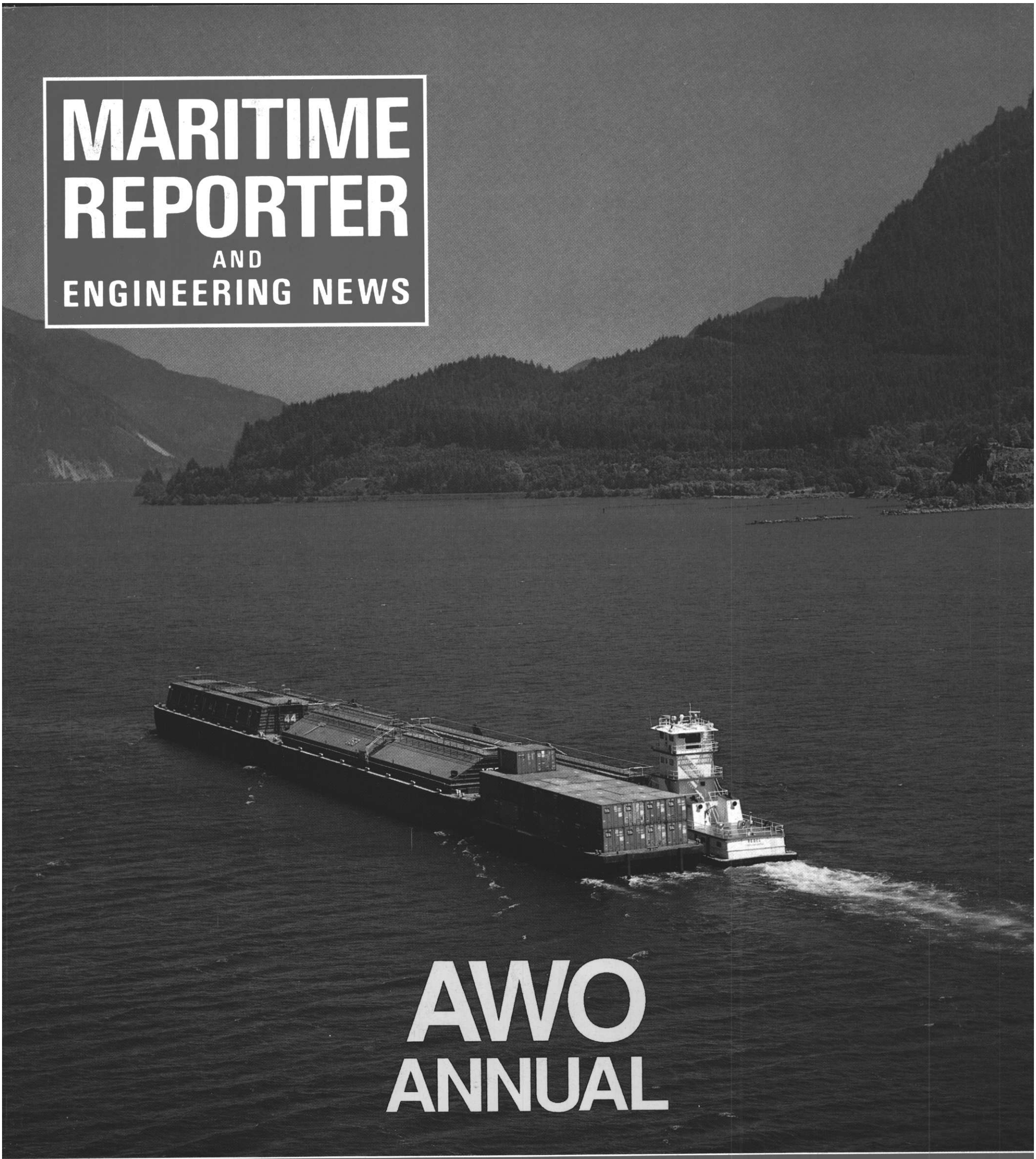
MARITIME
REPORTER
AND
ENGINEERING NEWS



AWO ANNUAL

NAVIGATION-COMMUNICATIONS REVIEW

OUTSTANDING CRUISE SHIPS REVIEW

MARCH 1992

KARL SENNER, INC...WHEN *ONLY THE BEST WILL DO*

The Karen K

Operated by Stokes Towing Company for National Marine, Inc.

Designed by Viking Maritec

Built by Avondale Industries

Karl Senner supplied (1) two Reintjes WAV 4450, 4.75:1 reverse reduction gears with internal hydraulic propeller shaft brakes and (2) the Rexroth pnuematic remote control systems.

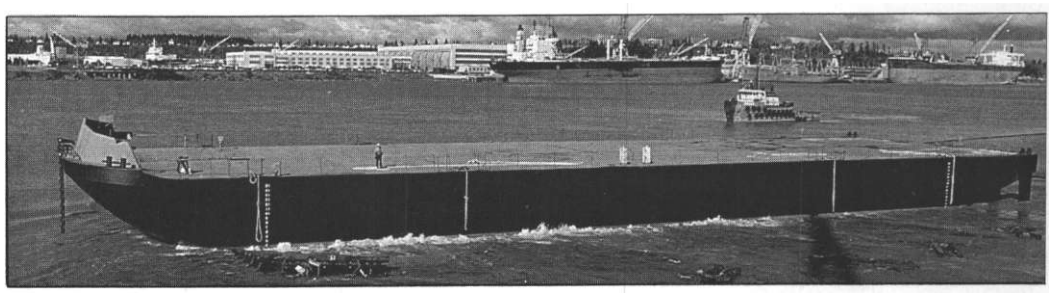
a i / a i l a - I L I M l B i l a i l :

r O i i L> i i (2 UJ lli V 1

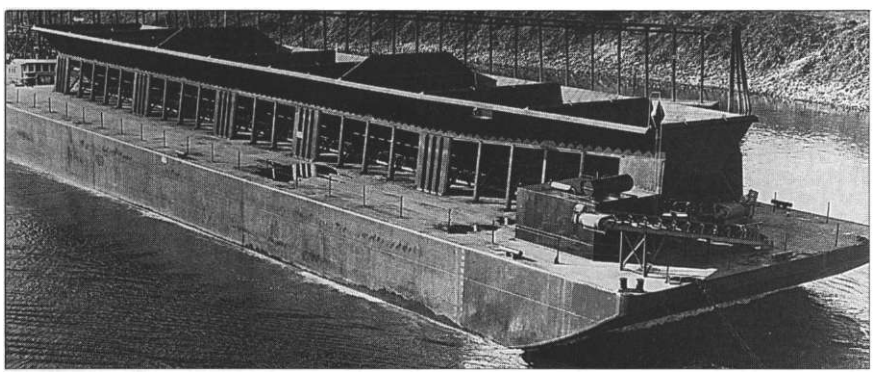
OCEAN DECK BARGES

Length	299'0"	302'0"
Beam	90*0"	76'0"
Depth	20'0"	20'0"
Deadrise	-	2'0"
Draft Light	2'7-1/2"	3'10"
Draft Loaded	15'10"	16'
Transverse Bulkheads	7	8
Length Bulkheads	3	1
No. Tanks	32	18
Rolled Bilge	-	24"
Curved Rake Bow	29'	49'
Long Flat Raked Stern	30'	50' Long Curved Rake
Deck Open Deck Area	25,284 S.F.	19,950 S.F.
Cargo: Deck Load	2,050 P.S.F.	2,500 P.S.F
D.W.T.	9,604 LTSW	7,236 LTSW

Maltese Cross A-1 Deck Barges



SELF-UNLOADING AGGREGATE BARGE

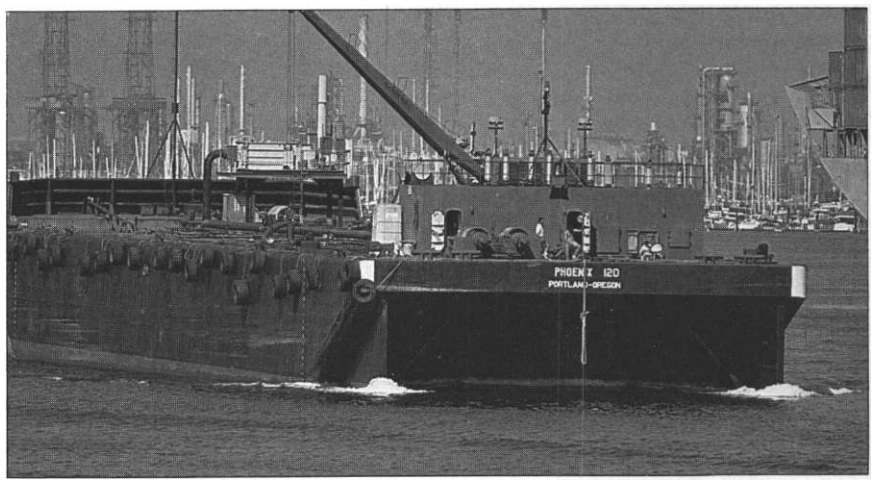


Billie-K Maltese Cross A-1 Ocean Aggregate Barge

Length	250'0"
Beam	72'0"
Depth	15'0"
Draft Light	2'5"
Draft Loaded	11'8-3/4"
DWT	4603 LTSW
Diesel Electric Set	Cat 3406 Turbo, 260 KW Generators, Sullair Model 351 Air Compressor
Hopper Capacity	3,000 Yds
Hopper Unloading Gates	24 Unloading Gates, Pneumatic Operating Rams
Main Unloading	Conveyer Starboard Side Aft
Transfer Conveyer	30" Belt Conveyers, 184' ea. P/S
Hull Plating	1/2" Side, Bottom, Deck

MALTESE CROSS A-1 OIL TANK BARGE

Length	296'0"
Beam	60'0"
Depth	22'0"
Deadrise	6"
Number of Tanks	12
Total Tank Volumes at 95%	50,700 BBLS
Cargo Pumps	3 Rotary Twin Screw, Allweiler 231
Rating	1,500 GPM, 150 PSI, 1,200 RPM
Location	After Rake
Diesel Engines	3 Detriot Diesel 8V-71, 233 HP @ 1,800 RPM
Location	Engine Room on After Deck
Fuel Capacity	1421.3 Gal. Diesel
Fill & Discharge Connections	10" & 8"
Heating Coils	2" Sch. 80 Pipe Coils for Shore Steam Supply
Hull Plating	Side Shell 1/2", Bottom 7/16", Deck 1/2"
Deck Cargo Dwt. at Loadline	6761 LTSW



SPLIT TYPE SELF-DUMPING SCOWS

Length	180'0"
Beam	50'0"
Depth of Mid-Body	14'0"
Hopper Length	128'0"
Level Hopper Volume	1,421 cu. yd.
DWT @ d = 10.22 ft	1,615 L.T.
Rake Lengths F. & A.	26 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up 2'0"	
Engine GM 671	
Hydraulic Pumps 12 GPM & 75 GPM	
Time to Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time to Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78 degrees
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120" Stroke
Plating	Side, 9/16", Bottom, 5/8" Hopper, 5/8"

ZIDELL
MARINE GROUP

For additional information or to make an appointment to inspect, write or call:
Sam Replin or Jack Breshears
3121 S.W. Moody Avenue, Portland, Oregon 97201
Phone: 1-800-547-9259, In Oregon (503) 228-8691 Fax: (503) 228-6750

Circle 259 on Reader Service Card **Raytheon**

ON THE COVER

Controlling over 35,000 barges and 7,500 tugs and towboats, inland operators are vital to the movement of petroleum and crude products, grain, and other cargo along the coasts, harbors, rivers and waterways of the U.S. MARITIME REPORTER annually devotes its March issue to the American Waterways Operators, a national organization representing the interests of inland and coastal waterways operators. Photo: Dixie Carriers.

INSIDE

$1.5 Million Pact To Atlantic Drydock

The hydrofoil missile ship USS Pegasus (PHM-1) will undergo a drydocking selected restricted availability at Atlantic Drydock Corporation, Jacksonville, Fla. The contract is worth $1.54 million.

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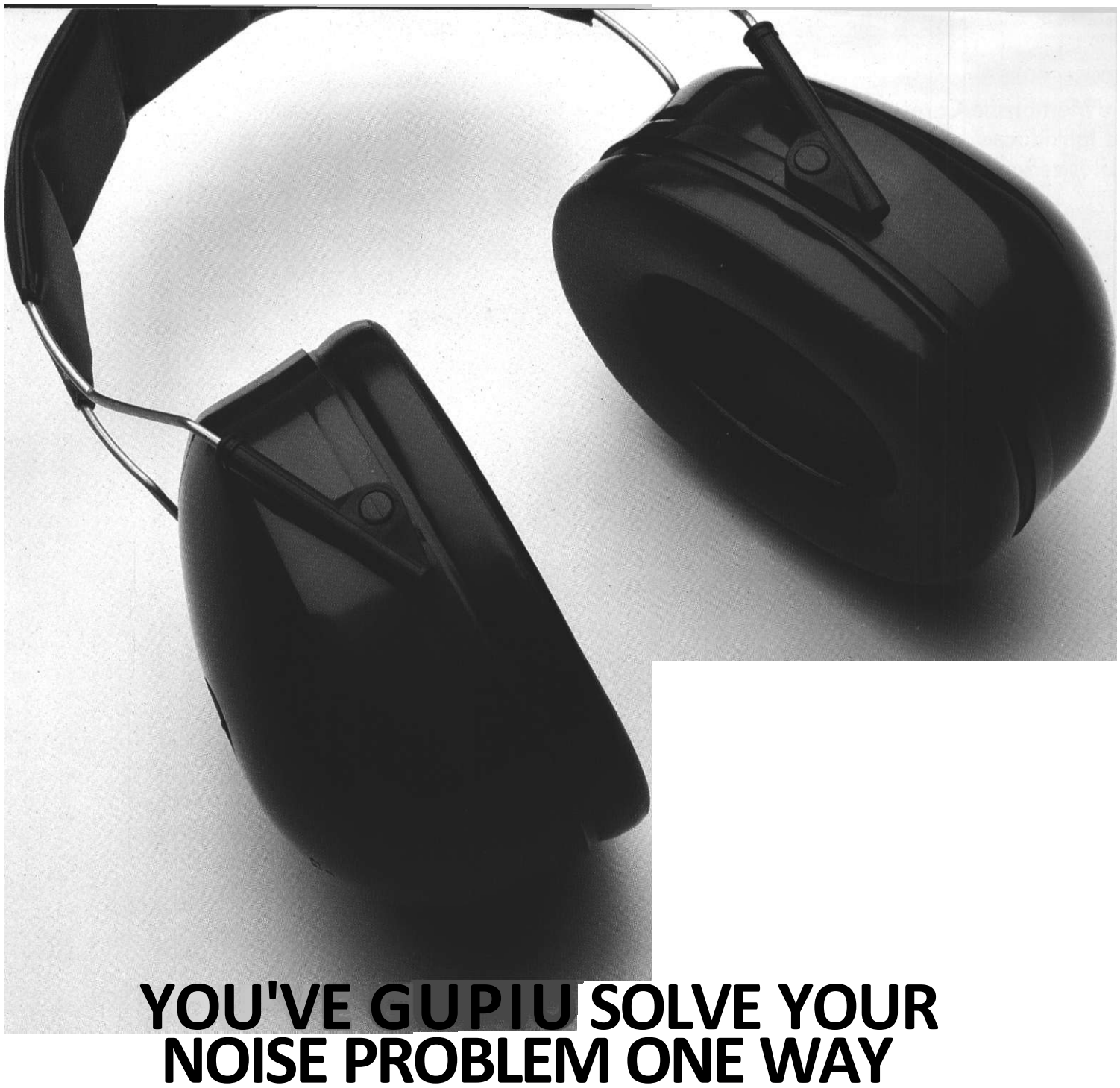
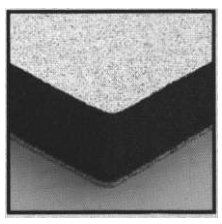


YOU'VE GUPIU SOLVE YOUR NOISE PROBLEM ONE WAY OR ANOTHER.



Soundmat PBM with black matte film, combines absorption and decoupling layer with a noise barrier. Ideal for lining engine rooms and generator housings.

DYAD, a polymer specifically developed to provide effective constrained layer damping on thick structural metal plates.

GP-3, a free-layer damping material designed to attenuate structural noise and fatigue. Highly resistant to water, petroleum, mild acids and bases.

Soundfoam "M" with matte film finish, has hydrolvtic stability 5 times that of other urethane foams, provides oil, gas resistance ana UV stability.

Noise problems? Whatever your noise control need... Soundcoat can provide absorption, damping, barrier and gasketing materials alone or in combination to form multi-layer composites.

If you are faced with a noise problem that requires high temperature or conductive adhesives, special facings for harsh environments, or Class A fire rated and non-toxic absorption materials, Soundcoat can help.

We'll analyze your problem in one of our state-of-the-art acoustics labs and work with you to select a cost effective solution. And we can manufacture and ship precision die-cut parts to you ready for immediate installation.

Bottom line? Your product will work quietly, dependably and at a price that will keep you competitive.

For a free bulletin, call the noise control specialists at Soundcoat today

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3011 Shannon, Santa Ana, CA 92704 714-979-9202 Fax: 714-979-0834

Circle 259 on Reader Service Card **Raytheon**

New Membrane Care Skid Introduced By Lifestream

Lifestream Watersystems Inc., a Huntington, Calif., manufacturer of water purification equipment and accessories, specializing in reverse osmosis seawater and brackish water units for marine applications, recently introduced a new product designed to make cleaning and preservation of membranes used in Reverse Osmosis water purification equipment much easier.

The membrane care skid consists of a mixing tank, flow meters, valves, thermostatically controlled heater, a pump and a motor. This facilitates safe and easy mixing of cleaning chemicals, insures proper delivery of solutions to the membrane/pressure vessel assembly and safeguards against high temperatures and excess flow rate which both can be potentially damaging to membranes.

"We have seen the lifetime of seawater membranes exceeding 5 years with proper care," said **Ed Kimmel,** president of Lifestream. "The use of our membrane care skid will assist in prolonging the life of this expensive component of an R.O. system."

For free literature detailing the new membrane care skid from Lifestream Watersystems,

Circle 59 on Reader Service Card

Atlas Wins $10.8 Million Contract For Main Galleys On Carnival Superliners

Atlas Marine Services, Inc. of Miami, Fla., has been awarded a $ 10.8 million contract by Kvaerner Masa-Yards of Helsinki, Finland to deliver the main galleys aboard Carnival Cruise Lines' latest 70,000-ton superliners M/S Sensation and M/S Fascination. Atlas will manufacture all of the custom stainless steel galley equipment and supply cooking and dishwashing equipment for each of these ships.

According to Atlas's managing director **Michael J. Cassaras,** this is the first time a U.S. company has been awarded the turnkey main galley contract for a cruise ship built outside the U.S.

Atlas's subcontractor in Finland, AP-Putki, an independent unit of the AP-Group, will build the galleys from the foundations inward and install equipment provided by Atlas.

Carnival and the majority of other cruise lines are based in the greater Miami area. Atlas's proximity makes it easy for their personnel to work with the Atlas team throughout a project. Atlas worked with Carnival staff during the design phase of the Fantasy's main galley and provided custom stainless steel equipment for the Fantasy and Ecstasy, Carnival's newest superliners. AP-Putki completed the main galley installation aboard the Fantasy and built the entire main galley on the Ecstasy. **Anna Maija Saarnio,** Atlas's sales representative in Finland who coordinated food service equipment installation aboard the Fantasy and Ecstasy, will coordinate installation efforts on the new ships.

Atlas Marine Services Inc. specializes in the design and manufacture of food service equipment for maritime use. Its service includes working with customers to help them select the best outside vendors' equipment for a project. Atlas field service teams travel worldwide to perform repairs and renovations. Shipyards and vendors located outside the U.S. use Atlas extensively to perform guarantee work aboard ships.

To learn more about Atlas's products and services,

Circle 66 on Reader Service Card

Finnyards To Build RO/RO Worth $87 Million

Finland's Finnyards Ltd. has received an order from France's Compagnie Meridionale de Navigation for a RO/RO ship worth about $86.9 million.

The vessel is one of two destined for service between the French mainland and Corsica, for which Meridionale issued a joint tender with Societe Nationale Maritime Corse-Mediterranee (SNCM).

KRUPP MaK Diesel, Inc

7555 Danbro Crescent
Mississauga, Ontario • L5N 6P9
Phone: 416-542-7810- Telefax: 416-542-7812

Circle 239 on Reader Service Card

ILU Asks Speed-Up In Use Of Electronic Claims Systems

When arranging coverage for a ship in the London market, insurance brokers will soon be able to conduct negotiations with underwriters over a computer. Already, dummy trials are being held, with live electronic placing scheduled to start in April.

The Institute of London Underwriters (ILU), which is pressing its members to speed up the introduction of electronic claims systems, wants to see all claims business computerized by the end of the year.

When paperless underwriting systems were first contemplated, many brokers and insurers felt that electronic placement would not be suitable for marine risks because of their size and complexity. But that perception has changed, according to **Charles Wilkins,** data processing manager at the Institute of London Underwriters, which represents 101 marine and aviation insurers in the company market.

He claims marine risks are not necessarily any more complicated than non-marine risks

The move toward paperless trading systems in the marine insurance markets is progressing parallel to similar initiatives throughout the London market. The London Network Management Committee is coordinating the project in which the Lloyd's Insurance Brokers Committee, Lloyd's of London, the Institute of London Underwriters, and the London Insurance and Reinsurance Market Association are participating. Lloyd's and the company market will all start testing electronic placement systems together next month.

The first phase will enable a broker to prepare a risk package proposal on screen, to obtain quotes from underwriters, send a confirmation of a firm order, and provide a facility for processing endorsements to a risk package held in the system.

Call For Papers ForASNE DDG-51 Technical Symposium

A call for papers has been issued by the Northern New England Section of the American Society of Naval Engineers (ASNE) for technical papers concerning the "DDG-51 Class: A Surface Combatant for the 21st Century; from Design to Construction, the Evolutionary Process."

The papers selected by the section will be presented at a section-hosted technical symposium, sponsored by the Supervisor of Shipbuilding, Conversion and Repair, Bath, Maine, with participation by Bath Iron Works Corporation, Bath, Maine, on September 23-25, 1992, at the Atrium Inn and Convention Center, Brunswick, Maine.

Although the deadline to submit abstracts was February 28, 1992, the Northern New England Section has issued a second call for papers. Anyone interested in submitting an abstract should immediately contact **Roger Deveau,** Supship Bath, at (207) 443-5446. Final papers are due June 15, 1992, and should be sent to ASNE-NNE, P.O. Box 206, Bath, Maine 04530.

For further information contact: Mr. **Deveau** or **Andy Hargreaves,** M. Rosenblatt & Son, 101 Leeman Highway, Bath, Maine 04530; telephone: (207) 443-1392.

Industry Day Seminar Sponsored By USCG In New York, March 11

The U.S. Coast Guard is sponsoring a 1992 Industry Day Seminar and luncheon on Governors Island, N.Y. The purpose of the event is to allow members of the industry and Coast Guard personnel from the Marine Inspection Office/Captain of the Port to interact in a seminar type atmosphere.

Several workshops have been organized on barges, oceangoing vessels, Subchapter T boats, Captain of the Port topics, licensing and documentation, etc. The cost to attend is $25.

For further information, contact: Comdr. **Viehweg** at (212) 668-7815.

FELS Launches Second A.P. Moller Rig

Far East Levingston Shipbuilding Ltd (FELS) has successfully launched the second of two giant jackup rigs it is building for A.P. Moller of Denmark.

The rig was recently eased out of the 400,000-dwt Admiral Dock at FELS Pioneer Yard. It was a delicate operation requiring precision maneuvering since there was less than a meter's clearance between the sides of the hull and the dock walls.

The jackup is now at the South Quay where FELS will install the cantilever, drill-floor and the rest of the leg sections before commissioning the equipment.

Work on the first A.P. Moller rig, launched last September, is at a more advanced stage. Measuring 256.5 feet by 296.27 feet by 35.4 feet, these two rigs will be the largest in the world when completed this year.

FELS recently also completed life-enhancement modifications and conversion of a semisubmersible which recently left Pioneer Yard.

The yard carried out extensive modifications to extend the life of the 18-year-old Sedco 702, which was also converted to enable it to perform tender-assisted drilling operations. The life-enhancement modifications and conversion are believed to be the first in the industry.

For further information on the facilities and capabilities for FELS,

Circle 64 on Reader Service Card

Southwest Marine Celebrates 15 Years Of 'Crafting Quality'

In celebration of the 15th anniversary of its founding, Southwest Marine Inc. (SWM) is announcing its dedication and commitment to the principles of Total Quality Management (TQM).

SWM has grown from modest beginnings in 1977 to become the largest network of ship repair yards on the West Coast.

SWM has joined forces with Organizational Dynamics Inc. (ODI) to implement a TQM training program involving workers from every area and level of the organization. ODI is custom-designing this program, along with SWM's human resources and training departments, to meet the unique requirements of SWM's environment. ODI has successfully developed quality systems for many nationally known firms.

According to **Herb Engle,** Southwest Marine's chief operating officer: "This ongoing process is not to be taken lightly. Our customer and the delivery of a quality project are our highest priorities. We will continue to sharpen our company's focus on productivity and teamwork in all aspects of our relationships with our co-workers and our customers. As we refine our strategies to support the needs of our customers, we will continue to maximize the value they receive when doing business with Southwest Marine."

For literature detailing the services offered by Southwest Marine,

Circle 65 on Reader Service Card

Surge In Orders, Output Reported By Chinese Yards

Showing a sharp increase over the 600,000-dwt average in the previous three years, China State Shipbuilding Corp. reported that it produced 800,000-dwt of ships last year.

Last year, export orders were worth $528 million, the company said. The state-owned Chinese shipbuilder had forecast earnings of $300 million from exports in 1991, up from $100 million the year before.

The company said total foreign and domestic orders in 1991 amounted to 1.65 million dwt, about evenly split between the first and second halves of the year.

General manager of China State Shipbuilding **Shang Shou** said the industry will adopt a two-stage approach to growth.

From now to 1995 (the "foundation-laying" period), the target is annual output of 1.4 million dwt. Half of that is meant to be for export, bringing in $500 million a year.

Through the "development period" (the year 2000), yards will improve manufacturing and repair capacity, produce more raw materials and equipment domestically, and improve research and design.

Tanker Supply, Demand Profitability To 1996

"Tanker Supply, Demand and Profitability to 1996" analyzes recent chartering trends, from 1985 to 1991, and examines the operating profitability of various tankers during the period. Forecast spot and time-charter freight rates are presented, from 1992 to 1996, on both a break-even and projected basis. Due reference is made to the underlying environment for operating and voyage costs, and the relationship to chartering revenues. Changes in the structure of the tanker fleet between 1985 and 1991 are shown in detail. The evolution of tanker supply, and the theoretical surpluses for varying sizes of vessel, is made against a background of the current order book, and projected scrapping and delivery patterns.

The main conclusions of this report are:

• Freight rates will be depressed during 1992-93 as replacement tonnage is delivered to offset the anticipated growth in the scrapping of mid-1970s-built tankers.

• The pressure on newbuilding prices should be relieved by the peak in vessel deliveries during 1992.

• The modest growth in tanker demand, forecast for 1992-96, is heavily dependent on increased crude and products movements from the Middle East.

Between 1985 and 1991, chartering volumes in the spot and period markets rose strongly, against a background of growth in crude oil and refined products movements. The widespread improvement in freight rates brought about a corresponding improvement in cash flows for vessels of all sizes. However, the net contribution to capital (on the basis of fully built-up costs) has remained quite steady since 1988, as operating and capital costs have also risen strongly.

The market is now entering a period of growing uncertainty, encompassing an ever-aging VLCC fleet, and the increasing influence of the 1990 U.S. Oil Pollution Act. Thus, recent prosperity now looks set to be overtaken by a further difficult spell, caused by a substantial increase in replacement tanker tonnage.

The way in which vessels on the current order book are scheduled to be phased into the fleet implies an expansion in excess of 10 percent between 1992 and 1994. This in itself would be sufficient to ensure that freight rates are depressed during 1992-93, and only show real improvement by 1995-96 (provided some ordering restraint is seen and mid-1970s-built tonnage is widely scrapped).

Future growth in seaborne crude and products trades is largely dependent on export cargoes from the Middle East. Notwithstanding this, theoretical tanker demand (i.e., assuming no inefficiencies) is only forecast to grow by an average of 1 percent per annum between 1992 and 1996.

Some 40 percent of the total tanker fleet was built between 1974 and 1976, and if its theoretical trading life were assumed to be 20 years then, disregarding life extension, this portion of the fleet would be scrapped during 1994-96. Although this will not happen, the tanker order book has risen strongly, and in December 1991, stood at 51.5 million dwt, or 20 percent of the fleet, of which some 80 percent is currently scheduled for delivery by the end of 1993.

The theoretical tanker surplus, taking into account projected scrapping and delivery patterns, will rise to almost 30 percent in 1993, before declining sharply in 1995-96, to 23 percent, as scrapping rates are accelerated. On an annual basis, a typical vessel is expected to be able to maintain a break-even position in the spot market (i.e., cover operating and voyage costs), a situation which has prevailed since 1987. Furthermore, there is reason to believe that nominal freight rates will rise, reflecting the underlying pressure from rising operating and capital costs.

For further information, contact: Drewry Shipping Consultants Ltd., 11 Heron Quay, London E14 4JF.

Island-class USCG patrol boat being launched at Bollinger Shipyard in Lockport, La.

Bisso Completes Four-Year Bollinger Contract; Successfully Lifts USS Aquila PHM-4

Bisso Marine Company, Inc., New Orleans, La., recently completed a four-year contract with Bollinger Machine Shop and Shipyard, Lockport, La., and also successfully completed the task of lifting the USS Aquila PHM-4 to a high cradle position on the bank at the Jacksonville Shipyard in Florida.

The four-year contract with Bollinger was completed by Bisso successfully launching forty-nine 110-foot Island-class USCG patrol boats using the derrick barge Ajax. The vessels are being used by the Coast Guard for rescue and in the Coast Guard's drug interdiction program.

Bisso Marine Company received another two-year contract from Bollinger to launch thirteen 170-foot U.S. Navy patrol boats now under construction. The launches will be done by Bisso's 700-ton derrick barge Bisso at the Lockport facility.

The USS Aquila PHM-4 was successfully lifted by Bisso Marine from the St. Johns River to a high cradle position on the bank at the Jacksonville Shipyard in Jacksonville, Fla.

The intricate task of lifting the vessel was accomplished by the 700-ton derrick barge Cappy Bisso.

Versabar Inc. of Harvey, La., supplied, tested and certified all of the lifting gear in order to meet the criteria of the U.S. Navy.

For free literature on Bisso Marine,

Circle 61 on Reader Service Card.

BISSO MARINE COMPANY
List of Equipment
1991

DERRICKS

D/B CAPPY BISSO	200' x 70' x 14', 700 S.T. (S.W.L.)
D/B LILI BISSO	195' x 72' x 12'6", 600 S.T. (S.W.L.)
D/B CAIRO	165' x 70' x 14', 350 S.T. (S.W.L.)
D/B AJAX	121'x 65 x11', 250 S.T. (S.W.L.)

TUGS

M/V RIP TIDE (Salvage Vessel)	120' x 32', 1,000 H.P.
M/V DARLENE BISSO	110' x 27', 1,800 H.P.
MA BEAU BISSO	80' x 23', 1,000 H.P.
M/V TYLER	60' x 22', 800 H.P.

SUPPORT EQUIPMENT

Crane Barge BIG EAGLE	155' x 50' x 14', 85-ton Wiley whirley crane, 130' boom
Spud Barge CAPT. LUKE	130' x 50' x 9', 60-ton Manitowoc crane, office and 4-man quarters, 2-drum winch, anchors, 6-inch pumps, 4-inch pumps, 3-inch pumps, 2-inch pumps, air compressor 600 CFM, air lifts, welding machines.
Pump Barge	60' x 30' x 7', 12-inch pump, 20-ton link belt crane
Deck Barge BIG CHIEF	220' x 74' x 15'
Rigging	Slings 4"diameter to I-I/2"diameter, shackles 300 tons to 1/2 ton, spreader bars

Delta Marine
To Drydock Cutter

Delta Marine, Inc., Wilmington, N.C., has been awarded $345,107 to drydock USCG cutter Rambler (WLIC-298).

Kirby Corp. Signs Agreement To Buy Sabine Towing

Houston barge company Kirby Corp. recently announced that it signed an agreement to purchase the assets of Sabine Towing & Transportation Co. from Sequa Corp., New York-based parent of Sabine, for $37.25 million.

Kirby plans to pay for the purchase with a combination of cash on hand and new financing within Sabine Transportation Co., a Kirby unit that will own Sabine's assets.

Based in Port Arthur, Texas, Sabine is engaged in coastal and inland marine transportation of petroleum products and harbor tug services.

For the nine months ended September 30, it had revenue of $50.5 million and $66.8 million for all of 1990. Kirby's revenue was $140 million for the nine months ended September 30 and $175.8 million for all of 1990.

Approximately 65 percent of Sabine's revenues are derived from coastal tanker operations, 25 percent from inland tank barge operations, and 10 percent from harbor tug services.

Sabine operates 38 tank barges, 24 harbor tugs and push boats and six coastal tankers.

The acquisition should produce a favorable impact on Kirby's earnings, the company said.

McDermott Awarded Exxon Contract For Harmony And Heritage Installation

McDermott Marine Construction has received a contract from Exxon Company for the transportation and installation of topsides for the Harmony and Heritage platforms off the coast of California. Each platform will be fitted with two support frames, 10 modules, and a flare boom.

The topsides will be transported from Corpus Christi, Texas, to offshore Santa Barbara, Calif., on eight material barges.

McDermott's Derrick Barge 51 will install the facilities in Blocks P0190 in 1,200-foot water depths and P0182 in 1,075-foot water depths. The entire project will require 26 major lifts which range in size from 150 tons to 1,400 tons.

The facilities will be installed in an environmentally sensitive area off the coast of Santa Barbara. Special equipment and procedures will be utilized by the Exxon/McDermott project team to meet stringent environmental restrictions established by federal, state and local governments.

McDermott Marine Construction is a major operating unit of McDermott International, a leading worldwide energy services company.

United Ropeworks Offers Free Color Brochure On Trevira Polyester Rope

United Ropeworks (U.S.A.), Inc., Montgomeryville, Pa., is offering a free color four-page brochure on its Phillystran Polyester ropes.

United Ropeworks (U.S.A.), Inc., offers ropes manufactured from large filament, high performance Trevira polyester fiber.

As described by the company's brochure, carefully selected special yarn finishes combined with top grade polyester fiber and built in a unique seven-strand wirelay construction result in a polyester rope with superior properties when compared to conventional polyester ropes.

According to the company, these ropes have proven to exceed the fatigue life of wire rope, while demonstrating to be more durable than nylon or aramid fiber products.

High tenacity Trevira polyester from Hoescht Celanese provides excellent dimensional stability in the manufacture of ropes for marine, military and industrial applications. Trevira polyester ropes are intended for applications where moderate elasticity may be useful, but superior strength and durability are essential.

For a free copy of the brochure from United Ropeworks,

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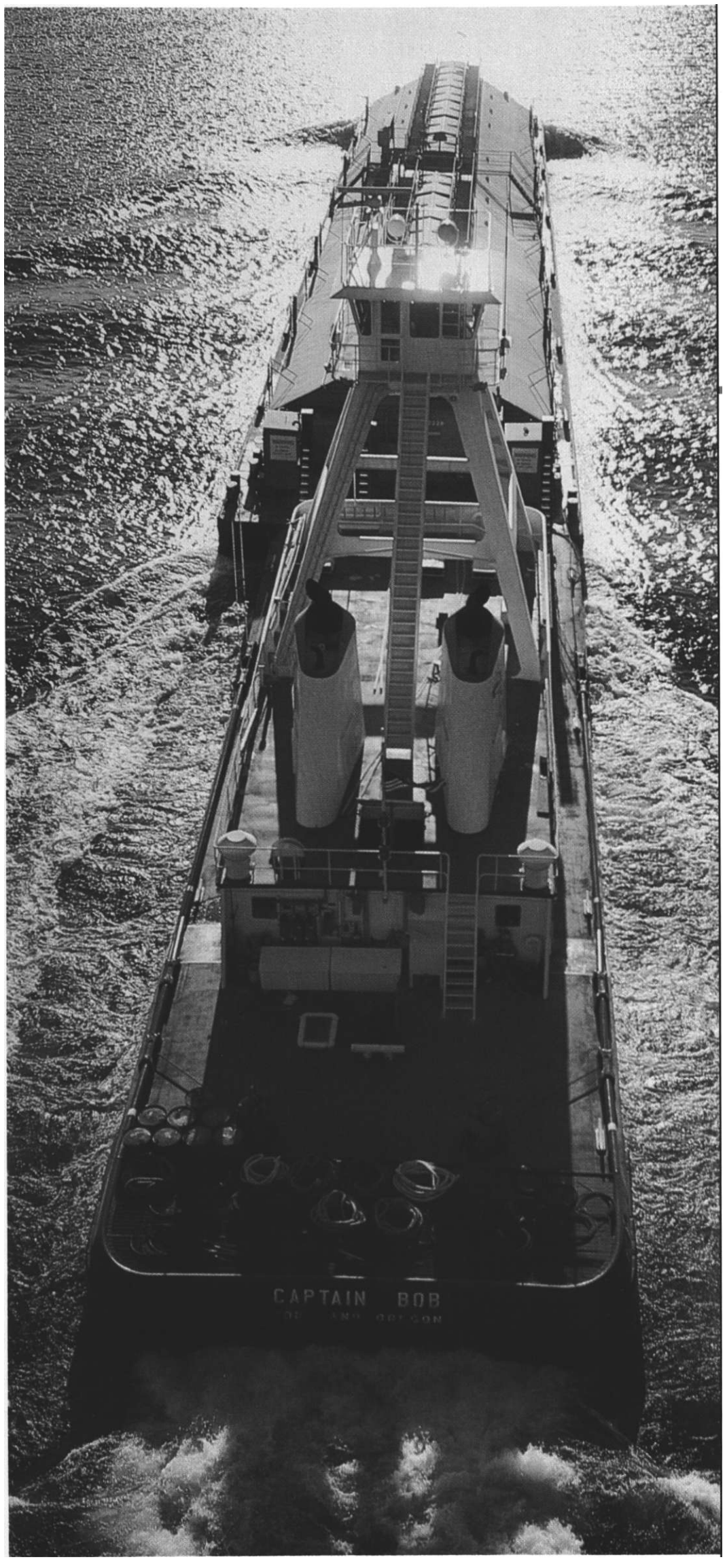

AWO AMIUAL

Legislative Challenges: AWO Takes Aim At Complex Issues

By Jennifer Boucher,
AWO Legislative Assistant

The American Waterways Operators (AWO), founded in 1944, is the national trade association of the inland and coastal tug and barge industry, which operates a fleet of over 7,500 tugs and towboats and more than 30,000 barges.

Jennifer Boucher

There are now unprecedented challenges for AWO as the association endeavors to cope with monumental legislation ... the Oil Pollution Act, Clean Air Act amendments, Americans with Disabilities Act... which demonstrated a concerted effort by public officials to mandate a cleaner, safer, more equitable working environment, without substantial regard to cost or adverse economic impact. Inthepost-Valdez era, legislators have clearly been motivated more by the fear of a deteriorating environment than by the need for increased productivity and economic competitiveness, often resulting in rhetorical allegations and ill-conceived measures which have injurious potential for the industry.

AWO is faced with more numerous and complex issues than ever before. Statutorily driven regulations and legislative initiatives that mandate changes in industry operations, personnel and resources, make it imperative that AWO maintain

and improve open and effective communication with Congress, the Coast Guard, and related industry organizations.

AWO ventures to produce innovative strategies for ensuring the visibility of the industry and seeks to practice a modern and creative approach to advocacy in response to the emergence of bills, studies, and proposed rules that will set the foundation for the new regulatory regime under which the barge and towing industry will be required to operate.

In 1991, AWO members felt the first shocks resulting from the passage of OPA 90 with the promulgation of several regulations by the Coast Guard which addressed oil spill liability, cleanup, and prevention requirements under the new law.

When the Coast Guard issued its proposed rulemaking to implement the OPA 90 financial responsibility requirements, a long-anticipated showdown between the Coast Guard, petroleum carriers, and the marine pollution insurance industry took on tangible form. Although certificates of financial responsibility were previously required under the Clean Water Act, the liability risks under OPA 90 are much greater. Moreover, because OPA 90 requires insurers to be guarantors and subjects them to direct action by claimants, the international, and possibly also domestic, insurers assert that they will not issue the required certificates to their insureds. As a result, AWO maintains that the Coast Guard's proposed regulations will, if implemented as proposed, shut down the waterborne movement of petroleum and emphasizes the need for exploring other regulatory mechanisms to demonstrate evidence of financial responsibility.

Congressional hearings held in November 1991 examined and confirmed the likelihood of a potential shutdown of fuels delivery and advised the Coast Guard that exploring other options would not violate Congress's intent and is, in fact, a necessity. The Coast Guard is required to develop a Regulatory Impact this year, which will assess the impact of vessel operators being unable to secure insurance coverage which meets the Coast Guard's proposed test of financial responsibility. AWO will continue to assert that the rule is unworkable in current form and must be corrected to avoid severe disruptions in the transportation marketplace.

Another directive of OPA 90 took shape when, in August of 1991, the Coast Guard issued a preliminary regulatory proposal on tank vessel response plans and the carriage of oil spill cleanup and removal equipment. AWO provided the agency with detailed industry views on these questions. The Coast Guard announced its intention to proceed with regulatory negotiation process to reach a consensus on a proposed regulation by March 1992. AWO challenged the need for the negotiated rulemaking on this issue and opposed the unbalanced composition of the proposed committee. AWO began participation in the negotiation process early this year and assembled a small team of inland and coastal operators to assure accurate industry representation.

OPA 90 also mandates that the Coast Guard develop regulations to protect the environment until single hull vessels over 5,000 gross tons are phased out in the year 2010. The Coast Guard has proposed structural options include double sides, double bottoms, and protectively located segregated ballast tanks, which AWO rejected on the basis of economic and technical unfeasibility. AWO prefers the option of instituting operational requirements, such as enhanced traffic control, training, and management standards, and emphasized the importance of viewing and tank barges separately when examining the feasibility of regulations.

AWO recently examined the effect of international operation and safety initiatives on domestic operators through an in-depth analysis of the structure, function, and operation of the International Maritime Organization, and its impact on the U.S. barge and towing industry. The AWO study concluded that the best strategy by which AWO might monitor and influence the work of the IMO is through ongoing informal consultation with the Coast Guard and participation in meetings held by the Shipping Coordinating Corn-

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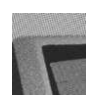

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mittee, which develops the U.S. position on issues before the IMO. The report also concluded that further development of a substantial IMO advocacy effort must be balanced against competing priorities within the industry.

Americans With Disabilities Act

Because of the unique nature of marine operations and the physical and potentially hazardous risks posed by marine employment, the passage of the Americans with Disabilities Act of 1990 (ADA), and ensuing regulations by the Equal Employment Opportunity Commission, present new challenges for the industry in the realm of marine personnel policies. In order to ensure the best approach to effective implementation of the new regulations, which become effective in July 1992, AWO's task force on the ADA carefully examined the effects of the act on hiring procedures for marine personnel and addressed the possibility of an industry-wide response to the ADA. The association will hold a seminar on this vital topic on April 8, 1992, at the ANA Hotel in Washington, D.C., just prior to the AWO Annual Meeting, April 9-10.

Regional Environmental Challenges

Still reeling from media and public outcry stemming from the Valdez spill, many legislators have been driven to propose short-sighted and potentially damaging measures, which are all too characteristic of the political motivations existing in a period preceding an election. The industry has been faced with an onslaught of such measures regarding personnel, pilot qualifications, and vessel navigation equipment requirements. These bills would essentially breach OPA 90 requirements for the completion of Congressionally mandated studies and, consequently, AWO opposes their passage and upholds the law's commitment to a comprehensive review of the issues.

Despite the onerous oil spill liability provisions in OPA 90, the lack of federal preemption of state oil pollution laws encouraged many individual states to develop statutorily strict environmental protection measures that surpass federal regulations in areas such as unlimited natural resource damages, civil and criminal penalties, and financial responsibility. Marine transportation of petroleum products and chemicals was temporarily interrupted in 1991 in Florida waters as a result of state legislation prohibiting the acceptance of federal certificates of financial responsibility, until the industry was successful in getting the provision repealed to allow the federal certificate as acceptable evidence.

There are several other environmental challenges across the country. Users of the Columbia-Snake River system, and the economy of the Pacific Northwest, are threatened by the destination of Sockeye salmon as an endangered species and related proposals to lower reservoir levels. Environmental groups elsewhere push for legislation to require state permitting programs that would limit hazardous cargo transportation and threaten the operation of single hull vessels on the Upper Mississippi. The Environmental Protection Agency has embarked on regulations mandated by the 1990 Clean Air Act amendments requiring the reduction of VOC emissions from tank vessel loadings and unloadings, raising questions about the scope of the rule's implementation and the relationship between federal and state enforcement authority. And, while Congress continued the controversial debate on wetlands regulation, the industry pushed for a balance between preservation and economic activity.

These legislative and regulatory initiatives produce unprecedented challenges for the association. As the government relentlessly attempts to increase its regulatory impact on the barge and towing industry, AWO has developed a contemporary approach to advocacy which will ensure the added visibility and access necessary to assure continued viable and safe marine transportation.

LEADING INLAND OPERATORS SPEAK OUT

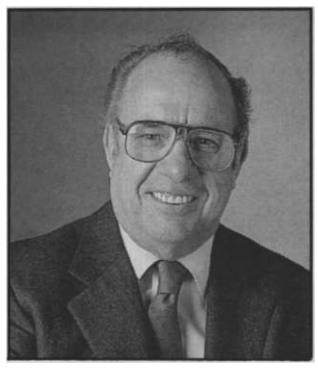
Barge Operators Assess Impact Of OPA And Future Of The Industry

The repercussions of the Oil Pollution Act of 1990 have been felt by the entire marine industry, but no where more acutely then in U.S. inland waterway and coastal transport operations. Unlimited liability, escalating carrier insurance, and mandated equipment modifications are just part of the onus of OPA that operators must bear. To more fully assess the impact OPA 90 has had and will have on future inland and coastal water transportation operations, MARITIME REPORTER conducted interviews with some of the largest and most influential operators in the brown water market. The following is a brief look at some of their insightful comments on the Oil Pollution Act, the Clean Air Act and the near term future of the industry.

The Impact Of OPA

"The enactment of the Oil Pollution Act (OPA) of 1990 will have effects on different parts of the country. How these effects manifest themselves over the long term will certainly impact our business," said **Raymond Hickey,** president and chief operating officer of Tidewater Barge Lines, Inc., Vancouver, Wash. "We have called OPA, 'The Act of Emotion.' A law irrespective of differing regional product and transportation characteristics."

Tidewater operates along the Columbia/Snake River system in the Pacific Northwest. The company barges clean or refined petroleum products along a short—465 miles—inland river, making their operations extremely sensitive to cost increases.



Raymond Hickey,
president/COO,
Tidewater Barge Lines, Inc.

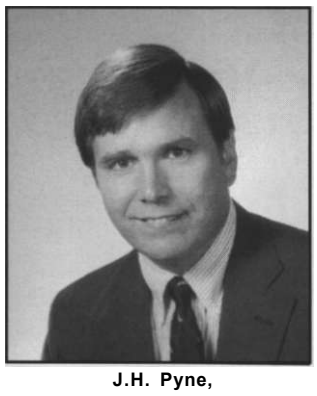
"The question that concerns us," said Mr. **Hickey,** "is, 'Are we going to be competitive with other modes [of transportation] after passing along costs associated with OPA compliance to our customers in a recessionary environment?'"

According to the company's statistics, tugs and barges haul about 12 percent of the nation's freight for about 2 percent of the cost.

"If you have 3,500 tons of grain, you'll need 116 trucks or 35 rail cars to move it. All I need is one tug and barge," he said

"The Oil Pollution Act has and will continue to affect Dixie Carriers' operations. In many instances, the effects of OPA 90 will be positive because operators will be forced to more carefully attend to their business. Conformance with the requirements of OPA has caused Dixie Carriers to continue to validate the adequacy of its own operating procedures and has increased our costs," said **J.H. Pyne,** president of the Houston, Texas, water transportation firm.

Dixie Carriers, Inc. and its marine transportation subsidiaries comprise Houston-based Kirby Corporation's marine transportation segment.



J.H. Pyne,
president,
Dixie Carriers, Inc.

Dixie's Inland Division, operating inland tank barges primarily along the Gulf Intracoastal Waterway, Houston Ship Channel and the Mississippi River and its tributaries, has a fleet of 123 barges and 47 towboats.

Dixie's Offshore Division, operating among ports along the Gulf of Mexico, as well as ports in the Caribbean Basin and along the Atlantic and Pacific Coasts, transports dry bulk and liquid cargoes using eight barges, eight tugboats and one shifting and fleeting boat.

Brent Transportation, another Dixie company, operates an inland fleet of 61 barges and 18 towboats.

Mr. **Pyne** sighted the areas of increased crew training, equipment modifications (to comply both with the OPA double-hull requirement and Clean Air Act for vapor control), refinement of emergency spill response plans, compliance audits and spiraling insurance premiums. Dixie will spend in excess of $5 million for vapor control equipment alone in 1992.

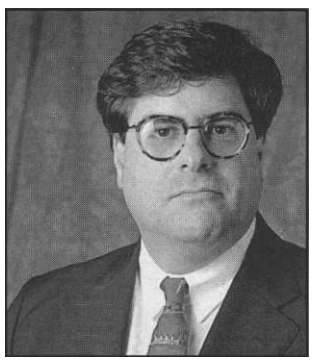
"The Oil Pollution Act has and will continue to have a significant impact on our fleet," said **Fred** C. **Raskin,** president of the Cincinnati-based Ohio River Company. "We have over 40 single-skin tank barges that handle refined petroleum products, and current legislation will require their retirement/replacement by 2015."

Mr. **Raskin** also pointed out that general operations in both the dry and liquid cargo areas will be impacted by spill contingency plans, as well as additional training and licensing requirements.

Looking Ahead

Although Mr. **Pyne** thought business conditions would be flat for 1992, he predicted better conditions in the years ahead.

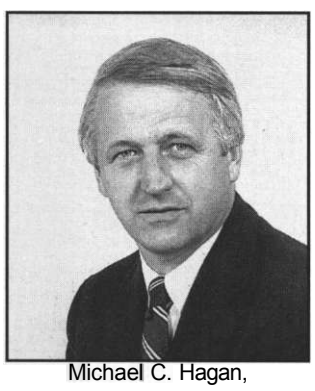
"Looking beyond 1992, we are very optimistic about our business. For the first time since the late 1970s, the inland tank barge fleet is in balance. Other than pipelines, which require higher dedicated volume than barges, marine transportation will continue to remain the most cost efficient method of moving bulk commodities between U.S. coastal



Fred C. Raskin,
president,
Ohio River Co.

and inland ports."

Mr. **Raskin** of Ohio River Co., however, thought conditions in the industry would improve this year. He believed a return to more normal weather and economic conditions coupled with a resumption of grain exports to the Commonwealth of Independent States (the former Republics of the Soviet Union) would help make 1992 a "good year."



Michael C. Hagan,
president/COO,
American Commercial Lines, Inc.

"The stability of riverborne grain demand will be strongly affected by the level of U.S. exports to CIS, which in turn is heavily influenced by the amount of loan credit the United States is willing to provide," said **Michael** C. **Hagan,** president and chief operating officer, American Commercial Lines, Inc. "Current governmental actions suggest the CIS will continue to receive U.S. agricultural aid," continued Mr. **Hagan.** "Based upon that assumption, American Commercial Barge Lines, Inc. anticipates 1992 barge grain demand to improve slightly over 1991 volume. However, wide fluctuations in spot grain freight rates will probably continue."

Clean Air Act & Coal Transportation

"The Clean Air Act amendments will alter coal transportation patterns and alternatives," said Mr. **Hagan.** "As sources of coal shift, inland river operators are well-positoned to benefit from the changing shipper requirements. With a number of river-served utility plants being affected by Phase I of the CAA amendments, river trasnportation patterns will result in potentially longer hauls, further straining equipment capacity.

"We anticipate a solid 5 to 7 percent increase in export coal tonnage over 1991 volumes, driven principally by increasing demand for U.S. steam coal exports," stated Mr. **Hagan.** "The continued growth in export coal demand should attract covered barges normally used in the grain trade." Mr. **Hagan** also believed that domestic coal activity would improve moderately over last year, posting a 1 to 2 percent growth rate.

Fleet, Operation Expansion

In 1992, Dixie Carriers plans to take delivery of the last three of a series of twelve 29,000-barrel inland chemical tank barges. The company has also announced its intended acquisition of two inland tank barge operators, Sabine Towing & Transportation Company and Ole Man River Company. With these acquisitions, the Dixie fleet will consist of 268 tank barges and 104 boats.

For 1992, Tidewater plans to put into operation, a solid waste program, transfer station, container yard, barge transportation and landfill, three new wood chip barges, a second wood chip loading facility, expand its container operation at Boardman, Ore., and complete the construction of a new floating repair service for Tidewater Barge.

The Ohio River Co. is currently building about 150 dry cargo hopper barges at its Port Allen, La., facility.

Construction & Repair Activity Up At Small And Medium Size Yards

MARITIME REPORTER recently conducted *a* limited survey among key small and medium-size U.S. shipyards engaged primarily in the construction of shallow-draft vessels.

Information received as of press time is presented here to show current levels and indicates activity is on the upswing.

Tank, hopper and deck barges, towboats, tugs, oil spill recovery vessels, gambling boats, dinner/excursion boats, offshore supply vessels and crewboats account for most of the construction activity in the commercial sector.

Patrol boats for the U.S. Navy, Army and Coast Guard and several foreign navies, as well as number of special projects for the Corps of Engineers, account for a substantial portion of the government vessel construction projects.

Vessel/Type	Dimensions (in feet)	Main Engines	Owner	Del
AVONDALE INDUSTRIES, INC., BOAT DIVISION, Westwego, La.				
Karen K./towboat	168x45x12	Caterpillar (2)	Nafl Marine	8/91
Cindy Celeste/ towboat	168x45x12	Caterpillar (2)	Nafl Marine	12/91
Elizabeth Dewey/ towboat	168x45x12	Caterpillar (2)	Naf1 Marine	2/92
Capt. Bud Bisso/ tugboat	110x34x19	EMD (2)	E.N. Bisso	2/92
BOLLINGER MACHINE SHOP & SHIPYARD, Lockport, La.				
Eco-100/ oil skimmer	44x8x5	Cummins	OMI Corp.	10/91
Eco-100/ oil skimmer	44x8x5	Cummins	OMI Corp.	10/91
Hoku-Loa/tug	117	EMD	Hawaiian Tug & Barge	1/91
Hoku-Kea/tug	117	EMD	Hawaiian Tug & Barge	4/91
Grand Isle/WPB	110x21x7	Caterpillar	USCG	2/91
Key Biscayne/WPB	110x21x7	Caterpillar	USCG	3/91
Jefferson Island/ WPB	110x21x7	Caterpillar	USCG	4/91
Kodiak Island/WPB	110x21x7	Caterpillar	USCG	5/91
Long Island/WPB	110x21x7	Caterpillar	USCG	6/91
Bainbridge Island/ WPB	110x21x7	Caterpillar	USCG	7/91
Block Island/WPB	110x21x7	Caterpillar	USCG	8/91
Staten Island/WPB	110x21x7	Caterpillar	USCG	9/91
Roanoke Island/ WPB	110x21x7	Caterpillar	USCG	11/91
Pea Island/WPB	110x21x7	Caterpillar	USCG	12/91
CONRAD INDUSTRIES, INC., Morgan City, la.				
Deck barges (4)	120x30x7	N/A	Consolidated Projects	2/91
Isle de France/ crane barge	120x45x7	N/A	Moter S.A.	3/91
Dick Z/decK barge	220x54x14	N/A	Cashman Bros.	4/91
Bruce W./ deck barge	220x54x14	N/A	Cash man Bros.	5/91
Terminales/Hoating dock	120x52x7	N/A	Terminales Maracaibo	7/91
Aimee Danos/ lift boat	81x40x8	GM	Danos & Curole	9/91
Lockwood 6/ deck barge	140x40x10	N/A	Lockwood Barge	9/91
Lockwooa 2001 / deck barge	200x48x12	N/A	Lockwood Barge	11/91
Lift boat	82x48x8	GM	Otis Eng.	2/91
BH 103/ deck barge	120x38x8	N/A	HBH Inc.	12/91
Quarters barge	55x30x5	N/A	N/A	1/92
T 11/deck barge	150x45x8	N/A	Inter-Lago Transport	1/92
FREEPORT SHIPBUILDING & MARINE REPAIR, INC., Freeport, Fla.				
Alpha Centauri/ steel trawler yacht	110x27x6	Cummins	G. Ray Miller	2/91
Sandy Hook Lady/ paddlewheeler	65x26x6	Cummin	Capt. R. Santee	2/91
Jack London Commodore/sight-seeing-excursion	76x32x4	Caterpillar	Ward Proescher	3/91
Star of America/ lux. alum, yacht	124x24x2	Caterpillar	Dudley Webb	3/92
Major Repair & Conversion: Capt. Anderson III/ sightseeing boat	64x26x6	N/A	Max Anderson	3/92
JEFFBOAT, INC., Jeffersonville, Ind.				
Open hopper barges (40)	195x35x12	N/A	Commercial	91
Open hopper barqes (60)	200x35x12	N/A	Commercial	91
Double-skin tank barges (16)	298x54x12	N/A	Commercial	91
Double-skin tank barges (2)	298x53x12	N/A	Commercial	91
Double-skin tank barges (10)	195x35x13	N/A	Commercial	91
Michael Luhr/ towboat	170x48	EMD (2)	Luhr Bros.	92
NICHOLS BROTHERS BOAT BUILDERS, INC., Whidbey Island, Wash.				
San Francisco Spirit/dinner-cruise boat	150x40x7	Cummins (3)	Pacific Marine Yacht	6/91
Monte Carlo/gaming dinner boat	205x46x7		Hornblower Yachts	10/91
Star of Honolulu/ dinner-cruise boat	232x45x14	Caterpillar (2)	Paradise Cruise	2/92
Super Emerald/ high-speed ferry	65x17x4	DD (2)	Mitsubishi	1/92
DING & DRYDOCK CORPORATION, Norfolk, Va.				
; (partial listing):				
Maj. S.W. Pless/ RO/RO	821x105x33	GE steam turb.	Wilmington Trust Co.	5/91
SS Equality State/ container	668x76x33	GE steam turb.	Waterman	5/91
USNS Sealift Mediterranean/ tanker	587x84x45	Enterprise	MSC/IMC	5/91
SS Regent Sun/ cruise	624x78x56	Steam turb.	Coral Cruise	5/91
M/V Horizon/ cruise	679x95x25	MANB&W	Chandris Cruise	5/91
Potomac Trader/ tanker	658x106x54	Sulzer	Attransco	6/91
SS Wright/cargo	600x90	N/A	Am sea	6/91
Austral Lightning/ cargo	820x100	N/A	Interocean Mgt.	6/91
USNS Zeus/cable	513x73x35	GM	MSC-Atlantic	7/91
Jack Lumus/ RO/RO	673x105	Stork Werkspoor	Amesa	7/91
USNS Sealift Arabian Sea/ tanker	587x84x45	Pielstick	MSC/IMC	7/91
USNS Sealift China Sea/tanker	587x84x45	Pielstick	MSC/IMC	7/91
SS Ambassador/ cargo	492x73x28	GE steam turb.	Marine Cariers	8/91
SS Meteor/ RO/RO	540x83x29	Steam turb.	Interocean Mgt.	8/91
USNS Vega/ cargo	483x68x27	GE steam turb.	MSC-Atlantic	9/91
SS Cherry Valley/ tanker	688x90x35	GE steam turb.	Keystone	9/91
Faust/car carrier	653x106	Hitachi	Wallenius/IMC	9/91
USNS Glover/FFG	414x45	Westinghouse	MSC	9/91
Monte Cervantes/ cargo	606x93	N/A	Columbus Lines	9/91
Falcon Duchess/ tanker	672x89x46	Pielstick	Seahawk Mgt.	10/91
Coscol Eagle Pt./ tanker	743x102	N/A	Coscol	10/91
USNS Sealift Indian Ocean/ tanker	587x84x45	Pielstick	MSC/IMC	10/91
SS Coronado/ tanker	688x90x35	GE steam turb.	Keystone	11/91
Mangalia/RO/RO	606x85x50	MAN B&W	King Shipping	11/91
Eagle/bulk	465x69	MAN B&W	Colonial Marine	11/91
SS Rotterdam/ cruise	748x94	Steam turbine	HAL	11/91
SS Meridan/ cruise	699x94x28	Delavol steam	Chandris Cruise	11/91
Stena Transfer/ RO/RO	462x70	Sulzer	Northern Marine	12/91
SS Pfc. Oregon/ RO/RO	821x105	N/A	Waterman	12/91
CS Long Lines/ cable	512x69	GE steam turb.	Transocean	2/92
USNS Sealift Pacific/tanker	587x84	Pielstick	MSC/IMC	92
M/V Discovery 1/ passenger	489x66	Pielstick	Bayaman Ship	N/A
M/V New York Sun/ tanker	614x92	Sulzer	New York Ship	N/A
TSS Festivale/ passenger	761x89	Steam turbine	Festivale Maratime	N/A
Royal Princess/ passenger	758x105	Pielstick	P&O	N/A
Stainless Fighter/ tanker	380x69	MANB&W	Imperial Legend	N/A
Tyson Lykes/ container	676x105	Sulzer	First American	N/A
JC., Pensacola, Fla.				
300Q-passenger gambling-excursion vessel	450x69	N/A	Roberts River Rides	N/A
Reynolds/drift collector	60x22	N/A	Corps of Eng.	N/A
Dubuaue Casino Belle/gambling	387x58	Cummins (3)	Roberts River Rides	91

continues on page 22

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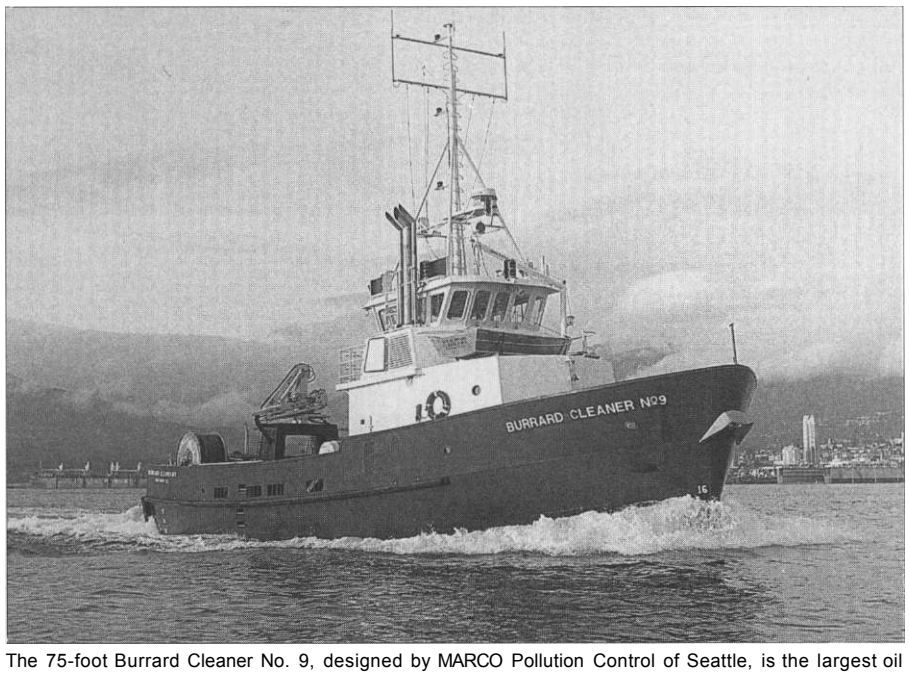


The 75-foot Burrard Cleaner No. 9, designed by MARCO Pollution Control of Seattle, is the largest oil spill recovery vessel serving Canada.

Canada's Largest OSRV Designed By MARCO

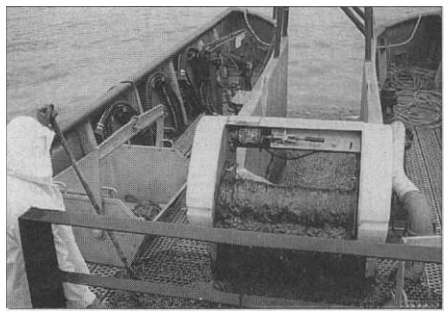
A new design oil spill recovery vessel from MARCO Pollution Control, one of the world's largest builders and designers of these type vessels, was recently commissioned by a Canadian owner.

Called the Burrard Cleaner No. 9, she is the largest oil recovery vessel serving Canada. The vessel was built at the West Coat Manly Shipyard in Vancouver under MARCO supervision for Burrard Clean Operations Limited, a Vancouver, B.C., cooperative. The vessel will be used to protect the often difficult waters of the Strait of Juan de Fuca.

The second MARCO design for Burrard, the steel-hull vessel is 75 feet long, with a beam of 22 feet 6 inches and a depth of 9 feet 7 inches. She is powered by a Caterpillar 3412TA diesel engine driving an Ulstein 370H 360-degree-rotatable Z-drive. The vessel also has a MARCO T-80 stern thruster to assist in maneuvering in confined areas. Recovered oil is held on board in a 500-barrel-capacity sump, from which a screw pump can discharge it to other vessels or storage units.

The Burrard Cleaner No. 9 features MARCO's Filterbelt recovery technology, the heart of all MARCO recovery systems. The Filterbelt is a unique oleophilic belt that recovers all types of oil and debris under a wide variety of conditions. The OSRV features MARCO's new 4000 Series technology, which incorporates a larger 4-foot-wide Filterbelt and a 40-hp MARCO T-52 induction pump. This new unit can process and remove oil from seawater at a rate of up to 10,000 gallons of encountered seawater per minute.

Said MARCO Pollution Control vice president **D. William Lerch,** "It [the Filterbelt] works and has proven itself time and again on some of the world's worst spills."



MARCO's Filterbelt oil recovery system.

Martyn Green, manager of Burrard Clean agrees. "We've been pleased with the effectiveness of our first MARCO vessel, which we have operated for several years. We're even more optimistic about the new one, due to the advancements in its capabilities, and we're happy to have it in service."

For free literature on MARCO Pollution Control OSRV designs or MARCO boatbuilding services,

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BURRARD CLEANER #9
Equipment List

Main engine..	Caterpillar
Z-drive	Ulstein
Stern thruster	MARCO
Radar	Furuno
Filterbelt	MARCO
Boom reels ..	MARCO
Inriuntinn niim	MARCO

Vessel/Type	Dimensions (in feet)	Main Engines	Owner	Del
Ward/ anchor tender	65x30	N/A	Corps of Eng.	91
Lusk/ anchor tender	65x30	N/A	Corps of Eng.	91
Major Conversion:				
Mississippi Belle/ gambling-excursion	136x36	N/A	Roberts River	

QUALITY SHIPYARDS, INC., Houma, La.

Estrelita/pushboat	34x16x5	Caterpillar	N/A	12/91
Thelma/pushboat	34x16x5	Caterpillar	N/A	12/91
Doris/tug	52x16x5	Caterpillar	N/A	12/91
Gema/pushboat	34x16x5	Caterpillar	N/A	5/92
Jenny/pushboat	34x16x5	Caterpillar	N/A	5/92
Mary M./tug	52x16x5	Caterpillar	N/A	5/92
Nina/tug	52x16x5	Caterpillar	N/A	5/92
Major Repairs:				
Halliburton 221/ OSV	210x42x15	Caterpillar	Halliburton	4/91
Nico Shindagha/ OSV	191x42x20	EMD	Nico	5/91
Neptuno Del Golfo/ OSV	219x42x19	EMD	Zapata Gulf	7/91
Fort Tide/OSV	185x38x13	Caterpillar	Tidewater	7/91
Sheridan Tide/ OSV	185x40x14	EMD	Tidewater	7/91
Raleign Ann/tug	121x34x18	ALCO	Zapata Gulf	9/91
City of Pittsburgh/ towboat	148x35x10	EMD	Ashland	9/91
Saturno II/OSV	205x42x18	EMD	Zapata Gulf	9/91
Mister Bill/OSV	176x38x13	Caterpillar	Infl Bridge	10/91
Erin Bruce/OSV	180x40x14	GM	Bruce Boat Rentals	12/91
Ray Eckstein/ towboat	182x55x12	Caterpillar	Blue Grass Marine	2/92
Tauro II/OSV	205x42x18	EMD	Tidewater	2/92

SERVICE MARINE INDUSTRIES, INC., Morgan City, La.

Linda/utility	142x36x10	DD	Gilbert Cheramie	9/91
Odyssey/ dinner boat	175x37x8	Caterpillar	Premier Yachts	3/91
Spirit of Norfolk/ dinner	187x40x7	Caterpillar	Spirit Cruises	3/92
Unnamed/casino	210x67x8	Caterpillar	N/A	12/92

SUPERIOR BOAT WORKS, INC., Greenville, Miss.

Fluckiser/ pushboat	46x14x7	Caterpillar (2)	Corps of Eng.	7/91
Fiedler/pushboat	46x14x7	Caterpillar (2)	Corps of Eng.	7/91
Shop barge	150x48x9	N/A	Corps of Eng.	4/92
M/V Emily K./ pushboat	60x22x8	Caterpillar (2)	Black Hawk Fleet	2/92

TRINITY MARINE GROUP, TRINITY INDUSTRIES, INC., Gulfport, Miss.

TRINITY-ALUMINUM BOATS

Abeer 23/crew	85	DD (2)	Commercial	1/91
Abeer 24/crew	85	DD (2)	Commercial	2/91
Gray Spear/crew	110	DD |3)	Commercial	3/91
Abeer 26/crew	85	DD (2)	Commercial	4/91
Gray Sable/crew	110	DD (3)	Commercial	4/91
Abeer 27/crew	85	DD (2)	Commercial	5/91
Osco Star 1/crew	85	DD (2)	Commercial	6/91
Osco Star II/crew	85	DD (2)	Commercial	8/91
Abeer 28/crew	85	DD (2)	Commercial	6/91
Oil recovery boat	65	Caterpillar (2)	Commercial	2/92
Abeer 29/crew	85	DD (2)	Commercial	8/91
Abeer One/crew	85	DD (2)	Commercial	10/91
Gemini Five/crew	120	DD (4)	Commercial	11/91
Bouge/crew	65	DD{2)	Corps of Eng.	2/92
Abeer 3/crew	85	DD (2)	Commercial	3/92
Pilot/line handler	53	DD (2)	Panama Canal Commission	2/92
Pilot/line handler	53	DD (2)	Panama Canal Commission	4/92
Pilot/line handler	53	DD (2)	Panama Canal Commission	5/92
Whale watch boat	70	DD (2)	Commercial	4/92
Fishing vessel	100	Caterpillar (4)	Commercial	5/92
Yacht tender	30	Anmar (2)	Commercial	4/92

TRINITY-BEAUMONT

PB 110 B/hopper barge	195	N/A	Commercial	3/91
PB 111 B/hopper barge	195	N/A	Commercial	3/91
Chem 166/ LPG barge	260	N/A	Commercial	9/91
Chem 167/ LPG barge	260	N/A	Commercial	9/91
Oil spill recovery	208	Caterpillar (2)	MSRC	11/92
Oil spill recovery	208	Caterpillar (2)	MSRC	11/92
Oil spill recovery	208	Caterpillar (2)	MSRC	12/92
Oil spill recovery	208	Caterpillar (2)	MSRC	2/93
LPG tank barge	260	N/A	Commercial	3/92

TRINITY-HALTER MARINE (Lockport)

YD 253/crane barge	175	N/A	U.S. Navy	5/91
Mr. Vick/supply	222	EMD (2)	Commercial	7/91
Judy H./supply	222	EMD (2)	Commercial	10/91
Y.A. Adams/ supply	222	EMD (2)	Commercial	10/91
Ronnie Roesheel/ supply	222	EMD (2)	Commercial	10/91
K. Marine V/ supply	202	Caterpillar (2)	Commercial	11/91
Anchor Barge #3/ cranebarge	100	N/A	Panama Canal Commission	12/91
Kelly Candies/tug	124	EMD (2)	Commercial	2/92
Oil spill recovery	208	Caterpillar (2)	MSRC	10/92
Oil spill recovery	208	Caterpillar (2)	MSRC	11/92
Oil spill recovery	208	Caterpillar (2)	MSRC	12/92
William R. Porter/ lock tender	50	Cummins (2)	Corps of Eng.	3/92
P.H. Worley/ lock tender	50	Cummins (2)	Corps of Eng.	3/92

IT MARINE

Churubusco/landing craft	174	Cummins (2)	U.S. Army	2/91
Coamo/landing craft	174	Cummins (2)	U.S. Army	6/91
Contreres/landing craft	174	Cummins (2)	U.S. Army	3/91
Corinth/landing craft	174	Cummins (2)	U.S. Army	4/91
El Caney/landing craft	174	Cummins (2)	U.S. Army	4/91
Five Forks/landing craft	174	Cummins (2)	U.S. Army	5/91
Fort Donelson/ landing craft	174	Cummins (2)	U.S. Army	6/91
Fort McHenry/ landing craft	174	Cummins (2)	U.S. Army	8/91
Great Bridge/ landing craft	174	Cummins (2)	U.S. Army	8/91
Harpers Ferry/ landing craft	174	Cummins (2)	U.S. Army	10/91
Hobkirk/landing craft	174	Cummins (2)	U.S. Army	11/91
Hormigueros/ landing craft	174	Cummins (2)	U.S. Army	12/91
Mavern Hill/ landing craft	174	Cummins (2)	U.S. Army	2/92
Matamoros/ landing craft	174	Cummins (2)	U.S. Army	2/92
Mechanicsville/ landing craft	174	Cummins (2)	U.S. Army	4/92
Missionary Ridge/ landing craft	174	Cummins (2)	U.S. Army	5/92
Molino Del Ray/ landing craft	174	Cummins (2)	U.S. Army	6/92
New Orleans/ landing craft	174	Cummins (2)	U.S. Army	8/92
Pab Alto/ landing craft	174	Cummins (2)	U.S. Army	9/92
Poulus Hook/ landing craft	174	Cummins (2)	U.S. Army	10/92
Perryville/landing craft	174	Cummins (2)	U.S. Army	12/92
Port Hudson/ landing craft	174	Cummins (2)	U.S. Army	1/93
Tug	127	EMD |2)	Commercial	4/93
Oif spill recovery	208	Caterpillar |2)	MSRC	9/92
Oil spill recovery	208	Caterpillar (2)	MSRC	10/92
Oil spill recovery	208	Caterpillar (2)	MSRC	11/92
Oil spill recovery	208	Caterpillar (2)	MSRC	12/92

TRINITY-EQUITABLE-NEW ORLEANS

Leda/yacht	97	MTU (2)		2/91
LAE 5 De-Agosto/ patrol boat	112	DD (3)	Ecuadorian	5/91
LAE 27 De-Febrero/ patrol boat	112	DD (3)	Ecuadorian Navy	6/91
Albacora/line launch	50	DD (2)	Commercial	5/91
Culebra/dredge tender	60	DD (2)	Panama Canal Commision	10/91
William R. Porter/ lock tender	50	Cummins (2)	Corps of Eng.	6/92
Fireboot	106	DD (2)	Brazil	3/92
Fireboat	106	DD (2)	Brazil	4/92
Patrol boats (23)	77	DD (2)	U.S. Navy FMS	91-92
Sport fishing boat	72	N/A	Commercial	2/93
Tug	100	EMD (2)	Commercial	3/92

TRINITY-HALTER (Moss Point)

Thomas G. Thompson/ AGOR 23	274	Caterpillar (3)	U.S. Navy	7/91
John Donnell/ T-AGS-51	208	EMD	U.S. Navy	7/91
Littlehales/ T-AGS-52	208	EMD	U.S. Navy	7/91
Barge	195	N/A	Undisclosed	5/91
Hurley/dredge	300	GE (3)	Corps of Eng.	3/93
Pathfinder/ T-AGS-60	329	EMD (4)	U.S. Navy	1/94
Sumner/T-AGS-61	329	EMD (4)	U.S. Navy	7/94
Mississippi/	250	Caterpillar (3)	Corps of Eng.	12/92
American Champion/ fishing vessel	207	Wartsila	Commercial	9/92

TRINITY-EQUITABLE-MADISONVILLE & HILLMAN BARGE CO.

Hopper barges (106)	195-200	N/A	Commercial	91
Deck barges (26)	Var.	N/A	Commercial	91
Tank barges (22)	Var.	N/A	Commercial	91
Hopper barges 1254)	195-200	N/A	Commercial	92
Tank barges (21)	Var.	N/A	Commercial	92

TRINITY-GRETNA MACHINE

Waialeale/ RO/RO barge	345	N/A	Commercial	9/91
Natchez/ tank barge	380	N/A	Commercial	2/91
Tank barge	260	N/A	Commercial	7/92
Tank barge	260	N/A	Commercial	8/92
Tank barge	467	N/A	Commercial	1/93
Tank barge	467	N/A	Commercial	7/93

P&O Orders First Superliner For British Cruise Market From Meyer Werft Shipyard

Artist's conception of the new 67,000-ton P&O superliner, which will be built by Papenburg, Germany-based Meyer Werft.

U.K.-based P&O recently ordered a 67,000-ton superliner from the Papenburg, Germany, shipyard of Meyer Werft at a cost of $350 million. The liner is scheduled for an April 1995 delivery.

Carrying 1,975 passengers, the ship will be the first-ever luxury liner custom-built for the British cruise market. She will have an overall length of 850 feet, beam of 105 feet and draft of 26 feet.

Powered by four medium-speed diesel and two controllable pitch propellers, the as-yet-unnamed ship will operate out of the United Kingdom under the Red Ensign.

She will feature a large number of public rooms and wide range of accommodation, similar to P&O's Canberra. Her outdoor deck area, at two and a half acres, will be one of the most spacious of any cruise ship afloat.

The new ship will be fast, with an operating speed of 24 knots. Her speed, aided by a technically advanced hull design, will enable her to operate one of the best and most far-reaching itineraries worldwide. She will be specifically equipped to operate round-the-world cruises.

P&O is one of the two largest cruise lines in the world. Its new superliner is being built to meet the growth in the British cruise market which has expanded at the rate of 15 percent a year over the last five years. P&O plans to continue operating both Canberra and Sea Princess, which both operate out of Southampton, when the new ship enters service in April 1995.

Princess Cruises, part of P&O, operates nine cruise ships out of the Port of Los Angeles.

For free literature detailing the shipbuilding services of Meyer Werft,

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MarAd Approves Application To Sell Cargo Vessels

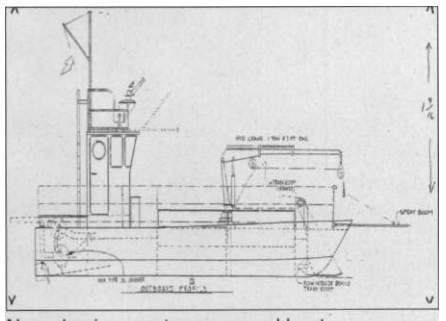
The Maritime Administration has approved an application by the U.S. Veterans of World War II of San Pedro, Calif., and the National Liberty Ship Memorial, Inc., of San Francisco, Calif, for permission to sell the cargo vessel Newcastle Victory for scrapping.

The agency also approved an application from the U.S. Merchant Marine Academy Foundation, Inc., and American Merchant Marine Foundation, located at the USMMA, Kings Point, N.Y., for permission to sell the cargo ship Kingsport for scrapping.

Both vessels will be sold to Incom Shiptrade Limited, a British corporation, for scrapping in either India, Pakistan or Bangladesh.

MarAd determined that these groups were qualified to accept this vessel on an "as is, where is" basis under Public Law 101-595. This law authorizes the secretary of transportation to transfer titles of obsolete vessels in the National Defense Reserve Fleet to a group or groups of nonprofit organizations that would scrap the vessels and share equally in the proceeds. Proceeds would be used to acquire land, design, berth, refurbish, repair or construct a memorial to merchant mariners.

Alan C. McClure Associates Develops Line Of 36-Foot Workboats



New aluminum catamaran workboat

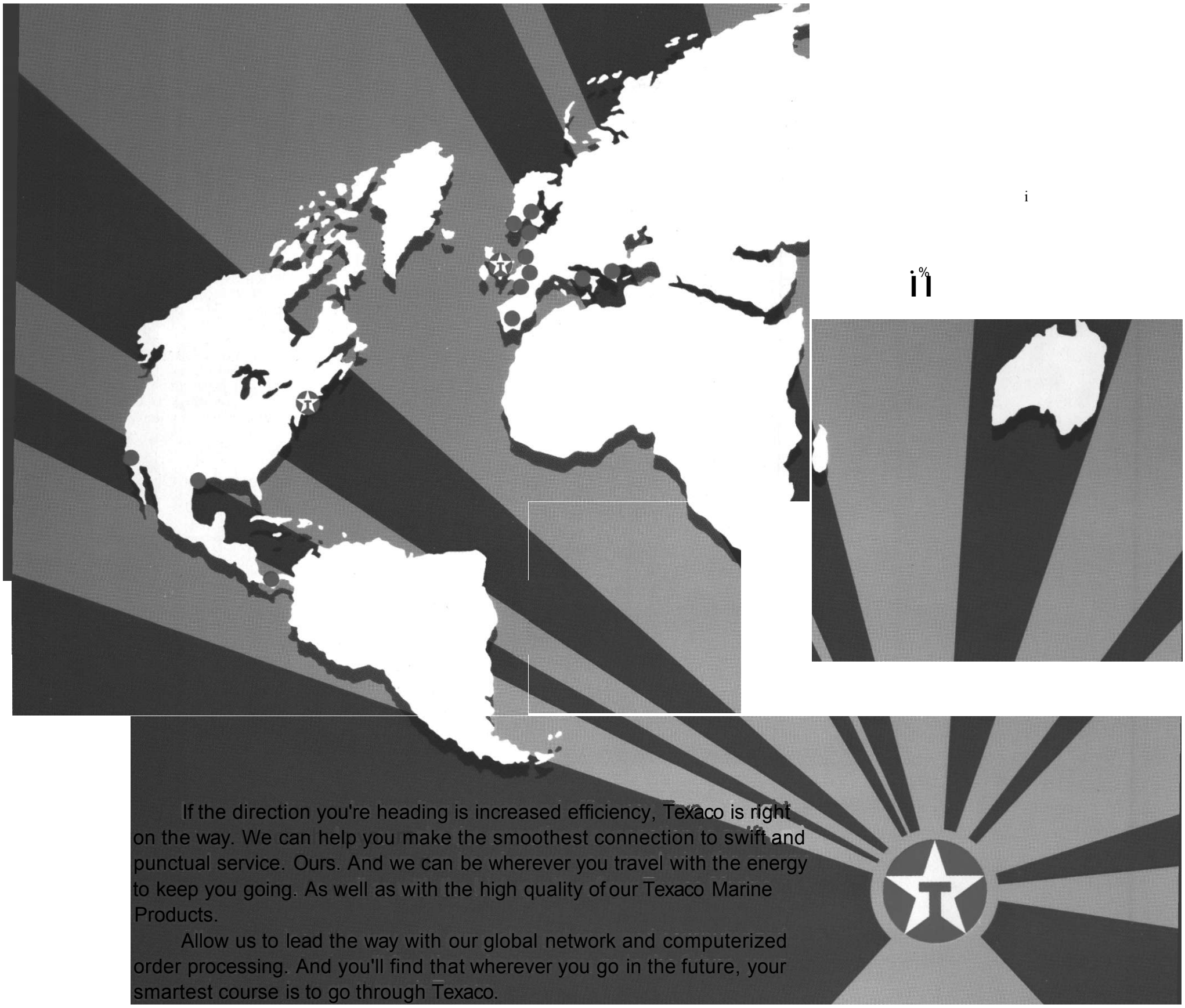
Alan C. McClure Associates, Inc., of Houston, Texas, has developed a high-speed, multi-mission work-boat for series production. The all aluminum catamaran design has a length of 36 feet 6 inches, a beam of 14 feet and a draft of 1 foot 4 inches. The boat is equipped for trash and debris pick-up, dredging, fast-response oil spill clean-up, fir fighting, shallow water diving support and is intended for coastal and harbor service throughout the world.

The prototype design incorporates an articulated basket forward arranged to collect floating debris and dump it into one of two baskets carried on-board. A one-ton crane can pick up large or heavy objects, and can also off-load the baskets. The vessel is equipped with a submersible pump and dredge head to allow dredging in shallow waters, such as marinas and waterways.

For critical response time functions, the vessel is outfitted with both oil spill clean-up and fire fighting equipment. The oil spill clean-up system uses a disc type oil skimmer and provides for collection of 200 GPM of refined products from the water surface. Collected oil is pumped directly to a trailing barge, storage boat, or inflatable storage bladder. For firefighting duties, the vessel utilizes a fire pump/monitor system capable of producing 450 GPM at 100 psi providing 120 feet of spray. The monitor can also be used to spray dispersant or cleaning solution from an onboard tank. In addition, the vessel is equipped with shallow water diving support employing a portable, onboard air compressor.

An aluminum catamaran hull was chosen to provide grater stability, convenient space between the hulls for the debris scoop and oil spill collection equipment, and to reduce the weight and wetted surface that would result from a broad-beamed monohull. The bow has a pivoted section which, when deployed, increases the mouth width of the center channel to approximately two-and-a-half times, which significantly improves the scope and effectiveness of debris pick-up and oil skimming operations. Despite its wide range of capabilities, the boat is designed to be simple, inexpensive, and suited to quantity production.

Going through Texaco is always your best route.



If the direction you're heading is increased efficiency, Texaco is right on the way. We can help you make the smoothest connection to swift and punctual service. Ours. And we can be wherever you travel with the energy to keep you going. As well as with the high quality of our Texaco Marine Products.

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Simplex Receives Contract From AT&T For Fiberoptic Cable

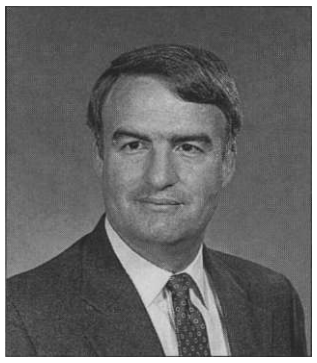
Simplex Wire and Cable Company was recently awarded a contract by AT&T Submarine Systems, Inc., for the production of 108.7 miles of a 12-fiber optical undersea cable. To be installed in 1992 in British Columbia, the cable system will be deployed in three sections: Qualicum Beach to Locarand Beach; Chemanius to Lulu Island; and an east/west Cameron Lake crossing.

This award adds to Simplex' existing world-record workload of 13,670 miles of fiberoptic cable.

Simplex is a subsidiary of Tyco Laboratories, Inc., a worldwide manufacturer of fire protection/flow control systems, electrical and electronic components, and packaging materials.

Price Named To VP Post At Bath Iron Works

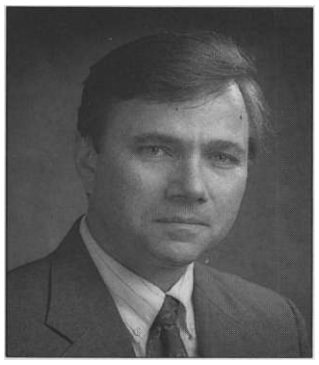
Bath Iron Works (BIW), of Maine has announced the naming of **W. Winfield Price III,** as vice president of business development. Mr. **Price,** a 1969 Naval Academy graduate with an MBA from the Harvard Business School, has been employed at the historic Maine shipyard since 1982, most recently serving as director of the Aegis



W.Winfield Price

Destroyer Planning Yard. Previously he had served as program manager for the repair of the USS Samuel B. Roberts, which was damaged by a mine in the Persian Gulf, and as a deputy program manager for Aegis Cruisers. " Mr. **Price** has the experience, motivation and drive to establish a team which will develop corporate strategic plans and pursue diversification toward a wide range of business opportunities in naval and commercial shipbuilding, technology transfers, industrial products and strategic planning," said BIW president **Duane D. Fitzgerald.**

Taylor Elected VP Of Tidewater Inc.

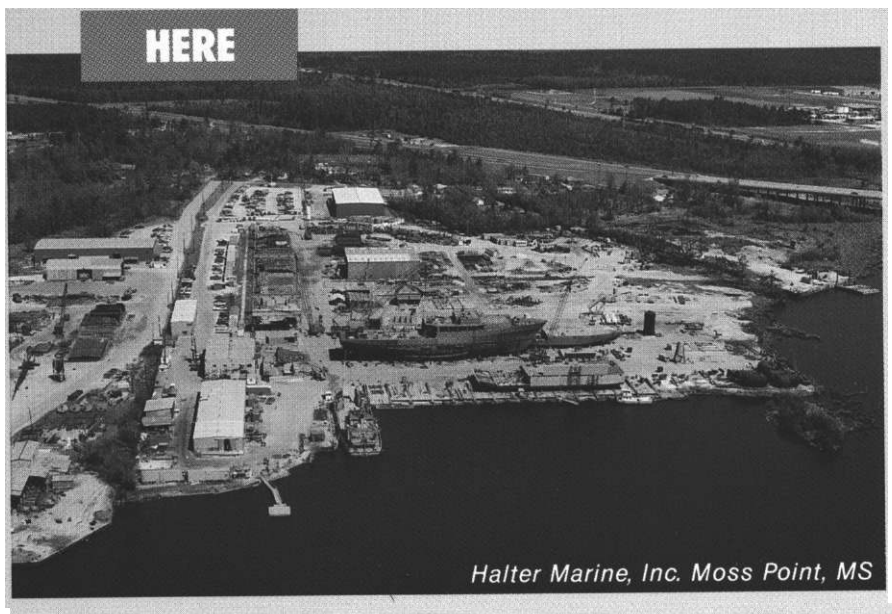


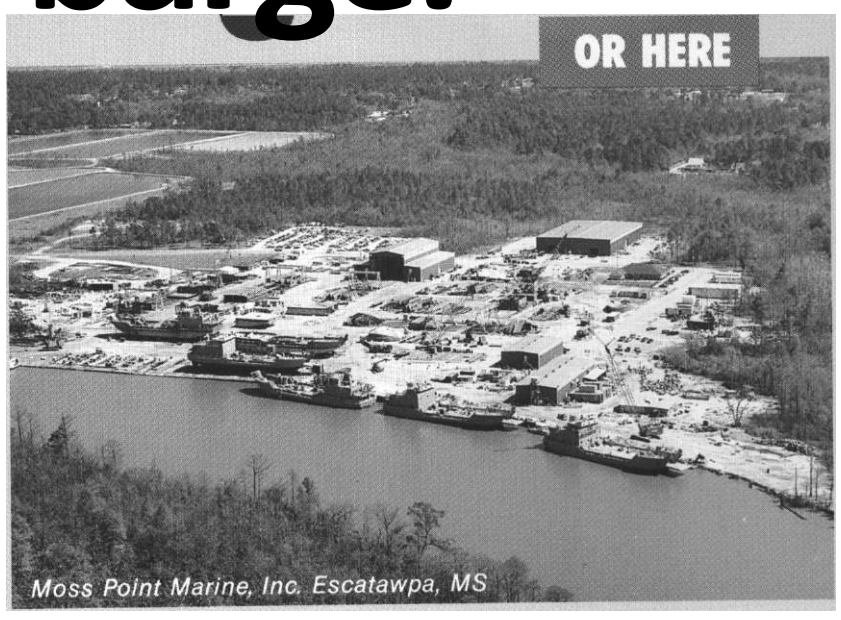
Dean E. Taylor

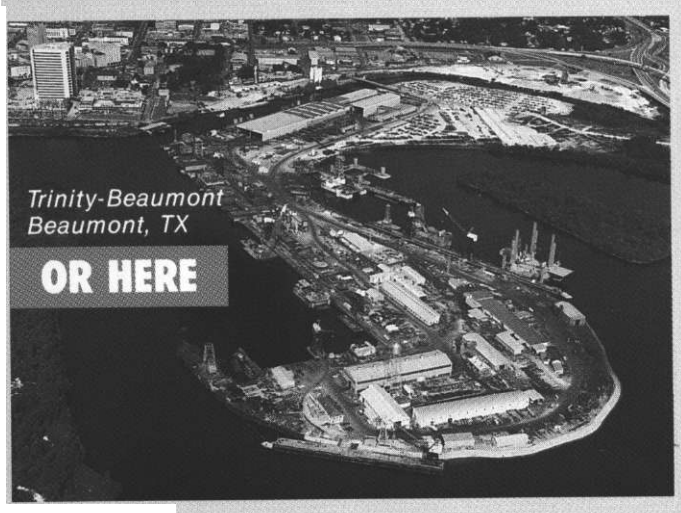
Dean E. **Taylor** was recently elected a vice president of Tidewater Inc. by the company's board of directors. Mr. **Taylor** was initially hired in 1978 a manager trainee. He assumed the management of Tidewater's marine operations in Italy and the Mediterranean Sea in 1979, and Brazil in 1981. After four years in Brazil, he was reassigned to direct the company's marine groups in the Persian Gulf and India. In 1986, he moved to Tidewater's corporate headquarters in New Orleans where he heads the company's marine operations in Mexico and Venezuela.

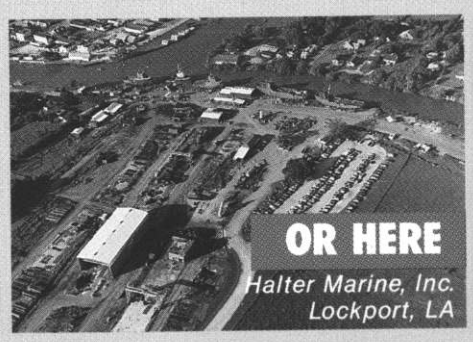
Prior to joining Tidewater, Mr. **Taylor** was an officer in the U.S. Navy. His naval experience included a stint as a weapons and gunnery officer aboard a Navy destroyer, as a navigator, as an operations officer and as an acting executive officer aboard a Hamilton class Coast Guard cutter in a USN/USCG officer exchange program. His final tour was as a staff officer and operations officer for the commander of U.S. Sixth Fleet.

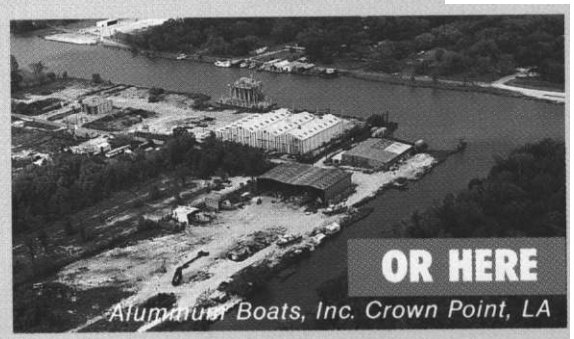
We can build your next boat or barge.

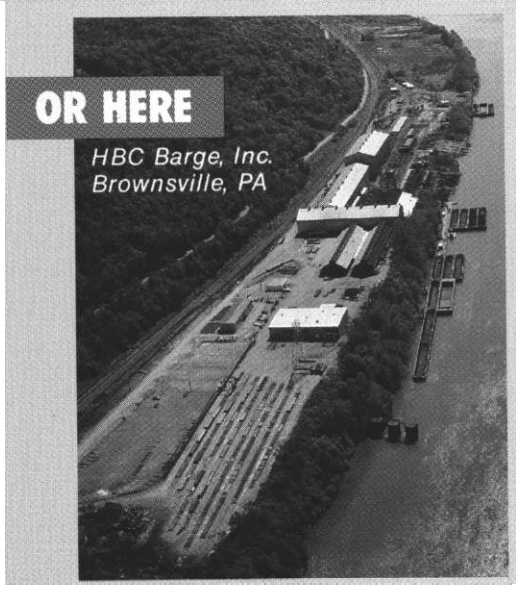


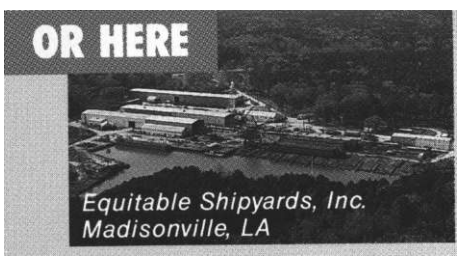




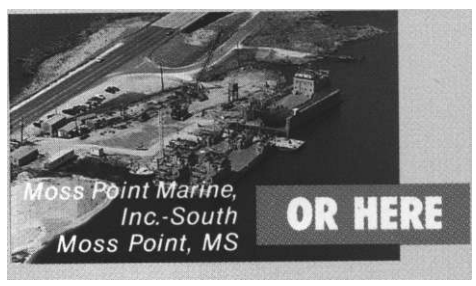








And we will build it quickly, to the highest quality, at competitive prices.



TRINITY MARINE GROUP

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And with off-peak rates starting at the equivalent of just over US $5 per minute, being the best doesn't necessarily mean being the most expensive.

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Ship Gaming, Consolidator Bonding Legislation Approved By House

Bills legalizing gambling on U.S. passenger vessels and giving ocean freight consolidators more flexibility in fulfilling bonding requirements were recently sent by the House to the President's desk.

It also approved and sent to the Senate a bill directing the Maritime Administration to scrap 116 obsolete vessels in the national defense reserve cargo fleet under a five-year timetable.

The bill includes a technical change in a 1990 law requiring ocean consolidators, also known as nonvessel operating common carriers or NVOs, to post $50,000 bonds at the Federal Maritime Commission.

The gambling amendments allow gaming, which is permitted on foreign-flag vessels, on U.S.-flag vessels in international waters. The Maritime industry has pushed the provision as a way to increase the number of U.S. cruise vessels and make them competitive with their foreign-registered counterparts.

The reserve fleet scrapping bill requires the scrapping of all of the vessels in the reserve fleet over the next five years—except the 96-vessel Ready Reserve Force that is kept in quick activation status for military supply operation status for military supply operations in the early stages of a war or emergency.

Scrapping those vessels will save about $10 million in yearly maintenance costs, according to the GAO, and their sale for scrap could generate $38 million to $42 million to improve the ready reserve fleet.

Ten Members Added To Oil Spill Group

A group of energy and transport companies established to fund a nationwide oil-spill response network, the Marine Preservation Association, said 10 companies joined the organization since December, bringing total membership to 37.

The group also said it would increase its funding for the Washington-based Marine Spill Response Corp. to $400 million up from $270 million in grants pledged by last summer.

The 10 new members announced are: Citgo Petroleum Corp.; Crown Central Petroleum Corp.; Clark Oil & Refining Corp.; First United Shipping Corp.; Koch Industries Inc.; Melbury Shipping Co.; Silverton Shipping Co.; Overseas Shipholding Group Inc.; Pacific Gas & Electric Co; and Total Oil Inc.

Inspection Crackdown Planned By Ship Insurers

Many international marine insurers, faced with mounting losses, have decided on closer inspections of risky commercial ships and on depriving some of them of hull insurance.

Coming in the wake of the worst year for casualties for bulk and combination carriers, this strategy is part of a plan to be phased in by members of the Institute of London Underwriters (ILU) and Lloyd's of London, the institutions that comprise most of the worldwide marine insurance market.

Representing both the institute and marine underwriters at Lloyd's, the Joint Hull Committee has introduced a structural condition warranty that will require owners to carry out a survey of their vessels within a specified time before insurance cover can be renewed.

Roger Nixon, chairman of the Joint Hull Committee, said underwriters can insist on the warranty at their discretion. The panel proposed no hard and fast rules about when an owner might be asked to conduct the extra survey.

Mr.Nixon said tankers and bulk carriers more than 12 years old probably should undergo the new inspection. He advised insurers to check all vessels more than 15 years old.

The ILU, meanwhile, warned that double-hull tankers probably will be liable to higher insurance premiums because of the dangers of gas building up between the two hulls.

Bulker Life Extension To Be Performed By Hyundai Mipo

South Korean bulk transport company Pan Ocean Shipping Co. Ltd. has begun a life extension program of its Cape-size bulk carrier and OBO fleet in response to a growing concern over the number of losses of this type vessel in recent years.

One of the company's vessels, the 123,745-dwt, 1970-built Daeyang Honey, recently entered the Ulsan, South Korea, shipyard of Hyundai Mipo Dockyard (HMD) for extensive steel renewal work on her hull and holds.

A spokesman for Pan Ocean said that at least two other bulk vessels will undergo similar work later this year.

Pan Ocean operates 10 vessels ranging in size from 100,000 to 245,000 deadweight tons, all of which were built between 1968 and 1988. The fleet is operated in the expanding iron ore and coal trades between Australia and South Korea.

"It is because of our heavy involvement in this trade that we are taking the life extension decision," said a company spokesman.

Pan Ocean, unlike other operators in the market with comparably aged fleets, has been reluctant to order new Cape-size tonnage.

Last year, the company posted a profit between $5 million and $6 million, similar to 1990 levels but substantially lower than 1989's level of $18 million.

IMO Expected To Finalize Double Hull Rules

The international requirements for double hulls on new and existing tankers were expected to be finalized by the International Maritime Organization at its spring meeting of the Marine Environment Protection Committee (MEPC) 32, held earlier this month in London.

Furthermore, IMO double hull and mid-deck proposals are being studied by member governments for any amendments.

One date to keep in mind is July 6,1993, which was recommended by the IMO Working Party as the effective date for which contracts for new tankers must be double hull, mid-deck or the environmental equivalent. A keel-laying date of 6 months later and delivery date of 3 years later will be recommended to MEPC. The working party was unable to agree, however, on the lower effective limit, either 600 or 3,000 deadweight tons.

As for existing tankers, three proposals received support—(1) upgrading and phasing out tankers based on age and calendar dates; (2) applying measures for upgrading existing tankers based on an accidental oil spill number concept; and (3) strengthening requirements for survey and inspections in lieu of the phaseout and upgrading plan.

Oyster Contamination Prompts Publication Of Discharge Rules

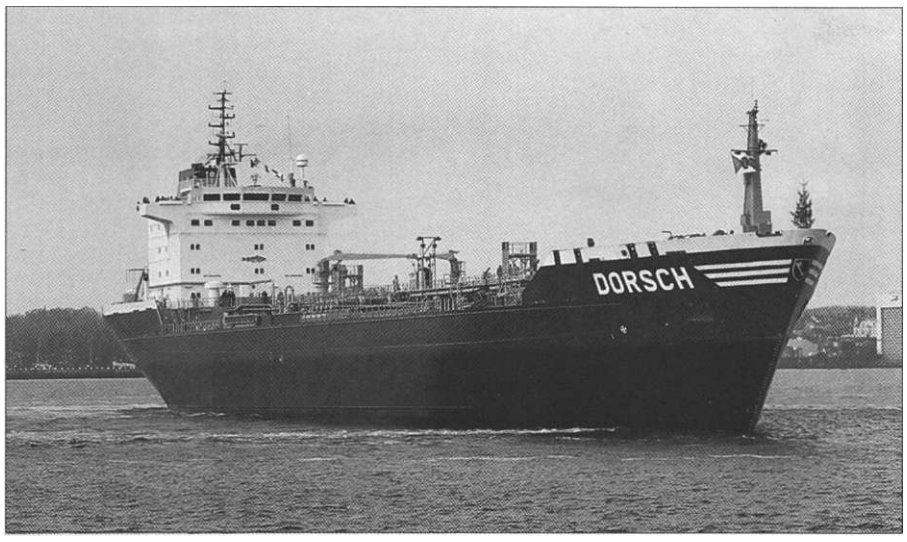
The U.S. Coast Guard has been prompted by the contamination of oysters in Mobile Bay, Ala., with vibrio cholera to publish IMO's "International Guidelines for Preventing the Introduction of Unwanted Pathogens from Ships' Ballast Water and Sediment Discharges."

Adopted last July by the Marine Environment Protection Committee (MEPC), the guidelines recognize a number of alternatives, including retention of ballast water, exchange of ballast water at sea, control of sediment uptake, and discharge of ballast water to reception facilities ashore. The Coast Guard is urging ship operators to adopt these guidelines in order to decrease the further introduction of cholera and pathogens in U.S. waters.

Ship operators should obtain a "Request for Compliance with IMO Voluntary Ballast Water Guidelines" and implement the IMO standards. Operators can report their ballast water treatments by using the form in the guidelines and sending it to the nearest U.S. Coast Guard Captain of Port.

For further information, contact: Lt. **Jonathan** C. **Burton,** MEPC Division (G-MEP) at (202) 267-0426.

Lindenau Delivers Largest Double-Hull Tanker Under German Flag



The 23,400-dwt Dorsch, one of two large double-hull tankers flying the German flag for Carl Buttner & Co, Bremen.

German shipbuilder Lindenau GmbH Schiffswerft & Maschinenfabrik of Kiel-Friedrichsort, recently delivered the 23,400-dwt Dorsch, which along with her sister, the Conger, are the largest double-hull tankers under the German flag.

Delivered to Partenreederei Dorsch c/o Carl Buttner GmbH & Co., the Dorsch is designed for the transportation of chemicals up to IMO type I product oils and crude oil.

Main propulsion for the Dorsch is supplied by a MAN B&W Diesel power plant, a model 6L 58/64 main engine, rated at 9,977 hp at 400 rpm, with Renk-Tacke reduction gearing and four-blade variable pitch propeller.

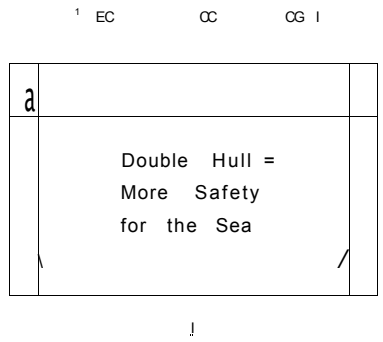
The 557-foot Dorsch has a beam of 81 feet, draft of 34 feet and gross tonnage of 12,299.

The M/T Dorsch was constructed under the class and supervision of Germanischer Lloyd and has received the class notation GL +100 A4 E3 "Chemical Tanker Type I" "Oil Tanker" COLL 5 (Center Tanks) COLL 2 (Wing Tanks) + MC E3 AUT. Inert.

The ship's hull lines were developed for an optimized speed/power characteristic and good seakeeping properties. Her speed during sea trials was 15.5 knots at an engine output of 8,850 hp.

Constructed with a double bottom and double side shell for environmental safety, the Dorsch and her sister, the Conger, were the first German tankers to have received the IMO Class 1 chemicals for their center tanks and IMO Class 2 chemicals for wing tanks by Germanischer Lloyd. Furthermore, the class notations "COLL 5" for the center tanks and "COLL 2" for the wing tanks indicates that the collision protection of the wing tanks is three times and collision protection of the outer tanks is 10 times better than the single shell of a conventional oil tanker.

The Dorsch also fulfills all MARPOL rules including Annexes I-V. She has protective location of the cargo tanks (PL) and segregated ballast tanks (SBT) status.



Cross-section drawing of the Lindenau double-hull concept.

Because of her double-hull design, the Dorsch has smooth inner tank walls, allowing for more efficient and faster tank cleaning, saves heating energy, and completely separates cargo and ballast water.

For free literature detailing the shipbuilding services of Lindenau,

Circle 74 on Reader Service Card

Olympic Marine Wins $1.7 Million Pact

Olympic Marine, Portsmouth, Va., was recently awarded a $1.67 million contract to deactivate the SS Cape Ann.

Mid-Deck Design In Doubt, Afterliests At Navy Research Center

Recent tanker model tests at the David Taylor Research Center in Maryland seem to favor the double-hull design, according to a U.S. Coast Guard official. The tests also cast doubt on earlier assumptions about the performance of the mid-deck tanker design.

According to **Joseph Angelo,** Chief, Vessel Inspection and Documentation, U.S. Guard, and a member of the Tanker Design Committee of IMO, the final tests conducted at DTRC have cast doubt on the committee's earlier assumptions about how much oil will flow out of a mid-deck tanker on initial impact.

Earlier, the theoretical mid-deck design had been touted by the committee as an environmental equivalent of the double hull.

There is pressure on the Coast Guard in Washington to steer IMO away from the mid-deck design. For example, **Robert Torricelli** and **Dean Gallo,** two New Jersey congressmen, have convinced 37 of their colleagues to sign a letter urging the Coast Guard to "unequivocally reject the mid-deck as equivalent."

The Oil Pollution Act of 1990 mandates that all tankers operating in U.S. waters be equipped with double hulls by 2015.

Luxury Tax Repeal Would Be Boost To Boat Builders

U.S. yacht builders were heartened by President **Bush**'s recent budget proposals, which included a request to Congress to repeal the luxury tax on yachts priced at over $100,000. The repeal, which is likely to be approved, would be retroactive to February 1.

Since the tax took effect in January 1990, hundreds of U.S. vessel builders have spoken out against it. The tax, combined with the recession, tighter bank financing, and the Gulf war, took a heavy toll on yacht builders, forcing many to lay off workers and some to file for bankruptcy protection.

Marketing managers for several yacht builders are hoping that they will be swamped by buyers who held off in the expectation that the tax would be repealed.

The 10 percent tax applies to the amount of the cost above $100,000, meaning that a $300,000 yacht would carry a $20,000 luxury tax. Besides the luxury tax, owners are also accessed state and local taxes.

Overall employment in the boatbuilding industry, including the builders of smaller, less-expensive boats, has dropped from 600,000 in 1988 to 400,000.

Values For Secondhand Tankers Rise In Fourth Quarter Of 1991

The value of secondhand tankers increased slightly during the fourth quarter if 1991, while secondhand bulkers dropped slightly, according to recently published statistics.

Both bulk carriers and tankers obtained their maximum values in the middle of November, with bulk carriers at 6 percent and tankers at 12 percent above their October 1, 1991, values.

However, from mid-November to year's end, both bulker and tanker values decreased.

One particular size tanker outperformed the rest, in the 35,000 deadweight ton range, increasing in value by almost 14 percent over the quarter even though tankers, in general increased by only 4 percent.

On the other hand, bulk carrier values declined both in general and for particular sizes, dropping 5 percent overall, 6 percent for 25,000 dwt vessels, and 4 percent for 120,000 dwt vessels.

Although tanker and bulker values showed similar lateral movement in the fourth quarter, the prior quarters of 1991 were extremely different for each ship type.

For bulk carriers, the values of the fourth quarter were the highest of the year, capping an almost uninterrupted steep rise from the year's low point, which occurred in March.

In contrast, tanker values moved slightly lower during the first three quarters of 1991 and then recovered part of the year's loss during the fourth quarter.

"Engineer a better fiber, and ultimately youVe engineered a better product.[9]"

Because of the challenge faced by rope, cordage and fiber manufacturers — to construct a better polyester product for the wet environment — engineers at Allied-Signal Inc. were persistent until they discovered a solution — SeaGard®. The motivation for this was a basic part of the Allied Fibers philosophy: "engineer a better fiber, and ultimately you've engineered a better product". By utilizing Allied Fibers' high tenacity ACE polyester and then applying the SeaGard finish to the fibers, a better-performing, wet abrasion resistant rope was now able to be constructed.

In independent testing and in field testing by several rope manufacturers, ACE polyester SeaGard ropes — 3-strand and braided — outlasted and out-performed ordinary polyester ropes by incredible margins, even under the most severe wet abrasion conditions.

Today, many rope manufacturers have found that they require a higher level of performance plus cost-effectiveness for the most demanding applications, such as: tethers for balloons, underwater surveillance systems, offshore oil rigging and transmission & distribution (T&D) lines. ACE polyester SeaGard meets these requirements. And, for the sailor who wants the best in performance, SeaGard ropes offer that certain added security plus easy, smooth handling.

For further information and test results, contact:
Dept. A-S, Suite 1500, 224 West 35th Street, New York, NY 10001.

AlliedFibers

Circle 259 on Reader Service Card **Raytheon**

Allied
^ Signal

Japan-U.S. Effort To Explore Offshore Siberian Field

A Siberian oil and gas field located off Sakhalin Island in the Sea of Okhotsk believed to hold vast reserves will be jointly explored by a Japanese and American consortium.

The consortium of Marathon Oil Company, McDermott International, Inc., and Mitsui Corporation will conduct an $8 billion to $10 billion exploration project. The consortium was granted permission to explore the field by Russia.

Estimates indicate that the field holds 700 million barrels of oil and 14 trillion cubic feet of natural gas reserves.

The Russians have already conducted test drillings in the field, but are unable to develop it because of the huge costs of constructing offshore platforms and pipelines.

$1.5 Million Pact For Jacksonville

Jacksonville Shipyards, Inc., Jacksonville, Fla., was recently awarded a $1.5 million contract for the selected restricted availability of the frigate USS Doyle (FFG-39).

MCM To Undergo $1.5 Million PSA At Jacksonville

The mine countermeasure ship USS Scout (MCM-8) will undergo a $1.5 million post shakedown availability (PSA) at Jacksonville Shipyards, Inc., Jacksonville, Fla.

Circ,e 231 on Reader Service Card

Desert Storm Plaque Presented To Peck & Hale For Outstanding Support

Lt. General **McCausland** (left) presenting appreciation plaque to **Edward F. Kenna.**

Lt. General **McCausland,** USAF director of Defense Logistic Agency, Washington, D.C., recently presented Peck & Hale with the Desert Storm appreciation plaque for their outstanding effort and support during Desert Storm. Joining the presentation were Colonel **James F. Cashman,** USAF, commander, DCMD Northeast and Col. **Ronald M. Kuhn,** USA Commander, DCMAO, Garden City.

Peck & Hale outfitted new ships as well as helping to extend the lives of older class ships, such as aircraft carriers, frigates and amphibious ships.

Throughout the company's history, more than 8,500 commercial and naval vessels around the world have been outfitted with Peck & Hale equipment. The primary equipment supplied included vehicle tiedowns and lashings, ammunition shoring nets, aircraft securing fittings and safety nets.

During the confrontation in the Persian Gulf Peck & Hale was asked to respond to the special requirements of the confrontation and outfitted many ships in a matter of days. Peck & Hale was also asked to supply equipment that was desperately needed for three ships which were to be deployed to the Mid-East. The company's expedient response to this emergency has resulted in the presentation of the Desert Storm appreciation plaque.

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The theme of the conference is "America's Ports, Crossroads of the Continents—Technical Innovations for the 21st Century". Topics will include cargo handling systems, seismic considerations in port design, beneficial use of dredge material, unique solutions to port rehab, artificial islands for the U.S. and abroad, environmental issues and solutions for ports to know, port operations and exogenous variables you can't control, fire protection and port design, access for handicapped and many more subjects.

For further information call or write to: Mr. **Walter D. Ritchie,** Chief Engineer, Port of Seattle, P.O. Box 1209, Seattle, WA 98111. Tel: (206)728-3105. Fax: (206)728 3188. You may also call or write to Mr. **DuWayne Koch,** Secretary U.S. Section, PIANC, 20 Massachusetts Ave. NW, Washington, D.C. 20314. Tel: (202)504-4312. Fax: (202)272-0287.

Alfa-Laval Systems In Russian Dry Cargo Carriers

One of ten Russian 2,000-dwt dry cargo carriers from Osterreichische Schiffswerften AG, Korneuburg, Austria.

Alfa-Laval Austria is currently fulfilling a sizable order for oil treatment systems and other equipment for 10 Soviet 2,000-dwt dry cargo carriers under construction at Osterreichische Shiffswerften AG, Korneuburg, Austria.

Each vessel is being equipped with a MAN B&W 6526MC main engine and two Alfa-Laval oil treatment modules—one carrying an MMPX 303 and the other, two MMPX 304. Other Alfa-Laval equipment on board will include low-temperature and high-temperature coolers, an HFO cooler and a Nirex freshwater distiller.

Scheduled for delivery between October 1990 and March 1992, the ships have been commissioned by Northern Shipping Co., Arkhangelsk, Russia.

For further information about the systems offered by Alfa-Laval,

Circle 18 on Reader Service Card

Willard Marine Appoints J.H. Menge & Company, Inc. Representative For Gulf States

Standing in front of Willard Marine's Solas RIB at the recent International Workboat Show were, left to right: **Farrell Latour**(J.H. Menge & Co.), **Ron Swart** (Willard Marine), **Buren Jones** and **Bart Loomis** (J.H. Menge & Co.)

Willard Marine, Inc. of Anaheim, Calif., has appointed J.H. Menge & Company, Inc. of New Orleans, La., as a representative for the Gulf states. The Menge Company will market Willard Marine's Sea Force line of commercial Rigid Inflatable Boats (RIBs) and other commercial craft in Louisiana, Texas, Alabama, Georgia, Mississippi and Western Florida.

Willard Marine, a U.S. owned and located firm, has been in business for over 30 years and is the principal manufacturer of fiberglass ship's boats and RIBs for the U.S. Navy, as well as building RIBs for other commercial users. J.H. Menge & Company, founded in 1878, is a leading manufacturer's representative for heavy marine and dock equipment.

CROWN MONARCH
Union Naval de Levante

Circle 30 on Reader Service Card

Operated out of Palm Beach, Fla., by Palm Beach Cruises, Inc., the 556-passenger luxury cruise ship Crown Monarch was delivered to Crown Cruise Lines of Florida, by Union Naval de Levante of Spain.

Built at a cost of about $95 million and under the supervision of Det norske Veritas, as well as the Spanish administration Inspeccion de Buques, the 494-foot Crown Monarch has 232 standard cabins on her Marina, Palm Beach and Coral Decks; 23 deluxe cabins on her Caribbean Deck; and 10 suites on her Monarch Deck. Deluxe cabins and suites have sitting rooms and bathtubs. Suites are also outfitted with jacuzzis and balconies.

Registered in Panama, the Crown Monarch is served by Northern European and Scandinavian officers and a Filipino crew. She sails Saturdays from the Port of Palm Beach to Key West, Grand Cayman, Ocho Rios and Labadie Shores, Crown's private beach resort.

On the Marina Deck there is platform where passengers can disembark on tender boats for excursions to coves and beaches which may be inaccessible by land.

The main recreation area is on the Crown Deck, which features the dining room, casino, bar, two boutiques, and photography exhibition area. Other public spaces include the Crown Cabaret and Vision Lounge. The Ocean Terrace, a buffet area, the swimming pool, two jacuzzis and Splash Bar are located on the Monarch Deck. A disco is located on the Sun Deck.

With a maximum speed of about 20 knots, the 15,271 gross ton cruise ship is propelled by four Bergen Diesel model BRM9 main engines, developing4,500bhp at 750 rpm, which drive four highly skewed variable pitch Ulstein propellers via Lohmann Stolterfoht reduction gears.

Bergen also supplied two BRG6 diesel engines, which drive two Stromberg 710 alternators.

Captain Vittorio Fabielli. Chief Coordinator. Carnival Cruise Lines. The Fantasy and her sister ship the Ecstasy' have both exceeded our expectations, in terms of bookings and operation of the machinery At Carnival, we often use the expression "the most successful ships since the Ark". Consequently, we have ordered two additional identical vessels, Sensation and Fascination.

CROWN MONARCH
Equipment List

Main engines (4)	Bergen Diesel
Propellers	Ulstein
Thrusters	Ulstein
Generator engines .	Bergen Diesel
Generators	Stromberg
Reduction gears.	Lohmann & Stolterfoht
Engine controls ...	Aries Electronica
Deck machinery	Hydraulik Brattvaag
Coatings	Jotun
VHF radios	Marconi
SSB radio	Saturn
Radar	Racal Decca
Autopilot	Anschutz
Purifiers, F/W generators.	Alfa Laval
Steering gear	Tenfjord
Firefighting systems	Unitor
Stabilizers	Sperry Marine
Incinerator	Teamtec/Golar

ECSTASY
Kvaerner Masa-Yards

Circle 31 on Reader Service Card

During 1991, the 70,000-grt M/S Ecstasy, the second of four "floating cities" built by the Helsinki, Finland, shipyard of Kvaerner Masa-Yards, was delivered to Miami-based Carnival Cruise Lines, Inc.

The Ecstasy, sister of the M/S Fantasy, which made her debut last year, operates in the Caribbean on weekly cruises to Nassau, San Juan, St. Thomas and on alternating weeks to Playa del Carmen, Cozumel, Grand Cayman and Ocho Rios. Kvaerner Masa-Yards is also building the Fascination and Sensation, which will be delivered in 1993 and 1994, respectively.

With her gross tonnage of70,637, the Ecstasy is able to carry almost 2,600 passengers in 1,020 cabins, served by a crew of over 900. She has an overall length of855-1/2 feet, waterline beam of 103.4 feet and draft of 25.3 feet. The AC propulsion drive system, supplied by ABB Marine, Helsinki, features Sulzer type engines with electrical shaft drives. The total power developed is 42 MW. There are six thrusters, three forward and three aft, with a

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Murphy Offers Free Brochures On Alarms, Controls, Switches

Frank W. Murphy Mfr. has been producing various gages, alarms, control devices and switches for marine engines and equipment for over 50 years.

Murphy gages include temperature, pressure/vacuum and fluid level gages and are made with their own shutdown devices when applicable. If the operating levels of different gages are too high or too low the shutdown devices will activate to prevent costly engine damage. These products allow for fewer people to run an engine room efficiently.

Murphy also produces speed control gauges which monitor engine rpm and are controlled by Murphy electronic tachometers.

Various types of instrument and alarm panels can be custom-made according to specific needs. The company also offers various types of control systems, valves and alarm systems to augment their products.

For further information about Murphy products,

Circle 123 on Reader Service Card

Lonseal, Inc. Offers New Vinyl Sheet Flooring With Steel Plate Look

Lonseal, Inc., Carson, Calif., recently announced the development of a new resilient sheet flooring with the high-tech look of steel plate. Lonplate II offers a lighter, more open pattern spacing design.

Using a smaller embossed "diamond" than the original Lonplate, the new Lonplate II offers the choice of a more design-oriented appearance. Since it is slip resistant, it is ideal for areas where traction and safety are important and for all types of commercial installations.

Lonplate II comes in 6 foot by 60 foot rolls and is offered in eight colors.

For more information about Lonplate II,

Circle 124 on Reader Service Card

MarAd Awards Funds To N.Y. Maritime For Simulator Purchase

The Maritime Administration recently announced the award of $581,000 to the State University of New York Maritime College at Ft. Schuyler, New York, to assist the college in its procurement of a full bridge simulator.

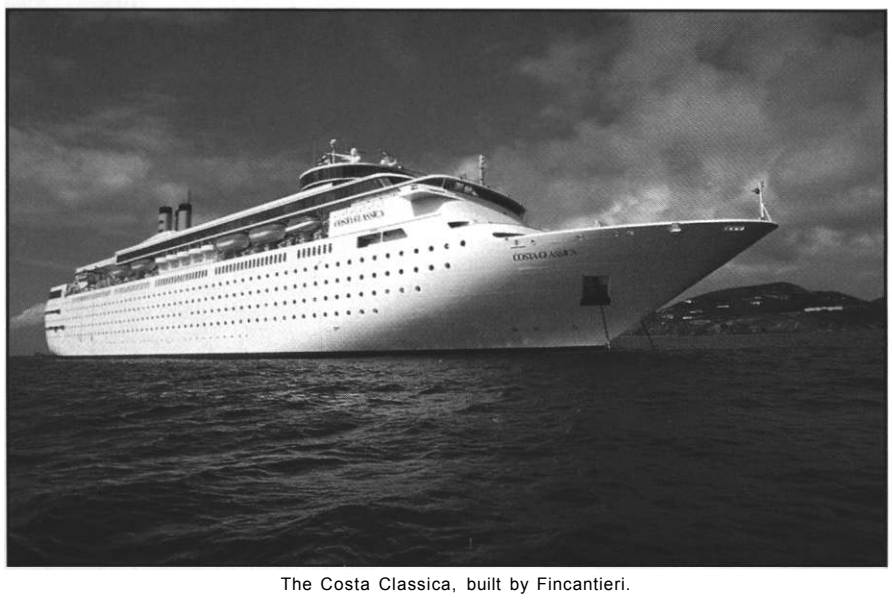
The assistance was authorized as one part of MarAd's program to assist the six state maritime academies in the United States. In 1992, a total of $1.2 million in appropriated funds is available to the schools as matching funds to purchase simulators; an additional $800,000 will be made from the sale of obsolete vessels for scrap from MarAd's National Defense Reserve Fleet (NDRF). The New York Maritime College is the first academy to receive these funds.

Under this system, the maritime college will select the simulation equipment that is best suited for their programs. The colleges are required to raise and commit their own share of the necessary funds prior to receiving a matching amount from MarAd.

In announcing this award, Captain **Warren** G. **Leback,** maritime administrator, said: "New York Maritime College and its president, Adm. **Floyd H. Miller** are to be congratulated for their successful efforts to raise funds for this new simulator. Computer-driven simulator equipment represents the current state-of-the-art in teaching aids, especially for high technology systems like modern oceangoing ships. We are pleased to be able to offer this substantial assistance to New York Maritime College."

The Crown Monarch, built by Union Naval de Levante.

The Monarch of the Seas, built by Chantiers de L'Atlantique.



The Costa Classica, built by Fincantieri.

The Ecstasy, built by Kvaerner Masa Yards

OUTSTANDING CRUISE SHIPS

- A SHOWCASE -

The growth of cruise passenger shipping, thought by some industry analysts in 1980s to be short-lived, has maintained its strong pace for over a decade. According to statistics released by the Cruise Lines International Association (CLIA), which represents 35 major cruise operators (about 95 percent of the capacity operating out of North America), the cruise shipping market has experienced an annual growth rate of 9.8 percent since 1980. Over the same period, capacity has risen by an annual rate of 8.3 percent.

CLIA projects passenger shipping to increase by a whopping 12.1 percent in 1992 and an additional 7.8 percent in 1993.

In order to attract first-time and repeat passengers, many cruise lines are introducing trend-setting new tonnage. The following select portfolio of award-winning "Outstanding Cruise Ships," as chosen by the editors of MARITIME REPORTER, represents some of the most luxurious, precedent-setting, and innovative tonnage introduced in the last year by the major cruise lines.

COSTACLASSICA
Fincantieri

Circle 29 on Reader Service Card

CostaClassica's designers and architects spared no expense in designingthe 1,300-passenger, 50,000-ton vessel. Built at a cost of $325 million by Italian builder Fincantieri's Marghera shipyard for Costa Cruise Lines, the CostaClassica recently entered service, making seven-day cruises in the Eastern and Western Caribbean.

According to Costa Cruise Lines, the 718-1/2-foot CostaClassica's traditional sleek exterior lines set the tone for a vessel that blends European style and quality with state-of-the-art technology. The ship's interiors were designed by the renowned Italian architectural firm Gregotti Associati.

Extensive use of quality materials and refinements carry the contemporary elegance theme throughout the ship—six-foot gesso statues displayed in an elegant garden setting, floors made from Carrara marble, hand-made ceramic tiles, teak decks, $20 million in commissioned art and artistic furnishings, and tables set with fine crystal and china.

Positioned in the top of the mass market and the lower luxury market, the 1,300-passenger liner departs each Saturday from Ft. Lauderdale on alternating westbound and eastbound Caribbean cruises. Both itineraries have been specially designed for year-round, seven-day sailings, calling at Ocho Rios, Grand Cayman, Playa del Carmen and Cozumel on her westward trip and San Juan, St. Thomas and St. Maarten on her eastward venture.

With a crew of 650, she has 654 cabins located on 10 passenger decks.

Part of Costa Cruise Lines' "Euro-Luxe Cruises," the CostaClassica will be joined by the smaller 800-passenger CostaAllegra later this year, and her sister, the CostaRomantica, in late 1993.

Business amenities aboard the ship include a 1,520-square-foot conference area, conveniently located in the center of the ship, designed to be flexible with one conference room seating 150 people, plus three 234-square-foot breakout rooms, each accommodating up to 30 people.

Main propulsion for the 20-knot CostaClassica comprises four Sulzer 8ZAL40S medium-speed engines with a combined output of 28,800 bhp. Auxiliary power is supplied by four 3,660 kw gensets driven by 12-cylinder GMT A320 engines.

CROWN MONARCH
Union Naval de Levante

Circle 30 on Reader Service Card

Operated out of Palm Beach, Fla., by Palm Beach Cruises, Inc., the 556-passenger luxury cruise ship Crown Monarch was delivered to Crown Cruise Lines of Florida, by Union Naval de Levante of Spain.

Built at a cost of about $95 million and under the supervision of Det norske Veritas, as well as the Spanish administration Inspeccion de Buques, the 494-foot Crown Monarch has 232 standard cabins on her Marina, Palm Beach and Coral Decks; 23 deluxe cabins on her Caribbean Deck; and 10 suites on her Monarch Deck. Deluxe cabins and suites have sitting rooms and bathtubs. Suites are also outfitted with jacuzzis and balconies.

Registered in Panama, the Crown Monarch is served by Northern European and Scandinavian officers and a Filipino crew. She sails Saturdays from the Port of Palm Beach to Key West, Grand Cayman, Ocho Rios and Labadie Shores, Crown's private beach resort.

On the Marina Deck there is platform where passengers can disembark on tender boats for excursions to coves and beaches which may be inaccessible by land.

The main recreation area is on the Crown Deck, which features the dining room, casino, bar, two boutiques, and photography exhibition area. Other public spaces include the Crown Cabaret and Vision Lounge. The Ocean Terrace, a buffet area, the swimming pool, two jacuzzis and Splash Bar are located on the Monarch Deck. A disco is located on the Sun Deck.

With a maximum speed of about 20 knots, the 15,271 gross ton cruise ship is propelled by four Bergen Diesel model BRM9 main engines, developing 4,500 bhp at 750 rpm, which drive four highly skewed variable pitch Ulstein propellers via Lohmann Stolterfoht reduction gears.

Bergen also supplied two BRG6 diesel engines, which drive two Stromberg 710 alternators.

CROWN MONARCH
Equipment List

Main engines (4)	Bergen Diesel
Propellers	Ulstein
Thrusters	Ulstein
Generator engines .	Bergen Diesel
Generators	Stromberg
Reduction gears.	Lohmann & Stolterfoht
Engine controls ...	Aries Electronica
Deck machinery	Hydraulik Brattvaag
Coatings	Jotun
VHF radios	Marconi
SSB radio	Saturn
Radar	Racal Decca
Autonilot	Ansr.hutz
Purifiers, F/W generators.	Alfa Laval
Steering gear	Tenfjord
Firefighting systems	Unitor
Stabilizers	Sperry Marine
Incinerator	Teamtec/Golar

Captain Villorio Fabietti. Chief Coordinalor. Carnival Cruise Lines: The Fantasy and her sister ship the Ecstasy have both exceeded our expectations, in terms of bookings and operation of the machinery. At Carnival, we often use the expression "the most successful ships since the Ark". Consequently, we have ordered two additional identical vessels, Sensation and Fascination

ECSTASY
Kvaerner Masa-Yards

Circle 31 on Reader Service Card

During 1991, the 70,000-grt M/S Ecstasy, the second of four "floating cities" built by the Helsinki, Finland, shipyard of Kvaerner Masa-Yards, was delivered to Miami-based Carnival Cruise Lines, Inc.

The Ecstasy, sister of the M/S Fantasy, which made her debut last year, operates in the Caribbean on weekly cruises to Nassau, San Juan, St. Thomas and on alternating weeks to Playa del Carmen, Cozumel, Grand Cayman and Ocho Rios. Kvaerner Masa-Yards is also building the Fascination and Sensation, which will be delivered in 1993 and 1994, respectively.

With her gross tonnage of 70,637, the Ecstasy is able to carry almost 2,600 passengers in 1,020 cabins, served by a crew of over 900. She has an overall length of 855-1/2 feet, waterline beam of 103.4 feet and draft of 25.3 feet. The AC propulsion drive system, supplied by ABB Marine, Helsinki, features Sulzer type engines with electrical shaft drives. The total power developed is 42 MW. There are six thrusters, three forward and three aft, with a

total of 12,000 hp. She has a speed of 21 knots. More information on her Cyclo (cycloconverter) propulsion system is included in the article, ABB Marine Supplies Power For Four CCL Megaliners in this

[illegible]rom the Ecstasy's seven-deck-high Grand Atrium, passengers can walk the "City Lights" promenade and enjoy the urban conviviality of such rooms as the Metropolis Bar, Chinatown, Rolls Royce Cafe and the Neon Bar. The atrium features computerized color-changing neon with automated fiberoptic lighting to create the illusion of thousands of twinkling stars.

ECSTASY
Equipment List

Main engines (6)	Sulzer-Wartsila
Alternators	ABB Drives/Stromberg
Electric propulsion motors	ABB Drives/Stromberg
Engine controls	KaMeWa/Stromberg/Valmet
Propellers	KaMeWa
Thrusters	Brunvoll
Sewage plant	Hamworthy
Distilling plant	Serck Como
VHF	Furuno
Purifiers	Alfa Laval
Radio direction finder	JRC
Speed log, gyrocompass & rascar	Sperry Marine
Loran C	Furuno
ARPA	Atlas Elektronik
Echo sounder	Atlas Elektronik
Radio station	Marconi
Satnav system	Magnavox
Omega navigator	JRC
Telefax	JRC
Side & watertight doors	Wartsila Marine
A/C plant	Svenska Flakt
Weatherfax	Furuno
Gyrocompass	Sperry Marine
Steering gear	Frydenbo
Stabilizers	Brown Brothers
Bearings	Lohmann & Stolterfoht
Life rafts	Viking Life-Saving
Elevators	MacGregor-Navire

MONARCH OF THE SEAS
Chantiers de l'Atlantique

Circle 32 on Reader Service Card

With the title of the world's largest passenger cruise ship, the 75,000-ton luxury megaliner Monarch of the Seas, emerged last year from the St. Nazaire, France, shipyard of Chantiers de I'Atlantique. Her sister, the Majesty of the Seas, is set to make her debut next month.

Built for Royal Caribbean Cruise Line, the Monarch is 880 feet long and has a maximum passenger capacity of 2,766, with 1,177 cabins, 732 of which are outside units and 445 inside units. Included in the total are 12 luxurious suites and 50 deluxe cabins with a balcony, all of which are located on the Bridge Deck.

Containing more than 14,000 tons of steel (twice that of the Eiffel Tower) and more than 170 feet high (the same height as the Statute of Liberty), the Monarch of the Seas sets passenger ship interior design standards.

For example, the Centrum, the

Regal Princess built by Fincantieri.

ship's central meeting place from which most of its public spaces radiate was designed by Norwegian **Njal Eide,** whose Oslo-based firm specializes in cruise vessel interiors. The centrum spans five decks, featuring curved staircases, glass-walled elevators and a lively plaza. At the base of the glass-walled elevators lie three pools of dancing water, an elegant piano platform and raised plaza linked by a parade stair. Forward of this area, the Centrum flows into the photo gallery with a stepped level fountain.

The propulsion machinery on the Monarch of the Seas, built in Saint-Nazaire, France by Chantiers de I'Atlantique, GEC Alsthom, for Royal Caribbean Cruise Ltd. (RCCL) is of SEMT Pielstick design and manufacture, comprising four 9 PC20L400 medium-speed engines, able to operate on 700 est heavy fuel oil.

Each 9 PC20L engine is rated at 5,460 kw at 475 rpm, providing a total output of 21,840 kw on two shafts. The drive is through two Lohmann + Stolterfoht twin input/single output gearboxes.

The main feature of the installation is the elastic suspension of the 92-ton Pielstick engine. The four 9 PC20Ls are separately secured on a frame, also used as the engine lubricating oil recovery sump (dry dump), from which the oil returns to main lubricating oil tank. The frame is fitted on the ship's foundation blocks by means of 22 rubber resilient pads.

MONARCH OF THE SEAS
Equipment List

Main engines (4)	Pielstick
Propellers (2)	KaMeWa
Thrusters	KaMeWa
Generator engines	Wartsila Vasa
Generators	Alsthom
Reduction gears	Lohmann & Stolterfoht
Engine controls	KaMeWa
Coatings	Jotun/International Paint
VHF radios	Furuno
Radar, compass, loran autopilot	Sperry Marine

REGAL PRINCESS
Fincantieri

Circle 33 on Reader Service Card

Flying the Italian flag, the 70,000-grt, $200 million-plus cruise ship Regal Princess was delivered to P&O by Italian builder Fincantieri's Monfalcone yard. One of two P&O flagships built by Fincantieri, the Regal Princess has an overall length of 811 feet, breadth of 105 feet and draft of 26 feet.

Designed for worldwide cruising, with seven-day Eastern and Western Caribbean and Alaska Inside Passage itineraries the Regal Princess is powered by a highly advanced diesel-electric plant consisting of four 6.6kv, 60-Hz main alternators driven through flexible couplings by four MAN B&W eight-cylinder, in-line L58/64 four-stroke, medium-speed engines, with a maximum continuous rating of 9,720 kw at 400 rpm. These alternators supply power through transformers to the two 12,000-kw, three-phase synchronous-type propulsion motors, each directly driving fixed-pitch propellers via shafting.

She has 14 decks with a total of 798 passenger cabins, of which 436 are outside cabins, 178 inside cabins, 134 cabins with a balcony, 36 deluxe cabins and 14 suites. She will be manned by an international crew of 683. Her officers are of Italian nationality.

In all, the Regal Princess carries 1,748 passengers. She is provided with numerous public spaces, the principal ones consisting of a cinema with 169 seats, a theater seat-

ing 740 and a restaurant able to serve about 844 people at one sitting. There is a disco, a number of shops, bars and night clubs, gymnasiums, saunas and beauty salons. The cupola, 197 feet long and 98 feet wide and made entirely of light alloy, houses a casino, as well as other facilities.

Her interior design is by H. Chambers Co., Baltimore, Md., while Renzo Piano, Genoa, Italy, performed her overall design concept.

The Regal Princess also features a million-plus collection of museum class art showcasing the works of some of the world's most important contemporary artists. The collection is comprised of over 2,600 existing and specially commissioned paintings, sculptures, graphics and murals.

REGAL PRINCESS
Equipment List

Main engines	MAN B&W
Propellers	Lips Italiana
Boilers	
Cooling system	Alfa Laval
Various pumps	Hamworthy Engineering
Various pumps	IMO/Alfa Laval
Paint	...International Paint
Alarm system	Kockumation
Anti-collision	Atlas Elektronik
Paneling	Rockment
Integrated bridge	Sperry Marine

SOCIETY ADVENTURER
Finnyards

Circle 116 on Reader Service Card

Designed for worldwide cruises lasting as long as eight weeks, the 403-foot Society Adventurer will take passengers to exotic locales, such as the Antarctic, Greenland, the Amazon River, and areas in the Pacific.

This new type of cruise vessel is capable of carrying its 188 passengers quite literally on all Seven Seas, according to Finnyards Ltd., the Finnish builders of the vessel.

The vessel was ordered in December 1989 under a contract worth about $75 million, complying with the requirements of Det norske Veritas 1A1, Ice 1A, Passenger vessel, Naut-B, bis, EO, and also USCG, U.S. Public Health and international regulations governing safety and pollution prevention.

All the passenger cabins and public spaces are designed by the German interior architect **Willfried Kohnemann** and his staff.

With an overall length of 403 feet, breadth of 59 feet and draft of 15 feet, the Society Adventurer has 90 standard suites, all outside staterooms, and four luxury suites.

Her main public rooms are the 200-seat dining room (Marco Polo Restaurant), 190-seat main lounge (Explorer Lounge), 170-seat lecture room (Darwin Hall), and the 110-seat observation lounge.

The propulsion plant comprises two 2,940-kw medium-speed diesel engines manufactured by Krupp MaK in Germany, connected to two KaMeWa controllable-pitch propellers through reduction gears.

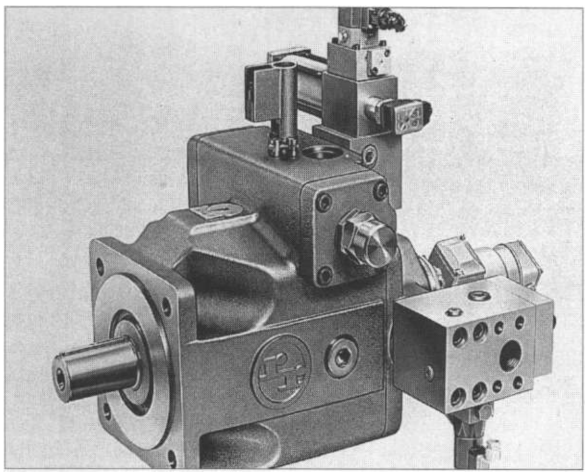
Auxiliary power is provided by two main engine-driven shaft generators, each of 1,300 kva, two independent diesel generators, each of 1,450 kva, and an emergency generator.

A powerful 770-kw KaMeWa bowthruster is installed for maneuverability.

SOCIETY ADVENTURER
Equipment List

Main engines (2)	Krupp MaK
Propellers	KaMeWa
Reduction gears	Frydenbo
Shaft generators	A.V. Kaick
Bow thruster	KaMeWa
Auxiliary engines	Krupp MaK
Emerg.generator	Alterna/Volvo
Generators	A.V. Kaick
Pumps	Allweiler
Compressors	Hatlapa
Separators	Westfalia
A/C	Hi Pres
Boilers	Sunrod
Freezing/cooling plant	Sabroe
Halon plant	Unitor
Davits	Schat Davit
Galley equipment	SeaKing
Radar	Atlas Elektronik
Gyrocompass	Anschutz
Incinerator	Seebeck-Techno
Mooring winches	Aquamaster
Stabilizers	Blohm + Voss

Secondary Control Used By Rexroth To Supply Shipboard Electricity



Secondary unit A4VS0 from Rexroth Corporation.

Ships always have had to rely on their own sources of energy. The greater part of the generated energy is required for propulsion, with onboard electricity normally being produced by diesel-driven generators.

The Rexroth Corporation has devised a new method of tapping propulsive power from the main engine using secondary control.

This technology has been successful in industry where it is appreciated for its high dynamics and very accurate speed control capabilities. Over 600 applications have been equipped with this type of system in recent years, with convincing results.

The pump and motor unit are installed at separate locations. The hydraulically driven generator set comprises the following assemblies:

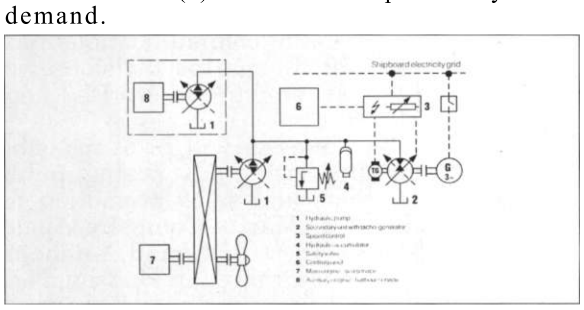
(A) one or more hydraulic pumps are directly coupled to the main engine; The drive can be taken: (B) directly from the main engine; (C) from a PTO; and (D) via a chain or belt drive.

The secondary unit is connected directly to the generator, and may be installed wherever convenient within the engine room.

The ancillary units such as filters, oil tank, and accumulator bank also may be installed where convenient within the engine room. The speed indicator and safety electronics are integrated within the control panel area.

Normally, the main engine drives the hydraulic pump (1) via a gearbox at a variable speed.

The pump is equipped with a pressure control which holds the pressure in the system and accumulators (4) constant independently of the demand.



The function principle behind tapping propulsive power from the main engine using secondary unit for shipboard electricity.

The secondary unit (2) is equipped with a swash angle control. This in turn is under the control of a servo valve (electrohydraulic control).

A tacho-generator for sensing the actual speed of the unit is mounted on the through shaft of the secondary unit.

The command value potentiometer (within item 3) is used to set the required speed either as a speed (1,500 rpm or 1,800 rpm) or a frequency (50 or 60 Hz). The actual speed is sensed by the tacho-generator.

The closed loop speed control (3) determines any variation in speed and corrects this via the electrohydraulic control unit. In this way, a constant generator speed is ensured.

Shaft powered, hydraulically driven generators with secondary control can fulfill 100 percent of the requirements for seagoing use of the present diesel-electric generating sets; they can fulfill the highest requirements for continuous parallel operation either in parallel with diesel-electric generators or other hydraulically driven generators.

For free literature detailing the secondary control from Rexroth,

Circle 57 on Reader Service Card

Russian Ship Line Wants To Schedule Regular Calls At Major West Coast Ports

Under *a* plan being considered by Far Eastern Shipping Co., Russian cargo ships would begin calling in California as early as May.

Director **Alexander D. Burly** of the Vladivostok-based ship line, known as Fesco, said the Russian company wants to establish scheduled calls at major West Coast ports as quickly as possible. He spoke as a Fesco ship docked at the Port of Grays Harbor in Aberdeen, the first Russian cargo ship to call at a U.S. West Coast port in a decade.

Fesco would like to reestablish U.S. services as quickly as possible, and plans to identify and redeploy ships to high-demand regions on the West Coast as speedily as it can be accomplished.

Circle 289 on Reader Service Card

Circle 300 on Reader Service Card

New Cordage Directory For Users Of Ropes And Twines

Extensive information on the sources for rope, cordage, twines and netting has been compiled and is offered free by the Cordage Institute

The directory includes capability profiles of twine, cordage, rope and netting manufacturers, fiber producers, machinery manufacturers and consultants. A publications catalog listing standards and test methods is also included.

The Cordage Institute represents manufacturers of rope, cordage, twine and netting in the United States, Canada and Mexico.

The Cordage Directory is available at no charge from Cordage Publications, 42 North Street, Hingham, Mass. 02043, phone (617) 749-1016; fax 617-749-0542..

Wijsmuller Acquires Management Contract For Russian Heavy-Lifters

The Dutch heavy-lift specialist Wijsmuller Transport B.V. has signed an exclusive agreement with the Russian Baltic Shipping Company in St. Petersburg for the worldwide commercial management of two heavy-lift vessels, the Stakhanovets Kotov and Stakhanovets Ermolenko.

The semisubmersible heavy-lift/RO-RO vessel Stakhanovets Kotov, for which Wijsmuller will handle worldwide commercial management.

Wijsmuller Transport now operates a fleet of nine semisubmersible heavy-lift vessels. The fleet is composed of five vessels of the Super Servant class, which can lift cargoes up to 13,000 tons, three vessels of the Mighty Servant class with a capacity up to 25,000 tons and the Russian-owned Transshelf which is able to carry 30,000 tons. The newly acquired Stakhanovets Kotov and Stakhanovets Ermolenko are smaller and can lift up to 5,500 tons.

For years Wijsmuller Transport specialized in the transportation of very heavy constructions like drilling rigs and offshore modules. Now the company is able to extend its services and expand its markets by offering a comprehensive service package, the transportation of cargoes from 30 to 30,000 tons on a worldwide basis.

For further information on Wijsmuller Transport,

Circle 105 on Reader Service Card

Kim Weeks Named Raytheon Marketing Communications Manager

Kim Weeks

The appointment of **Kim Weeks** as marketing communications manager for all marine divisions was recently announced by Raytheon Marine.

Ms. **Weeks** will be responsible for supervising advertising, public relations and sales promotion for Raytheon Marine Company, Apelco Marine Electronics and Autohelm, all headquartered in Hudson, N.H. She will also oversee marketing communications for Raytheon Marine Sales & Service Company, the European division based in Harlow, England.

Ms. **Weeks** brings eight years of marine advertising and sales experience in corporate, agency and publishing areas to her new position. Prior to joining Raytheon, she was marketing manager for International Marine Industries.

ASNE 6th Annual Naval Logistics Symposium

The Mechanicsburg Section of the American Society of Naval Engineers (ASNE) will host the Sixth Annual Naval Logistics Symposium in Harrisburg, Pa., March 17-19, 1992.

During the three-day event, dozens of presenters will address ship maintenance, process improvements, CALS initiatives, and supply support programs. The technical presentations will focus on current success stories and future challenges. Additionally, about 50 companies are expected to exhibit some of the latest products and services for the naval market.

The symposium will be opened on March 18 by a keynote address from Vice Adm. **K.C. Malley,** U.S. Navy, Commander, Naval Sea Systems Command. Admiral **Malley**'s address will be followed at 9 a.m. by the first session, "CALS Application-Technical Data," which will be moderatedby **Anthony J. Ruffini,** Columbia Research Corp.

At noon, Rear Adm. **R**.C. **Witter,** U.S. Navy, Vice Commander, Space and Naval Warfare Systems, will present the luncheon address.

A reception and banquet will begin at 6 p.m., with an address by Vice Adm. **S.F. Loftus,** U.S. Navy, Deputy Chief of Naval Operations (Logistics).

The following day, March 19, at 8 a.m., a keynote address will be presented by Rear Adm. **F.L. Filipiak,** U.S. Navy, Commanding Officer, Ships Parts Control Center.

For further information on the ASNE Logistics Symposium, contact: **Rick Ottinger,** American Society of Naval Engineers, 1452 Duke Street, Alexandria, Va. 22314; telephone: (703) 836-6727.

TECHNICAL PROGRAM
Wednesday, March 18
7 a.m.—Registration desk opens.
8:15 a.m.—Welcome presentation.
8:30 a.m.—Keynote address by Vice Adm **K.C. Malley,** USN, Coomander, Naval Sea Systems Command.

SESSION 1—CALS APPLICATION TECHNICAL DATA
Moderator: **Anthony J. Ruffini,** Columbia Research Corp.
9 a.m.—"Navy CALS in Action," by Capt. **Michael Jenkins,** USN.
9:40 a.m.—"NAVSEA Technical Data Revisited," by **Harry Felson.**
10:40 a.m.—"Technical Data Management—2001," by **Jeffrey Arthurs.**
11:20 a.m.—"Expert System For Provisioning," by **Darrell Gooden** and **Brent Bolner.**
Noon—Luncheon address by Rear Adm. **R.C. Witter,** USN, Vice Commander, Space and Naval Warfare Systems Command.

SESSION 2—CALS APPLICATION MAINTENANCE
Moderator: **Ronald J. Duddleston,** Ships Parts Control Center.
1:45 p.m.—"SPLICE: Integrating Allowances, Technical Manuals, and Preventive Maintenance," by Capt. **Robert Duncan,** USCG.
2:45 p.m.—"Organic Training Initiative," by Capt. **H.C. Kaler,** USN.
3:25 p.m.—"Automated Logistics for H,M & E," by **Anthony M. Cieri.**
4:05 p.m.—"Future Of 3-M," by Dr. **Mark Elfont.**
4:45 p.m.—Adjournment.
6:00 p.m.—Reception and banquet.
Banquet address by Vice Adm. **S.F. Loftus,** USN, Deputy Chief of Naval Operations (Logistics).

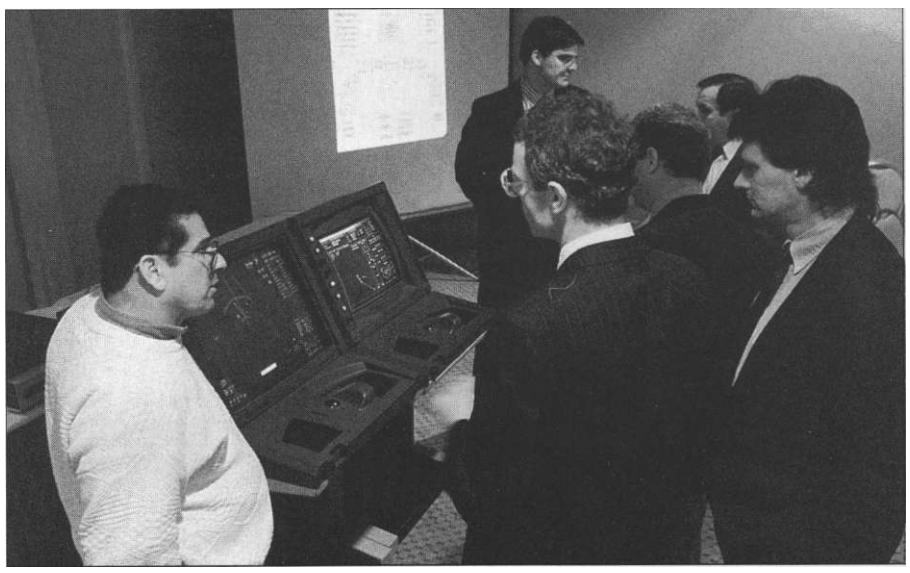
Thursday, March 19
8:00 a.m.—Keynote address by Rear Adm. **F.L. Filipiak,** USN, Commanding Officer, Ships Parts Control Center.

SESSION 3—SUPPLY MANAGEMENT
Moderator: **David Altwegg,** NAVSEA.
8:45 a.m.—"Supply Readiness for Ships in Overhaul," by **Paul Galvin.**
9:25 a.m.—"Streamlining the Provisioning Process," by **Michelle Vescio.**
10:25 a.m.—"Logistics Engineering and Contracting Can Be Complimentary," by Lt. Comdr. **S. Moritz,** USCG.
11:05 a.m.—"Team Effort in Developing PTDS," by **Stanley Beiter.**
Noon—Luncheon address by Rear Adm. **R.B. Abele,** USN (Ret.)

SESSION 4—PROCESS ISSUES
Moderator: **Lawrence Hanagan,** NAVSEA.
1:20 p.m.—"Chief Engineer as Chief Logistician," by **Jack Rowley** and **Jimmy Smith.**
2 p.m.—"Readiness Based on Sharing, an ISEA Perspective," by **T. Heatherington.**
2:40 p.m.—"Maintenance Engineering for Maintenance Managers," by **Kenneth S. Jacobs.**
3:20 p.m.—Closing remarks by **Clifford G. Geiger,** NAVSEA 04.

Electronics Update

Radio Holland Introduces New Kelvin Hughes Integrated Bridge System In New York



Participants examine the new Kelvin Hughes' Integrated Bridge System at a recent demonstration in New York hosted by the Radio Holland Group.

The Radio Holland Group, Electronic Systems, Marine, recently introduced a new Kelvin Hughes Integrated Bridge System at a demonstration at the New York Hilton Hotel in New York City. The demonstration in New York was part of a nationwide tour of the Kelvin Hughes integrated bridge systems. The other stops on the tour included Houston, San Francisco, Washington, D.C., and Ft. Lauderdale.

On display at the technical demonstration were the Nucleus Integrated Navigation System (NINAS), which combines the NAVMON and NAVDIS systems; Electronic Chart Display unit (ECDIS); Nucleus 6000 Series Color ARPA radar; and the Nucleus 5000 Series Color RM/TM radar. Radio Holland's **Gregg Nichols,** business development manager, IBS/Special projects, and Kelvin Hughes representative Mike **Read** provided complete operation and technical support, as the system was run through several simulated operational situations.

Radio Holland also had mock-up consoles housing Global Maritime Distress and Safety System equipment on display.

The goal of the design of Kelvin Hughes' integrated bridge system is directed at improving efficiency and productivity, reducing bridge manning to "single manning," yet promoting higher standards of operational safety.

The IBS includes all the navigation, monitoring, control and communication functions of the ships bridge in a "single" ergonomically engineered unit constructed from a combination of standards modules.

IBS is divided into three main function areas: (1) charts—plotting—navigational information; (2) navigation—observation—driving and controlling; and (3) ancillary information and communications.

These functions consist of the following interconnected units:

• Electronic Chart Table (ECTAB)

continues

• Chart Display Unit (CDU)
• Navigation Display Workstation (NAVDIS)
• Radars
• Navigation Monitor (NAVMON)
• Ship Control Station (SHIPCON)
• Vessel Monitoring Workstation (MONDIS)
• Communication Workstation (COMDIS)

As part of the IBS, Radio Holland offers the new Kelvin Hughes Nucleus radar system. This new range of radars has a simple tracker ball, with three push buttons, replacing the conventional keyboard. The comprehensive use of multiple colors based on IMO/IHO 1990 recommendations provides an easy to view display of radar picture, selectable functions, warnings, target information, and own-ship navigation data.

There are five displays available in the Nucleus range: Nucleus 6000 A Automatic Radar Plotting Aid; Nucleus 6000 T True Motion; Nucleus 6000 R Relative Motion; Nucleus 5000 T True Motion; and Nucleus 5000 R Relative Motion.

The Nucleus 6000 range has a 660 mm display providing a 340 mm radar picture, while the 5000 range has a 500 mm display and 250 mm radar picture.

For free literature detailing the Radio Holland Group,

Circle 130 on Reader Service Card

Metos Marine Supplies Galley Equipment To Cruise Ships

Over the years, Finland's Metos Marine has supplied galleys to over 800 ships around the world, ranging from tugs to the most modern cruise ships. Metos Marine, which specializes in on-board catering, operates as an independent unit of the International Instrumentarium Corporation.

The company's business, which had a turnover of $430 million in 1990, revolves around creating functional on-board catering systems, ranging from individual pieces of galley equipment up to a restaurant business concept.

Some of the passenger vessels supplied with Metos Marine galley equipment include: the M/S Cinderella, a cruise ferry operating in the Baltic Sea; the M/S Sally Caravelle; and the SWATH cruise ship SSC Radisson Diamond, which will enter service later this year.

For a free brochure detailing Metos Marine's full range of galley equipment and design services,

Circle 131 on Reader Service Card

Vecom Introduces New Microbe Cleaner

The Dutch chemicals and cleaning products group Vecom recently introduced a new sanitation system treatment and cleaner for ships—Microbe Treat L. It will keep sanitation systems in optimum operational conditions and assist in maintaining drains, traps and lines clean and clog-free.

Sensitive to pollution related issues, Vecom focused its research towards a product likely to stay harmonious with environmental requirements well into the future. In addition, Microbe Treat L has been prepared specifically for maritime operating conditions and poses no hazard for the ship's crew.

In detail it's a uniquely-formulated liquid blend of naturally-occurring, non-genetically engineered living aerobic and anaerobic bacteria that are specially selected and adapted for their ability to produce enzymes that will degrade sanitation waste.

All the bacteria used are subjected to stringent antibiotic screening to ensure that they are safe to use.

For more information about Microbe Treat L,

Circle 55 on Reader Service Card

It's bright orange for high visibility, lighter for easier handling, stronger for better performance and very cost effective. It's AMCO UltraLine:

American Manufacturing, the largest manufacturerof fiber rope in the U.S., presents ULTRAUNF[M], the most technically advanced rope ever offered to the marine industry. A unique copolymer, extruded fiber is the basic ingredient in UltraLine, creating a rope that is 5% lighter and 30% stronger than other comparable ropes. Similar to polypropylene, it floats, stores wet, and will not rot or mildew. UltraLine is also 50% more abrasion resistant than regular yarn or monofilament because it develops a "feathered" surface that protects against further abrasion, as well as lower elongation, better creep resistance and a higher UV resistance.

	CONVENTIONAL POLYPROPYLENE		UltraLine™	
Cir.	Weight/ 100 ft. (lbs.)	Minimum Breaking Strength (lbs.)	Weight/ 100 ft. (lbs.)	Minimum Breaking Strength (lbs.)
7"	92	62,000	88	81,000
8"	120	81,000	115	105,000
9"	153	103,000	145	133,000
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100% American virgin resins. Lower cost and better performance add up to a cordage product unmatched anywhere else. You'll actually save money in buying a better rope.

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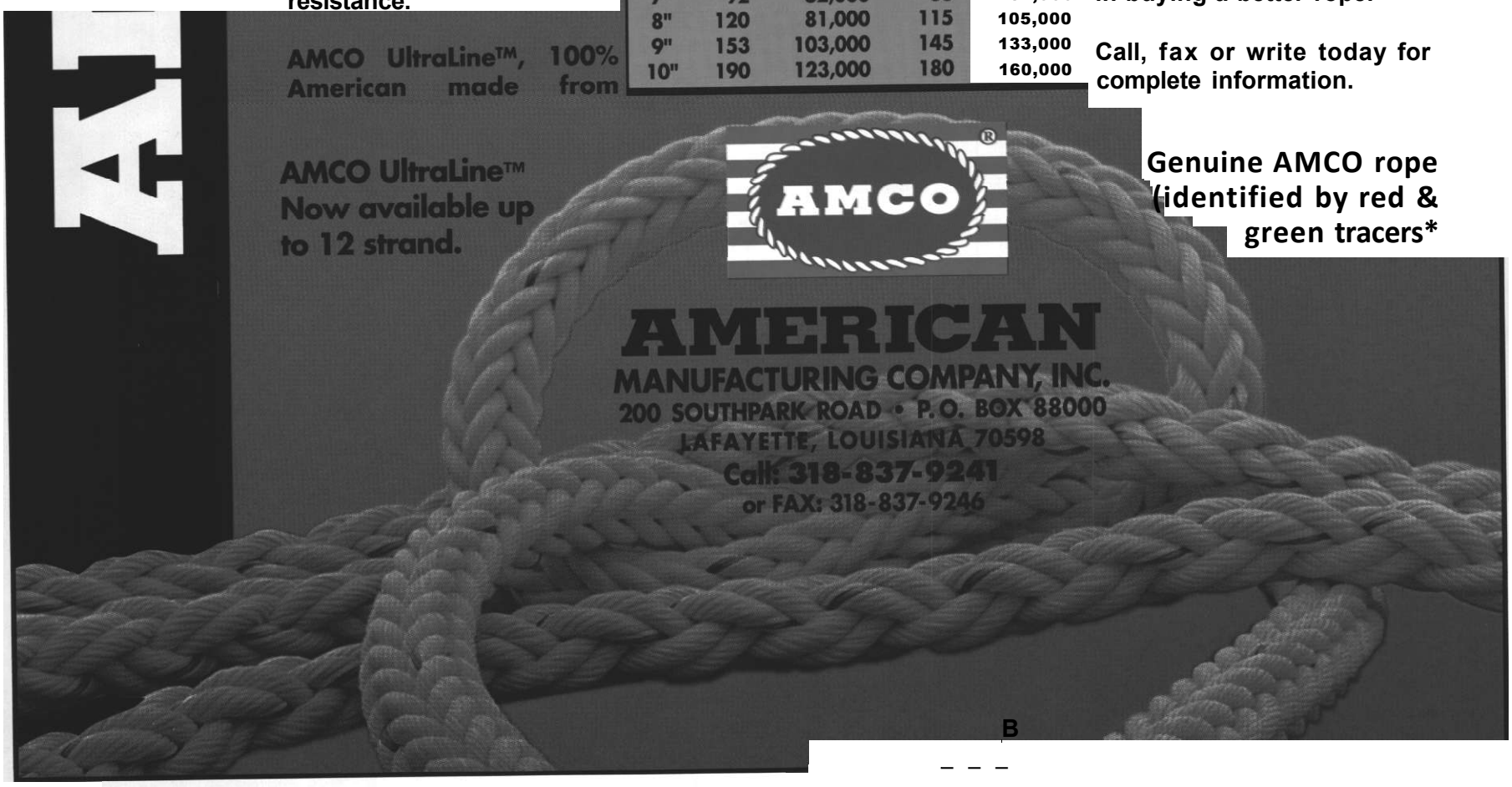

Genuine AMCO rope (identified by red & green tracers*

B

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Circle 258 on Reader Service Card

Most diesel engine oils are out of their element on the water.

Why? Because most marine oils are compromises. Commercial oils that have been adapted for marine use.

But not ours. Mobil has developed truly marine-specific oils. Formulated from the beginning to meet the difficult and different demands of the marine environment.

And then we went even further. We developed a marine oil for *each* of the three major OEM diesels in marine service.

Detroit Diesels? There's our Mobilmar® 100 Series oils. Caterpillars? Our Mobilmar® 300 Series oils. EMDs? Our Mobilgard® 450 oil. Each is designed for optimum performance in its specific engine.

Mobil®
Marine Oils

How does it work in practice? Ask our customers.

Since switching to Mobilgard® 450, Cho-Me Towing of St. Louis (a joint venture of Scott Chotin and Marine Equipment Management) estimates "total savings of over $30,000 a year for our two EMD diesels, with 45% longer running time between overhauls."

So give us a call at 1-800-662-4525 and ask for our new brochure. Then give us a chance to perform. If we can't save you money, we don't deserve your business.

· Mobil delivers more · Mobil delivers more · Mobil delivers more ·

Inland Rivers Ports & Terminals Sets Dates For Annual Conference

Inland Rivers Ports and Terminals, Inc., (IRPT), has selected the dates of April 29-May 1, 1992, for their annual membership meeting. The meeting will be held in Kansas City, Missouri, at the Park Place Hotel.

The conference will focus on issues the inland waterway system is currently facing. In addition, the IRPT will hold its annual membership meeting in order to elect officers.

The IRPT is a national organization that represents the collective interests of public and private ports and terminals throughout the nation. Its objectives are to promote and develop the growth of inland rivers, ports and terminals; improve services to shippers; provide a more efficient intermodal national transportation system; encourage foreign and domestic commerce to and from all inland rivers, ports and terminals; encourage the development of waterborne transportation; promote river and port related commercial and industrial development; and to serve its members through education, communications and other means.

To register, or for additional information about the conference, contact IRPT at 204 E. High Street, Jefferson City, MO 65101, or call (314)634-2028.

Hagglunds Denison Announces Improvements In Hydraulic Pumps

Hagglunds Denison recently reported design improvements in the firm's World Cup line of axial piston hydraulic pumps provide increased reliability and longer life under severe operating conditions. The pumps, designated "B" mod, are used in a variety of marine applications.

Three different series of pumps are offered. Series 6, 7 and 8 units have displacements of 6.0, 7.25, and 8.0 inches 3/rev. respectively. Continuous pressure rating is 5,000 psi for the smaller displacement pumps and 3,500 psi for the Series 8. Maximum speed is 3,000 rpm for the Series 6 and 7 and 1,800 rpm for the Series 8.

The standard control for the World Cup pumps is a pressure compensator located in the cover assembly. Minimum compensating pressure is approximately 180 psi. Five control options include an electrohydraulic stroker, hydraulic stroker, rotary servo, load-sensing compensator, and a torque limiter.

For free literature containing information about the World Cup line of hydraulic pumps,

Circle 16 on Reader Service Card

New Sulzer Forms New Subsidiary In The Netherlands

New Sulzer Diesel Ltd. has established a new subsidiary company in the Netherlands under the name of New Sulzer Diesel Nederland BV. The managing director is **Henk Potappel** who has worked for a number of years for the Dutch licensee of New Sulzer Diesel Ltd.

All personnel who were previously working in the Schiedam office of Sulzer Nederland BV, former representative of New Sulzer, transferred to the new company. The new offices and warehouse will be located in Dordrecht, which is south of Rotterdam.

New Sulzer set up the subsidiary company to offer better service to customers in the Netherlands in terms of spare parts and new diesel engines. New Sulzer will also offer full maintenance contracts for Sulzer diesel engines.

For more information about the services of New Sulzer Diesel,

Circle 85 on Reader Service Card

Keppel Shipyard Completes $30 Million Conversion Of Tanker

Keppel Shipyard, a major operating division of Keppel Corporation Limited, has successfully converted Skua Venture (formerly TT Lympia), a 135,103-dwt turbine tanker into a floating production storage offloading facility (FPSO).

Worth about $30 million, the conversion was awarded to Keppel Shipyard by BHP Petroleum (BHP) of Australia, against competition from local and overseas yards.

A significant operation in the conversion of Skua Venture was the installation of a 260-ton rigid arm for the mooring system at the forecastle deck of the vessel. More than 120 tons of underdeck steel reinforcement were fabricated and installed in the bow area to support the rig arm.

Another major conversion project completed by Keppel this year includes the Sovietskaya Rossiya, a former whaling vessel converted into one of the world's largest fish factory ships.

MacGregor-Navire' Acquires Conver-Osr GmbH

MacGregor-Navire, the marine division of the Kone Corporation has acquired Conver-Osr GmbH, one of the marine industry's foremost designers and suppliers of cargo securing systems. The German company is based in Bremen.

Conver-Osr's 'know-how' in cargo lashing systems and also their technical, consulting and engineering skills can only enhance and strengthen the group's total capacity, giving the international marine industry the benefit of an accumulation of experience and technology.

Robert Bock, the founder of Conver-Osr will act as consultant and will be chairman of the advisory board. Their goals for the future include the development of lashing technology to the benefit of the shipowner, utilizing the highly skilled team of naval architects and technicians already existing within the company.

For more information about MacGregor-Navire,

Circle 87 on Reader Service Card

Tracor Receives $28.9 Million Contract

Tracor Applied Sciences, Inc., a subsidiary of Tracor, Inc., was recently awarded a five-year contract with a total potential value of $28.9 million by the Naval Regional Contracting Center, Philadelphia, Pa., to provide technical and engineering services in support of the U.S. Navy electronic communication systems for the Naval Electronic Systems Engineering Activity (NESEA), St. Inigoes, Md. These systems include shipboard radio communications, mobile and airborne communications systems, and the fixed shore terminations of these systems.

Tracor has supported fleet communication systems at NESEA since 1975.

30,000th Miller Electric Welding Generator With Deutz Diesel Engine

Miller Electric Mfg. Co., Appleton, Wis., recently received an award from Deutz Corporation commemorating the 30,000th Deutz diesel engine purchased by Miller. Immediately after the presentation ceremony, the Deutz engine on display was transported from Miller's engineering lab to the production line in the plant. In less than 30 minutes the Deutz F3L912 three cylinder air-cooled diesel engine moved down the assembly line and became an integral part of a new Miller Big Blue 400D welding generator. At the final assembly point, the completed unit performed a perfect engine startup and test.

Accepting the award for Miller was **Kenneth L. Booher,** president and chief executive officer of the Miller Group, Ltd. and Miller Electric Mfg. Co. Making the presentation was **Werner Schmitz,** president, Deutz, USA, assisted by **Walter Steinbuchel,** vice president, and **Larry Magera,** Great Lakes Area representative. They were joined by **Reiner Breidenbach,** general sales manager and **Helmut Mueller,** general service manager of Deutz, Germany. Deutz is a worldwide producer of diesel engines. Deutz USA is located in Atlanta, Ga.

For further information,

Circle 19 on Reader Service Card

SUNY Maritime College Adds Liquid Cargo Training Facility

A new training facility was recently acquired by SUNY Maritime College when a coastal tankship (YW-98) was transferred to the State of New York by the U.S. Navy via the Maritime Administration. The tankship will serve as a training platform for loading and unloading of liquid cargo. Plans for the tanker include adding gauging equipment from various manufacturers, fixed and portable tank washing systems, and a vapor recovery system. With this hands-on facility, the college can provide training for operators to meet the requirements of the Oil Pollution Act of 1990 which places strict requirements upon shipping companies and ship's officers for the transfer of petroleum products.

The addition of this facility to the already existing ship's bridge/shiphandling simulator, radio navigation trainer, ARPA (Automatic Radar Plotting Aid) facility and upgraded radar laboratory currently being installed, and a diesel engine simulator, already in operation, will allow the college to offer a wide range of both theoretical and practical training through its Center for Simulated Maritime Operations (CSMO) facility on campus.

Higman To Construct New Series Of Double Hull Oil Tank Barges

Higman Barge Lines recently announced that they will initiate a construction program for a new series of environmentally sensitive, double hull oil tank barges. Higman has contracted with Nashville Bridge Company to construct the first four barges, valued at $5 million, for delivery in 1992. In addition to their full double hulls, the 30,000 barrel capacity barges will be equipped with oil spill containment rails incorporated into the deck design, and the ability to accommodate a vacuum vapor recovery system to reduce vapor emissions while loading. Each barge will be equipped with steam coils. Financing is provided by Skandinavska Enskilda Banken, New York.

The barges will be operated by a wholly-owned subsidiary, Higman Towing Company, Orange, Texas. Higman Towing Company currently operates a fleet of 29 tank barges, transporting over 40 million barrels of oil per year along the Gulf Intracoastal Waterway between Mobile, Alabama and Brownsville, Texas. Higman is celebrating its 75th year of continuous service to the oil industry.

For further information about the Nashville Bridge Company,

Circle 82 on Reader Service Card

USCG New Maintenance And Logistics Concept Featured At NY Meeting

At a recent meeting of the New York Metropolitan Section of SNAME, which was co-hosted by the American Society of Engineers, was held at the Downtown Athletic Club. The focus of the meeting was the presentation of MA New U.S. Coast Guard Support Concept; Maintenance and Logistics Command Atlantic Naval Engineering Division' by Captain **Fred L. Ames,** Chief, Naval Engineering Division, U.S. Coast Guard Maintenance and Logistics Command Atlantic.

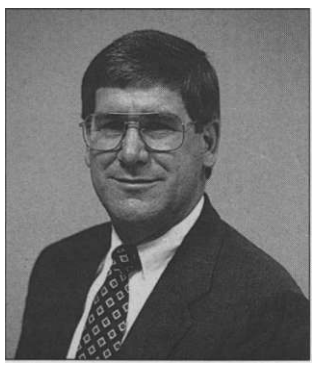
The paper described the Coast Guard's 1987 reorganization of all of its field support, when it centralized these activities into Maintenance and Logistics Commands Atlantic and Pacific. These new commands should facilitate some long term improvements in the naval engineering support of the Coast Guard's cutters and boats. In describing the new organization, the author discusses both strategy and goals which are intended to significantly increase the mission readiness of two-thirds of the Coast Guard's fleet.

Hornbeck Names Roger Sykes VP-International

Larry D. Hornbeck of Horn-beck Offshore Services, Inc. recently announced that **Roger M. Sykes** has joined the company as vice president-international. Mr. **Sykes** has 17 years of international marine service marketing, chartering and operating experience and will play a key role in Hornbeck Offshore's strategic expansion into the international offshore sector. Mr. **Sykes** was formerly director of international marketing with Zapata Gulf Marine.

A significant portion of Hornbeck Offshore's 34 vessel fleet is ideally suited for international service in moderate environment areas. The anchor-handling tug-supply vessels and supply boats in this segment represent some of the most modern equipment in their class.

Anderson Appointed Executive VP Of Inventory Locator Service, Inc.



Eric E. Anderson

Eric E. Anderson was recently promoted to executive vice president of Inventory Locator Service, Inc. (ILS). Most recently Mr. **Anderson** was vice president-marketing and sales for ILS. Mr. **Anderson's** responsibilities will now include new business development in addition to marketing, sales and training.

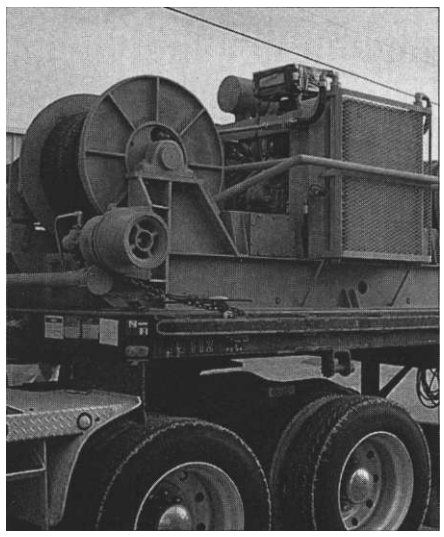
Mr. **Anderson** joined ILS in 1988 as director-marketing. Prior to joining ILS, he was director of planning and analysis at Land O'Lakes, Inc., based in Minneapolis. He has also held positions with AAR Corp. and Tiger International.

Inventory Locator Service, Inc., a subsidiary of Ryder System, Inc., provides data base services for the aviation and marine industries. ILS data bases give information on parts and equipment available from the inventories of over 2,000 suppliers worldwide.

For further information about Inventory Locator Service,

Circle 86 On Reader Service Card

McElroy Machine Completes 14 Winches For U.S. Navy



Winches by McElroy Machine to be delivered to U.S. Navy for installation aboard Navy tugs.

McElroy Machine, a long time builder of custom marine deck equipment, recently announced the completion of 14 double drum, self contained, diesel driven winches to be installed aboard the Navy's "Side Loadable Warping Tugs".

Recently awarded contracts include, two double anchor windlasses to be installed on the T-AGS 60/61 oceanographic research vessels being built at Trinity Marine Group's Halter Moss Point Yard. Also two hauling winches and two ladder hoists are under construction for installation on the Corps of Engineers dustpan dredge "Hurley" under construction at the yard.

Twelve 21-inch electric two speed capstans are being built for Alabama Shipyard for installation aboard the crane barges currently under construction at the yard. Four 21-inch hydraulic capstans are being built for Bender Shipbuilding and twelve 21-inch hydraulic capstans and stern rollers are being built for Trinity Marine. This equipment will be installed on the oil spill recovery vessels being built at both of those yards.

A double drum hydraulic anchor winch and an 18-inch hydraulic capstan are on order from American Marine for installation on the Chevron barge currently under construction. Sause Bros. Ocean Towing recently placed an order for one mooring winch, one combination mooring winch and one anchor windlass for installation on two of their existing offshore support vessels.

Other recent orders include an anchor windlass for Eastern Shipyard and an anchor windlass plus four 12-inch hydraulic capstans for Gulf Coast Air & Hydraulics.

Established in 1915, McElroy's engineering and design capabilities have been developed over the years to meet the marine industry's rigorous requirements for more complex machinery. McElroy's manufacturing capabilities are evident in the diverse line of equipment now being built. Their product range covers small single drum mechanical winches weighing only 25 pounds, up to double drum diesel driven winches weighing in excess of 50,000 pounds. Hydraulic, diesel and electric drive packages are available on winches and other deck machinery.

Vessels utilizing McElroy's equipment include offshore supply boats; utility boats; tug boats and line handling boats; commercial fishing vessels; military vessels for the U.S. Coast Guard, U.S. Navy, Army Corps of Engineers and foreign navies. Specialized vessels, including ferries, seismic research vessels, fire boats and dredges, also constitute a large part of McElroy's markets.

For free literature detailing McElroy Machine's products,

Circle 102 on Reader Service Card

Global Named First Approved Spill Contractor In State Of Washington

Global Environmental recently received notice from the Washington State Department of Ecology that the company was entered on the list of state-approved primary oil-spill response contractors.

Under newly adopted legislation codified in WAC 173-181, private contractors wishing designation on oil-spill contingency plans as the primary responder must be certified by the state. A formal evaluation of the contractor's compliance with all statutory and regulatory requirements is initiated before approval status is granted.

Global Environmental is the first company to acquire approved status from the State of Washington.

MarAd Accepts Offers For Purchase Of Five Obsolete Vessels

The Maritime Administration has accepted offers for the purchase of five obsolete vessels on an "as is, where is" basis. The vessels are to be scrapped in Pakistan, India, Bangladesh, Taiwan or the People's Republic of China.

Mini Shipping and Trading Co., Ltd., c/oA.L.Burbank(Shipbrokers) Ltd., One Executive Drive, Fort Lee, N.J., was the successful bidder on the hopper dredge Biddle and the cargo vessel Purdue Victory for $325,000, and $350,000, respectively.

Space International Trading Inc., 13808 Fount Beattie Court, Centreville, Va., offered a bid of $951,000 for the tanker Aucilla; Neptune International, Inc., offered $584,887 for the auxiliary repair vessel West Milton; and Anil F. Sharma, Cumberland, Md., offered $131,310 for the research vessel Eltanin.

Fredericksburg Shipping Asks MarAd For Title XI In Refinancing Tanker

The Maritime Administration has received an application from Fredericksburg Shipping Company, c/o Charles Kurz & Co., Inc., 313 Chestnut Street, Philadelphia, Pa., for a Title XI guarantee to refinance at a reduced interest rate, existing Title XI obligations issued in connection with the financing of the construction of the 18,600 shaft horsepower 39,374-dwt product/crude tanker Fredericksburg.

The ship was delivered in December 1980. The aft section was constructed at Ingalls Shipbuilding Corp., Pascagoula, Miss. The aft section was refurbished and the forward and cargo sections were built at Newport News Shipbuilding and Drydock Co., Newport News, Va.

Flame-Resistant Designer Fabrics For Marine Interiors Available From Douglass

Basilica, Dakota and Currents are three designs from Douglass Industries' Origins collection of woven marine upholstery fabrics. All fabrics are in blends of wool with Antron nylon and are protected with Teflon soil and stain repellent by Dupont.

Origins is comprised of seven patterns in a total of 89 colorways. Custom color and pattern variations are available on special order for every marine interior requirement.

All fabrics meet Class A standards for flame resistance. As custom options, Douglass offers additional flame resistant treatments that enable these fabrics to meet other specific fire standards. As a component in conforming furniture constructions, treated fabrics from the Origins collection pass the test outlined in California Technical Bulletin 133. Healthgard (TM) antimicrobial protection is also available for application in health care and other appropriate environments.

For full specifications and samples,

Circle 125 on Reader Service Card

Coast Guard Improves Inspection Program To Detect Unsafe Tankers

More Oil Is Shipped In U.S. Waters Than Any Other Commodity; Petroleum And Petroleum Products Account For 40 Percent Of The Cargo Shipped Through U.S. Waters

Coast Guard inspections have not always been reliable in detecting unsafe tankers. For tankers registered in the United States, such problems as too few inspectors, inexperienced inspectors, and limited inspection procedures have hampered the Coast Guard's inspection efforts.

Tankers are an important means of transporting petroleum and petroleum products and they are also a significant source of oil pollution. The prevention of accidents or mishaps that can cause oil spills is a principal reason that the Coast Guard periodically inspects the condition of tankers. According to Coast Guard officials, a number of factors can contribute to unsafe vessel conditions including the following:

• **Increased age:** The world tanker fleet has aged dramatically. Generally, according to Coast Guard officials, the older a tanker is, the more likely it is to develop significant problems, such as deterioration of structural supports or breakdowns of key machinery or equipment. While age alone was not typically viewed by participants at the 1991 International Marine Safety Workshop as an important factor in vessels' not meeting international standards, it can play a crucial role when coupled with poor maintenance.

• **Lower maintenance levels:** Problems that can develop from vessel aging can often be prevented by good maintenance, according to Coast Guard officials. However, these officials stated that maintenance has decreased in recent years, in part because of depressed financial conditions in the shipping industry. Maintaining tankers can be expensive. For example, an oil industry representative told us that shipyard maintenance on large oil tankers over 10 years old typically costs between $3 million and $6 million during the 2-year drydocking cycle.

• **Use of high-tensile steel:** Coast Guard officials state, as a cost-saving measure, vessels over the last 20 years often were built with high-tensile steel. This steel, also called high-strength steel, saves money because less of it is needed in construction, and the vessel's resulting lighter weight allows more cargo to be carried. However, a 1990 Coast Guard study on structural failures found that vessels built with high-tensile steel are more likely to develop cracks in their hulls or supporting beams.

• **Bad weather:** According to Coast Guard officials, severe weather conditions, such as those encountered by TAPS vessels in the Gulf of Alaska, can put stress on the hull and supporting structures and cause cracks to develop.

More oil is shipped in U.S. waters than any other commodity. According to the U.S. Army Corps of Engineers' *Waterborne Commerce of the United States,* petroleum and petroleum products accounted for more than 40 percent of the cargo shipped to, from, or through the United States by water in 1988, more than twice as much as the next most common cargo. As figure 1.1 shows, the amount of oil shipped by water in 1988 is roughly the same as was shipped in 1976—nearly 860 million tons.

Figure 1.1
Amount of Petroleum Transported by Water in U.S. Domestic and International Trade

Source: GAO Analysis of U.S. Army Corps of Engineers Data.

Tanker Casualty and Pollution Rates

Figure 1.2 shows the number of U.S. tanker casualties reported between 1980 and 1988. In addition, a 1990 study by the National Research Council on crew size and maritime safety found that rates of maritime accidents and personnel injuries, worldwide and in the U.S. fleet, have declined steadily over the last 20 years. For example, data show that accident rates for large tankers (those over 6,000 gross tons) have declined to about 2 per 100 vessels, a level roughly 20 percent below those of the mid- to late 1970s.

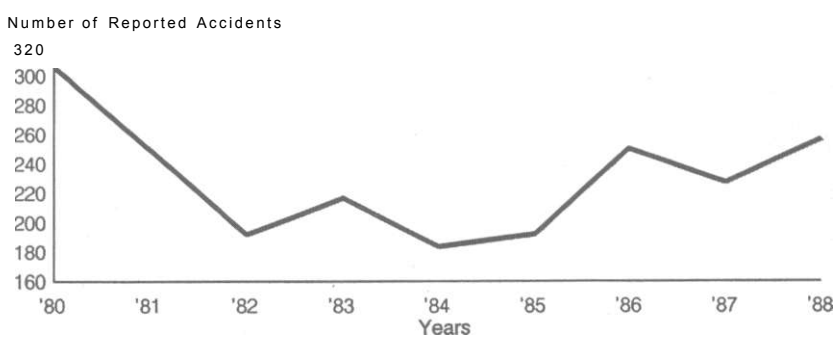
In addition to reports of ship casualties, the Coast Guard receives reports of pollution in U.S. waters. Although the number of reported spills from tankers has declined since the mid-1970s, the amount of oil spilled each year varies greatly. In the first 9 months of 1990, the Coast Guard was notified of 303 pollution incidents in which tankers released about 1.8 million gallons of oil and hazardous substances, nearly 24 percent of the oil and hazardous substances discharged into U.S. waters and reported to the Coast Guard that year.

Age of Tanker Fleet

The proportion of older tankers in the world fleet is growing. From 1981 to 1990, the percentage of the world fleet (measured in tonnage) that was at least 15 years old has increased from about 15 percent to nearly 45 percent. The same trend is evident when the number of aging tankers is expressed as a percentage of the number of tankers. The percentage of the world tanker fleet that is 15 or more years old has increased significantly since 1970, when about 30 percent of the world's tankers were 15 years old or older. By 1990, the percentage of tankers at least 15 years old had increased to nearly 50 percent.

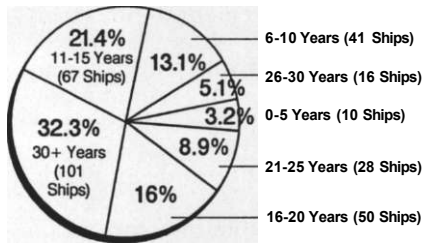
Compared with the world tanker fleet, the U.S. tanker fleet includes a greater percentage of tankers that are more than 15 years old. According to the Coast Guard, in 1990, more than 62 percent of U.S. tankers were at least 16 years old, while nearly one-third (32 percent) were 30 or more years old. Figure 1.3 shows the ages of U.S. tankers in 1990. Meanwhile, about 48 percent of the world tanker fleet was at least 15 years old in 1990, and only about 8 percent was at least 30 years old. Figure 1.4 shows the age of the world tanker fleet in 1990.

Figure 1.2
U.S. Tanker Accidents



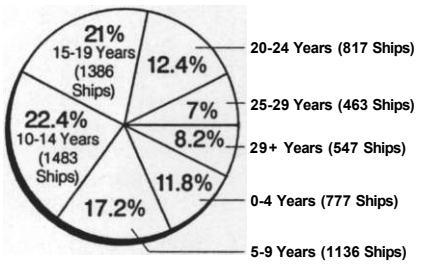
Source: U.S. Coast Guard.

Figure 1.3
U.S. Tankers, by Age, 1990



Source: U.S. Coast Guard.

Figure 1.4
World Tankers, by Age, 1990



Source: Lloyd's Register Statistical Table.

Since the 1950s, the percentage of the world's tanker fleet operating under the U.S. flag has declined significantly. In 1955, more than 14 percent of the world's tankers were registered in the U.S. By 1990, about 4 percent of the world's tankers were registered in the U.S. In addition, many of the tankers serving the United States are registered in other countries. In 1990, for example, foreign tankers visited U.S. ports nearly twice as often as U.S. tankers.

The Coast Guard has taken and plans to take many actions to strengthen its tanker inspection procedures. For example, it began requiring operators of U.S. TAPS tankers in 1990 and of foreign TAPS tankers in 1991 to prepare inspection plans for areas on their tankers susceptible to cracking. The plans are to lay out a strategy for monitoring these areas and tracking the effectiveness of repairs.

Changes to increase the flexibility of inspections are also under consideration in an initiative called the Merchant Vessel Incentive Inspection Program.

Wooster Offers Complete Literature Package On Non-Slip Safety Products

Wooster Products Inc., Wooster, Ohio, manufacturer of anti—slip safety products for ships' ladders, decks, ramps, showers, galleys, gangways, passageways, etc., is offering a complete package of literature on all of the non-slip safety products marketed by the company for marine use.

Included in the literature package is a 20-page, full-color brochure on anti-slip safety stair and walkway products, as well as information on "Flex-Tred," the instant, self-adhesive, anti-slip safety surface; "Safe-Stride" safe traction anti-slip paint for commercial and industrial use; "Epoxy WP 70" safety resurfacer for floors, decks and ramps; and "Stairmaster" safety renovation treads for quick repair of dangerous, slippery stairs.

In addition to standard black, Stairmaster safety renovation treads are available in colors at no extra charge, and a chart of tread colors is provided in the literature package.

Also included is information on NAVSEA ships ladder safety treads which Wooster Products is now certified to quote on. These new cost-saving, slip-resistant, noncombustible safety treads are designed and approved for use on all ladders aboard U.S. Navy ships as well as on commercial and passenger vessels.

For further information and free copies of the literature package from Wooster Products,

Circle 91 on Reader Service Card

Doug Dixon Appointed Ship Surveyor/ Naval Architect

Det norske Veritas Classification (DnVC), Seattle, Wash., has announced the appointment of Doug **Dixon** as ship surveyor/naval architect to assist the present staff and expand DnVC's services.

Mr. **Dixon** is familiar with the West Coast fishing industry and has been working with the local fleet for the past 15 years.

With the new Commercial Fishing Vessel Safety Act of 1988 in force, and DnVC's recent appointment by the USCG to carry out surveys on their behalf, DnVC will increase their services toward the U.S. fishing fleet, offering load line and valuation surveys in addition to standard classification services.

Bender Inc. Introduces New Ground Fault Detection Technology

Bender Inc. has 50 years of experience dealing with electrical safety and products that address The Management of Line-to-Ground Faults" in grounded, ungrounded and high-resistance grounded power distribution systems.

Process continuity in ungrounded systems can be assured by monitoring the system and its loads at line-to-ground resistance sensitivities in excess of 150 megohms. Auto-tuning of system capacitance makes field setup easy and provides optimum response to a fault. Setting the setpoint remotely is now possible via RS-232/485 serial communication.

Locating the first fault in an ungrounded system is now easy and provides added operational flexibility. The 19-inch rack-mounted system not only identifies the faulty circuit but also displays the line-to-ground insulation resistance for that circuit.

Solidly-grounded systems have not been neglected. Super-sensitive ground fault relays can detect leakage currents as low as 10mA in fixed installations.

The monitoring of off-line equipment such as motors and generators can now be successfully integrated into an overall ground fault detection strategy. Sensitivity at the multi-megohm level provides an early indication of a developing fault. Costly damage to equipment can be prevented and a feeling of confidence can be gained by being in control of the operation.

For more information,

Circle 99 on Reader Service Card

SCLR Adds Two More Dockside Availabilities At Port Canaveral Facilities

The Service Company of Louis Rogers, Inc. (SCLR), a specialist in marine repair and maintenance services located in Port Canaveral, Fla., has continued to maintain its workload with the addition of two more dockside availabilities.

The first was the USCGC Vigilant (WMEC-617) with a base value of $95,598 with optional items of $27,817.

The second was for the research ship USNS Bartlett (T-AGOR-13) with a base value of $169,678, with options valued at $39,150.

Work on the Vigilant centered around the fabrication and installation of a talon grid on the helicopter deck and the installation of safety nets around the helo deck hydraulic piping installation, lifeboat davit overhaul, repair of valves, and cleaning, inspection and repair of generator and main engine heat exchangers. Various other structural and mechanical repairs and modifications were also included.

The Bartlett package included overhaul of an SSDG engine, cleaning and painting of engineering spaces, various electrical work, conducting several annual inspections, and other miscellaneous structural repairs including deck strengthening.

For further information and free literature on the marine repair and maintenance services offered by SCLR,

Circle 103 on Reader Service Card

Free Brochure Details Range Of Galley Services Offered By Atlas Marine

Atlas Marine Services of Miami, Fla., which was founded in 1982 to service the cruise line industry, has published a comprehensive brochure describing the company's shipboard galley equipment, as well as design, installation and repair services.

Atlas, which says no project is too large or too small, can manufacture all the custom equipment for a new cruise vessel or refit of an existing shipboard galley..

The literature details the services offered to the cruise industry by Atlas Marine in planning, design, equipment supply, fabrication, installation and repair of galleys, pantries, stores, bars, etc.

Custom galley equipment from Atlas, designed specifically for shipboard use in accordance with U.S. Public Health specifications, is fabricated of all stainless steel in a craftsman-like manner, assuring quality in the finished products.

For free copies of the literature from Atlas Marine Services,

Circle 104 on Reader Service card

New Corporate Brochure Offered Free From MECO

Mechanical Equipment Company of New Orleans, La., offers a complete line of packaged seawater desalination products for the marine, land-based and offshore industry. MECO has been involved in the design and manufacture of distillation equipment for 50 years and this experience has developed a proven desalination design which offers maximum reliability and minimum maintenance.

MECO is currently supplying the distilling plants for the DDG-51 class Aegis Guided Missile Destroyer and has supplied similar desalinators and reverse osmosis equipment for cruise ships and other applications.

A new corporate brochure is available which describes the products produced and the markets served. MECO serves the industry through its head office in New Orleans, along with sales, parts and service offices in Aberdeen Scotland, Abu Dhabi and Singapore.

For more information and a free copy of the corporate brochure from MECO,

Circle 126 on Reader Service Card

THE FUTURE IS WOW!

Everyone admits that Viking's new workboat designs looked good on paper. But how did all those new ideas float?

Better than the best estimates. In fact, in almost every category the design has exceeded expectations.

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Circle 287 on Reader Service Card

GPS

Plots The Future Of Navigation & Communications

The face of maritime navigation and communications will change forever in 1993, when the last of 24 satellites is deployed in the Global Positioning System, making the system fully operational. The Global Positioning System, or GPS, a U.S. military navigation system, will provide all-weather, 24-hour coverage worldwide. GPS signals can also be accessed by civil users but without differential corrections, their accuracy is only about 100 meters. Corrections allow GPS navigation accuracy to be typically improved to under five meters.

Last year, Inmarsat finalized two new data collection and distribution standards to be used for very accurate navigation information for its users, in addition to having potential uses for constantly updated worldwide data and news transmissions.

The standards, one for point-to-multipoint data distribution service and the other a multipoint-to-point "backhaul" facility, have been developed primarily for disseminating differential corrections for GPS navigation signals to Inmarsat-A terminal users.

Typically, a differential correction service provider establishes regional reference sites at which GPS signals are received and positional errors used to generate differential corrections. Using the point-to-multipoint service, these differential corrections are then distributed to mobile users anywhere in the world on the Inmarsat-A system.

"This service will be different from existing point-to-multipoint services on Inmarsat," said **George Kinal,** manager for navigation and applications at Inmarsat's Land Mobile and Special Services Division, "since it will be available 24 hours-a-day and navigation information will be updated every few seconds for the mobile user."

In order to tune in to a land earth station (LES) and receive encoded differential data, Inmarsat-A users need to make arrangements with a service provider and equip themselves with a type-approved add-on device. A simple algorithm will then enable them to apply this to correct GPS signals and derive precise position information.

The Inmarsat-A system permits global two-way telephone, facsimile, telex, E-mail and data communications. Users will be able to employ their terminals for other telephone and data communications, even while receiving this point-to-multipoint service. For those who are not Inmarsat-A users and who require the navigation facility, modified receive-only terminals will be available.

Point-to-multipoint services have been provided since June 1990 by British Telecom through its Goonhilly LES and by Comsat through its Southbury LES using slightly different transmission standards. The standardized protocol for transmission that was approved by Inmarsat has enabled such services to be extended worldwide through many other service providers, who will have the option to offer the service at 600, 1,200 or 2,400 bits per second.

Unprocessed GPS signals are collected from reference sites or stations, usually within a few hundred kilometers of the mobile user. The reference stations may just be simplified, unmanned Inmarsat-A terminals connected to GPS receivers. These terminals may be fixed or semi-permanent depending on the application.

The signals collected at one or more reference points may be fed through terrestrial links to a central processing center where differential correction factors are calculated. The processing center may be co-located with the LES, or may be at a distance from the LES, in which case, the differential data may then be relayed to the LES through a terrestrial link.

From the LES, the corrections are beamed up to an Inmarsat satellite and then to the users. The entire cycle is repeated frequently (generally under the five seconds) to keep the mobile user constantly updated with accurate navigation and position information.

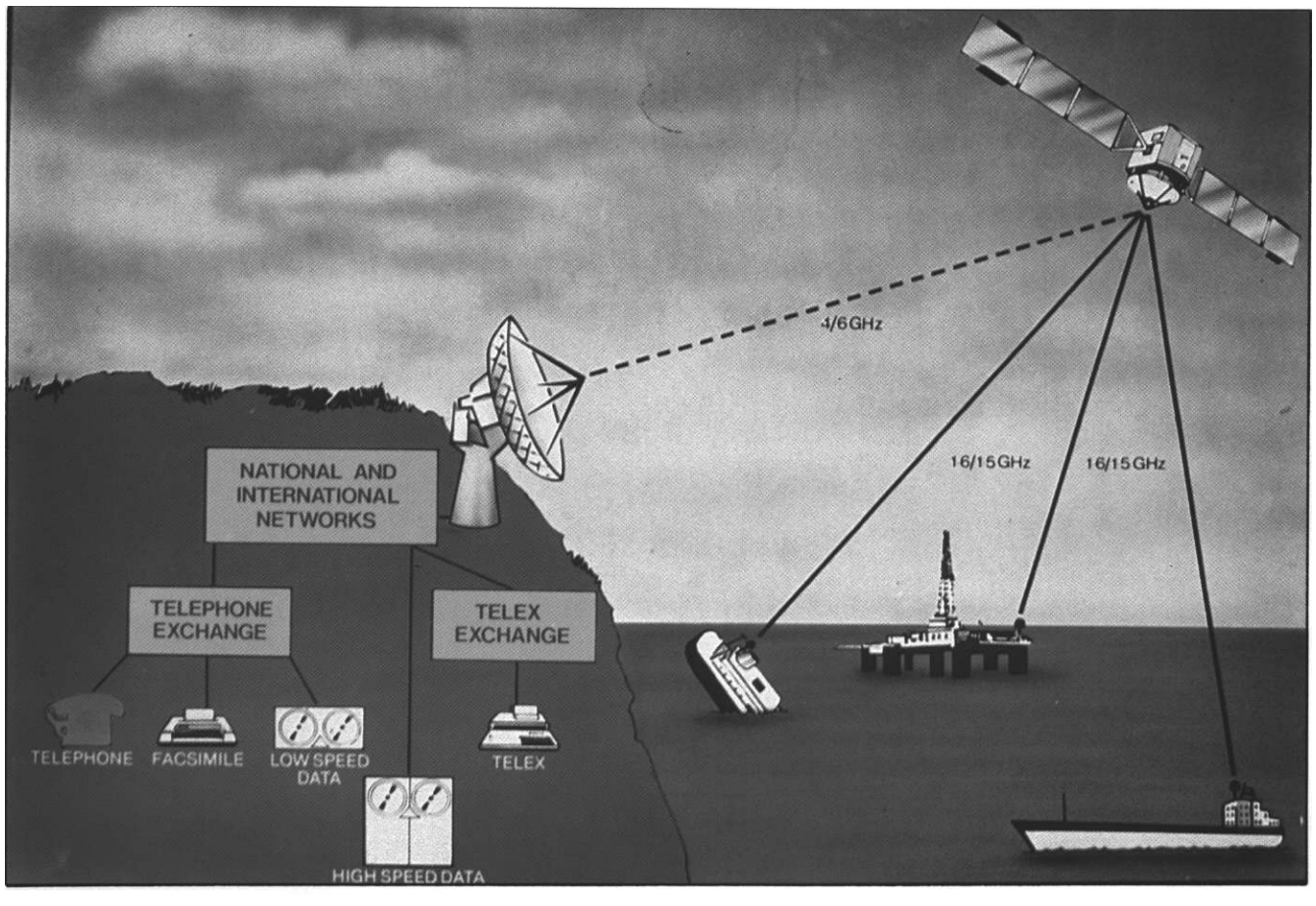
The accuracy of the corrected navigation signals depends on how far away the user is from the nearest reference station. The interim operations have shown that differential corrections applied from even 300-400 kms away have provided accuracies of better than five meters.

In future service enhancements, data from several reference stations might be combined to increase navigation accuracy, particularly when the mobile user, such as a ship, is a long distance from shore. For applications that require a wide area of coverage and a high degree of accuracy, a large number of reference points can be set up by fixing Inmarsat-A terminals at required locations.

This data collection service makes use of the Inmarsat system to deliver GPS signal measurements via satellite to the processing center, as an alternative to terrestrial links. This will also be a full-time service that will operate an exclusive transmission standard. Depending on the rate of data transmission, up to 22 reference points will be able to operate on one channel.

"These services will greatly enhance GPS navigation accuracy both on land and offshore," said Mr. **Kinal.** "A network of reference points on land could be developed to serve entire continents. Offshore oil and seismic exploration companies would save both time and money using a precise navigation system."

Although the services have been developed for navigational uses, other potential applications extend from environmental data collection to distribution of stock market reports and news.



New Generation Satellites To Offer Enhanced Navigation Capability

Inmarsat's third generation of

satellites will offer an enhanced global navigation capability for international civil users of the nationally owned GPS and GLONASS satellite navigation systems which make it possible for anyone with a receiver to know exactly where they are, anytime.

The navigation payload will be carried on Inmarsat's third generation of satellites, it was decided by the Inmarsat Council in late 1990. The council also gave final approval for Inmarsat to contract with GE-Astro for four Inmarsat-3 satellites, which will be launched in 1994-95.

Inmarsat-3 will be the first satellite system in orbit both to provide navigation signals and relay, on a timely basis, independently monitored integrity information on navigation signals generated by the U.S. GPS and Russian GLONASS satellite navigation systems. Integrity information is necessary to enhance the reliability and availability of the information generated by these military systems for civil users.

The navigation payload is a dedicated equipment package on the satellite which will transmit signals in the same frequency band as, and virtually identical to, those transmitted by GPS. This will mean that, without needing any additional equipment, users of GPS and GLONASS systems will receive more accurate position determination information and, in some instances, will be able to determine their position even in areas where it would otherwise not be possible because of reduced coverage.

For example, oceangoing vessels could use the enhanced navigation capabilities, combined with Inmarsat's global data communications service (Inmarsat-C) for search and rescue operations, tracking hazardous cargo, traffic control and fleet management.

Also, by providing information relating the different time references of GPS and GLONASS, Inmarsat's navigation capability will improve the interoperability of the two systems and will enable other nations to participate in an international global satellite navigation system.

"An external integrity warning channel to augment the GPS and GLONASS systems is critically important for safety of navigation applications," said Mr. **Kinal.** "And we expect to see a whole variety of interesting new applications for a combined navigation and communications capability."

The inclusion of the navigation payload in the Inmarsat-3 satellites marks yet another important milestone in the Inmarsat program to develop navigation-related services. Inmarsat is already offering point-to-multipoint data channels for disseminating differential correction signals over wide areas. This service provides a high degree of accuracy of positioning data for applications including seismic explorations, rig moves and construction projects.

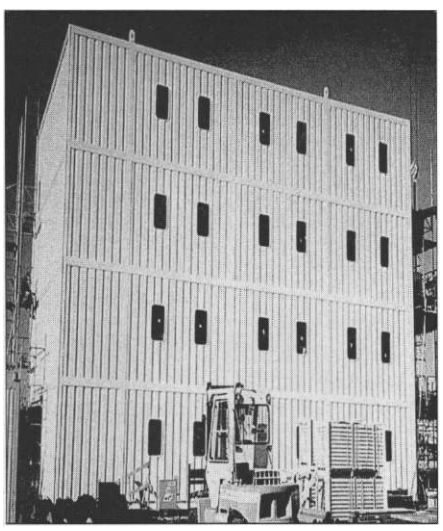
MAN B&W Appoints Holmblad Executive VP; Jorgensen Joins Hempel

As of March 31, 1992, **Leif Juul Jorgensen,** president of MAN B&W Diesel A/S will leave the company to take over the position of president of the Danish Hempel Group.

Lars Holmblad, vice president, will at the same time be appointed to executive vice president and member of the executive board. He will take over Mr. **Jorgensen's** present areas of responsibility in the Danish and the German company. Mr. **Holmblad** has been with MAN B&W Diesel since 1973 and in the past years has been vice president for sales and marketing of two-stroke diesel engines.

After March 31, the executive board will be made up of three people. These people are: **Rudolf Rupprecht,** president, responsible for R & D production, logistic and daily management of all MAN B&W Diesel activities in Germany; **Lars Holmblad,** responsible for marketing, sales, service, licenses and daily management of MAN B&W Diesel activities in Denmark; and Dr. **Hans-Jurgen Schulte,** responsible for controlling finance and economic administration.

New Low Weight, Low Cost Modules Delivered For North Sea Rig



Trans Construction's lightweight module for the Polymariner platform being outfitted while lying on a barge. The two knobs on the roof are pad eyes for crane hooks.

The 96-berth 'E' module for the semisubmersible rig Polymariner was recently delivered after a construction period of only six months. It is a four-level, 39.4-foot high block with a base area of 39.4 by 60 feet and weighing only 260 tons.

Low weight is inherent in the construction method developed by Trans Construction of Lillestrom, Norway, using corrugated steel walls as load-bearing members. A unit will weigh 50 to 70 percent less and cost one-third less than a steel unit of conventional construction.

Another low-weight Trans Construction unit for the same platform is a 47.9 by 30.2 foot helicopter-lobby extension with arrival and departure halls, two briefing rooms, office and toilets.

Both modules were built at Marstrand and outfitted lying on barges by NSS Stalkonstruktion AB at Hunnebostrand on the Swedish west coast. Upon completion the modules were towed to Haugesund in Norway.

For further information about Trans Construction,

Circle 119 on Reader Service Card

Jugolinija Changes Company Name To Croatia Line

Jugolinija, a leading Croatian shipping company and one of the 15 most distinctive world carriers in its class, recently announced a change in the company's name. The new name for the company is Croatia Line.

Under the name of Jugolinija, the shipping company was established in 1947. Its fleet consists of 51 vessels, half of these being container, multipurpose and container RO/RO vessels. The company operates its regular and tramp services all over the world.

Along with the change in the company name, Croatia Line is expected to move to larger headquarters in the near future.

Transocean Awarded $94 Million Heidrun Drill Contract

The award of the $94 million Heidrun development drilling contract to Norwegian rig owner Transocean has been confirmed by Conoco.

The semisubmersible rig Transocean 8 is expected to begin the contract on September 15 and the work could last until May 1,1995. The rig is on charter to Norsk Hydro until late July 1992.

Heidrun, a project operated by Conoco, will develop oil and gas reserves in the Haltenbanken area using the world's first concrete tension leg platform.

Transocean 8 will be operated from Vestbase, Kristiansund, and Conoco will establish a base there in April to prepare for the installation of the 56-slot, 2,000-ton drilling template.

The Heidrun program requires a second rig to be hired in 1994. Brokers believe the Transocean 8 was chartered at over $90,000 per day, with an escalation clause setting out rate rises in future years.

Lindenau Tanker Series Receives Two Nominations For International Awards

The MAN B&W-powered Conger has specially developed ship lines for an optimized speed/power characteristic and good seakeeping properties. Her Jastram-Werke bow thruster improves maneuverability, while her double bottom and double side shell lower the risk of environmental pollution.

The 23,400-dwt double-hull chemical tanker Conger, largest ship ever to emerge from the Kiel yard of German shipbuilder Lindenau GmbH, was nominated for the "Outstanding Oceangoing Ships Award" by MARITIME REPORTER and Engineering News" magazine (December 1991 issue), and by the U.K. "Royal Institution of Naval Architects" for "Significant Ships of the Year 1991."

The M/T Dorsch, one of the next two vessels of this series, was delivered at the end of 1991. The third ship will be delivered at the end of 1992.

These double-hull tankers have the highest collision resistance Germanischer Lloyd has ever classified for a ship. All three have the highest IMO 1 class for the transport of chemicals in center tanks, and the IMO accepted these tankers as equal to the new double-hull tanker regulations.

Lindenau shipyard designed and delivered the first German-built double-hull tanker 15 years ago. Since then, 16 double-hull tankers between 3,000 and 25,000-dwt have been delivered to international clients. This tanker series is a new design and belongs to the Lindenau Tanker Class 2000. The class corresponds with the highest international rules, regulations and environmental requirements.

The Conger is powered by a MAN B&W main engine. Other machinery includes Renk-Tacke reduction gear, Vulkan coupling for the main engine, KaMeWa controllable pitch propeller and Yanmar auxiliary engines.

For free literature detailing the facilities and capabilities of Lindenau shipyard,

Circle 2 on Reader Service Card

Esgard's 'Bio Kote' Protects And Is Environmentally, Ecologically Safe

The development and marketing of corrosion-preventive coatings which are not only effective in protecting equipment but are also environmentally and ecologically safe has been a goal of Esgard, Inc. since its founding. The Lafayette, La.-based company developed its marine ballast and void coating, Bio Kote, to meet these objectives.

Esgard recently tested Bio Kote for the presence of toxic organic chemicals and pollutants to ensure company objectives are met. Also, the State of Alaska, Port of Valdez, expressed concern that coatings used to protect segregated ballast tanks from corrosion could be contributing to the presence of pollutants which might be found in ballast water. The priority pollutant scan testing was done by the independent laboratory Hoh-Pak, Ltd., on simulated ballast water. Results showed no toxic organic chemicals or heavy metals present. Based on this data, discharged ballast water of tanks coated with Bio Kote will be free of pollutants which can be attributed to the coating. Therefore, operators of marine equipment can protect ballast areas easily and economically without fear of coating pollution.

Esgard Bio Kote is a soft coating which cures to a firm film and resists washout.

For additional information on Bio Kote from Esgard,

Circle 127 on Reader Service Card

GMDSS

Historic Change In Maritime Safety Communications

One of the biggest changes in maritime safety communications since the invention of radio began to unfold last month.

Fueled by dramatic advances in mobile satellite and radio communications technologies and automatic distress alerting techniques, a new set of regulations for safety at sea took effect on February 1, 1992.

Known as the Global Maritime Distress and Safety System (GMDSS), and introduced under the auspices of the International Maritime Organization (IMO), the new system enables coordinated search and rescue operations without delay. A primary aim of GMDSS is to provide improved communications facilities to alert search and rescue authorities on shore, for better coordination of search and rescue efforts possibly using assistance from shipping in the vicinity of the emergency. GMDSS also provides for the broadcast of maritime safety information, including navigational and meteorological warnings.

GMDSS applies to all passenger ships and cargo ships of 300 gross tons and over making international voyages. These ships have seven years to fit the communications equipment, the specification of which varies, depending on the area where the ship operates.

GMDSS divides the seas into four different zones:

SEA Area A1: An area, usually within 20-30 miles from land, within the range of shore-based VHF radio having digital selective calling (DSC) capability. (DSC is the technique used for automating calling for terrestrial services: MF, HF, and VHF).

SEA Area A2: An area excluding A1 but within the range of shore-based MF radio (about 100 miles from shore) having DSC capability.

SEA Area A3: An area excluding A1 and A2 but within the range of services provided by the Inmarsat geostationary satellite system which covers the whole globe except small areas of navigable water in the polar regions.

SEA Area A4: All other areas outside areas A1, A2, and A3.

The IMO has defined nine principal communications functions which need to be performed by all ships and then specified the equipment that would meet these requirements in each sea area. These are:

- Ship-to-shore distress alerting;
- Ship-to-ship distress alerting;
- Search and rescue coordination communications;
- On-scene communications;
- Transmitting and receiving locating signals;
- Transmitting and receiving maritime safety information;
- General radio communications;
- Bridge-to-bridge communications.

Satcoms To The Rescue

The GMDSS requirements provide for distress alerts to reach a rescue coordination center uncorrupted and without delay, and give the identity and position of a ship in distress, the nature of the emergency and other relevant information. Initiations of an alert can be automated by the push of a button or two. All available methods may be used, but all ships must have at least two different alerting systems. The geostationary satellite system operated by Inmarsat, the 64-member country cooperative based in London, has provided ships at sea with these communications facilities for more than a decade. Indeed, the Inmarsat-A and Inmarsat-C systems offer the most reliable communications available to mariners.

Inmarsat-A is a high-quality, two-way voice data communications system that provides global direct-dial telephone, facsimile, telex, electronic mail, in addition to automatic distress alerting.

The data-only Inmarsat-C system offers two-way store and forward messaging at 600 bits per second—about 12 times faster than conventional telex. The small size and affordability of Inmarsat-C terminals make its state-of-the-art satellite communications facilities accessible even to the smallest ships.

Proven Reliability

Since Inmarsat began commercial operations in 1982, the satellite network has been available 24 hours a day, regardless of weather and atmospheric conditions. The network offers clear communications links without fading and interference no matter how far a ship is from shore.

Of the 15,000 Inmarsat satellite terminals in use on ships worldwide, all have a distress alert capability, often integrated with automatic message generators that give a vessel's position and other vital information.

This facility enables ships in distress to use the "Priority 3" channel on the Inmarsat system that guarantees automatic top priority over all other messages. Recognizing the importance of satellite communications for distress alerting, Inmarsat's governing Council ruled last November that ships using its satellites would not be charged for use of the space segment for:

- distress alerts;
- search and rescue coordination with associate rescue coordination centers, including communications subsequent to initial distress alerts relating to the immediate assistance required by a ship which is in grave and imminent danger;
- urgent navigational/meteorological danger reports;
- medical assistance for those in grave and imminent danger.

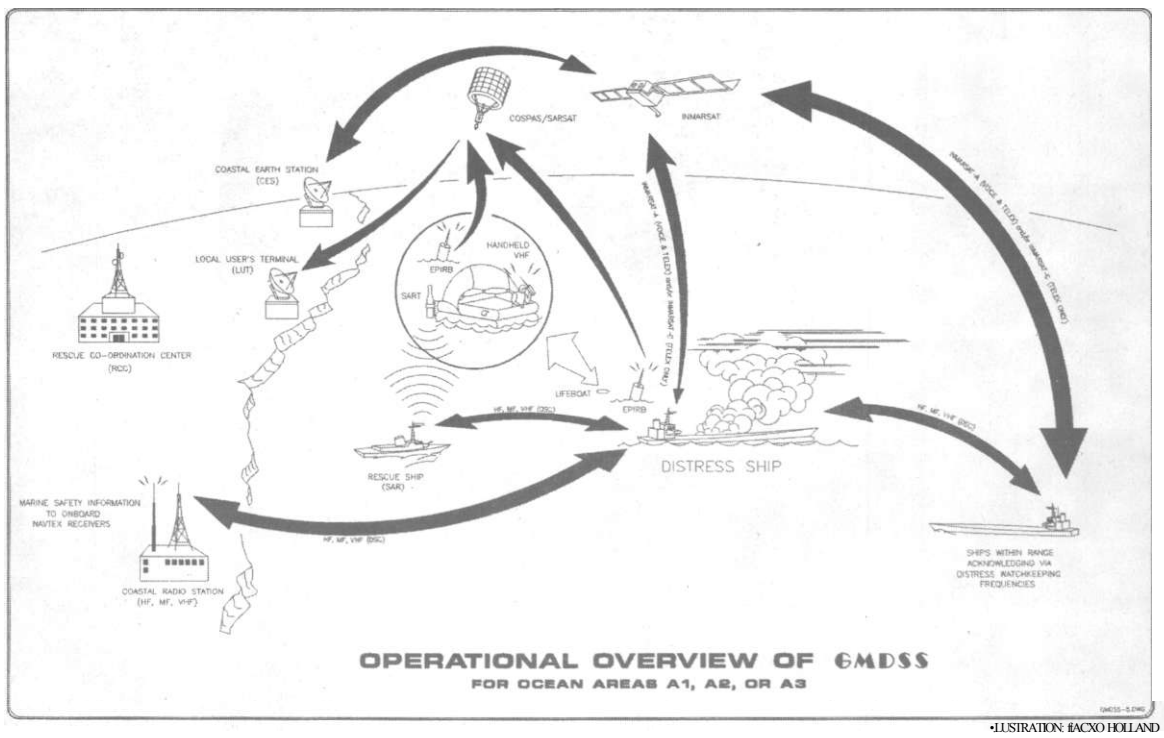
The unparalleled global Inmarsat coverage provides mariners with the security of trustworthy communications over virtually all of the world's navigable waters. Inmarsat's four ocean region operating system provides duplicated, overlapping coverage for most of the world's major shipping routes and trading areas.

In addition, a new emergency position indicating radio beacon (EPIRB) system that operates via Inmarsat satellites has recently been introduced. Until now, EPIRBs have been used to transmit distress signals only to the Cospas-Sarsat satellite system. In a distress situation, a free floating EPIRB, which is linked to a ship's electronics system, automatically transmits the ship's identification and position. These beacons can also be activated manually.

With Inmarsat EPIRBs becoming available, these signals will benefit from Inmarsat satellite coverage. Moreover a typical transfer time between the activation of the alert through an Inmarsat EPIRB and the reception at the nearest rescue coordination center is just about two minutes.

The first receiver processor station for these EPIRBs was commissioned at Raisting, Germany, in the first week of February. The Raisting station covers the Atlantic Ocean, the Mediterranean, the eastern Pacific and the western parts of the Indian Ocean. More of these receiver stations, which relay distress signals to rescue centers, will be commissioned throughout the rest of the year to provide global coverage for ships carrying Inmarsat EPIRBs.

With the EPIRBs complementing the Inmarsat-A and Inmarsat-C systems, a shipowner seeking to outfit his vessel in accordance with GMDSS regulations need not look much further. Satellite communications via Inmarsat provide the best answer to GMDSS communications requirements, particularly for ships in sea areas A2 and A3. And there is an added bonus; Inmarsat equipment is also valuable for commercial and operational communications. With 13 electronics manufacturers of Inmarsat-A and nine of Inmarsat-C equipment around the world, mariners also have a wide range of terminal types to choose from to suite their kind of ship.



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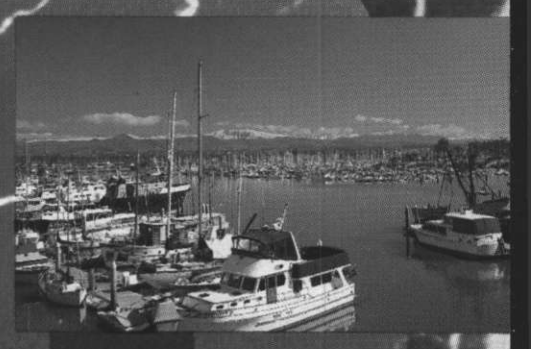

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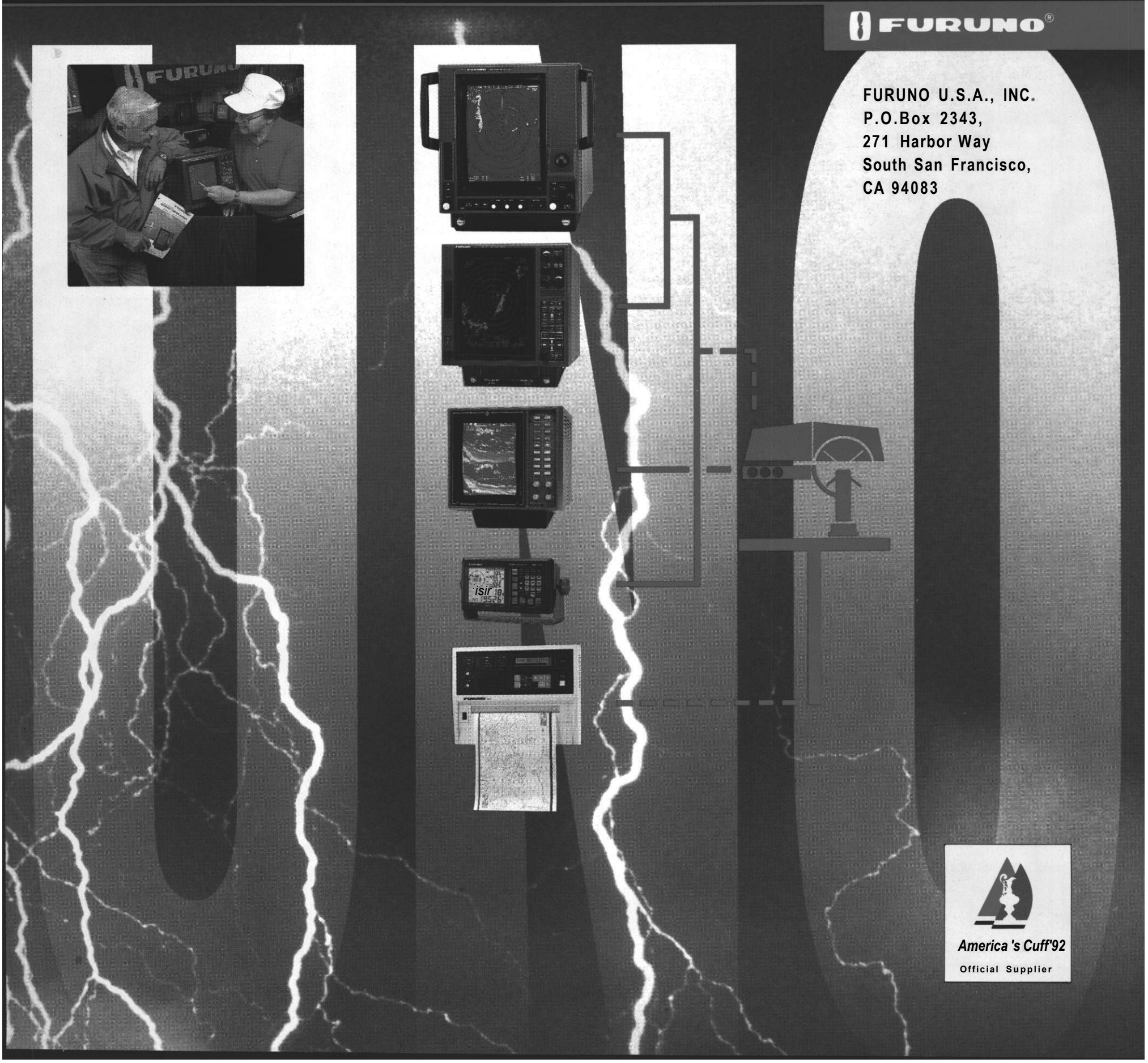

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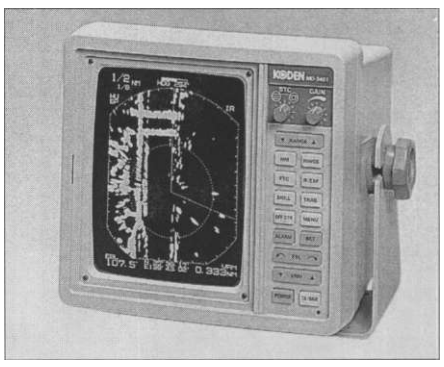
NAVIGATION & COMMUNICATIONS

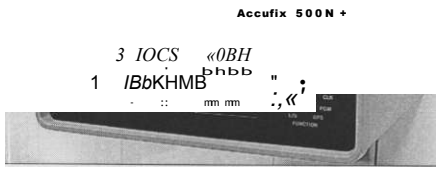
1992 REVIEW



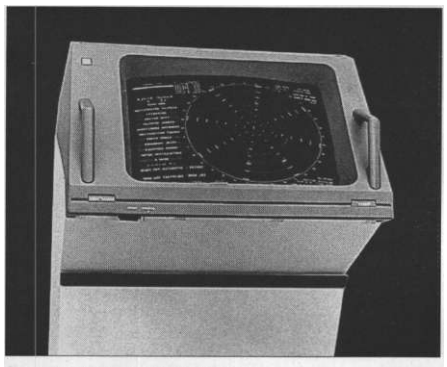
Koden's MD-3401compact radar.

Furuno's GP-70 GPS Navigator.

Atlas Elektronik's 9600 Series Rasterscan.



Megapulse's Accufix 500N+ Loran C/GPS.



Sperry Marine's "P" RASCAR.

The Global Maritime Distress and Safety System (GMDSS), one of the most significant advances in marine communications history, will be phased in from now until February 1999. GMDSS will offer improved and reliable distress alerting and better facilities for distress location; increased automation; improved communications for rescue; and reduced reliance on specialist operators.

GMDSS has been made possible by technological breakthroughs and advancements in satellite communications and navigation, electronics, computer-controlled systems and software.

GMDSS requires that a deepsea ship be outfitted with a bevy of electronics, among which are: two Inmarsat A or Inmarsat C satcoms or a combination, a VHF radio telephone, NAVTEX receiver, 406 MHz EPIRB, MF radio telephone, MF watch receiver, automatic direction finder, and waterproof VHF walkie-talkies.

This review examines some of the GMDSS-required equipment offered by major marine electronics manufacturers, as well as other new products and services for navigation and communications.

FOR MORE INFORMATION

To receive free brochures, reports or other literature describing any of the high-tech products detailed in this review, circle the appropriate Reader Service Number listed for each company using the postage-paid card bound into the back of this issue.

ACR ELECTRONICS

Circle 106 on Reader Service Card

ACR Electronics, Ft. Lauderdale, Fla., has introduced a new handheld VHF survival radio specifically manufactured to be used in life rafts and on immersion suits.

The SR101 radio is manufactured to international SOLAS, IMO, and FCC requirements, and is waterproof is one meter. The radio provides two-way FM voice communication on VHF marine channels #6 (communications/USCG) and #16 (international distress calling). The SR101 has a 10-year storage life.

This radio is a total departure from other handheld VHF radios, according to ACR Electronics, in that it is designed for a specific mission—emergency communications only.

ALDEN

Circle 22 on Reader Service Card

Alden Electronics has introduced the Alden Satfind-406 EPIRB (Emergency Position Indicating Radio Beacon), which transmits the location and identity of equipped vessels in distress anywhere in the world to shore locations via the COSPAS-SARSAT orbiting satellite system.

Alden's EPIRBs are available in two basic models: Category 1 features an automatic release mechanism which deploys the EPIRB before it reaches a depth of four meters. The Category 2 version is released manually.

The Alden Satfind-406 EPIRB contains a powerful transmitter operating at both the standard 121.5 MHz and the new 406 MHz frequencies to alert Search and Research (SAR) personnel. Combined, the two frequencies can reduce the search area by 20 times that which was possible with older EPIRB models. This provides faster and more accurate location and recovery.

ANSCHUTZ

Circle 129 on Reader Service Card

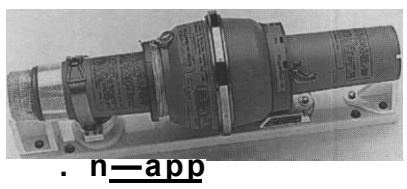
Anschutz of America offers navigation equipment which can be integrated in a modern operations and onboard management system, fulfilling the requirements for one-man bridge operation.

For safe navigation, a gyrocompass twin equipment (Standard 4/ Standard 12) and a magnetic compass (Reflecta 1) are available as course sensors. Via the course reference managing system Nautocourse, all compasses are combined and are monitored by the signal units Nautoalarm. The course output of the gyrocompasses is speed error-corrected and the course output of the magnetic compass is deviation and variation corrected by Nautocourse.

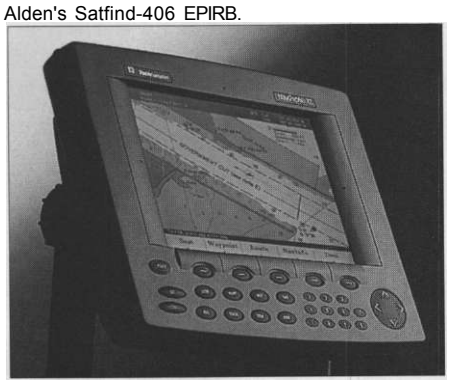
A great help for the ship's personnel is an Automatic Chart Table, the Nautoplot, by which the current ship's position is indicated on a standard Mercator sea chart by a light spot.

An analogue follow-up steering control serves as main steering for the officer on duty. A take-over system permits "authorized" steering places port or starboard wing. With the onboard autopilot Nautopilot A, the ship's crew is

Raytheon Marine's JHS-31 VHF Radiotelephone.

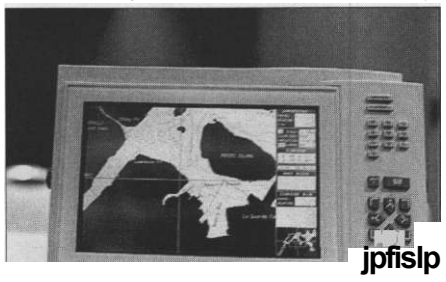


Alden's Satfind-406 EPIRB.



Trimble's NavGraphixXL GPS.

Robertson Navigation Workstation with ECDIS Display.



Electronic Marine Systems' Chart Viewer.

relieved from making adaptions to changing environmental conditions to achieve optimum navigation.

ATLAS ELEKTRONIK

Circle 107 on Reader Service Card

New navaid developments from Atlas Elektronik of America (formerly Krupp Atlas Elektronik) include the Atlas 9600 series of ARPA and TM radars designed for standalone or integrated use. Featuring a fourfold increase in display resolution, enhanced reliability and ease of operation, as well as maintenance, units permit direct input from positioning receivers with own-ship position displayed referenced to lat/long grids.

Track control and additional options for integration are also available together with route planning facilities, for which a large number of maps can be compiled and edited. Keyboard-type front panels are separable from indicator consoles for added versatility of operation and installation.

AT&T

Circle 24 on Reader Service Card

AT&T, a leader in shipboard communications technology, offers the AT&T Defmity 75 Shipboard Telephone System, which provides a state-of-the-art solution for the communication requirements of both military and commercial vessels.

Designed for harsh environmental conditions, with thousands in service worldwide in both commercial and military applications, the Defmity 75 is designed for compatibility with equipment such as touchtone and rotary telephone sets, secure terminals, satellite communications and shore-based telephone systems. It can also be configured for use with fiber optic systems and local area networks.

Custom-tailored for shipboard applications, the Definity system has custom circuitry and international software. These provide the connectivity needed for full-featured communications at any world port.

Offered with a variety of telephone handsets, the Definity 75 is also easily maintained by ship personnel with minimal training. An easy-to-use keyboard and video display screen allow quick identification and repair of any system troubles.

CELLNET

Circle 98 on Reader Service Card

For marine operators of all types, CallAboard is an excellent solution for offshore environments where public phone service is desired. Using modern cellular technology, CallAboard answers the needs of companies working within the marine industry including operators of ferryboats, oil platforms, marine construction projects, gambling boats, barges, etc.

CallAboard allows callers to dial anywhere in the world and bill the entire call to a major credit card or phone company calling card, as well as make collect calls through the CallAboard live operator network. The vessel or platform operators never receive any bills or user calls. In addition, Cellnet pays commissions based on percentages of the monthly gross cellular airtime revenue which is generated. This service is available in most coastal areas of the U.S. Service in certain foreign markets is also available.

COMSAT

Circle 56 on Reader Service Card

COMSAT Mobile Communications recently announced its plans for a new digital satellite voice communications service. **Ronald Mario,** president of COMSAT Mobile Communications, said this new service will be introduced this year to provide brand new communications options to small and medium-

sized boats and to business persons who travel to remote parts of the world.

The service, which uses a newly introduced "Inmarsat-M" technology over the global Inmarsat satellite system, is being marketed by COMSAT under the name Mobile Link.

According to **Chris Leber,** vice president of COMSAT's digital services, the rate for COMSAT's Mobile Link voice service has been set at $5.50 per minute, which compares to a basic rate of $10 per minute for its existing "Inmarsat-A" satellite service.

Mr. **Leber** said that Mobile Link is a global, two-way digital communications service that will initially provide a telephone capability through COMSAT's Southbury, Conn., and Santa Paula, Calif., land earth stations by mid-1992, and will be expanded for facsimile and data communications later this year.

EDO CORPORATION

Circle 47 on Reader Service Card

EDO Corporation, Electro-Acoustic Division, Salt Lake City, Calif., offers the model MRQ-4015DM two axes speed log. The MRQ-4015DM doppler velocity log, which has been used by the U.S. and Korean Navies in their minesweepers, provides both fore/aft and port/starboard velocities, in addition to distance traveled and depth. Speed range on both axes is 0-39.9 knots, with bottom tracking to 600-foot depth. The system can be forced to track the water column rather than the bottom at any time from a front panel control. Construction is of a nonferrous material providing low-magnetic signature required on vessels involved in mine warfare operations.

A standard system consists of: main display and control unit, main electronics unit (MEU), transducer junction box, and transducer.

The system design allows cable lengths of up to 1,200 feet between transducer, J-box and MEU, and between MEU and main display and control unit.

EEV

Circle 95 on Reader Service Card

EEV Inc.'s marine magnetrons, which are used worldwide in marine navigation radar, are designed for long and reliable operational life.

The use of EEVs patented ridged cathode throughout the range guarantees the user long life and consistent performance. This is a direct contribution to improved radar reliability and reduced downtime. The ridged cathode gives life an order of magnitude greater than conventional types.

Metal-ceramic construction throughout permits high temperature processing during manufacture, providing a stronger and more reliable vacuum envelope. EEV 3rd generation magnetrons all use an efficient, lightweight magnetic circuit for reduced susceptibility to demagnetization during handling and reduced shipping cost due to lower weight and lower stray magnetic field.

The EEV range of marine magnetrons covers powers of 1.5 kw to 25 kw in X-band and 5 kw to 60 kw in S-band.

ELECTRONIC MARINE SYSTEMS

Circle 54 on Reader Service Card

Electronic Marine Systems, Inc. (EMS), reports its GPS Chart Viewer can provide 10-foot accuracy with its differential receiver. The unit comes standard with a six-channel parallel processing receiver, with a 12-channel unit optional. Called the "navigation instrument of the 90s" by EMS, the GPS Chart Viewer also offers one of the most powerful displays available. The unit's thin line display makes the overall package 2-1/2-inches deep and weigh only 7 pounds. All units can be made portable for "Life Boat Applications" with the addition of the internal battery pack. The GPS Chart Viewer is manufactured to two different marine mil spec environmental specifications for water and salt exposure, as well as being designed to meet a 5 G peak shock specification.

The GPS Chart Viewer features automatic or manual dead-reckoning; a standard worldwide chart package; the ability to plan 30 voyages with 99 waypoints; shows all depths, buoys and markers on the inland waterways and Great Lakes; and has special user charts and maps.

FROTRONICS

Circle 93 on Reader Service Card

Frotronics, Inc., a Houston-based marine marketing firm, has announced their appointment as exclusive sales representatives for two leading marine electronic equipment manufacturers, Tokimec and Philips Radio.

Frotronics will market these new products through selected marine sales and service dealerships throughout the U.S. and Canada.

Tokimec, Inc., formerly known as Tokyo Keiki, manufactures marine radar, gyrocompass, autopilot and speed log equipment.

The Tokimec RASCAR series of ARPA radars employ 'touch screen" technology, using man-machine interface menus to totally eliminate the use of knobs or push buttons in the operation of the radar.

Philips Radio Communications, Inc., of Denmark, supply low-cost satellite communications via PC and telex. The Philips SAFECOM CM and CP terminals are based on the new Inmarsat-C satellite system. Special software compresses data, saving transmission time and cost.

For customer support, Frotronics stocks equipment and spare parts at its Houston warehouse.

FURUNO

Circle 45 on Reader Service Card

Furuno, recognized as a leader in marine electronics, has announced a new GPS navigator built to deliver top performance and reliability under the most punishing conditions—the Furuno GP-70.

The new Furuno GP-70 offers the latest GPS technology in a tough, compact and completely water-tight package. It features rugged cast metal enclosures—not plastic—and watertight membrane keypads, all designed to protect the state-of-the-art receiver from moisture and salt spray.

The GP-70's large, backlit LCD display provides a wealth of important navigation data at a glance. Its dual-channel, eight satellite tracking capability provides the dependability, speed and accuracy.

A universal power supply allows the GP-70 to operate on as little as 10 volts—and on as much as 40. In addition, two fully programmable NMEA 0183 outputs allow the GP-70 to be integrated with plotters, sounders, autopilots and other marine electronics systems, to create the All-Furuno Bridge.

Compact in size, the GP-70 utilizes a slim-profile, 500-gram antenna, which allows for easy installation on a wide variety of offshore vessels.

GARMIN

Circle 48 on Reader Service Card

Late last year, Garmin Communication & Navigation, Lenexa, Kan., introduced the GPS 50 Personal Navigator, a feature-packed model that gives users the convenience of a hand-held unit with the power, sophistication and reliability of much larger models. Using Garmin's MultiTrac system, the waterproof, pocket-sized unit can track up to eight satellites at a time—from horizon to horizon—for exceptional sensitivity and accuracy. GPS 50 owners can also take advantage of 250 waypoints and nine reversible routes, with a fast first-fix, one-second updates, and AutoLocate, which eliminates the need for initialization. When not being used as a portable, the unit can be surface mounted to the panel or placed in a rotating swivel mount, offering adjustable viewing angles. Nighttime and harsh-weather operators will appreciate the easy-to-read alpha-numeric keypad and display, which are both backlighted for low-visibility use.

HENSCHEL

Circle 8 on Reader Service Card

The product development department of the Henschel Commercial Marine Division recently unveiled a new line of shipboard audible signals.

In response to recent regulation changes and customer requests, Henschel has designed a new line of commercial marine service bells.

Over nine months ago, Henschel Engineering was tasked with developing a high quality, competitively priced marine service bell. Using the CFR's and the Coast Guard's requirements as a guide, Henschel introduced its new 200-164 line of commercial bells. These new bells are available in 6,8,10, and 12 inch sizes and all required voltages.

This new line of marine bells has been designed to give the customer quality and excellence, according to Henschel.

HOSE-MCCANN

Circle 9 on Reader Service Card

Hose-McCann Telephone Co., Englewood, N.J., a pioneer in marine sound-powered telephones, offers an extensive product line, which includes sound-powered telephones, navigation light panels, audible and visual signaling devices, and a full array of U.S. Navy Symbol Number Items. Hose-McCann equipment is manufactured and tested in accordance with the latest military specifications. Where applicable, Hose-McCann products comply with National Electrical Safety Code requirements, and are accepted by the U.S. Navy and Coast Guard.

One notable product line offered by Hose-McCann is the Series 9500 telephone system, which was developed specifically for the maritime industry. The Series 9500 is a completely modular, sold-state digital system. It can provide up to 32 shore trunks and as many as 128 stations.

At sea, the Series 9500 performs as a PBX, while on shore as a PABX.

HUMMINBIRD

Circle 43 on Reader Service Card

Humminbird, Eufaula, Ala., has entered the marine navigational market with its new GPS Navigational System.

"The Humminbird breakthrough uses advanced GPS technology to actually show where the boat is located and headed," explained **Al Nunley,** Humminbird vice president of marketing. "With the push of a button, this precise navigation system with built-in maps uniquely determines a navigator's exact location and draws a map, positioning the craft on it and tracking the precise course history."

The boat's exact location is clearly

displayed on maps of the U.S., including all inland waterways and lakes. Navigators will not need to purchase additional maps because they are incorporated into the GPS Navigational System. European and South Pacific models are also available.

The Humminbird GPS Navigational System allows the built-in maps to be viewed from two different perspectives—either a bird's eye view with north at the top of the screen or a forward looking view with the present course at the top of the screen. Even if a boater travels beyond map coverage, complete navigational information will continue to be displayed as on a normal plotter.

IDB AERO-NAUTICAL

Circle 49 on Reader Service Card

IDB Aero-Nautical Communications, Inc., Rockville, Md., a supplier of satellite communications services to the maritime industry, has announced that its new 13m coast earth station at Staten Island, N.Y., has been raised and fitted with Inmarsat baseband equipment. The antenna will address Inmarsat's Atlantic Ocean Region East satellite to complete IDB-A's worldwide maritime communications network.

IDB-A began testing and commissioning the new installation in mid-January, with customer beta testing scheduled throughout February. The station will be fully operational by month's end, coming with a formal announcement by Inmarsat to all shipboard earth stations.

IDB-A has also received approval to provide shore-to-ship service to the Indian Ocean Region through the facilities of Overseas Tele-Communications, Limited in Perth, Australia.

A full range of operator services is now available through IDB-A's Operator Center. Ships can now place credit card, collect and third party calls utilizing the appropriate Inmarsat dialing codes. IDB-A is also offering a variety of safety-related services for Inmarsat Standard A users.

KFS WORLD COMMUNICATIONS

Circle 27 on Reader Service Card

KFS World Communications, better known as Palo Alto Radio/KFS, in California, is now privately owned and managed since it was taken over from a major carrier in 1990.

New and innovative services are being introduced at KFS which have the effect of making the traditionally equipped radio telegraphy (CW) and SITOR ships highly competitive with satellite-equipped ships in terms of speedy, reliable communications at low cost. Normal message delivery time is less than four minutes.

Other improvements include hourly traffic lists and immediate calls (by arrangement) to ships when messages come in. Direct connection between ships and shore telex machines is also available.

Radio officers report that U.S.-based KFS has excellent signal propagation in the Far East and the Pacific.

KENWOOD

Circle 46 on Reader Service Card

The Marine Communications Division of Kenwood USA Corporation, Long Beach, Calif., now offers an optional built-in message recorder for its top-of-the-line marine VHF transceiver, the TKM-507. This feature, the MDR-1 "Digital Recording System" (DRS), allows messages of up to 32 seconds to be stored on either the receive or transmit mode. The DRS unit provides users the benefits of making immediate checks on calls received but not yet heard, and accommodates delayed transmission of outgoing calls.

The TKM-507 deluxe transceiver is most popular in the commercial market, particularly the fishing industry.

Designed for water resistance, the TKM-507 also has: durable commercial grade construction; 25 watts Hi/Lo power selection; high quality re-

ceive/transmit capability; large multi-function LCD; factory programming of all U.S. and international channels; 30 memory channels; multi-scan; dual channel watch; 10-watt hailer; easy-to-operate single key operation; and three-year warranty.

KODEN

Circle 34 on Reader Service Card

Koden's new GPS navigator combines pinpoint positioning with automatic operation for reliable performance and easy use.

The KGP-930's digital, five-channel parallel receiver sights up to 5 orbiting GPS satellites, providing position accuracy to less than 100 meters RMS. The large LCD screen displays all standard navigation information on one menu. Heading, speed, bearing and distance to waypoint are easy to read and visible from anywhere on the bridge.

Automatic operation instantly displays ship position when power is turned on. Its all-cast casing withstands abuse from everyday operation. Up to 20 instant or 180 permanent position memories keep track of danger zones or fishing grounds.

Speed log output provides more accuracy for speed-over-ground radar input. Three input/output ports allow interfacing with Koden 717, NMEA 0182/0183 and RS-232C formats. The KGP-930 also interfaces with CIF (Furuno) and JRC (Raytheon) formats for easy electronics integration. Alarm selection includes: cross track error, waypoint proximity, anchor watch, and boundary.

LITTON SPECIAL DEVICES

Circle 92 on Reader Service Card

Litton Special Devices Division offers the 406Mz EPIRB, a second generation unit of its original EPIRB developed in the 1980s for the U.K. market. It is approved for use in 10 countries worldwide, including the U.S. and Canada.

Litton's Category I and Category II fulfill GMDSS EPIRB requirements. The Category I is designed to release itself automatically from a special mounting bracket. A manual override provides a failsafe back-up. When submerged to a depth of 3 to 12 feet, a hydrostatic mechanism frees the EPIRB to rise to the surface and become active. Category I EPIRBs are designed for offshore commercial and fishing vessels.

The Category II is a small, compact and stowable version of the Category I device. Weighing only 3.1 pounds, it is ideal for including with emergency gear on inflatable or solid rafts, dinghies or launches.

MARINE ELECTRIC RPD

Circle 94 on Reader Service Card

Marine Electric RPD, Inc., Clifton, N.J., has developed marine shipboard loudspeaker systems for reliable communications between the bridge and the officers, crew and passengers. The systems are used for communication from ship to ships and ship to shore, especially during docking maneuvers. Marine Electric RPD has designated its systems as docking and navigation loudspeaker systems, ship to shore systems, general announcing and talkback systems, and emergency loudspeaker systems.

Marine Electric RPD's ruggedly constructed and shock proof amplifiers are able to withstand the high humidity, corrosion from salt spray, fungus and the corrosive fumes found aboard ships.

The company's loudspeaker systems E-37502, E-37504 and E-37506 are available from 500 watts to over 4,000 watts.

The emergency loudspeaker system, a requirement on large passenger ships, is a vital addition to the vessel's safety equipment.

The emergency loudspeaker system as installed, provides complete sound coverage throughout the entire vessel, including the engine room, crew quarters, public spaces, accommodations area, officers' quarters and weather decks.

MCI

Circle 53 on Reader Service Card

MCI owns and operates two strategically located HF/MF Radio Marine Coastal Stations. Radio Station KPH, located in Point Reyes, Calif., and Radio Station WCC, located in Chatham, Mass. These two stations operate together to provide MCI customers a superior range of ocean coverage. MCI Marine Services provide access to the north and south regions of the Atlantic and Pacific Oceans, including the Gulf of Mexico, U.S., Japanese, Australian and Mediterranean waters, and the Indian Ocean. MCI's 24-hour, seven-day-a-week marine services include a full range of both automatic and operator-assisted marine services. Services available via MCI's coastal stations are: Radio telex ATOR/SITOR, ATOR SAFE Marine Mailbox service, Marine Telegram (CW), Free Weather Broadcasts and Hotline News and Information services.

MCI's complete radio telex, telegram and satellite services meet even the most critical ship/shore communications requirements. All MCI Marine services integrate with MCI's worldwide voice, telex and telegram networks.

MEGAPULSE

Circle 42 on Reader Service Card

Megapulse, Inc., a small U.S.-owned business and reportedly the sole designer and manufacturer of the solid state Loran-C systems, has sold its Accufix 500 Loran-C receiver to naval and research organizations since 1981. Total sales to the U.S. Navy have reached 95 units and the Accufix 500 is the standard Loran-C receiver in the mine warfare fleet (MSO,MCM, COOP and MHC). The U.S. Navy nomenclature is OR-313-SRN and the stock number is NSN-01-296-9080 for U.S. Navy or Foreign Military Sales programs.

The Accufix 500N (navigator) was selected for the U.S. Navy TAGS-60 Class research ships being constructed and the Royal Navy also selected the Accufix 500N (19 systems).

The new Accufix 500N+ with Loran-C, GPS, differential Loran and GPS capability has both RTCM 104 and ASCII RS232 data outputs. A 16-bit embedded microprocessor allows for expansion in both options and capabilities. This technology will allow for receiver customization should a customer request that option.

MICRONAUTICS

Circle 52 on Reader Service Card

Micronautics, Inc., Rockport, Maine, has developed and sells tide prediction software to assist mariners.

According to **Jim Mays,** president of Micronautics, Inc., the company creates "industrial grade seagoing software." He said, "We produce computer products that fill real needs of mariners, but that do not require extensive training."

Micronautics produces TIDE.1 Rise & Fall, a program for IBM compatible PCs that predicts tides at over 3,600 coastal locations in the U.S., Canada, and Central America. It computes sunrise and sunset and offers a variety of output options including plots and calendars. Its companion product, TIDE.2 Ebb & Flow, works in a similar fashion, except it predicts the floods, ebbs and slacks of tidal currents.

TIDE.1 and TIDE.2 are in extensive use on ships and in offices around the country. Among the users of Micronautics' software are ARCO, BP Oil, Exxon, Mobil, Texaco, Unocal, Princess Cruises, the Army Corps of Engineers, the Navy, the Coast Guard and numerous federal, state and local government agencies.

The company plans to launch WORLD.tide software shortly, which will include tidal predictions for regions worldwide.

MOBILE TELESYSTEMS

Circle 101 on Reader Service Card

Mobile Telesystems, Inc. (MTI), Gaithersburg, Md., develops, manufactures and services a series of satellite communications terminals operating exclusively with the INMARSAT network.

MTI's customer service is backed by its worldwide service team, consisting of fully trained, authorized representatives in over 25 countries available 24 hours a day, seven days a week.

One product offered by MTI is the MCS-9120 satellite communications system. With the MCS-9120, dial any number in the world from the telephone on-board your vessel and you are connected in a matter of seconds. The transmission is instantaneous, clear and distortion-free. In addition, any office equipment compatible with a telephone line can be used with the MCS-9120 (such as telex, facsimile or computer).

The MCS-9120 features worldwide transmission capability characteristic of short-wave radio with the privacy found in cellular telephones. The MCS-9120 provides the capability of a fully integrated telecommunications network, customized to meet specific requirements.

MOTRON

Circle 50 on Reader Service Card

MoTron Electronics, Eugene, Ore., recently announced the Auto-Kall AL-100 ringer, which automatically alerts operators of incoming shore-to-ship radio traffic, eliminating the need of having to constantly monitor coastal station traffic lists. The AK-100 can be connected to most any marine SSB transceiver of receiver. It responds to digital type (FEC/DSC) traffic lists sent by most of the major coastal radio stations. It can be used with stations such as KFS, KM1, WOO, WLO, and KPH, along with many others around the world. It can also be used to copy weather and navigational adviseries via its RS-232 port.

NAVAL ELECTRONICS

Circle 4 on Reader Service Card

Tampa, Florida-based Naval Electronics Inc.'s MK20/22 Marine TV Antenna now feeds a brand new "Head-End" amplifier system. The new 3000 series of cassette amplifiers splits the TV spectrum up into several bands. Each band has its own amplifier with a high dynamic range "AGC" automatic gain control. This greatly improves system performance through lower noise and reduction of ghosting. A unique cascade filtering system incorporated in the 3000 series further reduces noise and the possibility of ghosting. For convenience, each amplifier "plugs in" to a cassette amplifier cabinet.

Naval Electronics has developed a computerized method of designing custom systems to meet exact customer requirements. This design service is free.

In the past 15 years, Naval Electronics has become a world leader in MATV systems for use at sea. The company's antennas are in use by all NATO navies and are the replacement standard with the U.S. Navy and U.S. Coast Guard.

OCEAN SYSTEMS RESEARCH

Circle 39 on Reader Service Card

Ocean Systems Research, Inc., Annapolis, Md., recently introduced the DC Hull-Phone, designed to meet an existing requirement for maintaining uninterruptible shipboard interior communications. Hull-Phone uses the ship's hull structure as the communications medium and does not rely upon any installed wiring. The heart of the system is a pair of small ultrasonic transducers clamped anywhere on the ship's metal framework. They impart inaudible, high frequency vibrations into the hull for reception at distant points throughout the ship. The system is completely portable consisting of a headphone, an ultrasonic transmitter/receiver, and a small rugged electronics package with a belt clip for hands-free mobility. The rechargeable NiCad batteries provide over 8 hours of communications (at a 10 percent transmit duty cycle) as required by Navy specifications. Voice communication clarity rivals that of a standard commercial telephone, according to the company.

OSR intends to market the Hull-Phone for use by the U.S. Navy, Western navies, commercial shipbuilders, and for use in high-rise buildings.

PANASONIC

Circle 21 on Reader Service Card

On the open seas, intra-coastal waters or a lake, the ability to communicate with land-based stations and other vessels is a necessity. Panasonic offers three high-performance VHF radiotelephones that are reliable enough to go on any voyage.

The dash-mountable KX-G2200 and KX-G2220, and the hand-held KX-G1500 are all rugged units designed to meet high water resistance standards, the highest in the marine electronics industry (JIS 6).

The three VHF radiotelephones receive all U.S., Canadian and international channels, as well as 10 weather channels. The units' built-in memory enables the user to program any number of frequently used channels for easy access and usability.

The top-of-the-line KXG2220 and the mobile KX-G1500 also offer Tri-Watch, an unusual feature that enables the user to monitor Channel 16 and another memory channel while listening to a third channel.

G *PLATH*

Circle 20 on Reader Service Card

C. Plath, a division of Litton Industries, Inc., one of the world's leading suppliers in ship's navigation equipment, recently introduced new generation gyrocompasses, digital autopilots and electromagnetic speed logs.

C. Plath's Navipilot V autopilot can be connected to a gyrocompass and magnetic compass, with continuous output of magnetic compass heading. In case of gyro failure, all electronic users like radar, satnav, satcom, etc., will be fed by magnetic compass with corrected heading.

Although Navigat XII gyrocompass is suitable for all ship types, it is particularly well suited for high speed yachts and waterjet propelled craft due to its very high follow-up speed of 25 degrees per second.

The combination of Navigat XII gyrocompass and Navipilot V autopilot makes an excellent compact console system.

Specially designed for high-speed vessels, the newly developed digital speed log Naviknot III contains several features including: serial outputs—RS 422, NMEA 0183 (speed/

distance); input—NMEA 0183 (depth alarm) up to 20 different linearization/calibration points; integrated stop watch; and programmable time constant/dampings.

RACALSURVEY

Circle 38 on Reader Service Card

Racal Survey's SkyFix service allows users to make the most effective use of GPS. With an accuracy of 3-5 meters, it is suitable for many applications, including positioning for seismic exploration, rig moves and construction projects. Differential correction data are generated at strategically located multiple reference stations to maximize the effective coverage of SkyFix.

The main feature of the Racal Survey SkyFix service is the use of Inmarsat communications satellites as the datalinks. The enhanced range of2,000 kilometers for SkyFix is limited only by the range from the reference station over which the derived corrections remain valid and not by the range of a terrestrial datalink system.

A major advantage for users is that a single vessel equipment installation will handle operations within the SkyFix coverage anywhere in the world. Coverage has recently been enhanced with the installation of reference stations in Houston, Tampa and San Francisco.

SkyFix DGPS is part of a large array of Racal Survey's precise positioning services and equipment, including Hyper-Fix, Micro-Fix and System 880 for the commercial, government and defense markets.

RADIO HOLLAND

Circle 108 on Reader Service Card

Radio Holland, distributor of Kelvin Hughes equipment in the U.S., recently unveiled the Kelvin Hughes' integrated bridge, featuring the new Nucleus 6000A ARPA radar system.

The main components of the integrated bridge system are: the electronic chart workstation (ECDIS); Nucleus 6000A automatic radar plotting aid (ARPA); navigation display workstation (NAVDIS); navigation monitor (NAVMON); ship control station (SHIPCON); communication workstation (COMDIS); vessel monitoring workstation (MONDIS); electronic chart table (ECTAB); data logger backup unit; data logging printer; and A3 plotter.

The design of the integrated bridge system is directed toward improving efficiency and productivity, reducing bridge manning to "single manning," while promoting higher standards of operational safety.

The design and layout of the system can be compared to that of a modern airline cockpit with its master control and subcontrol positions.

RAYTHEON MARINE

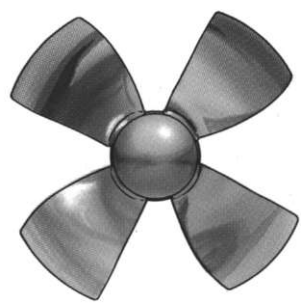
Circle 80 on Reader Service Card

The world's first fully equipped GMDSS (Global Maritime Distress and Safety System) radio stations—the German gas tanker Altergas, and Norwegian gas tanker Helice—are 100 percent Raytheon Marine Company/JRC installations. This includes MF/HF and VHF radio, and Inmarsat-A/Inmarsat-C SES satellite communications systems providing automated and semi-automated voice and printed message communication. Raytheon and JRC claim they are the only companies that can supply a complete range of GMDSS products now, all made by one manufacturer.

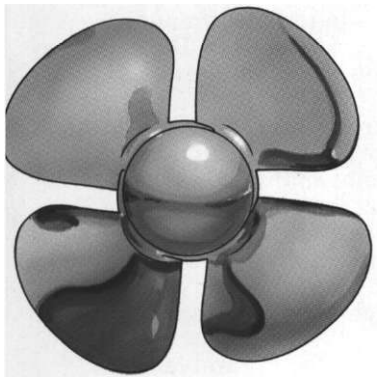
Of key importance in the GMDSS products is the MF/HF radio equipment (JSS-720) which features automatic Maritime Safety Information (MSI) reception, Digital Selective Calling (DSC) message alerts, message calls by DSC, and hard-copy NBDP messages. Because DSC greatly simplifies use and allows for unattended operation, listening watches are no longer necessary, and training requirements are greatly reduced. Equipment can be operated remotely, with a single control unit, from the bridge.

Designed to meet GMDSS, the JHS-31 VHF radiotelephone with DSC provides ship-to-shore and ship-to-ship communication over all U.S., Canadian and international channels.

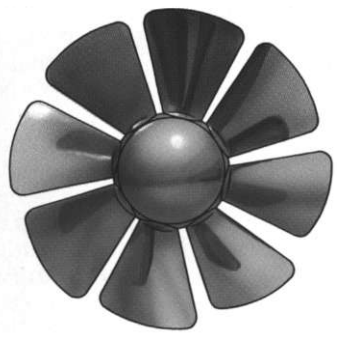
High-skew propeller for frigate, designed for silent operation. (4.2 m diameter, 19180 kW, 31.6 knots)



Propeller adapted for tip fins. Heavy duty propellers for trawlers, tugs and coasters.

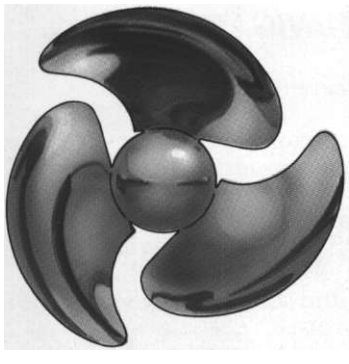


Propeller for car-passenger ferry. (5.0 m diameter, 26470 kW, 31 knots)

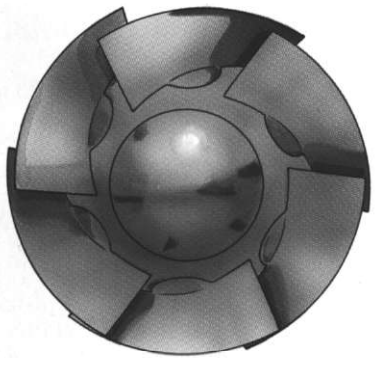


Experimental tunnel tliruster propeller with 8 blades for silent operation.

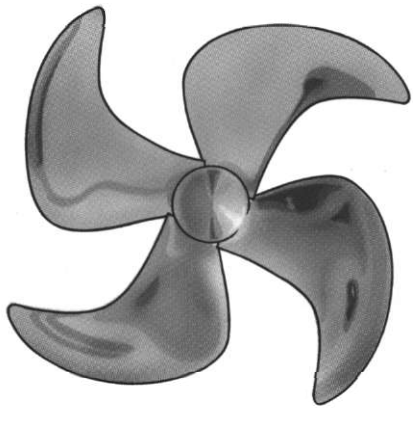
Tunnel thruster propeller with high-skew blades for silent operation. (1.1-3.3 m diameter, 310-3500 kW)



Propeller for patrol vessel. High skew type for low noise and minimized vibrations. (1.6 m diameter, 2030 kW, 24.5 knots)



Impeller for water-jet propulsion of 75 m yacht. One type 160 booster unit rated at 13800 kW, two type 112 units rated at 3680 kW for cruising, steering and reversing.



High-skew fixed pitch propeller for a chemical-tanker. (6.2 m diameter, 10.400 kW, 16,7 knots)

REDI-MARINE ELECTRONIC

Circle 51 on Reader Service Card

Redi-Marine Electronics Company recently announced the SRX-1, Armed Forces Radio and Television Service (AFRTS) marine satellite receiver. The SRX-1 receiver connects to a ship's existing Inmarsat Standard A communications terminal to receive the AFRTS worldwide audio broadcast. There is no charge for receiving the signal. The AFRTS broadcast is available through the Pacific, Atlantic West and Indian Ocean Regions. The SRX-1 allows ship's crew to listen to the latest news, sports and entertainment from virtually any place in the world.

ROBERTSON MARINE SYSTEMS

Circle 25 on Reader Service Card

The paper chart has been a fundamental tool for the last century, but now the limitations of this classic approach can be overcome by using new technology—GPS and Electronic Chart Display and information Systems (ECDIS).

A leader in the development and field testing of ECDIS systems has been Robertson. The Robertson Disc Navigation ECDIS is designed to satisfy the IMO provisional performance standards of ECDIS. Disc Navigation is designed for electronic sea charts based upon an authorized hydrographic data base which can be updated either manually or automatically via Inmarsat. The system has the capability of reading chart data in Norwegian Hydrographic Society-format and prepared for the international DX90 format. All symbols and colors are used in accordance with IHO Colors and Symbols Group. The system satisfies Det norske Veritas automatic steering regulations.

The Disc Navigation operator console consists of a master display, a second interactive graphic display, a dedicated keyboard and roller ball.

SIMRAD

Circle 100 on Reader Service Card

Simrad, Inc., Lynnwood, Wash., is offering Anritsu's RA-722UA and RA-723UA radar. These Anritsu radars represent the latest in radar technology. A new high-speed microprocessor provides even further improvement on Anritsu's well-established reputation for superior target detection and definition.

Some of the standard features of the Anritsu radar systems include 15-inch high-resolution monochrome display; eight-level quantization; and such target detection techniques as High Sensitivity (AVS), Echo Stretch Function, Automatic or Manual Sea Clutter (STC) Control.

The RA-722UA, which has 10 kw of power, and the RA-723UA, with 25 kw of power, feature a large 15-inch monochrome picture, with automatic or manual target plotting, off-centering of the radar picture, a guard zone with alarm, and picture expansion of a selected area.

SINGAPORE TELECOM

Circle 26 on Reader Service Card

Singapore Telecom, which provides Inmarsat-A services to the Pacific Ocean Region via the Sentosa Coast Earth Station, recently passed along additional savings to customers in the form of rate reductions for telephone service to Batam and for maritime satellite communications services.

The company, which reviews its rates and services regularly in an effort to offer the lowest possible costs to customers, reports that ships in the Pacific Ocean Region are enjoying lower traffic charges for ship-to-shore telephone and telex calls.

With this reduction in traffic charges, the company estimates that more than $1.2 million in savings will be passed on to the maritime community per year. The lower traffic charges will mean lower communications costs for ships using Inmarsat-A services.

The Sentosa station also offers value-added services like Telepac and Telebox for ships.

SPERRY MARINE

Circle 28 on Reader Service Card

Sperry Marine, Charlottesville, Va., recently introduced its new "P" version RASCARs. The "P" version RASCAR radars ("P" for plotter), which contain no ARPA functions, have been designed to make a significant reduction in cost in dual radar systems where only one ARPA is required and in single radar systems on vessels below 10,000 gross tons where no ARPA is required.

This latest addition to the Sperry Marine RASCAR family includes a 20-target manual plotting capability made elegantly simple for the operator through RASCAR's touchscreen control. Up to 20 targets can be assigned their own track letter and, based on manual position updates, target course, speed, CPA and TCPA are automatically calculated and displayed.

The high resolution displays of the "P" version RASCARs retain the picture quality and touchscreen control of other Sperry Marine RASCARs. The "P" version RASCAR displays are completely compatible with existing RASCAR transceivers and antennas and are interswitchable with the standard RASCAR display, as well as with other "P" version displays.

STANDARD COMMUNICATIONS

Circle 6 on Reader Service Card

Miniaturization has come to Standard Communications line of Horizon marine radios with the introduction of the new HX230S "shirt pocket-sized" subcompact five-watt VHF handheld radio.

The HX230S, like all Horizon scanning radios, may be programmed by the user to scan exactly the number or combination of channels desired. Or the user may push the P-scan button to give priority to the channel 16 button to immediately bring it up. A large LCD display makes the selected channels easily visible.

Simple controls give the HX230S easy access to all U.S., Canadian and international channels, as well as 10 weather channels. A push button gives the user instant access to 10 weather channels. The radio also includes a special battery-saving circuit which saves vital battery life.

An optional voice scrambler is available for the Horizon HX230S for users who want communications security.

TRIMBLE NAVIGATION

Circle 23 on Reader Service Card

Trimble Navigation recently unveiled three new products—two graphic display GPS receivers, the NavGraphicXL and NavTracXL, and the Acutis 6 GPS antenna receiver.

The displays of both the NavGraphicXL and the NavTracXL systems incorporate FSTN (film super twist pneumatic) technology, the latest development in liquid crystal computer displays (LCD), making them very easy to read.

The NavTracXL Graphic GPS receiver is designed primarily for offshore recreational cruising boats larger than 20 feet, fishing and workboats and smaller commercial ships.

The integrated NavGraphicXL

GPS navigation and electronic charting system is targeted at both smaller recreational vessels and larger commercial fishing boats, research vessels and merchant ships. Like its predecessor, the NavGraphicII, the NavGraphicXL system automatically displays the vessel's exact position on a screen showing a detailed chart, which reads from a compact disk containing dozens of digitized NOAA charts.

The compact Acutis 6 is an integrated six-channel GPS antenna/receiver that mounts above board like an antenna.

WATERCOM

Circle 7 on Reader Service Card

Since service to the inland marine industry began in 1986, WATERCOM has installed hundreds of telephone fax and data units on vessels navigating America's inland waterways.

With WATERCOM, callers dial numbers directly; there is no need for an operator to complete the call. Waiting to make connections is virtually eliminated, and the system offers improved clarity and privacy. It also offers modem and facsimile data transfer capabilities.

Business calls are billed on an itemized usage statement. Personal calls made by crew members must be made collect, billed to a third party or charged to a credit card. The company never sees a bill for them. Incoming calls are the dialing party's responsibility.

WATERCOM is reportedly the only direct dial, delay free, continuous communications system on the water. The system serves more than 4,000 miles of America's waterways.

WATERCOM is a registered trademark of Waterway Communications System, Inc., Jeffersonville, Ind.

DEL NORTE

Circle 115 on Reader Service Card

Del Norte Technology, Inc., formed in 1969, has designed, manufactured, and supplied Precision Marine Positioning equipment to surveying, dredging and military authorities for over two decades. During this time Del Norte has remained at the forefront of technology with the continuous development of its range of microwave measuring equipment known as Trisponders.

The 586 Digital Distance Measuring Unit (DDMU) is fully compatible with existing Trisponder systems, and may operate with any remote transmitter/receiver units already deployed.

The Del Norte 1008/1012 GPS receiver is a 586 DDMU fitted with a GPS module and is capable of carrying out all functions of a microwave measuring unit at the same time as operating as a GPS receiver. For differential GPS operations, the Del Norte 1008/1012 resident software enables operation as either a shore-based reference unit or a shipborne mobile unit.

Special Seaward Fendering Installation At St. Croix

Seaward International, Inc. recently delivered nine 2-foot-diameter by 10-foot-long netless high-capacity foam-filled marine fenders to the Virgin Islands Port Authority. The fenders were installed at the Port Authority pier at Gallows Bay on the island of St. Croix, where they are used by Renaissance Cruise Line ships which regularly call at the port.

The use of the Seaward fenders enabled a critical delivery schedule to be met and the fenders were installed without any costly modifications to the pier being necessary. Additionally, to match the clean appearance of the ships hull and to eliminate the black marking caused by other types of hard rubber fenders, and by the rubber tire fenders previously used at the pier, the Seaward fenders were supplied with a white non-marking exterior. The fenders, along with complete mounting hardware, were shipped within two weeks after the order was received and were installed on schedule and are currently in operation.

Seaward International is an elastomer technology company which manufacturers marine fenders, buoys and elastomer coatings.

For information on products supplied by Seaward International,

Circle 112 on Reader Service Card

Harrington Metal Furnishes Specially Modified Nozzles For 'City of Pittsburgh'

Harrington Metal Fabricating and Machining Co., Inc., Fennville, Mich., recently delivered two specially modified 103.4-inch nozzles with stainless steel interior skins to Ashland Oil, Inc. for refurbishing the 3,200-hp City of Pittsburgh, which recently underwent extensive stern rebuilding and replacement.

Marion Clendenin, Ashland maintenance supervisor, said replacement of the vessel's original Kort nozzles was a key item in the rebuilding project. The vessel's original Type 19 nozzles were replaced with Type 37 nozzles that were specially modified to increase water flow to the boat's propellers when backing.

The new nozzles were fabricated with stainless steel interiors flared both fore and aft from a single sheet of steel in a proprietary process developed by Harrington specifically for nozzles, according to **Larry Monique,** Harrington plant manager. Precise fits were obtained with the aid of the firm's computer-driven 60-foot gas/plasma cutting tables.

Harrington had fabricated two similar nozzles for the rebuilding of the Pittsburgh's sister vessel, City of Louisville, the previous year. The rebuilt vessel's improved performance prompted Ashland to proceed with plans for the City of Pittsburgh. Both vessels were built in the early '60s by Dravo Corporation.

Established in 1942, Harrington is a leading manufacturer of nozzles and custom fabrications for the maritime industries and offers complete design, engineering, machining, fabricating, blasting and painting facilities.

For free literature,

Circle 109 on Reader Service Card

To Meet New Regulations, Metritape Introduces Deck Master Gaging System

Metritape, Inc. of Littleton, Mass., has produced tank gages for ocean tankers for more than 25 years. The firm's products were important in the movement toward closed tank gaging impelled by Inert Gas Systems (IGS) and Crude Oil Washing (COW).

In May 1990, Metritape was approached by a barge manager of a major oil company, well in advance of projected compliance dates in New Jersey, to equip a fleet of integrated tank barges with vapor retention systems and associated closed-tank monitoring equipment.

Metritape used this opportunity to introduce its new Deck Master gaging system which included the required separate and independent overspill sensors and local, on-deck monitoring displays and alarm annunciators. Digital displays and CPU instrumentation provided programmable flexibility in the event regulations became altered during final promulgation stages in certain regions.

Deck Master tank monitoring systems complied with emerging federal and state regulations. Barges so-equipped could be expected to pass the anticipated Coast Guard inspections requiring gage redundancy, independence of overfill alarms and on-deck visibility, etc. The gaging system was designed to enhance efficiency and safety during cargo transfers by providing better data, appropriately displayed and self-checked. Barge managers soon learned that the equipment not only reduced the possibility of spills, but also cut the time and cost of transfer operations.

In August 1990, a second major operator of integrated tug-barge systems in the mid-Atlantic approached Metritape to equip more than a dozen of its tank barges.

The mandated vapor recovery systems were being installed, essentially on schedule by terminal and vessel operators in New Jersey. These systems were complex, and introduced new training, technological and safety concerns for crews engaged in cargo transfers. Top level teams of experts put the finishing touches on new equipment and conducted the first tests and demonstrations for terminal and barge crews. Piping, flanging and signaling equipment appeared complex and crews were slow to adopt certain of the new requirements. Long-standing safe operating procedures needed modification as had been predicted by marine experts a decade before.

New Jersey officials altered the compliance schedule and provided extensions for the phase-in process.

Still, two more barge fleet operators in the mid-Atlantic contracted for Deck Master equipment. Work began for one of these fleets in November 1990 and the other in January 1991. As the first systems became operational, crews soon appreciated the improved cargo monitoring features.

Along the Gulf Coast, Louisiana was seen to be leading the way in 1990. It had drafted regulations similar in some respects to those in New Jersey and in California. Several barge operators with activities in the Gulf were in touch with Metritape and were contemplating Deck Master. State regulators issued delayed compliance schedules based on periodic shipyard inspection schedules by the operators. The onset of inbound Coast Guard inspections appeared to be deferred until the mid-90s. Only two or three Gulf barge operators have proceeded to order new gaging systems which will meet requirements for closed tank gaging, independent high alarm, and on-deck monitoring capacity such as that offered by Deck Master.

For free literature on the new Deck Master gaging system from Metritape,

Circle 128 on Reader Service Card

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Circle 300 on Reader Service Card

Stolt-Nielsen Names Two Chemical Tankers Built For Rhine River Service

Two self-propelled inland waterway chemical tankers built for Stolt-Nielsen were recently named in a formal ceremony held at Duisburg-Ruhrort. The new ships, M/T Stolt Maas and M/T Stolt Main, will operate on the Rhine River and its tributaries, and will be marketed by Stolt Stinnes, the new joint tanker service formed by Stolt Tankers and Terminals (Holdings) S.A.(NASDAQ:STLTF) and Stinnes Reederei AG.

Stolt Maas was built by Scheepswerg"Grave"B.V.,of Grave, the Netherlands, and Stolt Main by Bayerische Schiffbau Gmbh, of Erlenbach am Main, Germany. Both are 2,100-dwt ADNRType Ha double hull with stainless steel cargo tanks, each served by an individual deepwell pump.

E.U.P.T.A. Completes Ferry Loading Ramps Designed By Hitch, Inc.

The Eastern Upper Peninsula Transportation Authority **(E.U.PT** A) of Kincheloe, Mich., recently completed the replacement or overhaul of all ferry loading ramps on the St. Mary's River between Lake Superior and Lake Huron. In 1989, two loading ramps were constructed at Detour, Mich., and one was constructed at Drummond Island, Mich. The new Detour/Drummond Island route is serviced by a new 24-car ferry delivered in the fall of 1989.

The new ferry ramps were designed by Hitch, Inc., Houghton, Mich. The primary ramps for Detour/Drummond are 20 feet wide by 60 feet long with a mid-span hinge. The ramps at Neebish Island and Sugar Island are 20 feet wide with a 30 foot long single span. The hydraulic pump system is located in a small heated building near the ramps. Low voltage controls are located on the ramps to raise/lower or tilt the span to meet the ferry.

For free literature on the hydraulic operated ramp system design by Hitch, Inc.,

Circle 114 on Reader Service Card

Nicholas G. Calley Named Senior Director Of Marketing At West State

Nicholas G. (Nick) Calley, who launched his maritime career over 50 years ago, recently joined West State, Inc. (WSI), as senior director of marketing. WSI is based at the Portland Ship Repair Yard on Swan Island in Portland, Ore.

For the past 40 years, Mr. **Calley** has been with Northwest Marine Iron Works, also based on Swan Island.

Doug Watson, WSI founder and chairman said, **"Nick Calley** brings to our company a long history of excellence in the marine repair industry and the good will of many satisfied customers. He has devoted the past 40 years to developing a large customer base and earning the respect of clients throughout the industry. His decision to join WSI will bring rewards to our company as we continue to grow and expand into new markets."

Jones Appointed Manager Of Marine Industry Marketing At ILS

Inventory Locator Service, Inc. (ILS) recently announced that **Timbs Jones** was promoted to manager, marine industry marketing. Mr. **Jones** will be responsible for development and worldwide marketing of ILS data base services for the marine industry. Mr. **Jones** was previously an area sales manager for ILS, based in Jacksonville, Florida.

Inventory Locator Service, Inc., a subsidiary of Ryder System, Inc., provides worldwide data base services for the aviation and marine industries.. ILS data bases give information on parts and equipment available from the inventories of over 2,000 suppliers worldwide.

Carsten Peters Becomes President Of Raytheon Marine Company

Carsten H. Peters was recently named president of Raytheon Marine Company, headquartered in Hudson, New Hampshire. He returns to the United States after three years in Europe as managing director, Raytheon Marine Sales & Service Company. Mr. **Peters** brings extensive sales and engineering experience to the top post, with over 25 years within the marine electronics field, 10 of these with Raytheon Marine Company. Prior to his most recent position as managing director he was Raytheon's marketing manager for North American operations.

Mr. **Peters** succeeds **Stanley L. Clark** who will assume the newly created position of group executive, commercial electronics group, at Raytheon Company headquarters in Lexington, Mass. Mr. **Peters** will be succeeded by **Robert Strouts,** who will take on the position of acting general manager, Raytheon Marine Sales & Service Company, at their headquarters in the United Kingdom.

New Vessel Management Program Introduced By Watercom

Watercom officials recently announced the availability of a new software program designed to electronically record and maintain business information on board boats. The new product, PC-TRAP, is user friendly, can replace hand written logs and can transmit information to shore side offices.

PC-TRAP uses pre-formatted forms, and the menu driven program includes deck log information, crew log information, tow diagrams (barge arrangements), pickup/drop-off7exchange orders, fuel logs, phone directory and electronic mailbox messaging. In addition, the program can be customized for other forms as required by the user.

With PC-TRAP, information is entered in the computer and stored. It can then be modem-accessed by the office 24-hours-a-day using the Watercom telephone system. Transmissions are easy-to-read and can also be printed out on board.

PC-TRAP joins Watercom's other communications services and products which include Automated Vessel Tracking System (ATVS). ATVS is a service which automatically pinpoints boat or fleet locations anywhere along the 4,000 miles of waterways Watercom serves. In addition, the company's one-of-a-kind, direct-dial telephone system offers voice service, data transmission, facsimile capabilities, credit card calling for crew members, low nighttime rates and other benefits to companies doing business on America's rivers.

For further information about PC-TRAP from Watercom,

Circle 111 on Reader Service Card

Nick Scotland Appointed Manager, Jotun Marine Coatings Worldwide

Nick Scotland, managing director of Jotun-Henry Clark Ltd. since 1985, was recently appointed director (marine) for the Jotun Protective Coatings Group and is now also responsible for the marketing of Jotun marine coatings worldwide.

An ex-Royal Navy submarine officer, he joined Jotun-Henry Clark in 1976 as an executive sales manager, and later served the Jotun group both in the USA and Singapore as managing director of Jotun NOF (Pte) Ltd.

Jotun has become synonymous with high quality in products, people and service. The 1991 worldwide sales of marine coatings exceeded $178 million, and the future objective of the company is to continue to offer their marine customers with a first class service.

For more information about Jotun products,

Circle 83 on Reader Service Card

Final Main Pass Project: Marks 44 Installations In The Gulf For 1991

McDermott Marine Construction recently completed the installation of the Freeport-McMoRan Resource Partners' Main Pass sulfur, oil and natural gas development when it set the final two bridges in the 18 platform complex.

The installation bring to 44 the number of structures set in the Gulf of Mexico by McDermott during 1991.

Three separate platforms will be used to develop Freeport- McMoRan's oil and natural gas reserves at Main Pass. The entire complex stretches 1.1 miles across the Gulf of Mexico.

In December, McDermott set a record for what is believed to be the heaviest dual barge lift in the world when it installed the 5,450-ton power plant module for the complex.

McDermott's Derrick Barge 50 and Derrick Barge 51 made a tandem lift of the module, which will supply thermal and electric power to operate the complex.

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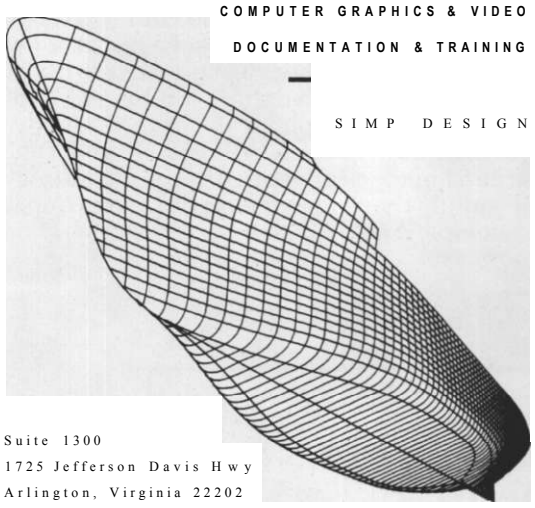

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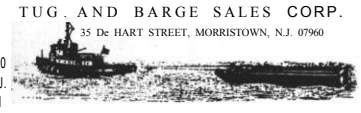

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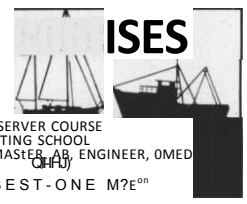

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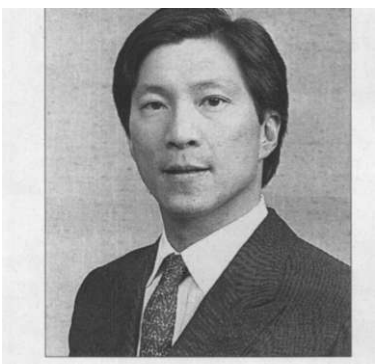

Kendall G. Chen

Kendall G. **Chen** was recently elected president of Energy Transportation Corporation (ETC). ETC is a subsidiary of Energy Transportation Group, Inc. (ETG). ETG/ETC own and operate eight liquefied natural gas carriers. Mr. **Chen** replaces **Donald J. Szostak** who served as president for seven years. Mr. **Szostak** will continue his relationship with ETC as a consultant.

Another subsidiary of ETG, Energy Ammonia Transportation, operates a tug/barge in the Gulf of Mexico. All ETG vessels are under the U.S. flag and employ U.S. citizens as officers and crew.

For more information, contact: **Richard A. Gilmore,** vice president, Energy Transportation Group, 1185 Avenue of the Americas, New York, NY 10036. Telephone: (212)642-9800.

Boyd Elected Executive VP, CEO Of Coastal Oil New York

Steven Boyd was recently elected executive vice president and chief operating officer of Coastal Oil New York, Inc., a subsidiary of The Coastal Corporation. Mr. **Boyd** is responsible for all Coastal Oil New York operations and will be based in Hasbrouck Heights, New Jersey.

Mr. **Boyd** joined the company in 1988 as vice president of wholesale marketing and later as senior vice president of Coastal Refining & Marketing, Inc. Before joining the company he served as vice president of supply and marketing for Texas City Refining, director of marketing for Energy Cooperative, Inc., and at Amoco Corporation, where he held various marketing positions.

Two LNG Carriers Now In Layup To Be Reactivated

Only *a* very few LNG carriers remain in layup and of these, two are soon to be reactivated.

Specifications for the reactivation operation of the two 122,250-cubic-meter LNG carriers LNG Lagos (ex-Gastor), and LNG Port Harcourt (ex-Nestor), which have both been laid up in Loch Striven, Scotland, for the past 14 years, have been issued to a number of the major ship repair yards. The vessels are expected to leave Loch Striven before the Easter period.

Nigeria's Bonny Gas Transport, a subsidiary of Nigeria LNG Ltd., is to use the two ships for the export of liquefied natural gas from Nigeria to the U.S.

Shell won the contract for technical operation of the two vessels, which includes the reactivation drydocking.

The two steam-powered ships were built by Chantiers de I'Atlantique, St. Nazaire (Nestor) and Chantiers de France, Dunkerque (Gastor) during 1976-77.

Reactivation operations for these two vessels, which are both of the membrane-type containment system, are likely to take up to 45 days/ship.

Barracuda Technologies Expanding Its Services To United States

Barracuda Technologies Inc., one of the world's largest manufacturers and suppliers of structural polymer alloy foam core materials used in the construction of large FRP sandwich vessels, is expanding its engineering services group to the United States. The complete engineering service will be offered to all builders, designers, and vessel owners interested in learning about the construction techniques used to build FRP sandwich vessels and allow them to evaluate the advantages of using FRP sandwich to steel, aluminum or solid fiberglass.

The engineering group will specialize in calculation of all design loads, evaluation of the optimum FRP sandwich laminates, detailed lamination drawings, material and labor calculations and will even offer a training program for employees.

All of the mine-countermeasure vessels built in GRP sandwich, the world's largest GRP sandwich vessels and the world's fastest SES passenger ferries have all been constructed using divinycell polymer foam core and Barracuda Technologies' services.

For further information about the services of Barracuda Technologies,

Singmarine Enters Into Joint Venture To Build Aluminum Boats In China

Singmarine Industries Limited recently entered into a joint venture with Wai Yip Engineering Pte. Ltd. of Hong Kong and Zhuhai City Shang Zhou Fishery Boats Builder of Guangdong to build aluminum craft and structures in South China. The new company that is being formed is Xiang Yao Aluminum Craft.

Singmarine Aluminum Craft will provide the management expertise to run the yard located in Zhuhai's economic zone in Guangdong. The company will also provide technology and equipment to China and train Chinese technical staff in Singapore.

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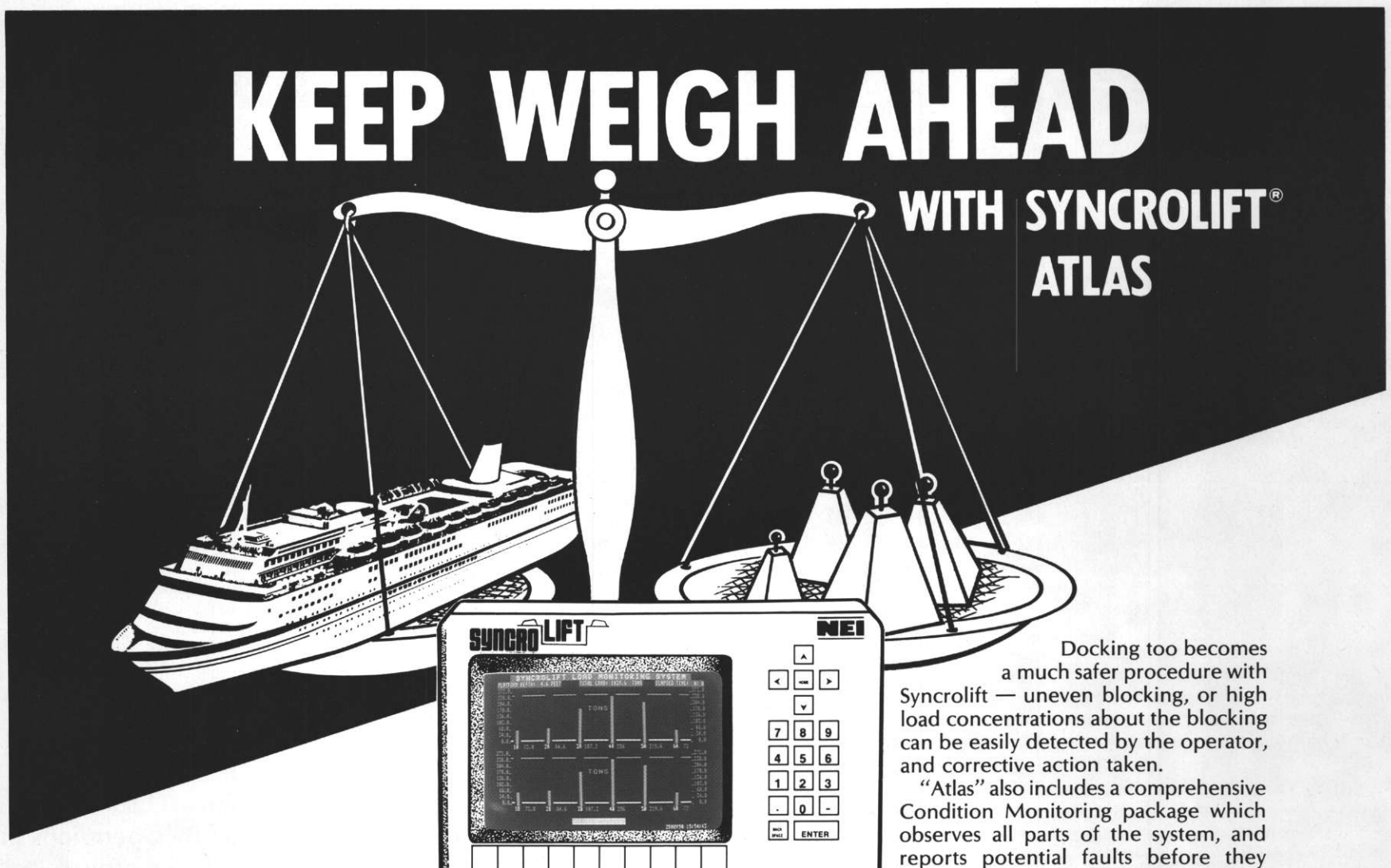

Since Archimedes, Ship Designers have used the same fundamental principles to determine ship weight and how loads are distributed about the vessel.

Syncrolift's "Atlas" Load Monitoring System changes all that. Today you can actually lift a ship; measure her LCG, TPM/TPI; assess torsional stresses in the hull, and check for any changes in load which could cause unnecessary angles of heel.

Using "Atlas" (**A**DVANCED **T**ECHNOLOGY **L**OADING **A**RTICULATED **S**HIPLIFTS) with a Syncrolift transfer system means that vessel loads can be accurately assessed prior to launch so that trim, heel, and draft can be accurately predicted. No more bitten fingernails at the launching ceremony!

For refits, load distribution can be recorded on docking; recalled, and checked prior to undocking so that differentials can be equalized.

Docking too becomes a much safer procedure with Syncrolift — uneven blocking, or high load concentrations about the blocking can be easily detected by the operator, and corrective action taken.

"Atlas" also includes a comprehensive Condition Monitoring package which observes all parts of the system, and reports potential faults before they become serious. "Atlas" even measures the overall efficiency of the hoist system, and maintains records which indicate any sudden changes.

"Atlas" can do all this because it is coupled to Syncrolift's patented articulated platform structure, which has been proven in over 33 years of shipbuilding experience. Today there are 190 Syncrolift installations in 62 countries worldwide. "Atlas" is the product of the same unique expertise.

Over 1,000,000 shiplifting operations have been performed by Syncrolifts since we started. Today Syncrolift still leads the weigh, putting 190 Shipbuilding and/or Shiprepair yards on a scale above their competitors. It's what you might expect from the only company in the world devoted exclusively to the Design and Manufacture of Shiplift Systems.

For further information on how "Atlas" can help you keep weigh ahead, contact NEI Syncrolift. We look forward to hearing from you.

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Crowley Announces New Service To Curacao

Crowley Maritime Corporation has announced weekly containerized service to Curacao, N.A., with sailings from Jacksonville and Port Everglades/Miami.

The announcement was made by **Peter A. Baci,** vice president, Caribbean Services. Mr. **Baci** stated that the service would operate on a fixed-day schedule for vessel arrivals and departures with sailings every Thursday from Jacksonville and every Friday from Port Everglades.

Crowley is offering an express transit time from Port Everglades/ Miami to Curacao of three days. Arrivals in Willemstad are early Tuesday mornings. The inaugural sailing departed Jacksonville on February 6.

Mr. **Baci** also announced the appointment of Van Ommeren-Maduro as Crowley's agent in Curacao. "We are pleased to announce the appointment of this long-established company in connection with Crowley's new service to Curacao," Mr. **Baci** said.

The new service is being provided with two 328-TEW capacity 16.5 knot containerships, the M/V Santa Marta and M/V Cartagena, which Crowley has deployed for several years in an express service between Florida and South America.

Kuhlautomat Berlin GmbH, The Experts For Marine Refrigerating Plants

For over 40 years Kuhlautomat Berlin GmbH has been a leading European supplier of refrigerating plants for the shipbuilding industry. The scope of delivery covers: marine cold-storage plants for air-conditioned rooms and low-temperature rooms; refrigerating units for marine air conditioning; refrigerating plants for cargo space refrigeration suitable for all temperatures; fish precooling plants; and freezing plants for freezing of fish aboard fishing vessels.

Kuhlautomat Berlin GmbH has delivered a total of 6,150 refrigerating plants which have been installed aboard vessels. The company delivered 1,372 air freezing plants with a freezing rate of 25 to 30 tons per day and final block temperatures of -25 degrees Celsius for the freezing of fish aboard fishing vessels.

The refrigerating plants are in line with the regulations of the classification societies of Lloyd's Register of Shipping, Germanischer Lloyd, Detnorske Veritas, Bureau Veritas, and Sea Register of the USSR.

For more information on the services of Kuhlautomat Berlin GmbH,

Circle 10 on Reader Service Card

Jered Brown Brothers To Consolidate Operations In Brunswick, Georgia

Marine systems manufacturer Jered Brown Brothers recently announced its plans to consolidate all of its administrative, engineering, and manufacturing operations at the company's Brunswick, Ga., manufacturing facility.

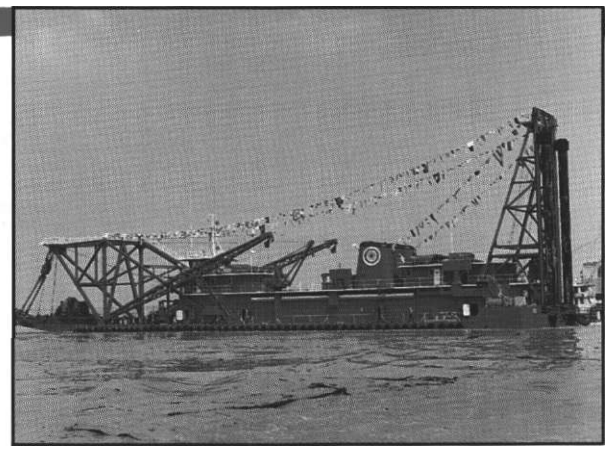
Jered's 220,000-square-foot Brunswick manufacturing facility is located on a deepwater site on the Brunswick River, adjacent to the Georgia Ports Authority. Jered will also lease an office building in Brunswick to house the company's administrative staff that will be relocated from Michigan.

The consolidation is scheduled for completion by the end of the summer of 1992. It will involve the transfer of equipment and employees from Detroit—where the company has operations in both Troy and Auburn Hills—to Brunswick.

In addition to engineered marine systems, Jered Brown Brothers specializes in shipboard equipment for major shipyards that are direct suppliers to the U.S. Navy. Products include aircraft, cargo and weapons elevators; ship steering systems; submarine bow planes; anchor windlasses; and specialized handing systems.

Jered is part of the Marine Engineering division of Vickers P.L.C., an international company based in the United Kingdom with annual sales of about $1.3 billion and over 12,000 employees worldwide.

TANK BARGES



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AVONDALE IN THE BEGINNING

Circle 300 on Reader Service Card

Liebherr-Werk Nenzing Of Austria Announces New CBW Litronic Deck Crane

The new Liebherr CBW Litronic deck crane seems to be in brisk demand in the ship crane market. According to the manufacturer, low overall height, slim line design and many additional features guarantee customer satisfaction.

Numerous orders have already been placed with Liebherr-Werk Nenzing for their new Litronic deck cranes. The orders come from many different countries for different types of Litronic cranes. The following is just an example of the orders that have been placed.

United Brands and Geest PLC of Denmark had options transferred into orders for six deck cranes plus orders for six additional deck cranes type CBW 36/20 and D2 X CBW 20/20 Litronic to be installed on four reefer vessels.

Kleven of Norway placed an order for four CBW 8/20 and four CBW 36(22)/21(22) Litronic deck cranes. These cranes are to be installed on two reefer vessels for Great White Fleet.

Four Litronic deck cranes oftype D2 X CBW 18/25.4 were ordered by Schichau Seebeckwerft of Germ-any for two reefer vessels for Great White Fleet.

Tropical Reef Shipyard of Australia placed an order for one CBW 25/24 Litronic deck crane for Western Tug and Barge.

Four CB 40/32 Litronic container handling cranes were ordered by Regional Container Lines for two container vessels to be built at a Korean shipyard.

For more information about the deck cranes produced by Liebherr-Werk Nenzing,

Circle 88 on Reader Service Card

MAN B&W Diesel Engines Ordered For World's Most Powerful Containerships

Five post-Panamax size container ships will be propelled by the most powerful marine diesel engines ever ordered. Each of the 4,000 TEU-plus ships booked from Hyundai Heavy Industries by Hyundai Merchant Marine (HMMC) is specified with a MAN B&W 12-cylinder K90MC-C engine offering a maximum output of 70,320 bhp at 104 rpm.

The 900-mm bore/2,300-mm stroke K90MC-C design is tailored to the demands of new generations of large containerships requiring speeds up to 25 knots. The shorter stroke and lighter weight also promote a more compact engine room for optimum box capacity from ships with either Panamax or wider-than-Panamax dimensions.

Excellent service experience is reported from the installations of this type of engine aboard the East Asiatic Company's 4,000 TEU containerships Arosia and Alsia. Each was built to Panamax dimensions by Mitsui in 1990, with propulsion plants based on a 10-cylinder model developing 55,900 bhp.

The engines for the new HMMC containership series are under construction by the Engine & Machinery Division of Hyundai Heavy Industries for delivery to the yard during 1992.

Recent orders for MAN B&W Diesel's engines include the series of eight 4,400-TEU containerships being built at Samsung Shipbuilding for Hapag-Lloyd with 9K90MC engines; and the Malaysian International Shipping Corporation's 4,400 TEU post-Panamax Bunga Pelangl, newly commissioned from Hyundai Heavy Industries with a 10K90MCengine developing 55,400 bhp at 93 rpm.

The K90MC and MC-C models are the largest In MAN B&W's world market.

For complete details about the K90MC and MC-C series engines,

Circle 122 on Reader Service Card

$2.7 Million Awarded To Houston Ship Repair For RRF Deactivation

The Maritime Administration (MarAd) has awarded a $2.7 Million contract to Houston Ship Repair, Inc., Houston, Texas, for topside repairs, sea trials, and deactivation of the Ready Reserve Force (RRF) vessel SS Mount Washington.

First Time In 100-Year History Port Of Portland Exceeds 10 Million Tons

For the first time in its 100-year history, the Port of Portland has exceeded the 10-million ton mark-
handling 10,258,314 tons of bulk and general cargo during 1991.

Heavier cargo volumes in December put the port well beyond the totals it had expected to achieve when year-end cargo volumes had been estimated late last year.

More than half the total cargo volume came from the handling of containers, mineral bulk, automobiles and breakbulk cargoes. These figures were up a combined 15.7 percent over 1990. Grain cargoes through the port were about the same as in 1990.

The port is now being serviced by larger ships and more frequent schedules which will provide for an estimated 14 percent increase in capacity for shippers during 1992.

A new marine terminals master plan, released last year, predicts Portland cargoes will double in the next 20 years—to near 20 million tons.

Great Lakes Dredge & Dock Names Five To Be Vice Presidents

Richard M. Lowry was recently made a senior vice president of Great Lakes Dredge & Dock Company, and **Bradley T. Hansen, Daniel L. Hussin, Philip M. Pearse** and **Martin R. Snow** were made vice presidents according to a recent announcement by **Witt Barlow,** president.

Great Lakes Dredge & Dock Company is a dredging and marine contractor, with offices in New York, Baltimore, Jacksonville, New Orleans, Cleveland, Chicago and Oakland. The company specializes in the removal of underwater material, land reclamation, beach nourishment, and also undertakes the construction of heavy foundations, piers and other dock harbor facilities.

For further information on Great Lakes Dredge & Dock Company,

Circle 89 on Reader Service Card

MTU North America Promotes Berg, Shock

MTU North America recently announced the promotion of two employees—**Jeb Berg** to vice president customer services and **John Shock** to general sales manager—as part of a company reorganization implemented to improve customer service and the overall operation of the company. **Ray Carrell,** MTU North America president and chief executive officer, made the announcement at the company's annual Fisher Island exhibition during the 1992 Miami International Boat Show.

Mr. **Berg,** who previously served as general service manager for MTU's operations in North America and the Caribbean, now is responsible for all product service, renewal parts, production and quality assurance functions.

Mr. **Shock,** who joined MTU in 1989, is now responsible for the company's sales, marketing and advertising. He previously served as national marine account manager in the company's Seattle office dealing with custom and production yachts and commercial marine accounts for the western U.S.

MTU North America, incorporated in 1978 to provide compact, high-power-density marine diesel engines for pleasure, commercial and military vessels in North America and the Caribbean, is the marketing, sales and service subsidiary of MTU Friedrichshafen.

For complete information on the entire MTU engine line,

Circle 90 on Reader Service Card

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SNAME Appoints Cagliari Executive Director

The Society of Naval Architects and Marine Engineers (SNAME) recently appointed **Francis M. (Frank) Cagliari** its new executive director. The appointment was made during a meeting of the Society's executive committee. Mr. **Cagliari** assumed his new position immediately, having been performing the duties of the office since his predecessor's planned retirement the first of this year. Mr. **Cagliari** joined the Society's headquarters staff in April 1986, becoming its deputy executive director in July 1987. His previous position was manager of technical programs and publications.

The executive director is the chief administrative officer of the Society, functioning under the immediate direction of the president and executive committee and is appointed for a term of office fixed by resolution of the executive committee.

Founded in 1893, SNAME is a non-profit, technical and professional organization. It has more than 10,000 individual members worldwide, with 17 sections in the United States and Canada.

ABS Extends DLA Class Notation To Bulk Carriers

In August of 1991 ABS was the first class society to offer the DLA class notation for tankers. This DLA notation (standing for Dynamic Loading Approach) is optional for tanker owners wishing to apply a dynamic loading analysis technique to the design of a tanker which can result in some scantlings (i.e. structural member sizes) exceeding those directly obtained from the ABS "Rules for Building and Classing Steel Vessels."

This approach has been very well received by the marine industry, and due to this and the concern of ABS for bulk carrier structures, as well as recently completed analytical studies of these type vessels, ABS is now offering the DLA notation for bulk carriers.

The use of this dynamic loading approach may result in more conservatively biased scantlings that is, scantlings which exceed the specified safety margins of the ABS steel vessel rules. In such cases ABS will recognize this added margin of safety through the optional class notation DLA.

In another pioneering effort in the marine industry ABS is developing a restatement of its "Hull Rules According to First Principles" which designers will be able to use readily. It is intended that the Dynamic Loading Approach will be incorporated into this rule restatement project.

450-TEU Container Vessel Christened

Singapore Shipbuilding & Engineering Ltd. (SSE), a member of Singapore Technologies, is pleased to announce the christening of the third 450-TEU feeder container vessel for Neptune Orient Lines Ltd.

This vessel has a service speed of 14 knots and a cargo capacity of 450-TEU or 201-FEU + 48-TEU. Its 4,400kw engine is a Wartsila Vasa 12V 32D diesel engine, and along with a bow thruster and controllable pitch propeller provides excellent maneuverability for the vessel.

MARCO Delivers First Of Two Filterbelt Systems To Saudi ARAMCO

Seattle-based MARCO Pollution Control, a world leader in the development of marine oil spill clean-up systems, has delivered the first of two large Filterbelt modules to Batservice Yard in Mandel, Norway. These 27-foot long by 6-foot wide modules, amongst the largest ever produced, will be installed aboard two 122-foot high-speed oil spill response catamarans for Saudi ARAMCO.

The unique Filterbelt technology that has effectively covered all types of oils in a variety of oil spill conditions is particularly suited to the harsh environment of the Arabian Gulf. This technology and its history of superior performance at many major oil spills, make the MARCO Filterbelt and the new state-of-the-art catamarans a highly efficient oil spill response and recovery team.

The Filterbelt, produced by MARCO since 1972, is a continuous mesh belt that allows water to pass through it, but retains oil. An induction pump mounted behind the Filterbelt creates a current through the belt that draws oil toward it.

The consistent efficiency of the Filterbelt technology is proven to be 90 percent effective in the recovery of a full range of petroleum products. Filterbelt systems have been installed aboard more than 100 vessels, ranging in size from the MARCO-built 24-foot Class I harbor and bay skimmers to the 160-foot Clean Gulf Associates' CGA 200 (HOSS) barge, the largest oil spill recovery vessel in the world.

For more information about MARCO's Filterbelt system,

Coast Guard's Oil Spill Committee Sets Schedule

Puget Sound, recently underwent an intensive 12-week conversion at Seattle's MARCO Shipyard. For-

IMarE/RINA Joint Offshore Group International

new regulatory regime requires a period of adjustment and there must be continuing review and monitor-

First Time In 100-Year History Port Of Portland Exceeds 10 Million Tons

For the first time in its 100-year history, the Port of Portland has exceeded the 10-million ton mark-

handling 10,258,314 tons of bulk and general cargo during 1991.

Heavier cargo volumes in December put the port well beyond the totals it had expected to achieve when year-end cargo volumes had been estimated late last year.

More than half the total cargo volume came from the handling of containers, mineral bulk, automobiles and breakbulk cargoes. These figures were up a combined 15.7 percent over 1990. Grain cargoes through the port were about the same as in 1990.

The port is now being serviced by larger ships and more frequent schedules which will provide for an estimated 14 percent increase in capacity for shippers during 1992.

A new marine terminals master plan, released last year, predicts Portland cargoes will double in the next 20 years—to near 20 million tons.

Great Lakes Dredge & Dock Names Five To Be Vice Presidents

Richard M. Lowry was recently made a senior vice president of Great Lakes Dredge & Dock Company, and **Bradley T. Hansen, Daniel L, Hussin, Philip M. Pearse** and **Martin R. Snow** were made vice presidents according to a recent announcement by **Witt Barlow,** president.

Great Lakes Dredge & Dock Company is a dredging and marine contractor, with offices in New York, Baltimore, Jacksonville, New Orleans, Cleveland, Chicago and Oakland. The company specializes in the removal of underwater material, land reclamation, beach nourishment, and also undertakes the construction of heavy foundations, piers and other dock harbor facilities.

For further information on Great Lakes Dredge & Dock Company,

Circle 89 on Reader Service Card

MTU North America Promotes Berg, Shock

MTU North America recently announced the promotion of two employees—**Jeb Berg** to vice president customer services and **John Shock** to general sales manager—as part of a company reorganization implemented to improve customer service and the overall operation of the company. **Ray Carrell,** MTU North America president and chief executive officer, made the announcement at the company's annual Fisher Island exhibition during the 1992 Miami International Boat Show.

Mr. **Berg,** who previously served as general service manager for MTU's operations in North America and the Caribbean, now is responsible for all product service, renewal parts, production and quality assurance functions.

Mr. **Shock,** who joined MTU in 1989, is now responsible for the company's sales, marketing and advertising. He previously served as national marine account manager in the company's Seattle office dealing with custom and production yachts and commercial marine accounts for the western U.S.

MTU North America, incorporated in 1978 to provide compact, high-power-density marine diesel engines for pleasure, commercial and military vessels in North America and the Caribbean, is the marketing, sales and service subsidiary of MTU Friedrichshafen.

For complete information on the entire MTU engine line,

Circle 90 on Reader Service Card

SNAME Appoints Cagliari Executive Director

The Society of Naval Architects and Marine Engineers (SNAME) recently appointed **Francis M. (Frank) Cagliari** its new executive director. The appointment was made during a meeting of the Society's executive committee. Mr. **Cagliari** assumed his new position immediately, having been performing the duties of the office since his predecessor's planned retirement the first of this year. Mr. **Cagliari** joined the Society's headquarters staff in April 1986, becoming its deputy executive director in July 1987. His previous position was manager of technical programs and publications.

The executive director is the chief administrative officer of the Society, functioning under the immediate direction of the president and executive committee and is appointed for a term of office fixed by resolution of the executive committee.

Founded in 1893, SNAME is a non-profit, technical and professional organization. It has more than 10,000 individual members worldwide, with 17 sections in the United States and Canada.

ABS Extends DLA Class Notation To Bulk Carriers

In August of 1991 ABS was the first class society to offer the DLA class notation for tankers. This DLA notation (standing for Dynamic Loading Approach) is optional for tanker owners wishing to apply a dynamic loading analysis technique to the design of a tanker which can result in some scantlings (i.e. structural member sizes) exceeding those directly obtained from the ABS "Rules for Building and Classing Steel Vessels."

This approach has been very well received by the marine industry, and due to this and the concern of ABS for bulk carrier structures, as well as recently completed analytical studies of these type vessels, ABS is now offering the DLA notation for bulk carriers.

The use of this dynamic loading approach may result in more conservatively biased scantlings that is, scantlings which exceed the specified safety margins of the ABS steel vessel rules. In such cases ABS will recognize this added margin of safety through the optional class notation DLA.

In another pioneering effort in the marine industry ABS is developing a restatement of its "Hull Rules According to First Principles" which designers will be able to use readily. It is intended that the Dynamic Loading Approach will be incorporated into this rule restatement project.

450-TEU Container Vessel Christened

Singapore Shipbuilding & Engineering Ltd. (SSE), a member of Singapore Technologies, is pleased to announce the christening of the third 450-TEU feeder container vessel for Neptune Orient Lines Ltd.

This vessel has a service speed of 14 knots and a cargo capacity of 450-TEU or 201-FEU + 48-TEU. Its 4,400kw engine is a Wartsila Vasa 12V 32D diesel engine, and along with a bow thruster and controllable pitch propeller provides excellent maneuverability for the vessel.

MARCO Delivers First Of Two Filterbelt Systems To Saudi ARAMCO

Seattle-based MARCO Pollution Control, a world leader in the development of marine oil spill clean-up systems, has delivered the first of two large Filterbelt modules to Batservice Yard in Mandel, Norway. These 27-foot long by 6-foot wide modules, amongst the largest ever produced, will be installed aboard two 122-foot high-speed oil spill response catamarans for Saudi ARAMCO.

The unique Filterbelt technology that has effectively covered all types of oils in a variety of oil spill conditions is particularly suited to the harsh environment of the Arabian Gulf. This technology and its history of superior performance at many major oil spills, make the MARCO Filterbelt and the new state-of-the-art catamarans a highly efficient oil spill response and recovery team.

The Filterbelt, produced by MARCO since 1972, is a continuous mesh belt that allows water to pass through it, but retains oil. An induction pump mounted behind the Filterbelt creates a current through the belt that draws oil toward it.

The consistent efficiency of the Filterbelt technology is proven to be 90 percent effective in the recovery of a full range of petroleum products. Filterbelt systems have been installed aboard more than 100 vessels, ranging in size from the MARCO-built 24-foot Class I harbor and bay skimmers to the 160-foot Clean Gulf Associates' CGA 200 (HOSS) barge, the largest oil spill recovery vessel in the world.

For more information about MARCO's Filterbelt system,

Circle 1 on Reader Service Card.

Ryan-Walsh Acquires Assets Of Palmetto Shipping And Stevedoring

Ryan-Walsh, Inc. recently announced their acquisition of the stevedoring and marine terminal assets of Palmetto Shipping and Stevedoring Co., Inc. in the ports of Charleston, S.C., along with Savannah and Brunswick, Ga. This acquisition will enable Ryan-Walsh to enhance its current operations in the ports of Charleston, Savannah and Brunswick. Specific terms of the transaction were not disclosed.

Headquartered in Mobile, Alabama and serving the maritime industry for more than 125 years, Ryan-Walsh operates in 24 ports in the South Atlantic, Gulf Coast and inland waterways system. Services include stevedoring, material handling, terminal operations and logistics management. Ryan-Walsh is a subsidiary of the Pittsburgh-based Vectura Group, Inc., a privately owned holding company with annual sales in excess of $300 million. Vectura's other principal operating unit is National Marine, Inc., a barge transportation company operating from New Orleans.

Oregon Iron Works Building Two Explosives Disposal Craft For Navy

Two Navy-designed, 65-foot, aluminum-hulled boats termed "Explosive Ordnance Disposal Support Craft, Mark 2" (EODSC MK2, for short) are presently being built by Oregon Iron Works of Clackamas, Oregon. The tasks of detail structural design and computerized lofting are being handled by Elliott Bay Design Group of Seattle, Wash.

The mission of these boats calls for a load of equipment that is rare aboard small craft. There will be sophisticated sonar, the "area point search system" (APSS), a "remotely operated vehicle" (ROV) and Mark 16 "underwater breathing apparatus" (UBA). The Mark 16 is a helium-oxygen system designed for low acoustic radiation and minimum magnetic influence, an indication of the kind of work that is planned.

The EODSC MK2 will have a length of 65 feet 8.5 inches, a beam of 18 feet 10 inches and be powered by two 450 shp Detroit 8V-71TI diesel engines. There will also be two 40 kw, 450 V, three phase Detroit 3-7 IN diesel engines which will serve as service generators.

In general, a suspected explosive object will be located by the towed-array APSS, then pinpointed and identified by the ROV. EOD divers will then either detonate it in place or neutralize it, after which it may be safely recovered.

These unusual craft are being constructed by Oregon Iron Works which usually builds large shore side metal structures. Their staff developed tooling and methods based on general metal fabrication practice combined with rigorous quality control measures.

Launching Of M/V Santa Victoria At Flender Werft For Ivaran Shipping

The container vessel, Santa Victoria, was recently launched at Flender Werft, Lubeck, for Ivaran Shipping AS, Lysaker, Norway.

The godmother is **Alejandra** S. **Robinson** of Agencia Maritima Robinson SACFI, Buenos Aires.

The vessel is the latest in a series of four (two for Offen and two for Ivaran), of which two each have been under construction at Flender Werft and ThyssenNordseewerke. All four ships are identical to the Santa Isabella, which is the Flender 1600.

The Flender 1600 is distinguished for its most effective economy, its large stowage capacity of 14-TEU and its low fuel consumption. These vessels have a length of 597 feet 5 inches and a beam of 93 feet 2 inches. The deadweight is 30,000 dwt. Design speed is 19 knots.

Propulsion is supplied by an MAN B & W 7L 60 MC crosshead engine with a rating of 11.550 kw at 115 rpm. Power transmission is direct to a controllable pitch propeller. Electrical power is supplied by a shaft generator having an output of 1,300 kw.

Delivery of the vessel is scheduled for June 1992.

For more information about the services provided by Flender Werft,

Circle 40 on Reader Service Card

Coast Guard's Oil Spill Committee Sets Schedule For New Meetings

A Committee of civilian experts, formed to assist the Coast Guard in developing regulations governing oil spill response plans for tank vessels, recently set the dates for future meetings over the next few months.

Mandated by the Oil Pollution Act of 1990, the committee, known as the Oil Spill Response Plan Negotiated Rulemaking Advisory Committee, will work on regulations requiring tank vessels to develop plans on how they would respond to oil spills. Other regulations would specify what oil spill response equipment must be carried by each vessel.

The committee, made up of representatives from state and federal governments, oil and transportation industries and environmental and citizens groups, held its first session in January and organized into five working groups.

The committee plans to meet for four days every two weeks in Washington, D.C. The working groups will meet separately the first two days and the full committee will meet the last two days.

Trawler Conversion Completed By MARCO

The 195-Foot trawler Defender, shown here during sea trials on Puget Sound, recently underwent an intensive 12-week conversion at Seattle's MARCO Shipyard. Formerly an offshore supply vessel and

195-Foot Trawler Defender

RSW tender, she was brought to full trawler capability for Dutch Harbor Seafoods. MARCO removed and replaced all existing power plants with two new CAT 3608 main engines and three CAT 3406 generator sets. The forward RSW tank was expanded by deleting wing fuel oil tanks and converting two ballast tanks. On the working deck, the yard modified and relocated an existing gantry, at the same time installing a complete hydraulic system plus trawl winches, net reels and gilson winches. MARCO craftsmen rebuilt the ship's crew accommodations, modified the officers' quarters, installed electronics and performed a variety of structural repairs.

For further information about the services of MARCO Shipyard,

Circle 41 on Reader Service Card

IMarE/RINA Joint Offshore Group International Conference Dates Set

The Institute of Marine Engineers in association with the Royal Institution of Naval Architects is organizing and sponsoring an international conference in London, May 20-21, 1992. The theme of the conference is "Offshore Safety: Protection of Life and the Environment."

As the impact of the Piper Alpha disaster and the Cullen report spreads through the industry some of the offshore safety questions still remain unanswered and many more have arisen. The development of a new regulatory regime requires a period of adjustment and there must be continuing review and monitoring to ensure that safety is being improved. This conference follows the very successful 1991 Offshore Operations Post Piper Alpha conference and will provide an opportunity for delegates to reappraise the situation in light of the developments that have taken place in the offshore industry.

For further information contact **Rhian Button,** Conference Organizer, The Institute of Marine Engineers, The Memorial Building, 76 Mark Lane, London EC3R 7JN. Tel: 071 481 8493. Fax: 071 488 1854. Tlx: 886841.

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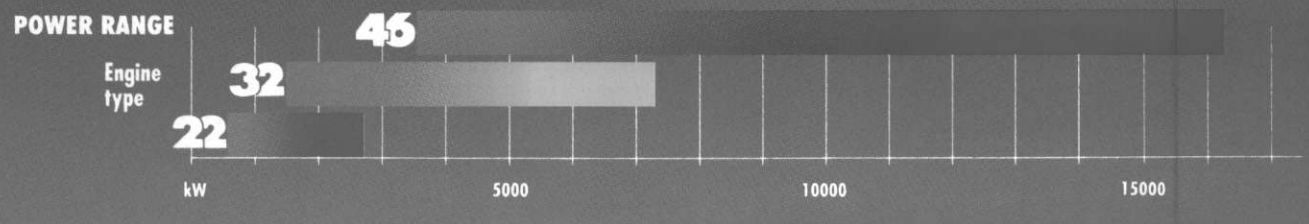

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Tests Show Superior Fire Protection Of Hi-Fog System By Marioff

Marioffhas clearly demonstrated the superior fire protection capability of their Hi-Fog system in direct comparison tests in a simulated ship's cabin/corridor and public space. These tests were carried out over a period of three weeks at SP, the Swedish National Testing Institute. During the test program representatives from the Scandinavian and UK Marine Authorities, together with surveyors from classification societies were invited to witness some of the 50 tests in which over 100 mattresses were destroyed.

For the cabin tests piping was arranged so that both the cabin and corridor heads would release together automatically if the glass release bulb in either was broken by the heat. This ensured that all the air being drawn into the room was completely saturated with water droplets. It also had the added advantage ofthe fog blowing the smoke back into the cabin and contributing to a smoke level in the corridor of only 10 percent compared with the conventional sprinkler.

The final test included typical "arsonist fires," and a flashover fire where the temperature in the cabin reached 900 degrees Celsius, yet was reduced to 50 degrees Celsius in less than three minutes.

Public space tests were also carried out under a 32.8-foot by 32.8-foot ceiling fitted with Hi-Fog heads and a conventional sprinkler. Several fires were suppressed and controlled at one and two deck ceiling heights.

For further information and to view a 23-minute video from Marioff,

Circle 118 on Reader Service Card

International Compactor Offers Densifiers With Compaction Equipment

International Compactor, Inc. with offices on Hilton Head Island, S.C., and in Houston, Texas, is now offering densifiers along with their compaction equipment.

The densifiers are designed specifically for the economical and environmentally friendly densification of polystyrene. It will also densify plastic bottles and containers, aluminum cans and tin cans. Volume reductions up to 50:1 can be achieved with final densities up to 25 pounds per three cubic feet. The process involves the densification of polystyrene with the use of hydraulic pressure only. No heat is applied and no emissions are generated. The densified product is a rectangular slug which can weigh from 20 to 80 pounds, depending on the model of the machine used to densify the containers.

There are currently three models available, capable of processing from 20 to 250 pounds per hour.

For further information about the new densifiers,

Circle 121 on Reader Service Card

Thrustmaster Now Offers Service Organizations Throughout The World

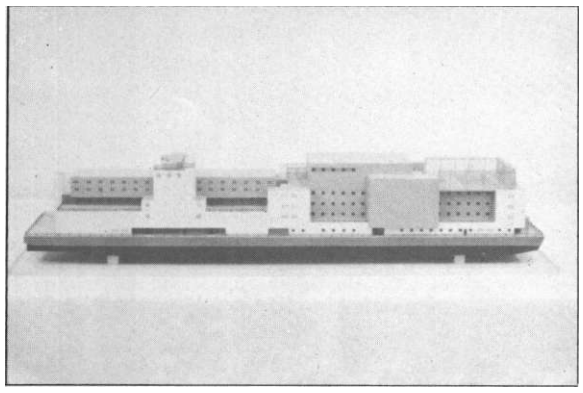
Thrustmaster is one ofthe world's largest manufacturers of hydraulically powered, steerable marine thrusters. Prior to 1990, Thrustmaster only sold products in the U.S. The first foreign shipment was in July, 1990, to Dubai. Since 1990, representatives and service organizations have been set up throughout the world. These efforts have resulted in over 80 percent of new inquiries for products being from foreign countries.

Thrustmaster's exclusive hydraulic transmission and heavy duty design has allowed an exceptionally expedient acceptance into a very conservative industry. Thus, indicating the need for the innovative designs and severe transmissions that Thrustmaster has developed.

For further information about Thrustmaster products,

Circle 117 on Reader Service Card

NYC's New Floating Detention Facility Built By Avondale Industries Opens Up Space



New floating detention facility for New York City.

In 1989 the City of New York placed an order for the world's first built-to-order floating detention facility from Avondale Industries Shipyard. The city already has four floating detention facilities used for work-release and minimum security: two are converted Staten Island ferries and two are war-surplus military barracks.

The vessel was designed by Gonchor & Sput, Architects and Planners, P.C. of New York. It is 125 feet wide, 625 feet long, and has six levels plus a mezzanine with roof decks. Designed for semi-permanent mooring alongside a dock, the facility will receive its electricity, water, and sewage services from shore, while generating its own heating steam and air conditioning. The vessel has the capability of self-sustaining for 48 hours if necessary through the use of two 2000-kW diesel generators and two 40,000-gallon fuel oil tanks that serve the diesels as well as the heating- system boilers. In the event of a failure of this system, a 500-kW diesel generator can provide enough emergency power to operate one fire pump, all intercom systems, elevator and security systems, lighting and other services as required by Coast Guard regulations.

The floating facility includes modern living quarters, which meet all required standards, as well as indoor and outdoor recreation areas, shops, vocational and academic classrooms, libraries and chapels. The kitchen is equipped to accommodate three kinds of diets: conventional, Muslim and Kosher.

Fire protection aboard the vessel involves a combination of pressurized fire mains and sprinklers, CO_2 systems and portable fire extinguishers. The finished fire protection system considerably exceeds basic Coast Guard requirements, as well as meeting rules of the NYC Fire Department for smoke evacuation. The system was designed by Herbert S. Hiller Corporation of Metairie, La., a Cerberus Pyrotronics distributor and a specialist in offshore and safety services.

For complete information on the services of Avondale Industries,

Circle 11 on Reader Service Card

Oceandril Executes Management Contract With Portal Rig Corporation

Oceandril, Inc. will manage Portal Rig Corporation's mobile offshore drilling units Portal 201 and Portal 202, according to **David Kent** president of Oceandril, Inc. The management contract calls for Oceandril to manage, maintain and market the two 1982 built submersible drilling units. The two rigs are designed and equipped to operate in water depths ranging from nine feet to 85 feet and drilling depths up to 25,000 feet.

Statoil Contract Worth $16 Million Won By Halliburton

Statoil of Norway has awarded two subsidiaries of the giant U.S. oil industry service group Halliburton the $16 million Zeepipe Ready for Operations contract.

To be carried out by Halliburton Services and Brown and Root, the work, which expected to last for 18 months, will start immediately.

The Zeepipe gas transportation system is designed to carry gas from the Sleipner field in the Norwegian North Sea to Belgium and to a riser platform in the existing Statpipe system.

Halliburton Services will be responsible for the execution of offshore work, including the provision of equipment and materials.

$ 14 Billion Transportation Improvement Program To Be Undertaken By Mexico

Mexico will undertake a $14 billion transportation improvement program beginning immediately, the Ministry of Transportation and Communications has announced.

By the end of 1992, Mexico will have four container ports operating. The government sees the promotion of effective port activity as an important catalyst for regional development, and special attention will be paid to making Mexico's ports more efficient.

Ports at Altamira, Manzanillo, Veracruz, Topolobampo, Puerto Vallarta and Lazaro Cardenas will undergo substantial improvements. In 1992, it is expected that Mexico's ports will handle 172.6 million tons, an increase of 1.8 percent over last year.

Aliza Chelminsky, vice president of the Mexican Investment Board, said, "Private sector capital investment in transportation will increase by 75 percent over last year, while the public sector contribution will only increase by 3.9 percent."

Hydraulik Brattvaag May Merge With Ulstein

If plans to merge Hydraulik Brattvaag with the Ulstein group get the go-ahead, the world's largest manufacturer and supplier of deck machinery for ships will be created in Norway later this spring.

Under the terms of a deal between Ulstein Holding and Hydraulik, Ulstein will acquire at least 90 percent of the shares in the family-owned hydraulic winch and crane manufacturer.

No price has been disclosed for this purchase, which is subject to approval by the 50 private shareholders in Brattvaag at an upcoming extraordinary general meeting.

The plan is to merge Hydraulik with Ulstein subsidiary Norwinch in Bergen to create a firm with some 400 staff and an annual turnover exceeding $80 million.

This move is the latest in a series of acquisitions by the family-owned Ulstein group that has brought together a range of ship gear products. The group has already announced that it was taking a 50 percent holding in steering gear manufacturer Tenfjord. Ulstein already owns Frydenbo-Mjolner, another steering gear specialist.

Two of four ship gear sectors where Ulstein plans to concentrate its future efforts are winches and steering gears. The others are propellers/ propulsion equipment and diesel engines.

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10th B.C. Towboat Industry Conference Set For April 9-11

The 10th B.C. Towboat Industry Conference sponsored by the British Columbia Towboat Owners and the Council of Marine Carriers has been scheduled for April 9-11,1992, in Victoria, British Columbia, Canada. The event will be held at the Empress Hotel and Victoria Conference Center in Victoria, British Columbia.

The theme of the show will be "The Towing Industry in a Modern Environment."

For further information, contact: **Peter Woodward** or **Teresa Ledesmaat**(604) 687-9677, or B.C. Towboat Industry Conference, 200-1575 West Georgia Street, Vancouver, British Columbia V6G 2V3 Canada; telephone: (604) 687-9677; or fax: (604) 687-1788.

YVC Bolnes Dockyard To Convert, Upgrade Russian Fish Factory

Rotterdam-based YVC Bolnes Dockyard recently signed a multi-million guilder contract for the conversion and upgrading of a Russian fish factory.

YVC Bolnes will install fish reception facilities, fish storage and cool tanks, a Stord fishmeal processing installation, an Inham fish freezing installation, an electrical installationbyVan Rietschoten& Houwens, and new Konus Kessel steam boilers. Called the Dauriya and owned by Sevrybholodflot of Murmansk, the 542-foot by 70-foot by 41-foot vessel will also be cleaned and coated. The conversion and upgrading are expected to be completed by June 1992.

Following the conversion, the Dauriya will be able to receive 600 tons of fish at sea from small fishing trawlers, producing 100 tons of fishmeal and 90 tons of deep frozen fish per day.

For free literature detailing the ship construction and repair work of YVC Bolnes Dockyard,

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OSTC Names J.E. Talmage VP, Chartering Operations

Ocean Specialty Tankers Corporation (OSTC) recently announced the promotion of **James E. Talmage** to vice president of chartering operations. He will report directly to **Craig Stevenson Jr.,** president of OSTC.

In his new position, Mr. **Talmage** will continue to be responsible for all operational aspects ofchartering activities as well as taking a more active role in the chartering of pool vessels.

OSTC is a joint venture between Hvide Shipping, Inc. and OMI Corp. OSTC markets marine transportation services from the U.S. Gulf to the U.S. East and West Coasts for bulk chemicals, clean petroleum and crude.

Presently OSTC has the following ships on long-term charter: Seabulk America, Seabulk Magnachem, OMI Dynachem, OMI Hudson and OMI Star.

President Bush Selects Andrew H. Card Jr. To Head DOT

Andrew H. Card Jr. was recently selected by President **Bush** to be Secretary of Transportation.

Since the start of the Bush Administration, Mr. **Card** has been assistant to the president and deputy White House Chief of Staff.

If confirmed by the Senate, Mr. **Card** will replace **Samuel K. Skinner,** who recently succeeded **John H. Sununu** as Chief of Staff.

Mr. **Card**'s resume shows scant transport industry experience other than a one-year stint at the U.S. Merchant Marine Academy in the late 1960s. He served as maritime liaison during the Bush campaign and continued in that role during his days at the White House.

Christopher L. Koch, chairman of the Federal Maritime Commission, said, "He comes into the position having a more advanced grasp of maritime issues than some others."

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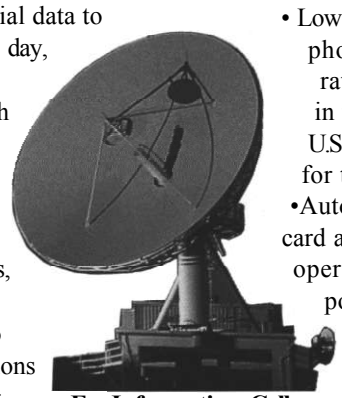

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Coast Guard Study Reveals Double Hulls Will Raise Shipping Costs

The Coast Guard recently conducted a draft Regulatory Impact Analysis (RIA) of the proposal it made to implement the requirement of double hulls in OPA 90. The study found that the costs of double hulls, double bottoms, double sides, and smaller tanks would cost the operator more, causing a decrease in allowable profits.

The Coast Guard stated that by mandating this requirement it would increase the cost of transporting petroleum by about $350 million. The increased transportation costs would result from higher construction costs, increased maintenance and repair costs, and a reduction in the cargo capacity of the vessel.

The double hull requirement will affect small inland barge operators, coastal barge operators, and tanker operators not in the Alaska trade more than large barge operators since double hulled vessels are already in generalized use.

The draft RIA is available from the Coast Guard at a cost of $25, payable to the U.S. Treasury. To obtain a copy, call **Bruce Novak** of the OPA 90 staff at (202)267-6189.

Korean Contract Awarded To FBM Support Services

FBM Support Services Limited, a subsidiary of FBM Marine Holdings (UK) Limited of Cowes, Isle of Wight was recently awarded a $7 million contract for the supply of materials and technology transfer to Korea Tacoma Marine Industries (KTMI) for the construction of bridge erection boats for the Korean government.

KTMI, one of the largest shipyards in Korea, has been manufacturing these boats as sub contractors to FBM since 1985. In 1988, FBM appointed KTMI exclusive licensee for bridge erection boat sales in Korea.

The bridge erection boat was first designed and built in 1977 and is now deployed by the British, United States, Turkish, Greek and Korean Armies. Over 1000 of these boats are now in service.

Vicmar's Advance Fuel Saving Technology For Diesel Engines

A new fuel saving system designed by Vicmar Engineering Ltd. was recently installed and tested on the starboard main engine of the M/V Seaspan "Greg", a roll-on/roll-off rail and trailer ship powered by two D399 Caterpillar engines. The main engine was monitored for a period of about a month-and-a-half, prior to installing the system, in order to establish data for comparison. The turbo chargers, after coolers and air gallery were dismantled, examined and photographed at both the beginning and the end of the monitoring period.

The fuel saving system consists of an Engine New Washing System and Turbo-Nozzle Ring Modification and, when used as a combination, is capable of saving up to 6 to 8 percent of engine fuel consumption. The engine new washing system allows turbochargers, air coolers, air intake manifolds, scavenging ports, or intake/exhaust valves to be kept in "like new" condition during normal operation and maintain engine performance parameters in the design range. The turbo-nozzle ring modification improves engine manufacturer's performance parameters by coordination of turbocharger and diesel-engine characteristics.

Upon completion of the test, according to the chief engineer of the Seaspan "Greg", Vicmar Engineering Ltd., and Microfuel Computer, a visual inspection showed a remarkable difference, with components appearing to be in an almost-like-new condition after washing.

For complete information about the new fuel saving system offered by Vicmar,

BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. **If you are interested in having your company listed in this Buyers Directory Section, contact John** C. **O'Malley at (212) 477-6700.**

ABRASIVES
Barton Mines Corp., 1658 Cole Blvd., Golden, CO 89401
Bourg Drydock, P.O.Box 1852, Houma, LA 70361
Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219
Ervin Industries, Inc., 3893 Research Park Drive, P.O. Box 1168, Ann Arbor, MI 48106-1668
Stan-Blast Abrasives, P.O. Box 968, 3300 River Road, Hawey, LA 70059

AIR CONDITIONING AND REFRIGERATION—Repair & Installation
Bailey Group, 2323 Randolph Ave., Avenel, NJ 07001
Carrier Transicold, P.O. Box 4805, Syracuse, NY 132211
Stal Refrigeration AB, Butangsgatan 16, S-601 87 Norrkoping, SWEDEN
York Int'l, P.O. Box 1592-083G, York, PA 17405

BALLAST
Chesapeake Specialty Products, 5055 Northpoint Blvd., Baltimore, MD 21219
Genstar Stone Products, Executive Plaza IV, Hunt Valley, MD 21031
Mineral Research & Recovery Inc.,P.O. Box 986, Sonoita, AZ 85637

BARGE BUILDING
Conrad Industries, P.O. Box 790, Morgan City LA 70381
Maxon, South Boundary Street, P.O. Box 69, Tell City, IN 47586

BARGE COVERS
Syntechnics Inc., FRP div. 700 Terrace Lane, Paducah, KY 42003

BARGE—Leasing
McDonough Marine Service, 2300 Surekote Road, New Orleans, LA 70117
Zidell Explorations, Inc., 3121 SW Moody Ave., Portland OR 97201

BASKET STRAINERS
Beaird Industries, P.O. Box 31115, Shreveport, LA 71130

BEARING—Rubber, Metallic, Non-Metallic
B.F. Goodrich, Engineered Polymer Products, 150 Division Dr., Wilmington, NC 28401
Kahlenberg Bros. Co, P.O. Box 358, Two Rivers, WI 54241
Thomson Gordon Ltd, 3225 Mainway, Burlington, Ont, CANADA L7M 1A6
Waukesha Bearings, P. O. Box 1616, Waukesha, WI 53187-1616

BOILER—Manufacturers
Aalborg Ciserv (Miami) Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312

BROKERS
Captain Astad Company, Inc., P.O. Box 350486, Ft Lauderdale, FL 33335,
2900 Energy Centre, 1100 Poydras Street, New Orleans, LA 70163-2900
Diversified Marine Brokerage, 1201 Northern Blvd., Manhasset, NY 11030
Jack Faulkner, 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422
Mowbray's Tug & Barge Sales Corp, 35 De Hart St, Morristown NJ 07960

BUNKERING
Zidell Explorations, inc., 3121 SW Moody Ave, Portland OR 97201

CABLE ASSEMBLIES
Revere Aerospace, 845 N. Colony Rd. Wallingford, CT 06492

CARGO ACCESSORIES
Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705

CHAIN
Baldt, Inc., 6 M. Butler St, Chester, PA 19013
Crandall Dry Dock Engineers Inc./Marit Chain, 21 Pottery Lane, Dedham MA 02026
Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston TX 77020
G.J. Wortelboer Jr. B.V., Postbus 5003,3008 AA Rotterdam, NETHERLANDS

CLAMPING—Pipe, Tubes, Hose
ZSI, 32497 Schoolcraft Road, Livonia, MI 48150

COMPACTORS
International Compactor, Inc., P.O. Box 5918, Hilton Head, SC 29938
A/S Vesta, Skudehavsvej 27, DK-2100 Copenhagen, DENMARK;
Sales Agents: American United Marine Corp, 5 Broadway, Rt 1,
Saugus, MA 01906, USA

COMPUTERIZED INFORMATION SYSTEMS
Coastdesign, Inc., Unit 201,12837 76th Avenue, Surrey, BC CANADA V3W 2V3
Intergraph Corp., 2051 Mercator Dr., Reston, VA 22091-3413
Micronautics Inc. P.O. Box 1017, Rockport, ME 04856
TIMSCO, P. O. Box 91360, Mobile AL 36691

CONDENSERS/SEPARATORS
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Standard Refrigeration Co., 2050 N. Ruby, Melrose Park, IL 60160
Wright Austin Co, 3250 Franklin St., Detroit MI 48207

CONTROL SYSTEM-Monitoring
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IMO Industries, Gems Sensors Division, One Cowles Rd, Plainville CT 06062
Lyngso-Valmet Marine A/S, P.O. Box 130, N-3430 Spikkestad, NORWAY
MMC International, 60 Inip Dr, Inwood NY 11696
Marine Electric RPD, Inc., 50 Carol St, P.O. Box 1135, Clifton, NJ 07014-1135
Norcontrol A/S, P.O. Box 1024, N-3191 Horten, NORWAY
Robertson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006
Robertson-Shipmate, 400 Oser Avenue, Hauppage, NY 11788
Teleflex Inc., 771 First Ave, King of Prussia, PA 19406

COUPLINGS
Lo-Rez Vibration Control Ltd, 156 West 8th Avenue, Vancouver, BC CANADA, V5Y1N2

CRANE—HOIST—DERRICK—WHIRLEYS
The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd, Carlstadt, NJ 07072
Liebherr-Werk Nenzing GES.mbh, P.O. Box 10, A-6710 Nenzing, AUSTRIA
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705
J.D. Neuhaus Hebezeugue GmbH, D-5810 Witten, GERMANY
New England Trawler Equipment Co, 291 Eastern Avenue, Chelsea, MA 02150
Pettibone-Tiffin Corp, 235 Miami St., Tiffin, OH 44883
Zidell Explorations, Inc., 3121 SW Moody Ave, Portland OR 97201

DECK MACHINERY—Cargo Handling Equipment
All Set Marine Lashing AB, P.O. Box 14112, S-161 14 Bromma, SWEDEN
Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013
New England Trawler Equipment Co, 291 Eastern Avenue, Chelsea, MA 02150
Markey Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788
Morgan Crane Company, Inc., 1300 Normandy Place, Santa Ana, CA 92705
McElroy Machine & Mfg. Co, Inc., P.O. Box 4454, Biloxi MS 39535-4454
Seattle Crane & Equipment Co, Inc., 4403 20th Street East, Fife, WA 98424
Skookum/Rope Master,P.O. Box 280,Hubbard, OR 97032
Willem Pot b.v, P. O. Box 29102, 3001 GC Rotterdam, The Netherlands

DECK MACHINERY
New England Trawler Equipment Co, 291 Eastern Avenue, Chelsea, MA 02150

DIESEL ACCESSORIES
Coltec Industries Fairbanks Morse Engine Div. 701 Lawton Ave, Beloit, WI 53511
Diesel America Inc., 5217 River Rd, New Orleans LA 70123
Gearhardt's Inc., P.O. Box 10161, Jefferson, LA 70181
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360
Giro-Engineering Ltd, 370 Brook Lane, Sarisbury Hampshire, ENGLAND S03 6ZA
Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison, IL 60101
Pow-R-Quik, 5518 Mitchelldale, Houston, TX 77092

DIESEL ENGINE—Spare Parts & Repair
Aalborg Ciserv (Miami) Inc., 1539 SW 21st Avenue, Ft. Lauderdale, FL 33312
Caltax Marine Diesel B.V, Frankijkweg 11,4455 TR Nieuwdorp (Vlissingen Oost), THE NETHERLANDS
Caterpillar, Inc., Engine Div, P.O. Box 610, Mossville, IL 61552-0610
Coltec Industries, Parts & Service Div, 701 Lawton Ave, Beloit, WI 53511
Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005
John Deere, John Deere Road, Moline, IL 61265
Global Maritime Services, 247 SW 33 Court, Ft.. Lauderdale, FL 33315
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
Hatch & Kirk, 5111 Leary Avenue NW, Seattle, WA 98107
Kim Hotstart Mfg Co, E 5724 Broadway Ave, P.O. Box 42, Spokane WA 99210
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1, GERMANY
MAN B&W Diesel, 17 State Street, New York, NY 10004
MTU of North America, 10450 Corporate Drive, Houston, TX 77478
Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, GERMANY
Pacific Rim Diesel, 3842 W. Marginal Way SW, Seattle, WA 98106
Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, C01 2HW, ENGLAND;
Paxman Diesels USA, (A Div. of Ruston Gas Turbines, Inc.), 15950 Park Row, Houston, TX 77084
Sulzer Brothers Inc., 200 Park Ave, New York, N.Y. 10166

DIVING & SALVAGE
H.J. Merrihue, P.O. Box 23123, New Orleans LA 70183
Muldoon Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731
Sea-Side Diving, 28612 Harper Ave, St. Clair Shores, MI 48081

DRY DOCKS-Design
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Ferrostaal AG, D-4300 Essn, Hohenzollernstrasse 24,GERMANY
Marine Design Services, P.O. Box 928, Bonita CA 92002

ELECTRICAL EQUIPMENT
L. F. Gaubert & Co, Inc., P. O. Box 50500, New Orleans LA 70150
MMC International, 60 Inip Dr, Inwood NY 11696
SPD Technologies, 13500 Roosevelt Blvd., Philadelphia PA 19116
Universal Marine Electric Co, Inc., P.O. Box 266-923, Houston, TX 77027-6923

ELECTRONIC DISPLAY
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolboton, NORWAY

ELECTRONIC ENCLOSURES
A&J Manufacturing, 14131 Franklin Ave, Tustin CA 92680

ELECTRONIC INFORMATION SUPPORT
Inventory Locator Service, 3965 Mendenhall Rd. South, Suite 10, Memphis, TN 83115

ENGINE TEST EQUIPMENT
General Thermodynamics Corp, P.O. Box 1105,210 S. Meadow Road, Plymouth, MA 02360
Instruments, Computers, & Controls, Inc., 6942 Haven Creek Dr, Katy, TX 77449

EPIRBS
ACR Electronics, Inc., 5757 Ravenswood Rd, P.O. Box 5247, Ft. Lauderdale FL 33310-5247
Alden Electronics, 40 Washington St, Westborough, MA 01581
Litton Special Devices, 750 W. Sprout Road, Springfield, PA 19064
Koden International, 77 Accord Park Drive, Norwell, MA 02061

EQUIPMENT-Marine
Byrne, Rice & Turner, Inc., 1172 Camp St., New Orleans, LA 70130
Maritime Power Corp, 200 Henderson Street, Jersey City, NJ 07302

EVAPORATORS
Alfa-Laval Separation, Inc., 955 Mearns Rd, Warminster, PA 18974
Aqua-Chem, Water Technologies Div, P.O. Box 421, Milwaukee, WI 53201
Beaird Industries Inc., P.O. Box 31115, Shreveport, LA 71130

FANS-VENTILATORS-BLOWERS
Carling Turbine Blower Co, 10 Nebraska St, P.O. Box 88, Worcester, MA 01613
Jon M. Liss Associates, inc., 411 Borel Ave, San Mateo, CA 94402

FASTENERS
Jamestown Distributors, 28 Narragansett Ave, P.O. Box 348, Jamestown, RI 02635

FENDERING SYSTEMS/BUOYS-Dock & Vessel
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Milligan Marine Supply Inc., 5832 Harvey Wilson, Houston, TX 77020
Rowe Bumpers, Conveyors & Caster Corp, 3501 Detroit Ave, Cleveland, OH 44113
Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Solidur Plastics Co, 200 Industrial Dr, Delmont, PA 15626
Standard Refrigeration Co, 2050 N. Ruby, Melrose Park, IL 60160
Ultra Poly Inc., 2926 South Steele, Tacoma, WA 98409
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AT & T, Cables System/Fiber Optic Div, 111 Madison Avenue, Morristown, NJ 07962

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GANGWAYS, LADDERS
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Cunningham Marine Hydraulics Co, 201 Harrison St, Hoboken NJ 07030
Del Gavio Marine Hydraulics Inc., 619 Industrial Rd, Carlstadt, NJ 07072

INCINERATORS
A/S Vesta, 27 Skudehavnsvej, DK-2100 Copenhagen DENMARK. US Agent: American
United Marine, 5 Broadway, Rte 1, Saugus, MA 01906

INSULATION
Soundcoat Company, 1 Burt Drive, Deer Park, NY 11729

JET PROPULSION SYSTEMS
North American Marine Jet, P.O. Box 1232, Benton, AR 72015

JOINER—Watertight Door—Paneling—Ceiling System—Decking
Cupples Products, 2650 S. Hanley Rd, St. Louis, MO 63144
GEC-Marconi Electronic Systems Corp, 550 S. Fulton Ave, Mt. Vernon, NJ 10550
IMAC AB, Berga Alle 1, S-252 55 Helsingborg, SWEDEN
U.S. Rep: Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980
Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431
Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256
Maritime Services Corp, 3457 Guignard Drive, Hood River, OR 97031

KEEL COOLERS
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Kahlenberg Bros. Co, P.O. Box 358, Two Rivers, WI 54241
The Walter Machine Co, Inc., 84-98 Cambridge Avenue, Jersey City, NJ 07307

LIFEBOATS/RAFTS
Zodiac of North America, P.O. Box 400, Stevensville, MD 21666
Willard Marine Co, Inc., 1250 N. Grove St, Anaheim, CA 92806

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
ACR Electronics, Inc., 5757 Ravenswood Rd, P.O. Box 5247, Ft. Lauderdale, FL 33310-5247
Archway Marine Lighting, 4501 Swan Ave, St. Louis, MO 63110
Carlisle & Finch, 4562 W. Mitchell Ave, Cincinnati OH 45232
The L.C. Doane Co, P.O. Box 975, Essex, CT 06426
Nautilus Equipment Ltd, P.O. Box 66, Station M, Halifax, Nova Scotia B3J 2L4, CANADA
Phoenix Products, 6161 N 64th St., Milwaukee WI 53218

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

LIQUID OVERFILL PROTECTION SYSTEMS
E.R.L. Marine Products, P.O.Box 1026, New ALbany, IN 47151-1026

LOGISTICS
VL Logistics Consultants, inc., 3420 Bienville Blvd., Ocean Springs MS 39564
QED, 4646 N. Witchduck Road, Virginia Beach, VA 23455

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
Del Gavio, 619 Industrial Rd, Carlstadt, NJ 07072
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
New England Trawler Equipment Co, 291 Eastern Avenue, Chelsea, MA 02150

MACHINING—On Site Repair
Global Maritime Services, 247 SW 33 Court, Ft. Lauderdale, FL 33315

MARINE ACCOMMODATIONS
Directions in Design, 15510 Olive Street Road, Suite 110, Chesterfield, MA 63017
Hopeman Brothers, P.O. Box 820,435 Essex Ave, Waynesboro, VA 22980
Jamestown Metal Marine Sales, inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431
Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256

MARINE FURNITURE
Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Avenue, Boca Raton, FL 33431
Marine Accommodations Inc., 8535-3 Baymeadows Road, Suite 140, Jacksonville, FL 32256
Wilson & Hayes, 1601 Eastlake Avenue, East, Seattle, WA 98102

MARINE SHIP MANAGEMENT
Arkhon Corp., 1810 Chapel Ave. West, Cherry Hill, NJ 08002

METAL PRODUCTS
Jamestown Metal Marine Sales, Inc., 4710 N.W. Second Ave, Boca Raton,FL 33431
Harrington Metal Fabrication, P.O. Box 410,6720 M 89, Fennville, MI 49408
Williams & Co, 901 Pennsylvania Ave, Pittsburgh, PA 15233-1495

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy, Arlington, VA 22202
Aero Nav Laboratories, Inc., 14-29112 St, College Point, NY 11356
Artec Offshore Corp, 578 Enterprise St, Escondido, CA 92025
CDI Marine Co, 9487 Regency Square Blvd., Suite 500, Jacksonville, FL 32225
CT Marine, 18 Church Street, Georgetown, CT 06829
Childs Engineering Corp, Box 333, Medfield, MA 02052
Crandall Dry Dock Engrs, inc., 21 Pottery Lane, Dedham, MA 02026
Crane Consultants, 15301 First Ave S, Seattle WA 98148
C.R. Cushing, 18 Vesey St., New York, NY 10007
Arthur D. Darden, 3200 Ridgelake Dr, Suite 403, Metairie LA 70002

Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, 2611 Jefferson-Davis Hwy, Sfe. 3000, Arlington, VA 22202
Diversified Technologies, 812 Live Oak Dr., Chesapeake VA 23320
Encon Management & Engineering Consultant Services, P.O. Box 7760, Beaumont, TX 77706
GHM Inc. (Industrial Measurement Consultants), P.O. Box 1836, Newport News, VA 23601
Gibbs & Cox, Inc., 50 West 23rd Street, New York, NY 10010
The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104
Morris Guralnick Associates, Inc., 130 Sutter Street, Suite 400, San Francisco, CA94104
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
Hydrocomp, Inc., 45 James Farm-Lee, P.O. Box 865, Durham, NH 03824
JJH Inc., No. 4 Executive Campus, Culbert Blvd. & Route 70, P.O. Box 5031, Cherry Hill, NJ 08034
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073
James S. Krogen, 1515 NW7th St., Suite 124, Miami FL33125
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John V. McCollum, Inc., 1199 Long Point Road, Mt. Pleasant, SC 29464
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
John J. McMullen Associates, Inc., 1 World Trade Center, Suite 3000, New York, NY 10048
MacPherson Maritime Services, 141 Jefferson Ave., Westfield NJ 07090
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 226 Chestnut St., Roselle Park, NJ 07204
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109
Maritech, Seacliff, Bay Road, Newmarket, NH 03857
Maritime Design, Inc., 3020 Hartley Rd., Jacksonville, FL 32257
R.J. Mellusi & Co., 71 Hudson St, New York, NY 10013
Nautical Designs, Inc., 2101 S Andrews Ave, Suite 202, Ft Lauderdale FL 33316
Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169
Northern Marine, P.O. Box 1169, Traverse City, MI 49685
Ocean Oil International Engineering Corp., 3019 Mercedes Blvd, New Orleans LA 70114
Olsen Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777
Omega Marine Engineering Systems, Inc., 11757 Katy Freeway, Ste 1100, Houston TX 77079
QED Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455
Donald J. Quigley, Inc., P.O. Box 515 Richboro, PA 18954
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105
Sargent & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112
Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702
Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426; 17 Battery PI, New York, NY 10004; P.O. Box 975, Barnegat Light, NJ 08006; 2 Skyline Pl., 5203 Leesburg Pike, Suite 700, Falls Church, VA 22041; 1305 Franklin St., Suite 210, Oakland, CA 94612.
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004
George G. Sharp, Inc., 100 Church St., New York, NY 10007
R.A. Steam, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Systems Engineering Associates (SEACOR), 200 East Park Dr., Suite 600, Mt Laurel NJ 08054
TIMSCO, P. O. Box 91360, Mobile AL 36691

NAVIGATION & COMMUNICATIONS EQUIPMENT

Anschutz & Company, One Madison St, East Rutherford, NJ 07073
AT&T, High Seas Dept., 412 Kemble Ave, Room C380, Morristown, NJ 07960
Autronica Marine A/S, Drammensveien 126, N-0277 Oslo 2, NORWAY
Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024
Electronic Marine Systems, 800 Ferndale PL, Rahway, NJ 07065
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Henschel, Inc., 9 Hoyt Drive, Newburyport MA 01950
IDB Aero-Nautical Communications, 15245 Shady Grove Road, Rockville, MD 20850
Kelvin Hughes Ltd, New North Rd, Hainault, Ilford, Essex 1G6 2UR ENGLAND
Kenwood USA Corp, Marine Products Div, 2201 E. Dominquez St, Long Beach, CA 90810
Mackay Communications, 441 US Highway #1, P.O. Box 331, Elizabeth NJ 07207
Marine Electric RPD, Inc., 50 Carol St, P.O. Box 1135, Clifton, NJ 07014-1135
Megapulse, Inc., 8 Preston Court, Bedford MA 01730-2380
Mobile Telesystems, Inc., 300 Professional Drive, Gaithersburg, MD 20879
Naval Electronics, 5417 Jetview Circle, Tampa FL 33634
Norwegian Telecom, P.O. Box 6701, Oslo 1, NORWAY
Novatech, 820 Cormorant St, Victoria, BC V8W1R1, CANADA
Robertson Marine Systems, 3000 Kingman Street, Suite, 207, Metairie, LA 70006
SPD Technologies, 13500 Roosevelt Blvd, Philadelphia, PA 19116
Simrad, 19210 33rd Avenue West, Lynwood, WA 98036
Singapore Telecom, Orchard Point Post Office, P.O. Box 38, SINGAPORE 9123
Sperry Marine Inc., 1070 Seminole Trail, Charlottesville VA 22901
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
Summer Equipment Ltd, 24 West 4th Ave, Vancouver V5Y 1G3, CANADA
Trimble Navigation, 585 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086
Waterway Communications System, Inc. 453 E. Park PI, Jeffersonville, IN 47130

NOZZLES

Harrington Metal Fabrication, P. O. Box 410,6720 M 89, Fennville, MI 49408

OIL—Marine—Additives

Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037-0001
Shell Oil, P.O. Box 2463, Houston, TX 77252
Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

OIL/WATER SEPARATORS

Alfa-Laval Separation, Inc., 955 Mearns Rd, Warminster, PA 18974-0556
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale NJ 07647
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
MMC International, 60 Inip Dr, Inwood NY 11696

PAINT—COATING—CORROSION CONTROL

Amclean Coating Removal, 12920 S.W. 99 N. Ave, Miami, FL 33176
Ameron, 201 N. Berry St, Brea, CA 92622
The Arnessen Corp, Corrosion Dynamics Division, 1100 Walmut Street, Rosell, NJ 07203
Enviro Coatings, Inc., 4560 Belt Line Rd, Suite 300, Dallas, TX 75244
Esgard, Inc., P.O. Drawer 2698, Lafayette, LA 70502
GlobalTech, 9801 Westheimer St, Ste. 202, Houston, TX 77042
Jamestown Distributors, 28 Narragansett Ave, P.O. Box 348, Jamestown, RI 02635
Hempel Coatings, Foot of Curie Avenue, Wallington, NJ 07057
Melvin Pierce Marine Coating, Inc., P.O. Box 93, Semmes, AL 36575
Microphor, Inc., Marine Division, 452 E. Hill Rd, P.O. Box 1460, Willits, CA 95490
Nalfleet Marine Chemicals, P.O. Box 11, Northwich, Cheshire, CW8 4DX, ENGLAND
Sigma Coatings, 8979 Market St, Houston, TX 77029,330 Rover Road, Harvey, LA 70059,1100 Adams St, Hoboken, NJ 07030
Unitor Ships Service, Unitor Marine Chemicals Division, 3 High St, Rickmansworth, Herts, WD31 SW UNITED KINGDOM

PIPE FITTINGS/CONNECTING SYSTEMS

Aeroquip Corporation, 3000 Strayer, P.O. Box 631, Maumee, OH 43537-0631
Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248
Lokring, 396 Hatch Drive, Foster City, CA 94404
Stanley G. Flagg Co, 1020 W. High St, Stowe, PA 19464
Thaxton, Inc., 25 Leonburg Rd, Mars, PA 16406-8401

PORT SERVICES

Port of Portland, 5555 N. Channel Ave, Portland, OR 97217

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

Avondale Industries, Harvey Quick Repair, P.O. Box 116, Harvey, LA 70058
American Air Filter, P.O. Box 35690, Louisville, KY 40432
ASEA Brown Boveri, 1460 Livingston Avenue, N. Brunswick, NJ 08902
ASEA Brown Boveri (Stromberg), P.O. Box 185,00381 Helsinki, FINLAND
Argo International, 140 Franklin Street, New York, NY 10013
Aquamaster-Rauma Ltd, Box 220, SF-26101, Rauma, FINLAND
Bergen Diesel A/S, P.O. Box 924, N-5002, Bergen, NORWAY
Bird Johnson Company, 110 Norfolk St, Walpole, MA 02081
CWF Hamilton & Co, Ltd, P.O. Box 709, Christchurch, NEW ZEALAND
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320
Coltec Industries (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511
Cummins Engine Company, Mail Code 60011, Box 3005, Columbus, IN 47202-3005
Fincantieri, Diesel Engines Divisio—GMT, Bagnoli della Rosandra 334, Trieste, ITALY
GE Naval & Drive Turbine Systems, 166 Boulder Dr, Fitchburg MA 01420
Kahlenberg Bros. Co, P.O. Box 358, Two Rivers, WI 54241
Krupp MaK, 7555 Danbro Crescent, Mississauga, Ontario, CANADA L5N 6P9
Mapeco Products Inc., P.O. Box 6,725 Glen Cove Ave, Glen Head NY 11545
Marine Gears, Inc., P.O. Box 689, Greenville MS 38707
Marine Systems Inc., 2032 Atlantic Ave, Chesapeake VA 23324
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY
MAN B&W Diesel, 17 State St, New York, NY 10004
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Holeby, DENMARK
MAN B&W Diesel A/S, Alpha Diesel, Niels Juels Vej 15. DK-9900 Frederikshavn DENMARK
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-8900 Augsburg 1 GERMANY
MKW Power Systems, 301 S. Church St, Rocky Mount, NC 27801
New Sulzer Diesel, Ltd, CH-8401, Winterthur, SWITZERLAND
Northwest Marine Services Corp, 6452 So. 144th St, Tukwila WA 98168
Nylands Marine Service A/S, P.O. Box 130, N-4818 Faervik, NORWAY
Omnithruster Inc., 9515 Sorensen Ave, P.O. Box 2144, Santa Fe Springs, CA 90670
Ovako Steel Couplings AB Sweden, S-813 00 Hofors SWEDEN
Rolla SP Propellers SA, Via Silva 5, P.O. Box 251,6828 Balema SWITZERLAND
Rolla SP Propellers USA, 4030 Mustang Road, Melbourne, FL 32934, USA
Karl Senner Inc., 25 W Third, Kenner LA 70062
Schottel-Werft, D-5401 Spay, GERMANY
Stewart & Stevenson, 1400 Destrehan, P.O. Box 8, Harvey LA 70059-0008
Textron Lycoming, 550 Main St, Stratford, CT 06497
Thrustmaster of Texas, 12227-K FM 529, Houston, TX 77041
Ulstein International, A/S, N-6065 Ulsteinvik, NORWAY
J. M. Voith GmbH, Marine Division, Postfach 1940, D-7920, Heidenheim/Brenz, GERMANY U.S. Rep: Voith Schneider America Inc., 121 Susquehanna Ave, Great Neck, NY 11021
Oy Wartsila Ab, Vasa and Abo Divisions, P.O. Box 244, SF65100 Vasa, FINLAND
WesTech Gear Corp, 2600 E. Imperial Highway, Lynwood, CA 90262
ZF of North America, Marine Sales, 500 Barclay Blvd, Lincolnshire IL 60069

PROTECTIVE WRAPS

FANA (Film Applicators of North America), 1260 E Woodland Ave, Springfield PA 19064

PUMP—Repair—Drives

Coffin Turbo Pump, Inc., 326 S. Dean Street, Englewood, NJ 07631
Del Gavio, 619 Industrial Rd, Caridstadt, NJ 07072
Golten Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
Houser Marine, Lario Division, 1713 S McKenzie St, Foley AL 36535
Jim's Pump Repair, 48-55 36th St, Long Island City NY 11101
Leistritz Corporation, 165 Chestnut Street, Allendale, NJ 97401
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
Vita Motivator, 99 W Hawthorne Ave, Suite 622, Valley Stream NY 11580
Wilden Pump & Engineering Co, 22069 Van Burren St, P.O. Box 845, Colton, CA 92324

REMOTE VALVE OPERATORS

Elliott Manufacturing, P. O. Box 773, Binghamton, NY 13902
S. S. White Technologies, Inc., 151 Old New Brusnwick Road, Piscataway, NJ 08854
Teleflex, Inc., 771 First Ave, King of Prussia, PA 19406

ROPE—Manila—Nylon—Hawsers—Fibers

Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018
American Manufacturing Co, 200 S. Park Road, P.O. Box 52125, Lafayette, LA 70505
Dupont, Montgomery 403,1011 Centre Road, Wilmington, DE 19805

SANITATION DEVICE-Pollution Control

Jered Brown Brothers, 56 South Squirrel Rd, Auburn Hills, MI 48326
Byrne, Rice & Turner, Inc., 1172 Camp Street, New Orleans, LA 70130
Envirovac Inc., 1260 Turret Dr, Rockford, IL 61111
Fast Systems, 3240 North Broadway, St. Louis, MO 63147
Microphor, Inc., 452 E. Hill Rd, P.O. Box 1460, Willits, CA 95490
Novatech, 820 Cormorant St, Victoria BC V8W1R1, CANADA
Red Fox Environmental Sen/ices, Inc., P.O. Box 53809, Lafayette, LA 70505-3809
Research Products/Blankenship (Incinolet), 2639 Andjon, Dallas, TX 75220

SCALE MODELS

Sturgeon Bay Model Shop, 187 N Ninth Ave, Sturgeon Bay WI 54235

SCUTTLES/MANHOLES

L.S. Baier & Assoc, 7527 NE 33rd Dr, Portland OR 97211

SHIPBUILDING EQUIPMENT

NEI Syncrolift, Inc., 8970 S W 87th Ct,, Miami FL 33176
Offshore Industries, Inc., 144 Railroad Ave, Suite 206, Edmonds WA 98020

SHIPBUILDING—Repairs, Maintenance, Drydocking

Astilleros Espanoles S.A, Padilla 17,28006 Madrid, SPAIN
Atlantic Marine, Inc,,P.O. Box 3202, Mobile, AL 36652
Atlantic Marine, Inc., 8500 Heckscher Dr, Jacksonville, FL 32226
Avondale Industries Inc., P.O. Box 50280, New Orleans LA 70150
Bender Shipbuilding & Repair, P.O. Box 42, Mobile AL 36601
Bender Inc., 279 Great Valley Parkway, Malvern, PA 19355
Bethlehem Steel, Martin Tower, Bethlehem PA 18106
Bethlehem Steel, Baltimore Marine Div, Sparrows Point Yard, Sparrows Point MD 21219
Bisso Marine Co, P.O.Box 4113, New Orleans, LA 70178
Bollinger Lockport & Larose, P.O. Box 250, Lockport, LA 70374-0250
Bourg Drydock, P.O.Box 1852, Houma, LA 70361
Chris-Marine AB, P.O. Box 9025, S-2000 39, Malmo, SWEDEN
Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381
Curacao Drydock (USA), Inc., P.O. Box 3012, Curacao, Netherlands Antilles
Eastern, 505 North Sam Houston Pkwy. East, Ste. 150A, Houston, TX 77060
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11,16129 Genoa ITALY
Galveston Shipbuilding, 6800 Port Industrial Boulevard, P.O. Box 2660, Galveston, TX 77553
Gulf Craft, Inc., 3904 Highway 182, Patterson, LA 70392
Halter International, 7412 Lakeshore Drive, New Orleans, LA 70124
Hitachi Zosen, Hitachi Shipbuilding & Engineering Co, 1-1-1 Hitotsubashi, Chiyoda-ku Tokyo 100, JAPAN
Institute for International Research, 437 Madison Ave, N.Y, N.Y. 10022
Jacksonville, Shipyards, 750 E. Bay St, Jacksonville, FL 32202
Jeffboat, Inc., P.O. Box 610, Jeffersonville IN 47130
Kvaerner Fjellstrand, N-5632 Omastrand, NORWAY
Lisnave, Apartado 2138,1103 Lisbon, Codex PORTUGAL
MIL Davie, Inc., P.O. Box 130, Levis, Quebec, CANADA
Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199
Munson Manufacturing, 150 Dayton, Edmonds WA 98020
Newport News Shipbuilding, 4101 Washington Ave, Newport News, VA 23607
New York Shipyard Corp, One Beard St, Brooklyn NY 11231
Nichols Brothers Boat Builders, 5400 South Cameron Road, Freeland, WA 98249
Norconsult Engineering Co, Inc., P.O. Box 529,5785 Plantation Rd, Theodore, AL 36582
Protecno, Ltd, Rua Eugenio Castro, 13A-r/c, 2800 Almada, PORTUGAL, U.S. Rep: Walter Thorsen, Inc., 79 Oweno Rd, P.O. Box 755, Mahwah, NJ 07430-0755
Quality Shipyards, Inc. (Zapata), 3201 Earhart Dr, P.O. Box 1817, Houma, LA 70361
Thomas Marine, 37 Bransford Street, Patchogue, NY 11772
SeaArk, P.O. Box 210, Monticello AR 71655
SeaFab, P.O. Box 1651,4111 Cedar St. Pascagoula, MS 39567
Service Marine Industries, P.O. Box 3606, Morgan City LA 70381
Skipperliner Shipyards, 621 Park Plaza Dr, Dept 21, LaCrosse WI 54601
Steiner Shipyard, Inc., P.O. Box 742, Bayou la Batre, AL 36509
Swath Ocean, 979 G Street, Chula Vista, CA 92011
3 Maj Associates Shipbuilding Industry, P. O. Box 117,51001 Rijeka YUGOSLAVIA
Textron Marine Systems, 6600 Plaza Drive, New Orleans, LA 70127-2584
Trinity Marine Group, Box 3029, Gulfport, MS 39505-3029
Viking Maritec, 300 Montour Place, Ste 211, Oakdale, PA 15071
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201
Zodiac of North America Inc., Thompson Creek Rd, P.O. Box 400, Stevensville, MD 21666

SIMULATOR TRAINING

Houston Marine Training Sen/ices, 1600 20th Street, Kenner, LA 70062
Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371

SILENCERS

Beaird Industries Inc., P.O. Box 31115, Shreveport LA 71130

STABILIZERS

Naiad Stabilizers, Van Dusen & Meyer Inc., P.O. Box 558, Shelton, CT 06484

STAINLESS PLATE

Eastern Stainless Division, Cyclops Corporation, P.O. Box 1975, Baltimore MD 21203

STUFFING BOXES

Kahlenberg Bros. Co, P.O. Box 358, Two Rivers, WI 54241

SURVIVAL EQUIPMENT

Parkway/Imperial, 241 Raritan Street, South Amboy, NJ 08879
Schat Watercraft, P.O. Box 465, Ft of Industrial Rd, Farmingdale NY 07727
Stearns Manufacturing, P.O. Box 1498, St. Cloud MN 56302
Viking Life Saving Equipment, 1625 N Miami Ave, Miami FL 33136

TANK CLEANING EQUIPMENT

Polarmarine, Alvsborgsgatan 37,72 Gothenburg, SWEDEN S-414

TANK LEVELING INDICATORS

Ian-Conrad Bergan, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561
IMO Industries, Gems Sensors Division, One Cowles Rd, Plainville CT 06062
MMC International, 60 Inip Dr, Inwood NY 11696
Saab Marine Electronics AB, P.O. Box 13045, S-402 51 Goteborg SWEDEN

TOOLS

Derbyshire Machine & Tool, Belfield Ave. & Wister St, Philadelphia, PA 19144-1788
Ingersoll-Rand, Professional Tool Group, Allen & Martinsville Rd, Liberty 07938
LSP Industries, P.O. Box 5303,2511-20th Street, Rockford, IL 61125
San Diego Marine Hardware, 1660 Logan Avenue, San Diego, CA 92113

TORSIONAL VIBRATION SPECIALISTS

T.W. Spaetgens, 156 W. 8th Ave, Vancouver, BC, CANADA, V5Y1N2
Vibranalysis Engineering Corp, 9300 Gamebird, Houston, TX 77034

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

Balehi Marine Inc., P.O. Box 600, Lacombe, LA 70445
Jack Faulkner, 2419 Caddy Lane, Flossmoor IL 60422

TURBOCHARGERS

ASEA Brown Boveri, 1460 Livingston Ave, North Brunswick NJ 08902

VALVES AND FITTINGS

Aeroquip Corporation, 3000 Strayer, P.O. Box 631, Maumee OH 43537-0631
American Vulkan Corporation, P.O. Drawer 673,2525 Dundee Rd, Winter Haven, FL 33882-0673
Circle Seal Controls, Brunswick Corporation, P.O. Box 3666,1111 N. Brookhurst St, Anaheim, CA 92803
Cla-Val Co, P.O. Box 1325, Newport Beach, CA 92663
Cunico Corp, 214 N Hawaiian Ave, P.O. Box 306, Wilmington CA 90748
Dolsey Ltd, 863 West 44th Street, Norfolk, VA 23508
Elliot Manufacturing, P.O. Box 773, Binghamton, NY 13902
Hall-Toledo, Inc., 525 West Sophia, Maumee, OH 43537
Leslie Controls, 1250 Telecom Dr, Tampa, FL 33637
Loeffler Machine, US #1 & Robbins Ave, Penndel PA 19047
MMC International, 60 Inip Dr, Inwood NY 11696
Stacey/Fetterolf, P.O. Box 103, Skippack, PA 19474
Stanley G. Flagg Co, 1020 West High St, Stowe, PA 19464
Zidell Explorations, Inc., 3121 SW Moody Ave, Portland OR 97201

VAPOR RECOVERY CONTROLS

O-Z / Gedney Co. Main Street, Terryville, CT 06786
Row Technology, Inc., P.O. Box 265, Littletown PA 17340

VIBRATION ANALYSIS

DLI Engineering Corp, 253 Winslow Way West, Bainbridge Island, WA 98110
T. W. Spaetgens, 156 W 8th Ave, Vancouver BC CANADA V5Y1N2
Vibranalysis Engineering Corp, 9300 Gamebird, Houston, TS 77034

VIDEO—**Training**

Walport U.S.A. Inc. (WUSA) 840 Bond Street, Elizabeth NJ 07201

WASTE SERVICES

Browning-Ferris Industry, (Medical Waste Systems) 757 N. Eldridge, Houston, TX 77079

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ON
EQUIPMENT AND SERVICES ADVERTISED IN THIS ISSUE

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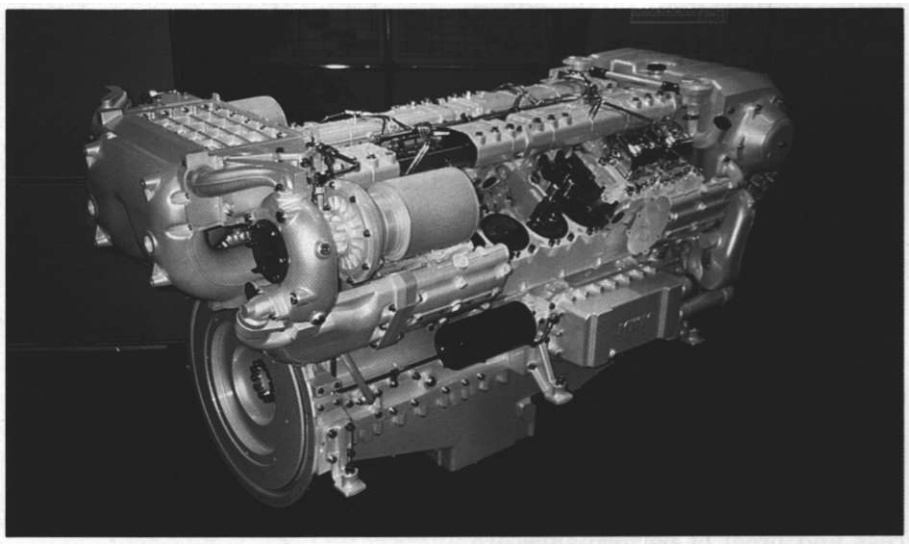

Included in the Deutz MWM complete yacht engine line 234Y is the 16-cylinder engine (shown above) with a maximum power of 1,030 kw (1,400 hp).

Deutz Adds 16-Cylinder Unit To 234Y Engine Series

Deutz MWM recently completed its 234Y series engine range with the introduction of a 16-cylinder, 1,400-hp model. The aim of the development was to build—on the basis of the favorable specific characteristics—power units which are especially suitable for megayacht and passenger vessel propulsion.

Models in the 234Y range are available with six, eight, 12 and 16 cylinders covering a power spectrum from 337 to 1,030 kw (459 to 1,400 hp). The maximum power ratings for yachts and other fast ships range from 405 to 1,030 kw (I0FN - 0.5 h within 6 h), the continuous power between 337 and 858 kw (IC 20 N).

The range of Deutz MWM yacht propulsion engines includes extremely compact, high- and medium-speed diesel engines. These units meet the demands for low weight, small installation volume and smooth-running characteristics, combined with economy and environmental compatibility. Four engine series are available to cover a power spectrum from 20 to 3,935 kw (27 to 5,350 hp).

The bottom end of the power range, from 27-300 hp, is represented by series 226B engines. They are available in two-, three-, four- and six-cylinder units whose maximum cylinder power is between 18 and 37 kw (24 and 50 hp), depending on whether it is a naturally aspirated or turbocharged version with or without charge air cooling. They are rated for speeds between 1,500 and 3,000 rpm.

Powers up to 1,800-kw (2,448 hp) are covered by twin-engine installations consisting of series 234 engines rated for 100 to 900 kw (136 to 1,224 hp), each at speeds between 1,500 and 2,300 rpm. The 234 series includes engines in vee-configurations with six, eight, 12 and 16 cylinders. Their best weight per unit power value in maritime duty is as low as 2.7 kg/kw (2.0 kg/hp).

The power class up to around 4,500 kw (6,100 hp) is covered by the compact series 604B high-speed engines. These engines were launched in the market in 1985 and have performed well as propulsion units for fast ships. Their power range extends from 445 to 2,240 kw (605 to 3,050 hp) at speeds between 1,200 and 1,860 rpm. The optimal fuel consumption is as low as 192 g/kWh (141 g/hph).

The company's product line is topped by medium-speed diesel engines distinguished by operating economy and smooth-running characteristics. The Deutz MWM engines of the 628 series are a good example, with more than 1,450 units sold since their market launch. Around 60 percent of these sales are marine propulsion units or are installed in marine auxiliary sets; some of these units are also provided for yacht propulsion. The current power band of the 628 series, covered by six-, eight- and nine-cylinder in-line and 12- and 16-cylinder V-type engines, extends from 755 to 3,935 kw (1,027 to 5350 hp) at speeds from 720 to 1,063 rpm.

For free literature giving more information on Deutz MWM engines,

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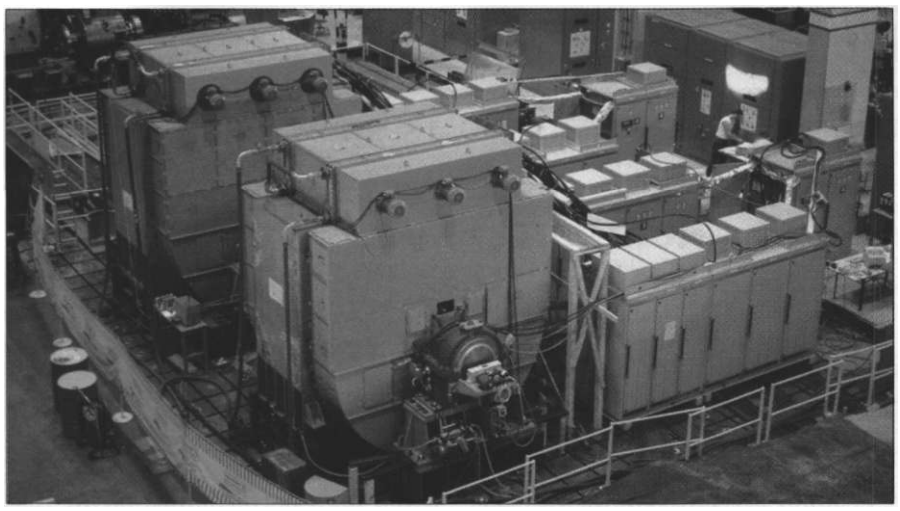


Test bed for two 14 MW Cyclo propulsion drives for delivery to the 70,000-grt cruise ship M/S Fantasy.

ABB Marine Supplies Power For Four CCL Megaliners

Electric propulsion has been used to power ships since the beginning of this century, with one of the earliest large scale ships being the Neptune, built in 1911 and later converted to the first aircraft carrier.

Today, because of their inherent torque characteristics and high controllability, especially at low speeds, electric drives remain a viable alternative to diesel drives for the propulsion of icebreakers, offshore vessels, and pipelayers.

During the last few years, the development of AC drive technology has made electrical propulsion drives much more attractive for merchant vessels, and, in particular, passenger ships. AC drive systems require less maintenance and are also considerably smaller in size and weight.

Diesel-electric machinery offers great flexibility when it comes to the engine room arrangements and placing of the main generator sets. Auxiliary piping also becomes simpler. And, even more important, the engine casing and funneling become smaller, providing more space for passenger cabins and public spaces on the upper decks.

According to **Thomas Hackman,** marketing manager for ABB Marine, Power Plants and Drives, the AC propulsion drive system supplied by ABB Marine, Helsinki for icebreakers and cruise vessels—the Cyclo (cycloconverter) system—feeds a synchronous propulsion motor and is available for powers up to 20 MW per drive. Providing these drives with tandem or multiple armatures will correspondingly increase the shaft power. The cycloconverter controls the motor speed with full torque available in either direction over a typical speed range of 0 to 200 rpm, eliminating the need for a reduction gear.

ABB Marine has maintained its leading position in the field of marine electrical propulsion by supplying the Cyclo propulsion and power plants for four icebreakers, the four Carnival Cruise Lines superliners—Fantasy, Ecstasy, Sensation and Fascination—and Crystal Cruises' Crystal Harmony. Furthermore, ABB Marine is currently supplying similar plants for Holland America Line's Statendam, Stellendam and a third as-yet-unnamed sister vessel, under construction at Fincantieri in Italy for delivery in 1992 and 1994.

The M/S Fantasy (brought into operation in 1990) and her sisters, Ecstasy (1991), Sensation (1993) and Fascination (1994), all feature an integrated high and low voltage power station, based on six medium-speed diesel alternators for generation of power for propulsion by two high skew back propellers—each driven by a synchronous AC motor—as well as for all other electrical requirements on board.

The diesel electric power plant has four Wartsila Sulzer 12ZAV 40S and two Wartsila Sulzer 8ZAL 40S medium speed diesel engines as prime movers. Each engine is rigidly mounted with its alternator on a frame, which, in turn, is resiliency mounted on the hull. The four 10.3 MVA and two 6.8 MVA generators supply electrical power through two 6.6 kv switchboards. Propulsion power is provided by two electrical ABB Marine 14 MW Cyclo propulsion drives, with a water cooled synchronous motor directly coupled to each of the two shafts driving KaMeWa high skew controllable pitch propellers at maximum of 140 rpm. CP propellers are used in order to take advantage of the reduction in pressure pulse levels provided by high skew back blades.

The electrical power and propulsion package was engineered and supplied by ABB Marine, Helsinki, and also includes six 1.5 MW thruster motors.

For free literature detailing ABB Marine Cyclo propulsion and power plants,

Circle 3 on Reader Service Card

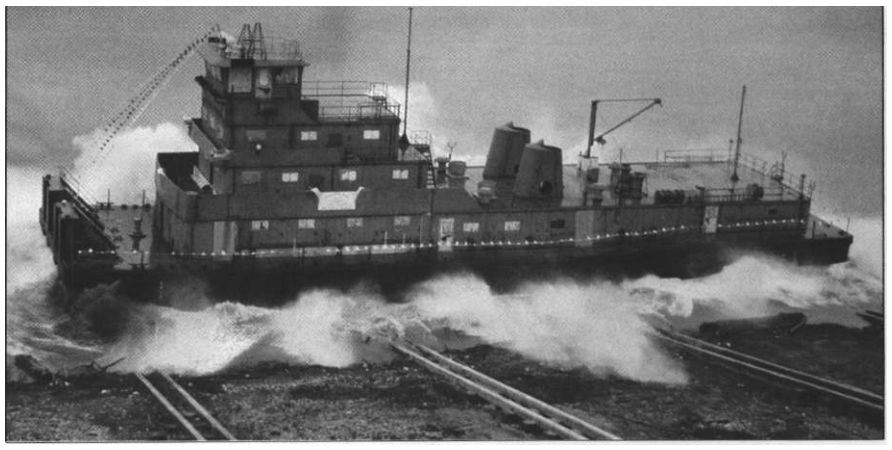
Jeffboat Launches EMD-Powered Twin-Screw Towboat Michael Luhr

Jeffboat, builder of hopper barges, tank barges and towboats in Jeffersonville, Ind., recently launched the 170-foot-long by 48-foot-wide, twin-screw motor vessel Michael Luhr. **Michael A. Luhr,** president of Luhr Bros., Inc., for whom the boat is named, manned one of the axes to cut the ropes which launched the vessel.

The M/V Michael Luhr is a state-of-the-art towboat, equipped with two 16-cylinder EMD engines for propulsion, and two Detroit Diesel generators for ship service power. The entire deckhouse is isolated from the hull, an innovation which Jeffboat pioneered in 1985 on an earlier vessel for Luhr Bros. This design affords the crew the comfort of a vibration— and noise-free environment while in the quarters, galley and pilothouse of the boat.

Luhr Bros., Inc., headquartered in Columbia, 111., is a major contractor for construction and dredging projects for the Corps of Engineers. Luhr is also a large supplier of limestone products to the Gulf Coast area. The M/V Michael Luhr will move 30-plus barges of stone from the Luhr quarries down the Mississippi River.

Jeffboat, which specializes in the construction of inland waterway vessels, delivered over 100 barges to commercial interests last year. The Jeffersonville firm built forty 195-foot open hopper barges, sixty 200-foot open hopper barges, sixteen 298-foot, 30,000-barrel double-skin tank barges, two 298-foot, 29,000-barrel double skin tank barges, and ten 195-foot, 10,000-barrel double-skin tank barges.



The towboat Michael Luhr is shown during launching at Jeffboat in Jeffersonville, Ind.

For free literature on the facilities and capabilities of Jeffboat,
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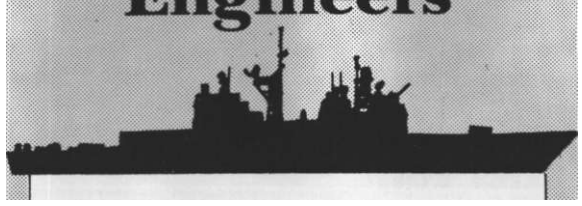

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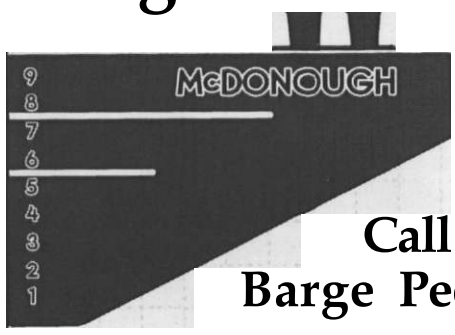

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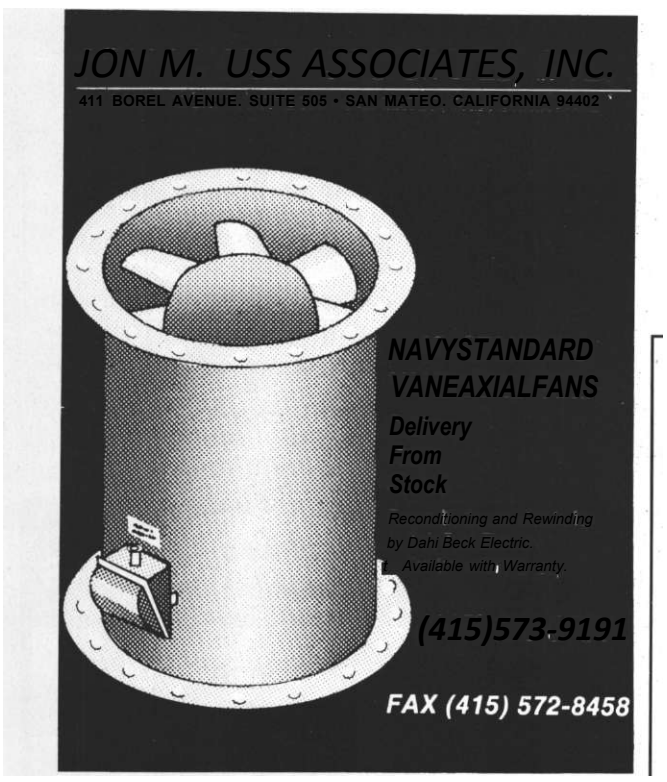

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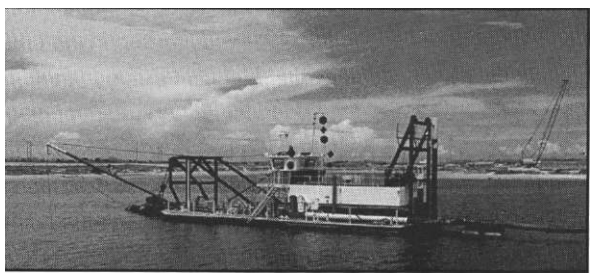

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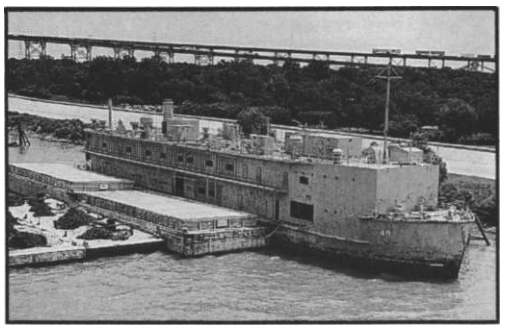

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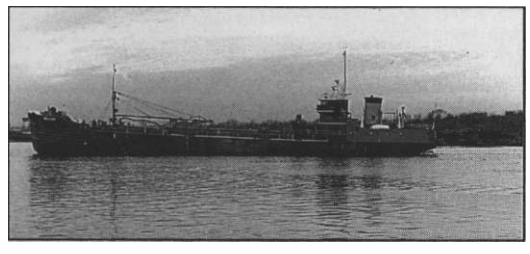

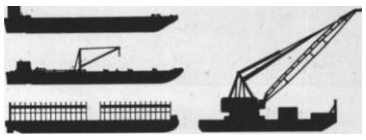

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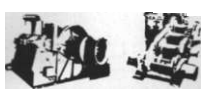

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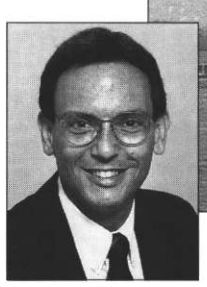

"Hopeman Brothers' capabilities as an interior contractor are evident in the work performed on the Viking Serenade. The level of quality and finish are a tribute to the company's craftsmanship. It has been a pleasure to work with their high level staff on this very difficult project."
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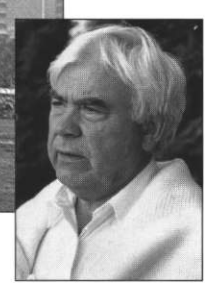

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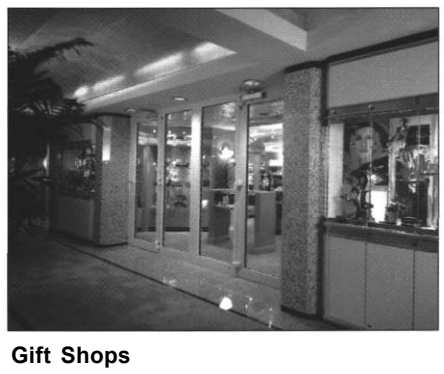

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