

**MARITIME
REPORTER**
AND
ENGINEERING NEWS



NAVAL TECHNOLOGY & SHIPBUILDING

POSIDONIA '88

MAY 1988

FOR SALES

Two Maine
Construction Yards
Excellent Gulf
of Mexico Locations

- New Construction
- Repairs
- Conversions
- Inspections

- Offshore Drill Rigs
- Ships
- Barges
- Steel Fabrication

Investment Considerations:

- Unique 64,000 ton convertible dry dock (rig or ship mode)
- Flexible construction capabilities
- Drill rig designs
- Geographic location
- Foreign trade sub-zone

For more information contact:

Robert D. Joyce
Bethlehem Steel Corporation
Martin Tower, Room 1711
Bethlehem, PA 18016 USA
Telephone: 215-694-4373
Telecopier: 215-694-1447



Beaumont Yard in Beaumont, Texas



Sabine Yard in Port Arthur, Texas

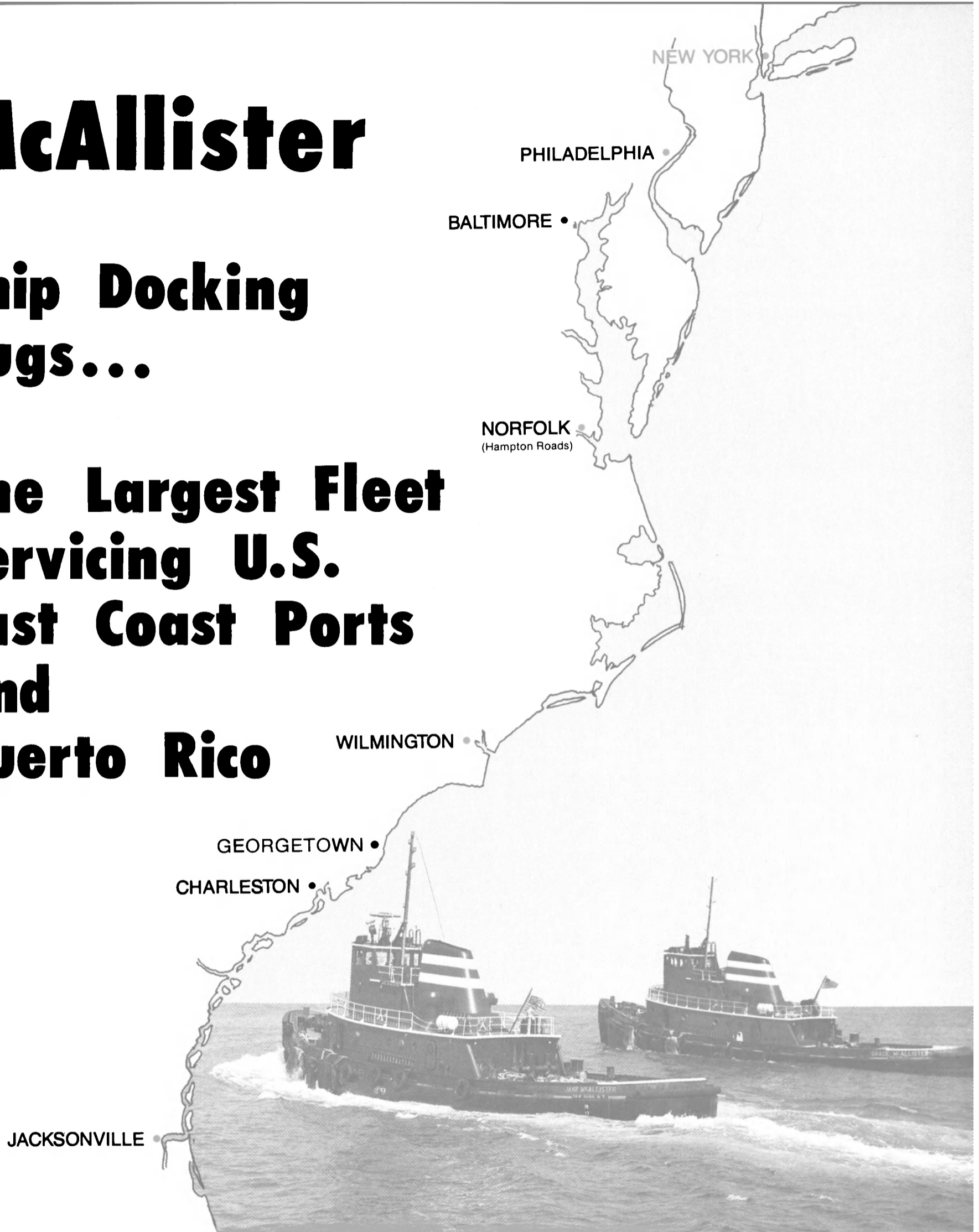
Bethlehem 

Circle 316 on Reader Service Card

McAllister

Ship Docking Tugs...

The Largest Fleet Servicing U.S. East Coast Ports And Puerto Rico



McAllister Brothers, Inc. Towing and Transportation
17 Battery Place, New York, N.Y. 10004 (212) 269-3200
Philadelphia (215) 922-6200 • Baltimore (301) 276-8000
Norfolk (804) 627-3651 • Wilmington (919) 762-2630
Georgetown (803) 577-2971 • Charleston (803) 577-6449
Jacksonville (904) 743-9226 • San Juan (809) 721-8888

McAllister



ON THE COVER

RO-RO 88 Preview
PAGE 8

POSIDONIA 88 Preview
PAGE 14

SNAME Spring Meeting/
STAR Symposium Preview
PAGE 38

Naval Technology
& Shipbuilding Supplement
PAGE 23

Blount Marine To Build Another New York-Class Harbor Cruise Vessel

Cruise International (CI) of Norfolk, Va., operator of the "Spirit" line fleet of seven harbor cruise ships, has announced plans to build five New York-class vessels in the next two years. Two will be built in 1988, and three in 1989.

A contract for the first of the two has been awarded to Blount Marine of Warren, R.I., builder of the other Spirit vessels. CI plans to homeport this vessel in Los Angeles. The contract for the second vessel to be built this year is expected to be awarded soon. A special committee is evaluating port cities for assignment of Spirit vessels.

The Spirit of New York has recently completed its inaugural season carrying about 180,000 passengers. It was named an outstanding passenger vessel of 1987 by Maritime Reporter and Engineering News (January 1988 issue, page 23), and is regarded by maritime experts as one of the finest vessels of this type in operation. According to **Richard O'Leary**, president of CI, all future vessels will be of this design.

Presently nearing completion at Blount Shipyard in Warren is the seventh ship in the Spirit line, the 192-foot Spirit of Chicago, a 600-passenger sister ship to the Spirit of New York, which is scheduled to begin service in Chicago's Lake Michigan this month.

For free literature giving complete details on the facilities and capabilities of Blount Marine,

Circle 41 on Reader Service Card

MARITIME REPORTER and Engineering News

Editorial and Executive Offices
118 East 25th Street, New York, NY 10010
(212) 477-6700 • ITT Telex: 424768 MARINTI
Telefax: (212) 254-6271

Publishers: **JOHN E. O'MALLEY**
CHARLES P. O'MALLEY
Editorial Director: **CHARLES P. O'MALLEY**
Editor: **JOHN SNYDER**
Senior Editor: **THOMAS H. PHILLIPS**
Consulting Editor: **ROBERT WARE**
Advertising Sales Director: **JOHN C. O'MALLEY**
Regional Sales Manager: **LUCIA ANNUNZIATA**
Production Manager: **LILIAN IRVINE**
Circulation Manager: **M. SOTTILE**

Advertising Circulation and Sales Offices
118 East 25th Street, New York, NY 10010
Telephone (212) 477-6700

REPRESENTATIVES

U.S. Gulf States **MR. JAMES N. McCLINTOCK**
Wheelhouse One Building
634 Village Lane North, Suite 205
Mandeville, LA 70448
Telephone: (504) 626-7990
Telefax: (504) 624-5163

France **MR. NORBERT M. HELLIN**
6 bis, rue de la Belle Feuille
F-92100 Boulogne, France
Telephone: 1-46-05-63-77 Fax: 1-46-03-33-21

Italy **MR. VITTORIO F. NEGRONE**
Ediconsult Internazionale
Piazza Fontane Marose, 3-16123 Genova, Italy
Telephone: (010) 543.659-268.334-268.513
Telex: 211197 EDINT I
Editorial Consultant: **DR. VICTORIA MUNSEY**
Munsey Consultants
Strada Del Nobile 59
10131 Torino, Italy
Telephone: 11-68-3639 Fax: 11-650-3478

Scandinavia **MR. STEPHAN R. G. ORN**
AB Stephan R. G. Orn
Box 184, S-271 00 Ystad, Sweden
Telephone 0411-184 00
Telex: 33335 Orn S Telefax: 411 10531

West Germany **MR. HELMUT MOLLER**
Amhusarendenkmal 8A
2000 Hamburg 70
Federal Republic of Germany
Telephone: (40) 6525-384

United Kingdom **MR. MICHAEL J. DAMSELL**
Euromedia, Ltd.
Tern House, Upper West St.,
Reigate, Surrey RH2 9HX, England
Telephone: 07372 42558
Telex: 932699 KENPUB G.

Korea **MR. CHRIS MAENG**
IPR Int'l PR, INC.
Yongsan, P.O. Box 100, Seoul, Korea
Telephone: 273-7765 Telex: MOCNDM K23231

Japan **MR. TOSHIO EGUSA**
PublInknet, Inc.
Kaneko Bldg. 4-29-8,
Shimbashi, Minato-ku, Tokyo 105 Japan
Telephone: (03) 459-9618
Fax: 436-1931 Telex: 2425280 BESNA J

Singapore **MR. VICTOR CHIA**
Market Trends Pvt. Ltd.
122 Middle Road, #07-08
MidInk Plaza, Singapore 0718
Telex: HENSAL RS20006

SAVE up to 300 barrels of oil per year!

ELIMINATE THAT OLD STEAM HORN

The Kahlenberg **TRITON** Piston Horn is a unique sound producing unit because it requires no compressed air and no diaphragms yet utilizes air vibrations in a tuned sound column. The unit consists of an electric motor driving a piston with a cylinder similar in appearance to an air compressor. Very economical to operate and install. Write for bulletin. 92C. The KB-20 electric horn is available in 110 volt, A.C. or 24 volt, D.C. for vessels up to 246' in length.



KAHLENBERG BROS. CO.

1986 Monroe St.
Two Rivers, Wisconsin, 54241 U.S.A.
414-793-4507

Circle 234 on Reader Service Card

MARITIME REPORTER AND ENGINEERING NEWS

ISSN-0025-3448

No. 5 Volume 50

118 EAST 25th STREET
NEW YORK, N.Y. 10010
(212) 477-6700
Telex: MARINTI 424768
Telefax: (212) 254-6271

ESTABLISHED 1939

Maritime Reporter/Engineering News is published monthly by Maritime Activity Reports, Inc. Mailed at Second Class Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 118 East 25th Street, New York, NY 10010.

Member



Business Publications
Audit of Circulation, Inc.



OKABE

MANUFACTURER & DISTRIBUTOR OF STANDARD & CUSTOM FASTENERS

DIRECT MILL SHIPMENTS IN STANDARDS AND SPECIALS

MATERIALS

CARBON & ALLOY STEEL
 NICKEL-COPPER
 NICKEL-COPPER-ALUMINUM
 STAINLESS STEEL
 SILICON BRONZE
 NAVAL BRASS
 BRASS
 TITANIUM
 ALUMINUM

PARTIAL LISTING OF FASTENER SPECIFICATIONS

MIL-S-1222
 MIL-B- 857
 FF-S-86
 ANSI B18.2.1
 ANSI B18.2.2
 ASTM F 593
 ASTM F 594

QUALITY ASSURANCE PROGRAM
 IN ACCORDANCE WITH

MIL-I-45208
 MIL-STD-45662
 MIC LEVEL 1

NICKEL-COPPER FASTENER STOCK PROGRAM

HEX HEAD CAP SCREWS

Diameter Length	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
1/2	*	*							
5/8	*	*	*						
3/4	*	*	*	*	*				
7/8	*	*	*		*				
1	*	*	*	*	*	*	*		
1 1/4	*	*	*	*	*	*	*		
1 1/2	*	*	*	*	*	*	*		
1 3/4	*	*	*	*	*	*	*		
2	*	*	*	*	*	*	*	*	
2 1/4	*	*	*	*	*	*	*	*	*
2 1/2	*	*	*	*	*	*	*	*	*
2 3/4		*	*		*	*	*	*	*
3	*	*	*	*	*	*	*	*	*
3 1/4						*	*	*	
3 1/2			*	*	*	*	*	*	*
3 3/4						*	*	*	
4			*	*	*	*	*	*	*
4 1/2						*	*		
5						*	*	*	*
5 1/2						*	*		
6						*	*	*	*
FINISH NUTS	*	*	*	*	*	*	*	*	*
THREADED ROD	*	*	*	*	*	*	*	*	*
FLAT WASHERS	*	*	*	*	*	*	*	*	*
LOCK WASHERS	*	*	*	*	*	*	*	*	*
SOCKET CAP SCREWS	*	*	*	*	*	*	*		

CHEMICAL AND PHYSICAL CERTIFICATIONS AVAILABLE. LOT TRACEABILITY MAINTAINED

OKABE CO INC

175 LIVELY BOULEVARD
 ELK GROVE VILLAGE, IL, 60007
 PHONE (312) 364-1702
 FAX (312) 364-0791
 Circle 343 on Reader Service Card

Kone Fels Secures \$3.6-Million Contract For Two Gantry Cranes

Kone Fels Cranes Pte Ltd, a subsidiary of Far East Livingston Shipbuilding Limited (FELS), has secured a \$3.6-million contract to design and manufacture two rubber-tired gantry cranes for the Burma Ports Corporation.

The cranes will be built under

license from Ferranti Container Handling Ltd of the U.K. and will be used for transferring containers between vessels alongside and trailers at the quay.

Besides the Burmese order, Kone Fels has delivered similar cranes to the Port of Trinidad and Tobago and also the Port of Singapore Authority.

For more information and free literature,

Circle 17 on Reader Service Card

MULTI-PAK TRASH COMPACTOR

SIMPLE — EFFICIENT — ECONOMICAL — SANITARY



All stainless steel front doors
All stainless steel compaction chamber
All stainless steel outer cabinet
Heavy duty welded construction
Push button controls
Operational key switch
Full indicator, buzzer and light
Pressure release door handle
Compaction ratio up to 20:1
Re-useable Trashcube
Safety interlock system
Heavy alloy compaction plate
Modular electrical system
Electricals to Marine Codes as Required
Two stage hydraulic pump
Ozone Generator (optional)

Model MP 70	
Height - A	80 1/4"
Width - B	40 1/4"
Depth - C	29 1/2"
Service Weight	1,060 lbs.
Loading Chute Door Opening	36" x 20 1/2"
Size of Compaction Chamber	41 1/4" x 36" x 24"
Capacity	9 cu. ft. Ratio 20:1
Cycle Time	20 - 25 seconds
Motor Size	1 hp
Electrical Requirements	120/240, 14/7 amps
Compaction Force	24,000 lbs.
Working Space	5'6" x 3'6"



ICI MULTI-PAK

14719 Carolcrest
Houston, Texas 77079

Phone
(713) 589-0335

Circle 266 on Reader Service Card

pump it dry! VM eductors

MULTI-PURPOSE PUMPING EFFICIENCY



VM BILGEMATE
Ideal for pumping bilges—stripping ballast, etc. Peripheral jet design handles liquids, solids, air. 2 1/2" to 6" sizes available.

**NO MOVING PARTS
NO MAINTENANCE
NO PRIMING. CANNOT LOSE SUCTION
PUMPS BILGES, TANKS AND HOLDS DRY**



VM DECK EDUCTORS
Only the hose goes into tank to vacuum liquids at rate of 10-15 gpm at suction lifts up to 70' or more.

CALL OR WRITE FOR OUR FREE CATALOG TODAY!



VM PORTABLE EDUCTORS
Handy auxiliary pump for regular or emergency pumping of liquids from ballast, bilge, cargo spaces and tanks. Just attach hose from fire main and lower eductor into space to pump large quantities of liquid quickly and easily.

VITA MOTIVATOR COMPANY

84 Wall Street • Farmingdale, NY 11735

• ITALY: Bozzano S.R.L. via Ferrara 80/82, 16127 Genoa, Italy Tel: (010) 267-259
• SPAIN: Fedisa—Puertos Y Manutencion, S.A., O'Donnell 8.3rd Floor, 28009 Madrid, Spain
Tel: 22454 FEDIS E
• NETHERLANDS: B.V. Bureau Inspector, P.O. Box 228, Vlaardingen, Tel: 010-348-155
• UNITED KINGDOM: Ferguson & Timpson Ltd, Thistle House, Selinas Lane, Dagenham, Essex RM8 1TB Tel: (1) 593-7611
• NORWAY: Fred F. Zimmer A.S., Meltzergst, 9 Oslo 2, Tel 567459
• SINGAPORE: Kenson Enterprise PTE Ltd., 123 Kitchener Road 0820 Singapore Tel: RS 24814 SSH

Circle 14 on Reader Service Card

PROPULSION UPDATE

Krupp Mak Manufactures Medium-Speed Diesel Engines For Naval Ship Applications

—Free Literature Available—

A medium-speed diesel engine designed for heavy fuel operation and low fuel oil consumption is an ideal basis for engines with the load profile for naval operations.

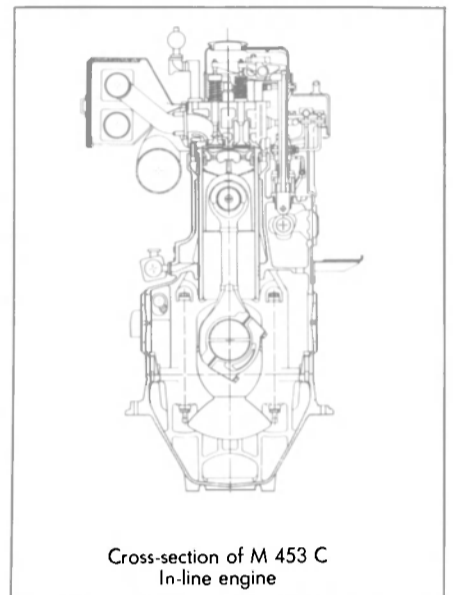
Such medium-speed engines should be designed for: continuous operation; dependability; excellent economy; heavy fuel operation; and minimum service requirement. Additionally, these engines should be compact, with a simple design and uncomplicated systems.

In turn, engines with these characteristics would be well-suited for: high shock loads; extended low load; high operational safety of both the engine and its systems; preventive maintenance; shock load safety; and low emissions.

Diesel engine manufacturer Krupp Mak, which has more than 100 years' experience in naval equipment, offers a number of medium-speed, four-stroke heavy fuel engines in the output range from 740 to 9,900 kw (1,000-13,500 hp) under the trade name Mak.

For example, Krupp Mak offers the heavy-fuel engines M453C and the M332, both of which boost low fuel consumption. The company reports that both engines feature good ratio of maximum to mean piston pressures, but a moderate, and therefore operational safe values. Additionally, the moderate engine load permits a very favorable compression ratio. The engines run very clean at low loads, partially as the result of high injection energy.

Both engines feature clean and simple construction. Through fine tuning and the use of high-grade spheroidal graphite iron casting, both engines feature excellent rigidity and thus low vibration.



Cross-section of M 453 C
In-line engine

The relatively long piston strokes are essential for Mak engines. They permit quiet running of the engine with high mechanical efficiency. The cylinder air exchange is more effective as with a short stroke engine. The engines are built for a low thermal load, in order to be suitable for heavy fuel oil operation. This will provide the highest operational safety at frequently changing loads, which are usual in naval operation. A bonus of the Mak engines' designs is an extremely clean exhaust. The marriage of nitrided cylinder liners and the all-around chromium plating of the piston rings and associated ring grooves result in extremely low wear, and consequently, excellent lube oil consumption.

Since the engines are designed for rough operation, an unusually long overall service life is expected for naval operation. Piston rings should be changed after 20,000 hours, valves overhauled at 10,000 hours and pistons and cylinder liners should have a service life approximately equal to the life cycle of the engine itself.

For free literature on the Krupp Mak M332 and M453C diesel engines,

Circle 10 on Reader Service Card

Engine Specifications

Type	M332	M453C
Bore (mm)	240	320
Stroke (mm)	330	420
Output range (kw)	1000-1500	1800-5300
Output (kw/cyl.)	167-200	330
Speed (rpm)	720-900	600
BMEP (bar)	18.6-17.9	19.7
Cylinders	6-8	6,8,9,12,16

U.S. Coast Guard Awards \$3-Million Contract To Gianotti & Associates

Gianotti & Associates of Texas, Inc., Annapolis, Md., a naval architecture and marine engineering firm, has been awarded a three-year, \$3-million tasking order contract to provide engineering support to the U.S. Coast Guard Research and De-

velopment Center, Groton, Conn. The contract award includes tasking in the areas of hydrodynamic analysis and simulation, structural analysis, design synthesis, reliability analysis, full scale ship/structure testing and model ship/structure testing. The U.S. Coast Guard Academy, New London, Conn., is the contracting activity (DTCG39-88-D-80638).

Maritime Reporter/Engineering News



Product tanker Torm Margrethe will be powered by a single five-cylinder L70MCE MAN B&W diesel engine.

Burmeister & Wain Christens Eighth Product Tanker In Series

The 750-foot M/T Torm Margrethe was recently christened at ceremonies at Burmeister & Wain Skibsværft A/S in Copenhagen.

The single-screw tanker is the eighth in a series of Panamax product tankers, type CPT54E. She was contracted for by K/S Margrethesholm, a partnership of Danish tax investors, and will be operated by the Danish shipping company Torm.

The vessel, which has a beam of 106 feet and draft of 38 feet, is equipped with one five-cylinder, two-stroke MAN B&W L70MCE diesel engine, which develops 10,900 bhp at 84 rpm MCR or 9,800 bhp at 81 rpm CSR. The engine runs a four-bladed propeller with a diameter of 7.2 m or 23.6 feet. She has an average speed of 15.1 knots at a loaded design draft/ballasted condition of 90 percent.

In her engine room, the Torm Margrethe has four auxiliary engines—two six-cylinder MAN B&W T23LH-4E diesel engines each direct coupled to a 600-kw generator and two eight-cylinder MAN B&W L28/32 diesel engines each coupled to a hydraulic pump of 1,680 kw. One is also coupled to a 1,200-kw generator.

The bridge is equipped with the most up-to-date navigation instruments such as a direction finder, radar, satellite communication system, satellite navigator, autopilot and gyrocompass. The bridge also is equipped with remote control equipment for the propulsion machinery to allow for unmanned engine room operation.

The vessel has been designed with 12 cargo tanks (six on the port and six on the starboard side). She will be capable of carrying up to 12 different oil products and chemicals at one time. She will be classed and registered as +1A1 "tanker for oil and caustic soda, COW, EO, INERT," and in accordance with the "Tanker Safety and Pollution Prevention 1978." She also will be equipped with a gas generator to

TORM MARGRETHE Equipment List

Main engine	MAN B&W Diesel
Auxiliary engines	MAN B&W Holeby
Boilers	Aalborg Marine
Generators	ABB Kraft
Electric motors	AEG Dansk Akts.
Radars	Krupp Atlas
Radio station	Dansk Radio
Gyro/autopilot	Aage Hempel Int'l
Remote sounding	Austronica
Bridge maneuvering system & alarm system	Søren T. Lyngsø
Cargo oil pumps	Frank Mohn
Cooling water pumps	Desmi
Purifiers	Alfa Laval Zeta
Steering gear	Porsgrunn
Windlass & mooring	Pusnes
Fire equipment	Ginge-Kerr
Fire equipment	Walter Kidde
Hose-handling cranes	MTT
Lifeboats	Fassmer
Pipelines	Ludvigsen & Hermansen
Painting of cargo tanks	Mühlhann
Painting of ballast tanks	Ole Dufour
Paints, cargo tanks	J. C. Hempel
Other paints	International Farvefabrik

pump neutral, non-explosive gas (inert gas) in the tanks to avoid the risk of explosion during loading and unloading.

For free literature on the shipbuilding facilities of Burmeister & Wain,

Circle 75 on Reader Service Card

Cosat Maritime Services Moves To New Address In Washington, D.C.

Cosat Corporation Maritime Services recently announced that they have moved their offices from Clarksburg, Md., to Washington, D.C., and can now be reached at the following address: Cosat Maritime Services Sales and Marketing Office, 950 L'Enfant Plaza, S.W., Washington, D.C. 20024, phone (202) 863-6567 or 1-800-424-9152, Telex 197800, Fax (202) 488-3814/3819.

Sofec Concludes Management Buyout From Vickers PLC

Sofec, Inc., headquartered in Houston, Texas, has recently concluded a management buyout from Vickers PLC. A group of six managers headed by Sofec president **Bill Kiely** completed the buyout with financial support from PacificCorp Credit, Inc., of Portland, Ore.

Sofec is an engineering and construction company that designs, fabricates and installs specialized marine facilities for military and offshore oil operations. They currently have a large order backlog with several major projects underway for the U.S. Navy in addition to supply of a Turret Mooring System to Yemen Exploration and Production Company that will permanently moor one of the world's largest storage vessels offshore the Yemen Arab republic.

The company was formed in 1972 and acquired by Vickers in 1983.

For further information and free literature,

Circle 45 on Reader Service Card

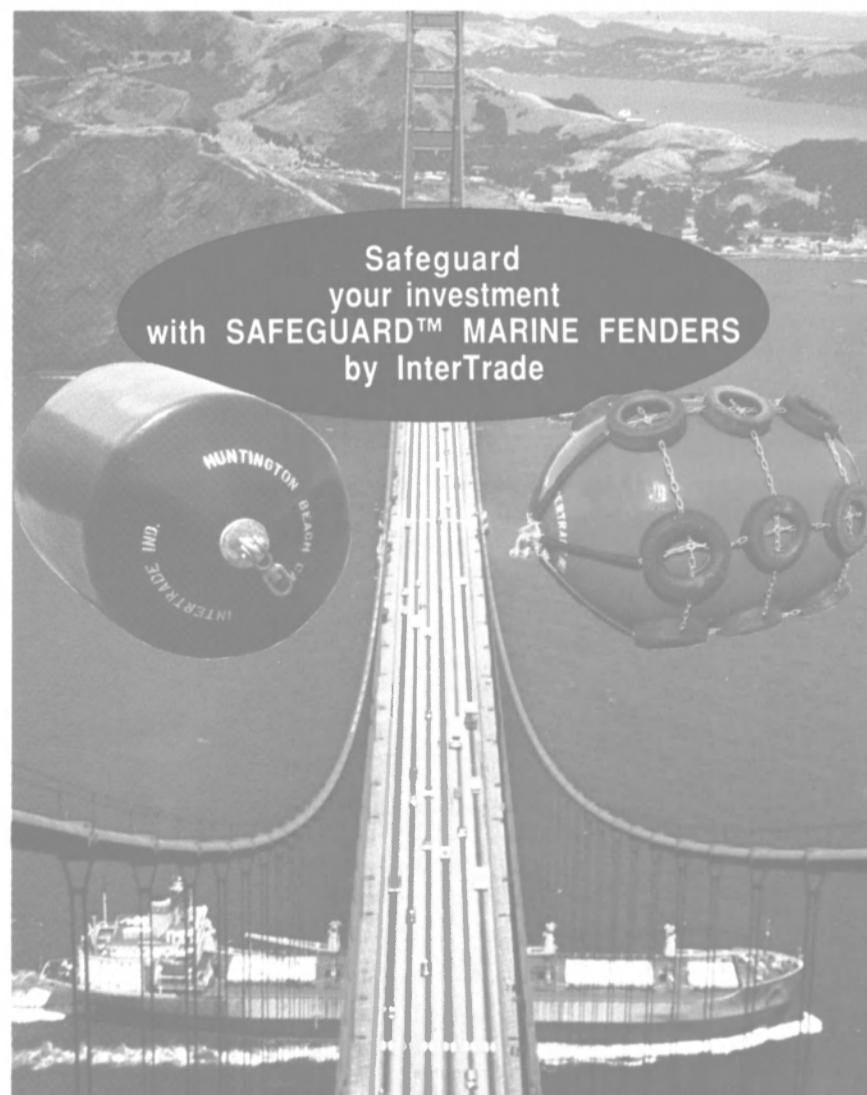
Sea-Land Buys Last Three USL Ships; Outbid For Five Others

Sea-Land Service Inc. recently purchased the last three remaining United States Lines Lancer Class containerships at a San Francisco auction for \$22.8 million. Two weeks earlier, Sea-Land had been outbid by the Puerto Rico Management Shipping Authority (PRMSA) at a New York auction for five Lancer Class vessels.

In San Francisco, Sea-Land outbid **Malcolm P. McClean**, the former chairman of the bankrupt USL, and Eastern Overseas, a New York shipbroker, that bid on just one of the ships.

The three vessels bought by Sea-Land, the American Lark, American Legion and the American Liberty, each have a capacity of 1,300 TEUs.

At the New York auction, PRMSA bought five USL Lancer Class ships for \$44,125,000. Sea-Land bid \$44 million for the five ships.



InterTrade

MARINE PRODUCTS DIVISION TELEX 277709 / TIUR • FAX (714) 894-3927

15301 Transistor Lane • Huntington Beach, California 92649 • (714) 894-5566

Circle 348 on Reader Service Card

RORO 88

9th International Conference & Exhibition on Roll-On/Roll-Off Marine Transport

Gothenburg, Sweden, June 7-9

RO/RO 88, the 9th International Conference and Exhibition on through transport utilizing roll-on/roll-off (RO/RO) methods, will be held at the Svenska Massan in Gothenburg, Sweden, from June 7-9, 1988.

The central theme of the conference will be the future of the RO/RO business. Leading spokesmen from the various sectors of through transport, such as shipping, ports, carriers and regulators, will discuss a number of important issues and ideas affecting the industry during the three-day, nine-session event.

For example, **Leo Collar**, president of Crowley Maritime Corporation, San Francisco, Calif., will present "A New Dimension—Strategic RO/RO Operations in Both Hemispheres," during the conference's first session, "Markets and Trading."

During Session 3 on Wednesday, June 8, **Mr. Zanetti**, president of both the Port of Trieste and the Association of Italian Ports, will discuss "The Role of the Italian Ports in Expanding RO/RO Operations in the Mediterranean."

During Session 4, which runs parallel with Session 3, **Mr. Paro**, vice president of Diesel Technology Oy Wartsila AB, Vasa, Finland, will present "Cost-Effective and Reliable Machinery Concepts for RO/RO Vessels."

The nine sessions that will be presented during the conference are: "Marketing and Trading"; "In Four Years the European Trade Barriers Come Down"; "Port Futures—Emerging and Expanding"; "Stevedoring and Lashing"; "Ship Design and Efficiency"; "Volume RO/RO—Car Trades and Forest Products"; "RO/RO Terminal Developments"; "Rail Traffic"; "Ship Survivability"; and "Forklift Trucks and Terminal Tractors."

A well-established feature of the RO/RO event is its large exhibition, which will provide attendees and exhibitors an excellent opportunity to meet face-to-face and explore business ventures. About 100 exhibitors will be on hand representing a number of sectors from RO/RO handling, shipping lines, ports, marine machinery and equipment.

The City of Gothenburg and its port will be the hosts for the RO/RO 88 social events. On Wednesday evening, June 8, a special gala reception and dinner will be hosted by the Port of Gothenburg aboard one of the Stena Line super ferries sailing between Sweden and Denmark.

On Thursday, June 9, there will be an opportunity for delegates to join a guided tour of the Port of Gothenburg's facilities. A post-conference tour on June 10 will visit a Volvo production line at one of the Group's most modern factories.

For additional information on registration and attendance, contact: The Secretariat, 2 Station Road, Rickmansworth, Hertfordshire, U.K. WD3 1QP; telephone: Rickmansworth (0923) 776363; fax: (0923) 777206; and telex: 924312.

RORO 88 PROGRAM & TOURS

Tuesday, June 7

09.00 Conference Registration Opens

09.00 RORO Exhibition Opens

12.00 PGS Warm Welcome Reception

14.00 RORO Conference Opens

Session 1: Markets and Trading

"Global Liner Traffic—A Current and Future Analysis of Routes, Commodities and Cargo Flows," **M. Sclar**, vice president, Temple, Barker & Sloane Inc.

"Changes on the Atlantic—RO/RO Provides the Cutting Edge," **G. Hasse**, president, Atlantic Container Line.

"A National Carrier Looks to the Future," **Dr. Saad A. Al-Ghamdi**, chief executive, National Shipping Company of Saudi Arabia.

"A New Dimension—Strategic RO/RO Operations in Both Hemispheres," **L. Collar**, president, Crowley Maritime Corporation.

"Brazilian Through Transport—The Way Ahead for Shipping and Ports," **R. Kliem**, owner, Transroll Navegacao SA.

"Can the West European Shipowner Avoid Flagging Out to Remain Competitive?" **P. Smith**, manager-shiping policy, Swedish Shipowners Association.

Session 2: In Four Years the European Trade Barriers Come Down

"EEC Shipping Policy and Future Priorities," **N. Turns**, principal administrator, EEC Council Secretariat.

"The Next 5-10 Years of Through Transport—Who Will Succeed?" **P. Rosendal**, managing director, International Transport Advisers.



Gothenburg's Svenska Massan, conference and exhibition center, and the Sara Gothia Hotel will be headquarters for RO/RO 88.

"Use Not Ownership for Intermodal Efficiency," **J. Cleary**, chairman, TIP Europe plc.

"The Through-Transporters View—Post-1993," **G.P. Cave-Wood**, chairman, Cave Wood Transport Ltd.

18.30 Welcome Reception from the City of Gothenburg in the City Hall (Borsen) Gustav Adolfs Torg

Wednesday, June 8

09.00 Session 3, Part 1: Port Futures—Emerging and Expanding (parallel with Session 4)

"Today's Reality Versus Yesterday's Dream—At Changes in Third World Ports," **G. de Monie**, director, Antwerp Port Engineering & Consulting (APEC).

"The Role of the Italian Ports in Expanding RO/RO Operations in the Mediterranean," **M. Zanetti**, president, Port of Trieste and president, Association of Italian Ports.

Session 3 Part II: Stevedoring & Lashing (parallel with Session 4)

"Stevedoring for High Volume Ferry Traffic—Rolling/Containers/Rail," **B. von Gerber**, operations manager, Port of Stockholm.

"New Cargo Handling Methods—Ro-Lux and More," **L. Arminen**, development manager, Steveco, Kotka and Hamina.

"Safe Packing and Securement of Cargo in Freight Containers and Vehicles," A new film introduced by: **R. Bacon**, technical coordinator, Videotel Marine International Ltd.

"The Lashing Problem Continues Because the Weak Links Are Still There," **Capt. H. Stradt**, marine surveyor, Allcargo Hafendienstleistungen GmbH.

"IMO Code of Safe Practice for Stowing and Securing Cargo," **S. Felding**, International Maritime Organization (IMO).
Panellist: **Capt. H. Wasser**, manager, Gerd Buss Afrika Terminal (Handling RORO Services of POL to Australia and the Mediterranean and Hoegh to West Africa).

09.00 Session 4: Ship Design and Efficiency (parallel with Session 3)

"New Catamaran RORO Design for Norwegian Coastal Service—A Breakthrough in Hull Design," **J. E. Wahl**, director, IKO Logistikk AS.

RO/RO Conversions: Economic Ways to Increase Capacity and Improve Profitability—Featuring Case Study of Tor Line's Conversion of the Oden Vessels," **O. Fastesson**, managing director, Tor Line AB and **J. Christensen**, managing director, FKAB.

"Flexibility in Ship Tailoring and Management Provides Many RORO Solutions—A Presentation on the Multipurpose Use of the Searunner Class," Speaker to be announced, Stena AB.

"Cost-Effective and Reliable Machinery Concepts for RORO Vessels," **D. Paro**, vice president, Diesel Technology Oy Wärtsilä AB.

Lunch for Registered Conference Delegates

NB: During the afternoon of Wednesday, June 8, there will be an opportunity for interested delegates to join a conducted tour of the Gothenburg Port facilities.

14.30 Session 5: Volume RO/RO—Car Trades and Forest Products (parallel with Session 6)

"Preparing for the Future—New Ships and New Opportunities," **O. Larsen**, managing director, HUAL Hoegh-Ugland Autoliner A/S.

"Forest Products: Economic Comparison Between STORO and RORO Handling—Bulk Return Cargoes—Future Developments," **T. Grandell**, technical manager, Transfennica Corporation.

"Changes in the Car Carrier Market," **H. Munthe**, vice president-marketing, Wallenius Lines.

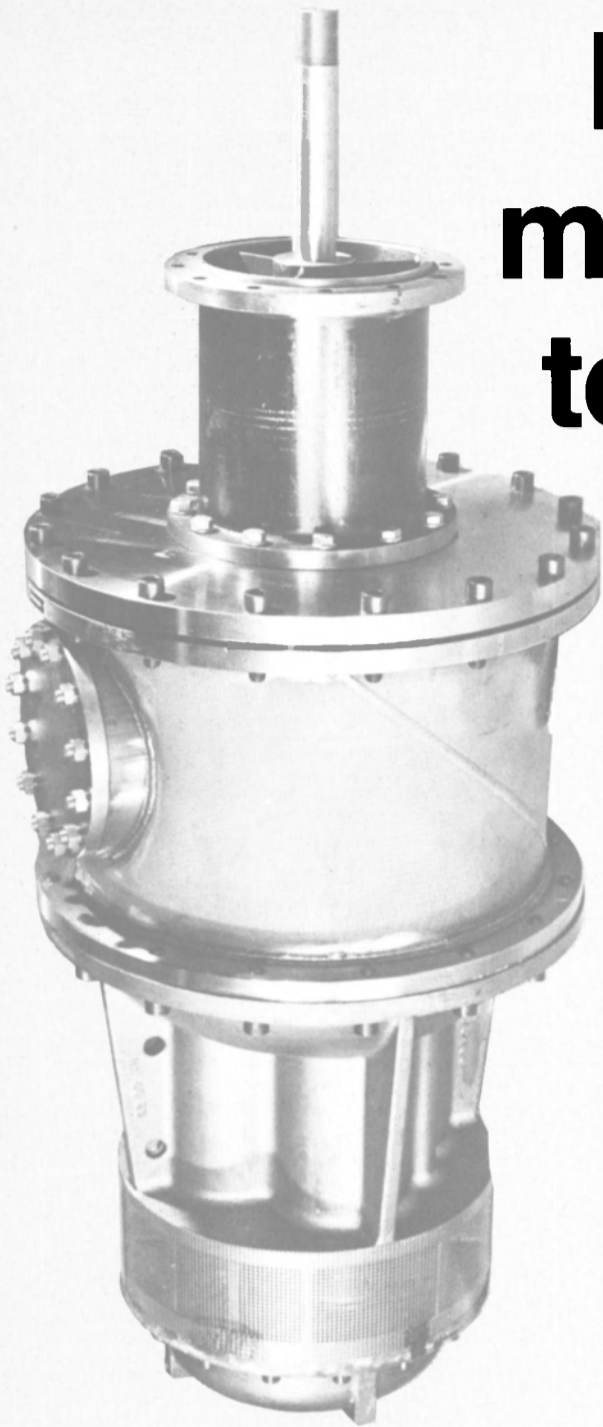
"Auto Industry Uses Floating Motorway—Inland and Shortsea RORO from Factory-to-Distributor," Speaker to be announced, E.H. Harms & Co.

14.30 Session 6: RORO Terminal Developments (parallel with Session 5)

"A Cost-Conscious Solution for Ramp Access While Berthed Conventionally," **Capt. H. Schmiedeberg**, operations manager, Gerd Buss.

(continued)

Engineered marine pumps to solve your special problems...

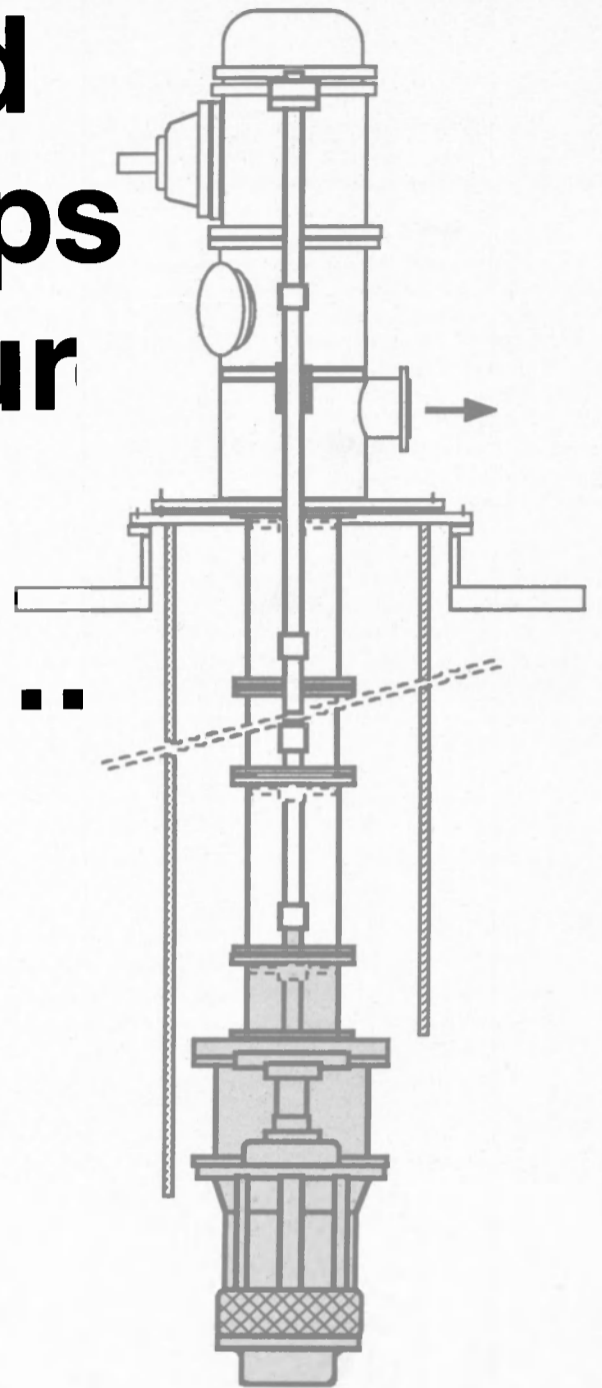


The Leistriz five-rotor, single-flow screw pump on the left was specially designed to unload asphalt and #6 fuel oil from an ocean-going barge.

The pump is one of two we designed and built for an East Coast barge operator. These pumps, each with a capacity of approximately 5000 BPH, are the largest of their type ever installed aboard a U.S. vessel.

The diesel-driven pumps operate at 145 PSIG, at a viscosity of 3000 SSU and temperatures to 340° F.

The entire pump assembly, including the column assembly and discharge head, is shown in the skematic at right.



plus a full line of standard units.

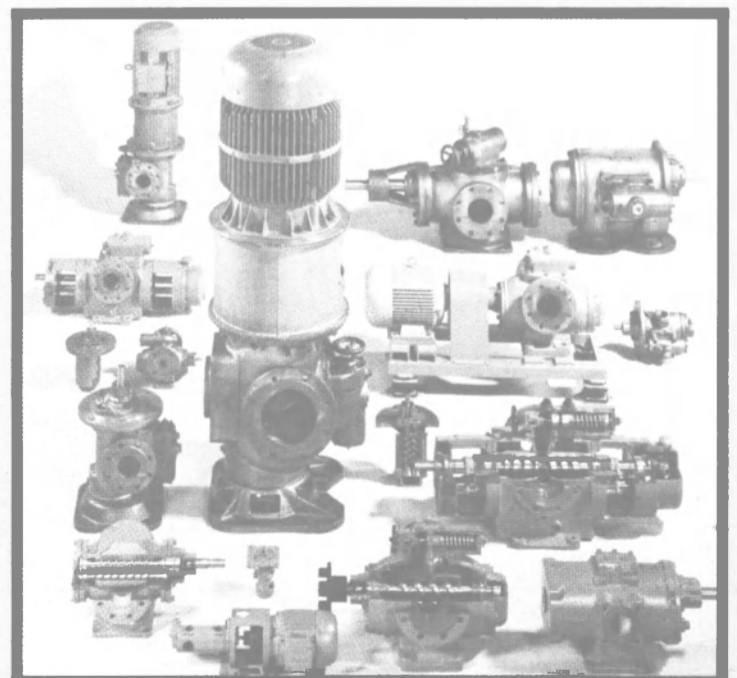
While engineering and manufacturing marine pumps to solve all kinds of fluid-handling problems has been a Leistriz specialty for more than 60 years—we make a full line of *standard* pumps, too.

The line includes two, three and five-screw pumps for lube-oil service, fuel-oil service, hydraulics, sludge handling, cargo loading and unloading. And these pumps serve both shipboard and off-shore applications worldwide.

So whether you have a special pumping problem to be solved, or an application that a standard pump can handle, you can count on Leistriz for a pump design that will—without compromise—meet your exact pumping requirements. And at the same time, you'll get the quality, reliability and efficiency that Leistriz is known for.

To find out more about Leistriz pumps and services for the marine industry, call Sven Olson at 201-934-8262, or write Leistriz Corporation, 165 Chestnut Street, Allendale, New Jersey 07401.

Leistriz



(continued)

"Experiences from the World's First Openwater Linkspan—17 Ships/Day—No Stevedoring—RORO/Ferry Traffic," **J. Rose**, managing director, Marine Development, Dunblane, Scotland.

"A RORO Future for Old Quays and Port Facilities—in Western and Third World Situations," **N. Nixon**, managing partner, Nigel Nixon Knapton & Partners.

"The Development of Shoreside RORO Structures," **A. Masters**, associate, Posford Duvivier.

16.30 Session 7: Rail Traffic

"Operating the World's Largest Railships Between Germany and Finland—Is Big the Best for Long Distance Routes?" **R. Heinecke**, managing director, Railship GmbH & Co.

"Marketing Opportunities for Through Rail Transport—Reduced Inventory—Hazardous Cargoes—

But How Competitive After 1992," Speaker to be announced, Deutsche Bundesbahn.

Wednesday Evening Reception and dinner hosted by the Port of Gothenburg aboard one of the Stena Line super ferries sailing between Sweden and Denmark.

Thursday, June 9

09.30 Session 8: Ship Survivability (parallel with Session 9)

"Survival Capability Class: Increased Safety But Does It Destroy the RORO Concept?" **S. Rusas**, principal surveyor, Det norske Veritas.

"Risk Management for RORO Cargo Ships," **J. Spouge**, consultant, Technica Ltd.

"RORO Ship Survivability: Comments on Damage Stability Modelling," **D. Boltwood**, senior surveyor for damage stability, International Conventions Department, Lloyd's Register of Shipping.

"The New SOLAS Amendments—Agreed and

Possible," **S. Felding**, International Maritime Organization (IMO).

"Practical Solutions to Improved Survivability of RoRo Ferries," **D. Byrne**, technical manager, MacGregor-Navire (UK) Ltd.

"Putting a Lifebelt Around the Ship," **E. Vossnack**, consultant, Hook of Holland.

Session 9: Forklift Trucks and Terminal Tractors (parallel with Session 8)

Panel Workshop Discussion

B. Bender, president, Ottawa Truck Corporation.

P. H. Lindberg, vice president, Sisu Terminal Systems.

H. Bendel, director, Lansing Bagnall AG.

(Panellist to be announced), Kalmar LMV.

R. Cheek, vice president-marketing, Valmet Materials Handling Ltd.

(Panellist to be announced), PGS SpA.

12:45 Close of RORO Conference

13.00 Lunch for Registered Conference Delegates

NB: during the afternoon of Thursday, June 9, there will be an opportunity for interested delegates to join a conducted tour of the Gothenburg Port facilities.

Friday, June 10 (morning)

Post-conference visit to Volvo production line to see the latest range of cars being constructed.

Post-conference visit to Swedish Maritime Research Centre SSPA, Gothenburg.

Friday, June 10

Gothenburg/RORO Golf Tournament 18-hole competition followed by lunch. Entry details will be enclosed with delegate receipts.

Wednesday, June 8/Thursday, June 9

The Port of Gothenburg by Motor Launch—Optional tour for interested delegates on Wednesday and Thursday.

14.30 Depart by coach from Svenska Mässan.

14.50 Board launch to see: Floating parts of Gothenburg Maritime Museum; Fruit and Coffee Terminals; Railferry Terminal; Volvo Car Terminal; Gothenburg's Golden Gate Bridge; Oil and chemical harbours; Skandia/Alvsborg harbours; ACL/RoSA/Bore/Tor/DFDS; and Stena Ferry Terminals.

16.30 Disembark launch.

16.50 Coach arrives at Svenska Mässan.

Friday, June 10

Visit to the Swedish Maritime Research Centre, SSPA, Gothenburg

09.30 Depart by coach from Svenska Mässan.

09.40 Study tour of facilities of the Centre including: large ship model basin; cavitation tunnel; maritime dynamics laboratory; ship maneuvering simulator; and ballast simulator.

The resources of the Centre are also of interest to Port and Canal Authorities, as it provides studies for fairways, ports and port approaches. Experience in naval and offshore projects will also be shown to interested delegates if requested.

11.45 Coach arrives at Svenska Mässan.

Friday, June 10

Robotic Car Production—A Visit to Volvo

10.00 Depart by coach from Svenska Mässan.

10.25 Arrive Volvo Factory: Audio visual presentation Volvo Corp.; Board the "Blue Train"; Pressing Plant; Body Shop; Robot Factory; and Final Assembly, 240 and 740 Car Series.

12.30 Coach arrives at Svenska Mässan.

RO/RO 88 Exhibitors

- Ancra Marine
- Associazione Porti Italiani
- Auramo
- Begner
- Bloxwich Engineering
- Bonnier Int. Transport System
- Bore Line
- British Marine Equip. Assoc.
- Brax Shipping
- BT Svenska
- BT Terminal Equipment
- Buffers
- Capacity of Texas
- Cargo Equipment
- Cargo Safe SOE
- Carlmarks
- Container Management
- Danyard
- DIFT Port Management
- Elastogran
- Fairplay Publications
- Ferryman Sweden
- F.L. Douglas
- Fosroc
- George Blair
- Gerd Buss
- Good Success
- Gorthon Lines
- Goteborgs Truckservice
- Intering
- Intermodal Oy
- International Freight Week
- Jeppson Band
- Journal de la Marine Marchande
- Kalmar LMV
- Kaup
- K.O. Storck Verlag
- Kull & Hallberg
- Kvaerner Ships Equipment
- Lansing
- Lloyd Anversois
- Lloyd's List
- Lloyd's Ship Manager
- London Port Promotion Assoc.
- MacGregor-Navire Group
- Marine Development
- Marine Trading
- Mariterm
- Maskin AB Karlebo
- Mercandia
- Niedersachsisches Hafenamts Cuxhaven
- OM Fantuzzi
- Ottawa Truck Corporation
- Oy Sisu Auto
- PGS
- Planmarine
- Port Development International
- Port of Bristol
- Port of Cherbourg
- Port of Gothenburg

RELIABLE, EFFICIENT, WRIGHT-AUSTIN GAS/LIQUID SEPARATORS



MADE IN U.S.A.



The quality, and performance of these gas/liquid separators has earned them "SPECIFIED" status on practically every Navy combatant vessel since WW 1.

- 99% efficiency
- We meet or exceed ABS, USCG, ASME and Naval specs.
- Designed for FV to High Pressure on air, gas or steam
- Highest efficiency over entire flow range
- They're self-cleaning, no maintenance
- Simple, easy to install

Write for Bulletin 811



WRIGHT-AUSTIN COMPANY

3250 Franklin St., Detroit, Michigan 48207
Phone (313) 259-1925 FAX (313) 259-1962

Circle 314 on Reader Service Card

Port of Hanko
 Port of Helsingborg
 Port of Rotterdam
 Port of Sodertalje
 Port of Stockholm
 Port of Turku
 Port Ramsgate
 PZ Shipping
 Rautaruukki Oy
 Reliance Mercury
 Scandinavian Cargo Sea
 Scandinavian Shipping Gazette
 Seaport Terminals Rotterdam
 Seasafe Transport
 Stena
 Svenska Lock-Tainer
 SveTruck
 Terberg Benschop
 Thos. Storey (Engineers)
 TH Transport & Hantering
 Tor Line
 Trailmaster Trailers
 Transatlantic
 Transport Nytt
 Transport Teknik
 Transtema
 Valmet Transportation Equipment
 Viking Line Cargo
 Volvo Penta
 Wallenius Lines
 Wallhamn Terminal
 Wiking Leasing
 Zeebrugge Port Authority

Moran Towing Appoints Larson As Controller



Robert E. Larson

Thomas E. Moran, CEO and chairman of the board of Moran Towing Corp., Inc., recently announced the appointment of **Robert E. Larson** as controller of the company. Mr. Larson will report to **Lee R. Christensen**, vice president of finance, and will be based at the headquarters office in Greenwich, Conn.

Mr. Larson comes to Moran with an executive background in financial management covering 18 years. Before joining Moran, he was associated with the Hartford Insurance Group, Continental Can Company and Price Waterhouse. He received his undergraduate degree from Hofstra University, holds an MBA from New York University and is a certified public accountant.

ITW Philadelphia Resins Offers Color Brochure On Grouting Systems

ITW Philadelphia Resins of Montgomeryville, Pa., has published a six-page full-color brochure on Chockfast Grouting Systems for machinery installation and foundation repair.

Permanent alignment of gas-engine compressors, electric generators, diesel engines, pumps, fans and other rotating and reciprocating equipment is assured with high-per-

Circle 23E on Reader Service Card →

formance chocking, grouting and foundation repair systems. These fully engineered, conveniently pourable, epoxy resin systems are used to support and permanently align all classes of industrial and marine equipment from the largest prime movers to the smallest acid pumps.

ITW Philadelphia Resins' new full-color brochure contains detailed illustrations; a list of features,

advantages and benefits, including precise contact with as-cast bed-plates (costly machining is not required); and basic information in a question-and-answer format.

For a free copy of Chockfast Grouting Systems from ITW Philadelphia Resins,

Circle 21 on Reader Service Card

Gould Sells Ocean Systems Unit

Gould Inc. has sold its Cleveland-based Ocean Systems Division to Westinghouse for a reported \$100 million. At present, the division produces undersea weapon systems for the U.S. Navy.

RTTA

The two-stroke
 low-speed engine
 for highest economy
 and reliability.

The outstanding
 medium-speed engine
 with rotating piston
 for tomorrow's fuels.

The compact
 four-stroke engine
 for heavy-fuel economy.

80 Years of
 Marine Diesel Excellence

SULZER

Sulzer Brothers Limited
 CH-8401 Winterthur, Switzerland
 Diesel Engine Division
 Telephone 052-811122
 Telex 896 060 70

DM 85.2/e

Mizell Named Vice President-Sales At Trinity Marine Group

According to a recent announcement by **John Dane III**, president of Trinity Marine Group of New Orleans, **Sidney J. Mizell** has joined the group as vice president-sales.

In making the announcement, **Mr. Dane** said that **Mr. Mizell** will

be responsible for domestic sales and marketing for the four shipbuilding and repair companies of the Trinity Marine Group, which is owned by Trinity Industries, Inc. The four shipbuilding companies are: Halter Marine, Inc.; Moss Point Marine, Inc.; Equitable Shipyards, Inc.; and Gretna Machine and Iron Works, Inc.

Mr. Mizell, who joined Halter Marine Services, Inc., in 1972, served as its vice president, sales

from 1978 to 1979. He resigned to co-found Champion Shipyards in Pass Christian, Miss., where he became vice-president and general manager.

For the past two years, he has served as a management consultant to Moss Point Marine, Inc., on the construction of four U.S. Army, 272-foot Logistic Support Vessels (LSV) in a \$40.7-million contract.

Mr. Mizell, who holds a B.S. in Science from Southeastern Louisi-



Sidney J. Mizell

ana University, was also associated with Litton Ship Systems in Pascagoula, Miss., and the Boeing Company in New Orleans.

The group's six shipyards are: Halter Marine's facilities at Moss Point, Miss., and Lockport, La.; Moss Point Marine, Inc., in Escatawpa, Miss.; Equitable Shipyards, Inc., in New Orleans and Madisonville, La.; and Gretna Machine and Iron Works, Inc., in Harvey, La.

For free literature on the Trinity Marine Group's shipyards and their services,

Circle 38 on Reader Service Card

Versatile Pacific Wins Contract To Drydock Sea-Land Containerships

Versatile Pacific Shipyards, Inc., of Canada has been awarded a contract by Sea-Land Service, Inc., to perform container guide modifications and drydock two former United States Lines' containerships, the American Washington and American Illinois.

The two recently purchased ships, which have been renamed the Sea-Land Performance and Sea-Land Quality, respectively, are 950 feet long with beams of 106 feet.

The Victoria Division of Versatile Pacific is performing the work on the two ships utilizing a graving dock at Esquimalt.

For free literature on the shipbuilding and ship-repairing facilities and capabilities offered by Versatile Pacific,

Circle 27 on Reader Service Card

Aeroquip Offers AQP® Hose Bulletin

Thirteen different hose styles constructed of Aeroquip Corporation's patented AQP elastomer are the subject of Aeroquip Bulletin 5978A.

AQP hose styles offer a superior operating temperature range of up to +300°F with straight petroleum base oils.

AQP hose is compatible with virtually every type of hydraulic fluid, lubricating oil and fuel at both high and low temperature extremes. AQP hose resists oxidation, the effects of ozone and other industrial contaminants.

Complete information about the Aeroquip family of AQP hose, including data on Aeroquip reusable, crimp and Socketless™ fittings can be found in Bulletin 5978A. For a free copy,

Circle 44 on Reader Service Card



C-TECH

A tradition of quality and dependability in **OMNI SONAR™** brings you another sonar classic

The **FFC-2000 COLOR SOUNDER**

Features:

- Vivid color display with standard 'A' scan
- Single or dual frequency available
- Single or simultaneous dual frequency viewing
- Military grade ceramic transducer(s)
- Excellent daylight viewing capability with full dimming control
- Operator friendly microprocessor based technology
- Quality engineered

You know **C-TECH**

Now get to know the **FFC-2000**

C-TECH
P.O. BOX 1960,
CORNWALL, ONTARIO
CANADA K6H 6N7
613-933-7970
TELEX: 05-811538

C-TECH
PROCTOR AVENUE
COMMERCE PARK
OGDENSBURG, N.Y.
13669

Circle 175 on Reader Service Card

Economical ORCA Sewage Treatment Systems offer:

- Space saving physical/chemical design requires 90% less space than biological systems.
- Low installation costs
- Simple, automatic operation
- Low operating and maintenance costs
- Reliable micro-processor control
- Quick delivery...
- 6 standard models



Model	II-12	II-24	II-36	II-165	II-330	II-500
Number people served	12	24	36	165	330	500

*If low volume flush toilets are used, the number of people can be doubled

USCG certified and IMO approved

Call or telex Dick Lambert for technical information, brochures or a quotation on a specific model.

ENVIROVAC INC. 1260 Turret Drive
Rockford, IL 61111 U.S.A.
Telephone 815/654-8300. Telex 257-415 (ENVIROVAC RKD)
Toll Free (USA only) 800-435-6951 (except in IL, HI, AK)

Circle 327 on Reader Service Card

MASTER PLANK

LAMINATED VENEER LUMBER

- STRONG
- LIGHTWEIGHT
- MEETS O.S.H.A. STANDARDS
- DOZENS OF USES
Scaffold Planks
Beams
Headers

Master Plank, an engineered wood product, is a continuous laminated veneer panel that can be cut into any required size for use as scaffold planks, beams and headers, etc. Available in standard widths. Master Plank, a wood laminate, provides strength properties superior to solid sawn wood. Warping, knotting and twisting are reduced, making the panel more consistently uniform.

For more information contact:

MC CAUSEY LUMBER CO.
P.O. Box 38027-A • 7751 Lyndon Avenue
Detroit, MI 48238
Telex 23-0300 • Telephone (313) 861-2523

Circle 115 on Reader Service Card



Authors shown during the Port Engineers' Fort Schuyler Forum are (L to R): **Paul Byrne**, Electrochemical; **William F. O'Brien Jr.**, P.E.; and **Albert R. Nolan**, Drew Ameroid Marine. Others presenting papers at the forum included **Hector G. Ballester**, Ameron Fiberglass Pipe Group, and **Garrick E. Louis**, adjunct professor of chemistry, SUNY Maritime College.

Society Of Marine Port Engineers Holds 36th Annual Forum—Five Technical Papers Featured

The Society of Marine Port Engineers, New York, N.Y., recently held its 36th annual Fort Schuyler Forum at the SUNY Maritime Col-

lege campus in the Throgs Neck section of the Bronx in New York City.

The theme of the forum was

"Corrosion Materials and Material Protection," and five technical papers were presented as follows: "Principles of Corrosion," by **Garrick E. Louis**, adjunct assistant professor of chemistry, SUNY Maritime College; "Corrosion Resistant Metals for Marine Applications," by **R. W. Ross**, Nickel Development Institute; "The Five Year Drydock and Electrochemical Control," by **Paul Byrne**, Electrochemical, Inc.; "Soft Coating Ballast Tank Corrosion Protection," by **William F. O'Brien Jr.**, P.E., and **Albert R. Nolan**, Drew Ameroid Marine Division of Ashland Chemical Co.; and "Fiberglass Piping Systems for Marine Applications," by **Hector G. Ballester**, Ameron Fiberglass Pipe Group.

Marine Ladders Of 'Surlyn' HP Cut Costs, Offer High Performance

For many years hardwood ladders were used to board pilots onto the ships they would steer into port. But

the expense and availability problems of these woods have forced manufacturers to find a replacement.

Du Pont's "Surlyn" HP ionomer resin was the simple solution for A.L. Don, a manufacturer of marine ladders in Matawan, N.J. Today, the company produces Coast Guard-approved pilot and debarkation ladders using steps of the resin molded by Rodgard Corporation of Buffalo, N.Y. The president of A.L. Don said: "The ladders have been a tremendous success. In 1986, we sold 647 to the U.S. Navy, with more on order, and they're becoming increasingly popular with merchant ships, as well."

The ladders range from 10 to 110 feet long. According to Du Pont, "Surlyn" HP offers broad temperature, weather and chemical resistance, as well as excellent stiffness properties, and are a cost-effective replacement for hardwood ladders.

For more information and free literature on marine ladders of "Surlyn" HP,

Circle 79 on Reader Service Card

FURUNO WEATHERFAX.

Weather Facts.

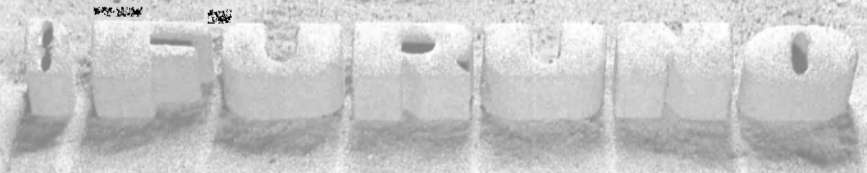


Furuno's FAX-208A is a superb high-res weatherfax receiver and, with a low cost option, a full function NAVTEX system. You get detailed weather and satellite charts in four levels of grey on non-fading recording paper; regular NAVTEX messages are stored for later printout, but urgent messages override the fax and print immediately.

FAX-208A from Furuno. You get the weather facts and a whole lot more. Write for complete information.

P.O. Box 2343, South San Francisco, CA 94083

FURUNO. Choice of the professionals.



© 1987 Furuno U.S.A., Inc.

Circle 125 on Reader Service Card

PHOENIX LAUNCHES NEW LINE-UP WITH RUSSELLSTOLL LIGHTS.

Thanks to the acquisition of **Russellstoll** marine and industrial lights, Phoenix can now equip any vessel with a full line of rugged, weather-resistant deck and search lighting. As well as an excellent selection of interior operational lighting.

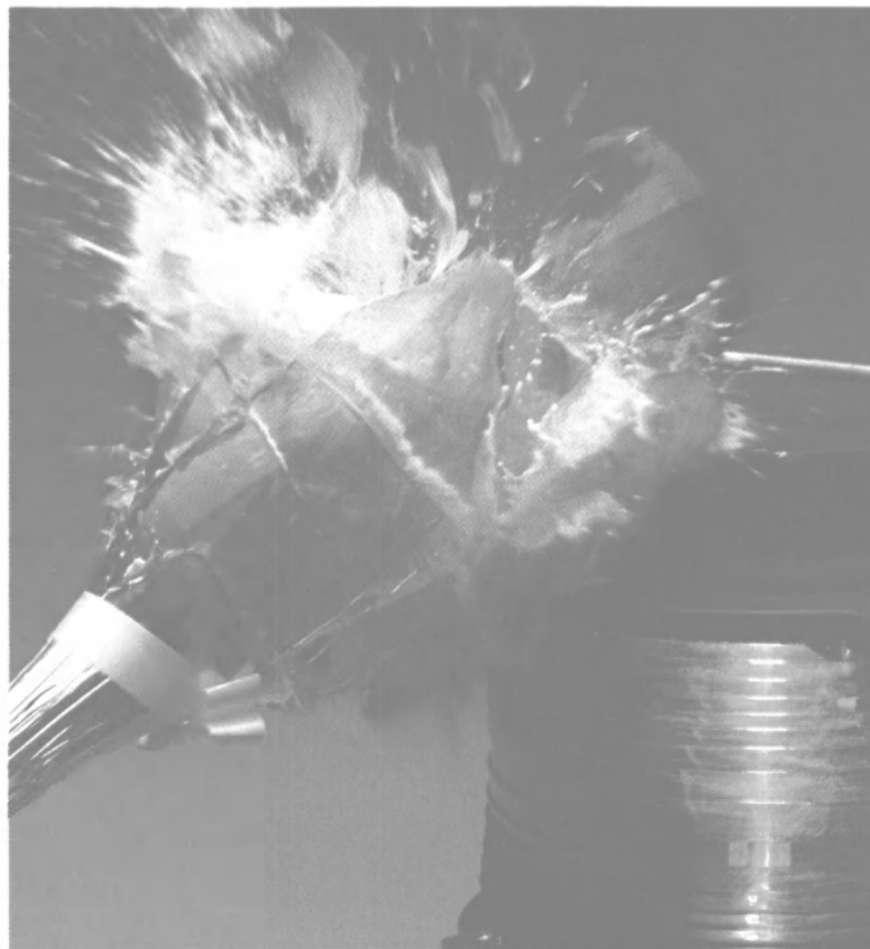
So now we can outfit your vessel with interior and exterior fluorescent, some with hazardous and explosion proof ratings, plus navigation, HID and exterior quartz lights. All thoroughly tested to withstand a punishing life at sea.

And all from Phoenix, a company with a shining record on land for fast service and dependable delivery.

From fishing boats to aircraft carriers, Phoenix has the light that's right for your vessel. For a **free brochure**, contact: PHOENIX PRODUCTS CO., 4715 N. 27th St., Milwaukee, WI 53209; Phone 414-445-4100; TELEX 910-262-3389; FAX 414-445-0289.

PHOENIX

PX-6-7



Circle 264 on Reader Service Card



Piraeus 6-11 June 1988

Posidonia

The International Shipping Exhibition



Posidonia 88, the biennial international shipping exhibition, will be held at the Piraeus Exhibition Center in Piraeus, Greece, from June 6-11, 1988.

The week-long Posidonia exhibition, which includes the Posidonia Forum, draws marine industry leaders from around the world. Typically, exhibitors have included shipping companies, port authorities, shipbuilders and ship repairers, ship products and services, engine manufacturers, cargo-handling equip-

ment manufacturers, engine room machinery makers, shipping agents, maritime consultants, navigation and communications equipment manufacturers, marine paint suppliers, ship classification societies, towing and salvage equipment suppliers, etc. This year, more than 650 companies from 45 countries will be exhibiting. This eclipses the Posidonia 86 total of 620 exhibitors from 49 nations.

Launched in 1964, the Posidonia exhibition was first held in the Zap-

peion Palace in Athens. Posidonia 88, the 11th of its kind, is being held in the newly refurbished Posidonia Exhibition Center. This year's exhibition marks the 7th time it has been held at the Exhibition Center.

Posidonia 88 is being sponsored by the Hellenic Chamber of Shipping, the Union of Greek Shipowners, the London-based Greek Shipping Cooperation Committee, the Union of Mediterranean Cargo Vessels' Shipowners, the Shipowners' Union of International Lines, and

the Association of Greek Passenger Ships.

Evangelos Giannopoulos, the Minister of Mercantile Marine in Greece, will open the Posidonia Forum, along with **Stathis Gourdomichalis**, president, the Union of Greek Shipowners (UGS). Mr. **Gourdomichalis** will chair a discussion on issues affecting the future of international shipping. The Athens Intercontinental Hotel will be the site of the Forum on June 9. The event is open to Posidonia ex-

hibitors and leaders from the shipping industry who have been invited by the exhibition organizers.

Other keynote speakers at the Posidonia Forum, which is an integral part of the Posidonia Exhibition, are **George Anastassopoulos**, chairman of the Transport Committee of the European Parliament, **Basil Papachristidis**, INTER-TANKO chairman, and **Andrew G. Spyrou**, the former technical director of the Onassis Group.

Posidonia 88, like its predecessors, will once again be an important event, with few equals on the shipping calendar. It is one of the few times when so many shipowners and marine product and service suppliers are in one location.

The Greek-flag fleet accounts for one-third of the total cargo-carrying capacity of the European Community, and for over 10 percent of all dry bulk tonnage worldwide. If Greek-operated vessels under other flags are added in, then Greeks directly or indirectly control an estimated 44 million gross tons, or substantially over 10 percent of the total world merchant tonnage of all types. Therefore, without exaggeration, Greek shipping could be described as a billion dollar market. Every two years, Posidonia offers an excellent opportunity to tap this huge market.

For more information on Posidonia 88, contact: Posidonia Exhibitions Ltd., 4-6 Efplias Street, GR-185 37 Piraeus, Greece; telephone: (01) 4517859, 4517868; and telex: 241937 EXPO GR. Their representative in the United Kingdom is Seatrade, Fairfax House, Colchester C01 1RJ; telephone: (0206) 45121; and telex: 98517 DISOP G.

POSIDONIA 88 Exhibitors

ABN-Bank
ABS
AMVER
Ancona, Chamber of Commerce of
Aerospatiale
Aircargo International
Alexandra Towing
Alfa Laval
Allaire
American Bureau of Shipping
American Hellenic Chamber of Commerce
Angelos (Hellas) Marine Services
B Anagnostopoulos
Anschutz
Astilleros Espanoles
Auxitrol
BIMCO
Bartels & Luders
Belzona Marine Engineering
Blohm & Voss
N Bogdanos
D A Borbilas
Boship Management
Boston Fuel Transportation
Bremer Vulkan
Bureau Veritas
British Marine Equipment Council
CCF
Camrex Coatings
Candia
Caravel
Centromor
Chantiers de l'Atlantique
Chios Maritime
Chugoku Marine Paints
H Clarkson
Comsat
Consortium, Port of Genoa
Consortium, Port of Naples
Cukurova
Cummins Marine

DHL
Danish Export Council
Deeberg-Systeme
Denis Ganassoulis
Despina Maritime
Det Norske Veritas
Deutsche Schiffsbeleihungs-Bank
Diesel Power Holland
Diplomatic Marine
A Dombros
Doxiadis Bros Graphotechniki
Drew Ameroid International
Duvalco
Eko Abee

Elo-matic
Elenava
Eleusis Shipyards
Environmental Protection
Envirovac
Esgard
Eureka Chemicals
Fairey Marinteknik (UK)
Far East Levingston
Fekete & Co
Fina Hellas
Fincantieri
Fisher Marine Communications
The Gambia

Germanischer Lloyd
German Shipbuilding and
Ocean Industries Assoc.
German Machinery and
Plant Manufacturers Assoc.
Gorizia, Chamber of Commerce of
Gulf Air
Harris Pye Marine
Hellenic Coastal Lines
Hellenic Mutual War Risks Assoc.
Hellenic Industrial Development Bank

(continued)

Technology, creativity, efficiency. To be a leader all over the world.

It's the strategic choice of a Company constantly seeking high quality and advanced technological solutions. With the rebuilding of the Costa Riviera yesterday, through the addition of new parts to Clodia today, with the conversion of Ferruzzi bulk carriers tomorrow, Mariotti is a leader in international ship's repairing. Mariotti: an image of creativity, efficiency and perfect organization.



Since 1928 an efficient and flexible organization, the ability of Technicians and highly skilled teams have enabled Mariotti to be appreciated all over the world. Repairs and conversions of all kinds of ships. General overhauling of main auxiliary engines, mechanical equipment. Dry dock works, installation of machinery and equipment. Steelworks, pipeworks.



T. MARIOTTI

Engineering workshop - Ship's repair and completing

Calata Chiappella, Genova (Porto) - Tel. 010/25.68.21 - Telex 270329 ONIA GE - Telefax 010/25.72.08



Shipyards

Cadiz

Telf.: (34-56) 25 10 00
Fax: (34-56) 27 83 62
25 68 28
Telex: 76021 ASTIL E
76153 AVEN E

Sevilla

Telf.: (34-54) 45 10 11
Fax: (34-54) 45 76 59
Telex: 72345 ASTIL E

Bilbao

Telf. (34-4) 495 71 50
Fax: (34-4) 496 49 76
Telex: 31519 AERS E

Santander

Telf.: (34-42) 54 00 50
Fax: (34-42) 54 00 26
Telex: 35810 ASSA E

ASTANO Ferrol

Telf.: (34-81) 34 07 00
Fax: (34-81) 34 09 54
(34-81) 34 32 52
Telex: 85507 ASTAN E
82381 ASTAN E

ASTICAN

Canary Islands

Telf.: (34-28) 27 32 66
Fax: (34028) 26 48 07
Telex: 95147 ASVAS E
96502 YARD E

The Shipbuilders of Spain

**Why you should repair (or convert)
your ships at Astilleros.**

We think that you have at least four good reasons to choose Spain:

✓ Our strategic allocation.

Spain is the natural crosspoint for all major routes linking America, Europe and the East, and crude oil shipping through the Suez Canal or the Cape of Good Hope.

✓ Our technical skills and facilities.
12 dry docks, 2 floating docks and one syncrolift, with capacities up to 400.000 d.w.t.

✓ Our conversion experience
Ask for the facts. Astilleros has successfully converted all kinds of vessels (we have just delivered 3 chemical tankers for Gotaas Larsen, and our recent contracts include the conversion of a 21.000 dwt Bulkcarrier into a molten Sulphur carrier for Navimin). And Astilleros is a well known leader in FPSO and FSU and in Internal Blasting and Coating.

✓ A spread of specialized yards.
Along the long coastline of Spain, and covering all tonnages.

✓ And the Spanish weather...

Last but not least: an excellent climate means that work is rarely held up by adverse weather.

As Astilleros offers, also, the best price and surprising financial packages, don't you think it's high time to check on us?

**ASTILLEROS
ESPAÑOLES**

For further information:

Astilleros Españoles, S.A.

Padilla, 17

28006 Madrid

Tel. (341) 435 78 40

Télex. 27648 ASTIL-E

Fax. (341) 276 29 56

Circle 131 on Reader Service Card

Posidonia
Ποσειδωνία
The International Shipping Exhibition
Piraeus, 6 - 11 June 1988

Posidonia 88

(continued)

Hellenic Marine Environment
Protection Assoc. (HELMEPA)
Hellenic Offshore Racing Club
Hellenic Shipyards
Hitachi Zosen
Hitachi Zosen Singapore
Port of Houston
Hyundai Heavy Industries

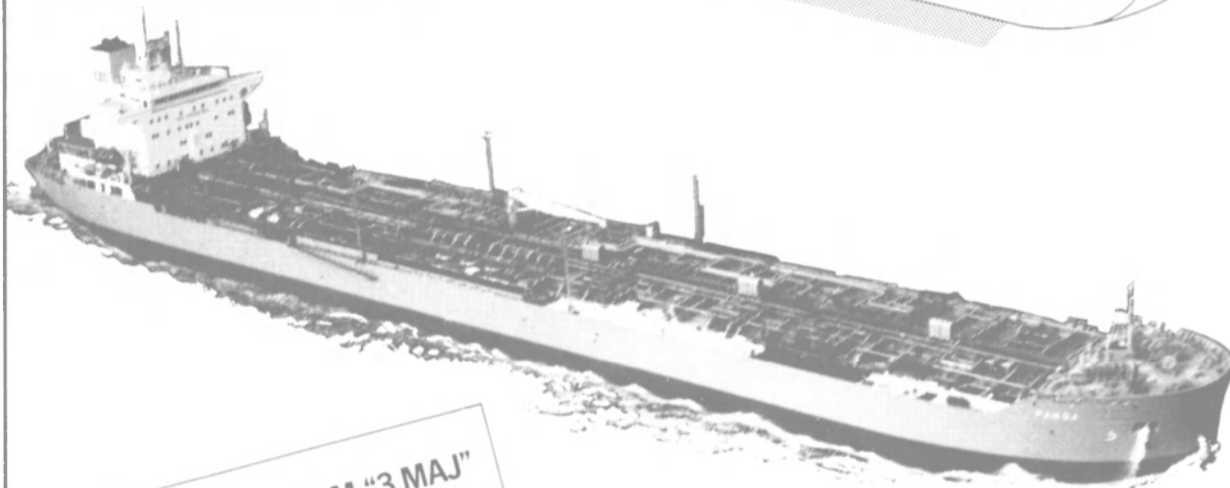
IMCO Hellas
Inham-Refrigeration
Inmarsat
Inter American Life Insurance
Institute of Marine Engineers
Intelmar Electronics
Intertanko
Intertrade Industries
Ippocampos-Hoursoglou
Ishikawajima-Harima Heavy Industries
Italian Institute for Foreign Trade
Jadranbrod
Japan Ship Exporters' Association
Journal de la Marine Marchande

Jurong Shipyard
Kawasaki Heavy Industries
Keppel Shipyard
Kelvin Hughes
BV Kon Mij De Schelde
Koraboimpex
Krupp Atlas Elektronik
Latina, Chamber of Commerce
Liberian Services (GR)
Lincoln Diesels
Link Maritime Enterprises
Linkleters
Lisnave
Lloyd's Register of Shipping



Lloyd Werft Bremerhaven
Loucas G Matsas
MASS SA
MacGregor Navire (F)
Malta Drydocks
Marac Electronics
Marconi International Marine
Marco Pumps
Marti Shipping Agency
S Michelioudakis
Micromedia
Midland Bank
Miller
Mitsubishi Heavy Industries
Mitsui Engineering and Shipbuilding
Mobil Oil Hellas
Moran Towing
NKK Corporation
Nereus Marine Service (NMS) Hellas
Nippon Kaiji Kyokai
National Bank of Greece
Navicom Electronics
Navimor
Neue Jadewerft
Netherlands Council for Trade Promotion
Neorion Shipyards
Noske & Kaeser
North Shipyard (Singapore)
Oceanclean
Paolo de Nicola
Port of Antwerp Promotion Association
Port of Chioggia
Port of Ghent
Port of Trieste
Poseidon
Posidonia
Provoli
Rauma Repola (X 2)
Rank Xerox
Ravenna, Chamber of Commerce of
Rochem Panhellas
Rome, Chamber of Commerce of
Royal Bank of Scotland
Saga
Sakiotis/Sael Marine Electronics
Salerno, Chamber of Commerce of
The Salvage Association
Sasebo Heavy Industries
Schiffcommerz
Schichau Unterweser
Selmar Electronics
Sembawang
Shell Company (Hellas)
Sigma Paints Hellas
Simpson Spence & Young
SpecTec Consult
St John Ambulance
Stretex
Sudoimport
Sumitomo Heavy Industries
Sun Light Agency
Sulzer Brothers
Sunbeam Trading
Swedish Telecom Radio
Technava
Technical Comm.
Technoship
Thermax
Thomas R Miller & Son
Tofte & Jorgensen
Tradex Marine Equipment
Alexander G. Tsavlis & Sons
Turkish Shipbuilding Industry
Udine, Chamber of Commerce of
Uni-Diesel
Unimar
Unitor Ships Service
V Ships
Van Der Host (Singapore)
Van Der Wetering
Vecom
Vesta
Watercraft Hellas
Waterman
Wijsmuller Salvage
Wilton-Fijenoord
Witherby
The Wolfson Unit
Yeow Kong Electrical
YVC Bolnes
Zihni Group of Companies

You know what you want ...



LATEST DELIVERY FROM "3.MAJ"

"KHIRURG VISHNEVSKIY"
16,000 TDW, Products Tanker

Principal Particulars

Length b.p.	142.60 m
Breadth, mid	22.40 m
Depth	12.15 m
Draught, max	9.00 m
Deadweight at max. draught	16,200 t
Trial speed	15.5 knots
Main propulsion engines	2 x "Jadranbrod-S.E.M.T. Pielstick" type 6PC2-6/2L400
Main engine output	2 x 2870 kW at 520 r/min.

LATEST LAUNCHING FROM "3.MAJ"

"3.MAJ"
60,600 TDW, Ore/Bulk/Oil Carrier

Principal Particulars

Length b.p.	216.00 m
Breadth, mid	32.20 m
Depth, mid	19.35 m
Design draught	12.60 m
Deadweight at design draught	60,600 t
Trial speed	15.00 knots
Main propulsion engine	"3.MAJ-SULZER" 7 RTA 62
Main engine output	8760 kW at 86 r/min

... but where do you find it?

Sophisticated up to date vessels built by the people you can trust, the people with a first-class reputation for:

- design which meets your specific requirements
- quality construction and, of course
- delivery on schedule

Vessels to boost your profits.

Try



3. MAJ

Associated Shipbuilding Industry,
P.O. Box No. 117, 51001 Rijeka, Yugoslavia. Telephone: 617-111 (20 lines).
Telex: YU 24-137, 24-240, 24-338. Telefax: 611-411. Cable: 3.MAJ-RIJEKA.
(A member of the Association of Shipbuilding Industry "JADRANBROD", Zagreb, Yugoslavia)

Our customers know why

See us at Posidonia '88. June 6-11. Stand No. A 209

Circle 334 on Reader Service Card

ELECTRONICS UPDATE

Sperry Marine GPS Core Module And 501TR/GPS Navigator Offer Reliable, Accurate Performance

—Free Literature Available—

Sperry Marine Inc., Charlottesville, Va., is now shipping its GPS Core Module and the 501 TR/GPS Navigator to a growing number of commercial shipowners worldwide, according to Sperry project manager **Bruce Angus**.

The GPS Core Module is a single-channel, sequenced, C/A code receiver which has been designed specifically for the professional marine user. Simplicity of hardware, reliability and availability of parts and unit ruggedness have been the design criteria for the GPS Core Module—all without compromising high performance accuracy.

Mr. **Angus** described the GPS Core Module receiver as automatically integrating all current and future operational satellites so that current buyers enjoy the early advantage of GPS with the assurance that the receiver will be performing optimally up to and after the full deployment of GPS satellites. Additionally, Sperry Marine offers a free satellite advisory software diskette to assist in predicting the interim GPS coverage on a given time and date.

The new GPS equipment features two RS232 ports which provide Lat, Long and Time updates every two to three seconds with a positional accuracy of 30 meters 2dRMS. The data format is flexible to configure

and complies with SC104 format (the data message for differential corrections). Other formats such as NMEA0183 are available and, in addition, the unit has very low power consumption.

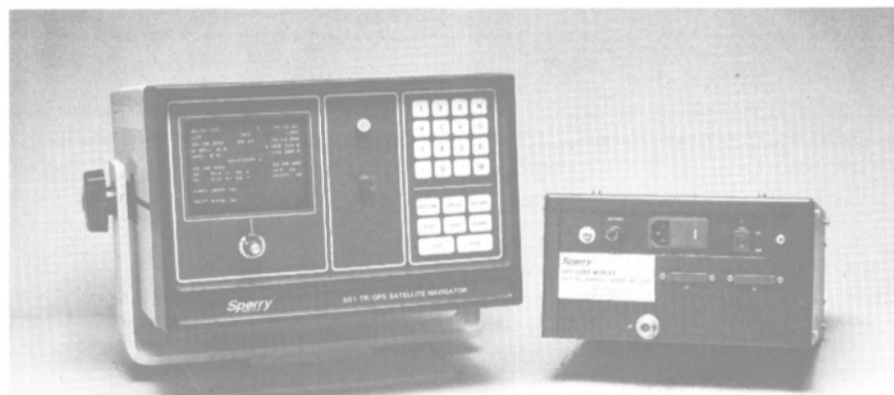
The Sperry Marine 501TR/GPS Navigator aids mariners wishing to specify the accuracy and continuity of GPS fixes. The 501TR/GPS uses an integrated transit receiver which fills the coverage gaps that will exist up to the time when all GPS satellites are deployed.

According to Mr. **Angus**, no other system available offers this combined transit/GPS capability with a common, complete single page navigation display. The operator is able to quickly become familiar with the screen location of essential navigation data and always knows whether the data is based on transit or GPS fixes.

Mr. **Angus** indicated that owners of existing Sperry Marine transit receivers will be able to easily upgrade their systems during a short onboard service call to full transit/GPS receivers. These owners would then receive the full advantage of GPS technology at a minimum cost.

For free literature detailing Sperry Marine's GPS Core Module and 501TR/GPS Navigator,

Circle 12 on Reader Service Card



Sperry Marine recently introduced the 501TR/GPS Satellite Navigator and the GPS Core Module to the marine market.

Increase Shown In 1987 For Shipbuilding Orders

Lloyd's Maritime Information Services Ltd. recently reported in Lloyd's Register of Shipping's annual report that world shipbuilding orders in 1987 rose to an estimated 13.5 million gross metric tons from 12.7 million metric tons in 1986,

reversing a three-year decline in the shipbuilding industry.

Tanker orders rose substantially to an estimated 6.1 million metric tons, about one-third higher than 1986, and new construction contracts for general cargo/container vessels increased for the third consecutive year to an estimated 3.4 million metric tons from just over 3 million in 1986, it was reported.

Portable Gun Offers New Literature On Drilling Extremely Accurate Holes

Portable Gun Drilling Systems, an engineering development company in Auburn, Wash., is offering free literature on a new application of an old method that the company has developed for drilling extremely accurate holes—a truly portable system.

Holes can be bored to a tolerance of $\pm .0005''$ on the diameter, to $.0015''$ on parallelism and ovality. The system meets U.S. Navy requirements for drilling fitted bolt holes, as on LSDs 41, 42 and 43, and has been used by a large aerospace corporation on a cargo bay fabrication project.

Finished holes require no reaming, honing, or surface polishing. Since there is no mess—debris and drilling fluid mist are extracted by vacuum—the system can be used in an enclosed area.

One operator can utilize two-three systems as required.

For additional information and

free literature from Portable Gun Drilling Systems,

Circle 22 on Reader Service Card

Norman D. Albertsen Named Manager, NCEL Technology Base Programs

The Naval Civil Engineering Laboratory (NCEL) of Port Hueneme, Calif., recently named **Norman D. Albertsen** manager of technology base programs. He succeeds **Joseph G. Berke**, who was transferred to the U.S. Bureau of Standards in Washington, D.C.

Mr. **Albertsen** is responsible for NCEL's 30 exploratory development programs valued at \$6 million, and 20 basic research projects worth \$2 million. He is also in charge of internal independent research/independent exploratory development programs.

A registered professional engineer in California, Mr. **Albertsen** is a member of the American Society of Civil Engineers, Sigma Xi honorary society, and Tau Beta Pi national engineering honorary society.

There was only one improvement possible
for the Hamworthy Dolphin



introducing

The New Hamworthy MODULAR Dolphin

Now suitable for even more applications

When you've designed a centrifugal pump that is renowned for reliable, efficient operation and is fitted on thousands of ships worldwide then how do you improve it? The Hamworthy answer is to devise a new modular design that gives you a pump to suit any duty application in any ship.

A pump to operate in-line or end suction, with vertical or horizontal

attitude, and with options for coupling, seal, drive type and priming system. We've also added such innovative design features as lubricated bearings for prolonged dry running. With choice of single or double entry covering capacities up to 7000m³/h (heads up to 140m), you know that the one pump you need is the new Hamworthy modular Dolphin.

HAMWORTHY
pumping systems

Pumping Systems
Hamworthy Engineering Limited
Fleets Corner, Poole, Dorset. BH17 7LA. England.
Telephone: 0202 665566. Facsimile: 0202 665444.
Telex: 41348 (HAMPAC G).

Circle 24 on Reader Service Card

Bethlehem Steel Consolidation At Sparrows Point Strengthens Competitive Position

Wider Range Of Services Offered



David H. Klinges

The new Baltimore Marine Division of Bethlehem Steel Corporation "will make us more competitive and will enable us to respond to the needs of the reduced marketplace more effectively," declared **David H. Klinges**, president, marine construction. He said the consolidation also strengthens the Sparrows Point, Md., yard's opportunity to participate in the offshore oil rig construction business.

In January, Bethlehem announced that it would divest its shipyards in Beaumont and Port Arthur, Texas, and the Republic of Singapore and consolidate its marine construction business at the Sparrows Point shipyard.

The decision to sell the three yards was necessitated by poor market conditions and the resulting lack

of adequate profitability for the work that was obtained.

The new division will market and produce offshore drilling platforms, ships and other types of marine products and provide a full range of vessel repair and modification services.

Acquired by Bethlehem in 1916, the Sparrows Point yard has the capability to build and repair a wide range of vessels and fabricate a variety of structural components and industrial products.

The yard recently began leasing a floating drydock which allows it to handle deeper draft vessels, such as cruise ships, ore carriers, container-ships, naval combatants, auxiliaries and amphibious vessels. The drydock, with a lifting capacity of 44,000 tons, "is a valuable supplement to our 1,200-foot-long graving dock and increases our competitive position in the marketplace," Mr. **Klinges** noted.

Because of the drydock's capabilities, the yard has been successful in attracting repair business. "In fact, Mr. **Klinges** said, "we've been fully booked with drydock work since that facility went into operation."

Current major work at the yard consists of a \$130-million contract to build two oceanographic ships for the U.S. Navy and a contract in excess of \$30 million to build 15 steel sections for the Interstate 664 tunnel crossing at the Hampton Roads area or Virginia. The first steel section was towed recently to the construction site. The last tun-

nel section is scheduled to be delivered early next year.

Workers are putting the finishing touches on the oceanographic ship, USNS Maury, which will be delivered to the Navy late summer. Her sister ship, the USNS Tanner, is scheduled for delivery next February.

Bethlehem is continuing to bid aggressively for new work for the Sparrows Point yard which currently has a workforce of approximately 1,800.

Turning to the state of the industry, Mr. **Klinges** said that the problems now facing the nation's shipbuilding industry are primarily due to ineffective Federal maritime policies and foreign shipyard subsidization practices.

He continued: "Today, over 90 percent of American shipyards are supported by Navy work. Without commercial work, naval construction cannot support the industry."

On the bright side, however, Mr. **Klinges** said that he was pleased with the findings of the report presented to President **Reagan** by the Commission on Merchant Marine and Defense, which was created in recognition of the threat posed by the inadequacy of the nation's merchant marine fleet and its shipyard mobilization base.

"The report's conclusion—that governmental programs to deal with the 'deteriorating condition' of the maritime industry must be accorded high priority—is consistent with the position the industry has taken over the last several years, in Congressional and other forums, in citing the deep distress which all segments of the industry are experiencing," he said.

The commission appointed by the President also recognizes any current program must incorporate a commitment to build ships for American owners in American shipyards to be manned by American seamen to support commercial and military requirements alike in the event of an emergency.

Bethlehem Steel's Baltimore Marine Division At A Glance

Founded:	1891 by Maryland Steel Company. Acquired by Bethlehem in 1916.
Location:	200 acres on the east side of the Patapsco River at Chesapeake Bay.
Facilities:	Has one of the largest building basins in the U.S. at 1,200 x 200 feet—can accommodate vessels up to 300,000 dwt. New floating drydock has 44,000-ton lifting capacity. Support facilities include a production line panel shop, with automatic welding equipment, outfitting berths, building ways, and support shops.
Employment:	1,800
Products & Services:	Specializes in design, engineering, construction, repair and servicing of all types of naval and commercial vessels as well as rigs for the offshore oil industry. Manufactures a wide range of products for non-marine industries.

"American shipbuilders," he continued, "stand ready, willing and able to participate in any rational program which would meet the necessary security objectives of this nation. Programs which would ensure increased participation in American trade, transporting imported automobiles in American vessels and constructing handy-size tankers and cruise ships vital to American needs as military auxiliaries could well be a major start in redressing our current inadequacies."

For free literature on the shipbuilding, ship repairing, conversion and rig construction facilities offered by Bethlehem Steel-Sparrows Point,

Circle 15 on Reader Service Card

Mario Named General Manager, Comsat Maritime Services

Comsat Corporation has named **Ronald J. Mario** vice president and general manager of its Maritime Services business, succeeding **George Tellmann**, who retired after serving Comsat for nearly 20 years in key management positions relating to the company's roles in both the Inmarsat and Intelsat businesses.

In his new capacity, Mr. **Mario** will be responsible for all of the operating and administrative functions for Comsat Maritime Services and oversee the overall direction of the business, which provides mobile satellite communications to several markets, including passenger ships, commercial shipping vessels, and offshore oil facilities.

Comsat Corporation is a leading supplier of telecommunications services. As the U.S. member of Intelsat and Inmarsat, it links the U.S. by satellite with more than 160 other nations and nearly 6,500 ships at sea and offshore facilities.



At left: Some of the 15 steel tunnel tube sections under construction at Bethlehem Steel's Baltimore Marine Division. The 300-foot-long sections will be used to build the Interstate 664 tunnel crossing in the Hampton Roads section of Virginia. **At right:** The USNS Maury (T-AGS-39), the first of two oceanographic survey ships being constructed at Bethlehem Steel-Sparrows Point. She is scheduled for delivery in July.

Chao To Be Appointed Chairman Of Federal Maritime Commission



Elaine L. Chao

Elaine L. Chao, Deputy Maritime Administrator, will be appointed as Chairman of the Federal Maritime Commission, President **Reagan** recently said. After the Senate confirms the appointment he will also designate her to be the presiding officer.

Ms. **Chao** will fill the unexpired term of the late **Edward V. Hickey Jr.**, who died suddenly in mid-January. That term ends June 30, 1991.

Alaskan Mine Acquires, Converts Two Barges For Floating Docks

Green's Creek Mining Company, operator of one of the most significant new underground mines to be developed in Southeast Alaska in many years, has acquired two deck barges that are being used as floating docks on Southeast Alaska's Admiralty Island, the site of the lead/zinc/silver/gold mine going into production next fall.

Acquired by Green's Creek, a subsidiary of BP Minerals America, owned by British Petroleum Company, was Zidell's 135-foot AB-36, a flat deck barge being converted into a combination floating pedestrian dock and breakwater, and the 140-foot Miss Rene, now being used as a floating dock in Hawk Inlet on the opposite side of Admiralty Island. The Miss Rene is part of a barge unloading system for transporting equipment and supplies to the mine.

Norwegian-Built Training Simulator Installed At French Maritime College

The maritime college of Nantes, France, recently installed a training simulator that will be used for the training of future engineers for the merchant marine. More than 150 guests, mainly from the French shipping and marine training environment indicated a solid interest in the Norwegian-built simulator.

Developed and manufactured by Norcontrol Simulation a.s of Horten, Norway, the simulator can be programmed to simulate anything happening to the machinery at sea, and it comes with light and sound effects for maximum realism.

Consisting of three parts, the simulator is adapted to the French requirements for officers controlling both the bridge and engine room from one place.

With experience from 40 similar installations, Norcontrol Simulation is a market leader internationally. Several similar projects are now developing, further strengthening the company's position.

For further information and free

literature from Norcontrol Simulation,

Circle 25 on Reader Service Card

Hartley Appointed Chief Executive At BP Shipping

According to a recent announce-

ment by BP Shipping, **Nick Hartley** has been appointed the chief executive of the company succeeding **M.R. Pattinson**. Mr. **Pattinson** retired from his position after 32 years of service in the BP Group.

Mr. **Hartley** has over 32 years' experience in the marine industry. Prior to his present appointment, he was manager of the corporate and services group of BP Shipping.

HOLEBY
GENERATING SETS

Uni-Fuel
Same Heavy Fuel up to 7,000 Sec. R.I.
for
Main Engine and GenSets
Simplified Fuel Oil System
Simplified and Cheap Bunkering

MAN B&W

The World Leader in HFO-operated Marine GenSets

MAN B&W Diesel / 50 Broadway / New York, N.Y. 10004 / Telephone (212) 269-0980 / Telecopy (212) 363-2469 / Telex: 421374 mancopp
MAN B&W Diesel A/S / Østervei 2 / DK-4960 Holeby / Denmark / Telephone +45 3 90 60 26 / Telecopy +45 3 90 66 76 / Telex: 40646 hodiell dk

H 32

Circle 16 on Reader Service Card

Shipbuilders Council Elects Board Members

At the Shipbuilders Council of America board meeting held recently in Washington, D.C., **James R. Mellor**, executive vice president, Marine, Land Systems & International, General Dynamics Corporation, St. Louis, Mo., was elected chairman of the board of directors of the council. Mr. Mellor succeeds **Hans K. Schaefer**, president, Todd Shipyards Corporation, Seattle, Wash.

James Harvie, General Ship Corporation, East Boston, Mass., was elected vice chairman.

Both will serve a one-year term.

In addition to Mr. Mellor and Mr. Harvie, others elected to the executive committee were: **Albert L. Bossier Jr.**, Avondale Industries, Inc.; **Edward J. Campbell**, Newport News Shipbuilding; **Arthur E. Engel**, Southwest Marine, Inc.; **William E. Haggett**, Bath Iron Works Corporation; **Walter Herr**, Colt Industries, Inc.; **David H. Klinges**, Bethlehem Steel Corporation Marine Construction Group; **John L. Roper III**, Nor-

folk Shipbuilding and Drydock Corporation; **Gerald J. St. Pe**, Ingalls Shipbuilding, Inc.; **Hans K. Schaefer**, Todd Shipyards Corporation; and **Richard H. Vortmann**, National Steel and Shipbuilding Company.

Elected officers for the coming year are **John J. Stocker**, president; **W. Patrick Morris**, vice president and general counsel; **Silas O. Nunn**, vice president, programs; and **Beverly C. Kendall**, secretary-treasurer.

Hitachi Zosen To Sell Kyushu Shipbuilding Plant

Industry sources recently disclosed that Hitachi Zosen Corp. plans to sell its major shipbuilding plant on the southern Japanese island of Kyushu for about 40 billion yen (128 yen equal US\$1).

It was also reported that Hitachi Zosen will operate the dockyard on a lease-back basis from the affiliate. The plant has an annual shipbuilding capacity of 250,000 gross tons.

It's a lifesaver for your engines.

The Spinner II® lube-oil centrifuge cuts engine wear in half. Removing dirt from your engine's lubrication system is the key to reducing engine wear and lowering your maintenance costs. That's what the Spinner II centrifuge does, efficiently and economically.

Typical full-flow lube-oil filters trap dirt particles down to only about 40 microns in size. However, parts like piston rings can squeeze the oil film as thin as *one* micron. Remove the microscopic particles and you can reduce engine wear by half or better. To do that requires a centrifuge.

Until now, a centrifuge meant investing in an expensive, electric-motor-driven machine. Now there's the Spinner II centrifuge, a self-contained, high-speed unit driven only by oil pressure. It removes abrasive grit as small as *one-tenth of a micron* for a low cost you can justify!

The complete line of Spinner II centrifuges protects all marine diesel engines. For additional technical information, call 800/231-7746; in Texas 713/682-3651. Spinner II Products Division, T.F. Hudgins, Incorporated, P.O. Box 920946, Houston, Texas 77292-0946.

The Spinner II centrifuge: A lifesaver for your engines; a money-saver for you.

SPINNER II

Oil Cleaning Centrifuge

*Spinner II is a registered trademark of T.F. Hudgins, Incorporated.
Made in England by Glacier Metal Company Limited. Patented worldwide.
©1987 T.F. Hudgins, Incorporated. All rights reserved.

Circle 319 on Reader Service Card

PROPULSION UPDATE

Schottel Offers Free Color Brochure On Its 'Rudderpropeller,' And Units For Shallow-Draft Propulsion

Schottel, a leader in propulsion technology, has published a 20-page, full-color brochure on the propulsion units marketed by the company.

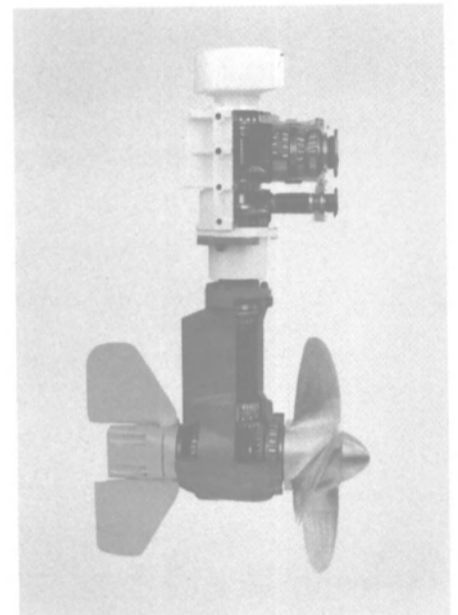
The Schottel Rudderpropeller, the heart of the system, is a combined propulsion and steering unit. The engine power is transmitted through bevel gear sets to the propeller. In addition, the propeller can be rotated through 360 degrees to provide steering, so that full thrust is available in any direction. This system has been used worldwide for more than 35 years, providing maximum maneuverability with full power for ahead and astern. The units currently available range from 15 kw to 5,000 kw (20 hp to 7,000 hp).

Schottel Rudderpropellers are in service for main propulsion, propulsion assistance and dynamic positioning in all fields of shipping.

A joint venture of Schottel and Lips United B.V. was founded in 1981 for the marketing of large thrusters for oceangoing vessels. This company, in The Hague, is named Schottel-Lips B.V. Schottel-Lips thrusters are constructed of standard components, such as upper and lower gearbox, stem section and steering gear, to suit a customer's specific requirements.

The heart of the system—the Rudderpropeller—may be fitted steerable or non-steerable, retractable or nonretractable, for vertical or horizontal drive and with fixed or controllable pitch propellers.

To meet the increasing demand of shallow-draft propulsion units for navigation on rivers and canals, normally not navigable, special jet propulsion units have been developed. The units are capable of operating



The Schottel Rudderpropeller, "The heart of the system," is a combined propulsion and steering unit.

at low drafts with full thrust and optimum efficiency.

The following jet propulsion systems are available: Schottel Cone-Jets, developed as a main drive or as a bow maneuvering aid for extremely shallow-draft vessels; Schottel Pump-Jets, in which the propeller is replaced by a specially designed pump wheel with optimized efficiency; and Schottel Bow-Jets which work with a horizontal propeller sucking water from below.

The Schottel Rudderpropeller is detailed in a free 20-page color brochure. The publication contains more than two dozen photographs of the system and other Schottel products. For your copy,

Circle 11 on Reader Service Card

JJH Inc. Expands CADAM To Portsmouth Location

JJH Inc., a leading naval engineering organization with facilities located in Crystal City, Va., Portsmouth, Va., Cherry Hill, N.J., Bath, Maine, Panama City, Fla., and Long Beach, Calif., recently announced the expansion of their CADAM capability to their Portsmouth facility.

JJH Inc. has installed and is using the CADAM® graphics system supported by a Perkin & Elmer 3210 computer with eight megabyte memory, magnetic tape drive, high-speed printer, electrostatic plotter, and system console. The graphic workstations utilized by JJH Inc. personnel allows for the continued

development of an existing data base stored on 80 and 300 megabyte disc drives. The CADAM system is equipped with telecommunications which provide continuous electronic access to detail drawings and material lists during design development.

The CADAM system employed by JJH Inc. at Portsmouth is one of the most cost-effective tools available in support of service to the marine industry and provides such benefits as increased design productivity, shorter design lead time, improved engineering change control, standardization of design and the support of shorter production schedules.

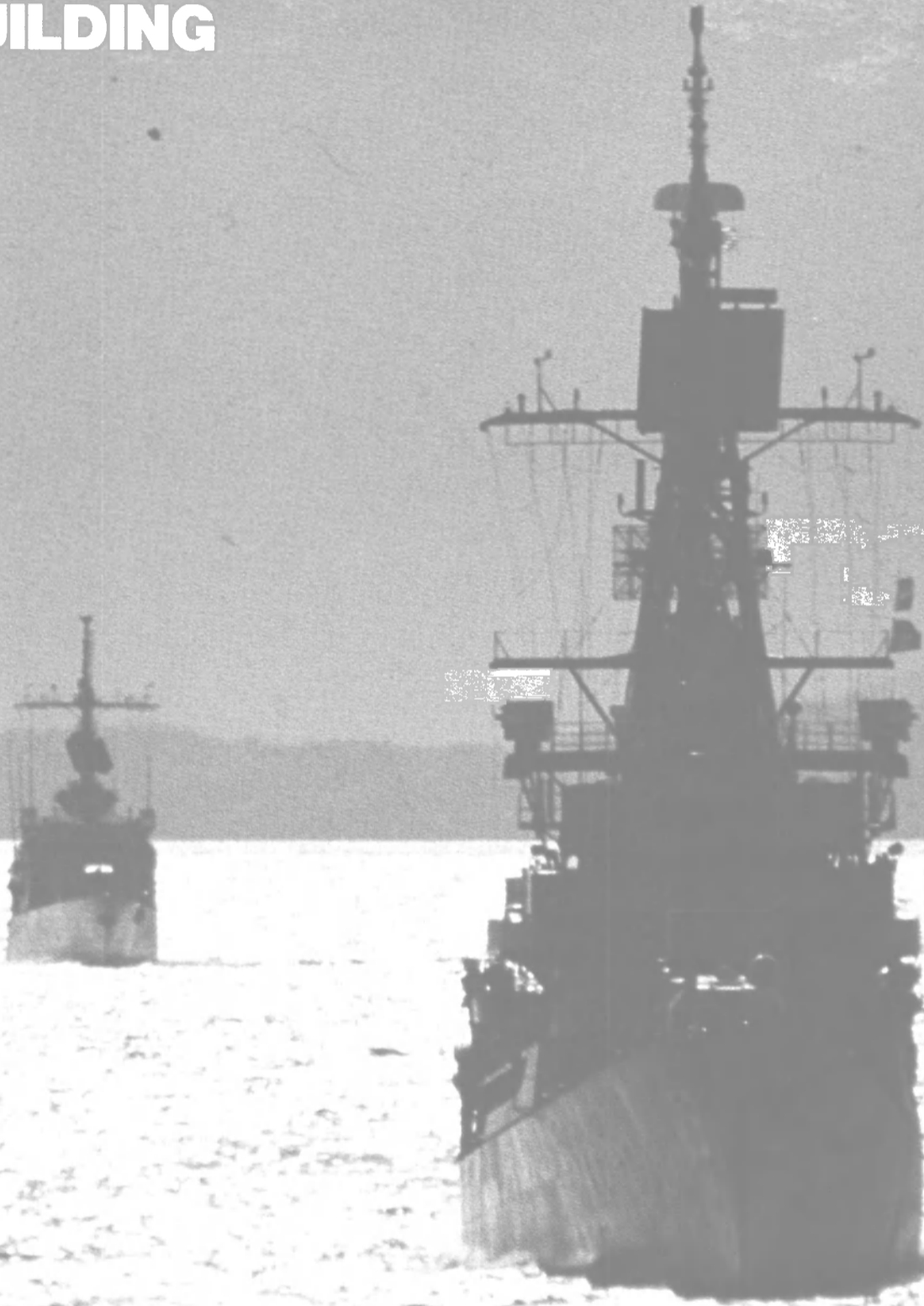
For more information and free literature on JJH Inc.,

Circle 20 on Reader Service Card

Maritime Reporter/Engineering News

NAVAL TECHNOLOGY

& SHIPBUILDING

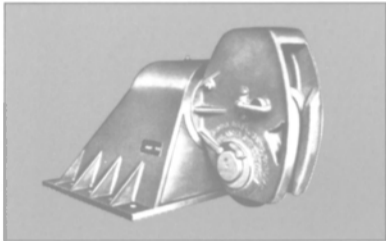


a special supplement to

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

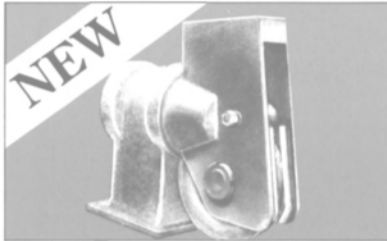
May 1988

Smith Berger Marine offers Seaworthy choices.



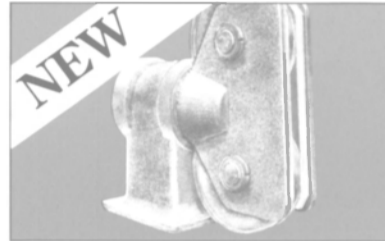
Naval Class Fairleads

Berger Fairleads have set the standards for quality and reliability for over 50 years. Berger Naval Class Fairleads are built to the exacting standards of the U.S. Navy and are designed for rugged offshore service.



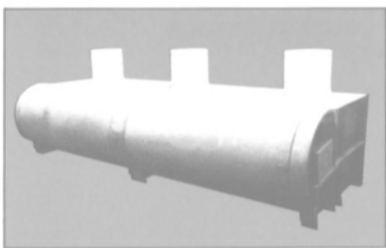
Mariner Class Balanced Head

Designed and built to the same standards of quality and reliability as the Naval Class but new techniques of fabrication and manufacturing have been applied to provide a cost effective answer to civilian marine industry requirements.



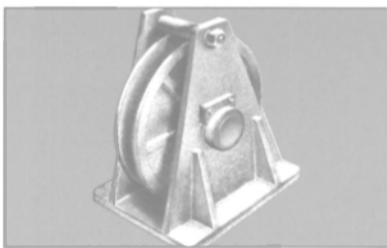
Mariner Class – Double Sheave

Berger quality in twin sheave fairleads for use in applications where the wire rope must be held in the center of the barrel or where directly in-line pulls are expected. All Berger Fairleads use tapered roller bearings throughout.



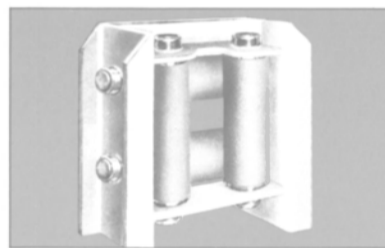
Customized Towing Equipment

Stern Rollers, Pop up pins, tow pins and other equipment for new construction or retrofit can be custom designed for your vessel. Rugged, simple designs assure long life, low maintenance, and ease of operation.



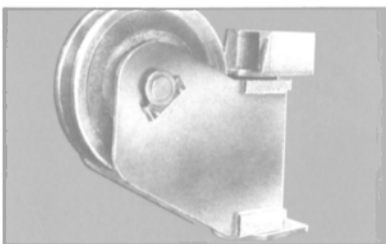
Guide Sheaves

A full line of vertical and horizontal guide sheaves for wire ropes up to 5 inch diameter is available with optional bronze or anti-friction bearings. Special wide throat sheaves for Pusher tug lines can be provided.



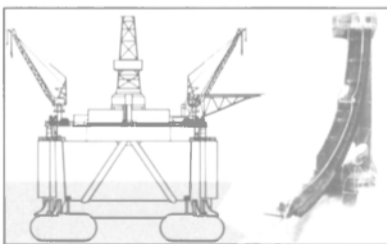
Roller Fairleads

Berger Roller Fairleads are available in two, three or four roller versions for all rope sizes. Hardened steel rollers with bronze bearings are mounted on stainless steel shafts. Button head fairleads are also available.



Underwater Fairleads

As a leader in underwater fairlead technology, Berger offers custom engineering to meet your requirements. Hinged sheave or trunnion type fairleads for all sizes of chain or wire rope are offered with underwater bronze or sealed anti-friction bearings.



Static Mooring Fairleads

Smith Berger is the exclusive supplier of the new static mooring fairleads with Monoloy rope or chain grooves designed to provide improved fatigue life of mooring lines on production platforms at an economical price.



Effer Marine Cranes

Hydraulic cranes designed for rugged and demanding marine service with capacities from 1 to 40 tons. Knuckleboom, telescopic boom, or fixed boom styles to meet your needs. Warranted and serviced by Smith Berger Marine.

Call us to put Smith Berger Innovation to work for you.



Smith Berger Marine, Inc.

516 South Chicago St., Seattle, WA 98108
TELEX: 32-8912 FAX: 206-764-4653 (206) 764-4650

Circle 227 on Reader Service Card



Future Business Opportunities In Navy Ship Procurement, Ship Maintenance And Navy Technology Development

By Dr. James R. McCaul, President
International Maritime Associates, Inc.

International Maritime Associates, Inc. (IMA) prepares detailed business reports covering the U.S. Navy market. They deal with future business opportunities available to shipyards, manufacturers, engineering firms and other marine suppliers. This article is based on information contained in recent reports.

Overview

The U.S. Navy is the major generator of work for shipyards and marine equipment manufacturers in this country. Total spending on new ship procurement has averaged \$10.8 billion per year over the past 10 years. This includes spending for ships systems and weapons, as well as the ship. Spending on ship maintenance and modernization has averaged \$4.7 billion per year this period. Spending on new naval technology development has averaged

\$7.6 billion. Details are shown in Exhibit 1.

Ship Procurement

As of early March, 90 naval ships were on order in 17 shipyards. Ma-

or players include Newport News (aircraft carriers and attack submarines), General Dynamics-Electric Boat (Trident and attack submarines), Ingalls (Aegis combatants and LHDs), Bath Iron Works (Aegis combatants) and Avondale (fleet

oilers and LSDs). These and other shipyards currently building naval ships are shown in Exhibit 2.

The Navy plans to spend more than \$25 billion on ship construction over the next two years. This year's budget is \$16.2 billion—a major portion of which is represented by funding for two new aircraft carriers, three attack submarines, one Trident submarine and five Aegis cruisers. The FY 1989 budget request is \$9.1 billion. Details for ship construction planned over the next five years are shown in Exhibit 3.

Continuing coverage of this area is provided in IMA's quarterly busi-

Exhibit 1—Trend in Navy Spending
(billions of \$)

Fiscal Year	Ship Procurement	Ship Maintenance and Modernization	Navy Technology Development
1980	\$6.5	\$3.0	\$4.6
1981	7.6	3.7	5.0
1982	8.6	4.4	5.8
1983	16.0	5.0	6.1
1984	11.5	5.0	7.6
1985	11.0	5.9	9.2
1986	9.6	5.2	9.6
1987	11.7	5.6	9.4
1988	14.9	4.7	9.5
1989	10.2	4.8	9.2

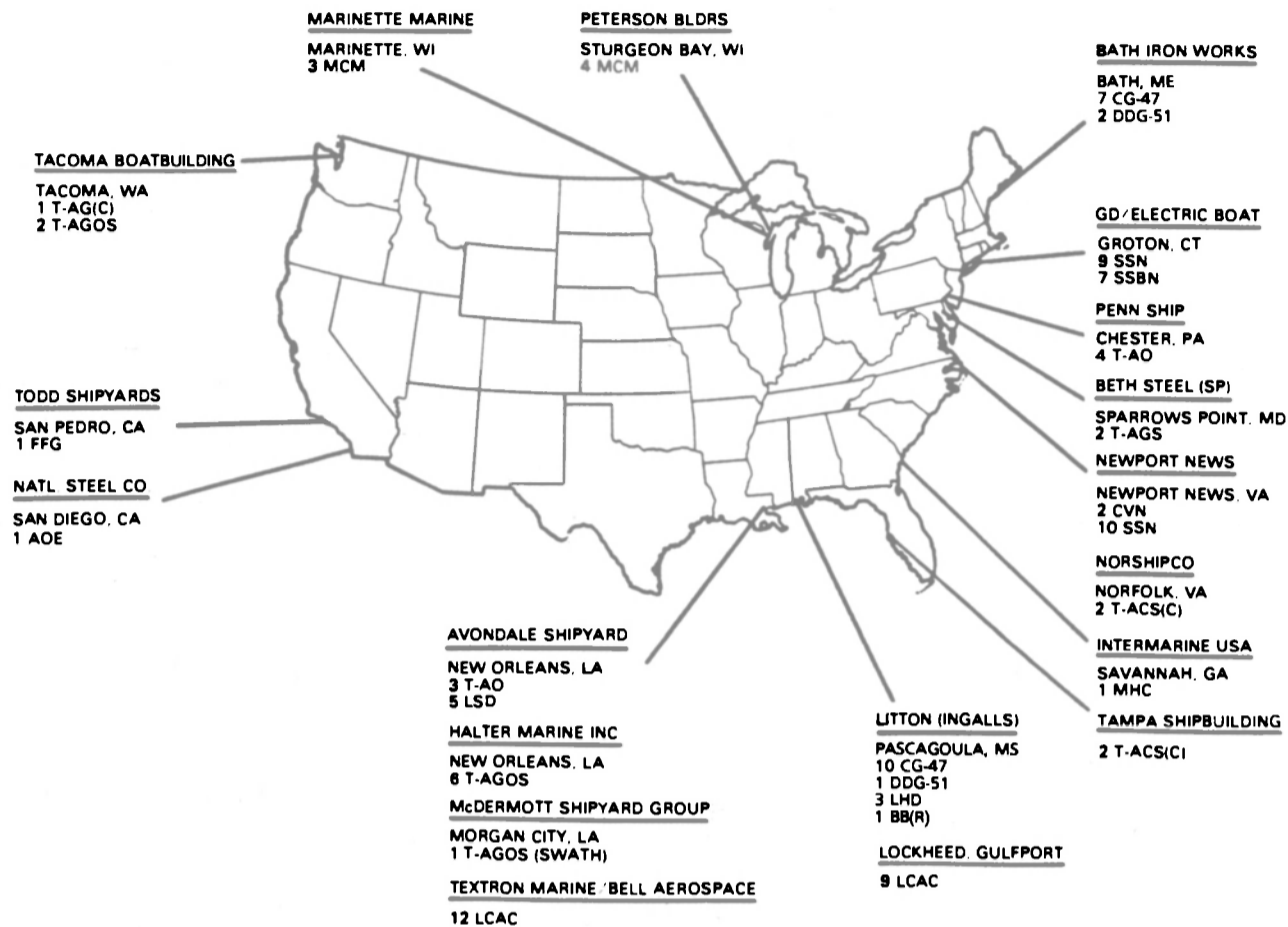
Source: Department of the Navy

(continued)



Exhibit 2

PRIVATE SHIPYARDS WITH NAVY CONSTRUCTION PROGRAMS (1 March 1988)



(continued)

ness report *U.S. Navy Ship and Equipment Procurement*.

Ship Maintenance

During FY 1987, 45 commercial shipyards received contracts for Navy ship repair and maintenance. Ship repair work was also performed in the eight naval shipyards and three Navy-owned ship repair facilities. Details for ship repair contracts in progress in commercial yards as early March 1988 are shown in Exhibit 4.

Spending for ship maintenance and modernization is projected to exceed \$9.4 billion over the next two years. This year the Navy plans to spend \$4.7 billion to perform 27 overhauls and 151 short term availabilities (SRA's/PMA's). In FY 1989 projected spending is \$4.8 billion—to perform 23 overhauls and 158 short term availabilities. Budget details are shown in Exhibit 5.

Continuing coverage of this area is provided in IMA's quarterly business report *U.S. Navy Ship Maintenance and Modernization*.

New Naval Technology —\$9.5-Million Annual Market For Marine Suppliers

Hundreds of companies are involved in Navy-sponsored research and development. Many companies have used the Navy R&D program to establish early position for major future procurements. Current work encompasses virtually the entire spectrum of new technology—from

(continued)

Exhibit 3—Navy Ship Construction Over Next Five Years

	FY 1988/92 SHIPBUILDING PROGRAM				
	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992
New Construction				Subject to Further Review*	
Trident	1	1	1	1	1
SSN-688	3	2	2	2	1
SSN-21	—	1	—	2	2
CVN	2	—	1	—	—
CG-47	5	—	1	—	—
DDG-51	—	3	3	5	6
LHD-1	1	1	—	1	—
LSD-41 CV	1	—	1	1	2
MCM-1	—	—	—	—	—
MHC-51	—	2	3	3	4
PXM	—	—	1	—	4
AOE-6	—	1	—	2	—
AE-36	—	—	—	1	1
ARS	—	—	1	—	—
TAO-187	2	2	2	1	—
TAGOS	—	3	3	2	—
AGOR/TAGS	—	1	2	4	—
	15	17	21	25	21
Conversions					
CV SLEP	1	—	—	1	—
AO (Jumbo)	1	2	1	—	—
TACS	2	—	—	—	—
	4	2	1	1	0

Note: Navy did not submit a new five-year shipbuilding plan as part of this year's budget proposal. The FY 1990-1992 portion of this table is identical to that of last year's five-year plan—and is subject to further review.

Source: Department of the Navy

Want to learn more about the \$38.0 billion annual Navy market?

IMA's three Navy business reviews will help keep you informed. A quarterly series assesses developments in Navy ship and equipment procurement. Another quarterly series covers Navy ship maintenance and modernization. The third is a special report focused on new Navy technology development. All deal with contract opportunities, long term spending plans and key points of buying power. More than 400 companies selling to the Navy subscribe to these reports.

- U.S. Navy Ship & Equipment Procurement
Four Quarterly reports
April 1988-March 1989 \$380.00
- U.S. Navy Ship Maintenance & Modernization
Four Quarterly reports
March 1988-February 1989 \$380.00
- The New Naval Technology Program—A Detailed Guide to \$9.5 Billion in New Annual Sales for Manufacturers, Engineering Firms and Suppliers
April 1988 \$550.00

To order, contact: International Maritime Associates, Inc., 835 New Hampshire Ave., NW, Washington, DC 20037, telephone: (202) 333-8501, telex: 64325 IMA, telefax: (202) 333-8504.

30 YEARS OF PERFORMANCE

OVER 99% OF ALL SHIPLIFT OPERATIONS AROUND THE WORLD ARE ON SYNCROLIFTS®

There are very good reasons why Syncrolift is the world leader in shiplift technology with more than 160 installations in 59 countries. If you're planning a shipyard and comparing docking systems, find out why your best move is with Syncrolift.®

The largest shiplift platform in the world – 655 ft. long by 106 ft. wide at Todd Pacific Shipyards Corporation, Los Angeles Division.

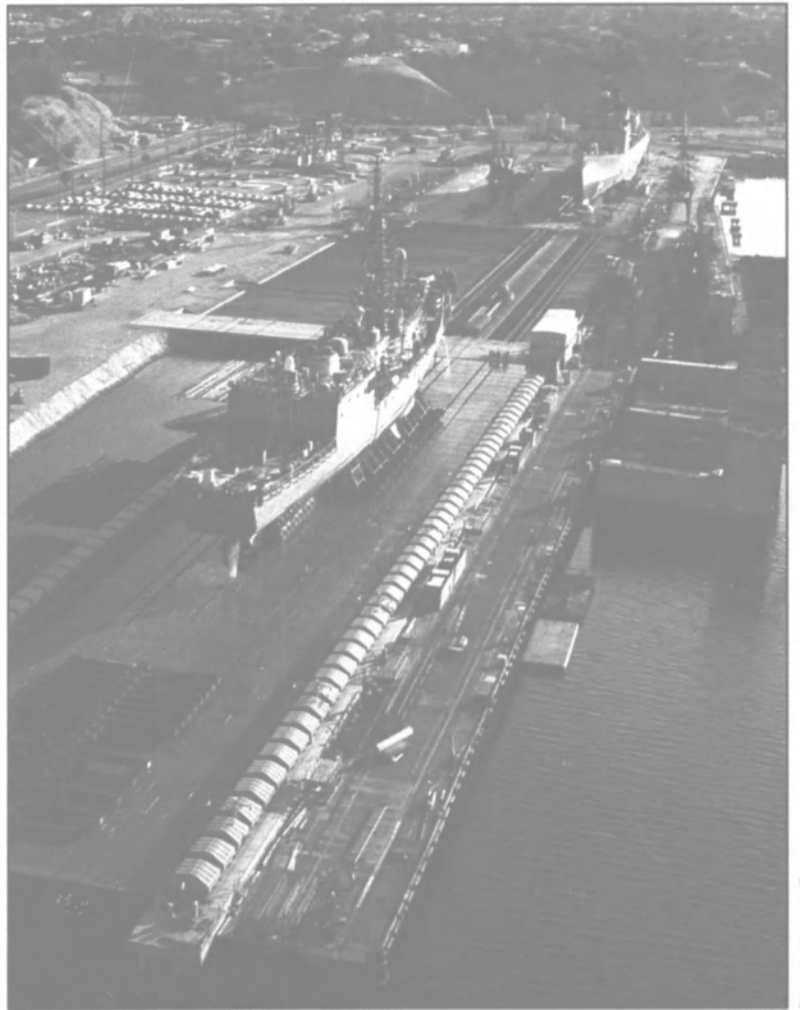


Photo by Joseph Ernest



The highest capacity per metre shiplift in the world – 200 tons per metre for launching concrete caissons at Yunotsu, Japan.

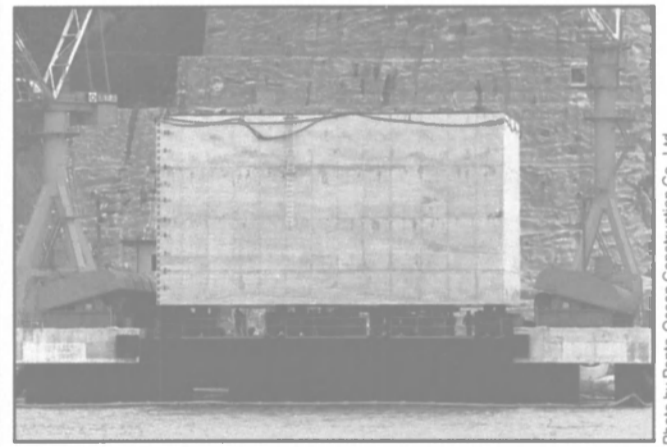


Photo by Penta-Ocean Construction Co., Ltd.

The greatest lifting capacity shiplift in the world – 24,000 tons for nuclear submarines at Barrow-in-Furness, England.

SYNCROLIFT

World Leaders in Shiplift Technology

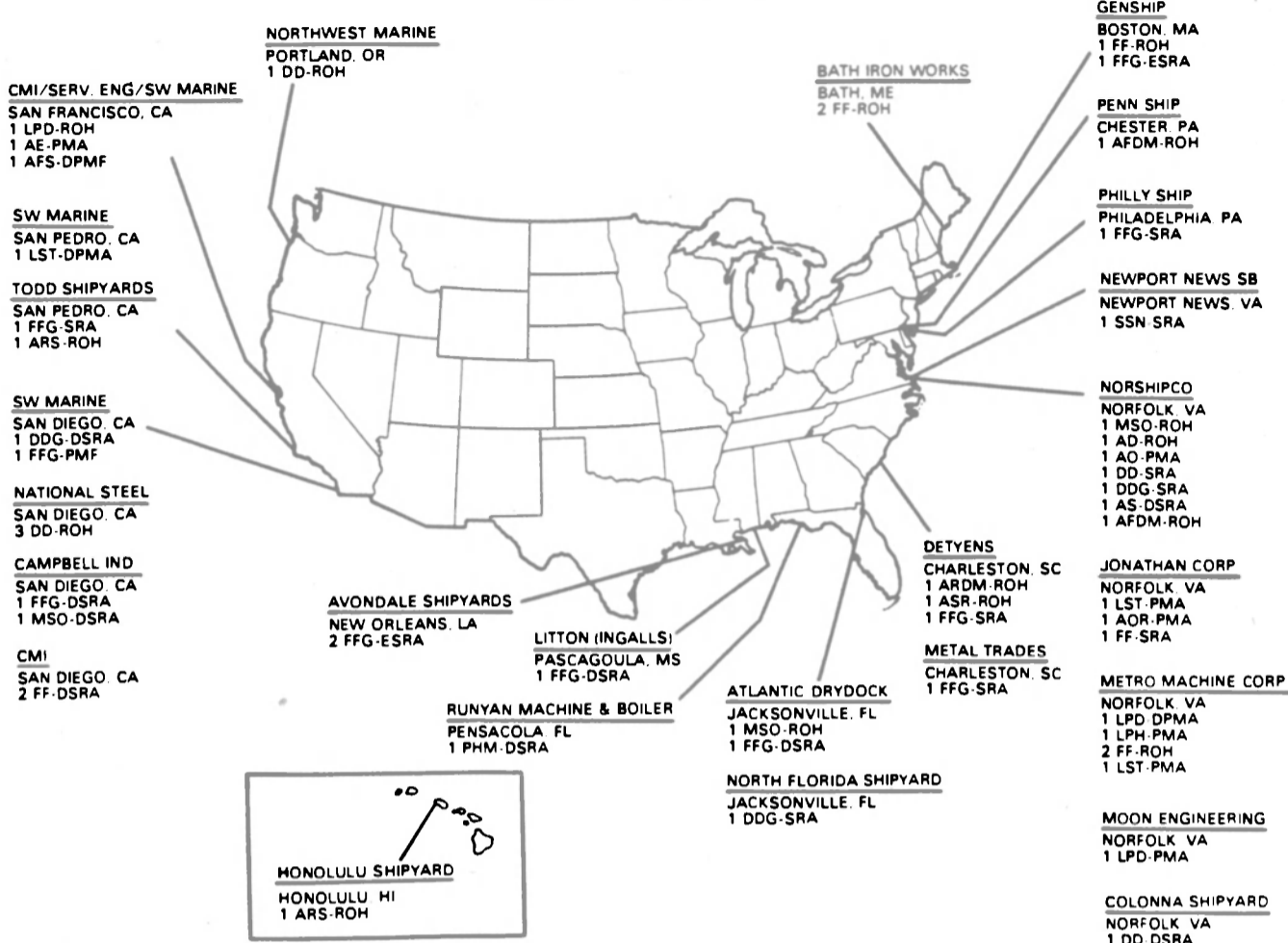
NEI SYNCROLIFT, INC.

8970 S.W. 87th Court, Miami, FL 33176 • U S A. • (305) 271-5721 • Facsimile: (305) 595-5134
Mailing Address: P.O. Box 560008, Miami, FL 33256 • U S A. • Telex: 051-9340 SYNCROLIFT MIA

Circle 190 on Reader Service Card

Syncrolift Systems are patented in the United States and other countries.

PRIVATE SHIPYARDS WITH NAVY OVERHAUL AND REPAIR PROGRAMS (1 March 1988)



(continued)

advanced composites and super-computers to new propeller designs and electric drive propulsion systems.

In FY 1988 spending for Navy technology development will exceed \$9.5 billion. Next year the technology development budget is projected to be \$9.2 billion.

Shown in Exhibit 6 are some of the major technology development programs planned in FY 1988 and 1989. These and more than 200 other technology development programs are detailed in IMA's new report *The New Naval Technology Program—A Detailed Guide to \$9.5 Billion in New Annual Sales for Manufacturers, Engineering Firms and Suppliers.*

Newport News Awarded \$724.4 Million To Begin Two Carriers

Newport News Shipbuilding & Dry Dock Co., Newport News, Va., has received a U.S. Navy contract worth \$724.4 million to begin the construction of two aircraft carriers, CVN-74 and -75. The two flattops would be the Navy's seventh and eighth Nimitz Class aircraft carriers.

At present, Newport News Shipbuilding is constructing two carriers, the USS George Washington (CVN-73) and the USS Abraham Lincoln (CVN-72). The Lincoln was recently launched and christened at ceremonies at the yard. The 1,092-foot-long Lincoln is scheduled to be commissioned in 1989.

ASMAR Launches New Transport Vessel For Chilean Navy

The Chilean shipbuilder and repairer ASMAR recently launched the new 2,767-metric-ton transport vessel it is building for the Chilean Navy. Construction was at ASMAR's Talcahuano yard, and delivery is scheduled for July 1988.

The vessel, which will have an average speed of 15 knots, a crew complement of 80 and a passenger capacity of 250, is equipped with a helicopter landing deck and has a container handling capacity of 42 TEUs. As yet unnamed, it will be powered by two diesel engines MAK 8M453B of 3,600 hp each at 600 rpm, allowing a maximum speed of 18 knots. Electric power will be provided by two 400-kw generators, and one 500-kw and one 75-kw generator.

The vessel will have an approximate overall length of 338 feet, breadth of 56 feet and draft of 18 feet. The American Bureau of Shipping has been appointed for inspection and certification of the vessel.

For free literature on ASMAR's facilities and capabilities,

Circle 76 on Reader Service Card

Exhibit 5—Ship Maintenance & Modernization
(in millions of dollars)

	FY 1987	FY 1988	FY 1989
Ship Overhauls	1,859.4	1,271.8	734.1
RA/TA	1,506.4	1,485.9	2,060.5
Modernization	1,342.5	1,026.1	1,077.0
IMA	368.4	325.2	321.1
Tech Support	145.6	137.5	139.7
Outfitting	289.9	315.4	360.5
Berthing and Messing	49.0	32.0	39.9
Inactivations	25.7	66.7	110.6
TOTAL: Ship Maint & Mod	5,586.9	4,660.6	4,843.4
Number of Overhauls (Units)	39	27	23

Source: Department of the Navy

Exhibit 6—Highlights of Navy New Technology Program

- A major high-level effort has been initiated to develop revolutionary surface ship designs
- Engineering development of the SSN 21 will require expenditures of more than \$400 million over the next two years
- More than \$800 million is to be spent over the next five years on advanced attack submarine concepts—a major new initiative to be managed by DARPA
- Design and development of nuclear propulsion technology will continue to exceed \$700 million annually
- D-5 ballistic missile development expenditures will exceed \$1.6 billion over the next two years as the program transitions to the production stage
- Tomahawk cruise missile development expenditures will exceed \$130 billion over the next two years
- Sea Lance ASW standoff weapon development expenditures will exceed \$150 million in FY 1988-89—a figure lower than originally planned due to budget constraints
- Funding for development of the MK 50 advanced lightweight torpedo (ALWT) has been substantially increased in the new FY 1989 budget—with two-year funding of development expenditures now projected to exceed \$275 million
- Project definition contracts will be awarded this summer to begin a 30-month design and engineering phase for the new generation mine
- Expenditures over the next two years for Aegis engineering and development will exceed \$350 million
- More than \$118 million is earmarked in FY 1988-89 for surface ship ASW system development and engineering
- Development and engineering of submarine sonar systems will exceed \$275 million over the next two years
- Full-scale engineering has begun on the \$7.3 billion program to develop and deliver 28 AN/BSY(2) submarine combat systems
- Expenditures to develop the Fixed Distributed System (FDS)—a key component of future offboard ASW surveillance—will total \$170 million in FY 1988-89
- More than \$97 million over the next two years will be spent on developing advanced submarine communications systems
- Almost \$87 million will be available in FY 1988-89 for developing new manufacturing technology

Source: International Maritime Associates, Inc.

MAJOR NAVY CONTRACTS

The following special section features the latest U.S. Navy contract awards for shipbuilding, ship repair, ship conversion, shipboard electronics, communications and weapons. This special section covers contracts awarded between January 29 and March 22, 1988. For contract awards prior to these dates, see the Naval Technology & Shipbuilding Supplement in the March issue of MR/EN.

January 29

Ingalls Shipbuilding Incorporated, Pascagoula, Miss., was awarded a **\$215,982,000** modification to a previously awarded cost-plus-award-fee contract for class standard equipment for CG's 69, 70, 71, 72 and 73. Work is expected to be completed in January 1994. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-2165).

Continental Maritime of San Diego, Calif., was awarded a **\$4,926,630** firm-fixed-price contract for Selected Restricted Availability for USS Ranger (CV-61). Work is expected to be completed June 24, 1988. The Supervisor of Shipbuilding, Conversion and Repair, San Diego, Calif., is the contracting activity (N00024-85-H-8212).

Lockheed Shipbuilding Company, Gulfport Marine Division, Gulfport, Miss., was awarded a **\$31,759,154** modification to a previously awarded fixed-price contract for long lead time material for the Landing Craft Air Cushion (LCAC) program. Work is expected to be completed in 1990. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-2089).

Phillyship, Philadelphia, Pa., is being awarded a **\$3,805,219** firm-fixed-price contract for Selected Restricted Availability for USS Estocin (FFG-15). The Supervisor of Shipbuilding, Conversion and Repair, Brooklyn, N.Y., is the contracting activity (N00024-85-H-8202).

GTE Government Systems Corporation, Needham Heights, Mass., was awarded a **\$17,834,000** letter contract with a not-to-exceed amount of **\$61,835,050** to be converted to a fixed-price contract for 139 Extremely Low Frequency (ELF) receivers along with various spares, parts, data and support services for installation in submarines. Work is expected to be completed in April 1991. The Space and Naval Warfare Systems Command, Washington, D.C. is the contracting activity (N00039-88-C-0157).

February 1

Raytheon Company, Electromagnetic Systems Division, Goleta, Calif., was awarded a **\$41,867,000** fixed-price letter contract for AN/SLQ-32(V) countermeasures systems for CG-47 and LHD-1 class ships. Work is expected to be completed in April 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-5013).

February 2

AT&T Technologies, Greensboro, N.C., was awarded a **\$23,574,739** modification to a previously awarded cost-plus-award-fee contract for oceanographic research. Work will be performed in Whippany, N.J. (96 percent), and Greensboro, N.C. (4 percent), and is expected to be completed September 30, 1988. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-86-C-0492).

Honeywell Incorporated, Horsham, Pa., was awarded a **\$3,293,908** firm-fixed-price contract for the manufacture of 146 reserve battery assemblies for use on standard buoy bodies. Work is expected to be completed January 25, 1990. The Naval Weapons Support Center, Crane, Indiana, is the contracting activity (N00164-88-C-0071).

Honeywell Federal Systems Incorporated, McLean, Va., was issued a **\$3,716,246** delivery order under a basic ordering agreement for repair services for 57 line items for the Ship Non-tactical Automatic Data Processing (SNAP I) program. Work will be performed in Lawrence, Ma., and is expected to be completed December 3, 1988. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00104-87-G-A022).

Westinghouse Electric Corporation, Plant Apparatus Division, Wilkins Township, Pa., was awarded a **\$506,176,000** cost-plus-fixed-fee contract for naval nuclear propulsion components to be used in the CVN-68 class aircraft carrier. Work is expected to be completed in September 1997. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-4007).

General Electric Company, Machinery Apparatus Operation, Schenectady, N.Y., was awarded a **\$204,573,000** cost-plus-fixed-fee contract for naval nuclear propul-

sion components to be used in the CVN-68 class aircraft carrier. Work is expected to be completed in September 1997. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-4008).

February 3

Comprehensive Technologies Int'l Incorporated, Fairfax, Va., was awarded a **\$5,038,393** cost-plus-fixed-fee level of ef-

(continued)

"Welcome back, Baldt."

It's nice to hear words of welcome. For Baldt, the past two years have been a rough voyage. We made it to 1988 by navigating tricky currents and uncharted waters.

Frankly, it wasn't easy. The world economy wobbled; Baldt wobbled with it. Oil prices plummeted; our off-shore business dried up.

We fought foreign competition all the way. Hanging tough, we won. Today, new orders have revived our basic chain and anchor business.

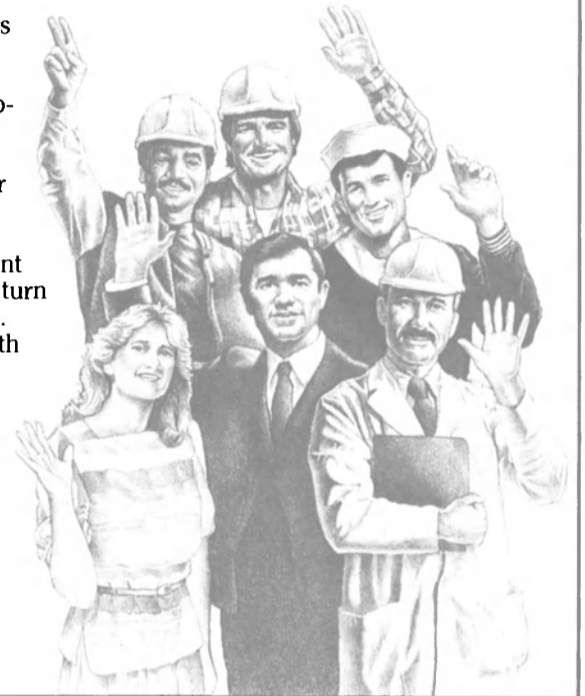
We've streamlined our company with a rededicated management team. We've divested our subsidiaries. We've renewed our plant modernization efforts, expanding our ability to do what we do best: turn out the world's strongest, longest-lasting chain and related products.

To all our friends on the seven seas, thanks for standing fast with us. With new direction, the word from Baldt is Full Speed Ahead.

It's nice to be back.

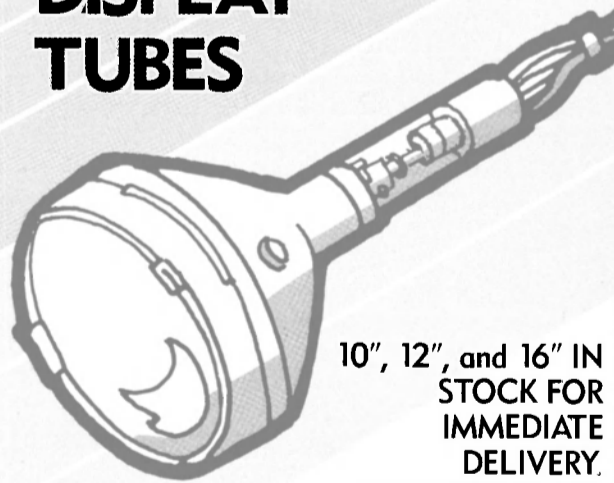


Baldt Incorporated, P.O. Box 350, Chester, PA 19106 215/447-5200
Telex 834367, FAX 215/874-8599



Circle 166 on Reader Service Card

MARINE RADAR DISPLAY TUBES



10", 12", and 16" IN STOCK FOR IMMEDIATE DELIVERY.
CUSTOM DESIGNS AVAILABLE.

MFG. BY:

CRT DISPLAYS

A DIVISION OF —



Baltic Mews Corporate Center, Birdsboro, PA 19508
1-800-TELTRON • 215-582-2711
TELEX 4990805 • FAX 215-582-0851

Circle 249 on Reader Service Card

Don't be Surprised

On November 17, 1988 this machine will fail...but with MOVILOG we know it.

Use predictive techniques to plan your maintenance schedule and avoid machine failure.

MOVILOG, a portable data collector for predictive maintenance, uses 3 quick and easy steps for an efficient periodic survey.



for more information call or write

Indikon division of
METRAVIB INSTRUMENTS, INC. 26 New Street, Cambridge, MA 02138 USA
(617) 547-3604 FAX (617) 547-4688

Circle 302 on Reader Service Card

U.S. NAVY

CURRENT NAVY & COAST GUARD VESSELS UNDER CONTRACT AT U.S. YARDS

(As of March 1988)

SHIPYARD Navy Designation	NAME	APPROX. CONTRACT \$	EST. DELIVERY	SHIPYARD Navy Designation	NAME	APPROX. CONTRACT \$	EST. DELIVERY
Avondale Shipyards				Lockheed-Seattle			
T-AO-193	Walter S. Diehl	116,000,000	8/88	LCAC (7)	unnamed	115,586,251	6/91
T-AO-195	Leroy Grumman	101,000,000	5/89	LCU (Army-7)	unnamed	26,000,000	—
T-AO-197	unnamed	100,633,789	2/90	Lockheed-Savannah			
LSD-44	Gunston Hall	166,000,000	8/88	LCU	Kenesaw Mountain	—	3/88
LSD-45	Comstock	153,400,000	2/89	LCU	Macon	—	5/88
LSD-46	Tortuga	153,400,000	4/89	LCUs (Army-12)	unnamed	—	7/88-11/89
LSD-47	unnamed	150,000,000	11/89	Marinette Marine			
LSD-48	unnamed	150,000,000	5/90	MCM-2	Defender	46,000,000	8/88
Bath Iron Works				MCM-4	Champion	42,000,000	12/88
CG-58	Philippine Sea	252,800,000	1/89	MCM-7	Patriot	51,848,816	10/89
CG-60	Normandy	191,800,000	9/89	McDermott Inc.			
CG-61	Monterrey	191,800,000	12/89	SWATH T-AGOS-19	unnamed	25,424,347	10/89
CG-63	Cowpens	193,300,000	4/90	YTT 8 & 9	unnamed	21,700,000	—
CG-64	Gettysburg	193,300,000	11/90	Moss Point Marine			
CG-67	unnamed	236,041,276	4/92	LSV	Gen. E.B. Somerville	30,598,019 ²	2/88
CG-70	unnamed	226,123,977	6/93	LSV	Lt. Gen. W. Bunker		3/88
DDG-51	Arleigh Burke	321,000,000	7/90	NASSCO			
DDG-53	John Paul Jones	189,900,000	7/92	AOE-6	Supply	290,097,944	4/91
DDG-51 Class	—	22,600,000 ¹	5/92	Newport News Shipbuilding			
Bethlehem-Sparrows Point				CVN-72	Abraham Lincoln	1,550,000,000	12/89
T-AGS-39	Maury	66,000,000	4/88	CVN-73	George Washington	1,550,000,000	12/91
T-AGS-40	Tanner	66,000,000	8/88	SSN-688 Class	—	22,000,000 ¹	10/88
Bollinger Shipyard				SSN-723	Oklahoma City	225,100,000	5/88
WPB (16)	unnamed	99,306,516	2/90	SSN-750	Newport News	278,000,000	8/88
General Dynamics-Electric Boat				SSN-753	Albany	319,000,000	7/89
SSN-751	San Juan	280,100,000	6/88	SSN-756	Scranton	259,833,000	9/89
SSN-752	Pasadena	280,100,000	10/88	SSN-758	Asheville	259,833,333	1/90
SSN-754	Topeka	324,500,000	2/89	SSN-759	unnamed	259,833,333	6/90
SSN-755	Miami	324,500,000	6/89	SSN-760	unnamed	55,000,000 ⁶	—
SSN-757	Alexandria	283,000,000	10/89	SSN-764	unnamed	257,118,500	2/91
SSN-760	unnamed	258,166,750	2/90	SSN-765	unnamed	257,118,500	5/91
SSN-761	unnamed	258,166,750	6/90	SSN-766	unnamed	257,118,500	8/91
SSN-762	unnamed	258,166,750	10/90	SSN-767	unnamed	257,118,500	11/91
SSN-763	unnamed	258,166,750	2/91	SSN-21 Class	—	325,000,000 ⁷	2/94
SSN-21 Class	—	28,900,000 ³	—	SSN-21 Class	—	23,390,510 ⁸	4/88
SSBN-734	Tennessee	523,700,000	12/88	SSN-21 Class	—	28,900,000 ³	—
SSBN-735	Pennsylvania	531,600,000	8/89	CVN-74	unnamed	724,400,000	—
SSBN-736	unnamed	500,870,000	4/90	CVN-75	unnamed		
SSBN-737	unnamed	616,400,000	12/90	Pennsylvania Shipbuilding			
SSBN-738	unnamed	674,100,000	12/91	T-AO-191	Benjamin Isherwood	111,000,000	10/88
SSBN-739	unnamed	615,000,000	12/92	T-AO-192	Henry Eckford	111,000,000	5/89
SSBN-734 Class	—	48,400,000 ³	12/88	T-AO-194	John Ericsson	97,500,000	2/90
SSBN-740	unnamed	644,000,000	7/94	T-AO-196	unnamed	95,025,000	11/90
Halter Marine				Peterson Builders			
T-AGOS-13	Adventurous	14,250,000	3/88	MCM-3	Sentry	57,900,000	7/88
T-AGOS-14	Worthy	14,250,000	7/88	MCM-5	Guardian	57,900,000	6/89
T-AGOS-15	Titan	13,844,067	3/89	MCM-6	Devastator	48,287,461	8/89
T-AGOS-16	Capable	14,031,914	7/89	MCM-8	Scout	48,287,461	6/90
T-AGOS-17	unnamed	14,031,914	11/89	Robert E. Derektor Shipyard			
T-AGOS-18	unnamed	14,031,914	3/90	WMEC-910	Thetis	30,160,000	5/88
Ingalls Shipbuilding				WMEC-911	Forward	30,160,000	9/88
CG-57	Lake Champlain	—	8/88	WMEC-912	Legare	30,160,000	1/89
CG-59	Princeton	325,500,000	10/88	WMEC-913	Mohawk	30,160,000	5/89
CG-62	Chancellorsville	238,600,000	6/89	TB (Army-2)	unnamed	16,500,000	89
CG-65	Chosin	242,600,000	11/90	Tacoma Boatbuilding			
CG-66	Hue City	193,980,662	10/91	T-AGOS-11	Audacious	18,590,001	6/89
CG-68	Anzio	163,980,664	4/92	T-AGOS-12	Bold		10/89
CG-69, 71, 72 & 73	unnamed	769,142,667	1/94	Textron Marine			
CG-47 Class	—	215,982,000 ⁶	1/94	LCAC-13-24 (12)	unnamed	187,000,000	89/-6/91
CG-47 Class	—	44,128,775 ⁵	—	Todd Pacific-San Pedro			
DDG-52	John Barry	162,149,000	9/91	FFG-61	Ingraham	96,100,000	11/88
LHD-1	Wasp	1,365,700,000	3/89	Intermarine USA			
LHD-2	Essex	402,494,000	4/92	MHC-51	unnamed	20,926,936	4/91
LHD-3	Kearsage	378,685,000 ⁴	1/93	Lockheed-Gulfport			
Lockheed-Gulfport				LCAC (2)	unnamed	24,800,000	88
LCAC (2)	unnamed	24,800,000	88	LCAC (7)	unnamed	115,586,281	—
LCAC (7)	unnamed	115,586,281	—	LCAC	—	31,759,154 ⁶	90
LCAC	—	31,759,154 ⁶	90				

Footnotes: 1. Lead yard services contract; 2. CW3 H.C. Clinger delivered 12/87 under contract; 3. Design contract; 4. Contains \$26 million for advance procurement of material for LHD-4; 5. Yard planning services; 6. Long lead procurement; 7. Detail design contract; 8. Contract services.

KEY TO NAVY DESIGNATIONS

AOE Fast Combat Support Ship	LCM Landing Craft, Mechanized	MHC Mine Hunter, Coastal	T-AGS Surveying Ship*
CG Guided Missile Cruiser	LCU Landing Craft, Utility	MSH Mine Hunter	T-AO Oiler*
CVN Aircraft Carrier, Nuclear	LHD Amphibious Transport Dock	SSBN Ballistic Missile Sub, Nuclear	TB Tugboat
DDG Guided Missile Destroyer	LSD Dock Landing Ship	SSN Submarine, Nuclear	WMEC Medium Endurance Cutter†
FFG Guided Missile Frigate	LSV Logistic Support Vehicle	SWCM Special Warfare Craft, Medium	WPB Patrol Boat†
LCAC Landing Craft, Air Cushion	MCM Mine Countermeasures Ship	T-AGOS Ocean Surveillance Ship*	YTT Warming Tug

*Assigned to Military Sealift Command
†Coast Guard

Major Navy Contracts

(continued)

fort contract for various technical and management services for the Strategic Submarines Program (Trident). Work is expected to be completed September 30, 1992. This contract combines purchases for the U.S. Navy (99 percent) and the United Kingdom (1 percent) under the Foreign Military Sales program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-6050).

Atlantic Dry Dock Corporation, Ft. George Island, Fla., was awarded a \$7,466,000 firm-fixed-price contract for Drydocking Selected Restricted Availability (DSRA) for USS Underwood (FFG-36). Work is expected to be completed August 18, 1988. The Supervisor of Shipbuilding, Conversion and Repair, Jacksonville, Fla., is the contracting activity (N00024-85-H-8111).

General Dynamics Corporation, Electric Boat Division, Groton, Conn., was awarded a \$179,300,379 modification to a previously awarded cost-plus-fixed-fee contract for engineering services and prototype hardware for the Submarine Improved Performance Machinery program. Work will be performed in Groton, Conn. (24 percent); Fitchburg, Mass. (38 percent); and Sunnyvale, Calif. 38 percent, and is expected to be completed September 30, 1991. The Naval

Sea Systems Command, Washington, D.C., is the contracting activity (N00024-83-C-4181).

February 4

Southwest Marine Incorporated, San Diego, Calif., was awarded a \$9,148,194 firm-fixed-price contract for the Regular Overhaul of USS Stein (FF-1065). Work is expected to be completed October 28, 1988. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8221).

Rexroth Corporation, Bethlehem, Pa., was awarded a \$5,559,550 firm-fixed-price contract to furnish four MK-7 Mod 3 arresting gear engines, one arresting gear engine without cooler and associated technical data as required for the CV-65 overhaul. The contract also includes various line items of arresting gear hardware for the CV-64 overhaul. Included are cylinder ram assemblies, accumulator assemblies, control and retracting valves, airflasks, elbow assemblies, saddle assemblies, crosshead bodies, fixed-sheave bodies and associated technical data. The contract also carries option quantities of arresting gear engines and pendant cams which will not be exercised at this time. Work will be performed in Rexroth Hydraudyne, Boxtel, the Netherlands, and is expected to be completed in July 1990. The Naval Regional Contracting Center, Philadelphia, Pa., is the contracting activity (N00140-88-C-RB23).

February 5

Raytheon Company, Sudbury, Mass., was issued a \$9,855,479 modification to a previously awarded cost-plus-fixed-fee contract for engineering services for the Fleet Ballistic Missile Program. Work is expected to be completed September 30, 1988. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-88-C-0006).

Raytheon Company, Sudbury, Mass., was issued a \$57,442,700 modification to a previously awarded cost-plus-incentive-fee contract for guidance system components for the Trident Missile Program. Work is expected to be completed October 31, 1989. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-87-C-0074).

Unisys Corporation, Great Neck, N.Y., was awarded a \$10,581,401 modification to a previously awarded firm-fixed-price contract for six Aegis MK 82 Mod 0 gun and guided missile directors and six MK 200 Mod 0 director controls and ancillary equipment for CG-68, CG-71 and CG-72. Work is expected to be completed July 31, 1990. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-87-C-5172).

February 8

Hughes Aircraft Company, El Segundo, Calif., was awarded a \$9,919,000 cost-plus-fixed-fee contract for engineering services for the Trident Missile Program. Work is

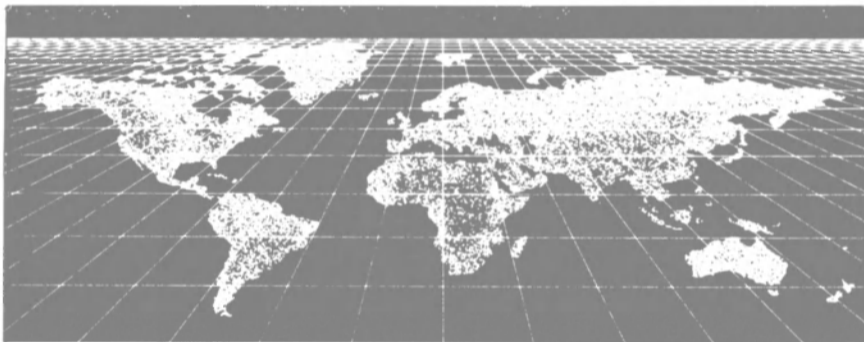
expected to be completed September 30, 1988. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-88-C-0007).

Lockheed Missiles and Space Company Incorporated, Sunnyvale, Calif., was issued a \$35,000,000 modification to a previously awarded letter contract for reentry body hardware and support equipment for the Trident Missile Program. Work is expected to be completed in October 1990. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-88-C-0088).

C. Construction Company Incorporated, Tyler, Texas, was awarded a \$5,395,000 firm-fixed-price contract for the construction of 12 strategic weapons magazines at the Naval Submarine Base, Kings Bay, Ga. Work is expected to be completed in February 1989. The Naval Facilities Engineering Command, Southern Division, Charleston, S.C., is the contracting activity (N68248-85-C-5026).

Science Applications International Corporation, San Diego, Calif., was awarded a \$7,132,190 firm-fixed-price contract for the environmental monitoring of dredge/disposal activities at Naval Station Puget Sound, Everett, Wash. Work is expected to be completed in July 1991. The Naval Facilities Engineering Command, Western Division, San Bruno, California, is the contract-

(continued)



MARINE ELECTRONICS

Global sales and service.

Raytheon Service Company is the one-stop source of high-quality marine electronics sales and service.

We have been serving the marine industry for over a half-century, providing expert service, installation and overhaul of navigation and communications equipment at very competitive prices.

Our field engineers can rapidly respond to your needs anywhere in the world on a 24-hour basis—we operate from eight strategically located and fully-equipped service centers in the U.S.

We have built a reputation for service excellence that includes all Raytheon equipment and most other major brands.

For dependable, responsive and professional marine electronics service, count on Raytheon Service Company.

Port of New York
Telephone: 718-981-1090
Telex II: 710-588-2105
TeleFax: 718-981-7560

Port of Philadelphia
Telephone: 609-662-4322
Telex II: 710-991-8748
TeleFax: 609-662-0758

Port of Baltimore
Telephone: 301-761-4300
Telex II: 710-861-0506
TeleFax: 301-768-0857

Ports of Hampton Roads
Telephone: 804-464-3318
Telex: 446134
TeleFax: 804-464-2417

Port of New Orleans
Telephone: 504-835-6491
Telex II: 810-951-5382
TeleFax: 504-838-7934

Port of Houston
Telephone: 713-941-2700
Telex II: 910-881-2755
TeleFax: 713-941-1432

Port of San Diego
Telephone: 619-571-3352
Telex: 678175
TeleFax: 213-835-5588

Port of Los Angeles/Long Beach
Telephone: 213-835-3911
Telex: 678175
TeleFax: 213-835-5588

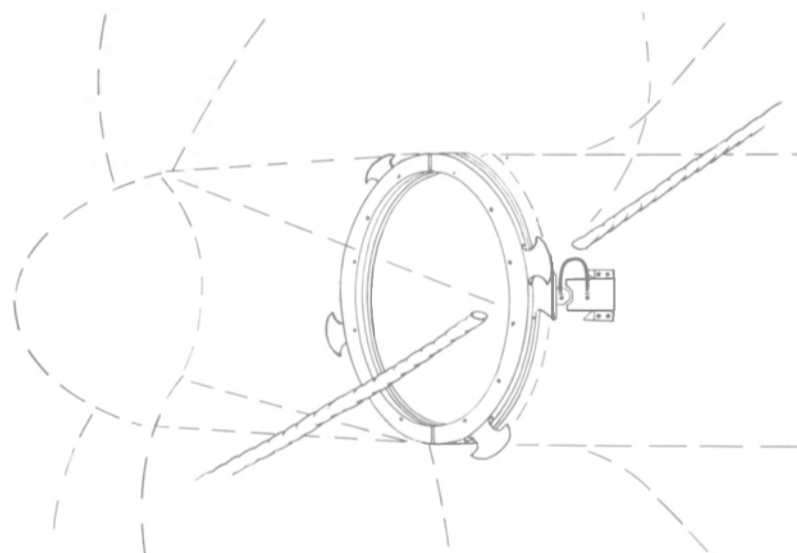
For more information, contact:
RAYTHEON SERVICE COMPANY
Marine Sales & Service Division
7886 Browning Road
Pennsauken, NJ 08109
609-662-4322

Raytheon

Invest in Experience

Circle 205 on Reader Service Card

ARE FOULED NETS AND LINES COSTING YOU \$\$\$?



STERNGUARD® LINE AND NET CUTTER IS A TIME AND MONEY-SAVING SOLUTION.

Unscheduled dockings to remove net and lines from the shaft and propeller, and repair of related damage, can be costly. The Sternguard Line Cutter makes such expenses unnecessary. The turning propeller creates a "screw action", winding line or nets into the cutter blades, cutting before entanglement can occur.

Waukesha Bearings now offers propeller mounted line cutters for work boats and vessels of virtually any size and horsepower, in addition to shaft-mounted cutters.

Consider the following advantages:

- Proven design assures trouble-free performance.*
- Propeller-mounted design interfaces with stern tube bearing and seal arrangements of all types.
- Cutter is custom manufactured to fit your propeller, and cuts running ahead or astern.
- Reduces operating costs; prevents oil seal damage avoiding subsequent time-off hire.

Call or write to us for data sheets, drawings, a price quotation or to discuss your application. (414) 547-3381

*Developed from Spurs Mfg. technology.

WAWKESHA BEARINGS
A DOWNEY INDUSTRIES COMPANY

P.O. Box 1616
Waukesha, WI 53187-1616
U.S.A. FAX (414) 547-5508

Circle 305 on Reader Service Card

LEADER OF

Seawolf To Seawolf, I The

THE PACK.

Proud Tradition Continues

Experience under the sea. Submarine propulsion and ships service turbine generator experience. GE has more of it than anyone. It's why our Company is eminently qualified to design, manufacture and test these critical systems for the SSN 21 *Seawolf*. In 1957, sea trials of the original *Seawolf* heralded the first of many GE contributions to the nuclear submarine field. Since then, the Company has continued to pioneer advanced systems aboard every class of submarine including the latest 688's.

SSN 688—A Technical Benchmark

The entire Class relies on GE systems for both propulsion and ships service electrical demands. Their reliability is extraordinary. In fact, since the commissioning of the *Los Angeles* in 1976, these systems endured the equivalent of hundreds of years of service without a single ship coming off line for an at-sea failure. Why? For a number of good reasons. First, GE engineers extrapolate the best ideas from existing technology and proven hardware during design and manufacture, while paying particular attention to key Navy criteria: reliability, noise, size, weight, performance, maintainability and accessibility. Then they exhaustively test each system under shipboard conditions before shipment.

On-Time Delivery And Service

GE demonstrated construction efficiency, too, by delivering these 688 propulsion and SSTG systems to shipyards ahead of schedule. After

installation, GE provides life cycle support through service facilities in every major Navy port in the U.S., and in major ports worldwide. Of course, factory experts are on-call 24 hours a day, too. Through this service team, continued evolutionary advances are made available to upgrade the existing fleet. Such upgrades aboard 688's permit them to remain at sea years longer between overhauls.

Into The 21st Century

The heritage Edison began with the first shipboard power generation system continues today at GE Naval & Drive Turbine Systems. Here, we apply the resources of our \$40 billion Company to develop the most advanced propulsion and ships service systems. Experience allows us to do this. It's the critical difference

GE engineers build upon to advance the Navy mission with the SSN 21 *Seawolf*.

General Electric Company
166 Boulder Drive,
Fitchburg, MA 01420.

Circle 230 on Reader Service Card

GE NAVAL & DRIVE TURBINE SYSTEMS



U.S. NAVY



CURRENT NAVY, COAST GUARD & MARAD OVERHAUL, REPAIR & CONVERSION CONTRACTS AT U.S. SHIPYARDS (As of March 1988)

SHIPYARD	SHIP	TYPE OF WORK	\$VALUE	COMP	SHIPYARD	SHIP	TYPE OF WORK	\$VALUE	COMP
Alabama Dry Dock	USS Lexington (AVT-16)	PM	10,131,466	8/90		USS Puget Sound (AD-36)	ROH	12,210,546	5/88
Ameritech Industries	Empire State (MarAd)	REP & OH	417,528	4/88		USS Resolute (AFDM-10)	ROH	9,200,000	6/88
Atlantic Dry Dock	USS Aubrey Fitch (FFG-34)	DSRA	6,950,000	3/88		Mormacsea & Mormacsaga (RRF)	UPG	7,973,482	—
	USS Underwood (LSD-36)	DSRA	7,466,000	8/88	Northwest Marine Iron Works	USS Anchorage (LSD-36)	ROH	15,300,000	11/88
Avondale Shipyards	USS Boone (FFG-28)	SRA	9,998,452	7/88		USS Paul Foster (DD-964)	ROH	26,423,466	5/88
	USS John J. Hall (FFG-32)	DSRA	11,170,581	9/88		USNS Mercy (T-AH-19)	PSA	4,600,000	4/88
	USS Radford (DD-968)	ROH	20,700,000	5/89	Pennsylvania Shipbuilding	USS Patterson (FF-1061)	PM	5-10 mil/yr.	—
Bath Iron Works	4 USCG cutters	ROH	117,452,000	89	Philadelphia Navy Yard	USS Independence (CV-62)	SLEP	240,000,000	—
	USS Brumby (FF-1044)	ROH	14,501,392	4/88	Phillyship	USS Estocin (FFG-15)	SRA	3,805,219	4/88
	USS Koelsch (FF-1049)	OH	12,000,000	8/88	Portsmouth Naval Yard	USS Kamehameha (SSBN-642)	ROH	112,100,000	11/88
Bethlehem Steel—Beaumont	Chesapeake (NDRF)	DD	499,500	3/88		USS Albuquerque (SSN-706) & USS Philadelphia (SSN-690)	SRA	11,416,336	11/88
Bethlehem Steel—Sparrows Point	USNS Neosho (T-AO-143)	DD & OH	4,489,339	5/88		USS Nimitz (CVN-68)	REP & OH	—	89
Braswell Shipyards	USS Antigo (YTB-792)	SRA	1,047,448	4/88	Puget Sound Naval Yard	USS Alexander Hamilton (SSBN-617)	ROH	110,713,798	11/88
	USNS Neosho (T-AO-143)	DD & OH	7,366,392	8/88		USS Connable (FFG-12)	ROH	2,500,000	—
	USS Andrew Jackson (SSBN-619)	OH	112,058,684	3/90	Robert E. Derektor	USNS Spica (T-AFS-9)	OH	10,700,000	—
	USS Woodrow Wilson (SSBN-624)	OH	120,928,007	3/89	Service Engineering	AE-29, -32-34	PM	4,154,000	89
Colonna's Shipyards	USS Richard E. Byrd (DDG-23)	DSRA	4,280,000	7/88	Southwest Marine	USS Dubuque (LPD-8)	OH	10,000,000	—
	USS Ranger (CV-61)	SRA	4,926,630	6/88		USS Wichita (AOR-1) & USS Kansas (AOR-3)	REP	41,600,000	—
	USS Mars (AFS-1)	DPMA	10,073,284	5/88		USS Pluck (MSO-464) & LST-1185, -1186 & 1191	SRA	1,041,000	—
	USS Barbey (FF-1088)	DSRA	3,677,605	4/88		USS Okinawa (LPH-3)	ROH	16,114,285	7/88
	USS Cook (FF-1083)	DSRA	3,324,711	4/88		USS Ramsey (FFG-2)	MAINT	3,000,000	4/88
DMI Shipyard	MSB-1	ROH	41,057,000	—		USS Durham (LKA-114)	DD	7,611,149	7/88
General Ship Corporation	USS Trippe (FF-1075)	ROH	8,801,078	5/88		USS Anchorage (LSD-36)	ROH	15,048,870	11/88
	USS Stephen W. Graves (FFG-29)	EDSRA	10,969,490	6/88		USS Stein (FF-1065)	ROH	9,148,194	10/88
	Texas Clipper (MarAd)	REP	933,248	3/88	Tacoma Boatbuilding	USNS Hayes (T-AG)	CONV	33,878,232	11/89
	Chesapeake (NDRF)	REP	299,985	4/88	Tampa Shipyards	T-ACS-7 & 8	CONV	43,158,333	10/88
	Mount Washington (NDRF)	REP	549,000	5/88	Todd-Seattle	USS Camden (AOE-2)	REP	12,643,642	7/88
	State of Maine (MarAd)	REP	517,200	5/88		8 WHECs	OH	234,903,000	2/91
	USS Stark (FFG-31)	REP	28,700,000	8/88	USCG-Curtis Bay	14 buoy tenders	SLEP	8,500,000	—
	USS Wisconsin (BB-64)	MOD	221,768,170	10/88		16 WMECs	MAINT	—	—
	USS Richmond K. Turner (CG-20)	ROH	28,780,830	8/88					
Jonathan Shipyard	USS Saginaw	PM	9,900,000	6/90					
Long Beach Naval Yard	LPH Class Ships	PM	8,096,132	10/90					
McDermott Inc.	IX-513 Barge	MODIF	7,422,802	4/88					
Metro Machine	Atlantic Fleet LPDs	PM	5,334,400	8/91					
	USS Bowen (FF-1079)	OH	6,900,000	—					
Mid-Coast Marine	USCG buoy tenders, Ironwood & Sweet Briar	DD	670,000	5/88					
	USS Conynham (DDG-17)	REP	1,484,444	—					
Moon Engineering	4 LSTs	PM	3,500,000	90					
NASSCO	3 LSTs	MAINT	5,858,543	—					
	USS Hewitt (DD-966)	ROH	26,619,695	4/88					
	USS Elliott (DD-967)	ROH	27,779,349	9/88					
Newport News Shipbuilding	USS Pittsburgh (SSN-720)	SRA	7,055,300	7/88					
	USS Enterprise (CVN-65)	OH	34,277,751	9/88					
	USS George Bancroft (SSBN-643)	OH	19,400,000	3/88					
	USS Newport News (SSN-750)	PSA	3,400,000	1/89					
	Surface Ship Support Barge	REP	48,095,123	7/89					
	USS Oklahoma City (SSN-723)	PSA	3,367,692	—					
	USS Key West (SSN-722)	PSA	38,000,000	12/88					
	USS George C. Marshall (SSBN-654)	REF	11,172,200	10/88					
	USS Lewis & Clark (SSBN-644)	REF	10,751,500	7/88					
Norfolk Naval Yard	USS Baton Rouge (SSN-689)	SRA	5,462,494	10/88					
	USS Vulcan (AR-5)	DSRA	4,800,000	5/88					
Norfolk Shipbuilding	USS Fulton (AS-11)	DSRA	3,413,022	3/88					
	AO-178, 179 & 186	PM	38,900,000	—					
	USS Lawrence (DDG-4)	REP	4,966,666	—					

Legend: CONV-Conversion; DEACT-Deactivation; DSRA-Docking Selected Restricted Availability; EDSRA-Extended Docking Selected Restricted Availability; MAINT-Maintenance; MODIF-Modification; MMA-Major Maintenance Availability; OH-Overhaul; PM-PHased Maintenance; PMA-Phased Maintenance Availability; PSA-Post-Shakedown Availability; REF-Refit; REP-Repair; ROH-Regular Overhaul; SER-Service; SLEP-Service Life Extension Program; SRA-Selected Restricted Availability; UPG-Upgrade.

Major Navy Contracts

(continued)

ing activity (N62474-88-C-3278).

General Electric Company, Pittsfield, Mass., was issued a **\$3,541,872** modification to a previously awarded cost-plus-incentive-fee contract for guidance system components for the Trident Missile Program. Work is expected to be completed in December 1989. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-87-C-0059).

February 9

Tracor Applied Sciences Incorporated, Rockville, Md., was awarded a **\$9,261,406** cost-plus-fixed-fee contract for engineering and technical support for various SSN/SSBN submarine maintenance programs. Work is expected to be completed September 30, 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-2205).

Raytheon Company, Equipment Division, Wayland, Mass., was awarded a **\$16,958,180** firm-fixed-price contract for Aegis MK 99 fire control systems and T-1348/SPG radar transmitters for CG-69, CG-70, CG-72 and CG-73. Work will be performed in Wayland, Mass. (25 percent), and Waltham, Mass. (75 percent), and is expected to be completed January 1, 1993. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-5100).

General Electric Company, Syracuse, N.Y., was awarded a **\$6,807,662** modification to a previously awarded fixed-price-

incentive contract for sustaining engineering for the AN/BSY-2 submarine combat system. Work is expected to be completed in March 1988. The Naval Sea Systems Command, Washington, D.C. is the contracting activity (N00024-88-C-6150).

February 10

Honeywell Incorporated, Clearwater, Fla., was awarded a **\$42,139,899** fixed-price-incentive contract for guidance system components for the Trident Missile Program. Work is expected to be completed March 30, 1990. The Strategic Systems Program Office, Washington, D.C., is the contracting activity (N00030-88-C-0017).

Westinghouse Electric Corporation, Baltimore Md., was awarded a **\$5,016,606** modification to a previously awarded firm-fixed-price contract to exercise an option for 21 modification kits for the AN/TPS-63 radar. These kits will provide for extended range and improved velocity response. Work is expected to be completed in May 1989. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-87-C-0381).

TRW Federal Systems Group, Fairfax, Va., was awarded a **\$5,049,641** modification to a previously awarded fixed-price-incentive contract for Anti-Submarine Warfare Operations Center (ASWOC) Command, Control and Communications (C3) Upgrade Engineering Development Model (EDM) #1 for shipboard use. Work is expected to be completed September 30, 1988. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-87-C-0018).

IBM Corporation, Federal Systems Division, Manassas, Va., was awarded a **\$14,151,701** firm-fixed-price contract for high volume modules for AN/UYS-1 Advanced Signal Processors. Work will be performed in Manassas, Va. (40 percent), and Owego, N.Y. (60 percent), and is expected to be completed in February 1990. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-5217).

February 12

Southwest Marine, San Pedro Division, Terminal Island, Calif., was awarded a **\$15,048,870** firm-fixed-price contract for the Regular Overhaul (ROH) of USS Anchorage (LSD-36). Work will be performed in Long Beach, Calif., and is expected to be completed November 3, 1988. The Supervisor of Shipbuilding, Conversion and Repair, Portsmouth, Va., is the contracting activity (N00024-85-H-8222).

February 17

Todd Pacific Shipyards Corporation, Seattle, Wash., was awarded a **\$12,643,642** modification to a previously awarded cost-plus-award-fee contract for repairs for USS Camden (AOE-2). Work is expected to be completed July 11, 1988. The Supervisor of Shipbuilding, Conversion and Repair, Seattle, Wash., is the contracting activity (N00024-85-C-8518).

February 23

C.C.C. Georgia Incorporated, Brunswick, Ga., was awarded a requirements contract to carry U.S. military-sponsored cargo between the U.S. East Coast and the U.S. Naval Station, Guantanamo Bay, Cuba. The estimated value of the contract is **\$8,734,083**. The Military Sealift Command, Washington, D.C., is the contracting authority (N00033-88-D-8504).

February 25

Bath Iron Works, Bath, Maine, was awarded a **\$226,123,977** fixed-price-incentive contract for the construction of one CG-47 class ship. Work is expected to be completed in June 1993. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-2178).

Ingalls Shipbuilding Incorporated, Pascagoula, Miss., was awarded a **\$769,142,667** fixed-price-incentive contract for the construction of four CG-47 class ships. Work is expected to be completed in January 1994. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-2034).

Norden Systems Incorporated, Norwalk, Conn., was awarded a **\$3,700,000** firm-fixed-price contract for three audio generators plus related hardware and data for the Trident Sonar Operation Trainer. Work is expected to be completed in December 1991. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-88-C-6134).

February 29

Braswell Shipyards Incorporated, Charleston, S.C., was awarded a **\$7,366,392** firm-fixed-price contract to perform Part I of the drydock, voyage repairs and overhaul of USNS Neosho (T-AO-143), a Military Sealift Command fleet oiler. The Military Sealift Command, Washington, D.C., is the contracting authority (N00033-87-R-3046).

Bethlehem Steel Corporation, Sparrows Point, Md., was awarded a **\$4,489,339** firm-fixed-price contract to perform Part II of the drydock, voyage repairs and overhaul of USNS Neosho (T-AO-143), a Military Sealift Command fleet oiler. The Military Sealift Command, Washington, D.C., is the contracting authority (N00033-87-R-3046).

March 1

Superior Gunitite Company, Lakeview Terrace, Calif., was awarded a **\$3,535,000** firm-fixed-price contract for repairs to the walls of drydock number 4 at the Norfolk Naval Shipyard, Portsmouth, Va. Work is expected

to be completed in September 1989. The Naval Facilities Engineering Command, Atlantic Division, Norfolk, Va., is the contracting activity (N62470-85-C-5459).

General Dynamics Corporation, Electric Boat Division, Groton, Conn., was awarded a **\$5,134,000** cost-plus-fixed-fee contract for engineering services for the United Kingdom's Trident SSBN program. Work is expected to be completed September 30, 1993. This contract is in support of a Foreign Military Sale to the United Kingdom. The Naval Sea Systems Command, Wash-

ington, D.C., is the contracting activity (N00024-88-C-2165).

March 4

Southwest Marine Incorporated, San Diego, Calif., was awarded a **\$7,611,149** firm-fixed-price contract for drydocking phased maintenance availability for USS Durham (LKA-114). Work is expected to be completed July 1, 1988. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8221).

March 9

Simplex Wire and Cable Co., Portsmouth, N.H., has received a **\$3.8-million** contract for oceanographic service. Work is expected to be completed by Dec. 31, 1988. The Space and Naval Systems Command, Washington, D.C., is the contracting activity (N00039-88-C-0116).

March 11

Tracor Applied Sciences Inc., Austin, Texas, has received a **\$32.9-million** contract to provide technical and engineering services

MÄRKISCHES WERK, HALVER



AT THE HEART OF YOUR DIESEL ENGINES.

valve cages

valve cage assemblies

valve rotators

seat inserts

valve springs

valve spindles

CLAIM YOUR ATTENTION TO KNOW-HOW AND EXPERIENCE IN DEVELOPING ECONOMICAL SOLUTIONS FOR YOUR DIESEL ENGINES. DO CONTACT US!

**Märkisches Werk GmbH · P.O. Box 1442 · D-5884 Halver
Phone (02353) 72274 · Telex 8263649 mwhd · Telefax (02353) 72255**

Circle 172 on Reader Service Card →

Major Navy Contracts

(continued)

to support the design, development, test and integration of the platform to platform, exterior communication system for the DDG-51 class guided missile destroyer. Work is expected to be completed by Feb. 28, 1993. The contract was awarded by the Naval Air Station, Patuxent River, Md., (N00421-88-C-0210).

March 14

E-Systems Inc., St. Petersburg, Fla., has received a **\$7.3-million** contract for the upgrade and refurbishment of antennas for the Terrier and Tartar programs. Work is expected to be completed by Dec. 31, 1992. The contract was awarded by the Naval Sea Systems Command, Washington, D.C., (N00024-88-C-5618).

General Electric Co., Knolls Atomic Power Laboratory, Schenectady, N.Y., received a **\$10.6-million** contract for naval nuclear propulsion research and development. Work is expected to be completed by Sept. 30, 1988. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-79-C-4027).

March 15

Honeywell Inc., Underseas Systems Division, Hopkins, Minn., has received a **\$9.5-million** contract for technology transfer for the MK-50 torpedo program. Work is ex-

pected to be completed in July 1989. The contract was awarded by the Naval Sea Systems Command, Washington, D.C., (N00024-83-C-6254).

March 16

Honeywell, Inc., Marine Systems Division, Everett, Wash., has received a **\$5.8-million** contract for high volume modules for AN/UYS-1 advanced signal processors. Work is expected to be completed in February 1990. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-88-C-5236).

Westinghouse Electric Corp., Bettis Atomic Power Laboratory, West Mifflin Borough, Pa., has received a **\$10.7-million** contract for naval nuclear propulsion research and development. Work is expected to be completed in September 1988. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-79-C-4026).

March 17

Westinghouse Electric Corp., Plant Apparatus Division, Wilkins Township, Pa., has received a **\$15.9-million** contract for naval nuclear propulsion components. Work is expected to be completed by Sept. 30, 1993. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-88-C-4030).

March 18

Applied Research Laboratories, Austin,

Texas, has received a **\$3.5-million** contract for research, development and engineering to provide mission oriented solutions to naval warfare problems in acoustics, electromagnetics and other related essential capabilities. Work is expected to be completed by Dec. 6, 1990. The contract was awarded by the Space and Naval Warfare Systems Command, Washington, D.C. (N00039-88-C-0043).

March 21

Tracor Applied Sciences Inc., Austin, Texas, has received a **\$95.2-million** contract for support services for the AN/SQQ-89 sonar. Work is expected to be completed in April 1993. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-88-C-6004).

March 22

Newport News Shipbuilding and Dry Dock Co., Newport News, Va., has received a **\$22-million** contract for lead yard services for the SSN-688 class submarine program. Work is expected to be completed by Oct. 31, 1988. The contract was awarded by the Naval Sea Systems Command, Washington, D.C. (N00024-87-C-2014).

Newport News Receives \$22-Million Contract

The Newport News Shipbuilding

and Dry Dock Co., Newport News, Va., recently received a \$22-million contract from the Naval Sea Systems Command for lead yard services for the Los Angeles Class (SSN-688) attack submarine program. Work under the contract (N00024-87-C-2014) is expected to be completed October 31, 1988.

\$116-Million Contract To Tacoma Boat To Retrofit Four Egyptian Subs

Tacoma Boatbuilding Co. (TBC) recently announced that they signed a contract with the Armament Authority of the Arab Republic of Egypt in connection with the retrofit of four submarines for the Egyptian Navy. Pursuant to this contract, which is valued at approximately \$116,000,000 and calls for work over a period of approximately five years, TBC will upgrade certain electronic sectors and combatant capabilities of the Romeo Class submarines. The actual installation of the new equipment on the submarines will take place in Egypt at Egyptian Naval facilities.

SHIP-SHAPE SAFETY THE AMERICAN WAY

Specify the best, the marine products of American Abrasive Metals Company. For long-lasting protection from slips and falls. Over 50 years protecting the Marine Industry.

Non-Slip Safety Coating: Industry-Leading EPOXO®

- Heavy-duty coating for military and industrial use
- Applies like paint over any surface
- Easy to maintain
- Provides non-slip surface even on flooded decks
- Withstands heavy impact, oil, diesel fuel, gasoline and solvents

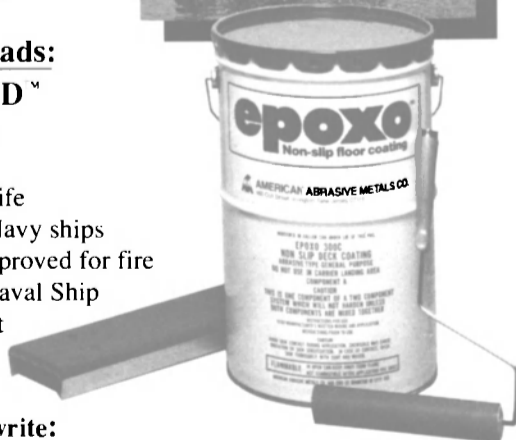
Non-Slip Ladder Treads: SAFETY CAPTREAD™

- Safer than original treads
- Instant, easy installation
- Reversible for twice the life
- Proven on over 150 US Navy ships
- Only replacement tread approved for fire and toxic gas safety by Naval Ship Research & Development Laboratory

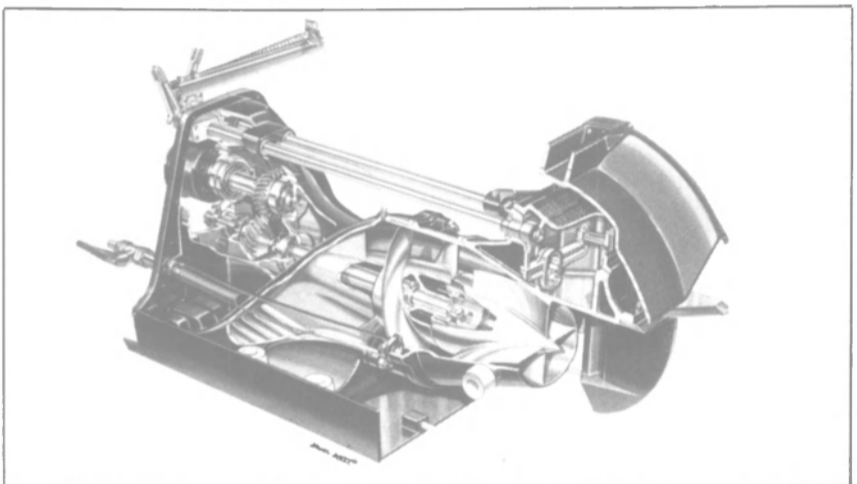
For more information
and free samples call or write:



AMERICAN ABRASIVE METALS CO.
460 Coit Street, Irvington, NJ 07111 (201) 373-7060



CASTOLDIJET



- Superior efficiency
- Best saltwater resistance
- Built in gear box
- Movable intake grate
- Positive clutch
- Maximum safety
- High speed performance
- Shallow waters capability
- Excellent sea-keeping characteristics
- Maximum reliability
- Minimum service required

**HIGHLY EFFICIENT, HEAVY DUTY,
COMPLETE MARINE PROPULSION SYSTEM FOR
COMMERCIAL, MILITARY AND PLEASURE CRAFT UP TO 100'**

U.S. Distribution
by:

ANCHOR-POWER HOUSE MARINE

POWER HOUSE MARINE CORPORATION
4760 N.W. 128th Street Road, Miami, FL 33054
PHONE: 305-685-5786

LOUISIANA POWER HOUSE, INC.
7198 Florida Court, New Orleans, LA 70126
PHONE: 504-246-6105

ANCHOR MARINE PRODUCTS, INC.
4320 15th Street East, Bradenton, FL 34208
PHONE: 813-756-1802

The Romeo Class submarines were delivered to Egypt several years ago as a part of multi-ship procurement agreement between the Arab Republic of Egypt and the Peoples Republic of China.

Work will commence pursuant to this contract after several preconditions are achieved including receipt of final export license approval, approval by the Defense Securities Assistance Agency of certain funding, the posting of financing guarantees by TBC, and the initiations of payments by the Arab Republic of Egypt.

TBC anticipates that the contract will become operative during the third quarter of 1988.

This is the third significant military contract received by TBC in the last 13 months. As a result of this award, TBC's backlog has been increased to \$161,000,000.

The company designs, constructs and repairs medium-sized vessels for the U.S. Government, domestic and foreign commercial customers and foreign governments.

For more information and free literature on Tacoma Boatbuilding, Circle 78 on Reader Service Card

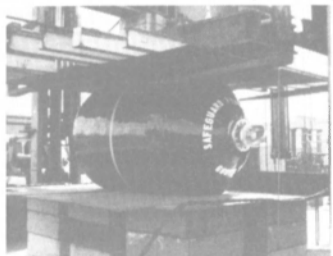
Tracor Receives \$38.1-Million Contract From NAVSEA

Tracor Applied Sciences, Inc., a subsidiary of Tracor, Inc., has received a contract from the Naval Sea Systems Command to provide engineering and technical support for the U.S. Navy Strategic and Attack Submarine Fleet. The contract includes three option years with a total value of \$38,129,000.

According to William C. Moyer, group vice president for Tracor Applied Sciences, under the contract the company will provide the engineering disciplines and technology necessary for the development and implementation of dedicated maintenance and modernization programs to support the submarine Extended Operating Cycle (EOC) concept. The submarine EOC program extends the interval between submarine overhauls to achieve a higher, stabilized level of deployed submarines and maintains the fleet in a high state of readiness.

InterTrade's 'Safeguard' Netless Marine Fenders Meet Navy Specifications

InterTrade Industries, Ltd., of



Uncompressed 6-foot-diameter 'Safeguard' netless marine fender before being compressed down to 22 inches during performance of test to verify compliance with Navy's new netless fender specifications.

Huntington Beach, Calif., recently submitted their 6-foot-diameter Safeguard™ marine fenders to First Article Testing under a U.S. Navy contract. The "torture test" was meant as verification of compliance with the Navy's newly developed Netless Marine Fender Specifications.

In addition to the proof load test of 70 percent compression, the test unit was subjected to 60 percent

energy absorption and reaction force testing as well as end fitting pull-through testing at 90,000-pound loadings.

InterTrade is now under contract to deliver 30 such 6-foot-diameter by 12-foot-long Safeguard netless fenders.

For additional information and free literature on InterTrade's netless marine fenders,

Circle 34 on Reader Service Card

Bethlehem Steel Yard Receives \$4.4-Million For Navy Oiler Work

The Sparrows Point Shipyard of Bethlehem Steel Corporation has received a \$4,489,339 contract from the U.S. Navy to perform the dry-docking, voyage repairs and overhaul of the fleet oiler USNS Neosho (T-AO-143).



CONSULTING SERVICES & DESIGN FOR:

MARINE RAILWAYS
FLOATING DRY DOCKS
WATERFRONT STRUCTURES

- INSPECTION
- CERTIFICATION
- DIVING SERVICES
- DRY DOCK HARDWARE

Since 1854

CRANDALL DRY DOCK ENGINEERS, INC.

21 Pottery Lane
Dedham, Massachusetts 02026

Telephone (617) 329-3240 Telex 924406 (CRADOC•DEDM)

Circle 224 on Reader Service Card

'FOWL' WEATHER GOT YOU DOWN?

WHY NOT TRY SUNNY CURACAO.

THE BEST WEATHER.
THE BEST DRYDOCK.
THE BEST CHOICE.

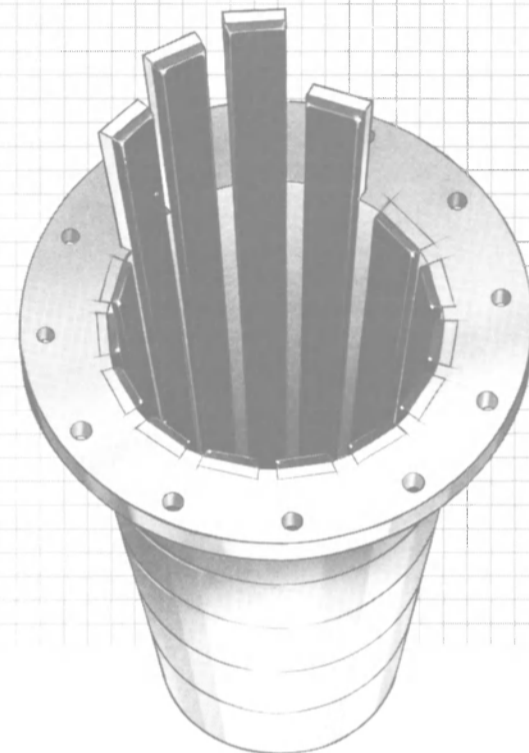
ANY OTHER DRYDOCK IS FOR THE BIRDS.

CURACAO DRYDOCK CO.

YARD: P.O. BOX 3012 CURACAO, NETHERLANDS ANTILLES	U.S./CANADIAN AGENT: CURACAO DRYDOCK (USA) INC. 26 BROADWAY NEW YORK, N.Y. 10004
TEL: (599-9) 78333	TEL: (212) 943-0122
TLX: 1107, 3443 CDM NA	TLX: 420355, 640394
FAX: (599-9) 79950	FAX: (212) 422-1102

Circle 229 on Reader Service Card

Wait. Less.



Class III
ROMOR
UHMWP
Backed Stave.

On deck. When you need ROMOR® brand staves, you get them. Fast. No waiting. No need to stockpile. Here's why ROMOR staves are all ways right.

Less wait. Always available.
Less weight. 75% lighter than brass-backed staves.

Less work. Easy to replace. UHMWP backing can't corrode and "freeze" in place as metal does. Fully interchangeable with Class I staves.

Less cost in the long haul. Reduced purchase, installation and maintenance cost.

More protection. Smooth, thin nitrile rubber lining extends bearing and shaft sleeve life.

Dependable. Qualified by U.S. Navy to Mil-B-17901B, Class III specifications.

To wait less, reduce weight and lower costs, save your bearings with ROMOR staves. Our brochure will tell you more. Write Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309. Or Call: (216) 733-9955.



LUCIAN Q.
MOFFITT, INC.

A subsidiary of BFGoodrich
ROMOR® a registered trademark
of BFGoodrich

13025MR

Circle 315 on Reader Service Card

SNAME SPRING MEETING/ STAR SYMPOSIUM 'MARINE & OFFSHORE SYSTEMS'

Pittsburgh, Pa.—June 8-10

1988 Ship Technology And Research Symposium
To Be Held In Conjunction With
3rd International Marine Systems Design Conference

The Society of Naval Architects and Marine Engineers (SNAME) will hold its 1988 Spring Meeting/Ship Technology and Research (STAR) Symposium at the Pittsburgh Hilton & Towers Gateway Center, Pittsburgh, Pa., from June 8 to 10. The meeting and symposium will be held in conjunction with the 3rd International Marine Systems Design Conference (IMSDC). The event, sponsored by the Great Lakes/Great Rivers Section of SNAME, will bring together more than 300 members of the international community from at least 11 nations.

The focus of the 1988 STAR Symposium will be new technologies and analysis capabilities which are emerging within the marine research community. A special feature of the program will be a series of papers presented by the SNAME Technical & Research Program's Ships' Machinery Committee on a variety of new technologies. Some of the papers featured by the committee include: "Fundamentals of Optical Fiber Communications"; "Glass Reinforced Plastic Material for Machinery Applications Aboard Ship"; and "The Intercooled Regenerative Gas Turbine."

The aim of the IMSDC, which meets only once every three years, is to promote marine design as a professional discipline and science. The first meeting of the IMSDC, held in 1982, was hosted by the Royal Institution of Naval Architects in London, England. The second meeting, held in 1985, was sponsored by Skibsteknisk Selskab (The Danish Society for Naval Architecture and Marine Engineering) in Lyngby, Denmark. The emphasis of the 3rd IMSDC will be both the theoretical aspects of the marine design process and recent new design applications for ships and offshore projects.

In addition, a full and diverse social program has been planned. Beginning Wednesday, June 8, with an Early Bird Reception, and running through the close of the meetings, are activities such as the Three Rivers Arts Festival, offering a selection of arts, crafts, food, drink and entertainment; tours of the city's cultural sights and attractions; the President's Reception on Thursday, June 9; and a three-hour river cruise on the Allegheny, Monongahela and Ohio Rivers on June 10.

The Society of Naval Architects and Marine Engineers, founded in 1893, has a membership of almost 12,000 composed of a variety of shipbuilding and maritime-related professionals.

For more information on registration and attendance, contact: The Society of Naval Architects and Marine Engineers, 601 Pavonia Avenue, Jersey City, N.J. 07306; telephone: (201) 798-4800.

TECHNICAL SESSIONS

Thursday, June 9 Ballroom 3

9 a.m.—"The Subcavitating/Supercavitating Hybrid Propeller" (SNAME), by **William S. Vorus** and **Robert F. Kress**.

A hybrid propeller concept is presented in which the blades incorporate the technologies of both subcavitating and supercavitating propellers.

10 a.m.—"An Advanced Method for Design of Optimal Ducted Propellers Behind Bodies of Revolution" (SNAME), by **Michael Schmiechen** and **Lian-Dizhou**.

An advanced method is proposed which requires no explicit assumptions about effective wake fraction and thrust deduction at any stage. It is not restricted further to moderate propeller loading, small hub/diameter ratio, or ideal fluid behavior.

11 a.m.—"Optimal Hull Forms for Fishing Vessels" (SNAME), by **O. Goran** and **Sander M. Calisal**.

Optimal hull forms for fishing vessels with minimum total resistance are found using mathematical programming.

1:30 p.m.—"A Knowledge-Based System Architecture for Control of Underwater Vehicles" (SNAME), by **Svein Kristiansen**.

Autonomous Underwater Vehicles (AUVs) have received increasing interest in recent years as a tool for some demanding marine tasks. A control architecture for an AUV based upon a number of technologies from artificial intelligence is described.

2:30 p.m.—"Roll Reduction by Rudder Control" (SNAME), by **Claes G. Kallstrom**, **Peter Wesel**, and **Sven Sjolander**.

3:30 p.m.—"An Integrated Rig Management System for a Semisubmersible Floating Production Vessel" (SNAME), by **Mark L. Neudorfer** and **John E. Sirutis**.

An integrated management system installed on a floating production vessel operating in the North Sea is described.

4:30 p.m.—"Computer-Aided Navigation System (CANSY-II)" (SNAME), by **Masaharu Yamamoto**, **Akira Shiraki**, **Osamu Yamamoto**, **Yuji Hirakawa**, **Kenji Yamguchi** and **Akira Nishiguchi**.

Efforts to develop software techniques for ship's operation have succeeded in producing a Computer-Aided Navigation System (CANSY) in cooperation with sympathetic shipowners.

Thursday, June 9 Ballroom 4

9 a.m.—"Methods of Incorporating Design for Production Considerations into Concept Design Investigations" (IMSDC), by **H.S. Hong**, **John B. Caldwell**, and **William Hills**.

A new method is presented for incorporating production considerations into concept design of ships and their structures.

10 a.m.—"Achieving Customer and Market Orientation in Marine Transportation Systems Design" (IMSDC), by **Hu Ying**.

Aspects of customer and market orientation in design are discussed. The focus is directed to the possibility of the application of marketing principles in the shipping industry, aiming at improving marine transportation system design.

11 a.m.—"Incorporating a Seakeeping Capability in a Computer-Aided Preliminary Design Systems" (IMSDC), by **Grant E. Hearn**, **William Hills** and **Paul A. Colton**.

The task of integrating seakeeping analysis into the conceptual design stage of the design process, so as to facilitate a high degree of designer interaction, is discussed. The particular analysis tools used with this process are described. Examples of application are included in connection with the design of a RO/RO vessel, and in the context of sensitivity analysis.

1:30 p.m.—"Hull Form Design—Only a Matter of the Computer?" (IMSDC), by **Hans Langenberg**.

Contrary to the prevailing thinking, a hull form cannot be developed during the short time allowed for

the preparation of a tender. This statement is supported by examples taken from 20 years' experience. A newly developed hull form for fast, single-screw vessels is presented. This form can reduce the propulsive power by up to 25 percent compared with ordinary multi-screw vessels.

2:30 p.m.—"The Components of the Propulsive Efficiency of Ships in Relation to the Design Procedure" (IMSDC), by **SV AA Harvald** and **Jan M. Hee**.

The designer has to match the characteristic power curves for the ship and the propeller. To accomplish this, the propeller efficiency, relative rotative efficiency, and hull efficiency must be estimated. The designer must also know the manner in which these efficiencies have been estimated and their accuracy in order to incorporate the right corrections and safety factors. A long series of experiments have been carried out to provide the understanding and data needed to estimate components of the propulsive efficiency of ships in the early design stage.

3:30 p.m.—"Design Conception of Hull Form and CAE/CAD" (IMSDC), by **Masahiko Mori**.

A current method of designing hull forms for high value-added ships is presented.

4:30 p.m.—"Direct Curve and Surface Manipulation for Hull Form Design" (IMSDC), by **Klaus-Peter Beier**.

A new technique for the manipulation of the shape of curves and surfaces using interactive graphics is presented. The mathematical background for the direct manipulation of plane and space curves will be described.

OPEN TECHNICAL DISCUSSIONS

Thursday, June 9 8 p.m.

Chartiers Room
"Improving Models for Conceptual Design Studies," **Michael G. Parsons**, moderator.

An opportunity to informally continue technical discussions of the topics of the Thursday morning IMSDC Technical Sessions. Also, perhaps a preview of some of the topics included in the Friday, June 10, IMSDC Technical Sessions. A cash bar will be available.

Rivers Room

"Design Issues in Hull Form Design," **John W. Boylston**, moderator.

An opportunity to informally continue technical discussions of some of the topics of the Thursday afternoon IMSDC Technical Sessions.

Brigade Room

"Design Issues in Powering and Propulsors," **William S. Vorus**, moderator.

An opportunity to informally continue technical discussions of some of the topics of the Thursday morning STAR Technical Sessions and the Thursday afternoon IMSDC Technical Sessions.

Friday, June 10

Ballroom 3

8:45 a.m.—"New Technologies Affecting Marine Machinery" (SNAME), **Thomas P. Mackey**, chairman-Ship's Machinery Committee (SNAME), moderator.

This mini-symposium has been organized by the SNAME Ship's Machinery Committee to focus on recent and current research and development which are affecting marine machinery. The following short talks will be presented in the three-hour session:

"Fundamentals of Optical Fiber Communications," by **Dan L. Philen** and **Robert M. Morais**.

"Glass Reinforced Plastic Material for Machinery Applications Aboard Ship," by **George F. Wilhelm**.

"High-Efficiency Electric Motors," by **Harry Blakely**.

"Diagnostic Vibration Monitoring," by **John S. Mitchell**.

"Internal Coatings for Machinery," by **Matthew F. Winkler**.

Steering Committee

John K. Stuart, Chairman
Thomas P. Mackey, Vice Chairman

J.R. Capin	R.W. Harkins
R.B. Couch	R.D. Jacobs
D.P. Courtsal	R. Mueller
M.J. Dills	M.G. Parsons
J.O. Greenwood	I. Sharp

Technical Program Committee

S.N.A.M.E.

3rd International Marine
Systems Design Conference

Michael G. Parsons, Chairman
R.W. Harkins

R. Bahattacharyya	J.H. McCarthy
J.W. Boylston	A.C. McClure
S. Erichsen	M. Meek
H. Langenberg	K. Taguchi

Registration

Richard Mueller, Chairman
C. Foeller (Quarter Deck Society)

Social Program

Richard D. Jacobs, Chairman

Fund Raising

Richard B. Couch, Chairman

Budget and Finance

John R. Capin, Chairman

Treasurer

Ian Sharp, Chairman

Publicity and Publications

Michael J. Dills, Chairman
John O. Greenwood

Local Program Liaison

Donald P. Courtsal, Chairman

"The Intercooled Regenerative Gas Turbine," by **Tim Doyle**.

2 p.m.—"Evaluation of Impact Loads Associated with Flare Slamming" (SNAME), by **Armin W. Troesch** and **Chang-Gu Kang**.

The hydrodynamics of flare impact are modeled by assuming that a pressure release surface exists on the mean water surface. While this simplified boundary value problem ignores some important impact features, it has the significant advantage of being computationally simple. With this theoretical model, it is possible to include three-dimensional effects that are ignored in previous two-dimensional theories. Results of experimental drop tests of bow-shaped bodies are compared with both the two-dimensional and three-dimensional theoretical calculations.

3 p.m.—"Surface Effect Ship Loads: Lessons Learned and their Implications for Other Advanced

Marine Vehicles" (SNAME), by **Paul Kaplan** and **A. Malahoff**.

As a consequence of high speed, air cushion support, and large flat surfaces, advanced technology methods were applied to determine Surface Effect Ship structural loads.

4 p.m.—"Advanced Ship Structural Design and Maintenance" (SNAME), by **Peter E. Koehler** and **S. Valsgard**.

This paper describes a method for advanced ship structural design, and proposes the use of reanalysis of ship structures as part of ship hull condition monitoring and maintenance.

Friday, June 10

Kings Garden, North

8:45 a.m.—"Intelligent Computer Aid in Marine Design and Ocean Engineering" (IMSDC), by **Bernt A. Bremdal** and **Steffen Zeuthen**.

Development of knowledge-based

expert systems (KBES) has become a major research activity within the field of computer aided engineering. Two of the most challenging application areas are design and planning. SEAMAID and LIFT are two prototypes that specifically address KBES development for marine engineering use.

9:45 a.m.—"Ship Synthesis Model Morphology" (IMSDC), by **Dale E. Calkins**.

The development of the methodologies and architecture of ship system synthesis models used in design will be described. The architecture of existing marine and aeronautical synthesis models will be reviewed to develop a "generic" synthesis model.

10:45 a.m.—"Experience in Teaching Marine Design on an Assignment Basis" (IMSDC), by **Lars E. Mathisen** and **Stian Erichsen**.

(continued)

Want to Simplify Main Engine Power Tests?

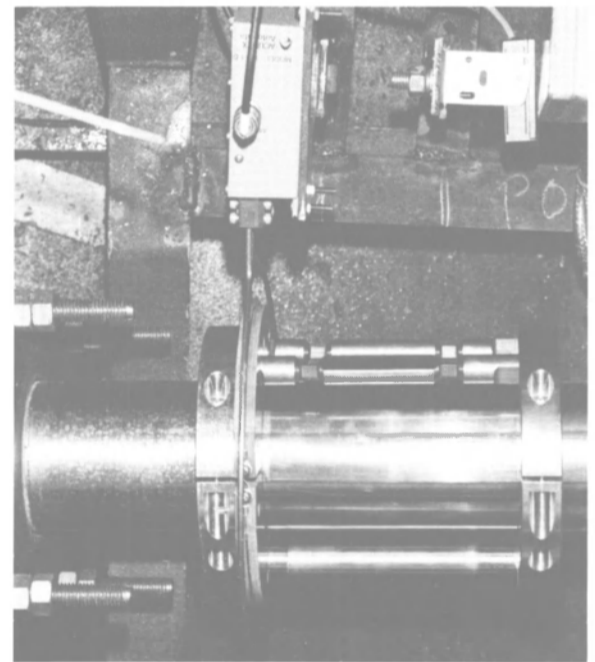
Specify Acurex Universal Sea Trials Measurement Systems!
And Obtain Acurex Quality and Expertise as a Bonus.



- ▶ Bolt-on torque sensor—2½" to 30" shafts
- ▶ No critical clearances or locations
- ▶ Sealed sensor—patented design
- ▶ Installs complete in less than 4 hours
- ▶ Portable—hand carried aboard
- ▶ Not affected by diesel vibrations
- ▶ Monitors torsional vibrations
- ▶ All power and RPM ranges

ACUREX Corporation

Autodata Division
555 Clyde Ave. P.O. Box 7042
Mountain View, CA 94039
(415) 967-9100 TELEX: 34-6391
FAX: (415) 967-5778



Circle 142 on Reader Service Card

RT & D

RESEARCH TOOL
& DIE WORKS

17124 South Kregan Avenue
Carson, Calif. 90746-9925
(213) 636-2242 • (213) 639-5722
FAX 1-(213) 639-9606

IN STOCK!
IMMEDIATE DELIVERY!
EMI Bond Straps

TYPE I AND TYPE II

MIL-STD-1310 STAINLESS STEEL or ALUMINUM

- Superior Quality - Highest Quality Control
- 12 Ton Crimp - For Maximum Pull Strength
- No Expense in Dies, Tools and Materials
- Complete - Ready to Use - Call Today!

Circle 216 on Reader Service Card

SNAME Spring Meeting

(continued)

Teaching design on an assignment basis has proved to be very motivating for students and teachers. The paper presents a review of instructions to students, the grading system, and an account of time spent on the course by teachers, instructors, and students.

2 p.m.—“Operational Aspects in

Ship Design: The Case of the Roll-On/Roll-Off Vessel” (IMSDC), by **Per O. Brett, Stein Gaarder, Geir Thorseng and Truls Vaa.**

The classic basic design spiral does not include any sector or loop that raises the issues of operational aspects in the human behavior sense. The paper discusses why the basic design spiral and process have to be improved in principle and what new design strategies may look like.

3 p.m.—“Productive Experience of 3D CAD/CAM Techniques Applied to Ship Design and Construction” (IMSDC), by **Colin J. Beames and William F. Beck.**

Three-dimensional CAD/CAM techniques developed by two British shipyards for the multi-disciplined design and detailing activities through the production process will be discussed.

4 p.m.—“A New Concept for ‘Neat Fit’ Ship Propulsion”

(IMSDC), by **Constantin M. Galin, E. Terorde and G. Versock.**

Megator Completes Navy Pump Contracts Totaling \$1.3 Million

Megator Corporation, of Pittsburgh, Pa., recently completed U.S. Navy contracts valued at \$1.3 million. Megator Corporation is the manufacturer of the Megator “Sliding-Shoe Pump.” This positive displacement pump had been selected by NAVSEA to undergo extensive NAVSSES testing as a replacement candidate for existing oily waste transfer pumps aboard U.S. Navy aircraft carriers and escort ships.

A prerequisite 250-hour land-based endurance test, performed at NAVSSES, revealed the Megator Sliding-Shoe Pump to be a durable and reliable pump requiring little maintenance or attention. Pump design allows for loss of prime and dry running for extended periods with no damage and instant repriming. Any maintenance required is simplified by easy disassembly and accessibility of the few moving parts. The pump is capable of handling most materials while providing consistent self-priming and constant flow against discharge heads ranging to 110 pounds per square inch.

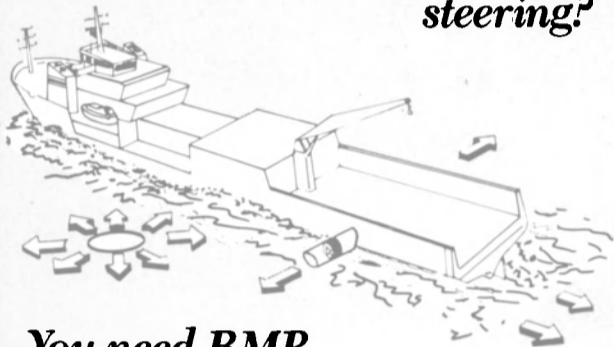
The excellent performance of the Megator Sliding-Shoe Pump while undergoing endurance testing resulted in sea trials with the same results.

The Megator Sliding-Shoe Pump is an off-the-shelf pump meeting Grade A shock for fleet requirements. This feature has saved considerable cost to the Navy in both unit price and parts replacement.

For more information and free literature on the Sliding-Shoe Pump from Megator,

Circle 24 on Reader Service Card

Need station-keeping, integrated vessel maneuvering, autotracking, or precision steering?

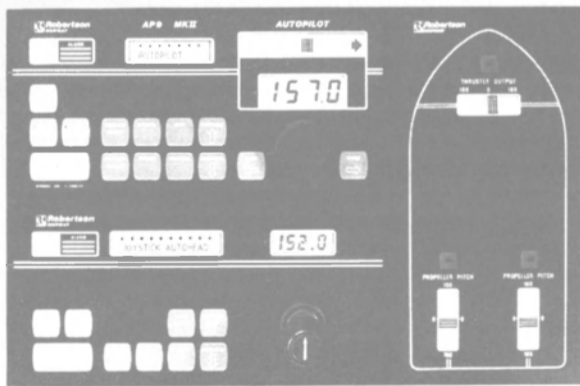


You need RMP.

The Robertson RMP is a family of intelligent, modular control systems designed for easy, yet precise vessel maneuvering. With a single joy-stick, RMP can steer, position and maneuver any vessel in any trade, and modular design offers the added benefits of easy system upgrades, reduced crew training time, lower maintenance costs, and very affordable price.

Robertson's RMP. The smart way to solve complex control problems, and the best way to upgrade vessel performance.

Call or write today for the facts on how our RMP can improve your operations at sea.



ROBERTSON-SHIPMATE, INC.
HI-TECH

3000 Kingman Street, Suite 207 Metairie, LA 70006 USA
Tel. 504-455-9988/FAX 504-455-9795

Circle 257 on Reader Service Card

...from the First in Bronze People
BRONZE WITH TRACEABILITY

HEAT	DATE	APPROVED
7347 B	7/1/88	
7348 A	7/1/88	
7349 C	7/1/88	
7350 C	7/1/88	
7351 A	7/1/88	
7352 B	7/1/88	
7353 A	7/1/88	
7354 C	7/1/88	
7355 B	7/1/88	
7356 A	7/1/88	
7357 B	7/1/88	
7358 A	7/1/88	

The Only Bar With Heat Numbers

EAGLE P PITCHER BEARINGS
We Make All the Bronzes

Lead-Tin & Aluminum Bronze Alloys
Each MarCon® bar produced by Eagle-Picher Bearings has its own ID for complete traceability. Our records can show you exact time of manufacture and bar characteristics. We document quality by testing in the most advanced chemical and metallurgical laboratories in our industry.

Standard & Special Shapes
We offer continuous cast and centrifugal cast standard bar and tube in C93200 (SAE 660) and C95400 Aluminum Bronze.

- Other alloys, special sizes and custom shapes available
- Stocked by leading metal service centers

Contact: Eagle-Picher Bearings, 200 Van Buren St., Delta, OH 43515
419-822-3456 FAX 419-822-3372

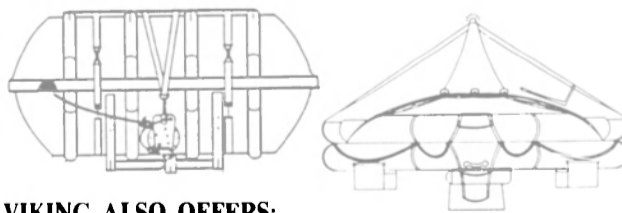
Circle 208 on Reader Service Card

VIKING

Safety Of Life At Sea

INFLATABLE LIFERAFTS 4 TO 45 PERSONS

VIKING CONFORMS TO THE NEW 1986 U.S. COAST GUARD REGULATIONS



VIKING ALSO OFFERS:

- Musk Ox Immersion And Work Suits
- Musk Ox Fire Suits, All Types
- Special New 35-Person Conventional and Davit Launchable Liferafts
- Single & Dual Track Marine Escape Slides
- 10 & 20 Person Self-righting Liferafts

VIKING LIFE-SAVING EQUIPMENT (AMERICA) INC.

38 N.W. 11th Street Phone: 305/374-5115
Miami, Florida 33136 Telex: 522899 SAFETY MIA
Telefax: 305/374-1535

Circle 296 on Reader Service Card

Navy Awards \$31.8-Million Contract To Lockheed Shipbuilding

Lockheed Shipbuilding Company, Gulfport Marine Division, Gulfport, Miss., has been awarded a \$31,759,154 modification to a previously awarded fixed-price U.S. Navy contract for the long lead time material for the Landing Craft Air Cushion (LCAC) program. The work is expected to be completed in 1990. The Naval Sea Systems Command, Washington, D.C., awarded the contract (N00024-87-C-2089).

NAVAL TECHNOLOGY AND SHIPBUILDING magazine is a supplement appearing in six (February, March, May, July, September, December) of the twelve issues of MARITIME REPORTER and Engineering News magazine, 118 E 25th Street, New York, NY 10010. (212) 477-6700. Fax: (212) 254-6271. Telex: 424768 MARINTI.

Maritime Reporter/Engineering News

DE SANNO FOUNDRY & MACHINE COMPANY



MANUFACTURERS OF BRONZE MARINE VALVES, SCUPPERS, STRAINERS AND DECK DRAINS

GLOBE & ANGLE STOP & STOP CHECK, 100 PSIG Flanged, 1/4" - 12", NavShips Dwg. 1385541 and Commercial

GLOBE & ANGLE STOP & STOP CHECK, 200/400 PSIG Flanged, 1/4" - 6", BuShips Dwg. 1385673

GLOBE AND ANGLE HOSE VALVES, 250 PSIG Flanged, 1 1/2" & 2 1/2", NavShips Dwgs. 1385711, 1385712 and Commercial

GLOBE VALVES, Y-PATTERN, 250 PSIG Flanged, 2 1/2" - 8", NavShips Dwg. 1385623

INVERTED GLOBE STOP LIFT CHECK VALVES, 100 PSIG Flanged, 1" - 4", (for magazine sprinkling), De Sanno Dwg. 178162

SWING CHECK VALVES, 250 PSIG Flanged, 2 1/2" - 12", NavShips Dwg. 1385637

SWING CHECK VALVES, 100 PSIG Flanged, 1" - 12", Mil-V-17547 and Commercial

FLANGES, SIL-BRAZE, 150 to 300 PSIG, 1/4" - 12", MIL-F-20042 & ANSI B16.24

LIFT CHECK VALVES, HORIZONTAL, VERTICAL & ANGLE, 100, 250, 400 PSIG Flanged, Mil-V-17547 and Commercial

SCUPPERS, NAVY TYPE, Flanged, 2", 3", 4" & 5", BuShips Dwg. 1385707

SCUPPERS, 180° TYPE, Flanged, 2" - 8", (can furnish steel bodies) DeSanno Dwg. 178131 Military and Commercial

SCUPPERS, 180° & 105°, Flanged, 2", 3" & 4", BuShips Dwgs. 3285821, 3285820, 3285813

SCUPPERS, SPECIAL NAVY, Flanged, 2", 3" & 4", BuShips Dwgs. 921510, 921511, 921512

MARINE STRAINERS WITH BALL VALVE, 250 PSIG, 1 1/2" & 2 1/2", BuShips Dwg. 1385901 & 461052

Y-STRAINERS, SIL-BRAZE, 200 PSIG, 300 PSIG

Y-STRAINERS, FLANGED, 150 PSIG, 250 PSIG, 300 PSIG

DECK DRAINS, Type A, B, C, D, F, G & H, BuShips Dwg. 1385789

De Sanno Foundry and Machine Co.

6535 W. Germann Road, P.O. Box 5030 • Chandler, Arizona 85224 • 602-961-9691

FAX (24 Hours) 602-961-9703



• International Representative inquiries are invited

• Distributors in all major United States Ports

• Inventories on East, West and Gulf Coasts

IRI GROUP

FINCANTIERI IS

MERCHANT SHIPBUILDING



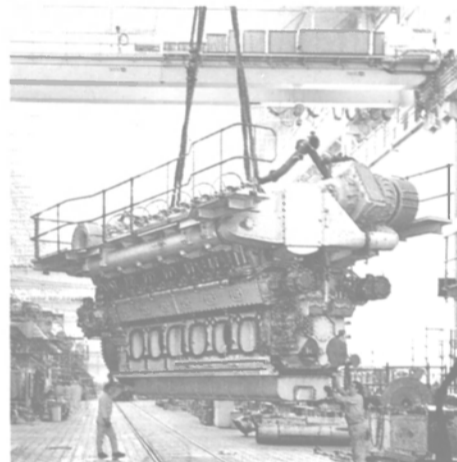
NAVAL SHIPBUILDING



SHIPREPAIRS AND CONVERSIONS



DIESEL ENGINES



AN INTEGRATED SYSTEM
FOR ANY REQUIREMENT OF THE MARINE MARKET

FINCANTIERI
Cantieri Navali Italiani S.p.A.

Merchant Shipbuilding Division
Trieste/Italy Corso Cavour 1
tel. (0) 40 7391 fax (0) 40 68933
tlx 460041 FINCME I

Naval Shipbuilding Division
Genova/Italy via Cipro 11
tel. (0) 10 59951 fax (0) 10 5995379
tlx 216367 FINCGE I

Head Office
Trieste/Italy via Genova 1
tel. (0) 40 7391 fax (0) 40 60233
tlx 461136 FINCTS I

Shiprepairing Division
Genova/Italy via Cipro 11
tel. (0) 10 59951 fax (0) 10 5995379
tlx 270168 FINCGE I

Diesel Engines Division & GMT
Trieste/Italy Bagnoli della Rosandra 334
tel. (0) 40 7391 fax (0) 40 827371
tlx 460274 FINCGM I

McDermott Names Howson To Succeed Cunningham As Chief Operating Officer



Robert E. Howson

James E. Cunningham, chairman of the board and chief executive officer of McDermott International, Inc., recently announced that the board of directors has formally designated **Robert E. Howson**, president and chief operating officer of McDermott, as his successor. Mr. Cunningham will reach retirement age this year, and will continue to serve the company as a member of its board of directors after retirement.

Mr. Howson will be officially elected chairman of the board and chief executive officer at the meeting of the board of directors to be held following the annual meeting of shareholders on August 9, 1988.

Mr. Howson assumed his present responsibilities during 1987. He has served on McDermott's board of directors since March 1981 and has been president and chief operating officer of the McDermott Marine Construction unit since that time. He was named president and chief operating officer of the Babcock & Wilcox unit in 1986 and chief operating officer of the McDermott International trading unit in mid-1987.

Mr. Cunningham has served as chairman of the board and chief executive officer of McDermott International since 1979.

Environmental Test Facilities Completed By Hi-Test Laboratories

Hi-Test Laboratories, Inc., recently announced the completion of its expanded Noise, Shock and Vibration (NS&V) environmental test facilities featuring a newly installed MIL-STD-167 vibration table that will accommodate test articles weighing up to 35,000 pounds. The test bed, one of the largest facilities in operation, is 16 feet by 16 feet and employs the largest in data acquisition capabilities.

Hi-Test is capable of performing lightweight, medium weight and heavyweight (MIL-S-901) shock tests at its Arvon, Va., plant and with these expanded facilities will also provide MIL-STD-167 Type I and Type II vibration, structure-borne noise, as well as a wide array of other test measurement and data analysis capabilities.

For additional information and free brochures from Hi-Test Laboratories,

Circle 26 on Reader Service Card

Wartsila Constructing Two Passenger Vessels For Oy Silja Line Ab

One of the two partners in Silja Line, Effoa-Suomen Hojrylaiva Oy, has placed an order for a large passenger ship intended for service on the Helsinki-Stockholm route. The vessel is expected to be delivered in

the spring of 1990. At the same time the other partner, Johnson Line Ab, ordered a sister ship to be delivered in the spring of 1991.

Both vessels will be built at Wartsila Marine Industries Inc.'s Turku Shipyard.

The new vessels will replace the MS Finlandia and the MS Silvia Regina now operating on the Helsinki route.

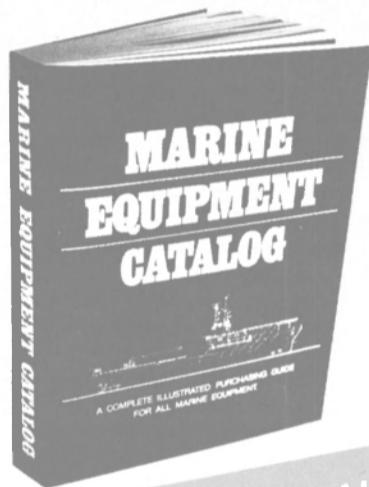
The Silja Line's new vessels will

have the following approximate dimensions: length 656 feet; breadth 103 feet; and draft 22 feet. They will have a maximum passenger capacity of 2,500, and will have space for 450/60 private cars/trucks.

For free literature giving full details on Wartsila Marine's facilities and capabilities,

Circle 16 on Reader Service Card

NEW 1988 EDITION MARINE EQUIPMENT CATALOG



SUBSCRIBE NOW
ONLY \$32.00 per copy
ORDER YOUR PERSONAL COPIES NOW

The World's Most Complete Annual Marine & Naval Equipment Catalog For Vessel Owners, Shipbuilders, Marine Designers, Naval Architects and Purchasing Agents.

DETACH AND MAIL

Mail to: Marine Equipment Catalog
c/o Maritime Reporter
118 East 25 Street
New York, New York 10010

Yes, I wish to take advantage of this Special Offer. Please reserve _____ copies of Marine Equipment Catalog. (\$45.00 outside the U.S.)

Name _____
Position _____
Company _____
Business _____
Address _____

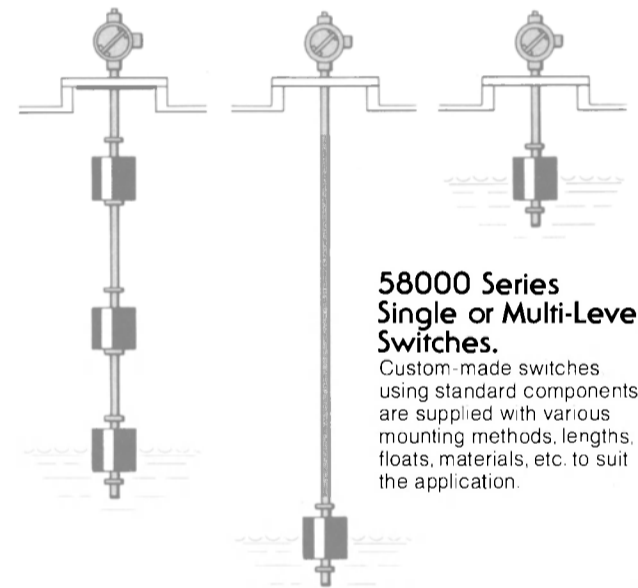
Enclosed is my remittance of \$32.00 per copy for _____ copies of the Marine Equipment Catalog. (\$45.00 outside the U.S.)

Please bill me
 Please bill my company

GEMS Level Switches for Shipboard Service.

Where high reliability is required for monitoring liquid levels and signaling alarms.

There's a GEMS switch to meet all types of marine liquid level applications...to monitor and control levels, signal alarms, and to provide oil/water interface. Ideal for use with diesel engine fuel tanks, lube oil reservoirs, ballast, bilge, or oil sump tanks or for other common shipboard uses.



58000 Series Single or Multi-Level Switches.

Custom-made switches using standard components, are supplied with various mounting methods, lengths, floats, materials, etc. to suit the application.



Externally Mounted Switches. LS-35565 (brass)/LS-56060 (stainless steel).

For use where access to inside of tanks is limited, such as on lube oil or fuel day tanks. Custom-length housings. Provide ease of maintenance and tank cleaning.



Slosh Shielded Switches. For corrosive or turbulent liquids.

Made entirely of CPVC plastic, these low-cost switches are supplied with either mounting holes or NPT mounting. Suited for bilge level indication, slosh tanks and other leak detection locations. Compatible with seawater, many fuels, and hydraulic and lube oils.

With Intrinsic Safety.

Zener Barrier Safe-Pak relays, FM approved, from GEMS provide intrinsically safe operation when interfacing level switches with your AC or DC loads.



For application information, call toll-free: (800) 321-6070. In Pennsylvania call (800) 642-0665.



Imo Delaval Inc.
Gems Sensors Division
Cowles Road, Plainville, CT 06062
(203) 677-1311

L019

Circle 275 on Reader Service Card

ELECTRONICS UPDATE

New York Exhibition Showcases First Production Color ARPA From Racal Marine

—Free Color Brochures Offered—

Racal Marine recently showcased and demonstrated its new Racal 2690 BT, reportedly the world's first production type-approved color ARPA providing a 16-inch PPI equivalent scan on a 26-inch diagonal TV-type display, and a number of other advanced marine navigation products at a three-day exhibition at the Whitehall Club in Manhattan.

Well suited for deep-sea vessels, the 2690BT series ARPA and TM/AC display are easy to operate with large, individual function control buttons. The basic radar controls on the upper panel follow the standard Racal-Decca layout used in thousands of Master series 20-inch color radars already in use at sea.

The clear advantages of this system are its exceptionally bright color presentation of radar video, synthetic graphics and tote information on a 26-inch DSC display. The 26-inch DSC Racal Decca marine display has been specially designed to meet the requirement for a presentation that can be interpreted quickly and surely under all conditions.

Switchable color coding minimizes eyestrain by day or night and allows the display to be viewed con-

veniently under a variety of lighting conditions.

This easy-to-operate ARPA has a 20 track capacity with manual or automatic target acquisition. The unit's ARPA controls are located on the lower panel, arranged according to function in a logical layout.

In addition to their standard suites of eight video maps, the Racal-Decca 2690BT Series ARPAs can be supplied with an NMEA 0183 proprietary interface to a navigation system such as the Racal-Decca MNS 2000 or Decca Navigator Mark 53. This interface enables the operator to show on the ARPA range scales (1½ to 24 nm) a graphic presentation of the voyage plan.

The same interface also enables the ARPA to receive from the associated navigation system a defined position in latitude and longitude, preset to correspond to the reference point around which one or more of the video maps in the ARPA memory has been constructed. The ARPA can calculate the range and bearing of this point from the ship's position and thus provide automatic alignment of a video map.

The Racal 2690BT Series features a full range of 3 cm and 10 cm

marine radars designed to comply with international type approval standards for the largest vessels. Other features of the series include: AC display with anti-collision markers, parallel indexing, true motion guard zones and semiautomatic electronic feature; an advanced clutter control called "Clearscan" to clear sea and rain clutter from the display; and a console design which offers the option of three preset viewing angles—11 degrees, 23 degrees and 35 degrees.

Other Racal products on display at the New York City exhibition included: Racal-Decca 20-inch color rasterscan radar; Racal-Decca LSR 4000 Nav Status and Voyage Management Display System; Racal-Decca Marine Navigation System MNS2000; MK53 Decca Navigator; Racal-Decca ISIS 250C Machinery Control and Surveillance System and ISIS 250 Microprocessor-Based Integrated Ship Instrumentation System; and Racal-Decca Deep-Sea Color Radars.

The LSR 4000 (Live Situation Report) display comprises a high definition color monitor with associated processor. This unique system provides a dynamic summary of all data relevant both to general navigation and immediate conning of a vessel. It also displays on demand the full voyage plan which is automatically updated.

The Racal-Decca MNS 2000 is a multi-sensor marine navigation management system, designed to a module concept. The system can derive position fixing data for vessel navigation purposes practically anywhere in the world through its multi-sensor radio navaid receiver unit. It is able to interface to compatible ARPAs, autopilots, plotters and vessel management systems.

The MK53 Decca Navigator is a four-channel integrating narrow-band receiver incorporating both Normal and Lane identification pattern positioning with full worldwide chain coverage. It has been designed to operate in conjunction with both electromechanical and color video plotters. The MK53 also incorporates a navigational computer which can interface with other bridge equipment such as radar, au-



Racal-Decca's 2690BT Series ARPA and TM/AC display are easy to operate with large, individual function control buttons.

tomatic chart table and autopilot.

The Racal 970/990 Series of gyro-stabilized radars is designed for use aboard vessels up to 1,600 tons. The compact 14-inch diagonal screen has 10 range scales from ¼ nm to 96 nm.


The Integrated Ship Instrumentation System (ISIS) 250C Series offers monitoring and control of main and auxiliary machinery, cargo and ballast from one or more locations. It fully meets the requirements of the major international classification societies for unattended machinery spaces.

The ISIS 250 microprocessor-based Integrated Ship Instrumentation System consists of a series of standard units and modules that may be configured together to accommodate a wide range of alarm and monitoring specifications—from simple alarm detection on small vessels to the most demanding requirements of the largest marine, naval and offshore installations.

For a free package of color brochures detailing the new 2690BT color ARPA and other Racal marine navigation products showcased at the exhibition,

Circle 74 on Reader Service Card

MARCO OIL SPILL and DEBRIS SKIMMERS



UNIQUE FILTERBELT SYSTEM

More than 75 MARCO skimmers operating worldwide

REQUEST OUR FREE BROCHURE

MARCO POLLUTION CONTROL

2300 West Commodore Way • Seattle, WA 98199 USA
Phone (206) 285-3200 • Telex 160587MARCO UT

Circle 350 on Reader Service Card



Adrian R.P. Day, president, Racal Marine Inc. (at left) and Brian W. Craig, managing director-international operations, Racal Marine Group Limited, examine the new Racal-Decca 2690BT color ARPA at a recent exhibition in New York City.

SNAME To Hold 1990 Annual Meeting In San Francisco

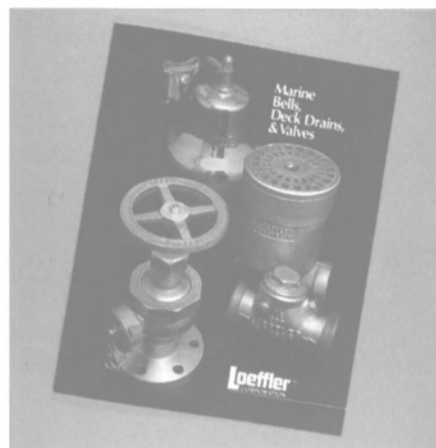
Edward J. Campbell, president of the Society of Naval Architects and Marine Engineers (SNAME), has announced the society will hold its 98th Annual Meeting in San Francisco, Calif. in 1990. This marks the first time that the meeting would be held outside of New York City.

The 98th Annual Meeting will be held at the Hyatt Regency San Francisco in the Embarcadero Center, along with the Ninth International Maritime Exposition, from October 31 to November 3, 1990.

The departure from tradition was based, in part, on a survey of the society's membership. Many of the respondents expressed the opinion that the Annual Meeting should occasionally be located somewhere other than New York City. San Francisco was the most popular choice for those that responded.

For more information on attendance or exhibiting, contact: The Society of Naval Architects and Marine Engineers, 601 Pavonia Avenue, Jersey City, N.J. 07306; telephone: (201) 798-4800.

Loeffler Offers New Free 12-Page Color Catalog On Valves, Drains, Hardware



Loeffler's new free 12-page color catalog, "Marine Bells, Deck Drains, & Valves."

Loeffler Corporation, a leading manufacturer of ship's bells, deck drains, valves and other marine hardware since 1926, recently issued an attractive new 12-page catalog for these products.

The catalog, which is free, is complete with photographs of the products, as well as dimensions for all required application information for cast bronze bells, trip gongs, cylindrical gongs, and deck drains. Similar information is provided for scupper, angle stop, globe stop, Y-stop, stop check, swing check, angle hose and globe hose valves.

In addition to the standard Loeffler marine products, the catalog contains useful information regarding standard hose thread sizes, pipe thread sizes, and standard bronze flange sizes for both commercial and U.S. Navy fittings.

For more information and a free

copy of the new 12-page color catalog from Loeffler,

Circle 64 on Reader Service Card

Kvaerner (UK) Ltd. Wins Contracts In Portugal And Singapore

Kvaerner Ships Equipment's U.K. subsidiary, South Shields-based Kvaerner (UK) Ltd., recently

won orders for the design of hatch covers and transportable grain bulkheads for a series of mini bulk carriers building in Portugal and two multipurpose cargo ships to be jumboized in Singapore.

Kvaerner's Portuguese order is for the supply of hydraulic folding crocodile weather deck covers for a series of 4,000-dwt mini bulk carriers contracted by Lisbon's Portline for domestic shipyard Estaleiros Navais de Viana do Castelo.

The Singapore contract is for the

design of the weather deck and 'tweendeck hydraulic hatch covers for the new midbody sections for a 18,230-dwt multipurpose cargoship, the Maria Oldendorff, at Jurong Shipyard, and the conversion of a second vessel which will take place during 1990, when the vessel is delivered from East Germany.

For free literature giving full details on Kvaerner (UK) Ltd.,

Circle 19 on Reader Service Card

CUMMINS MARINE GENERATOR SETS... 37-925 kW

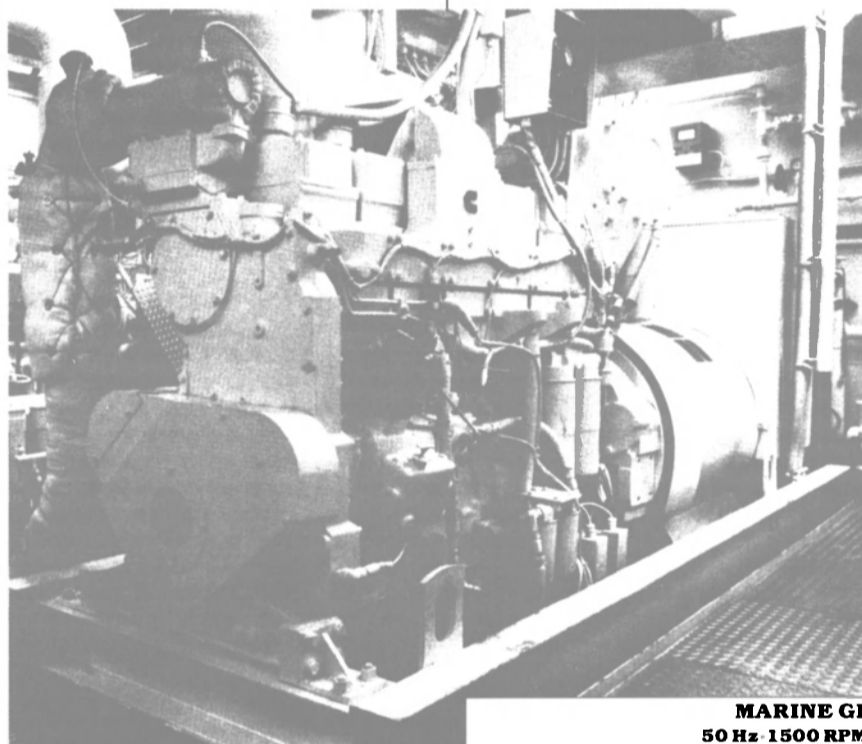
Cummins offers a complete line of marine generator sets designed for performance, reliability and durability in a broad range of 37 to 925 kW And. with Cummins

you always get high quality, on-time delivery, and fast, dependable service.

Cummins marine generator sets are available with heat exchanger, radiator, keel or remote cooling. Other available optional equipment includes: base rails, isolators, mufflers, electric or air starting, engine control panel, generator control panel, manual or automatic paralleling, alarm system, and Cummins EFC, American Bosch or Woodward governors.

Cummins generator sets are available with Marine Agency Certification. For specific agency approved ratings, contact Cummins Engine Company.

Cummins has more than 300 Marine Distributors and branches located in over 160 countries. The Cummins Distributor can provide complete technical and pricing information on Cummins shipboard generator sets, or you may write: Cummins Marine Generator Sets, Cummins Engine Company, Inc., Box 3005, MC 60403, Columbus, IN 47202-3005, U.S.A.



MARINE GENERATOR SETS

Model	50 Hz-1500 RPM		60 Hz-1800 RPM		Weight kg. (lbs.)
	Rated BHP	Max Cont.* kW	Rated BHP	Max Cont.* kW	
4B3.9G/GC	52	33	61	37	658 (1450)
4BT3.9G/GC	71	40	82	50	687 (1514)
6B5.9G/GC	90	45	97	55	835 (1840)
6BT5.9G/GC	113	65	134	72	865 (1905)
N-855G/GC	160	110	195	125	2295 (5055)
NT-855G/GC-2	265	175	320	215	2586 (5695)
NT-855G/GC-3	310	205	355	235	2651 (5840)
NTA-855G/GC	322	215	385	260	2747 (6050)
NTTA-855G/GC-1	380	255	420	285	2851 (6280)
KT19-G/GC	380	255	420	285	3330 (7335)
KTA19-G/GC-1	425	285	505	335	3487 (7680)
KTA19-G/GC-2	450	355	525	360	3575 (7875)
VT28-G/GC	530	360	620	420	5008 (11030)
VTA28-G/GC-1	614	410	690	465	5471 (12050)
VTA28-G/GC-2	614	410	750	510	5650 (12445)
VTA28-G/GC-3	745	510	—	—	5766 (12700)
KT38-G/GC	750	515	910	625	7377 (16250)
KTA38-G/GC-1	850	575	1030	700	7416 (16335)
KTA38-G/GC-2	890	615	1085	750	7872 (17340)
KTA50-G/GC-1	1180	815	1350	925	8989 (19800)

*0.8 Power factor. KW rating may vary depending on voltage required. Ratings shown are approved by the various marine agencies.



© Cummins Engine Company, Inc.



NOBODY KNOWS DIESELS BETTER

Circle 237 on Reader Service Card

First USCG Cutter Of New Class Commissioned At Bollinger Machine Shop



Richard N. Bollinger, Vice Adm. Donald C. Thompson, and Donald G. Bollinger gather at the Fleet Dedication held at the Coast Guard Base in New Orleans.

The first boat of the "B" Class of Coast Guard 110-foot cutters was recently commissioned in ceremonies at the Coast Guard Base in New Orleans, La. WPB 1317, Attu, is the 17th of the Island Class cutters, but the first of a second contract to produce 21 boats.

This contract is funded and administered by the U.S. Navy, but the boats are operated for service by the U.S. Coast Guard. A commissioning pennant was reserved for each vessel of the class as part of a fleet dedication.

The ceremony and reception was hosted by Rear Adm. Peter J. Rots, USCG Commander,

Eighth Coast Guard District. The 21 commissioning pennants were reserved by the Honorable Robert Livingston, member of the House of Representatives from Louisiana, and Vice Adm. Donald C. Thompson, Commander, Coast Guard Atlantic Area. Remarks were given by Dick Bollinger, president of Bollinger Machine Shop & Shipyard, Inc.; Admiral Rots; and Capt. Joseph F. King, U.S. Navy.

The 37 vessels of the Island class are used for drug interdiction, war mission, and search and rescue.

For free literature giving full information on the facilities and capabilities of Bollinger Machine Shop & Shipyard,

Circle 60 on Reader Service Card

Jered Brown Appoints Schoenlein And Freye To Management Positions



Kenneth O. Schoenlein

Deborah S. Freye

Jered Brown Brothers, Inc. has appointed Kenneth O. Schoenlein as director of sales,

and Deborah S. Freye as contracts manager.

Mr. Schoenlein rejoins Jered Brown Brothers after 10 years with Unidynamics in St. Louis, Mo. He is a member of The Society of Naval Architects and Marine Engineers (SNAME).

Ms. Freye joins Jered Brown Brothers after seven years with Tidewater Consultants in Virginia Beach, Fla. She is a member of the National Contracts Management Association.

Jered Brown Brothers, a Troy, Mich., engineering and manufacturing company, specializes in shipboard equipment for the U.S. Navy, including aircraft, cargo, and weapons elevators; ship steering systems; submarine bow planes; anchor windlasses; and specialized handling systems.

For more information and free literature on Jered Brown Brothers,

Circle 58 on Reader Service Card

Puerto Rico Marine Names Cabarle And Wainwright VPs

Gerald P. Toomey, president of Puerto Rico Marine Management, Inc. (PRMMI), agents for Navieras de Puerto Rico, recently announced two new high-level corporate appointments.

Kenneth W. Cabarle was named vice president/planning, and Norman E. Wainwright was appointed vice president/information systems.

Mr. Cabarle, previously vice president and chief financial officer of U.S. Lines, returns to PRMMI. Between 1974-78 he served as PRMMI's vice president/finance.

Mr. Wainwright, the new vice president/information systems, joins PRMMI with over 22 years of experience in the computer/information-processing fields.

KIENE

With you worldwide — wherever diesels work

Diesel cylinder indicators K-Series Indicators for measuring cylinder compression and firing pressures

- Optimize fuel consumption
- Reduce maintenance costs
- Pinpoint engine problems
- Improve engine availability
- Recommended and used by major engine builders

Indicator valves provide direct access to engine cylinders

- Allows compression and firing pressure testing
- Required for engine performance analyzer and monitoring instruments
- Eliminates accidental valve opening
- Easy to install and exceptionally reliable
- Complete line of extensions and adapters available

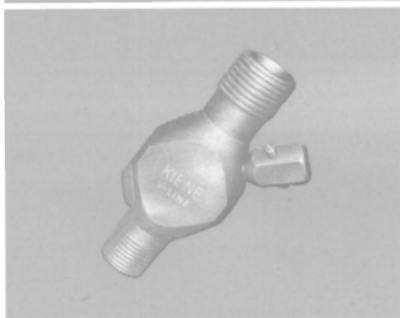
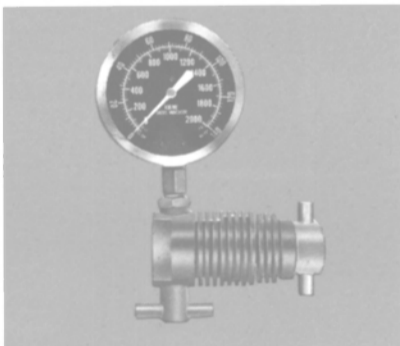
KIENE DIESEL ACCESSORIES, INC.
325 S. Fairbanks St. P.O. Box 386
Addison, IL 60101
Telephone 1-800-237-3762, Ext. 186

4-87

... for greater diesel reliability

KIENE

DIESEL ACCESSORIES, INC.



Circle 312 on Reader Service Card

We have built over 5000

BARGES



Inland, ocean, and specialty service barges of all types.

If you transport—chemicals, petroleum, commodities, coal, hazardous materials, or whatever, we can build it to your design or ours. Up to 600 feet with ASME tanks.



Equitable Shipyards, Inc.
A Trinity Industries Company
P.O. Box 8001, New Orleans, La. 70182
504-286-2500 Telecopy: 504-286-2554

Circle 269 on Reader Service Card



NKF® ENGINEERING, INC.

Full Spectrum of Support

- Acoustics and Vibration
- Structural Design
- Shock Analysis and Test
- Ship and Submarine Survivability
- Electromagnetic Engineering
- Naval Architecture
- Marine Engineering
- Combat System Engineering
- Computer Systems
- Arctic Technology
- Fiber Optics
- Operations Research
- Signature Reduction
- Damage Control

12200 Sunrise Valley Drive • Reston, Virginia 22091
703/620-0900

Circle 183 on Reader Service Card

Maritime Reporter/Engineering News

Parker Towing Announces Administrative Changes

Tim Parker Sr., chairman of the board, and **Tim Parker Jr.**, president of Parker Towing Company, have announced the promotion of **Charles A. Haun** to senior vice president, operations, and the addition of **Edward W. Peterson** as vice president, sales.



Charles A. Haun

Mr. Haun has been with Parker Towing since January 1975 and most recently served as vice president, operations. A 1972 graduate of the University of Alabama School of Law, Mr. Haun also holds a B.S. degree from U.A. in Chemistry.



Edward W. Peterson

Mr. Peterson recently joined Parker Towing as vice president, sales, after three years as president and managing partner of Merchants River Transportation in New Orleans.

Mr. Peterson replaces **George Wakefield**, who left Parker Towing to pursue other career options in California.

Parker Towing Company is a barge and tow company headquartered in Tuscaloosa, Alabama on the Black Warrior River. The company serves the waterways and ports of Alabama, Georgia, Florida, Mississippi, Louisiana, Texas and the East Gulf. With the completion of the Tenn-Tom Parker Towing has expanded service to the Tennessee and Ohio Rivers. This year Parker Towing is celebrating its 50th Anniversary. Company founder, **Tim Parker Sr.**, is still active with the company.

For more information and free literature on Parker Towing,

Circle 73 on Reader Service Card

Dykem Offers Stox Rust Inhibitor —Literature Available

The Dykem Company, St. Louis, Mo., manufactures and markets a superior rust inhibitor, Stox, which prevents rust on all machinery and

equipment, production machined parts, tools and dies, castings, molds, stored parts, metal stock parts and salvage parts.

According to Dykem, which was established in 1920, Stox can be applied to metal machined or fabricated parts to keep products and equipment rust free. Stox, which can be used indoors and outdoors, also protects and insulates electrical parts, assemblies and cables. Stox is available in 16-fluid-ounce spray cans, gallon containers or five-gallon drums.

For free literature on Stox,

Circle 28 on Reader Service Card

Wynstruments Offers New Literature On Low-Cost Marine Window Wipers

Wynstruments Ltd., through its North American Agent, Marketec, Inc., is offering free literature, now available on a brand-new product: low-cost, high-quality, feature-packed window wipers specially designed for leisure and in-shore vessels.

Selling under the brand name "Sea Crystal," the wiper is described as a Pendulum/Pantograph marine window wiper. One particular feature of note is the choice of wiping arc which can be adjusted at the time of fitting to any one of seven different angles from 45° to 110°. Arms are available in lengths to 450 mm (18 inches) and blades to a maximum of 400 mm (16 inches).

The literature details complete specifications, including speed, wiping arc, mounting position, sizes, drive shaft, motor and power supply, weight, etc. Photos and diagrams support the information and describe the wiper's features.

For free literature or for additional information,

Circle 32 on Reader Service Card

New Computerized System Controls Fuel Viscosity —Literature Offered

The temperature and viscosity of fuels and other liquids can be monitored and controlled with a maximum of efficiency by a newly developed computer system which requires only a minimum of technical maintenance. Visco Pilot, manufactured and marketed by MAR TEC Marine of Hamburg, offers essentially attendance-free operation. Readjustments of operating parameters or exchanges of principal elements of the system can be accomplished easily by untrained personnel in only a few minutes, according to **Peter P. Lombard**, president of American United Marine Corp., the exclusive North American sales agent for MAR TEC.

The system's viscosity sensor contains a vibrating metal reed which operates on the principle of magnetic striction. The damping effect of the liquid as it flows past the sensor is amplified and converted to viscosity values, which are digitally

displayed on the monitor, continuously. Liquid temperature, measured at the same point, is also displayed, and the computer calculates the standard viscosity at a chosen reference temperature and displays this as well. The monitor also sends a signal to the pre-heater to raise or lower the temperature as required to keep the actual viscosity within the chosen limits.

Preset values can be changed at any time by the operator, and when the microprocessor is turned off it automatically reverts to the values originally set.

If the viscosity values move outside of the preset range, or if the temperature exceeds the maximum setting, flashing alarms appear on the monitor. Measurable ranges for temperature and viscosity are 0-200 deg. C and 2-999 centistokes.

Speed, accuracy, and simplicity are the major advantages of the Visco Pilot system. Unaffected by impurities in the liquid or changes in flow rate or pressure, the sensor is easy to clean and to check for accuracy.

This system contains no air pilot

tubes and no complicated moving parts except for the motor of the regulating valve. Both the sensor and the amplifier can be replaced, if necessary, by untrained personnel.

For further information on the MAR TEC Marine Visco Pilot,

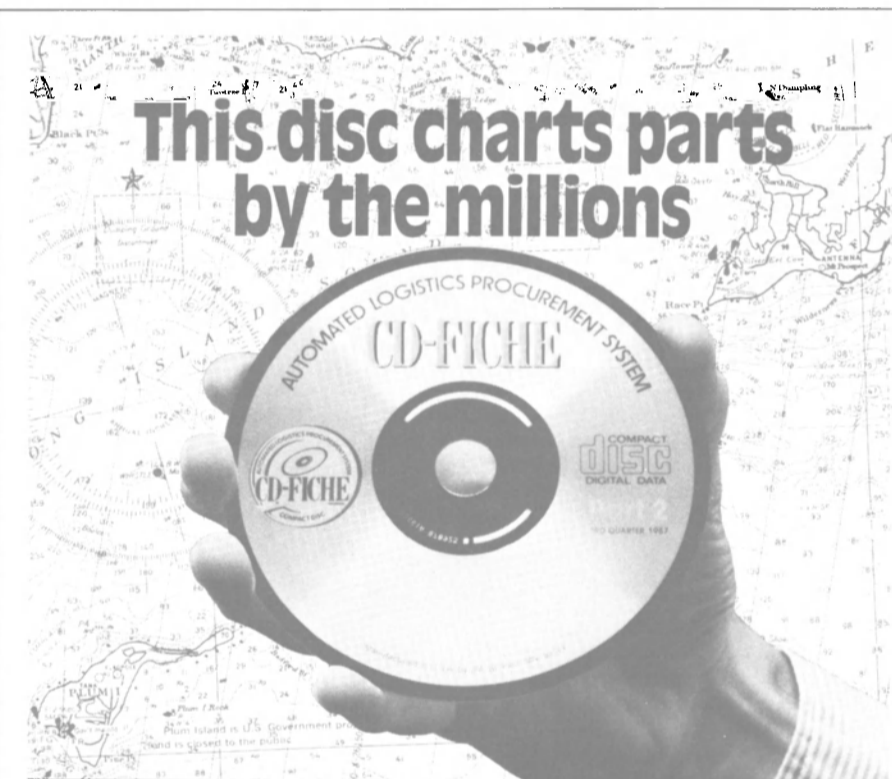
Circle 63 on Reader Service Card

ContiCarriers & Terminals Acquires Dakota Barge

Dakota Barge Service, Inc., of St. Paul, Minn., has been acquired by ContiCarriers & Terminals, Inc., a major river transportation firm based in Chicago.

Dakota Barge operates six harbor boats in the St. Paul harbor in providing local towage, fleet and switching services, fuel delivery and barge repairs. Dakota also owns a number of barges used to carry coal and an 80-ton drydock. It leases a 300-ton marine way from St. Paul Terminals.

ContiCarriers & Terminals is a subsidiary of Continental Grain Company.



The Inventory Locator Service CD-Fiche is a compact disc that puts a world of information about 22 million parts at your fingertips. Instantly.

After it locates a part, the CD-Fiche cross references it, by part number, with all other parts providing similar form, fit and function. The part is further cross-referenced with design data, manufacturing details, information about cost.

Regularly and frequently updated, easily integrated with all popular PC database packages, the ILS CD-Fiche turns your computer into a complete, technical information center. Without high communication costs. Without a dedicated, on-line terminal.

Write or call for a free demonstration.

Inventory Locator Service, Inc.
3781 Premier Cove
Memphis, TN 38118
Telephone: (901) 794-4784
Fax # (901) 794-1760
Telex: 882179 (WU)

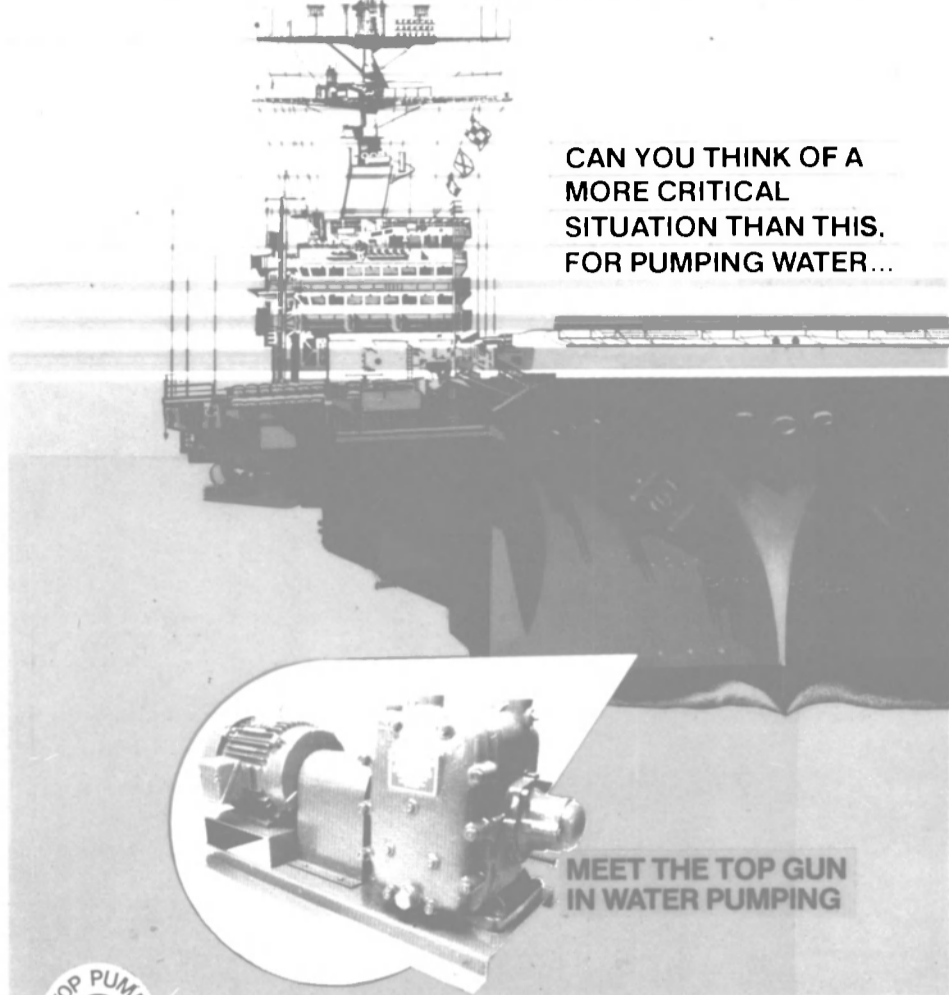


Intralink Service (Europe) Ltd.
Goffs Tower
48 Goffs Park Road
Crawley, West Sussex RH 11 8AY
Telephone: (44) 293-562011
Fax # (44) 293-562066
Telex: 878647 ILSE G

Circle 284 on Reader Service Card

MEGATOR

CORPORATION



CAN YOU THINK OF A MORE CRITICAL SITUATION THAN THIS. FOR PUMPING WATER...

MEET THE TOP GUN IN WATER PUMPING

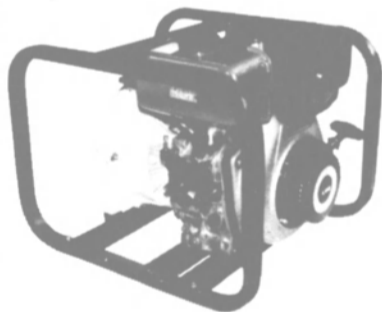


MEGATOR CORPORATION

562 ALPHA DRIVE, PITTSBURGH, PENNSYLVANIA 15238 • TELEPHONE: 412-963-9200 FAX: 412-963-9214
Circle 345 on Reader Service Card

DIESEL AMERICA INC.

Manufacturers of Quality Diesel Powered Equipment



DIESEL PUMPS & OTHER DIESEL PRODUCTS

Introducing: The Diesel Alternative (Diesel Pump Under \$1000 & 90 lbs.)

We offer a full range of light weight air cooled Diesel Products including Pumps, Generators, Compressors, Pressure Washers etc., with prices and weight comparable with gasoline products. (30 day limited offer on our L40-2D5E. 2" cent. pump complete is reduced from a list of \$1195 to \$995). Call for details on our other full range of products.

Diesel America (West)
PO Box 968
Friday Harbor, WA 98250
Tel: (206) 378-4182
Fax: (206) 378-3315

Diesel America (Central)
5217 River Road
New Orleans, LA 70123
Tel: (800) 456-0918
Tel: (504) 733-6944
Fax: (504) 733-6939

Circle 186 on Reader Service Card

VSE CORPORATION SINCE 1959
2,300 Employees, 30 Offices Nationwide

MARINE DESIGN SERVICES MASTER ORDNANCE REPAIR CERTIFIED

Join the professional marine design staff that keeps growing. You may qualify based on your experience and education in the following areas:

- NAVAL ENGINEERING
- NAVAL ARCHITECTURE
- COMBAT SYSTEMS
- COMPUTER AIDED DESIGN SERVICES
- MACHINERY CONDITION ANALYSIS
- MACHINERY VIBRATION ANALYSIS
- LOGISTIC SUPPORT SERVICES
- DIVER'S LIFE SUPPORT SYSTEMS
- OVERHAUL PLANNING SERVICES
- SHIP'S SELECTED RECORD SERVICES

Competitive salary and benefits
Please send resume or call our Employment Office for consideration

1417 N. Battlefield Blvd.
Chesapeake, Virginia 23320
(804)547-8556
EOE M/F/V/H

Circle 287 on Reader Service Card

DOLSEY LTD.

MILSPEC MATERIAL STOCKED

**Silver Solder Rings and Rod
Silbrz Fittings—MILF 1183**
Elbow—Tees—Couplings—Flanges

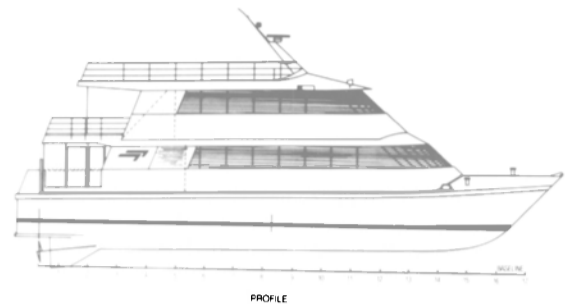
**Bronze Valves—Flanged + UESB
Pipe—90/10 + 70/30**

**P-Traps—Deck Drains
Strainers—Hose Valves
Scuppers—Cla Vals**

**FAX 804-423-5568
1-800-368-3010**

Circle 28 on Reader Service Card

New Gladding-Hearn-Built High-Speed Catamaran To Begin Boston/Martha's Vineyard Run



PROFILE

Profile of the 82-foot, 300-passenger, high-speed ferry Vineyard Spray which is under construction at Gladding-Hearn Shipbuilding in Somerset, Mass., for Bay State Cruises of Boston.

The Vineyard Spray, a new 82-foot, 300-passenger, high-speed ferry built by Gladding-Hearn Shipbuilding, the Duclos Corp. of Somerset, Mass., is scheduled to be commissioned this summer by Bay State Cruises and put into service running daily round trips from Boston to Vineyard Haven in Martha's Vineyard.

The triple-deck aluminum vessel, which travels at 31 knots fully loaded, is powered by 1,740-hp diesel engines. To help dampen vibration from the engines, 80 rubber shock absorbers are mounted between the hulls and passenger cabins.

The Australian-designed International Catamaran (INCAT) will have two enclosed lounges with upholstered seats, pay phones, and a bicycle rack on the upper deck. The entire trip will take about three hours.

The Vineyard Spray is reported to be one of the two fastest catamarans in North America. Gladding-Hearn president **George Duclos** said a similar boat runs a 75-mile trip between San Diego and the Catalina Islands on the West Coast at about 28 knots. Other INCATs are in use in Marin County, Vallejo and San Francisco, Calif., Alaska, Hong Kong and the English Channel.

For more information and free literature on the capabilities and facilities of Gladding-Hearn Shipbuilding,

Circle 50 on Reader Service Card

250-Ton-Capacity Mobile Boat Hoist Available From Marine Travelift

Marine Travelift's 250-ton-capacity open-end mobile boat hoist is an economical and convenient method for large boat handling.

The Model 250AMO offers 90° pivot steering with outside turning radius only 65 feet.; two-speed hoist, two-speed drive, and automatic load equalizing for synchronized and safer boat hauling.

Features of the 250AMO include hydraulic hoisting, travel, steering and sling spacing controls. The forward top beam provides improved clearance for radar or bow rigging and allows for equal balancing of loads. The unit is one-man operated and requires only a minimum haulout ground crew. All controls are within easy reach in the canopied operator's compartment.

For complete details on the Marine Travelift 250AMO or their complete line of mobile boat hoists, with capacities from 15 to 500 tons,

For free literature on Marine Travelift hoists,

Circle 69 on Reader Service Card

Maritime Reporter/Engineering News

PROFESSIONAL

24 Hours
A Day
7 Days
A Week

AMT Marine
Emergency
Service

*ENGINEERING/CONSULTING SERVICES — SURVEYING
*LASER/COMPUTER ENGINE ALIGNMENTS
*DIESEL ENGINES - STEAM - TURBINES - BOILERS
*MACHINING - IN SHOP OR IN PLACE "METRIC" AND "INCH"
*BEARING REBABBITTING - CLASS APPROVED
*HYDRAULICS - PNEUMATICS - REFRIGERATION
*STEELWORK - PIPE - MACHINERY - ELECTRICAL

2400 N.W. 39 Ave., Miami, U.S.A. FL 33142
(305) 871-4094 Telex: 512408 Telefax: (305) 871-3180 Cable: AMT MARINE
FACTORY AUTHORIZED Repair and Spares Dealer for

AMIRIKIAN ENGINEERING CO.
HARBOR AND DRYDOCKING FACILITIES
FLOATING LIFT DOCK AND SHORE TRANSFER
CONCEPTS, DESIGN, INVESTIGATIONS

Chevy Chase Center Office Bldg.
Suite 505, 35 Wisconsin Circle
Chevy Chase, Md. 20015 (301) 652-6903

CRANDALL
DRY DOCK ENGINEERS, INC.
Railway and Floating Dry Docks
Waterfront Structures • Consulting
Design • Inspection
Dry Dock Hardware and Equipment

21 Pottery Lane Dedham, MA. 02026
Tel. (617) 329-3240 Telex: 924406

COATINGS—CHEMICALS—GAUGES
International Paint (U.S.A.) Inc.
Henric-Vecom (U.S.A.) Ltd.
DeFelsko Corporation

ARMORICA SALES INC.
2 Marineview Plaza • Hoboken, NJ 07030
(201) 792-7682

crane consultants inc.
15301 1st Ave. So. Seattle, Washington 98148
(206) 246-7962 TWX 910-444-2085
Crane hoist, materials handling specialists

advanced marine
ENTERPRISES INCORPORATED

HEADQUARTERS:
Suite 1300
1725 Jeff Davis Hwy.
Arlington, VA 22202
703 979-9200

SYSTEMS MANAGEMENT
Acquisition Management
Logistic Support
Systems Integration
Charles H. Piersall Jr., Division President

SHIP ENGINEERING & DESIGN
Feasibility Studies through Detail Design
Alteration & Conversion Design
Systems Engineering
Dr. Robert S. Johnson, Division President

FIELD OFFICES:
Virginia Beach
Philadelphia

PROJECT OFFICES:
At Customer Sites

FLEET SUPPORT & FIELD ENGINEERING
In-service Engineering
Overhaul, Repair, and Test Support
Self-help & Alteration Installation
Gordon M. Green, Division President

Captain Astad Company, Inc.
Complete Marine Services - Full Broker Service
Owners Representative Service
Purchase & Sale of All Types of Vessels

CAPTAIN A. J. ASTAD P.O. BOX 53434
President NEW ORLEANS LA 70153
PHONE (504) 529-4171 (24 HRS.) TELEX: 6821298 ANSWERBACK: "ASTAD"

C. R. CUSHING & CO., INC.
NAVAL ARCHITECTS, MARINE ENGINEERS
& TRANSPORTATION CONSULTANTS
18 Vesey Street
NEW YORK, N.Y. 10007
TEL (212) 964-1180 CABLE CUSHINGCO
TX: 752481

Ocean Engineering Centre
SHIP-MODEL TESTING

- Resistance Tests • Flow Visualization
- Wake Surveys
- Towed Directional Stability Evaluations
- Seakeeping

For Information Contact:
B.C. Research
Ocean Engineering Centre
3650 Westbrook Mall.
Vancouver, Canada V6S 2L2
Telephone (604) 224-4331
Telex 04-507748

DLI MARINE
ENGINEERING CORPORATION VIBRATION ANALYSIS
CORPORATION NOISE CONTROL

253 Winslow Way West, Bainbridge Island, WA 98110
(206) 842-7656

Measurement, recording and analysis of mechanical, structural and electrical phenomena.

(718) 939-4422

AERO NAV
LABORATORIES, INC.

14-29 112th Street, College Point, N.Y. 11356
Navy-Hi Shock, Vibration & A.B.S. Testing

PUSHBOATS, TUGS, CREWBOATS, TENDERS
BARGES OF ALL TYPES, INLAND OR OFFSHORE

WILLIAM T. BERGERON
BERGERON & ASSOCIATES
MARINE BROKERS
(504) 271-7171

P.O. BOX 726 CHALMETTE, LA 70044
"IF YOU NEED IT, WE CAN FIND IT"

DEL BREIT INC.
MARINE ENGINEERING CONSULTANT
326 Picayune Place Suite 201
New Orleans, La. 70130
(504) 523-2801

COI marine company
PROFESSIONAL • EXPERIENCED • RESPONSIVE

SUPPORTING THE MARINE INDUSTRY WITH:
ENGINEERING SERVICES
DETAILED DESIGN
COMPUTER AIDED DESIGN
TECHNICAL PUBLICATIONS
LOGISTICS

JACKSONVILLE 19041 724-9700 PHILADELPHIA (609) 228-1853 NEWPORT NEWS (804) 245-0516 PORTSMOUTH 18041 397-8000 BREWERTON (206) 479-8829

DESIGN ASSOCIATES, INC.
M. KAWASAKI
14360 Chef Menteur Highway
New Orleans, Louisiana 70129

Naval Architects Marine Management Marine Engineers Transportation Consultants
Phone: (504) 254-2012 TWX 810-951-5317

American Professional Captains Association
IMPORTANT NOTICE - LICENSED CAPTAINS, MASTERS, MATES THE FINAL RULE HAS BEEN PUBLISHED. Protect Your Ticket. Find out what it's All About!
P.O. Box 350398 Ft. Lauderdale, FL 33316

C.T. MARINE
NAVAL ARCHITECT • MARINE ENGINEER

18 Church Street, Georgetown, CT 06829
Telephone: 203-544-8110
Telex: ITT 4994761

- TUGS
- TOWBOATS
- BARGES

DESIGNERS & PLANNERS, INC.
Naval Architecture - Marine Engineering
Human Factors Engineering

Newport News, VA (804) 873-0830
Cherry Hill, NJ (609) 795-1170
Bayonne, NJ (201) 339-9446
Norwich, CT (203) 887-2501
Arlington, VA (703) 892-8200
2011 Crystal Drive ■ Arlington, VA 22202

AmSEC AMERICAN SYSTEMS ENGINEERING CORPORATION
Marine Engineers • Port Engineer Services
Systems Analysis • Propulsion Plant Training
Qualified Manufacturer • Field Representatives

P.O. Box 8988 • Virginia Beach, VA 23452 • (804) 463-6666
Philadelphia, PA • Bremerton, WA • Virginia Beach, VA
Arlington, VA • San Francisco, CA • San Diego, CA

CHILDS ENGINEERING CORPORATION
Waterfront Engineering
Diving Inspection

BOX 333, MEDFIELD, MA 02052
(617) 359-8945

E.Y.E. MARINE CONSULTANTS
 NAVAL ARCHITECTS • MARINE ENGINEERS
 SHIP SURVEYORS • OFFSHORE ENGINEERS

Dartmouth, Nova Scotia Tel: (902) 463-8940
 Fax: (902) 463-6319
 Tlx: 019-22632

Canada
 St. John's, Newfoundland Tel: (709) 722-5560
 Fax: (709) 722-4880

ENCON MANAGEMENT & ENGINEERING CONSULTANT SERVICES

Marine Structures • Engineering Analysis • Marine Survey
 Project Management • Loss Prevention • Naval Architecture

P.O. Box 7760 • Beaumont, Texas 77706
 (409) 866-9158

BARGES - TUGS - TOWING
 CHARTERS AND SALES
 312) 798-2419

Jack Faulkner
 Tug & Barge Sales

PROCUREMENT AGENTS
 ON INLAND
 AND OCEAN TOWING

P.O. Box 371
 2419 Caddy Lane, Flossmoor, Illinois 60422
 TOWING ANYWHERE THERE IS WATER

CHRISTOPHER J. FOSTER, INC.
 WORLD-WIDE EXPERIENCE AT SEA

GRAVING DOCKS • MARINE STRUCTURES
 SHIPYARDS • MODERNIZATION • PORT FACILITIES
 OFFSHORE TERMINALS • FLOATING DRYDOCKS


MARINE ENGINEERS • NAVAL ARCHITECTS
 CONSULTING ENGINEERS

PORT WASHINGTON NEW YORK 11050
 (516) 883-2830 TELEX 14-4674 CABLE: "CEFOSTA"

GIBBS & COX INC
 NAVAL ARCHITECTS & MARINE ENGINEERS

119 West 31st Street • New York, N.Y. 10001
 (212) 613-1300

JOHN W. GILBERT ASSOCIATES, INC.

Naval Architects  Marine Engineers

66 LONG WHARF
 BOSTON, MASS. 02110
 (617) 523-8370

Seattle, Washington
 Phone: 206-624-7850
 Telex: 882053

THE GLOSTEN ASSOCIATES, inc.
 CONSULTING ENGINEERS SERVING THE MARINE COMMUNITY

MORRIS GURALNICK ASSOCIATES, INC.
 NAVAL ARCHITECTS MARINE ENGINEERS

620 Folsom St., Suite 300, San Francisco, CA 94107
 Main Office: (415) 543-8650
 Ventura Office: (805) 656-2322

THE WORLD'S LARGEST NS&V FACILITIES

HATEST

LABORATORIES, INC.

CORPORATE OFFICE P.O. BOX 226 BUCKINGHAM, VA 23021 (804) 969-4254	GOVT LIAISON OFFICE CRYSTAL SQUARE 4 SUITE 300 1745 JEFFERSON DAVIS HWY ARLINGTON, VA 22202 (703) 221-2511	TEST FACILITIES P.O. BOX 87 ARONIA VA 23004 (804) 581-3204
-----------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------


• Hi-Impact Shock Testing (MIL-S-901) Light/Medium/Heavy
 • Environmental Vibration Testing Type I (MIL-STD-167) To 35,000 Lbs
 • Internally Excited Vibration Testing Type II (MIL-STD-167)
 • Airborne & Structureborne Noise Testing (MIL-STD-740)
 • Pitch & Roll Simulation Testing (MIL-STD-16400) To 20,000 Lbs
 • Functional Testing, OA Testing (NDT) & Failure Analysis
 • Fixture, Structure and Foundation Design & Fabrication

• Qualified Welding—Steel, Aluminum, SS, HY80, HY100, HY130, HSLA
 • Finite Element Analyses (DDAM, Structural, Dynamic & Transient)
 • Noise, Shock, & Vibration (NS&V) Field Testing and Shipboard Surveys
 • NS&V Program Management Plans & Impact Studies (ECP's, Failure Mods)
 • NS&V Data Review, Evaluation, Management & Coordination
 • NS&V Test Plans Procedures, Reports & Management Support
 • State of the Art NS&V Measurement and Data Analysis Instrumentation

SUPPORTING THE MARINE INDUSTRY WORLDWIDE


C. Raymond Hunt Associates, Inc.
 High Speed Powerboat Design

69 Long Wharf - Boston, MA 02110
 Tel: (617) 742-5669/FAX: (617) 742-6354


HYDROCOMP, Inc.

Consulting in Naval Architecture & Marine Engineering
 Marine Design Computer Services
 NavCad™ Marine Engineering Software

45 JAMES FARM - LEE
 PO BOX 865
 DURHAM, NH 03824
 603-659-2660


INTRAMARINE, INC.
 MARINE ENGINEERS SURVEYORS CONSULTANTS


P.O. BOX 53043 JACKSONVILLE, FL 32201
 (904) 353-0828 TELEX: 56-8421
 ALSO NEW YORK HAMBURG PIRAEUS

• HULL • MACHINERY • CARGO • YACHT SURVEYS


JJH Inc.
 NAVAL ARCHITECTS MARINE ENGINEERS MARINE CONSULTANTS

"Quality First"

WASHINGTON 703-920-3435
 CHERRY HILL, NJ 609-663-3020
 NORFOLK 804-399-4096
 BATH 207-443-1303
 GREAT LAKES 414-743-8217


R. D. Jacobs and Associates
 Naval Architects • Marine Engineers
 Consulting Engineers


MARINE AND STATIONARY PROJECTS
 Marine Surveyors, Project Specifications and Designs:
 Energy Efficient Concepts

Owner Representation Services; Machinery
 Casualty Investigations;
 Practical Engineering Economics Analyses

11405 MAIN ST., ROSCOE, IL 61073 815-623-6760

JAMES S. KROGEN & CO., INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS

Tel. (305) 642-1368
 1515 N.W. 7th St., Suite 124, Miami, FL 33125


RODNEY E. LAY & ASSOCIATES
 NAVAL ARCHITECTS

NAVAL ARCHITECTS • MARINE ENGINEERS

13891 Atlantic Blvd.
 Jacksonville, Florida 32225
 (904) 246-6438 TWX 810-828-6094

CLYDE LEAVITT INC.
 CONSULTING NAVAL ARCHITECT
 ADMIRALTY LITIGATION EXPERT
 MARINE FORENSIC MODEL CONSTRUCTION
 MARINE SURVEYOR

13901 Puerto Drive, Ocean Springs, MS 39564-2019
 Telephone 601-875-5711


Alan C. McClure Associates, Inc.
 NAVAL ARCHITECTS • ENGINEERS

2600 South Gessner • Suite 504 • Houston, Texas 77063
 (713) 789-1840 • Telex 792397

Mc ELROY
 MACHINE & MFG. CO., INC.
 A PREDCO COMPANY
 ENGINEERING & DESIGN OF

ANCHOR HANDLING SYSTEMS
 AND MARINE DECK MACHINERY
 COMMERCIAL-OFFSHORE-MILITARY

P.O. Box 4454
 Biloxi, MS 39535-4454
 PHONE (601) 896-3736
 TELEFAX (601) 896-0874
 1-800-634-6478

John J. McMullen Associates, Inc.



JJMA
 Naval Architects • Marine Engineers • Transportation Consultants

New York, NY • Arlington, Va • Newport News, Va • Houston, Tx
 Ventura, Ca • Bath, Me • Seattle, Wa • Pascagoula, Ms

One World Trade Center/Suite 3000/New York, New York 10048/(212)466-2200

MACPHERSON MARITIME SERVICES
 Marine Transportation Consultants
 Shipping Economists
 Business Planners

141 Jefferson Avenue
 Westfield, New Jersey 07090
 Telephone: 201/232-3636 Telex: 833231 (700)


 Speed & Propulsion Power Policy

FENDALL MARBURY
 NAVAL ARCHITECT

9 NEAL STREET
 ANNAPOLIS, MARYLAND 21401 (301) 266-8254


MPA
 MARINE POWER ASSOCIATES

THE PROFESSIONALS
 Maintenance, Repair & Retrofit Specialists

1010 Turquoise St., Ste. 217, P.O. Box 99546
 San Diego, CA 92109, (619) 488-7703

MARITIME DESIGN, INC.

NAVAL ARCHITECTS MARINE CONSULTING MARINE DESIGN
 MARINE ENGINEERS MARINE PROCESSING MARINE SURVEYS

2955 HARTLEY RD • JACKSONVILLE, FL 32217 • (904) 268-9137

Coast Guard/State Pilotage License Insurance
 Worried about defending your license or yourself in a hearing conducted by the Coast Guard, National Transportation Safety Board or a State Pilotage Authority which could result in license revocation, suspension or assessment of a fine/money damages against you personally?

Stop worrying. Insure yourself and your license with a marine license insurance policy provided by the Merchant Officers Protective Syndicate (MOPS). For more information contact R.J. Mellusi & Co. Agent, 71 Hudson St., N.Y. 10013 (212) 962-1590

Telephones (212) 943-7070
 (201) 984-2295
 Night (201) 538-1789
 TWX: 710-991-0290

MOWBRAYS
 TUG AND BARGE SALES CORP.
 35 DE HART STREET, MORRIS TOWN, N.J. 07960
 YOUR MARINE CONSULTANTS

SPECIALISTS IN BUYING, SELLING AND RENTING TUG BOATS • BARGES CONTRACTORS FLOATING EQUIPMENT

NELSON & ASSOCIATES, INC.
 MARINE

SURVEYORS ENGINEERS CONSULTANTS APPRAISERS

610 N.W. 183 St., Miami, Fla. 33169 (305) 653-4884
 Telex: 44-1869 Cable: NELSURVEY

NORD-MARINE, INC.
MARINE SURVEYORS-ENGINEERS-CONSULTANTS
153 KEMP AVE. FAIR HAVEN, NJ 07704
PHONE: (201) 741-4403 (24HR/7DAY) TELEX: 178323 NO80 UT

• INSURANCE APPRAISING • PURCHASE AND SALE SURVEYS • MAINTENANCE AND REPAIR SUPERVISIONS OF HULL AND MACHINERY • DIESEL ENGINES • NEW BUILDING SUPERVISIONS • DRAFTING SERVICES • CASUALTY AND PERSONAL INJURY INVESTIGATIONS • CONSULTING IN ADMIRALTY CASES •
Languages: Finnish, Swedish/Scandinavian, German

SARGENT & HERKES, INC.
NAVAL ARCHITECTS • MARINE ENGINEERS
1005 INTERNATIONAL BLDG., 611 GRAVIER ST
NEW ORLEANS, LA. 70130
(504) 524-1612

Multi-Pak Division Of ICI Offers Free Literature On Trash-Handling Equipment

Multi-Pak Division of ICI (Intercontinental Chemicals, Inc.) is offering free literature on their Multi-Pak Trash Compactor, which the company describes as the latest state-of-the-art in trash-handling equipment.

The Multi-Pak trash compactor system provides a means to reduce man-hours of handling time, and improve the sanitary conditions at the generation point.

With emphasis on safety, speed, and a high ratio of compaction, trash is packaged as follows: (1) One key activates unit for service. (2) Trash is loaded through the chute. (3) Door is closed (machine will not operate until door is fully closed). (4) The START button is engaged. (5) The compaction cycle is completed in some 20 seconds and unit is ready for the next load. A STOP button serves as an emergency stop and the FULL indicator light with accompanying buzzer terminates all activity until bag or cardboard box is removed through the unloading door and key is again used to reactivate the unit. A Trashlift (optional) permits easy movement of the compacted trash to the storage area with little effort required from the personnel responsible for these duties.

For additional information and free literature on the Multi-Pak Trash Compactor from Multi-Pak Division of ICI,

Circle 53 on Reader Service Card

NORTHERN MARINE
Naval Architecture - Marine Engineering
Marine Surveying
(616) 946-5959
P.O. Box 1169 Traverse City, MI 49685

DECK OFFICER COURSES
USCG approved - RADAR OBSERVER COURSE
USCG approved - FIREFIGHTING SCHOOL
Also USCG Exam Prep Courses for CAPTAIN, MASTER, AB, ENGINEER, OMEG
1-800-BEST-ONE

OLSEN MARINE SURVEYORS CO.
Condition, value and damage surveys commercial vessels, tugs, barges, draggers, party and charter boats. Recognized by insurance companies, lending and banking institutions. Certified, Nat. Assoc. of Marine Surveyors, P.O. Box 283, Port Jefferson, New York 11777. Tel (516) 928-0711.

GEORGE G. SHARP, INC.
SYSTEMS ANALYSIS
NAVAL ARCHITECTS - MARINE ENGINEERS
100 CHURCH STREET - NEW YORK, N.Y. 10007
(212) 732-2800
WASHINGTON, D.C. (703) 892-4000
VIRGINIA BEACH, VA. (804) 499-4125
PHILADELPHIA, PA. (609) 772-0888
TWX: 710-581-2758 CABLE: GEO SHARP NYK

OMEGA MARINE ENGINEERING SYSTEMS, INC.
NAVAL ARCHITECTS, MARINE AND STRUCTURAL ENGINEERS
11757 KATY FWY. HOUSTON, TEXAS 77079
TEL (713) 870-1111
TELEX 6868507

T. W. SPAETGEIS
TORSIONAL VIBRATION SPECIALISTS
OUR 40TH YEAR SERVING INTERNATIONAL CLIENTS
156 W. 8th Ave. Vancouver, Canada V5Y 1N2
(604) 879-2974
Telex 0455188

F.L. TORSTENSON MASTER MARINER NAUTICAL CONSULTANTS
All phases of Celestial & Chart Navigation, Piloting, Tides, Currents, Ship Stability, Applied Plane & Spherical Trigonometry TUTORED on a One-to-One basis by a Master Mariner. Issue (8-11) with 40 yrs Worldwide Experience. Two yrs at U.S.C.G. Institute revising the above subjects for the NEW MERCHANT MARINE exams. Call days & eve's - (912) 681-3697

Q.E.D. SYSTEMS, INC. VIRGINIA BEACH (804) 490-5000
MARINE ENGINEERS NAVAL ARCHITECTS LOGISTICS ENGINEERS
ARLINGTON SAN DIEGO LAKEHURST
BREMERTON PHILADELPHIA CHARLESTON
JACKSONVILLE SAN FRANCISCO

R.A. STEARN INC.
NAVAL ARCHITECTS and MARINE ENGINEERS
253 N. 1st Avenue
Sturgeon Bay, WI 54235
Phone (414) 743-8282 TLX 753166, ESL 62388810

Tracor Hydronautics
INTEGRATED ENGINEERING SERVICES FOR THE MARINE INDUSTRY
RESEARCH • DEVELOPMENT
DESIGN • TESTING
HYDRONAUTICS SHIP MODEL BASIN
Tracor Hydronautics
7210 Pindell School Road
Laurel, Maryland 20707
Telephone: (301) 776-7454
Telex: 8-7585

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS
New York City 350 Broadway New York, NY 10013 (212) 431-6900
San Francisco 667 Mission Street San Francisco, CA 94105 (415) 777-0500
Boston Philadelphia Washington, D.C. Newport News Charleston Norfolk
Bremerton San Diego Honolulu Oxnard

STURGEON BAY MODEL SHOP
SHIP MODELS SINCE 1941
Wm. L. Herbst 187 N. Ninth Ave. Sturgeon Bay, WI 54235
phone 414/894-2859 414/743-2921 414/744-3091

VIBRANALYSIS ENGINEERING CORP
• PREDICTIVE MAINTENANCE PROGRAMS
• VIBRATION ANALYSIS
• FIELD & SHOP BALANCE
• ACOUSTICAL CONSULTANTS
• COMPUTERIZED DATA COLLECTION
• MARINE APPLICATIONS
VIBRANALYSIS ENGINEERING CORP
4380 S. Wayside, Suite 100 Houston, TX 77087 713-643-1051

STV/SANDERS & THOMAS
Marine Engineering • Systems Analysis Consulting/Design Engineering
7900 Westpark Drive McLean, VA 22102 703/893-1339

Quality Management, Training, Support, ILS, and Marine Engineering Services
SEACOR
23 Locations Worldwide
SYSTEMS ENGINEERING ASSOCIATES CORPORATION
520 FELLOWSHIP ROAD, SUITE C-306
MT. LAUREL, NEW JERSEY 08054
(609) 866-2400
SEACOR is a Subsidiary of Day & Zimmermann, Inc.

WELDING CONSULTANTS USA
6517 RADBURN, GREENDALE, WI (414) 421-3252
ST. PETERSBURG, FL. HOUSTON, TX.
PROVIDING WELDING ENGINEERING SERVICES TO SHIPS, MACHINERY, HULL, MARINE STRUCTURAL DESIGNS, ALTERATION, REPAIRS, CONVERSIONS AND UNDER-WATER STRUCTURES.

Seaworthy Systems, Inc.
Marine Engineers and Naval Architects
P.O. Box 338 Essex, CT 06426
P.O. Box 205 Solomons, MD 20688
17 Battery Pl. N.Y. N.Y. 10004
2 Skyline Place/Suite 311 Falls Church, VA 22041
Telex 517931 Seaworthysys

Trans-International Marine Services Corp.
TIMSCO
MAINTENANCE MONITORING SYSTEMS
INVENTORY CONTROL SYSTEMS
P.O. Box 91360 Mobile, Alabama 36691 205/666-7121

THOMAS B. WILSON ASSOCIATES
NAVAL ARCHITECTS & MARINE ENGINEERS
1258 N. AVALON BLVD. • WILMINGTON, CA. 90744
PHONE (213) 518-0940

CLASSIFIED AND EMPLOYMENT ADVERTISING

HOW TO PLACE CLASSIFIED ADVERTISING: Mail clearly written or typed copy to: MARITIME REPORTER, 118 East 25th Street, New York, NY 10010. Include any photos, drawings or logos if required. Specify size of ad and number of insertions . . . Classified Advertising — Per Issue Rate: Classified advertising is sold at a rate of \$70 per column inch . . . MARITIME REPORTER'S classified section carries more advertising and sells more products than any other publication in the marine industry. Closing date for classified advertising is 20 days prior to the date of the issue. For further details contact John C. O'Malley at (212) 477-6700. Send all advertising material to MARITIME REPORTER And Engineering News, 118 East 25th Street, New York, NY 10010



Captains On Call Inc.
THE MARITIME PERSONNEL AGENCY
 Industrial, Corporate and Private Clientele
 EMERGENCY, PERMANENT and DELIVERY Crews
 NATIONWIDE DATA-BASE of PERSONNEL
 24 Hrs.—(718)-720-5814
 P.O. Box 141033 Staten Island, N.Y. 10314 U.S.A.

MARITIME POSITIONS
 Large Midwest tug company, leader in its field, is expanding staff and seeks qualified applicants following positions:

**DIRECTOR, FLEET OPERATIONS/
 MARINE SUPERINTENDENT**
 Experienced USCG licensed tug captain to manage fleet and direct tug/barge operation on all U.S. Great Lakes. Strong administration and supervision skills essential.

SALES MANAGER
 Energetic individual to service existing customer base and to develop new markets. Marine background preferred. Duties include phone contact, some travel Great Lakes area, rate quoting and correspondence.

PORT ENGINEER—MARINE MANAGER
 Technically competent USCG licensed port engineer and port manager to supervise local tug operations/diesel engine repair and maintenance in major midwest city. Administrative and supervisory skills required.

Excellent opportunity to work with aggressive management team. Ideal for Maritime College/Academy graduates. Salary/Benefits package commensurate with experience. Immediate openings. Send resume/salary history in confidence to:

Box 501, Maritime Reporter, 118 E. 25th St., New York, NY 10010



Globe PERSONNEL CONSULTANTS
Serving the marine industry since 1973
 CONTRACT, PROJECT, PERMANENT EMPLOYMENT
 P.O. BOX 996 HUMBLE, TX 77347 (713) 526-3748

PORT ENGINEER—HULL

Crowley Towing and Transportation, a Crowley Maritime Corporation company, seeks candidates for Port Engineer-Hull vacancy in Jacksonville, Florida. Primary responsibility for M&R of vessels and equipment assigned to Atlantic Division.

Preferred candidates will have a minimum of two years supervisory experience in marine engineering operations with demonstrated mechanical aptitude and analytical skills. A marine engineering degree is highly desirable.

Crowley Maritime offers a competitive salary and benefit package in a rapidly expanding business environment. Interested parties may respond in confidence to:

CROWLEY MARITIME CORPORATION
 P.O. Box 2110
 Jacksonville, FL 32203
 Attn: Kaye Byrnes

An Equal Opportunity/AA Employer

**Senior Naval Architect
 Senior Marine Engineer**

POSITIONS AVAILABLE

10+ years experience, with emphasis on design of small-to-medium size fishing and commercial vessels. We are looking for thoroughly-qualified engineers who have a flair for design, as well as the usual engineering fundamentals.

MARCO is a leading company in the design and construction of fishing and processing vessels for the Pacific Northwest fisheries, as well as international projects, particularly in South America. The company is highly engineering-motivated, with experienced naval architects and CAD/CAM design and lofting capabilities.

High-quality company — not too big. Great place to work and live.

MARCO SEATTLE
 2300 West Commodore Way • Seattle, WA 98199 USA
 Phone (206) 285-3200 • FAX (206) 283-4731
 Telex 160587 MARCO UT

REPS WANTED

Independent reps wanted. Industrial pipe, valves and fittings, standard and non-standard in all alloys. Should have strong contacts in chemical, petrochemical, pulp & paper, marine and power plants (any or all). Many territories open. Send replies to:

BOX 502
 MARITIME REPORTER & ENGINEERING NEWS
 118 East 25th Street
 New York, NY 10010

NAVAL ARCHITECT/MARINE ENGINEER WANTED ON CONTRACT BASIS TO ASSIST A U.S. SHIP OWNING COMPANY IN THE PREPARATION OF BID SPECIFICATIONS FOR THE SHIPYARD CONVERSION OF ONE, POSSIBLY TWO GENERAL CARGO VESSELS. THE SUCCESSFUL CANDIDATE WILL BE REQUIRED TO PARTICIPATE IN THE DEVELOPMENT OF A SPECIFICATION FOR THE SHIPYARD WORK AND ASSIST IN THE SUPERVISION OF THE CONVERSION OF THE VESSEL(S) IN THE SHIPYARD.

PRELIMINARY TECHNICAL DATA PERTAINING TO THE VESSEL(S) AND THE CONVERSIONS IS NOW AVAILABLE. DATA REQUIRED TO COMPLETE THE PREPARATION OF THE BID SPECIFICATION BY JUNE 1988 WILL BE AVAILABLE. IT IS ANTICIPATED THAT THE CONVERSION WILL TAKE PLACE IMMEDIATELY THEREAFTER.

PLEASE RESPOND TO THE BOX BELOW STATING QUALIFICATIONS AND EXPERIENCE.

Box #503, Maritime Reporter
 118 E. 25th Street
 New York, NY 10010

FOR SALE


3,600 BHP 5,000 IHP OCEAN TUG
 6,000 BHP ANCHORHANDLING/SUPPLY/TUG
 6,120 BHP ANCHORHANDLING/SUPPLY/TUG

CONTACT: MS ADA CHAN 718-388-8883

TRIP SURVEYOR & MARINE ENGINEER—Survey marine vessels and watercraft such as ships, boats and tankers to ascertain condition of hull, machinery and equipment and determine repairs required for vessel to meet insurance requirements. Includes examination of hulls while dry-docked, readings on tail shaft and tail shaft bearings, inspection of propellers, rudders and valves and operating machinery and testing of cargo gear. Prepare a report on surveys conducted and recommended actions and repairs.

Also design and oversee installation and repair of marine power plants, propelling systems, heating and ventilating systems and other mechanical and electrical equipment in ships and marine facilities. Prepare drawings and specifications, perform calculations to determine appropriate equipment and systems; oversee and evaluate operation of equipment during acceptance testing and shake-down cruises.

REQUIREMENTS: Bachelor's degree in Engineering with major field of study in Marine Engineering or equivalent training and experience. Six years experience in ma-




Conrad Industries, Inc.
 For new construction, pre-fabrication, repairs, and conversions
 4 drydocks (2) 900 - ton; (2) 2,400 - ton capacity
 P.O. Box 790 • Morgan City, LA 70381
 504 384-3060 • FAX: 504 385-4090

REQUEST FOR PROPOSAL

The New York City Fire Department (NYCFD) is seeking proposals from qualified Consultants interested in assisting the New York City Fire Department with a study in order to purchase a Multi-Purpose Harbor Service Craft (MPHSC).

This project is a follow up to a MPHSC Requirement Study conducted by the City of Tacoma, Washington's Fire Department and the U.S. Maritime Administration (MARAD). The study documents the protection service needs of major U.S. harbors (including New York City Harbor). It recommends the general specifications for a MPHSC. Study elements will include: an assessment of New York City Marine firefighting apparatus needs, harbor conditions, piers, drydocking and repair facilities, examination of Tacoma's MPHSC preliminary specifications, review of the MARAD study, determination of MPHSC design in accordance with New York City Fire Department needs, development of specifications for a MPHSC and pier construction, and establishment of related contracts. The study is not to exceed one year.

For a copy of the RFP or for additional information contact: Ron Blendermann, Bureau of Fiscal Services, Room 625, New York City Fire Department, 250 Livingston Street, Brooklyn, New York 11201-5884 (718) 402-1605



MATDIX DESALINATION, INC.

REVERSE OSMOSIS WATERMAKERS
 CUSTOM MANUFACTURED FOR ANY

Shipyards For Sale
 Southern Indiana, Ohio River Mile 726

30+ Acres
 Launching and Repair Cradles
 Fab Shop—44,520 sq. ft.
 Machine Shop—23,700 sq. ft.
 Warehouse—4,800 sq. ft.
 Office—8,560 sq. ft.

FOR SALE

NEW WATERTIGHT DOORS

6 Dog

6-Dog right and left hand hinged doors with frames.

For Barge Rentals or a Complete Marine Package

Call the Barge People.



NORD-MARINE, INC.

MARINE SURVEYORS-ENGINEERS-CONSULTANTS

153 KEMP AVE. FAIR HAVEN, NJ 07704
PHONE: (201) 741-4403 (24HR/7DAY) TELEX: 178323 NORO UT

• INSURANCE APPRAISING • PURCHASE AND SALE SURVEYS • MAINTENANCE AND REPAIR SUPERVISIONS OF HULL AND MACHINERY • DIESEL ENGINES • NEW BUILDING SUPERVISIONS • DRAFTING SERVICES • CASUALTY AND PERSONAL INJURY INVESTIGATIONS • CONSULTING IN ADMIRALTY CASES •
Languages: Finnish, Swedish/Scandinavian, German

NORTHERN MARINE

Naval Architecture - Marine Engineering
Marine Surveying

(616) 946-5959

P.O. Box 1169 Traverse City, MI 49685

OLSEN MARINE SURVEYORS CO.

Condition, value and damage surveys commercial vessels, tugs, barges, draggers, party and charter boats. Recognized by insurance companies, lending and banking institutions. Certified, Nat. Assoc. of Marine Surveyors, P.O. Box 283, Port Jefferson, New York 11777. Tel (516) 928-0711.

OMEGA MARINE ENGINEERING SYSTEMS, INC.

NAVAL ARCHITECTS, MARINE AND STRUCTURAL ENGINEERS

11757 KATY FWY.
HOUSTON, TEXAS 77079



TEL (713) 870-1111
TELEX 6868507



VIRGINIA BEACH
(804) 490-5000

MARINE ENGINEERS NAVAL ARCHITECTS
LOGISTICS ENGINEERS

ARLINGTON LAKEHURST
BREMERTON SAN DIEGO CHARLESTON
JACKSONVILLE PHILADELPHIA SAN FRANCISCO

M. ROSENBLATT & SON, INC.

NAVAL ARCHITECTS AND
MARINE ENGINEERS

New York City 350 Broadway
New York, NY 10013
(212) 431-6900

San Francisco 667 Mission Street
San Francisco, CA 94105
(415) 777-0500

Boston
Philadelphia
Washington, D.C.
Newport News
Charleston
Norfolk

Bremerton
San Diego
Honolulu
Oxnard

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS



Marine Engineering • Systems Analysis
Consulting/Design Engineering

7900 Westpark Drive
McLean, VA 22102

703/893-1339

Seaworthy
Systems, Inc.



Marine Engineers and Naval Architects

P.O. Box 338
Essex, CT 06426
P.O. Box 205
Solomons, MD 20688

17 Battery Pl.
N.Y., N.Y. 10004
2 Skyline Place/Suite 311
Falls Church, VA 22041

*Telex: 517931 Seaworthysys

SARGENT & HERKES, INC.

NAVAL ARCHITECTS • MARINE ENGINEERS

1005 INTERNATIONAL BLDG., 611 GRAVIER ST
NEW ORLEANS, LA. 70130

(504) 524-1612

DECK OFFICER COURSES



USCG approved - RADAR OBSERVER COURSE
USCG approved - FIREFIGHTING SCHOOL
Also USCG Exam Prep Courses for CAPTAIN, MASTER, AB, ENGINEER, OMEG
TOLL FREE 1-800-BEST-ONE NATION WIDE



SYSTEMS ANALYSIS

NAVAL ARCHITECTS - MARINE ENGINEERS

100 CHURCH STREET-NEW YORK, N.Y. 10007

(212) 732-2800

WASHINGTON, D.C. (703) 892-4000

VIRGINIA BEACH, VA. (804) 499-4125

PHILADELPHIA, PA. (609) 772-0888

TWX: 710-581-2758 CABLE: GEO SHARP NYK

T.W. SPAETGENS

TORSIONAL VIBRATION SPECIALISTS

OUR 40TH YEAR SERVING

INTERNATIONAL CLIENTS

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

(604) 879-2974
Telex 0455188

R.A. STEARN INC.

NAVAL ARCHITECTS and MARINE ENGINEERS

253 N. 1st Avenue

Sturgeon Bay, WI 54235

Phone (414) 743-8282 TLX 753166, ESL 62388810

STURGEON BAY MODEL SHOP

SHIP MODELS SINCE 1941



Wm. L. Herbst
187 N. Ninth Ave.
Sturgeon Bay, WI 54235

DISPLAY & DESIGN
MODELS

phone
414/894-2859
414/743-2921
414/744-3091

Quality Management, Training, Support,
ILS, and Marine Engineering Services



23 Locations Worldwide

SYSTEMS ENGINEERING ASSOCIATES CORPORATION

520 FELLOWSHIP ROAD, SUITE C-306
MT. LAUREL, NEW JERSEY 08054

(609) 866-2400

SEACOR is a Subsidiary of Day & Zimmermann, Inc.

Trans-International Marine Services Corp.



TIMSCO

MAINTENANCE MONITORING SYSTEMS
INVENTORY CONTROL SYSTEMS

P.O. Box 91360

Mobile, Alabama 36691 205/666-7121

Multi-Pak Division Of ICI Offers Free Literature On Trash-Handling Equipment

Multi-Pak Division of ICI (Intercontinental Chemicals, Inc.) is offering free literature on their Multi-Pak Trash Compactor, which the company describes as the latest state-of-the-art in trash-handling equipment.

The Multi-Pak trash compactor system provides a means to reduce man-hours of handling time, and improve the sanitary conditions at the generation point.

With emphasis on safety, speed, and a high ratio of compaction, trash is packaged as follows: (1) One key activates unit for service. (2) Trash is loaded through the chute. (3) Door is closed (machine will not operate until door is fully closed). (4) The START button is engaged. (5) The compaction cycle is completed in some 20 seconds and unit is ready for the next load. A STOP button serves as an emergency stop and the FULL indicator light with accompanying buzzer terminates all activity until bag or cardboard box is removed through the unloading door and key is again used to reactivate the unit. A Trashlift (optional) permits easy movement of the compacted trash to the storage area with little effort required from the personnel responsible for these duties.

For additional information and free literature on the Multi-Pak Trash Compactor from Multi-Pak Division of ICI,

Circle 53 on Reader Service Card

F.L. TORSTENSON MASTER MARINER NAUTICAL CONSULTANTS

All phases of Celestial & Chart Navigation, Piloting, Tides, Currents, Ship Stability, Applied Plane & Spherical Trigonometry TUTORED on a One-to-One basis by a Master Mariner, Issue (8-11) with 40 yrs Worldwide Experience. Two yrs at U.S.C.G. Institute revising the above subjects for the NEW MERCHANT MARINE exams. Call days & eve's—(912) 681-3697

Tracor Hydronautics

INTEGRATED ENGINEERING SERVICES
FOR THE MARINE INDUSTRY

RESEARCH • DEVELOPMENT
DESIGN • TESTING

HYDRONAUTICS SHIP MODEL BASIN

Tracor Hydronautics

7210 Pindell School Road

Laurel, Maryland 20707

Telephone: (301) 776-7454

Telex: 8-7585

VIBRANALYSIS ENGINEERING CORP

- PREDICTIVE MAINTENANCE PROGRAMS
- VIBRATION ANALYSIS
- FIELD & SHOP BALANCE
- ACOUSTICAL CONSULTANTS
- COMPUTERIZED DATA COLLECTION
- MARINE APPLICATIONS

VIBRANALYSIS ENGINEERING CORP

4380 S. Wayside, Suite 100
Houston, TX 77087

713-643-1051



WELDING CONSULTANTS USA

6517 RADBURN, GREENDALE, WI (414) 421-3252

ST. PETERSBURG, FL.

HOUSTON, TX.

PROVIDING WELDING ENGINEERING SERVICES TO SHIPS, MACHINERY, HULL, MARINE STRUCTURAL DESIGNS, ALTERATION, REPAIRS, CONVERSIONS AND UNDER-WATER STRUCTURES.

THOMAS B. WILSON ASSOCIATES

NAVAL ARCHITECTS & MARINE ENGINEERS

1258 N. AVALON BLVD. • WILMINGTON, CA. 90744

PHONE (213) 518-0940

CLASSIFIED AND EMPLOYMENT ADVERTISING

HOW TO PLACE CLASSIFIED ADVERTISING: Mail clearly written or typed copy to: MARITIME REPORTER, 118 East 25th Street, New York, NY 10010. Include any photos, drawings or logos if required. Specify size of ad and number of insertions . . . Classified Advertising — Per Issue Rate: Classified advertising is sold at a rate of \$70 per column inch . . . MARITIME REPORTER'S classified section carries more advertising and sells more products than any other publication in the marine industry. Closing date for classified advertising is 20 days prior to the date of the issue. For further details contact John C. O'Malley at (212) 477-6700. Send all advertising material to MARITIME REPORTER And Engineering News, 118 East 25th Street, New York, NY 10010.



Captains On Call, Inc.

THE MARITIME PERSONNEL AGENCY
Industrial, Corporate and Private Clientele
EMERGENCY, PERMANENT and DELIVERY Crews
NATIONWIDE DATA-BASE of PERSONNEL
24 Hrs.—(718)-720-5814
P.O. Box 141033 Staten Island, N.Y. 10314 U.S.A.

PORT ENGINEER—HULL

Crowley Towing and Transportation, a Crowley Maritime Corporation company, seeks candidates for Port Engineer-Hull vacancy in Jacksonville, Florida. Primary responsibility for M&R of vessels and equipment assigned to Atlantic Division.

Preferred candidates will have a minimum of two years supervisory experience in marine engineering operations with demonstrated mechanical aptitude and analytical skills. A marine engineering degree is highly desirable.

Crowley Maritime offers a competitive salary and benefit package in a rapidly expanding business environment. Interested parties may respond in confidence to:

CROWLEY MARITIME CORPORATION
P.O. Box 2110
Jacksonville, FL 32203
Attn: Kaye Byrnes

An Equal Opportunity/AA Employer

REPS WANTED

Independent reps wanted. Industrial pipe, valves and fittings, standard and non-standard in all alloys. Should have strong contacts in chemical, petrochemical, pulp & paper, marine and power plants (any or all). Many territories open. Send replies to:

BOX 502
MARITIME REPORTER & ENGINEERING NEWS
118 East 25th Street
New York, NY 10010

TRIP SURVEYOR & MARINE ENGINEER—Survey marine vessels and watercraft such as ships, boats and tankers to ascertain condition of hull, machinery and equipment and determine repairs required for vessel to meet insurance requirements. Includes examination of hulls while dry-docked, readings on tail shaft and tail shaft bearings, inspection of propellers, rudders and valves and operating machinery and testing of cargo gear. Prepare a report on surveys conducted and recommended actions and repairs.

Also design and oversee installation and repair of marine power plants, propelling systems, heating and ventilating systems and other mechanical and electrical equipment in ships and marine facilities. Prepare drawings and specifications, perform calculations to determine appropriate equipment and systems; oversee and evaluate operation of equipment during acceptance testing and shake-down cruises.

REQUIREMENTS: Bachelor's degree in Engineering with major field of study in Marine Engineering or equivalent training and experience. Six years experience in marine engineering/marine surveying.

Salary: \$48,000.00 per year Full time position

Direct resumes and references to: Job Order No. 2120388 Employment Division, 875 Union Street, N.E., Room 208, Salem, Oregon 97311

MARITIME POSITIONS

Large Midwest tug company, leader in its field, is expanding staff and seeks qualified applicants following positions:

DIRECTOR, FLEET OPERATIONS/ MARINE SUPERINTENDENT

Experienced USCG licensed tug captain to manage fleet and direct tug/barge operation on all U.S. Great Lakes. Strong administration and supervision skills essential.

SALES MANAGER

Energetic individual to service existing customer base and to develop new markets. Marine background preferred. Duties include phone contact, some travel Great Lakes area, rate quoting and correspondence.

PORT ENGINEER—MARINE MANAGER

Technically competent USCG licensed port engineer and port manager to supervise local tug operations/diesel engine repair and maintenance in major midwest city. Administrative and supervisory skills required.

Excellent opportunity to work with aggressive management team. Ideal for Maritime College/Academy graduates. Salary/Benefits package commensurate with experience. Immediate openings. Send resume/salary history in confidence to:

Box 501, Maritime Reporter, 118 E. 25th St., New York, NY 10010

NAVAL ARCHITECT/MARINE ENGINEER WANTED ON CONTRACT BASIS TO ASSIST A U.S. SHIP OWNING COMPANY IN THE PREPARATION OF BID SPECIFICATIONS FOR THE SHIPYARD CONVERSION OF ONE, POSSIBLY TWO GENERAL CARGO VESSELS. THE SUCCESSFUL CANDIDATE WILL BE REQUIRED TO PARTICIPATE IN THE DEVELOPMENT OF A SPECIFICATION FOR THE SHIPYARD WORK AND ASSIST IN THE SUPERVISION OF THE CONVERSION OF THE VESSEL(S) IN THE SHIPYARD.

PRELIMINARY TECHNICAL DATA PERTAINING TO THE VESSEL(S) AND THE CONVERSIONS IS NOW AVAILABLE. DATA REQUIRED TO COMPLETE THE PREPARATION OF THE BID SPECIFICATION BY JUNE 1988 WILL BE AVAILABLE. IT IS ANTICIPATED THAT THE CONVERSION WILL TAKE PLACE IMMEDIATELY THEREAFTER.

PLEASE RESPOND TO THE BOX BELOW STATING QUALIFICATIONS AND EXPERIENCE.

Box #503, Maritime Reporter
118 E. 25th Street
New York, NY 10010



Conrad Industries, Inc.

For new construction, pre-fabrication, repairs, and conversions

4 drydocks (2) 900 - ton; (2) 2,400 - ton capacity

P.O. Box 790 • Morgan City, LA 70381
504 384-3060 • FAX: 504 385-4090

MATRIX DESALINATION, INC.

REVERSE OSMOSIS WATERMAKERS

CUSTOM MANUFACTURED FOR ANY APPLICATION

COMPLETE WATER FILTRATION AND PURIFICATION SYSTEMS

3295 S.W. 11th AVENUE, FORT LAUDERDALE, FLORIDA 33315
TEL: (305) 524-5120



Serving the marine industry since 1973

CONTRACT, PROJECT, PERMANENT EMPLOYMENT
P.O. BOX 996 HUMBLE, TX 77347 (713) 526-3748

Senior Naval Architect Senior Marine Engineer

POSITIONS AVAILABLE

10+ years experience, with emphasis on design of small-to-medium size fishing and commercial vessels. We are looking for thoroughly-qualified engineers who have a flair for design, as well as the usual engineering fundamentals.

MARCO is a leading company in the design and construction of fishing and processing vessels for the Pacific Northwest fisheries, as well as international projects, particularly in South America. The company is highly engineering-motivated, with experienced naval architects and CAD/CAM design and lofting capabilities.

High-quality company — not too big. Great place to work and live.

MARCO SEATTLE

2300 West Commodore Way • Seattle, WA 98199 USA
Phone (206) 285-3200 • FAX (206) 283-4731
Telex 160587MARCO UT

FOR SALE

3,600 BHP 5,000 IHP OCEAN TUG
6,000 BHP ANCHORHANDLING/SUPPLY/TUG
6,120 BHP ANCHORHANDLING/SUPPLY/TUG

CONTACT: MS ADA CHAN 718-388-8883

REQUEST FOR PROPOSAL

The New York City Fire Department (NYCFD) is seeking proposals from qualified Consultants interested in assisting the New York City Fire Department with a study in order to purchase a Multi-Purpose Harbor Service Craft (MPHSC).

This project is a follow up to a MPHSC Requirement Study conducted by the City of Tacoma, Washington's Fire Department and the U.S. Maritime Administration (MARAD). The study documents the protection service needs of major U.S. harbors (including New York City Harbor). It recommends the general specifications for a MPHSC. Study elements will include: an assessment of New York City Marine firefighting apparatus needs, harbor conditions, piers, drydocking and repair facilities, examination of Tacoma's MPHSC preliminary specifications, review of the MARAD study, determination of MPHSC design in accordance with New York City Fire Department needs, development of specifications for a MPHSC and pier construction, and establishment of related contracts. The study is not to exceed one year.

For a copy of the RFP or for additional information contact: Ron Blendermann, Bureau of Fiscal Services, Room 625, New York City Fire Department, 250 Livingston Street, Brooklyn, New York 11201-5884, (718) 403-1695.

The non-refundable cost is Thirty-five dollars (\$35.00) per copy. Only cash or certified check payable to the New York City Fire Department will be acceptable.

Proposer's Conference will be held Wednesday, May 25, 1988 10 a.m.

BROOKLYN NAVY YARD HAS

The following waterfront premises are available for term lease.

PIERS:

<u>Pier</u>	<u>Berth</u>	<u>Linear Feet</u>	<u>Portal Cranes</u>
C	2	650	Yes
	3	720	Yes
D	4	550	Yes
	5	575	Yes
G	11	600	No
	12	250	No
	13	650	No
	14	600	No
J	15	800	Yes
	16	600	Yes
	17	600	Yes

DRYDOCKS

Graving Dock No. 2—465' L x 72' W x 29' D
Graving Dock No. 3—765' L x 114' W x 42' D

BUILDINGS

Building No. 292—(231,000 sq. ft., Four story, between Piers G & J)
Ground Floor—shops—57,750 sq. ft.
Second Floor—offices/shops—57,750 sq. ft.
Third Floor—offices/shops—57,750 sq. ft.
Fourth Floor—offices/shops—57,750 sq. ft.

Building No. 293—(104,000 sq. ft.)
702' long x 148' wide x 60' high
w/ 6000 sq. ft. adjoining offices

Building No. 294
Ground Floor Section A—802' L x 93' W x 80' H (75,000 0)
with 10,000 sq. ft. adjoining offices (10,000 0)
Ground Floor Section B—766' L x 75' W x 60' H (66,000 0)
Lofts—(served by 4 ton freight elevators)
Lower loft—274' L x 93' W x 14' H (25,500 sq. ft.)
Upper loft—802' L x 93' W x 16' H (75,000 sq. ft.)

And miscellaneous other small buildings and berthing areas.

CONTACT:

Richard J. Aneiro, President & CEO

Brooklyn Navy Yard Brooklyn, NY 11205

Shipyard For Sale

Southern Indiana, Ohio River Mile 726

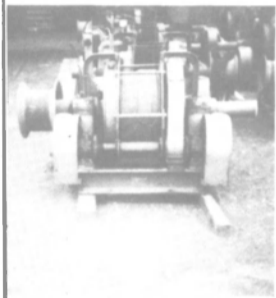
30 + Acres
 Launching and Repair Cradles
 Fab Shop—44,520 sq. ft.
 Machine Shop—23,700 sq. ft.
 Warehouse—4,800 sq. ft.
 Office—8,560 sq. ft.
 Rail Siding, Truck and Water Access

MAXION

MARINE INDUSTRIES, INC.
 P.O. Box 69, Tell City, Indiana 47586

Telephone (812) 547-2341

HARD TO FIND - STEAM WINCHES EXCELLENT CONDITION



SINGLE DRUM - SINGLE GYPSY

Built By
 CLYDE IRON WORKS
 7 1/2 x 10" Steam Engine - 6,000 Lbs
 Line Pull

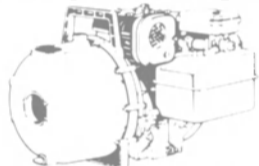
@ 230 FPM - Bronze Bushings
 Drum Capacity
 800' of 3/4" Wire 450' 1" Wire
 Overall Dimensions: 7' Wide x 5' Deep
 15" Gypsies - 13 ea. Available



CONTACT
 William Drury Company
 2220 East 11th St
 Tacoma, Wash. 98421
 (206) 272-4109
 FAX (206) 572-4375

PACER PUMPS

Model P-52



5 H.P. Briggs Engine
 2" Inlet and Outlet
 160 Gallon Per Minute
 New 1988 Models
 One Year Warranty
 WAS \$389.00

YOUR TOTAL COST \$218.00

IDEAL FOR PUMPING WATER OR SALT WATER
 FREE SHIPPING IN U.S.A.

3" PUMP SALE

Model P-53
 Pacer Plastic Pump
 3" Inlet & Outlet
 260 GPM
 Briggs 5 h.p. Engine
 New 1988 Models
 One Year Warranty



MFG. LIST \$430.00

YOUR COST \$299.00

FREE SHIPPING IN U.S.A.

FREE \$29.00 STRAINER
 KIT INCLUDED

Send Check, Money Order or Phone VISA or MASTERCARD

JERRY B. LEACH CO.

P.O. BOX 71 • 802 MARKET ST.
 CHERAW, S.C. 29520

IN S.C. (803) 537-2141

TOLL FREE 800-845-9005

BANKRUPTCY AUCTION

HOFFERT - MARINE

CASE 110, 56-756
 1700 EAST CHURCH ST. JACKSONVILLE, FLA.

LARGE 2 DAY SALE
 10 A.M. WED. MAY 18, 1988
 10 A.M. THURS. MAY 19, 1988

ALL EQUIPMENT FROM NORFOLK, VA.
 REMOVED TO JACKSONVILLE, FLA.

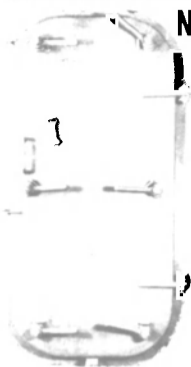
COMPLETE MARINE REPAIR FACILITIES
 LAHTES-WELDERS-COMPRESSORS-TEST EQUIP.
 SHOP EQUIPMENT & SUPPLIES

MCDUGALL'S AUCTION CO. 6631 SAN JUAN AVE.
 JACKSONVILLE, FLA. 32210

1-904-786-8989

FOR SALE

NEW WATERTIGHT DOORS



6 Dog

6-Dog right and left hand
 hinged doors with frames.
 1/4" panel and 5/16" frame
 meet ABS Specs.

SIZES

26"x48" 26"x66"
 26"x60" 30"x60"

EACH DOOR
IMMEDIATE DELIVERY

ALSO QUICK ACTING

6-Dog wheel operated doors
 5/16" frame-1/4" door panel.
 26x60 R.H. & L.H. 26x48 R.H.
 30x60 R.H. 30x54 L.H.



NEW 7" RADIUS
 PANAMA CHOCKS
 (MEET PANAMA REGULATIONS)

14" x 10" CLEAR OPENING

With extended legs for welding to
 deck. 14" Wide on base—length
 28"—height 27 1/4". IMMEDIATE
 DELIVERY FROM STOCK.

CAPSTANS

With Explosion-Proof
 motors & controls

Suitable for oil barge, shipboard,
 terminal, etc use. Four available:
 (2) 7 1/2 HP 220/440/3/60—
 7500 lbs @ 45 FPM—(2) 5 HP
 220/440/3/60—6000 lbs @ 45
 FPM. All units totally enclosed,
 explosion-proof. Barrel of capstan 8" diameter—15" high.



MEGATOR PUMPS

Belt driven. With screwed fittings. For
 potable water service
 L: 150—5HP—440/3/60—27 GPM
 —45 lbs. 2" x 2".
 H: 125—2HP—440/3/60—13 GPM
 —75 lbs—1 1/2" x 1 1/2"



MARITIME POWER CORPORATION
 200 HENDERSON ST—JERSEY CITY, NJ 07302
 PHONE: (201) 433-0870

For Barge Rentals or a
 Complete Marine Package

Call the Barge People.

Our experience and knowledge in
 serving a wide variety of industries
 enables us to provide the right size and
 type of barge and tow to make your
 marine operations profitable.

- Large, diversified fleet for inland,
 oceans and speciality service.
- Experience in arranging and
 managing marine packages
- 20 convenient fleet locations along
 Gulf Coast and upper river

Rentals - Sales - Service



New Orleans
 (504) 949-7586
 Telex 58-4393
 Fax (504) 945-5513
 2300 Surekote Rd
 N.O. LA 70117

Houston
 (713) 452-5887

Parkersburg
 (304) 485-4494

St. Louis
 (314) 469-0510

SERVICE • REPAIR • PARTS CONSULTING • DESIGN

**CUNNINGHAM MARINE
 HYDRAULICS CO., INC.**

201 Harrison St. • Hoboken, N.J. 07030
 (201) 792-0500 (212) 267-0328

2030 E. Adams St. • Jacksonville, FL 32202
 (904) 354-0840

FAX 201-792-7716

TWX 710-730-5224 CMH Hoboken, NJ



Get What You Need From The Name You Know!



WATERTIGHT
 DOORS

All sizes—made to
 order—steel or alu-
 minum. Send us
 your specs for
 prices and delivery.

- WATERTIGHT DOORS
- CLEATS ● BOLLARDS
- FAIRLEADS ● HATCHES



PANAMA CHOCKS

10" x 14"
 Meet Panama regula-
 tions. For large ocean-go-
 ing vessels. 7" Radius.
 ALSO 6 1/4" x 12"
 CHOCKS

Serving The Marine Industry Since 1904
 ... Over 83 Years

**The
 BOSTON METALS CO.**

ESTABLISHED 1904

WAREHOUSE: Scott & McHenry Sts - Baltimore, MD 21230 • MAIN OFFICE: (301) 539-1900 • TELEX: 197594 ANSWERBACK BOSIRON BAL
 FAX: (301) 727-5250 • WAREHOUSE: (301) 752-1077 - Al Berman (Warehouse Mgr)

Bird-Johnson Named Exclusive U.S. Service Representative For Blohm + Voss Simplex Line

Bird-Johnson Company of Walpole, Mass., has been appointed the exclusive, authorized U.S. service representative for the complete line of marine mechanical engineering products manufactured by Blohm + Voss AG of Hamburg, Federal Republic of Germany. Under the new agreement, Bird-Johnson's service representatives will install, survey and repair Simplex-Complex® seals, fin stabilizers and VSM steering gear; Simplex® rudderstock seals; mechanical seals; sterntube bushings; and Turbulooily water separator systems, as well as numerous other ship's hull components.

Bird-Johnson service representatives are located in major ports throughout the USA, including Boston, Mass., Norfolk, Va., Jacksonville, Fla., New Orleans, La., Houston, Texas, San Diego, Calif., Los Angeles, Calif., Seattle, Wash., Sturgeon Bay, Wis., and Detroit, Mich. Bird-Johnson representatives are being qualified in the installation and servicing of B + V products at the Hamburg manufacturing facility.

The Mechanical Engineering Division of Blohm + Voss AG is an internationally recognized leader in the manufacture of marine mechanical engineering components. Bird-Johnson Company is one of the leading manufacturers of controllable pitch and fixed pitch propellers for commercial and naval applications, with facilities in Walpole, Mass., Pascagoula, Miss., and Seattle, Wash.

For more information and free literature,

Circle 59 on Reader Service Card

Brake, Clutch and Coupling Manufacturer's Representative Wanted

To sell line of shaft brakes, clutches and couplings to marine users. Representative must have compatible line of products presently being sold to the marine market. Two areas now open are Maryland/Virginia and Louisiana/Mississippi. Single person organizations are acceptable. Since application engineering is involved, technical competence is required. Send letter describing sales organization, product line and sales area covered to:

Box 504
Maritime Reporter/Engineering News
118 East 25th Street
New York, NY 10010

FOR SALE

MONROE MINI—RANGER III
AUTOMATED POSITIONING SYSTEM
LIKE NEW—FRACTION OF ORIGINAL COST

Larry Danner
(412) 963-8200

Brass & Bronze
Brass & Bronze
Brass & Bronze
Brass & Bronze
Brass & Bronze
Brass & Bronze
Brass & Bronze

We Buy
Brass & Bronze Scrap,
Worldwide,
from the Marine Industry

Call Us!

The River Smelting & Refining Co.
4195 Bradley Road
Cleveland, Ohio 44109
(216) 459-2100
Fax (216) 749-8107
TLX 283217 River

May, 1988

Alan Bernstein Elected President Of NAPVO At Annual Convention



Alan Bernstein (left), newly elected president of the National Association of Passenger Vessel Owners (NAPVO), is seen here with Jim Cross (center), outgoing NAPVO president, and Rear Adm. Clyde T. Lusk Jr., U.S. Coast Guard Chief of Staff. Admiral Lusk provided the keynote address at NAPVO's winter convention.

Alan Bernstein, general manager of BB Riverboats, operating in greater Cincinnati, has been elected president of the National Association of Passenger Vessel Owners. Mr. Bernstein succeeded James L. Cross, owner and operator of Island Queen Excursions, Inc., Riviera Beach, Fla., at NAPVO's national convention in Washington, D.C.

Other newly elected officers include F. Coe Sherrard, vice president/harbor operations for Cruise International, Norfolk, Va., as NAPVO's vice president; Dana E. Walker, president of Port of Cascade Locks, as secretary-treasurer; and Beverly Barry Meyer, executive vice president for Circle Line in New York City, was elected to the group's board of directors.

NAPVO is an independent trade association for the owner/operators of dinner cruises, sight-seeing/excursion boats, car ferries, paddle wheelers and windjammers across the country.

SSPA Maritime Consulting Offers Brochure On Roll Reduction By Rudder Control

SSPA Maritime Consulting AB of Goteborg, Sweden, has published a four-page color brochure on Roll-Nix, a microcomputer-based system for roll reduction by rudder control. The complete system is controlled by a computer unit with a built-in solid-state rate sensor for independent measurement of the roll motion.

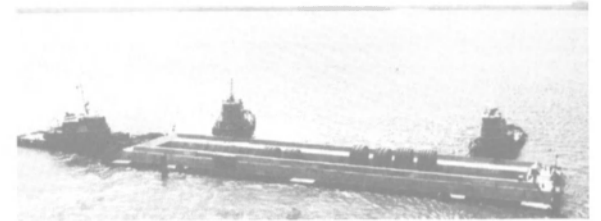
The publication points up the Roll-Nix features: low price; compact; easy to maintain; simplicity; and proven (roll motions reduced by at least 50 percent on existing installations without influencing the coursekeeping behavior and speed).

Included are comparative measurements of vessels with Roll-Nix and without, showing that it is possible to damp the roll motion by at least 50 percent; and a schematic diagram of the Roll-Nix system.

SSPA is an international high-technology maritime company engaged mainly in theoretical work, scale-model testing, interactive computer simulation and development and manufacture of user-friendly analysis and control systems in the following business fields: naval, naval systems, shipping, offshore, engineering and fluid mechanics.

For more information and a free copy of the brochure titled "Roll-Nix—The Easy Way to Reduce Roll,"

Circle 54 on Reader Service Card



FIRST OF 15 FROM BETHLEHEM STEEL—Tugboats tow the first of 15 steel sections from Bethlehem Steel Corporation's Baltimore Marine Division headquartered in Sparrows Point, Md., to the Interstate 664 tunnel crossing at the Hampton Roads area of Virginia. Each of the 15 sections is 300 feet long, 90 feet wide and 42 feet deep. While en route to the construction site, the steel sections will draw 34 feet of water. Constructed at the yard, the tunnel sections utilized steel plate from the adjacent Sparrows Point plant of Bethlehem. The mile-long Hampton Roads tunnel will link the Newport News and Hampton areas with Norfolk. The mile-long submerged section of the 4.3-mile crossing will allow unobstructed passage of ships between the Chesapeake Bay and the Hampton Roads/James River areas. Completion of the crossing is scheduled for 1990. The remaining 14 tunnel sections will be transported to the construction site over a 12-month period.

For free literature giving full details on the facilities and capabilities of Bethlehem Steel Corporation,

Circle 68 on Reader Service Card

BPR 21 Dome Loaded Back Pressure Regulator Introduced By Circle Seal Controls

Circle Seal Controls recently announced the introduction of their BPR 21 Series Dome Loaded Back Pressure Regulator. This new addition is designed for precision high flow of corrosive and noncorrosive fluids with a pressure range of 25 to 6,000 psig.

The regulator limits system pressure by venting the surplus flow, maintaining back pressure processes, and functioning as an extremely accurate safety and bypass valve for equipment protection. A minimum number of moving parts increases reliability, and all BPR 21 units are 100 percent functionally tested for performance and leakage prior to shipment.

For more information and free literature on the BPR 21 Series Dome Loaded Back Pressure Regulator from Circle Seal Controls,

Circle 48 on Reader Service Card

Deutsch Now Offers New Line Of Environmentally Sealed Miniature In-Line Connectors

Deutsch, Industrial Products Division, now offers a new line of environmentally sealed miniature in-line connectors. Designated the DT Series, these connectors are ideally suited to industrial and commercial applications where positive mating and environmental protection are of primary importance.

Typical applications include marine, automotive, trucking, public transportation, recreational vehicles, construction equipment, robotics, control systems, machinery, commercial aviation, broadcast video and telecommunications equipment, medical, scientific and process instrumentation, office and business equipment, plus numerous other electrical and electronic applications.

The DT Series features a lightweight, high-impact thermoplastic shell design that provides an environmental barrier to grease, dirt, dust, moisture, and corrosion. The connector can operate with either AC or DC and maintains a current rating capacity of 15 amps maximum.

For additional information and free literature on the new line of environmentally sealed miniature in-line connectors from Deutsch,

Circle 49 on Reader Service Card

Waugh Wins Contract To Supply Complete Joiner System For Cruise Ship

The Waugh Co. of Jacksonville, Fla., has earned the contract to design and supply the complete joiner system, consisting of the Rockwool TNF System and the Waugh Acra-Mold one-piece acrylic bathroom module, to the M/S Aquanaut Holiday for Dive and Sail Holidays/Aquanaut Watersports, Inc.

The M/V Aquanaut Holiday, which is approximately 200 feet long, constitutes one of the larger luxury diving cruise ships in the Western Hemisphere. The vessel's luxury accommodations, including a restaurant, casino and discotheque, provide guests with comfort and service after a full day of underwater

exploration, swimming, windsurfing and island safaris throughout the British Virgin Islands and vicinity.

For more information and free literature,

Circle 80 on Reader Service Card

Alfa-Laval Offers New 8-Page Brochure On Full Customer Services

Alfa-Laval, Inc., of Fort Lee, N.J., a world supplier of centrifuges, plate heat exchangers, and watermakers to the chemical, food, mining, marine, power, biotech and numerous other industries, now has available a new eight-page full-color brochure.

Titled "Alfa-Laval Service," the publication outlines the network of resources available to customers after purchasing Alfa-Laval equipment. Spare parts, field service and

repairs are discussed.

The brochure points out that 92 percent of Alfa-Laval replacement parts can be supplied off-the-shelf and shipped within 24 hours; most certified Alfa-Laval service engineers have engineering degrees and years of on-the-job experience, plus they go through six months of rigorous in-house and field training before they go to work for any customer; and when on-site repairs just aren't feasible, the customer's Alfa-Laval equipment can be shipped to one of the company's repair centers where factory-trained repair specialists, using the most advanced tools, repair and rebuild it to original standards.

A listing of Alfa-Laval regional service centers follow.

For further information and a free copy of "Alfa-Laval Service,"

Circle 65 on Reader Service Card

Merger Creates Sonsub —New Houston-Based Offshore Service Company

The creation of Sonsub, Inc., was recently announced as a result of the merger of subsea contractor Sonsub Services, Inc., and engineering company Diverless Systems, Inc.

The new Houston-based offshore service firm will provide advanced remotely operated work systems (AROWS), remotely operated vehicle systems (ROVS) and specialized engineering services to the offshore oil and gas industry.

For more information and free literature,

Circle 40 on Reader Service Card



111 FT. x 24 x 9

Built 1959 by Billingham Shipyard, Washington for U.S. Navy as mine sweeper (MSI1 Cove Class). 3 Inch double plank Douglas fir on oak 4 1/2 x 5 frames on 12" centers. Two 47175KVA gen. sets. Four 6-71 GMN on one 5-1 quad gear. Double drum winch. Fresh water maker. Radar, Gyro, Loran, VHF, hailer, CO2 fire sys. 3 Freezers. Sleeps 22. 6,000 Gal. fuel, 2,300 water, 75 lube. Some spares. Fully air conditioned & heated. In excellent condition. Can be used for mine sweeping, research, light towing, dive boat, head boat, yacht charter or longline, etc., etc. For sale or hire. Survey and photo available. Must be seen to appreciate.

\$250,000.00

EFFORT MARINE SERVICE

8020 Fort Smallwood Rd. - Baltimore, MD 21226

CALL MIKE 301-255-9673
OR DICK DAVIS 301-437-6328



PHONE (407) 631-6659 FAX: (407) 631-6673
P.O. Box 1257 PORT CANAVERAL, FL 32920
TELEX: 9102409743 OCEAN MARINE BR UQ
Specializing in commercial vessels



TUG, MODEL BOW, STEEL HULL, CATERPILLAR MODEL 375, 3 to 1 REDUCTION, HYDRAULIC STEERING, FUEL 2500 GALLONS, PADARAND VHF. LENGTH 48 FT. BEAM 16 FT. \$65,000.00. WILL DELIVER ANY U.S. PORT. LOCATED AT MIAMI, FL. PH. 305-233-7063 McCrory.



FLEXIBLE STAINLESS STEEL EXHAUST VIBRATION ELIMINATORS

- The answer to your exhaust problems
- Proven reliable in all marine applications
- Constructed using high quality stainless steel for maximum durability
- Sizes 1/4" to 36" I.D., lengths and fittings to your specifications
- Custom made and shipped within 24 hours.
- MADE IN U.S.A.

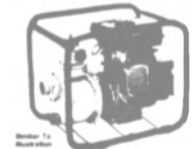
INLAND METAL HOSE & WELDING CO.
Rd 5 Box 539 - Boyertown, PA 19512
(215) 367-8810

CALIFORNIA LOBSTER, ABS, URCHINS, available with this 24 ft. Radan, 327, Chevy #3 Mercruiser. Radar, radio. Ready for diving or any use you see fit. F/W cooled. Just hauled. \$26,000. 213-426-1004.

PEREGOY SALVAGE & TOWING—Salvage surveys, planning & consulting hr, day, week. 301-269-6767. 129 Chesapeake Ave., Annapolis, Maryland 21403.

Propellers, Sanitation Systems & Winches—New and used propellers up to 120" in diameter—nozzles to fit same and larger—USCG approved type II MSD (marine sanitation devices) in stock ready for shipment—very economical—new and used barge connector and towing winches 504-525-7137.

HONDA POWERED PUMP



3 1/2 H.P. O.H.V. Honda Engine • 2" Inlet and Outlet • Roll Cage • Aluminum Pump with Cast Iron Impeller & Volute • Brand New • 158 G.P.M. • Free Shipping In U.S.A.

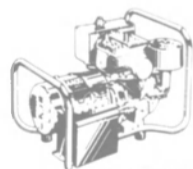
YOUR TOTAL COST **\$399⁰⁰**

Send Check, Money Order or Phone VISA or Mastercard

JERRY B. LEACH CO.

P.O. BOX 71 • 802 MARKET ST.
CHERAW, S.C. 29520
IN S.C. (803) 537-2141
TOLL FREE 800-845-9005

HOMELITE GENERATOR



- 4400 Watt
- 4000 Watt
- Continuous
- 8 HP Briggs Eng.
- 120 & 240 Volt
- 1 Year Warranty

Model EHE4400

Model EH 4400 Your Total Cost **\$559**

Model EHE 4400 Your Total Cost **\$669**
with Electric Start

FREE SHIPPING IN CONTINENTAL U.S.A.

Send Check, Money Order or Phone VISA or MASTERCARD

JERRY B. LEACH CO.

P.O. BOX 71 • 802 MARKET ST.
CHERAW, S.C. 29520
IN S.C. (803) 537-2141
TOLL FREE 800-845-9005



65' PARTY BOAT

2 300 HP G.M.C. 2 10KW generators. Nightlights, 2 VHF, 2 fishfinders, C Loran, C.B., P.A., radar, full galley. 90+ 3 Passengers A1 shape. All new C.G. inspections.

\$90,000.00 718-743-6170

Complete radio room from the S.S. United States. As new condition HF, MF, low freq., telegraph, radio telephone transmitter and operating console. FCC approved. Call P.J. Plishner Marine 203-755-6478

HYDRAULIC CRANES



Wanted - listed used equipt.

OPDYKE'S Trucks & Equipment
(PHILA. AREA) Hatfield, PA 19440
(215) 721-4444

POLYESTER BOAT SLINGS

- One piece construction - One ply - Two ply
- 2" Wide to 16" Wide
- Fabric choice available, Polyester (3% stretch factor) or Nylon (6% stretch factor)
- Wide choice of accessories available: Loose pin hardware, disconnect, keel pad, lead weights, chine pad, edge guards (wear strips) extra eyes, custom slings. Rated 5 to 1
- Reasonable Prices - Ask for FREE CATALOG

METRO WIRE ROPE CORP.

553 Lehigh Avenue - Union, N.J. 07083
Phone: 201-964-3690 Bob Lasher

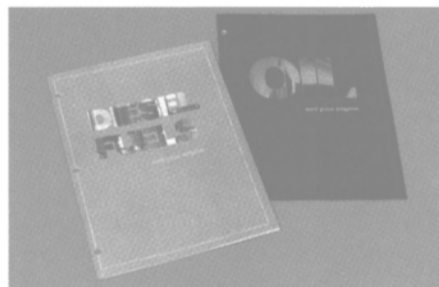
FOR MORE INFORMATION ON EQUIPMENT AND SERVICES ADVERTISED IN THIS ISSUE

CIRCLE THE APPROPRIATE NUMBER ON READER SERVICE CARD OPPOSITE PAGE 58

ADVERTISER	EQUIPMENT CIRCLE /SERVICE	NO.
ACUREX CORPORATION	POWERMETERS	142
AEROQUIP	MARINE HOSE/FITTINGS	111
	T-J CYLINDERS	112
	CONVOLUTED TEFLON HOSE	113
	QUICK DISCONNECT COUPLINGS	114
AMERICAN MASON SAFETY TREAD	TREADS/GANGWAYS/LADDERS	133
ANCHOR POWER HOUSE	MARINE PROPULSION SYSTEM	164
ASTILLEROS ESPANOLAS	SHIPBUILDING	131
BALDT	ANCHOR/CHAIN	166
BETHLEHEM STEEL	SHIPYARDS FOR SALE	316
C-TECH	OMNI SONAR	175
CRANDALL DRYDOCK	DRYDOCK CONSULTING/DESIGN	142
CUMMINS ENGINE	GENSETS	237
CURACAO DRYDOCK	VESSEL REPAIR	229
DEL GAVIO	HYDRAULICS	155
DIESEL AMERICA	DIESEL PUMPS	186
DESANNO FOUNDRY	VALVES/SCUPPERS/STRAINERS/DRAINS	197
DOLSEY LTD	DRAINS/VALVES/FITTINGS	281
EAGLE PITCHER BEARINGS	BRONZE BAR/TUBING	208
ENVIROVAC	ORCA SEWAGE SYSTEM	327
FERNSTRUM	GRIDCOOLERS	165
FINCANTIERI	SHIPBUILDING/REPAIR /CONVERSION/DIESEL ENGINES	239
FIREMATIC CO	DIESEL ENGINE	219
FURUNO	COMMUNICATIONS EQUIPMENT	325
GE NAVAL & DRIVE TURBINE SYSTEMS	PROPULSION SYSTEMS	175
HBC BARGE	BARGE BUILDING	218
HAMWORTHY	CENTRIFUGAL PUMPS	248
T.F. HUDGINS/SPINNER II	LUBE OIL CENTRIFUGES	319
IMO DELAVAL/GEMS SENSORS	LEVEL SWITCHES	275
INDIKON	PORTABLE DATA COLLECTOR	302
IN-PLACE MACHINING	ON SITE REPAIRS	293
INTERNATIONAL MARITIME ASSOC	MARKETING	311
	INFORMATION SERVICES	
INTERTRADE INDUSTRIES	FENDERS	348

ADVERTISER	EQUIPMENT CIRCLE /SERVICE	NO.
INVENTORY LOCATOR SYSTEM	CROSS REFERENCE/PARTS DATA BASE	284
JIM'S PUMP	PUMP REPAIR	332
KAHLENBERG	ELECTRIC HORN/NAVIGATION SAFETY EQUIPMENT	234
KIENE DIESEL	DIESEL ACCESSORIES	312
LEISTRITZ PUMP	MARINE PUMPS	323
McCAUSEY	MARINE LUMBER	115
McELROY	DECK MACHINERY	138
MAN B&W HOLEBY	GENSETS	161
MARCO	OIL/DEBRIS SKIMMER	350
T. MARIOTTI	SHIP REPAIR	303
MARKISCHE WERKE	DIESEL ACCESSORIES	172
MEGATOR	WATER PUMPS	345
L. Q. MOFFITT	ROMOR STAVES	315
NEI SYNCROLIFT	SHIP LIFTS	190
NKF ENGINEERING	ENGINEERING SERVICES	183
OKABE CO	FASTENERS	343
PHOENIX PRODUCTS	LIGHTING SYSTEMS	264
PORTABLE GUN DRILLING SYSTEM	SHIPBUILDING EQUIPMENT	194
RAMPMASTER	BOARDING EQUIPMENT	243
RAYTHEON SERVICE	MARINE ELECTRONICS-SALES/SERVICE	205
RESEARCH TOOL & DIE	EMI BOND STRAPS	216
ROBERTSON-SHIPMATE	NAVIGATION EQUIPMENT	257
SMITH BERGER	MOORING SYSTEMS	227
SULZER BROS	DIESEL ENGINES	238
3 MAJ	SHIPBUILDING	334
TELTRON	RADAR CRT DISPLAYS	249
TEXACO	MARINE LUBE OILS	260
TRINITY MARINE GROUP/EQUITABLE SHIPYARD	BARGE BUILDING	269
TRINITY MARINE GROUP	SHIPBUILDING/REPAIR	278
VSE	MARINE DESIGN SERVICES	287
VIKING LIFE-SAVING EQUIPMENT	LIFE-SAVING EQUIPMENT	296
VITA MOTIVATOR	DUCTORS	184
WAUKESHA BEARINGS	STERNGUARD NET/LINE CUTTER	305
WRIGHT AUSTIN	GAS LIQUID SEPARATORS	314
ZIDELL	BARGES	178

Caterpillar Publishes 40-Page Color Booklet On Diesel Fuels/Engines



"Diesel Fuels And Your Engine" and "Oil And Your Engine," both booklets to help achieve optimum engine service life and performance, are available from Caterpillar dealers at a nominal charge.

Today, diesel fuel is the largest single operating expense over the life of the engine—amounting to as much as 70 percent or more.

To get the most out of your investment, it is important to understand the properties of fuel and their impact on your diesel engine.

Caterpillar Inc. recently published a 40-page, color booklet, "Diesel Fuels And Your Engine," which describes the harmful effects various fuels can have on an engine and how to deal with them.

Diesel engines can run on a wide range of fuels—crude oil, blended, or residual distillate for example.

But they run best on distillate fuels, cause less downtime, last longer, and are often more cost effective. But when fuel costs rise, the tendency is to turn to lower quality fuel. Usually at the expense of the engine.

The 40-page, four-color booklet provides facts on fuel selection and treatment. It offers basic, easy-to-understand explanations of the properties of fuel, how they can affect an engine, and what steps can be taken to eliminate or minimize the problem.

The booklet discusses fuel corrosives, such as hydrogen sulphide, which is present in some crude and residual fuels. When water vapor from internal combustion mixes with the hydrogen sulphide, it forms highly corrosive sulfuric acid which can destroy valve guides, piston rings, and cylinder liners. The booklet tells what steps to take to help prevent corrosive damage.

Covered too, are such topics as fuel stability, starting characteristics, combustion chamber deposits, and various methods of fuel storage and treatment. It also lists fuel test kits, suppliers of fuel treatment plants, and various fuel-related publications.

"Diesel Fuels And Your Engine" is the second in the series of booklets to help customers achieve optimum engine service life and performance. Its co-publication, "Oil

And Your Engine" (Form No. SEBD0640), deals with the functions and properties of lubricating oils. More than 150,000 copies have been sold.

Copies of both booklets are available from your Caterpillar dealer at a nominal charge. Ask for service publication Form No. SEBD0717 for the fuel book or Form No. SEBD0640 for the oil book. Contact either the Service Training Department or the Dealer Promotion Department at your local Caterpillar dealer.

International requests should be directed to **W. J. Gardner**, Caterpillar Engine Division, P.O. Box 610, Mossville, Ill. 61552-0610.

Ulstein Offers Free Color Brochure On High Lift Rudder

Ulstein Trading Ltd. A/S of Norway is offering a free color brochure on its high lift rudder, a result of intensive research and several years' experience in ship construction and manufacture of ships' equipment, which provides improved maneuverability and fuel economy.

According to the brochure, the Ulstein High Lift Rudder, with a bulbous leading edge, active flap and vane elements, offers superior steering ability in both towing and trawling conditions and excellent

performance at high-speed ship operation.

The publication details the results of tests performed at the Norwegian Marine Research Institute which support Ulstein's claim that the company's high lift rudder's shape has less resistance as compared with other high lift rudders. Graphs showing test results are provided.

The brochure provides details on the principal specifications, technical aspects and construction of the high lift rudder. For your free copy of the Ulstein brochure,

Circle 29 on Reader Service Card

Schiess-Defries Supplies LIFT-DOCK For Australia

A consortium of the Australian companies of ASI and Eglo have sent an order to Schiess-Defries GmbH, an affiliated company of the Lentjes-Group, FRG/Dusseldorf, for the supply of a ship lift of the LIFT-DOCK™ design with a total lifting capacity of 9,500 metric tons.

The facility is to serve for the docking of commercial and naval vessels at Perth, Western Australia.

For free literature giving full details on Schiess-Defries,

Circle 33 on Reader Service Card

Kobelt's 2-Station Control System Is Simple In Design, Durable In Construction

Kobelt, manufacturer of high quality marine controls for 25 years, has recently introduced an innovative new two-station, single engine control system for clutch and engine

throttle functions. Known as the 2090 Series, it was designed to provide the ultimate in simplicity, durability and performance, particularly in saltwater environments.

With the 2090 Series, the control handles at both stations move together. As a result of this configuration, operation of the boat is greatly simplified. Clutch position and speed are indicated on both control

heads. At the second station the clutch is then reengaged and the engine accelerated. As a result, forward speed is not maintained and undue stress is placed on the control system. Kobelt's system provides smooth, continuous operation.

Kobelt's single-engine system consists of only two control heads and four cables. Installation is simple and maintenance is uncompl-

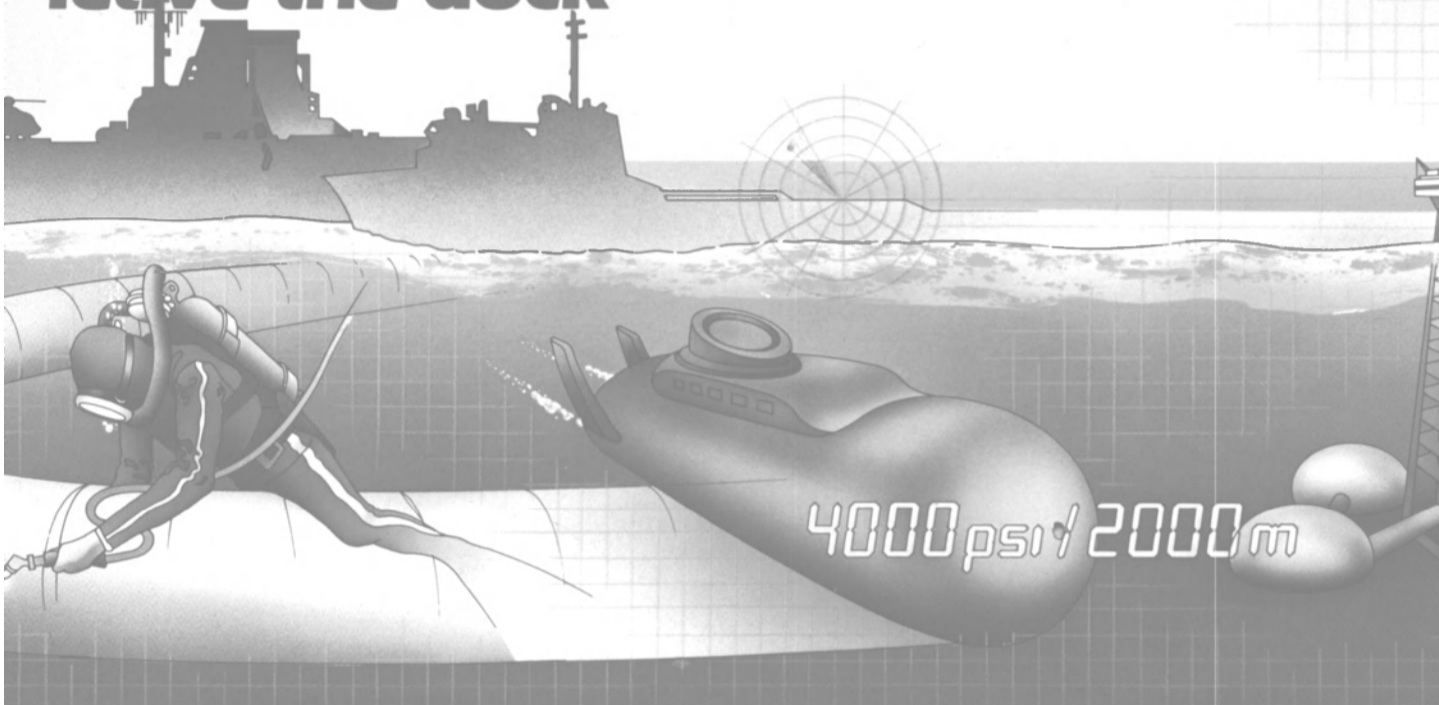
cated. Other systems are built with seven cables and five components. Often they are constructed using corrosive materials.

All Kobelt components are made from die-cast bronze with stainless steel hardware. Bearings and pins are oversized for longer life. Kobelt products feature a five-year warranty and are supported by sales and service organizations around the world.

For more information and free literature on Kobelt's new single-engine control system,

Circle 48 on Reader Service Card

Security at sea is using Aeroquip products before you leave the dock



RISIC Couplings



Aeroquip RISIC 3 Rubber Insert Sound Isolation Couplings provide superior sound and vibration dampening. **RISIC 3 is approved on U.S. Navy surface and subsurface vessels.**

Consult Aeroquip for your application.

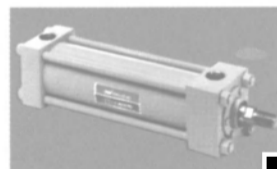
Marine Hose and Fittings

Aeroquip's FC300 AQP hose now has **NAVSEA** approval. FC300 hose has been engineered for demanding high-temperature shipboard applications and is available with a complete selection of fittings. FC300 exceeds SAE 100R5 specifications.

Request Catalog 306

T-J™ Cylinders

Series TG hydraulic cylinders are fully approved by the American Bureau of Shipping (ABS). They handle pressures up to 3500 psi (5000 non-shock). And are available in 15 standard mounting styles.



Request Bulletin 4120

Convuluted Teflon* Hose

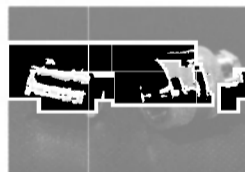
Aeroquip Teflon hose designs are **USCG approved**, and are unsurpassed for lightweight, fluid compatibility, and flexibility. Operating range from -65°F to +400°F. *Teflon is a DuPont trademark.



Request Catalog 306

Quick-Disconnect Couplings

Aeroquip offers hundreds of styles of quick-disconnect couplings, including our new Deluge Coupling for fire quenching applications in rocket launching chambers. Couplings are available in steel, stainless, and brass in diameters up to 1½" and with pressure ratings to 10,000psi.



Request Bulletin 258B

Aeroquip products meet strict MIL, NAVSEA, and USCG specifications, and are available through a worldwide network of distributors.

Our Marine/Military Customer Service Group is a team of experienced professionals who speak your language. For assistance, call them at 419-238-1190.

Aeroquip Corporation, 300 South East Avenue, Jackson, MI 49203-1972.

For literature call 800-982-0030.

MarAd Awards \$417,528 Contract To Amertech

The Maritime Administration (MarAd) has awarded a \$417,528 contract to Amertech Industries, Inc., Brooklyn, N.Y., for repairs to the training ship Empire State. The ship is used by the State University of New York's Maritime College at Fort Schuyler.

Port Of Portland Dedicates \$46-Million Terminal 2 Rehabilitation Project

The Port of Portland recently dedicated its \$46-million Terminal 2 rehabilitation project as Oregon's State Treasurer **Tony Meeker** declared the project was "good news for every Oregonian."

The rehabilitation project has transformed Terminal 2 into a modern general and breakbulk cargo terminal. The multipurpose facility provides the Port of Portland with the flexibility to handle most types of vessels: containers, roll-on/roll-off, pass/pass, and breakbulk ships and barges.

The new construction is complete except for the one warehouse and an 85-ton-lift-capacity crane that will arrive in the fall of 1988 from South Korea, where it is being constructed by Hyundai Heavy Industries.

There were several contractors on the project, including Riedel International of Portland, and General Construction, Seattle, that worked in a joint venture on the berths, demolition, and dredging; Clearwater Construction, Portland, which handled the 18 acres of storage yard; Lorentz Brunn, Portland, administration building and entry gate; Grady Harper and Carlson, Portland, large warehouse and maintenance shed; Colamette Construction, Portland, small warehouse; and Pacific Crest Construction, Portland, dock office.

For further information and free literature on the Port of Portland,

Circle 42 on Reader Service Card

Congratulations ASNE on your 100th Anniversary.

Aeroquip  **worldwide**

A TRINOVA COMPANY

← For literature on Aeroquip products, circle the appropriate number on the reader service card: Hose & Fittings—Circle 111; T-J Cylinders—Circle 112; Teflon Hose—Circle 113; Quick-disconnect Couplings—Circle 114.

Maritime Reporter/Engineering News

Soundcoat Introduces Custom-Cut Closed Cell Foam Materials For Gasketing

The Soundcoat Company's most recent development is the Soundfoam CS series materials. They are closed cell foams that are designed to provide a variety of functions, such as shock and impact absorption, acoustic sealing, thermal insulation, EMI/RFI shielding and static dissipation in use as gaskets, vibration pads, cushions and mats.

Soundfoam CS materials were developed to meet requirements of various degrees of soft-

ness, resiliency, flexibility, flame, heat and oil resistance. As with other Soundcoat products, they are available with a variety of surface treatments, combinations of damping or barrier components and high bond strength adhesives. They are supplied in the form of customer die-cut parts or sheets to suit individual customer requirements.

According to the company, when supplied with Soundcoat Pressure Sensitive Adhesive (also developed and manufactured at Soundcoat) the material will remain in place for the life of your product. Plus, some of the most cost-effective materials available due to Soundcoat's single source capabilities. Once the material is

manufactured, there are over 15 die-cutting machines ready to provide custom-cut parts for production-line assembly or field retrofit.

The Soundcoat Company, with laboratories and manufacturing facilities in New York and California, has provided noise control solutions and materials for all types of equipment in every industry, from ships to aerospace to office machinery, developed in the laboratory and proven in the field.

For more information and free literature on Soundcoat's new Soundfoam CS series materials,

Circle 57 on Reader Service Card

VSE Corporation, 1417 No Battlefield Blvd, Chesapeake VA 23320
Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

NAVIGATION & COMMUNICATIONS EQUIPMENT

AT&T, 412 Mt Kemble Ave., Room N420, Morristown NJ 07960
Atkinson Dynamics, 10 W Orange Ave., So San Francisco CA 94080
Comsat Maritime Services, 950 L'Enfant Plaza SW, Washington DC 20024
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502
Harris Corporation, RF Communications Group, 1680 University Ave., Rochester NY 14610
Henschel Corporation, 9 Hoyt Dr., P.O. Box 30, Newburyport MA 01950
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202
Kelvin Hughes Ltd., New North Rd., Hainault, Ilford, Essex IG6 2UR England
Mackay Communications, 441 US Highway #1, P. O. Box 331, Elizabeth NJ 07207
Naval Electronics, 5417 Jetview Circle, Tampa FL 33634
Ocean Satellite Television Ltd., Avmar House, 61 Brushfield St., London E1 6AA ENGLAND
Petroleum Communications Inc. (Petrocom) Head Office: 5901 Earhart Expwy., New Orleans LA 70123; 556 Jefferson St., Suite 100, Lafayette LA 70501; Allied Bank Plaza, Suite 5440, 1000 Louisiana St., Houston TX 77002
Radar Devices Inc., 2955 Merced St., San Leandro, CA 94577
Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033
Raytheon Marine Company, 46 River Rd., Hudson NH 03051
Raytheon Service Company, 5760 Northampton Blvd., Ste 102, Virginia Beach VA 23455
Robertson Shipmate Inc., 3000 Kingman St., Suite 207, Metairie LA 70006
S P Radio A/S, DK 9200 Aalborg DENMARK
SPT Audio, 8928 Kirby Dr., Houston TX 77054
Standard Communications, P.O. Box 92151, Los Angeles CA 90009
Standard Radio & Telefon AB, P.O. Box 501, S-162 15 Vallingby, SWEDEN
Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA
Watercom Communications Systems, 453 E. Park Place, Jefferson IN 47130

OILS—Marine—Additives

B P North America Petroleum, 555 US Route 1, So. Iselin, NJ 08830
Chevron USA, 575 Market St., San Francisco, CA 94105
Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

OIL/WATER SEPARATORS

Alfa Laval Inc., 2115 Linwood Ave., Fort Lee NJ 07024
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647

FAST Systems Inc., 1717 Sublette Ave., St Louis MO 63110
Marketec, Inc., 27 Bowers Lane, Chatham NJ 07928
Microphor, Inc., 452 E Hill Rd., P.O. Box 1460, Willis, CA 95490

PAINTS—COATINGS—CORROSION CONTROL

American Mason Safety Tread Company, 153 Essex St., Haverhill MA 01830
Magnus Maritec, division of Drew Chemical, One Drew Plaza, Boonton NJ 07005

Palmer International, P.O. Box 8, Worcester, PA 19490
Unitor Ships Service, Unitor Marine Chemicals Division, 3 High St., Rickmansworth, Herts, WD3 1SW UNITED KINGDOM

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

Aeroquip, 300 South East Ave., Jackson, MI 49203
Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248
Stauff Corporation, 21-23 Industrial Park, Waldwick NJ 07463

PLASTICS—Marine Applications

SFGP Inc./Industrial Plastics, 2330 16th St. So., P.O. Box 875, Wisconsin Rapids, WI 54494

PORT SERVICES

Port of Iberia, P.O. Box 897, New Iberia LA 70561
PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Allison Gas Turbine Division, General Motors Corp., P.O. Box 420 Speed code U6, Indianapolis, IN 46206
Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081

Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY
Bergen Diesel Inc., 2701 Delaware Ave., Kenner LA 70062
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202

Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Caterpillar Inc., Engine Division, 100 N E Adams, Peoria IL 61629
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511

Combustion Engineering, Inc., Windsor, CT 06095
Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340
Fincantieri, Diesel Engines Division—GMT, Bagnoli della Rosandra 334, Trieste, ITALY

GE Naval & Drive Turbine Systems Department, 166 Boulder Dr., Fitchburg MA 01420
General Motors, Electro-Motive Division, LaGrange, IL 60525

Isotta Fraschini Motori SpA (Fincantieri Group), Via Milano n. 7, 21047 Saronno (Va), ITALY
KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Krupp MaK, P.O. Box 90 09, D-2300 Kiel 17, WEST GERMANY

Lips Propellers, 3617 Koppens Way, Chesapeake, VA 23323
Marine Gears, Inc., P.O. Box 689, Greenville MS 38707
Markisches Werk, Halve, P.O. Box 1442, D-5884 Halver WEST GERMANY

MAN B&W Diesel, 50 Broadway, New York, NY 10004
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Hoelby, 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
Michigan Wheel Corp., 1501 Buchabab Ave., SW, Grand Rapids MI 49507

MTU of North America, 10450 Corporate Dr, Houston TX 77478
North American Marine Jet P.O. Box 1232 Benton, AR 72015

Northwest Marine Services Corp., 6452 So. 144th St., Tukwila WA 98168
Schottel-Werft, Josef Becker GmbH, KG, D-5401 Spay, WEST GERMANY
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland
Sulzer/Escher Wyss, Ravensburg WEST GERMANY

Tenford Inc., 200 Jackson Ave., Hoboken, NJ 07030
Ulstein Maritime Ltd., 96 North Bend Street, Coquitlam BC CANADA V3K 6H1

Ulstein Propellers, N-6065 Ulsteinvik, NORWAY
Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway
J.M. Voith GmbH, Marine Division, Postfach 1940, 7920 Heidenheim/Brenz, WEST GERMANY Voith Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021

Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
PUMPS—Repairs—Drives
Del Gaudio, 207 W. Central Ave., Maywood, NJ 07067. Telex: 132610 DEL-MARINE

Goltens, 160 Van Brunt St., Brooklyn, NY 11231
Imo-Delaval, Inc., IMO Pump Division, Box 447, Monroe NC 28810
Jim's Pump Repair, 48-55 36th St., Long Island City NY 11101
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238
Vita Motivator Co., 84 Wall St., Farmingdale, NY 11735
Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231
ROPE—Manila—Nylon—Hawsers—Fibers

Allied Signal Inc., Fibers Division, 1411 Broadway, New York, NY 10018
American Manufacturing Co., Cordage Div., P.O. Box 52125, Lafayette LA 70505

SANITATION DEVICES—Pollution Control

Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111
FAST Systems Inc., 1717 Sublette Ave., St Louis MO 63110
Microphor, Inc., 452 E Hill Rd., P.O. Box 1460, Willis CA 95490
Research Products/Blankenship (Incinolet), 2639 Andjon, Dallas, TX 75220

SCUTTLES/MANHOLE

L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211
Juniper Industries, 72-17 Metropolitan Ave., Middle Village, NY 11379
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

SHIPBREAKING—Salvage

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201
SHIPBUILDING EQUIPMENT
American Marine, P.O. Box 8126, New Orleans LA 70182
Hiiman Inc., 2604 Atlantic Ave., Wall, NJ 07719
M.A.N.—GHH, Sterkrade Werksrabe 112 D-4100 Duisburg 18, West Germany

MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany
NEI Synchrolift, Inc., 8970 S W 87th Ct., Miami FL 33176
Portable Gun Drilling Systems Inc., P.O. Box 123, Auburn WA 98071

SHIPBUILDING—Repairs, Maintenance, Drydocking

Aluminum Boats Inc., 304 Midway Dr., River Ridge LA 70123
Astilleros Espanoles S.A., Padilla 17, 28006 Madrid, SPAIN
Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235
Blount Marine, Box 368, Warren RI 02885
Bollinger Lockport & Larose, P.O. Box 250, Lockport LA 70374
Burmeister & Wain Skipsvaerft A/S, P.O. Box 2122, Refshaleoen, DK-1015 Copenhagen, DENMARK

Curacao Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004
Danyards A/S, P.O. Box 719, DK-9900 Frederikshavn DENMARK
Equitable Shipyards Inc., Trinity Marine Group, Box 29266, New Orleans LA 70189

Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY
Gladding Hearn Shipbuilding, One Riverside Ave., P.O. Box 300-W, Somerset, MA 02726
Hitachi Zosen Corp., 1-1-1 Hitatsubashi, Chiyoda-ku, Tokyo 100, Japan
Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530

Hyundai Corporation, ShipSales Dept., 140-2 Kye dong, Chongro-ku, Seoul, KOREA
Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, KOREA
Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409

Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094
Paul Lindenau GmbH & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany
Lisnave, Apartado 2138, 1103 Lisbon, Codex PORTUGAL

Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134
M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany
Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199

Marinette Maine Corporation, Marinette, WI 54143
Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552
Munson Manufacturing, 150 Dayton, Edmonds WA 98020
Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607

Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249
Portland Ship Repair Yard, 5555 N Channel Ave., Portland, OR 97217
Ryan Marine Inc., P.O. Box 400, Port Beville Industrial Park, Pearlington MS 39572

Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Toepyeong-ro, Chung-ku, Seoul, Korea
Service Marine Industries, P.O. Box 3606, Morgan City LA 70381
Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113
Trinity Marine Group, Box 29266, New Orleans LA 70189

Versatile Pacific Shipyards, Inc., P. O. Box 86099, North Vancouver BC Canada
Wartsila Marin Industri AB, P.O. Box 1090, SF 00101 Helsinki, FINLAND

Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201
SHIP MANAGEMENT
Texaco Marine Services Inc., P. O. Drawer 1028, Port Arthur, TX 77641

SHIPPING—PACKING

Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040
SIMULATOR TRAINING
Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371

SILENCERS

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130
STUFFING BOXES
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
SURVIVAL EQUIPMENT
Parkway/Imperial, 241 Raritan St., So. Amboy, NJ 08879
Viking Life Saving Equipment (America) Inc., 38 NW 11th St., Miami FL 33136

TANK CLEANING

Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530
Marketec, Inc., 27 Bowers Lane, Chatham NJ 07928

TANK LEVELING INDICATORS

Imo-Delaval, Inc., Gems Sensors Division, One Cowles Rd., Plainville CT 06062
King Engineering Corp., P.O. Box 1228, Ann Arbor MI 48106
Marine Moisture Control, 60 Inip Dr., Inwood, NY 11696

TORSIONAL VIBRATION SPECIALISTS

T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2
TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Curtis Bay Towing, World Trade Center, Suite 800, Baltimore MD 21202
Jack Faulkner, 1005 W. Harimaw Ct., Metairie, LA 70001
McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004

VALVES AND FITTINGS

Aeroquip, 300 South East Ave., Jackson, MI 49203
Bailey, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747
Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056
Chemiquip Products Co., Inc., 3 W. 18th St., New York, NY 10011
Circle Seal Controls, Brunswick Corporation, P.O. Box 3666, Anaheim, CA 92803

Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663
Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139
Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248
Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902

Lexair Inc., Airmatic/Beckett, 299 Gold Rush Rd., Lexington KY 40503
Loeffler Machine, US #1 & Robbins Ave., Pennel PA 19047
Newman's Inc., 7500 E Redding Place, Box 1856, Tulsa OK 74101
Nupro Co., 4800 E. 345th St., Willoughby, OH 44094

Pancoast Marine Division, Front & Porter St., Philadelphia, PA 19148
Parker Hydraulic Valve Division, 520 Ternes Avenue, Elyria, OH 44035
Parker Actuator Division, 9948 Rittman Road, P.O. Box 450, Wadsworth, OH 44281-0450
Parker Systems Division, 651 Robbins Drive, Box 3500, Troy, MI 48007-3500

Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236
Tate Andole Inc., 1941 Landsdowne Rd., Baltimore, MD 21227
Teleflex Inc., 771 First Ave., King of Prussia, PA 19406
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186

Whitey Co., 318 Bishop Road, Highland Heights, OH 44143
VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110
Vibranalysis Engineering Corp., 4380 S. Wayside, Suite 100, Houston TX 77087

WASTEWATER TREATMENT
EES Corporation/Omnipure, An Eltech Systems Company, 12850 Bourne-wood Dr., Sugarland TX 77478
WATER PURIFICATION TREATMENTS
Electrocatalytic Inc., 2 Milltown Ct., Union NJ 07083

WATER PURIFIERS

Alfa Laval Inc., 2115 Linwood Ave., Fort Lee NJ 07024
Atlas-Danmark Desalination Systems A/S, Stamholmen 93, 2650 Hvidovre (Copenhagen), Denmark
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

WEATHER CHART RECORDERS

Alden Electronics, 40 Washington St., Westborough, MA 01581
WELDING
Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912
Welding Consultants of Wisconsin, 6517 Radburn Lane, Greendale WI 53129

WIRE ROPE LUBRICATION SYSTEMS

Dynalube, The Kirkpatrick Group, 415 N. Loop 12 at Pioneer Dr., P.O. Box 1509(U7), Irving TX 75014
WINCHES AND FAIRLEADS
Braden Carco Gearmatic, P.O. Box 547, Broken Arrow, OK 74013
Fritz Culver, Inc., P.O. Box 569, Covington, LA 70434
Gearmatic—see 'Braden Carco Gearmatic' above.

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Nashville Bridge Co., P.O. Box 239 Nashville TN 37202
Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

WINDOWS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550
WINDOW WIPERS
Marketec, Inc., 27 Bowers Lane, Chatham NJ 07928

WIRE AND CABLE

Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

HBC BUILDS THE BEST BARGES.

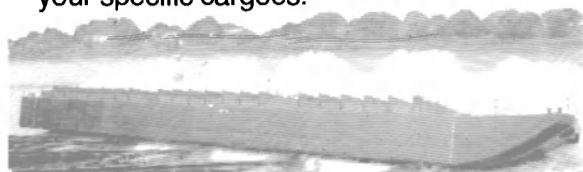
They're best because they are built by craftsmen using:

- sound construction details
- accurate, distortion free materials
- heavy-duty jigs and fixtures
- highest quality welding.

What's more, HBC has the versatility to build them to best suit the needs of your specific cargoes.

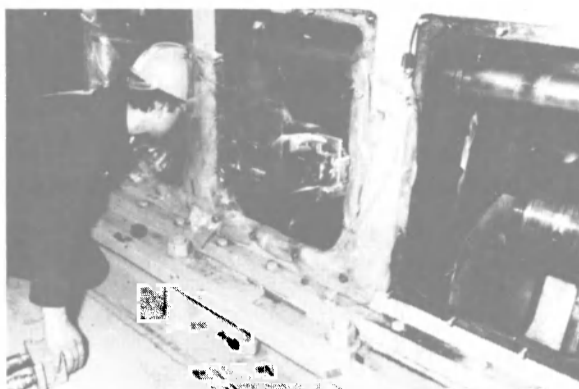
HBC Barge

Brownsville, Pennsylvania 15417
Phone: 412/785-6100



Circle 218 on Reader Service Card

Your Total Source for IN-PLACE or In-Shop Repairs for the Marine Industry



Machining a Crankpin Bearing Journal In-Place on a Diesel Engine

- Crankshaft repair
- Shaft Journal Machining (without turning the shaft)
- METALSTITCH®
- Cylinder Head Repair
- Turbocharger Repair
- Turbine Repair
- Reduction Gear Repair

24-Hr Phone (414) 562-2000
Fax (414) 265-1000 • Telex 269563



Circle 293 on Reader Service Card

McELROY DECK EQUIPMENT

ENGINEERED TO PERFORM
ENGINEERED TO LAST

P.O. BOX 4454
BILOXI, MISSISSIPPI
39535-4454
(601) 896-3736
TELEFAX: (601) 896-0874
1-800-634-6478



WINDLASSES



CAPSTANS

McElroy stands ready to engineer, design, and quickly deliver any type deck equipment your requirements call for.

Circle 138 on Reader Service Card

RAMPMASTER
MARINE ALUMINUM GANGWAYS
TRUSS OR BEAM TYPE — ANY LENGTH
CORROSION RESISTANT
Portable Handrail Assemblies
ALL TYPES SHIP'S LADDERS
PIER STANDS
Call Us For Quotes!
RAMPMASTER
INCORPORATED
9825 OSCEOLA BOULEVARD VERO BEACH, FLORIDA 32960
TELEPHONE 305 569 9600

Circle 243 on Reader Service Card

JIM'S PUMP REPAIR INC.



Established 1974



JIM LAGONIKOS,
President

BOB MOONEY,
Sales & Service
Manager

Reconditioned Coffin & Pacific Pumps
A-1 Condition
TYPE • F-CG - DE - DEB - IND - T - DEB-22
TBA • 12 - 16 - 16½

Service 24 HRS • Parts Available
TEL 718-392-4444 TLX-TWX
FAX 718-482-8372 710-5824847 JPRNYK

Circle 332 on Reader Service Card

WINCHES
CRANES
HATCH
COVERS



DEL GAVIO MARINE HYDRAULICS, INC.
SALES • SERVICE • CONSULTING • PARTS

Complete Repairs
On All Types of Electro Hydraulic
Steering Systems and Deck Machinery
Hydraulic Pump Testing,
Rebuilding For Certification

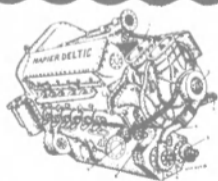
24 Hour Service, Worldwide
207 West Central Ave., Maywood, N.J. 07607
Telephone: (201) 843-4700
Telex: 132610 DELMARINE

Circle 155 on Reader Service Card

FERNSTRUM GRIDCOOLER
When lives depend on your boat's reliability ...
Don't take a chance on your cooling system. Crockett & McConnell use Fernstrum GRIDCOOLERS to keep their search and rescue crafts always ready. Fernstrum GRIDCOOLERS are completely assembled and factory tested to assure dependable service. Fernstrum GRIDCOOLERS are available in copper-nickel 90/10 and 5000 series aluminum.
TO CONTACT US:
R. W. FERNSTRUM & COMPANY
MENOMINEE, MICHIGAN, U.S.A. 49858
Phone: (906) 863-5553 • Telex: 26-3493
Answer Back: FERNSTRUM MNOM

Circle 165 on Reader Service Card

WILL BE SOLD TO BEST OFFER



2400 H.P.

NAPIER DELTIC DIESEL

TYPE-T18-37C SERIES III
(NOW MFG. BY PAXMAN DIESEL)

Engine has been in heated storage since delivery.
Original shipping bag never opened

for information. (516) 924-3181
Mike Hanratty
Firematic Supply Co. Inc.
Main St. Yaphank, N.Y. USA 11980

Circle 219 on Reader Service Card

SHIPBUILDERS—If you're looking for a fast labor saving system to drill precision holes for fitted bolts that is extremely accurate (and portable) and met U.S. NAVY requirements on L.S.D.'s 41, 42, & 43. Plus Lockheed space & Missile Div. requirements. PLEASE PHONE OR WRITE TO:

PORTABLE GUN DRILLING SYSTEMS, INC.
P.O. BOX 123, AUBURN, WA 98071 U.S.A.
PHONE (206) 939-1663

THE ONLY PRECISION PORTABLE GUN DRILLING SYSTEMS.

Circle 194 on Reader Service Card



Specializing in

- I Water Transportation of General Cargo, Chemicals and Bulk Petroleum
- I Sales, Charters and Brokerage of Marine Equipment and Vessels
- I Vessel Design, Construction and Repair



ZIDELL
MARINE GROUP

3121 SW Moody Avenue, Portland, Oregon 97201
(503) 228-8691/(800) 547-9259
RCA Telex 283985/FAX: (503) 228-6750
Ask for Bill Gobel or Jack Breshears

Circle 178 on Reader Service Card



EIGHT IMA BUSINESS REPORTS AVAILABLE

IMA announces the availability of eight business reports designed to provide timely, concise and accurate appraisal of future business opportunities in the U.S. naval and marine market.

**PUBLISHED
APRIL 1988**

The New Naval Technology Program—A Detailed Guide To \$9.5 Billion In New Annual Sales for Manufacturers and Suppliers—Report No. 7109

Technology developments in Navy surface ships and submarines are moving at a rapid pace—offering many new business opportunities. IMA's report on this \$9.5 billion market provides a detailed projection of spending and assesses opportunities in each RDT&E program. Policy and technical issues in each program are examined, current competitors are identified and a contract history is provided. Points of contact for developing business are listed.

\$550.00 per copy.

**PLANNED
PUBLICATION
DATE
JUNE 1988**

Assessment of Future Navy Shipbuilding Through the Mid-1990's—Report No. 7110

Will achieving the 600 ship Navy slow future shipbuilding? In this new report IMA assesses the direction and composition of Navy shipbuilding over the next five to ten years. The changing requirements for electronics, propulsion machinery and other components will be examined. Projections of business opportunities will be made. Likely competitors will be identified.

\$550.00 per copy

**PLANNED
PUBLICATION
DATE
JULY 1988**

Assessment of Future Navy Ship Repair, Maintenance and Modernization—Report No. 7111

Expansion of the U.S. Navy fleet to 600 ships will increase requirements for ship maintenance and change the composition of ship repair demand. Distribution of work will be affected by implementation of strategic homeporting. IMA's new report will project future ship repair demand, analyze the distribution of future work and examine likely competition.

\$550.00 per copy

**PLANNED
PUBLICATION
DATE
OCTOBER 1988**

Five Year Projection of Commercial Marine Business Opportunities in the U.S.—Report No. 7112

The lower dollar, fishing coastal zone restrictions, increased grain exports are among the factors improving future business opportunities. In this new report IMA will assess future demand for ships, barges and offshore equipment. Forecasts of construction activity and maintenance requirements will be provided for a five year period. Key points of buying control, buy American rules and likely competitors will be identified.

\$550.00 per copy

**PUBLISHED
AUGUST 1987**

Future ASW Business Opportunities—Report No. 7108

Navy has accorded highest priority to improving anti-submarine warfare capability. Funding for ASW programs has greatly increased over the past several years—providing many new business opportunities. IMA's report assesses each of 45 specific ASW programs—showing a five year pattern of spending and examining future direction. Navy managers and key contractors are identified for each program. Contracts awarded for ASW systems and equipment between October 1983-May 1987 are listed.

\$880.00 per copy

**PUBLISHED
FEBRUARY 1987**

Projected U.S. Marine Market: 1987-1991—Report No. 7107

This 200+ page report systematically examines and projects future U.S. marine business demand. It is divided into 20 market segments—including coastal tankers, specialty ships, ferries, offshore rigs, naval ships, Army craft . . . Current business conditions and potential market developments are assessed in each sector. A five year projection of construction, equipment and maintenance requirements is made.

\$350.00 per copy

**MOST RECENT
REPORT ISSUED
MAY 1988**

Quarterly Report on U.S. Navy Ship and Equipment Procurement—Report No. 7103

Navy ship and equipment procurement is a \$36 billion annual market. At three month intervals IMA issues a 50 to 60 page report analyzing spending projections, examining status of specific programs, reporting contract awards and updating business contacts. This series began in 1983—with the most recent quarterly report issued in May 1988.

\$380.00 for series of four quarterly reports.

**MOST RECENT
REPORT ISSUED
FEBRUARY 1988**

Quarterly Report on U.S. Navy Ship Maintenance and Modernization—Report No. 7104

Navy spends \$4 to 5 billion annually on ship maintenance and modernization—providing a major source of business for many firms. Every three months IMA issues a 50 to 60 page report updating the schedule for Navy (including MSC) ship maintenance. Homeport and other policy changes are reported. Contract opportunities are identified and recent contract awards are listed. Key contacts are updated. This series began in 1984—with the most recent quarterly report issued in February 1988.

\$380.00 for series of four quarterly reports.

To order please call or write:

**International Maritime Associates, Inc.—
835 New Hampshire Ave., N.W.
Washington, DC 20037**

Telephone: (202) 333-8501—Telex: 64325 IMA—Telefax: (202) 333-8504.



O V E R

9,000

VESSELS BUILT!
WE CAN BUILD ANY BOAT YOU NEED.



Since our first shipyard was founded in 1921, the four shipbuilding companies of the Trinity Marine Group have built over 9000 vessels! We've also converted and repaired hundreds more.

You name it, we've built it.

We are Halter Marine, Inc., Moss Point Marine, Inc., Equitable Shipyards, Inc., and Gretna Machine and Iron Works.

We build everything from tugs, supply and crew boats, to trawler/processors, patrol boats, ferries, and dinner/cruise vessels. We build landing craft, pilot boats, barges, dredges, fireboats and surface effect ships too. We build tow boats, small tankers, drill-ships, ocean surveillance ships, container-ships, RO/RO's, reefer ships, research vessels, and just about any boat you can name.

We meet the rigid requirements of the U.S. Navy, Army, Air Force, Coast Guard, and Department of the Interior. And we build to the standards of the ABS, U.S. Coast Guard, Lloyds, Det Norske Veritas, and SOLAS.

We will build to your design, or you can use our complete in-house services from design and engineering to global warranty assistance. We also handle your spare parts requirements promptly and accurately.

Each of our six shipyards specializes in certain vessels and each is staffed by shipbuilding experts supported by advanced computer aided design and manufacturing.

You receive personal attention—whether your requirements are small or large. Our list of satisfied repeat customers includes some of the smallest, and largest operators in the world. That's because each shipyard is a separate cost center and self-reliant.

They do benefit from centralized administrative functions which reduce their costs—and yours. Our shipyards also gain from the considerable resources of our parent company, Trinity Industries, Inc.

The experience gained in building over 9000 vessels pays dividends in every boat we build. No other shipbuilder in the world can match our record in production, adaptability, innovation, stability, and quality.

Chances are we have already designed and built the kind of vessel you need. So if you need a boat, we can and want to build it for you. Ask us.

Circle 278 on Reader Service Card



P.O. Box 29266/New Orleans, LA 70189
504-246-8900/Telex: 6821246/Telecopy: 504-245-7869

WORLD CLASS.

Texaco continues to be a dedicated supplier of quality bunker fuel and marine lubricants to ships around the world. Our premium marine engine oils, including TARO Special, DORO AR 30, TARO XD, TARO DP and TARO XL, are all proven performers. And our staff of experienced marine representatives is ready to help you with technical advice on lubricant selection and use.

To supply your bunker fuel and lubricant needs, our computerized system helps us process your orders quickly and accurately. And prompt deliveries allow you to maintain critical sailing schedules.

Add up all of these factors, and you'll agree that Texaco International Marine Sales is a "World Class" operation. And that's to your advantage the world over.

TEXACO



WORLDWIDE MARINE FUELS • LUBRICANTS

For complete information and to place your order, contact:

Texaco Inc.

International Marine Sales
2000 Westchester Avenue
White Plains, NY 10650

Phone: (914) 253-4000
Cable: TEXMAROIL
HARRISON NEW YORK STATE
Telex: New York 791144

Texaco Ltd.

International Marine Sales
1 Knightsbridge Green
London SW7 1RU

Phone: 01-584-5000
Cable: TEXMAROIL LONDON SW1
Telex: London 8956681
Ask for the 'Bunker Desk.'