Docks:

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850-Ton Capacity
1500-Ton Capacity
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This directory section is an editorial feature published in every issue for the convenience of the readers of **MARITIME REPORTER/Engineering News**. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266.

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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
Marlo Coil/Nuclear Cooling, Inc., P.O. Box 171, High Ridge, MO 63049
Stal Refrigeration AB, Butangsgatan 16, S 601 87 Norrköping, Sweden

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
The Platt Bros. & Co., Box 1030, Waterbury, CT 06721

BASKET STRAINERS

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

BEARINGS—Rubber, Metallic, Non-Metallic

Grant Manufacturing & Alloying, Inc., 600 Schoolhouse Rd., Souderton, PA 18964

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

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

Aqua-Dyne Inc., 2208 Karbach St., Houston, TX 77092
Aurand, 1270 Ellis St., 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

CLEMCO, P.O. Box 7680, San Francisco, CA 94120
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

B&D Marine and Industrial Boilers, Inc., P.O. Box 5702, North Charleston, SC 29406

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

BOILER CLEANING

Asea Stal, 525 Executive Blvd., Elmsford, NY 10523-1296

BROKERS

S. Danoff U.S.A. Ltd., 2050 Coral Way, Miami, FL 33145
Copt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153
ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401
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

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

CLOSURES—Marine

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

CONDENSERS

Riley-Beard, 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
Autronica Marine USA, 280 Industrial Pkwy., Northvale, NJ 07647
Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Biospherics Inc., 4928 Wyaconda Rd., Rockville, MD 20852
Bowmar/ALI, Inc., 531 Main St., Acton, MA 01720
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 Jardine Dr., Unit 24/25, Concord, Ontario, Canada L4K 1B6
Grumman Aerospace, 111 Stewart Ave., Bethpage, NY 11714
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
Maritime Protection A/S, Box 100, N-4620 Vagsbygd, Norway
Megastystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431
Nav-Vue, Inc., P.O. Box 1175, Huntsville, TX 77340
Offshore Technology Corp., 578 Enterprise St., Escondido, CA 92025
Pandel Instruments Inc., 2100 N. Hwy. 360, Grand Prairie, TX 75050
Propulsion Systems, Inc., 21213 76 Ave., Kent, WA 98032
Seaworthy Systems Inc., 36 Main Street, Essex, CT 06426
Teleflex Inc., 771 First Ave., King of Prussia, PA 19406
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

SKF Steel, 201 Tower Lane, P.O. Box 745, Avon, CT 06001

CRANE BUMPERS

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

CRANES—HOISTS—DERRICKS—WHIRLEYS

Appleton Marine, P.O. Box 2339, Appleton, WI 54913
ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
HIAB Cranes & Loaders Inc., R.D. 22 Interchange Place, York, PA 17404
Machinoexport, 35 Mosfilmovskaya Ul., 117330 Moscow, U.S.S.R.
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany

DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134
Murdock Engineering Company, P.O. Box 2278, Irving, TX 75061
Schoellhorn Albrecht, Div. of St. Louis Ship, 3460 So. Broadway, St. Louis, MO 63118

DECKING—GRATING

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

DIESEL ACCESSORIES—CYLINDER UNERS

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

DIESEL ENGINE—Spare Parts & Repair

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

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

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

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

ELECTRICAL EQUIPMENT

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

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

Valad Electric Heating Corporation, 162 Wildey St., Tarrytown, NY 10591
Ward Leonard Electric Co., 31 South St., Mt. Vernon, NY 10550
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

EMULSIFICATION SYSTEMS

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

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

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

EQUIPMENT—Marine

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

ASEA Stal-Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
Thomas Coudon Associates, 6655 Amberton Dr., Baltimore, MD 21227
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Genstar Stone Products Company, Executive Plaza IV, Hunt Valley, MD 21031

Harvey's Commercial Marine Div., 2505 S. 252nd St., Kent, WA 98032
Imperial Manufacturing Co., P.O. Box 4119, Bremerton, WA 98312
Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550
Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302
Raytheon Service Co., 100 Roesler Rd., Suite 103, Glen Burnie, MD

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Alfa-Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130

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

FANS—VENTILATORS—BLOWERS

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

Gaylord Industries, Inc., P.O. Box 558, Wilsonville, OR 97070
Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

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

FASTENERS

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

FENDERING SYSTEMS—Dock & Vessel

InterTrade Industries, 15301 Transistor Lane, Huntington Beach, CA 92649
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Samson Ocean Systems, Inc., 99 High St., Boston, MA 02110
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, VA 22044

FILTERS

Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307
Mueller Steam Specialty, P.O. Box 1569, Lumberton, NC 28359

FINANCING—Leasing

A.G. Becker Paribus Inc., 2 First National Plaza, Chicago, IL 60670
Gulf Western Leasing Corp., 1500 City West Blvd., Suite 300, Houston, TX 77047

FIRE PROTECTION, DETECTION & ALARM SYSTEMS

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

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

FUEL OIL/ADDITIVES—Analysis & Combustion Testing
Ferrox Corporation, 910-108th N.E., P.O. Box 1764, Bellevue, WA 98009
McTigue Industries Inc., 1615 9th Ave., Bohemia, NY 11716
U.S. Borax, 3075 Wilshire Blvd., Los Angeles, CA 90010

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Bailey Carpenter & Insulation Co., 74 Sullivan Street, Brooklyn, NY 11231
Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT

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GANGWAYS

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

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MacGregor Navire U.S.A. Inc., 135 Dermody St., Cranford, NJ 07016
Mack Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

HEAT EXCHANGERS

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American Standard Inc., Heat Transfer Div., Buffalo, NY 14240
Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

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HULL CLEANING

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

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

Gulf International Divers, P.O. Box 1342, Gretna (New Orleans), LA 70052
Pacific Maine Services, TLX: 664540 seasev, Long Beach, CA 90802
Petrochemical Services, Inc., 3820 Dauphine St., New Orleans, LA 70117
Petroform 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
Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

HYDRAULICS

Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07067

Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091
Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

INERT GAS—Generators—Systems

Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, NJ 07039
Maritime Protection A/S, N. American Agents, American United Marine Corp., 5 Broadway, Rte. 1, Saugus, MA 01906

INSULATION—Cloth, Fiberglass

Bailey, Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, NY 11231
Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619
Waco Inc., 5450 Lewis Rd., P.O. Box 836, Sandston, VA 23150-0836

INSURANCE

Adams & Porter, 510 Bering Dr., Houston, TX 77057-1408
Adams & Porter, 1 World Trade Center, Suite 8433, New York, NY 10048
Wm. Keith Hargrove, Inc., 1300 Post Oak Blvd., Suite 2050, Houston, TX 77056

MGA International, 419 Park Avenue South, New York, NY 10016
United States P&I Agency, Inc., 80 Maiden Lane, New York, NY 10038

JOINER—Watertight Doors—Paneling

Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729
Bailey Distributors, Inc., 74 Sullivan St., Brooklyn, NY 11231
Masonite Commercial Division, Dover, OH 44622
Megadoor Inc., 441 Lexington Ave., Suite 903, New York, NY 10017
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL 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

ACR Electronics, Inc., P.O. Box 2148, Hollywood, FL 33022
Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

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

MOORING SYSTEMS

Murdock Machine & Engineering Company of Texas, P.O. Box 2278, Irving, TX 75061

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

NAME PLATES—BRONZE—ALUMINUM

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

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Aero Nov Laboratories, Inc., 14-29 112 St., College Point, NY 11356
American Systems Engineering Corp., P.O. Box 4265, Virginia Beach, VA 23454

Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, MD 20015

Art Anderson Associates, 148 First St., Bremerton, WA 98310
B.C. Research, 3650 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 Pottery 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

Fleetweather Ocean Services, Inc., Rd. #2, Box 260, Hopewell Junction, NY 12533

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., Two World Trade Center—Suite 9528, New York, NY 10048
 Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921
 Hoffman Maritime Consultants Inc., P.O. Box 186, Glen Head, NY 11545
 HydroComp, Inc., 10 Cutts 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
 J.L. Konopasek & Associates, 3523 Scrimshaw Dr., Jacksonville, FL 32217
 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
 McLearn & 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, Rt. 110, Melville, NY 11746
 Marine Power Associates, 4475 Mission Blvd., Suite 235, San Diego, CA 92109
 Marine Technical Associates, Inc., 95 River Rd., Hoboken, NJ 07030
 George E. Meese, 194 Acton Rd., Annapolis, MD 21403
 R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003
 NK Engineering Assoc., Inc., 8150 Leesburg Pile, Vienna, VA 22202
 Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
 New England Engineering & Marine Services, Rt. 2, Box 50, York, ME 03909
 Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121
 Northern Marine, P.O. Box 1169, Traverse City, MI 49685
 Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, LA 70114
 PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
 Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156
 S.L. Petchul, Inc., 1380 S.W. 57th Avenue, Fort Lauderdale, FL 33317
 M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
 Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316
 SEACOR Systems Engineering Associates Corp., 19 Perina Blvd., Cherry Hill, NJ 08003 (Publications Division at Cherry Hill location)
 STV/Sanders & Thomass, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202
 Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
 Seaworthy Engine Systems, 17 Battery Place, New York, NY 10004
 George G. Sharp, Inc., 100 Church St., New York, NY 10007
 Simmons Associates, P.O. Box 760, Sarasota, FL 33578
 R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
 J.F. Sroschein Associates, 666 Old Country Rd., Garden City, NY 11530
 Richard R. Taubler, Inc., 610 Carriage La., Dover, DE 19901
 Timsco, 622 Azalea Road, Mobile, AL 36609
 Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707
 Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, NY 12526
 Anschutz & Co., GmbH, Postfach 6040, D-2300 Kiel 14, West Germany
 Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080
 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
 Cybernet International, Inc., 7 Powder Horn Dr., Warren, NJ 07060
 A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway
 Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
 Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
 General Electric Company, Mobile Communications Division, Lynchburg, VA 24502
 Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
 Henschel Corp., 9 Hoyt Drive, Newburyport, MA 01950
 Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
 ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202
 Japan Radio 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
 King Radio Corporation, 400 North Rodgers Rd., Olathe, KS 66062
 Kongsberg North America Inc., 400 Oser Ave., Happaugue, NY 11738
 Kongsberg Vopenfabrik, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
 Krupp Atlas-Elektronik, 1453 Pinewood St., Rahway, NJ 07065
 Lorain Electronics Corp., 2307 Leavitt Rd., Lorain, OH 44052
 Magnum Distributors Inc., 1000 S. Dixie Hwy. #3, Pompano Beach, FL 33060
 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
 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 Roessler Rd., Glen Burnie, MD 21061
 Robertson Autopilot, 400 Oser Ave., Happaugue, NY 11738
 Servo Corporation of America, 111 New South Road, Hicksville, NY 11802
 Simrad, Inc., 2208 N.W. Market St., Suite 600, Seattle, WA 98107
 Sperry Corporation, Great Neck, NY 11020
 Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
 Texas Instruments, Inc., P.O. Box 405, 3438, Lewisville, TX 75067

OILS—Marine—Additives

Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77071
 Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
 Gulf Oil, New York District Sales Office (Domestic), 433 Hackensack Avenue, Hackensack, NJ 07601
 Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022
 Mobil Oil Corp., 150 East 42 Street, New York, NY 10017
 Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017

OIL/WATER SEPARATORS

Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
 Biospherics Incorporated, 5001 Forbes Blvd., Lanham, MD 20801
 Butterworth Inc. (USA), 3721 Lapas Dr., P.O. Box 18312, Houston, TX 77223-9989

Butterworth Systems (UK), 123 Beddington Lane, Croydon CR9 4NX, England
 Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647
 Dahl Manufacturing, Inc., 2521 Railroad Ave., Ceres, CA 95307
 Hyde Products, Inc., 810 Sharon Dr., Westlake, OH 44148
 Microphor, Inc., P.O. Box 490, Willis, CA 95490
 Marine Moisture Control Co., 60 Inip Dr., Inwood, NY 11696

PAINTS—COATINGS—CORROSION CONTROL

American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
 Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
 A.W. Chesterton Co., Middlesex Industrial Park, Rt. 93, Stoneham, MA 02180
 Chugoku Marine Paints (U.S.A.) Inc., 1290 Ave. of Americas, New York, NY 10104
 CLEMCO, P.O. Box 7680, San Francisco, CA 94120
 "CONSOL" manufactured by Contact Paint & Chemical Co. Inc., 200 S. Franklinton Rd., Baltimore, MD 21223
 Dampney Company, Inc., 85 Paris St., Everett, MA 02149
 Devae Marine Coatings Co., P.O. Box 7600, Louisville, KY 40207
 Drew Ameroid Marine, One Drew Chemical Plaza, Boonton, NJ 07005
 E.I. DuPont De Nemours & Co., Inc. Nemours Bldg., Rm. N-2504-2, Wilmington, DE 19898
 Eureka Chemical Company, 234 Lawrence Avenue, So. San Francisco, CA 94080
 Farboil Company, 8200 Fischer Rd., Baltimore, MD 21222
 Glidden Coatings & Resins, Architectural & Maintenance, 925 Euclid Ave., Cleveland, OH 44115
 Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 2425 Fountainview, Suite 340, Houston, TX 77057; P.O. Box 10265, New Orleans, LA 70181
 International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083
 Jotun Marine Coatings Inc., 840 Key Hwy., Baltimore, MD 21230
 Magnus Maritex International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470
 Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
 Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203
 Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143
 Sermatech International, 4401 SermeTel Dr., Moss Point, MS 39563

PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings

Amermarine International, P.O. Box 9205, Dundalk, MD 21222
 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 Rd., Pascagoula, MS 39567
 Selkirk Metalbestos, Box 19000, Greensboro, NC 27419
 Tioga Pipe Supply Co. Inc., 2450 Wheatstheaf La., P.O. Box 5997, Philadelphia, PA 19137

PLASTICS—Marine Applications

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

PLYWOOD

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

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

Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105
 Aquamaster Inc., 4125, 9th Avenue N.W. Seattle, WA 98107
 Armo Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
 Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 Bergen Diesel Inc., 2110-10 Service Rd., Kenner, LA 70062
 Bird-Johnson Company, 110 Norfolk St., Walpole, MA 02081
 Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
 Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
 Capitol Gears, 349 N. Hamline Ave., St. Paul, MN 55104
 Caterpillar Engine Division, 100 N.E. Adams, Peoria, IL 61629
 Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
 Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
 Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520
 Combustion Engineering, Inc., Windsor, CT 06095
 Daihatsu Diesel (USA) Inc., 180 Adams Ave., Happaugue, 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
 KaMeWa, P.O. Box 1010, S-68101, Kristinehamn, Sweden
 KaMeWa, 1800 West Loop So., Suite 1620, Houston, TX 77027
 Krupp Mak Diesels, Inc., 4329-33 Di Paolo Center, Glenview, IL 60025
 Lips Propellers, 3617 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

MWA-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046
 Mapeco Products, Inc., 20 Vesey St., New York, NY 10007
 Maritime Industries Ltd., 6307 Laurel St., Burnaby, B.C., Canada V5B 3B3
 Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
 National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037

North American Marine Jet P.O. Box 1232 Benton, AR 72015
 Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670
 Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054
 Penske GM Power, Lodi N.J., 180 Rt. 17 South, Lodi, NJ 07644
 Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201

Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032
 SACM (Societe Alsacienne De Constructions Mechaniques De Mulhouse) 1, Rue De La Fonderie, Boite Postale 1210, 68054 Mulhouse Cedex, France
 Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166
 Karl Senner, Inc., P.O. Box 10055, New Orleans, LA 70181
 Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
 Stewart & Stevenson Services, Inc., P.O. Box 1637, Houston, TX 77251-1637
 Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
 Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414
 Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
 Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, NJ 08650

Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway
 Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021

Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647
 WABCO Fluid Power, an American-Standard Company, 1953 Mercer Rd., Lexington, KY 40505

Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
 Waukesha Engine Division, Waukesha, WI 53187

PUMPS—Repairs—Drives

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224
 Goltens, 160 Van Brunt St., Brooklyn, NY 11231
 Ingersoll—Rand Pump Group, Dept. B—346, Washington, N.J. 07882
 Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101
 Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
 Sims Pump Valve Co., Inc., 1314 Park Ave., Hoboken, NJ 07030
 Transamerica DeLaval, Pyramid Pump Div., P.O. Box 447, Monroe, NC 28110
 Vita Motivator Company, 200 West 20th St., New York, NY 10011
 Warren Pumps Division, Bridges Avenue, Warren, MA 01083
 Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

REFRIGERATION—Refrigerant Valves

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

ROPE—Manila—Nylon—Hawsers—Fibers

A.L. Don Co., Foot of Dock St., Matawan, NJ 07747
 American Mfg. Co., Inc., Willow Avenue, Honesdale, PA 18431
 Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
 DuPont Co., KEVLAR Aramid Fiber, Room G-15465, Wilmington, DE 19898
 Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110
 Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666
 Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986
 Vermeire N.V. Industriepark Zwaarveld, B-9160 Hamme, Belgium TX: 21687
 Wall Industries, Inc., P.O. Box 560, Elkin, NC 28621

SANITATION DEVICES—Pollution Control

Davit Sales Inc., P.O. Box 232, Jefferson Valley, NY 10535
 Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
 FAST Sewage Systems, Div. of St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111
 Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway
 Hamworthy Engineering Ltd., 10555 Lake Forest Blvd., Suite 5F, New Orleans, LA 70127
 Marine Moisture Control Co., Inc., 60 Inip Dr., Inwood, L.I., NY 11696
 National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48105

SCAFFOLDING EQUIPMENT—Work Platforms

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

SCUTTLES/MANHOLES

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

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT

Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
 Crane Packing Company, 435 Regina Dr., Clarksburg, MD 20734
 Norton Chemplast, 309-150 Dey Rd., Wayne, NJ 07470

SHIPBREAKING—Salvage

Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217
 Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

SHIPBUILDING EQUIPMENT

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

SHIPBUILDING STEEL

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

SHIPBUILDING—Repairs, Maintenance, Drydocking

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

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

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 Balboa, S.a. c/o Jackson Marine Corp., 17 Battery Place, New York, NY 10004

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, LA 70150
 Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116
 Bath Iron Works Corp., 700 Washington St., Bath, ME 04530
 Bender Shipbuilding & Repair Co., Inc., P.O. Box 42, Mobile, AL 36601
 Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018
 Burmeister & Wain Skibsværft A/S, P.O. Box 2122, Refshaleoen-1015 Copenhagen K-Denmark

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

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

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

Davie Shipbuilding Ltd., P.O. Box 130, Levis, Quebec, Canada G6V6N7
 Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London, Republic of South Africa

Dravo Marine Equipment Company, Neville Island, Pittsburgh, PA 15225
 Dubai Drydocks, P.O. Box 8988, Dubai, United Arab Emirates—U.S.A. Agents: Keppel Marine Agencies, Inc., 26 Broadway, New York, NY 10040, 6240 Richmond Ave., Houston, TX 77057

Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401
 FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, OR 97208
 Far East Livingston Shipbuilding Ltd., 31 Shipyard Rd., Jurong Town, Singapore 2262

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

Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, MA 02725
 Golden Marine Co., Inc., 60 Van Brunt St., Brooklyn, NY 11231
 HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
 Halter Marine, Inc., P.O. Box 29266, New Orleans, LA 70189
 Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan
 Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong

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

Advanced Technology Gets \$6.9-Million Navy Contract For Software Engineering

Advanced Technology Incorporated, Reston, Va., has been awarded a \$6,945,954 cost-plus-fixed-fee Navy contract for combat system level software engineering for CG, CGN, and DDG class ships. Work will be performed in Reston, and is expected to be completed in September 1987. Contract funds would not have expired at the end of the current fiscal year. Thirty-three bids were solicited and three proposals were received. This contract combines purchases for the U.S. Navy (75 percent) and for Japan (11 percent), Australia (7 percent), Germany (4 percent), Saudi Arabia (2 percent), and Spain (1 percent) under the Foreign Military Sales program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-7035).

Rockwell Offers Brochure On Autonetics Division's Products And Capabilities

Rockwell International is offering a free brochure on the products and capabilities of the Autonetics Marine Systems Division headquartered in Anaheim, Calif. Long recognized for its leadership in submarine navigation, the division in more recent years has also developed extensive and unique capabilities in ships signal processing, control systems, and systems integration.

The 28-page brochure contains a brief description of Rockwell International, followed by a review of the Autonetics Marine Systems Division navigation history from 1950, when Autonetics-designed equipment proved the practicality of inertial navigation in the nation's first test of that technology, through the next-generation system for attack-class submarines—the Electrostatic Gyro Navigator (ESGN), which entered production in 1980.

Subsequent sections of the publication deal with the Submarine Simulation Facility—an invaluable tool in the design of ship controls and displays, formation of control station concepts, evaluation of man-in-the-loop performance, and training of control station operators; participation with the Navy in development of undersea warfare systems, ranging from sophisticated acoustic signal processing equipment and integrated sonar systems to portable tactical ranges and complete under-

sea platforms and vehicles; the Shipboard Data Multiplex System (SDMS), developed under Navy contract; smooth and effective integration of diverse and increasingly complex electronic systems into new modern ships to provide effective command and control; and ocean engineering.

The brochure is generously illustrated throughout with interesting photographs, drawings and diagrams.

For a free copy and further information on Rockwell International, **Circle 15 on Reader Service Card**

New Quick-Connects Introduced By Crawford Fitting Co.

Crawford Fitting Company of Solon, Ohio, has recently introduced SWAGELOK "QT" series quick-connects which are designed for corrosive and other severe service applications.

The new design incorporates a single-end or double-end shut off system which allows higher flow capacity than other available quick coupling devices. The unit also offers high pressure capability, up to 5,000 psi.

Outstanding chemical resistance is achieved through a unique combination of all 316 stainless steel construction, including springs and seals made of TFE compounds.

Built to withstand rough handling, the "QT" design emphasizes safety. A safety release button, built into the front body sleeve, provides protection against accidental uncoupling. Extremely low air inclusion and spillage is another important factor.

The new quick-connects are currently available with a choice of Swagelok or NPT end connections.

For further information on the new Swagelok "QT" series quick-connects,

Circle 25 on Reader Service Card



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Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 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
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048
National Steel & Shipbuilding Corp., San Diego, 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
Nichol 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
Rauma-Repola, 26100 Rauma 10, Finland
Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea
St. Louis Ship, 611 East Marceau St., St. Louis, MO 63111
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
Verolme Estaleiros Reunidos Do Brasil S.A., Rua Buenos Aires, 68, Rio de Janeiro—RJ—Brazil
Verreault Navigation Inc., Les Mechins, Quebec, G0J 1T0
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

SHIPPING—PACKING
Pilottage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040

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

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, NY 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
Booz Allen & Hamilton Inc., Crystal Square 2, Suite 1100, 1725 Jefferson Davis Highway, Arlington, VA
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. San 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
Metal Goods Manufacturing Company, 309 W. Hensley Blvd., Bartlesville, OK 74003
Metritape, Inc., P.O. box 2366, Littleton, MA 01460
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

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Curtis Bay Towing Co., Mercantile Bldg., Baltimore, MD 21202
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
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, TX 77002

VALVES AND FITTINGS
Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202
Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
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
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 Temco, Inc. 1941 Lansdowne Road, Baltimore, MD 21227
Union Flonetics, P.O. Box 459, Clinton, PA 15026
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, NH 07928
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186
S.S. White Industrial Products, 151 Old New Brunswick Rd., Piscataway, NJ 08854
Whitey 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

VENTILATION DUCTING
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Wallenius Lines, P.O. Box 17086, S-10432 Stockholm, Sweden

VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110

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Gulf Publishing Company Video, P.O. Box 2608, Houston, TX 77001
ICHCA Canada, P.O. Box 2366, Station D, Ottawa, Ontario, Canada K1P5W9

WATER PURIFIERS
Alfa Laval, Inc., Dept. MR-2, 2115 Linwood Ave., Fort Lee, NJ 07024
Aqua-Chem, Inc. P.O. Box 421, Milwaukee, WI 53201
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
Maryland Environmental Systems, P.O. Box 501, Great Falls, VA 22066
MECO (Mechanical Equipment Company, Inc.), 861 Carondelet St., New Orleans, LA 70130
Riley-Beard, P.O. Box 31115, Shreveport, LA 71130
Village Marine Inc., 2000 W. 135th St., Gardena, CA 90249

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
Oerlikon Welding Industries, Inc., P.O. Box 40964, Houston, TX 77240

WINCHES AND FAIRLEADS
Braden Winch Co., 800 East Dallas, Broken Arrow, OK 74012
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
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
Stanspec Corp., 13600 Diese Ave., Cleveland, OH 44110

WINDOWS
Kearlott 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/CABLE LUBRICANT
Atlantis Services, Inc., 1057 Kings Ave., Jacksonville, FL 32207

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
I & I Sling Company, 2626 Market Street, Dept. D, Aston, PA 19014

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