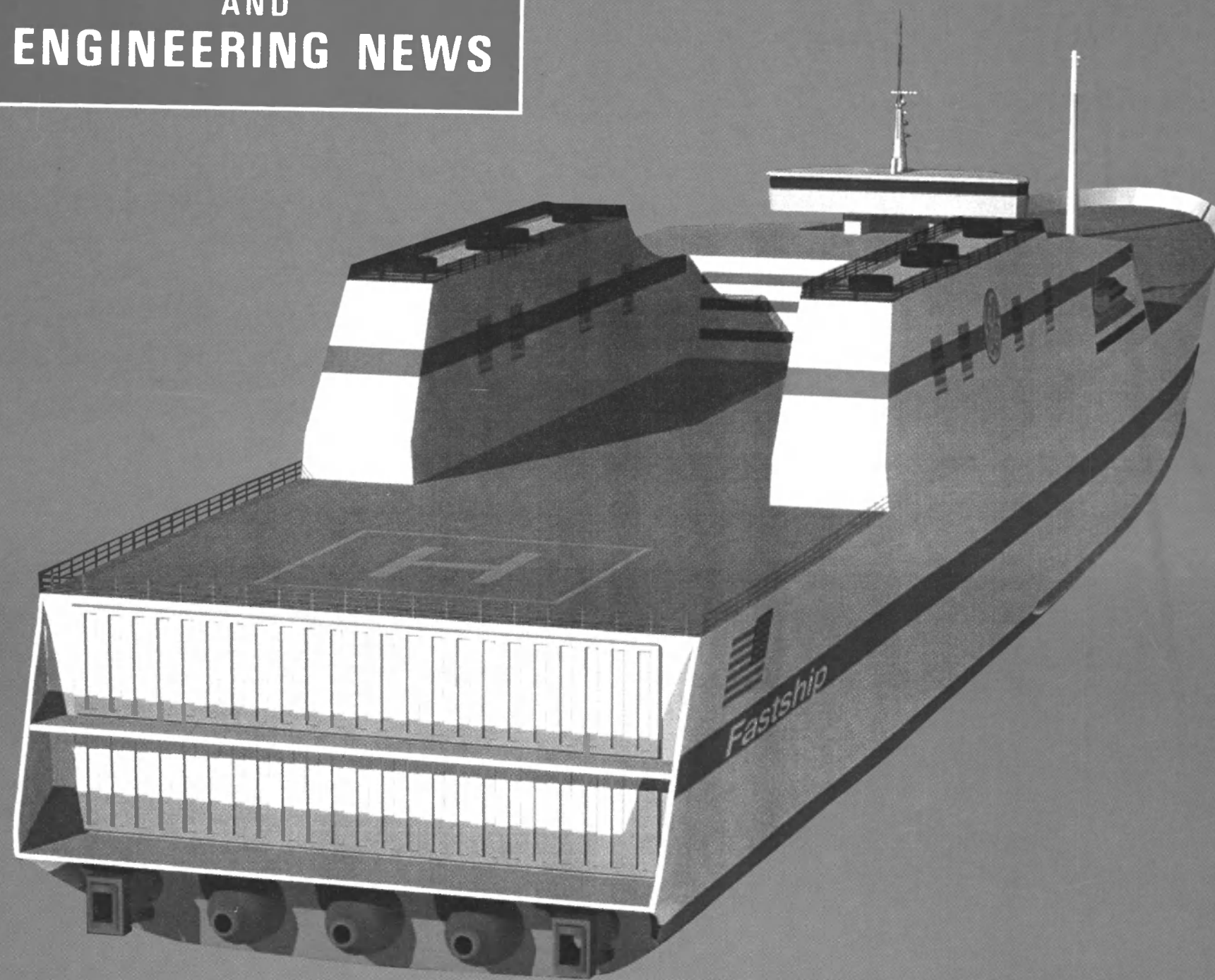


**MARITIME
REPORTER**
AND
ENGINEERING NEWS

**Marine Technology
Yearbook**



- Market Report: Good business prospects in product tanker segment
- SPECIAL: WW II shipbuilding retrospective

Carnival unveils 100,000-ton cruise ship • ASNE preview • World shipbuilding contracts

APRIL 1995

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



M/V FRED LEE

Karl Senner, Inc. supplied the M/V FRED LEE with two (2) Reintjes WAF 760 - 5.75:1 ratio, vertical offset, reverse reduction marine gears. KSI also supplied electronic integrated engine/transmission control systems and electric/hydraulic, disc type, shaft brakes.

Owner: **U.S. Army Corps Of Engineers**

Builder: **Equitable Shipyards/Trinity Marine Group**

REINTJES
MARINE GEARBOXES

REXROTH
MARINE CONTROLS

ASA
ASEA BROWN BOVERI
TURBOCHARGER SERVICE

BERG PROPULSION
CONTROLLABLE PITCH PROPELLERS AND BOWTHRUSTERS

SALES, PARTS, SERVICE • 500 H.P. TO 20,000 H.P.

Karl Senner, Inc.



WEST COAST
Karl Senner, Inc.
12302 42nd Drive S.E.
Everett, WA 98208
Mr. Whitney Ducker
(206) 338-3344

NEW ORLEANS
Karl Senner, Inc.
25 W. Third St.
Kenner, LA 70062
(504) 469-4000
Telex: 58-7383
Telefax: (504) 464-7528

EAST COAST
Olof Wadehn Enterprises
30 Sheppard Lane
Huntington, Long Island
New York 11743
Mr. Olof Wadehn
(516) 692-4548

Circle 303 on Reader Service Card

OUR PROMISE...

AMCLYDE
Engineered Products, Inc.

...we'll match delivery with anybody for crane parts or the freight cost is on us.*

If you own an American Revolver, Clyde Whirley or AmClyde crane or winch, we want to be your source for parts. We've made an extended commitment to your parts and service needs by improving manufacturing capacities and increasing stock levels—in short—being there when you need us. Of course, since we are your equipment's OEM, all parts are built to original design specs, carry a warranty equal to new and are guaranteed to fit. Give us a call for a price and delivery quote on your next parts need.

AmClyde
Engineered Products, Inc.
240 East Plato Blvd.
St. Paul, MN 55107-1631
Phone: (612) 293-4600
Fax: (612) 293-4648

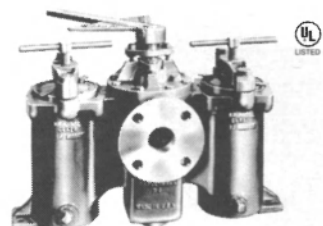


Special offer applies to the equipment and parts stated above and only on custom parts and components.

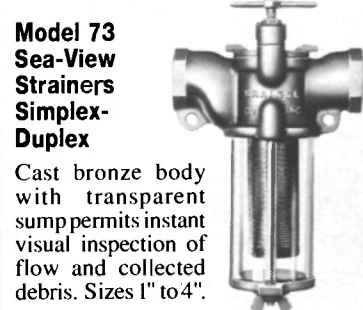
Circle 205 on Reader Service Card

STRAINERS, FILTERS TRANSFER VALVES TRANSFER PUMPS

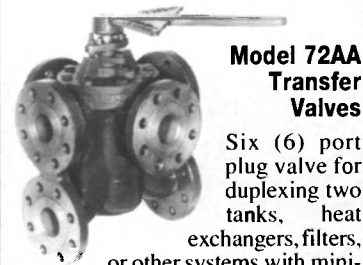
Rugged Construction—Cast Iron, Steel, Stainless, Bronze and Other Alloys. Flanged, Threaded or Weld-End.



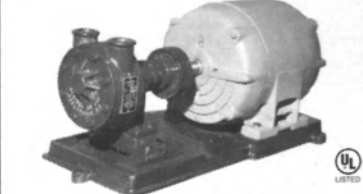
Model 72 Simplex & Duplex Strainers
For fuel oil, lube oil, cooling water or any fluid service. Protects pumps, nozzles, meters, heat exchangers and process lines. Size 1/4" to 12" and larger. High pressure/temperature special designs available.



Model 73 Sea-View Strainers Simplex-Duplex
Cast bronze body with transparent sump permits instant visual inspection of flow and collected debris. Sizes 1" to 4".



Model 72AA Transfer Valves
Six (6) port plug valve for duplexing two tanks, heat exchangers, filters, or other systems with minimum piping and space. Easy 1/4 turn, one stroke plug valve operation switches flow from one side to the other. Sizes 3/4" to 8" and larger. High pressure/temperature special designs available.



Model 60 Pumps
General line of cast iron fuel and lube oil pumps—direct connected for light oils, reduction drives for heavy oils. High temperature special designs available. Sizes 3/8" to 2".

KRAISSL CO.
303 Williams Avenue, Hackensack, N.J. 07601
Tel: (201) 342-0008 • Fax: (201) 342-0025

Circle 263 on Reader Service Card

ON THE COVER

Technology in the design and construction of vessel and maritime equipment is the focus of *MR/EN's* first-ever MARINE TECHNOLOGY YEARBOOK. On the cover is the new FastShip design, introduced late last summer. It — and many other — next generation projects in the works are featured starting on page 53.

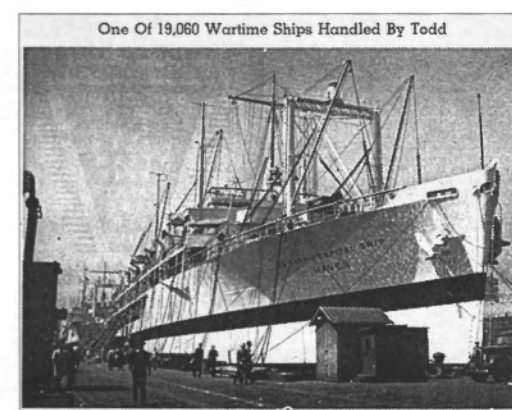
8 Product Tanker Market Set For Growth

IMA estimates that 30 percent of the current world inventory of product tankers will reach replacement age over the next five years. Read up on who's building, who's buying and who's supplying.

— by James R. McCaul

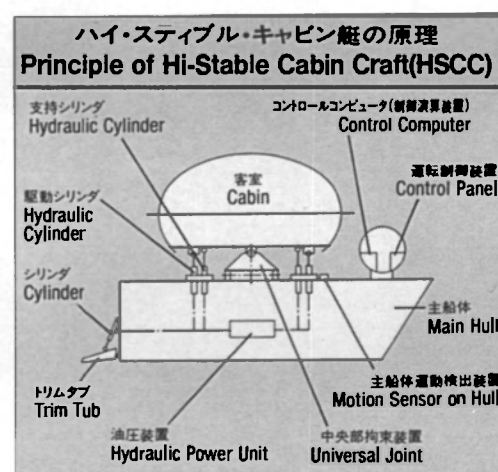
72 WWII: 50 YEARS AGO

Special retrospective "scrapbook" detailing the contributions made by the shipbuilders and the U.S. Merchant Marine.



53 Marine Technology Yearbook

Next generation technologies in shipbuilding, design and equipment supply are devised to make vessels safer and more efficient.



The Hi-Stable Cabin Craft — a pitch-free and roll-free ship developed by Mitsubishi — is just one example of next generation technology under development in the maritime industry. The MARINE TECHNOLOGY YEARBOOK starts on page 53.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means mechanical, photocopying, recording or otherwise without the prior written permission of the publishers.

Markets

- 11 Propulsion Update: Cummins, Wärtsilä cement partnership in London
- 46 Ship Design: Carnival unveils 100,000-ton cruise ship
- 84 Review: RIBs, Skiffs & Small Workboats
- 88 European Update: RIBs & Skiffs

Statistics

- 36 Recent Ship Sales
- 86 Industry Trends
- 95 World Vessel Orders Placed

Show Previews

- 79 ASNE Day '95
- 102 OTC '95
- 104 RTCM '95

Departments

- 86 "50 Years Ago In..."
- 106 Calendar
- 117 Fast Action Reader Service Card
- 118 Classifieds

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

ISSN-0025-3448

No. 4

Volume 57

118 EAST 25th STREET
NEW YORK, N.Y. 10010
(212) 477-6700

Founder: John J. O'Malley 1905-1980

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.

Publishers are not responsible for the safekeeping or return of editorial material.

Member
BPA
INTERNATIONAL
Business Publications
Audit of Circulation, Inc.

Leica Navigators Support Type 9

All Leica DGPS navigation products already support USCG and IALA Type 1 and Type 9 RTCM DGPS beacon broadcast.

The U.S. Coast Guard has decided to utilize the RTCM SC104 Type 9 message format for its beacon broadcasts instead of Type 1 and Type 2 messages, to provide a faster update rate and better accuracy. Some GPS manufacturers indicate that their GPS receivers will require modifications in order to work with this format. Leica's navigation products already work with Type 9 just fine!



MX 200 Navigator, six-channel system with superior software for the professional navigator.



MX 300 Navigator, a high resolution DGPS system designed for offshore survey and land-positioning.



MX 100 Navigator, six-channel continuous tracking for yacht skippers and blue water sailors.



MX 51R Beacon Receiver and MX 200 DGPS Navigator, with combined GPS and H-field beacon antenna.



MX 41R, affordable differential GPS Beacon Receiver that improves precision up to 10 times.



MX 9212 12-channel DGPS Navigator, gives submeter DGPS accuracy for real-time applications.



The MX 100 GPS Navigator combined with the MX 41R Beacon Receiver provides accuracy to under 5m.

In February 1994 Leica purchased the Magnavox GPS Division, and its Navigator product line.

Leica
Navigation and Positioning Division
23868 Hawthorne Boulevard
Torrance, CA 90505, USA
(310) 791-5300, Fax (310) 791-6108

Circle 32⁵ on Reader Service Card

Leica

Three 37,000-DWT Chemical Tankers Ordered

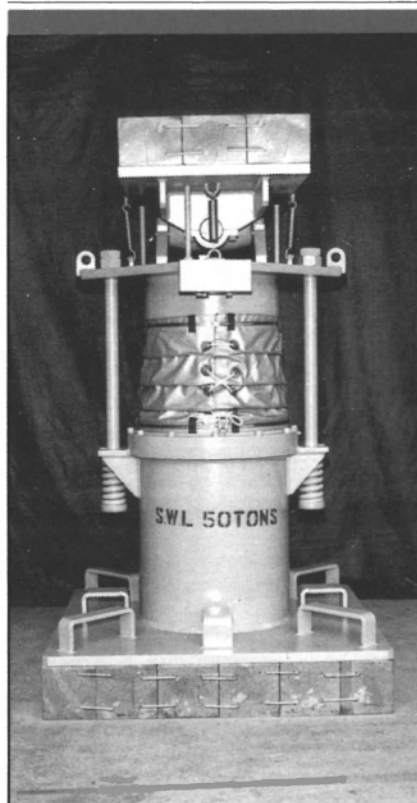
Stolt-Nielsen S.A. announced that it has finalized an agreement with Societe Nouvelle des Ateliers et Chantiers du Havre (SNACH) yard for the construction of three 37,000-dwt, stainless steel double-hulled chemical parcel tankers. The first ship is scheduled for delivery in

1997, with subsequent deliveries in 1998. The vessels will feature a high degree of flexibility regarding the cargoes to be carried, and will comply with stringent environmental and safety conditions. Stolt-Nielsen provides distribution services worldwide for bulk liquids by employing a fleet of transoceanic and coastal parcel tankers, intermodal tank containers, and storage terminals in the U.S., north-

western Europe and Brazil.

Vessel Data

Length	579 ft. (176.5 m)
Width	102.3 ft. (31.2 m)
Depth	51.1 ft. (15.6 m)
Draft	38.3 ft. (11.7 m)
Propulsion	Diesel electric, 10 MW



IHI TRIMMER

AUTOMATICALLY ADJUSTABLE SHIP SUPPORT SIDE BLOCKS

Substantial Reductions In Docking Time & Man-Hours, Resulting In Easier, More Efficient Ship Repairs

- **SUITED FOR ANY NEED:** Simple composition of ram and cylinder with universal top plate to suit and accommodate the curving hull surface.
- **EASY TO RELOCATE,** as it is self-contained, with no connection of piping and cables.
- **SELF-ADJUSTING MECHANISM** of block height effectively eliminates diver's work.
- **CORROSION RESISTANT** materials and concealed components make for **LONG SERVICE LIFE, EASY MAINTENANCE & SAFE OPERATION.**

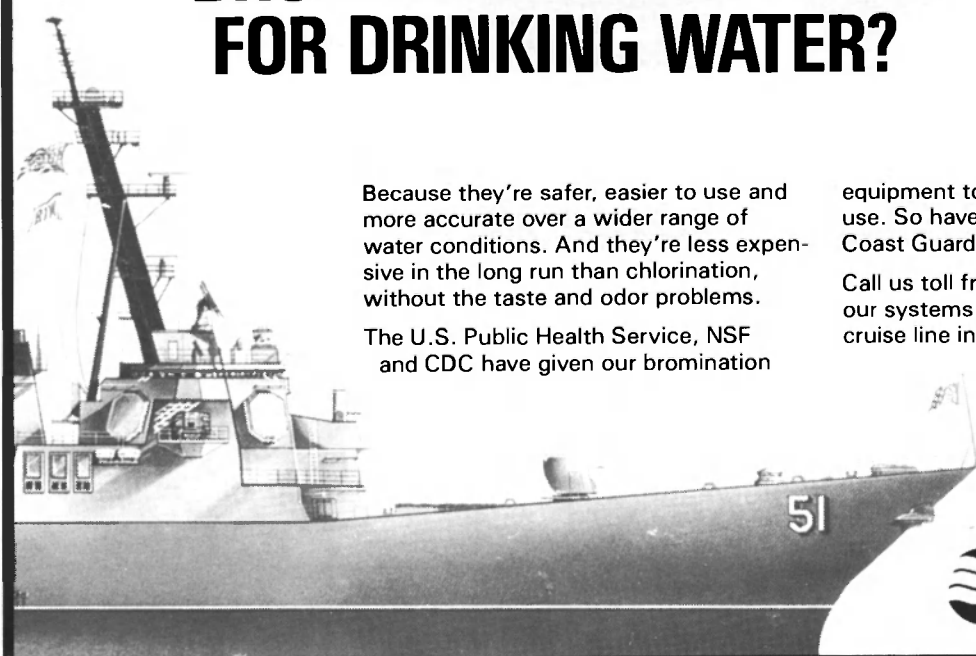


Head Office
Ishikawajima-Harima Heavy Industries Co., Ltd.
Tokyo - Chuo Building, 6-2, 1-Chome
Chiyoda-ku, TOKYO 100, JAPAN
Tel: 03-3286-2367 • Fax: 03-3286-2373

US AGENT
IHI MARINE TECHNOLOGY, INC.
2400 Augusta Drive, Suite 250
Houston, Texas 77057 U.S.A.
Tel: (713) 974-3040 • Fax: (713) 974-4204

Circle 251 on Reader Service Card

WHY DOES THE U.S. NAVY CHOOSE EVERPURE BROMINATION SYSTEMS FOR DRINKING WATER?



Because they're safer, easier to use and more accurate over a wider range of water conditions. And they're less expensive in the long run than chlorination, without the taste and odor problems.

The U.S. Public Health Service, NSF and CDC have given our bromination

equipment top approvals for shipboard use. So have the U.S. and Canadian Coast Guards.

Call us toll free to find out more about our systems designed specifically for the cruise line industry. 1-800-323-7873

Follow the U.S. Navy. Choose Everpure.



Everpure, Inc., Westmont, IL 60559

Circle 244 on Reader Service Card

MARITIME REPORTER AND ENGINEERING NEWS

118 E. 25th St.
New York, N.Y. 10010
tel: (212) 477-6700;
fax: (212) 254-6271

Publishers: Charles P. O'Malley
John E. O'Malley
John C. O'Malley

EDITORIAL

Editorial Director: Charles P. O'Malley
Editor: Greg Truthwein
Senior Editor: Dan Manolis
Assistant Editor: Bridget Ann Murph
Editorial Consultant: James R. McCaul
International Editors: Graeme MacLennan
Alan Thorpe
Carol Fulford
Andy Smith

PRODUCTION

Production Manager: Patricia Kennedy
Asst. Production Manager: Joan Wannamaker
Circulation Manager: Dale L. Barnett

SALES

International Sales Manager: Daniel A. Arnold
Regional Sales Manager: Lucia Annunziata
Classified Sales Manager: Susan Cosmo

Representatives

U. S. Gulf States **MR. JAMES N. McCLINTOCK**
Simpson Corporate Park
Indigo House, Suite A
206 South Tyler Street
Covington, La. 70433
Telephone: (504) 893-5099
Telefax: (504) 893-5024

Scandinavia **MR. STEPHAN R. G. ORN**
AB Stephan R.G. Orm
Box 184, S-27100 Ystad, Sweden
Telephone: 46 411-18400
Telefax: 46 411 10531

United Kingdom **MR. MICHAEL J. DAMSELL**
Euromedia Ltd.
P.O. Box 122
Hayward's Heath
West Sussex RH16 1YF, ENGLAND
Telephone: 0444 417360
Telefax: 0444 417360

Italy Ediconsult Internazionale
Piazza Fontane Marose,
3-16123 Genova, Italy
Telephone: (010) 583684
Telefax: (010) 566578
Telex: 281197 EDINTI

Korea **MR. C.H. PARK**
Far East Marketing Inc.
Rm. 508, Chungmu Building
10, 2ka, Pildong, Chung ku,
Seoul, Korea
Telephone: (02) 265-5043
Telefax: (02) 277-5148

Subscriptions: One Full year (12 issues)
\$18.00 in U.S.; Outside of U.S. \$96.00
including postage & handling. For sub-
scription information contact Dale Barnett,
fax: (212) 254-6271.



*Good news.
It's never been
cheaper to use
BT Inmarsat.*

From April 1, 1995 the price of using the BT Inmarsat service has never been lower. In fact our rates are now among the keenest in the world.

So from now on when you route calls through the BT Goonhilly Land Earth Station you'll save money. And your communications will be in the safe hands of one of the world's most experienced and reliable Inmarsat operators.

What's more, in addition to the new lower prices there are a host of other service enhancements.

In order to help our American customers for instance, we can now quote prices and bill you in US dollars.

We've made it even easier for you to benefit from our discount scheme. We've dramatically simplified our charge bands as well, which in many cases will save you still more money.

And finally, we've completely removed the monthly subscription for our C-Club service.

Please call us on **1-800 241 9467** (toll free from the US), or on +44 171 492 4996 to obtain full details of these attractive new lower prices and initiatives.

Once you've seen them we think you'll agree that the future's looking very bright indeed.



Circle 217 on Reader Service Card

Outlook For Product Tanker Construction

by James R. McCaul, president
IMA Associates Inc.

Construction of product tankers represents one of the best market opportunities for shipbuilders and suppliers. IMA's analysis indicates that the combination of aging ships and additional tonnage requirements will produce an interesting demand situation in this business sector. IMA believes this market will provide a growing base of repetitive orders, allowing yards to invest in standard designs and benefit from

the economies of learning. It is not coincidental that a number of U.S. builders have targeted this sector for penetration, and have clearly succeeded in establishing a foothold over the past year.

There are approximately 2,100 product tankers of all sizes currently in service. The inventory breaks down into 1,200 small tankers under 20,000 dwt, 690 tankers between 20,000 and 50,000 dwt, and 115 tankers between 50,000 and 80,000 dwt, and about 85 large product tankers

more than 80,000 dwt. IMA's recent study examined the composition of this inventory to identify the geographical location of ownership and control. The study's objective was to identify the points of buying power for product tankers. Specifically, the study identified the company considered responsible for day-to-day operation of each ship currently in service. An interesting finding is the prominence (i.e. buying power) of companies in North and South America. As shown in chart 1, owners in this region control 23 percent of product tankers between 20,000 and 50,000 dwt, 27 percent between 50,000 and 80,000 dwt, and 31 percent over 80,000 dwt. These owners include Exxon, Chevron, Pemex, Teekay Shipping, OMI, OSG, and others.

Builders of product tankers

Asian shipbuilders have accounted for the bulk of product tankers built over the past five years. Two-thirds of product tankers in the 20,000 to 50,000 dwt range and almost 80 percent of product tankers above 50,000 dwt delivered since 1990 were built by Asian builders. Among the Asian shipyards prominent in product tanker construction have been Hyundai, Halla, Omonichi, Imabari and Dalian.

Asian builders continue to be prominent in construction of product tankers. There are approximately 100 product tankers above 20,000 dwt currently on order worldwide, about one-third of which are booked in Asian shipyards.

However, over the past year, U.S. shipyards have suddenly appeared among the top five builders of product tankers. Counting only firm orders, U.S. yards account for seven percent of the product tanker deadweight currently on order. The percentage would be 12 percent if option orders are taken into account. This penetration is significant, particularly given the fact that U.S. shipyards have been absent from this

Marine Sewage Treatment From The Market Leader



The Model 15-MX treats blackwater waste for a complement of 500 people (one of 6 standard sizes available)

OMNIPURE™ MSD SYSTEMS

Compact & Lightweight
OMNIPURE'S space saving, fully automatic units treat sewage from 6 to over 500 persons allowing discharge in full USCG/IMO compliance.

Retrofit Solutions
OMNIPURE'S process modules are designed to be retrofitted utilizing existing shipboard tanks and are configurable to meet existing space and piping requirements.

User Friendly
Installation of an OMNIPURE system is simple due to factory pre-wiring. Daily maintenance is minimized with no chemicals or biological additives. Sludge removal is also eliminated.

Large Complements
Multiple units may be configured to run in parallel for even larger passenger/crew complements. Custom systems are also available for space-sensitive retrofits.



1110 Industrial Blvd.
Sugar Land, TX 77478
Tel: 713/240-6770
Fax: 713/240-6762

Sales and service centers located in most major parts of the world

Circle 240 on Reader Service Card

LINKS



- CHAIN
- ANCHOR
- 3/4" to 4-1/2"

BALDT. MARQUIP.

Domestic and imported, in stock for immediate delivery. Choose from one of the largest inventories of marine equipment and supplies in the U.S.

SAVE MONEY - CALL US FIRST!

CUSTOMER SERVICE 24 HOURS A DAY, 7 DAYS A WEEK

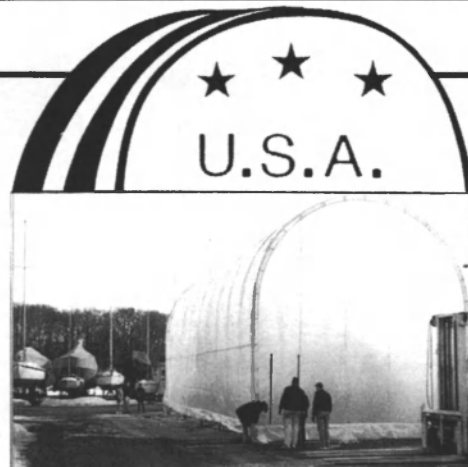


1-800-851-3429

WASHINGTON CHAIN AND SUPPLY, INC.

P.O. Box 3645 • 2901 Utah Avenue South • Seattle, Washington 98124
FAX (206) 621-9524

Circle 347 on Reader Service Card



Workshop • Repair Bay • Yacht Storage
Maintenance • Boathouse • Field Office
• Heavy Equipment Storage

WIDTHS AVAILABLE: 10' TO 65'
LENGTHS IN 5' INCREMENTS

ALL WEATHER PROTECTION—FAST ASSEMBLY
APPROVED FOR GOVERNMENT CONTRACT BIDDING
1-800-297-8724

UNIVERSAL SHELTERS

U.S. Hwy. 19 South • Pelham, GA 31779
912-294-9633 • fax 912-294-7816

Circle 314 on Reader Service Card

Chart 1
Geographical Breakdown of Product Tanker Control

Location of Relevant Owner	20,000-50,000 dwt		50,000-80,000 dwt		More than 80,000 dwt	
	No. of Ships	% of total	No. of Ships	% of total	No. of Ships	% of total
Asia	138	20	20	18	17	20
N. Europe	142	21	30	27	20	24
S. Europe	187	27	26	23	14	17
N./S. America	156	23	30	27	26	31
Middle East	33	5	4	4	0	0
Rest of World	9	1	0	0	0	0
Location Unknown	22	3	3	3	6	7
Total	687	100%	113	100%	83	100%

Source: IMA Associates, Shipbuilding Industry Outlook, April 1995

Chart 2
Product Tankers More Than 20,000 DWT On Order

Country of Build	# of Ships	Total dwt (in 000's)
Korea	21	1,241
Ukraine	16	723
Croatia	13	483
Romania	12	474
U.S.	8	328
Spain	7	308
Russia	8	289
Japan	4	270
China	6	249
Poland	3	119
Brazil	2	72
Germany	1	32
Total	101	4,588

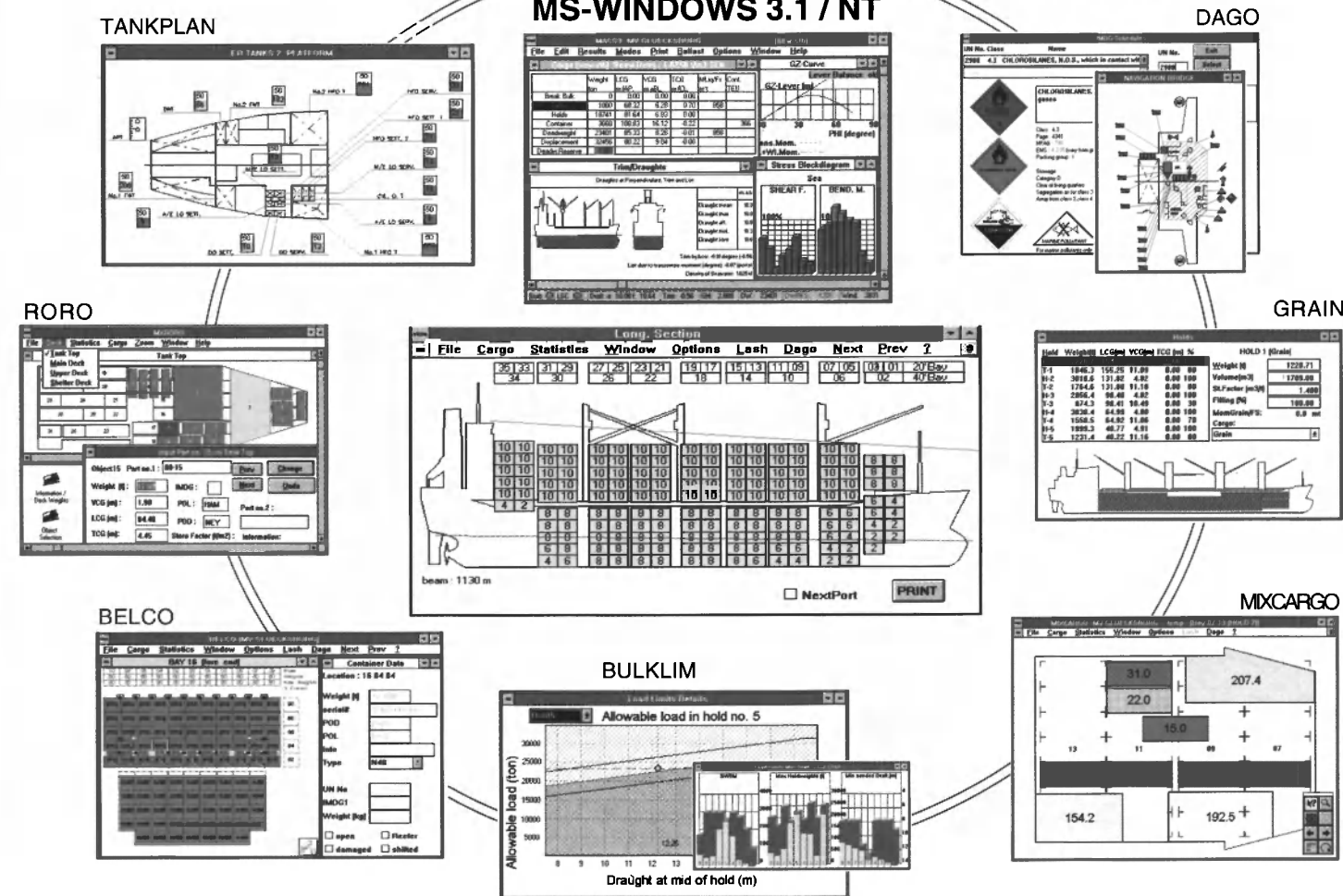
Source: IMA Associates, Shipbuilding Industry Outlook, April 1995

Maritime Reporter/Engineering News

No. 1
under MS-WINDOWS
3.1 / NT
since 1989

MACS3

Shipcomputersystems under MS-WINDOWS 3.1 / NT by seacos



Typed approved Systems:

- * HP 486 DX/33/50/66 (Hewlett-Packard)
- * SIMOS 486 DX/33/50/66 (Siemens)

MACS3 supports:

- * EDIFACT Data Transfer
- * multitasking
- * multiple interfaces (gauge systems, ONLINE data)
- * multiple languages
- * metric/American units

Software:

- * Stability program MXMACS3
- * Container program BELCO
- * Lash program SEALASH
- * Program for Mixed Cargo
- * Program for Inclining Experiment INEX
- * Program for Dangerous Goods DAGO
- * Trimoptimization program TROP
- * Damage Calculation program DAST
- * RORO program
- * Grain program
- * Program for tanker
- * Bulk Carrier Load Limits program
- * Shipmanagementprogram PERMON
- * Spare Parts program

Distributors:

- | | |
|----------------|----------------------------|
| SAIT | Belgium |
| RADIO HOLLAND | Netherlands |
| PC MARITIME | Great Britain |
| SAJ Instrument | Finland |
| RMC AG | Switzerland |
| ALL ALPHA Int. | USA, Canada, Mexico, China |
| OL NAVAL | Brazil |
| TOTAL TRADE | Chile |
| TROPHEX ENG | S.E. Asia, Taiwan |
| ITO TRADING | Japan |
| The EDI SHOP | Hong Kong |
| COSEN Ltd. | Dalian - China |

The systems (hardware & software) are certificated by the leading classification societies such as LR, GL, DNV, NKK, ABS, BV and KR. Please ask for more information and demo programs!

seacos
COMPUTERSYSTEME + SOFTWARE GMBH
AM MUEHLENBERG 6
D-24960 RUEDE/GLUECKSBURG
GERMANY
TELEFON: +49 (0)4631 / 3100
TELEFAX: +49 (0)4631 / 3632

in worldwide co-operation with

a unique draft measuring system
with dynamic trim/heeling sensors

SEA FORCE[®]

By Willard Marine Inc.



*"We run circles
around the competition!"*



Established
1956

*For the best rigid inflatable boat on the market today,
contact our professional sales representative nearest you:*

Cal Preston . . . 714-250-0880	Bill Chew . . . 813-571-3616
Russ Copley . . . 714-250-0880	David Stewart . . . 401-625-5833
Thom Bader . . . 206-548-9863	Jim Studley . . . 904-651-2515
Norman Bender . . . 717-283-1758	Michael Moralli . . . 808-262-2777
Chip Bradley . . . 708-998-6169	Thom Orndorff . . . 703-260-2944
	Homer Lambert . . . 714-338-5060

WILLARD MARINE INC.
1250 N. Grove Street, Anaheim, CA 92806 U.S.A. • Ph: 714-666-2150 • Fax: 714-632-8136

Circle 320 on Reader Service Card



Put Reliability On-Board Today!

Call 800-358-8280

NEW! Space Saving 19" Bowl offers you the luxury of colors, full size comfort and superior performance using only 2 quarts / flush.



Marine Sanitation Devices have no moving parts, no power requirements and low maintenance. Discharge by gravity or sump/pump. Handles crews from 3 to 100 men. USCG certified. IMO approved.




Oily-Water Separators in seven models, 0.15 to 10 M³ per hour. Coalescing technology means no filter replacement required.



MICROPHOR[®] Quality Products

Microphor, Inc. 452 E. Hill Road Willits, CA 95490 USA Tel: 707-459-5563 USA: 800-358-8280 Fax: 707-459-6617	Microphor Export 1 Lakeside, Paulsons Park Ower, Near Romsey Hants SO51 6AL, England Tel/Fax: +44-703-814486
--	---

Circle 278 on Reader Service Card



BALLAST- CRETE

ENGINEERED
TO BE BEST!

**For all Marine Fixed Ballast Operations
Densities to 450+ pcf (S.G. 7.2+)**

- Safe
- Quick installation
- Non-Shifting
- Pre-mixed
- Removable

GENSTAR
Genstar Stone Products Company
Executive Plaza IV, Hunt Valley, MD 21031 USA
(410) 882-5985 FACs No. (410) 882-5700

Circle 248 on Reader Service Card

HYDRAULIC TOW PINS

available with
cable hold-down and stern roller

30 YEARS
PROVEN QUALITY

SPARE PARTS
IN STOCK



WESTERN MACHINE WORKS
1870 HARBOUR ROAD, NORTH VANCOUVER, B.C. V7H 1A1 CANADA
TELEPHONE: (604) 929-7901 FAX: (604) 929-7951 OR 929-5329

Circle 319 on Reader Service Card

sector for many years. It demonstrates that U.S. builders have the capability to compete for product tanker construction, and shows they have targeted this market for penetration.

IMA estimates that 30 percent of the current world inventory of product tankers will reach replacement age over the next five years. This is based on a probability analysis using survival curves, in which IMA assesses the probability that a ship will be scrapped within five years as it reaches certain age categories. For example, IMA projects that 255 tankers between 20,000 and 50,000 dwt currently in service will be scrapped or lost over the next five years.

In addition, the total number of product tankers will need to grow in order to accommodate the projected growth in refined product trade. Recent forecasts call for oil consumption worldwide to increase about 20 percent over the next 10 years. Of particular significance will be the growing reliance of the U.S. on imported refined products. Continued growth in oil demand in the U.S., combined with limits on domestic refining capability, will create growing dependence on imported products. According to the Department of Energy, refined product imports as a percentage of total U.S. petroleum imports will increase from 12 percent in 1993 to between 22 and 33 percent in 2010. This increase in refined product imports will dramatically impact requirements for product tankers to service the U.S. trade. IMA's recent study, *Shipbuilding Industry Outlook*, provides a series of high/low projections for both replacement and additional requirements for product tankers. IMA's analysis indicates that this is a very significant market that is only now beginning to take off. IMA believes that construction of product tankers will provide an excellent business base for a number of companies over the next five to 10 years. Shipyards and suppliers positioned in this market will be competing in a buoyant, vibrant business sector with a lot of potential.

Product tanker construction is one of 20 market segments analyzed in IMA's new study, *Shipbuilding Industry Outlook*, published April 1995, and available for \$875. For more information contact: IMA Associates, Inc., 600 New Hampshire Ave., NW, Suite 140, Washington, D.C. 20037 USA; tel: (202) 333-8501; tel: (202) 333-8504.

NNS Signs New Deal To Build Product Tankers

Newport News Shipbuilding (NNS) signed a letter of intent with American Marine Tankships to build two 46,000-ton Double Eagle product tankers, with an option for up to four more.

"This agreement...combined with the first contract with Eleton demonstrates our company's resolve and our ability to compete in the world market for commercial ship construction," said Ed Waryas, director, commercial marketing. American Marine Tankships is jointly owned by American Automar of Bethesda, Md. and Marine Transport Lines (MTL), of Weehawken, N.J. "The initial ships in the series will be pure product carriers, but will be marketed in close coordination with MTL's existing chemical and specialty service," said MTL's CEO Richard T. du Maulin. "American Marine Tankships has the option to have later ships in the series constructed to a specialty or chemical configuration."

J. William Charrier, CEO of American Automar, said the joint venture is a realization of a long-standing strategic objective of both companies. "This initiative will leverage our complementary market, operating and financial capabilities," he said. "These new Double Eagles will be the first product tankers built for the domestic market in over a decade and the first U.S.-flagged new construction ships to meet the double-hull requirement of the Oil Pollution Act of 1990. They will be targeted to the domestic trades, but can operate internationally as well." The sales is pending approval of American Tankships' application for U.S. government Title XI loan guarantees. **For more information on Newport News Shipbuilding**

Circle 141 on Reader Service Card

Maritime Reporter/Engineering News

Cummins And Wärtsilä Sign Joint Venture Pact

by Andy Smith, contributing editor

"This is an historic day," declared **Pentti-Juhani Hintikka**, president and chief executive officer of Wärtsilä Diesel, as the Cummins Wärtsilä Engine Company officially came into being on March 16th with the signing of a 50:50 joint venture agreement between the Cummins Engine Co. of the U.S. and the Finnish company Wärtsilä Diesel.

The formalities took place in central London, just off Parliament Square, followed by a special reception for the world's technical press. As the same time it was announced that **Iain Barrowman**, formerly director of manufacturing for Cummins in the U.K., will head up the new company as president.

The purpose of the arrangement is to design, develop and manufacture two new families of heavy duty, high-speed diesel and natural gas engines.

The first, ranging from 3,000 to 6,000 hp in V12, V16 and V18 forms, is based on the recently announced Wärtsilä 200 unit and production will begin in May this year at the manufacturing facilities of Wärtsilä SACM in Mulhouse, France which will be transferred to the joint venture organization.

Production of the second family, designated the 170, covering 750 to 3,600 hp with both in-line and V-forms incorporating six to 18 cylinders each of 4.54 liters displacement, is scheduled to begin production at Cummins' Daventry, U.K., plant in early 1997. Both new families are aimed at the power generation and marine markets, but the 170 is thought by Cummins Wärtsilä to be particularly suitable for marine use in main propulsion and auxiliary applications.

Although technical details of the 200 unit have already been well reported, information on the 170 is still relatively scant. However, it is understood that there will be two ratings at both available engines speeds of 1500 and 1800 rpm giving a range of 115 to 150 kW/cylinder. The addition of a double stage turbocharger to the higher speed version will produce 190 kW/cylinder. The six-cylinder in-line unit is expected to weigh 3,585 kg while the largest 18V engine will tip the scales at 9,454 kg. The two families are claimed to have been designed to give very low nitrous oxide emissions without penalizing fuel consumption.

According to Mr. **Barrowman**, the need for some form of agreement became apparent in May 1994 when each company realized that the other was planning to extend into this sector — a move up the power scale for Cummins and downwards for Wärtsilä. "Moreover the planned engines were to be of similar displacement and horsepower," he explained. Talks began in earnest between the world's largest producer of high-speed diesels above 200 hp on one hand and the world's

leading producer of medium-speed diesels with a high profile in the marine market on the other. "It was immediately obvious that there was good chemistry between the two companies which led in December 1994 to the signing of a letter of intent to

form the joint venture which officially began today," continued Mr. **Barrowman**.

Both companies are enthusiastic about the benefits of the marriage. "This new joint venture will significantly expand our horsepower

range, enhance our global diversification efforts and increase our worldwide market share," commented Cummins President **Tim Solso**. "Furthermore we have saved an estimated four years development

THORDON BEARINGS ARE AVAILABLE THROUGH THESE THORDON DISTRIBUTORS

The Charles Lowe Company
1400 Park Avenue
Emeryville, CALIFORNIA 94608-0445
Telephone: (510) 652-5900
Telefax: (510) 652-5387

Pacific Marine & Industrial
2109 Vincent Avenue
Bakersfield, CALIFORNIA 93304
Telephone/Fax: (805) 832-1060

Coppedge Marine Inc.
4972 River Point Road, P.O. Box 5636
Jacksonville, FLORIDA 32207
Telephone: (904) 398-9586
Telefax: (904) 398-0373

Maguire Bearing Co.
1919 Hau Street
Honolulu, HAWAII 96819
Telephone: (808) 847-3531
Telefax: (808) 842-8889

Marine Industries Corp.
601 East Riverside Drive
Clarksville, INDIANA 47130
Telephone: (800) 733-3130
Telefax: (812) 283-6628

Johnson Packings & Industrial Products, Inc.
One Industrial Way, Unit 9
Portland, MAINE 04103
Telephone: (207) 797-9212
Telefax: (207) 797-9158

Johnson Packings & Industrial Products, Inc.
1434 Memorial Avenue, West Springfield
MASSACHUSETTS 01089
Telephone: (413) 733-7861
Telefax: (413) 732-2210

Argo International
10661 North Lombard Street
Portland, OREGON 97203
Telephone: (503) 286-8326
Telefax: (503) 286-8723

Hampton Sales Inc.
P.O. Box 492, 3618 North York Road
Willow Grove, PENNSYLVANIA 19090
Telephone: (215) 784-0390
Telefax: (215) 784-0392

Pacific Marine Equipment Inc.
3441 Thoncks Ave. W.
Seattle, WASHINGTON 98119
Telephone: (206) 281-7082
Telefax: (206) 285-9101

Avalon Marine Ltd.
44 Coventry Lane
Dartmouth, NOVA SCOTIA B2V 2K2
Telephone: (902) 456-1381
Telefax: (902) 462-1004

H.P.P.D.L. Inc.
9653 Clement Street
Lasalle, QUEBEC H8R 4B4
Telephone: (514) 364-0808
Telefax: (514) 364-0454

For International Distributors - Contact
Thordon Bearings Inc.
3225 Mainway Drive
Burlington, ONTARIO L7M 1A6
Telephone: (905) 335-1440
Telefax: (905) 335-4033

THORDON

MARINE BEARING ENVIRONMENTS DEMAND POLLUTION-FREE RELIABILITY



Working in the world's most ecologically sensitive environment, the Antarctic icebreaker and research vessel, Nathaniel B. Palmer, relies on 640 mm (25") Thor-Lube stern tube bearings for pollution free reliability. The ship is also equipped with Thordon rudder and thruster bearing systems.

Today's environmental challenges and government regulation demand a move from traditional oil lubricated stern tube systems to pollution-free alternatives.

The Thor-Lube bearing system combines proven Thordon XL bearings with Thor-Lube; a water soluble, environmentally friendly lubricant to deliver pollution-free performance. Wear life is comparable to conventional oil-lubricated systems and the system is considered equivalent to oil-lubricated by most Classification Societies.

Higher operating efficiencies can be expected with the Thor-Lube system. Operating friction is lower, particularly at start-up and higher shaft speeds. Similar in size to oil-lubricated bearings,

Thor-Lube bearings can be as easily integrated into conversion projects as new build.

For pollution-free reliability in your marine bearing application contact Thordon Bearings Inc. or your local Thordon distributor (located in over 55 countries around the world).



THORDON

Thordon Bearings Inc., 3225 Mainway Drive, Burlington, Ontario L7M 1A6
Telephone (905) 335-1440 Fax (905) 335-4033

Circle 337 on Reader Service Card

time," he added.

Mr. **Hintikka** also expressed his satisfaction with the benefits which Wartsila would derive. "Joining forces will lead to engine volumes far beyond our original expectations which in turn will guarantee a more competitive cost structure for our new products. We have gained from Cummins the strength of its production and distribution facilities,"

he added.

Marketing of the new engine families will take place through both companies' existing but complementary outlets. Cummins uses a global network of distributors whereas Wartsila operates its own worldwide sales and service organization. The product will be the same, but rather than use the 170 and 200 designations, Cummins will incor-

porate the ranges within its existing "Quatum" system as the QSR and QSW.

The new Cummins Wartsila Engine Company will have its headquarters and administrative center at Mulhouse, and the research and development team will be split between this location and Wartsila's other French facility at Surgeres. The Daventry, U.K. factory expects

the prototype 170 to be ready by the end of this year.

The companies plan to invest \$150 million over the next seven years into the joint venture which will eventually employ around 550 people.

For more information
on Cummins Wartsila
Circle 177 on Reader Service Card

Seaward Marine Products- Protecting Vessels and Port Facilities Worldwide For Over 20 Years

Seaward International Inc. is the world's largest manufacturer of foam filled marine fenders and flotation products. Our reputation for delivering the highest quality, best performing products to serve the military and commercial industry is unequalled.

Seaward Products and Services include:

- Dock Fenders
- Ship Fenders
- Lightering Fenders
- "Donut" Pile Fenders
- Foam Filled Marine Buoys
- Flotation Products
- Urethane Marine Coatings
- Specialty Elastomeric Materials
- Composite Plastic Marine Piling

As an elastomer and plastic technology corporation, solving the problems of fendering, flotation, energy absorption, abrasion and corrosion, Seaward International Inc. has the experience and products to meet your needs.

"See us at OTC Booth No. 2120 and ASNE Booth No. 220"

For more information contact **SEAWARD INTERNATIONAL, INC.**, P.O. Box 98, Clearbrook, VA 22624

TOLL FREE USA & CANADA: (800) 828-5360, (703) 667-5191, Fax: (703) 667-7987



SEAWARD
INTERNATIONAL, INC.
The Elastomer Technology Company

Circle 302 on Reader Service Card

ROYAL RUST KOTE Ballast and Void Paint

Our water based non flammable asphaltic paint is really starting to catch on with vessel owners. No sandblasting is needed and only a clean tight surface is required. It is safe to torch, and heat resistant to 300°F, penetrates tight rust, dries like rubber, and is inexpensive to use.



Royal Chemical Corporation
P.O. Box 342
Gretna, LA. 70054

Ph # (504)392-8811
Fax # (504)392-2173

**OVERSEAS
DISTRIBUTORS
NEEDED**

Circle 296 on Reader Service Card

MarAd News

MarAd Authorizes Lykes To Charter Four New Foreign Registered Ships

The Maritime Administration (MarAd) has given Lykes Bros. Steamship Co., Ltd., permission to time charter four new foreign-built containerships which will be operated under foreign registry.

As a condition of its approval, MarAd is requiring that the ships be registered in either Panama, Liberia, Honduras, the Bahamas or the Marshall Islands.

In addition, Lykes will be required to offer the ships for participation in the Administration's proposed Maritime Security Program (or equivalent), should it be enacted into law. If accepted into the program, the ships would be transferred to U.S. registry.

Lykes is a subsidized U.S.-flag ship operator. Subsidized shipping companies are not permitted to operate foreign-flag ships that compete with U.S.-flag vessels without a section 804(a) waiver.

The vessels are being built in a German shipyard to U.S. standards. Each will be able to carry 2,400 TEU. The first ship is scheduled for delivery in March, and the others at three-month intervals thereafter.

Lykes has committed to time charter the vessels on a long-term basis. It plans to operate them in its existing service between U.S. Gulf and East Coast ports and North Europe; any change in the geographic scope of service would require MarAd's prior approval.

"Without subsidy, Lykes cannot afford to operate these vessels under the U.S. flag, and there is no subsidy available at this time," MarAd said.

Congress did not complete action on maritime revitalization last year. The Clinton Administration will submit legislation shortly to the new Congress to implement its Maritime Security Program (MSP). The MSP would provide for U.S.-flag operation of up to 50 modern, efficient liner ships.

The Administration's MSP will make mandatory elements contained in the Voluntary Intermodal Sealift Agreement (VISA) program announced last August, thus requiring participants to make their entire

transportation systems as well as their ships available to the U.S. government during national emergencies.

MarAd's action on Lykes' application is in the form of a waiver of section 804(a) of the Merchant Marine Act of 1936, as amended. Section 804 prohibits a subsidized operator from operating a foreign-flag vessel which competes with any essential American-flag service unless a waiver is granted under special circumstances and for good cause.

Bender To Build Tug Pending Title XI Funding

The Maritime Administration (MarAd) has received an application from Astro Offshore Corp., Nassau, Bahamas, for a Title XI guarantee to aid in financing the construction of one anchor handling/tug supply vessel. The proposed builder of the tug is Bender Shipbuilding & Repair Co., Inc., Mobile, Ala. The tug would operate in Brazil.

The scheduled delivery date of the tug is 15 months after financial closing. The estimated guarantee amount is for \$22,207,500 of the total estimated actual cost of \$25,380,000, with a loan term of 12 years.

MarAd OKs Sales Of 17,134-gt Tanker

MarAd has given approval to the Bank of New York, N.Y., as owner/trustee, to sell the 17,134-gt tanker *Sealift Arabian Sea* to Sophil Maritime S.A., a Panamanian corporation. The vessel was built in 1975 in Los Angeles, Calif., and will be transferred to Panamanian registry. MarAd permission is required under section 9 of the Shipping Act, 1916, as amended.

Application Received To Transfer Vessels To Panamanian Registry

MarAd has received an application from Diamond Offshore General Co., Houston, Texas, for permission to transfer to Panamanian registry the 5,829-gt *Ocean Epoch* and the 5,875-gt *Ocean General*. The vessels were built in 1977 and 1976 in Mobile, Ala., respectively. If approved, the vessels would be used in offshore drilling.

Bank Of N.Y. Seeks "OK" To Sell Vessels

The Bank of New York, as owner/trustee, New York, NY, has asked MarAd for permission under section 9 of the Merchant Marine Act, 1916, as amended, to sell the following vessels:

Proposed Purchaser	Name	When Built	GT
Santa Monica International Maritime S.A.	SEALIFT CHINA SEA	1975	17,134
Santa Anna Maritime S.A.	SEALIFT INDIAN OCEAN	1975	17,134
MAVRA Maritime S.A.	SEALIFT ATLANTIC	1974	17,157
Vandou Maritime S.A.	SEALIFT ARCTIC	1974	17,157
Santa Sophia Maritime S.A.	SEALIFT CARIBBEAN	1975	17,157
San Marco Maritime S.A.	SEALIFT MEDITERRANEAN	1974	17,157
Renata International Maritime S.A.	SEALIFT ANTARCTIC	1974	17,157

McDermott Seeks Permission To Sell Barges

MarAd has received an application from McDermott, Inc., New Orleans, to sell the 10,934-gt construction barges *McDermott Lay Barge No. 30* and *McDermott Derrick Barge No. 27*. The proposed purchaser is Hydro Marine Services,

(Continued on page 17)



TIME TO TRUST THE ORIGINAL.


There is only one world leader in boat shafting, one original AQUAMET®, and it is only available from these licensed distributors: Esco, J. M. Tull and Western Branch Metals. AQUAMET sets the standard for excellence and dependability in virtually

every service need, from fishing vessels to pleasure craft, from work boats to naval craft and other ocean-going vessels. For information, call one of our authorized distributors and talk to the only people who stock the original AQUAMET for immediate delivery.

AQUAMET®
BOAT SHAFTING

Crucible
Materials

Circle 22 on Reader Service Card





a. The end of the cargo run for your important new client.

b. The ideal place to spend a lazy summer day.


c. A channel you're dredging this week.

Where will your next adventure take you?

We can get you there. For a catalog of Trimble's GPS products, call 1-800-827-2424.

Circle 312 on Reader Service Card



DEL GAVIO

MARINE HYDRAULICS, INC.

HYDRAULICS * ELECTRIC * MACHINE WORK * VALVES

- * COMPLETE REPAIRS ON ALL TYPES OF ELECTRO-HYDRAULIC STEERING SYSTEMS & DECK MACHINERY.
- * UL LISTED FOR FULL SERVICE ELECTRICAL REPAIRS ON MOTORS AND GENERATORS IN HAZARDOUS LOCATIONS.
- * HYDRAULIC PUMP AND MOTOR REBUILDING.
- * HYDRAULIC CYLINDER OVERHAUL AND TESTING.

DENISON Hydraulics
Authorized Marine Service Center

"Serving the Marine Industry for over twenty-five years"

619 Industrial Road
Carlstadt, NJ 07072
(201) 843-4700
(201) 843-6470 Fax

2900 Main Street
Bldg. #140-C
Alameda, CA 94501
(510) 523-3100
(510) 523-3390 Fax

33 Rector Street
New York, NY 10006
(212) 425-1996
(212) 363-3292 Fax

Anthony Del Gavio
President

Circle 233 on Reader Service Card

Marine Specialist

AIR CONDITIONING

HEATING • VENTILATION • PLUMBING • SMOKE REMOVAL



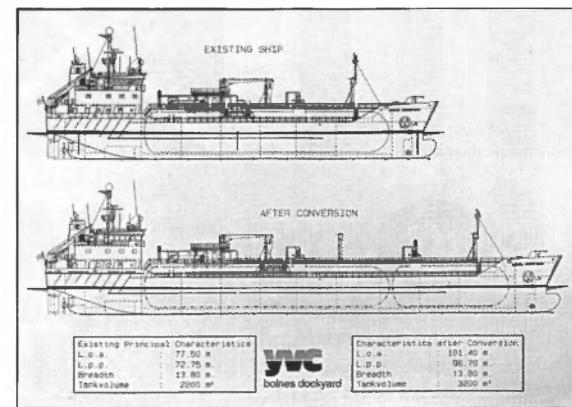
Bill Brown
ENTERPRISES, INC.

4995 Ocean Pines • Berlin, Maryland 21811 • (410) 641-5782 • Fax: (410) 641-6283

CALL FOR FREE ESTIMATES
1-800-221-1506

Circle 218 on Reader Service Card

Dutch Shipper To Convert Gas Carrier At YVC Bolnes



The Dutch shipping group Anthony Veder has awarded a contract for the conversion of its liquefied gas carrier *Coral Actinia* to the Rotterdam-based conversion specialist YVC Bolnes Dockyard.

The *Coral Actinia*, built at YVC Ysselwerf in 1993, will be lengthened by 79 ft. (24 m). An additional cargo tank will be installed. All other performances of the vessel will remain the same.

The vessel is expected at the yard at the end of 1995 and will stay there for approximately six weeks. The conversion is considered a unique project as it is very rare that gas carriers are lengthened. Special procedures have been developed within the YVC Group in close cooperation with the technical staff of the shipowner for the lengthening operation in drydock.

Anthony Veder operates a modern fleet of six gas carriers and three reefers and has one new gas carrier under construction.

For more information on YVC Bolnes
Circle 98 on Reader Service Card

New Solutions For Shipboard Maintenance



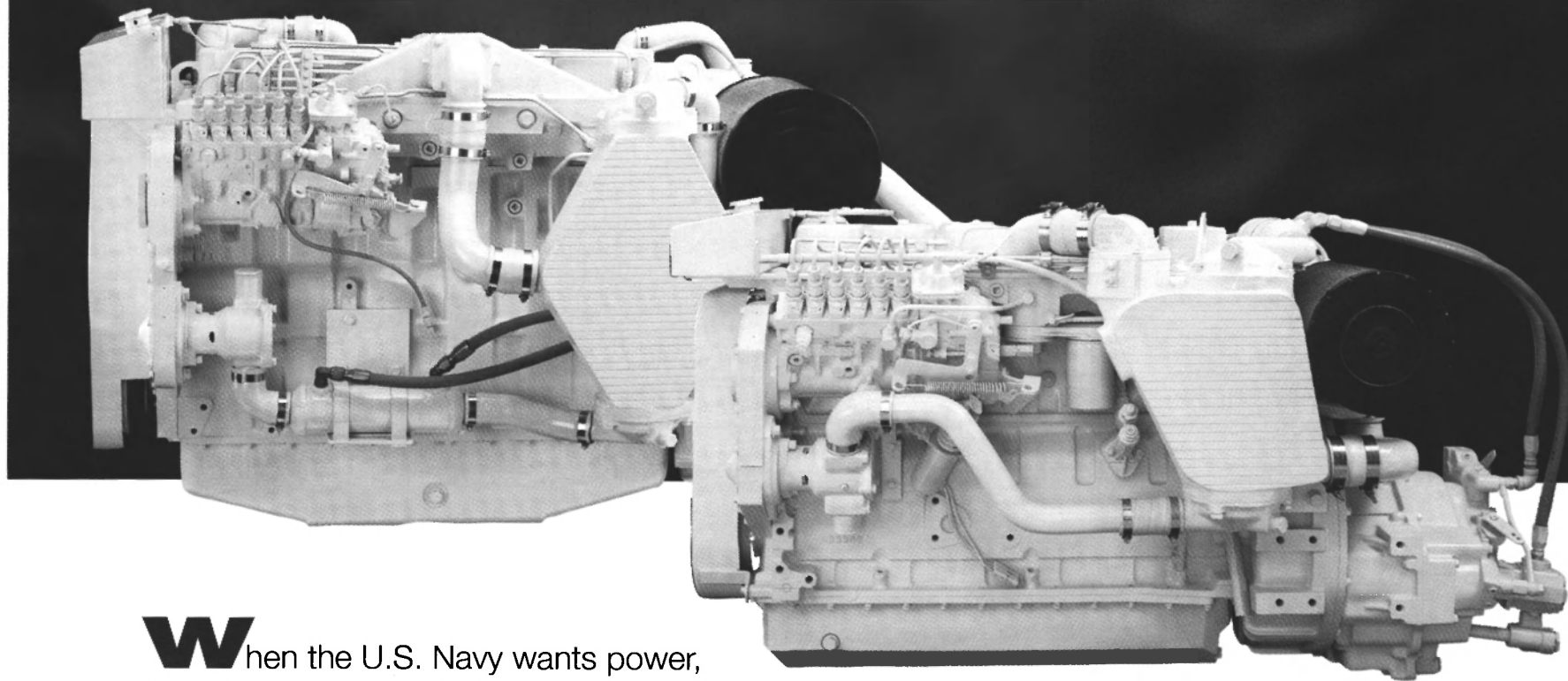
The lightship *Nantucket*, docked at N.Y. Harbor's Intrepid Sea, Air and Space Museum, receives a cleaning from Goodway's 1,000-psi high pressure washer.

A new cleaning technology from Goodway Technologies Corp. is designed to make maintenance in below-deck areas easier. Instead of conventional hand-scrubbing, a new 1,000-psi portable high-pressure washer reportedly cuts labor and cost. The washer adheres a high-foaming, biologically safe chemical solution to ship surfaces inside and out, allowing chemical penetration, followed by a high-pressure rinse that leaves the surface clean and degreased, ready for painting if needed. A similar device by Goodway, the Ream-A-Matic® Model Ram-4, cleans the tubes of desalination systems in the same manner, reportedly with time savings of 90 percent.

For more information on Goodway Technologies Corp.
Circle 63 on Reader Service Card

Maritime Reporter/Engineering News

TOUGH ENOUGH FOR THE U.S. NAVY.



When the U.S. Navy wants power, it wants the very best. To discover which engines can really take it, it specifies a grueling 1,000-hour certification test.

The test consists of 1,000 hours of engine torture...up and down the tach... overspeed/overfuel...110% load... high-sulfur-content fuel. And following the test, each engine is torn down and inspected part by part for wear.

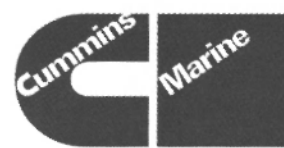
Cummins B and C Series engines passed with flying colors...the only engines in their power-to-weight class to do so.

But that's the kind of performance you'd expect from the world's largest producer of diesel engines over 200 horsepower.*

When you're spec'ing an engine for a repower or a new boat, get the best... Cummins Marine.

To put an engine to your own test, call 1-800-DIESELS or see your Cummins Marine distributor for details.

*Data Source: DRI/McGraw-Hill



**CHART YOUR COURSE
WITH CONFIDENCE.**

Circle 33² on Reader Service Card

© Cummins Marine, A Division of Cummins Engine Co., Inc., 4500 Leeds Avenue - Suite 301, Charleston, SC 29405 U.S.A.

Westinghouse Wins \$43 M Navy Mine-Recon Contract

Westinghouse Electric Corp. has been awarded a \$43.4 million contract by the U.S. Naval Sea Systems Command to develop the Near-Term Mine Reconnaissance System (NMRS), a submarine-based unmanned underwater vehicle system for locating and mapping underwater minefields.

Under the contract, Westing-

house and its suppliers will perform detailed design, construction, test and support of the prototype system, plus testing and evaluation, support equipment, training and documentation. The prototype system includes the underwater vehicle, launch and recovery equipment, controls and display equipment, and transportation and handling equipment.

"We are extremely pleased to be chosen to work with the U.S. Navy on this top priority underwater ve-

hicle minehunting system," said **Walt Dunkle**, general manager of Westinghouse's Oceanic Division. "Our more than 25 years of experience building underwater vehicles and minehunting sensors will enable Westinghouse to expand the capabilities of the U.S. Navy's submarine and mine warfare forces."

The contract calls for the delivery of the NMRS unmanned underwater vehicle system by December 1997. Most of the work by the Westinghouse team will be per-

formed at the company's Oceanic Division in Annapolis, Md.

The Oceanic Division is a world leader in providing naval minehunting systems, underwater vehicles and shipboard combat systems.

For more information on Westinghouse
Circle 155 on Reader Service Card

GE Unit & Canadian Airlines Work On Canadian Navy Engine

GE Aircraft Engines Canada and Canadian Airlines International have joined forces to support maintenance of the GE LM2500 gas turbines that power the Canadian Navy's new Halifax class frigates.

Final details of the contract are being concluded with the federal government's Public Works and Government Services Department.

This new team effort capitalizes on Canadian Airlines' proven engine maintenance skills and GE's technical knowledge, maintenance capabilities and new gas turbine services offices in B.C. to offer a low-cost, high-experience service. The arrangement will enhance Canadian Airlines' workload, use existing tooling and test equipment, and keep high-skill propulsion jobs in the U.S.

John Hawkes, general manager of GE Aircraft Engines Canada, said, "With this collaborative approach, we are complying with government's plan to take a cost-effective, commercial approach to maintenance of these engines. This provides the Navy a local, knowledgeable capability and incurs minimum setup costs. We are making use of assets that already exist rather than reinventing the wheel."

All 12 of the Canadian Navy's Halifax class frigates are each powered by two GE LM2500 gas turbines. The GE LM2500, an aeroderivative gas turbine, is used throughout the world in military ships, fast ferries and commercial vessels and in industrial applications such as gas pipeline compression, power generation and cogeneration.

For more information on GE
Circle 156 on Reader Service Card

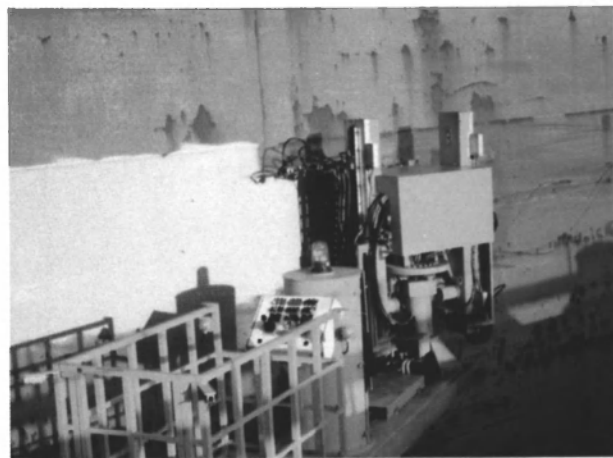
Rockwell Aligns Inertial Navigation And GPS Businesses

Rockwell Defense Electronics announced the alignment of its INS/GPS (Integrated Navigation System/Global Positioning System) businesses to better address the needs of the lower cost, higher volume guidance and control markets, for both defense and commercial applications. "Rockwell Defense Electronics is one of the few organizations that possesses both inertial sensor and GPS technology within the same company," said **John A.**



VIA NOVA Engineering Solutions

HEADQUARTERS
Via Duca d'Aosta 12, 34074 Monfalcone (GO) - Italy
Tel.: (39) 481-42001 Fax: (39) 481-42002



RO-BLAST during painting operations, installed in ship repair yard

Performance according to ship hull conditions:
Painting: min max 700/1000 sq.m./h.
HP Washing: min/max 500/700 sq.m./h.
Sandblasting: min/max 60/80 sq.m./h. - SA 2 1/2

VIA NOVA IS...

- Systems for automatic conveying, treatment, identification marking and handling of materials and magnetic cranes
- Storage and management automatic systems for plates, profiles and pipe stockyards
- Automatic panel and block lines
- Automatic systems for material processing
- Business plans to modernize shipyards

REPRESENTATIVE AGENTS

USA
Gerard Technology Associates
P.O. Box 781,
Thonandale, PA 19372
Fax: 610-380-1190

REPUBLIC OF MALTA
A.V. Critien Co. Ltd.
"Sigma" Triq il-Kawatar,
Qormi QRM 05, Malta
Fax: 491145

RUSSIA
Risco J.S.C.
45 Moika Embankment
191065 St. Petersburg
Fax: 812-3125537

SINGAPORE
Oakwell Engineering Ltd.
n° 8 Aljunied Ave. 3,
Oakwell Building
Singapore 1438
Fax: 0065-7423000

CHINA
Ekipac China Ltd.
Room 7103, Shanghai Union Rd.
100 Yanan East Road,
Shanghai
Fax: 21-3265449

DENMARK
F. Toppenberg
Ostze Alle 104
DK-9100 Aalborg
Fax: 98132558

CROATIA
Branko Matc
52203 Medulin
Lutjan - Kavc 706
Fax: 52-211031

POLAND
Emergenc
ul Ziota 61,
00819 Warsaw
Fax: 22-742482

HONG KONG
Ekipac China Ltd.
22/F, Sanghi Industrial
Center
G.P.O. Box 5539
Aberdeen, Hong Kong
Fax: 00852-28736230

CHINA
Ekipac China Ltd.
Citic Bldg Rm 1804
19 Jiangmenwai Dajie,
Beijing
Fax: 10-5120501

FINLAND
Kippo Ltd. Marine
Malmiintie 27,
FIN-21250 Masku
Fax: 21-4320839

SWEDEN, NORWAY
see Kippo Ltd. Marine (Finland)

BALTIC COUNTRIES
see Kippo Ltd. Marine (Finland)

INDONESIA
PT. Sarana Pemasok Engineering
Jl. Teknologi XVI n° 4
Complex BPPT, Meruya Utara
Jakarta Barat 11620
Fax: 0062-21-5849778

REPUBLIC OF SOUTH KOREA
Sowoo Int'l Co. Ltd.
Yoodo P.O. Box 614
417-18 Bun-I-Dong, Dobong-ku
Seoul 104
Fax: 2-7171815/7171432

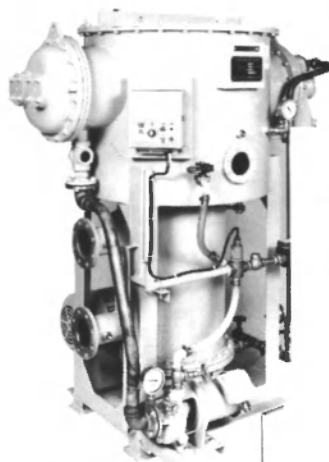
Representative agents for free areas will be taken into consideration

Circle 315 on Reader Service Card

Leaders of Desalination Technology

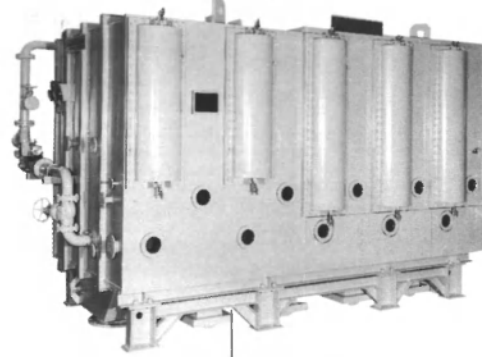
High Performance & High Efficiency
save your money!!

Choose the reliable
Watermaker



15tons/day Type KM15

With over 2,000,000 tons/day of installed capacity, Sasakura is already the world's largest supplier of Watermakers.



5 stage 225tons/day plant

SASAKURA
ENGINEERING CO., LTD.
Marine & Industrial Equipment Dept.

7-32, Takeshima 4-chome, Nishiyodogawa-ku, Osaka, Japan Tel: +81-6-473-2134 Fax: +81-6-474-2110 Tlx: 523-3188
U.S.A. : J.G.G. Services/Sasakura Tel: +1-610-430-6624 Fax: +1-610-565-9384
HongKong : Sasakura International(H.K.)Co., Ltd. Tel: +852-850-6139 Fax: +852-850-5259

Circle 294 on Reader Service Card

Maritime Reporter/Engineering News

Peterson Builders Delivers Vessels To NAVSEA



Peterson Builders, Inc. (PBI) delivered the seventh and eighth vessels of a contract by the Naval Sea Systems Command (NAVSEA) for the construction of ten 42-ft. (12.8-m) patrol craft coastal (PCCs). These aluminum hull patrol craft are powered by twin MTU diesel engines each driving a Hamilton Jet waterjet. In addition to this contract, PBI has been contracted by NAVSEA to design and construct a 48-ft. (14.6-m) variant of the PCC. This craft will be similar in configuration with the exception of larger diesel engines and waterjets required for its higher operating speed. PBI's high-speed patrol craft designs are represented in the domestic and international marketplace.

For more information on Peterson Builders
Circle 85 on Reader Service Card

(Continued from previous page)

McLuckey, Rockwell senior vice president and president of the Defense Systems business. "We are taking full advantage of this unique strength." Rockwell is combining the expertise in navigation sensor development and systems integration of the company's Autometrics Electronic Systems Division (AESD) in Anaheim, with the GPS expertise of the Collins Avionics & Communications Division (CACD) of Cedar Rapids, Iowa.

AESD will assume management responsibilities for all Integrated INS/GPS products, including product development, marketing and sales of these products.

AESD will lead the INS/GPS activity with Rockwell's family of MIGITS(TM) (Miniature Integrated GPS/INS Tactical Systems) products. **Edward P. Barry Jr.**, vice president of Integrated INS/GPS, will manage the activities.

MIGITS takes full advantage of advanced INS/GPS technologies through the use of a flexible modular architecture. This allows a variety of INS and GPS "engines" to be integrated with a common core navigation processor module. Together, they create Rockwell's low-cost, low-risk nondevelopmental item, the MIGITS.

The C-MIGITS+ uses a commercial, five-channel GPS receiver integrated with a Digital Quartz IMU. This C-MIGITS+ has been used on a number of unmanned aerial vehicles and similar tactical-type programs.

A number of additional products are currently in development to meet specific commercial and tactical customer needs.

Rockwell Defense Electronics businesses cover a broad spectrum of capabilities in six addressed markets: guidance and navigation; command, control and communications; avionics, ship systems, tactical weapons; and sensors.

Rockwell is a diversified, high-technology company holding leadership market positions in automation, avionics, telecommunications, defense electronics, aerospace, automotive component systems and graphic systems, with annual worldwide sales of more \$12 billion.

For more information on Rockwell
Circle 154 on Reader Service Card

SEACOR Acquires NRC

SEACOR Holdings, Inc. announced that it has acquired 57 percent of the outstanding common stock of NRC Holdings, Inc. SEACOR did not already own NRC Holdings through the merger of NRC Holdings, the sole stockholder of National Response Corporation (NRC), into a wholly owned subsidiary of SEACOR. The merger consideration will consist of newly issued shares of SEACOR common stock having an aggregate value of \$5.7 million.

NRC's primary business is responding to marine oil spills and planning for environmental emer-

REPAIRS AT ASTILLEROS

"BEST VALUE FOR MONEY"

ASTANO

P.O. BOX 994
15080 Ferrol
La Coruna - Spain
Tel. (3481) 34 3211
Fax (3481) 34 3252

ASTANDER

P.O. BOX 10
39080 El Astillero
Cantabria - Spain
Tel. (3442) 54 0050
Fax (3442) 54 0026

CADIZ

P.O. BOX 39
11080 Cadiz
Spain
Tel. (3456) 27 3350
Fax (3456) 27 8362

**ASTILLEROS
ESPAÑOLAS**

gencies. Since August 1993 when it commenced operations, NRC has responded to more than 50 marine oil spills. NRC provides response coverage in U.S. waters for more than 1,700 vessels. Additionally, NRC covers 400 barges and 60 facilities and terminals.

Charles Fabrikant, chairman of SEACOR, expressed optimism about NRC's future and the development of environmental service as an increasingly larger part of SEACOR's business. He com-

mented, "We have confidence in NRC's management and believe that by integrating NRC and SEACOR and offering customers a broader, more comprehensive product, we will create opportunities for both groups."

Messrs. **Jim and Mark Miller**, who co-founded NRC with SEACOR, will continue in their present positions as vice chairman and president of NRC, respectively.

SEACOR and its subsidiaries operate a diversified fleet of marine

vessels primarily dedicated to supporting offshore oil and gas exploration and development in the Gulf of Mexico, the North Sea and offshore West Africa. Services provided by the company's vessels include towing and anchor handling of mobile rigs, delivery of cargo and supplies to offshore rigs and platforms, transportation for offshore construction and maintenance, and standby safety support.

For more information on SEACOR
Circle 153 on Reader Service Card

AlliedSignal Engines To Power Hong Kong Ferries

AlliedSignal Engines announced that Austal Ships of Australia will build a fifth TF40-powered fast ferry for Yet Hing Marine Supplies of Hong Kong. These two turbines will bring the number of AlliedSignal engines powering high-speed passenger ferries on Hong Kong/China routes to 10.

The 131-ft. (40-m), TF40-powered catamarans carry 355 passengers, and travel at 40 knots loaded. The speed brings passengers to destinations faster and gives operators the potential of additional trips per day, resulting in more revenue from the same route.

AlliedSignal Engines is a designer and manufacturer of turbo-prop engines for marine propulsion and industrial power.

For more information on AlliedSignal
Circle 112 on Reader Service Card

STN Atlas Elektronik Wins Multiple NACOS Orders

STN Atlas Elektronik has received orders for 12 NACOS integrated navigation command systems from yards in Germany, Norway, Poland and South Korea.

The commissions include six 25-2 units for new container vessels building at Daewoo, and two 35-2 systems will be installed on containers being constructed for Columbia Ship Management in Gdansk. Systems of 45-2 type have been commissioned for two 73,850-grt cruise liners ordered by Celebrity Cruises from the Meyer Werft yard, which has recently completed P&O's new flagship *Oriana*, which is also equipped with the same STN Atlas navigation command system.

For more information on
STN Atlas Elektronik
Circle 113 on Reader Service Card

New FireTech Institute Offers Training

Houston Marine Training Services has launched the Fire Fighting Technical Institute (FireTech), expanding the firm's capability to provide hands-on training to mariners beyond the Coast Guard (USCG) approved courses required to meet license requirements.

In addition to five-day, USCG-approved programs which are scheduled weekly, FireTech tailors courses to meet companies' specific training requirements. This capability is important as the emphasis on safety and training grows due to industry-sponsored initiatives such as AWO's Responsible Carrier Program.

For more information on
Houston Marine Training Services
Circle 138 on Reader Service Card

"The Proton 3 is a state-of-the-art magnetometer that's compatible with the state of your budget."

Jack Fisher, President
J.W. Fishers Mfg., Inc.

"At one gamma sensitivity, the maximum practical sensitivity for a towed magnetometer, the Proton 3 gives you the best cost/performance ratio of any magnetometer on the market today. The ultimate detector for iron and steel targets, it features a rugged tow fish, LCD display, 150/300 ft cable, and is capable of a 1500 foot detection range."

Under \$8,000

Call for free catalog or to order our demonstration video.

J.W. Fishers Mfg., Inc.
65 Anthony Street, Berkeley, MA 02779 USA
(800)822-4744 Tel. (508)822-7330
FAX: (508)880-8949 or 822-1931

Pulse 8x \$1,145	DHC-1 \$3,195	SSS-100K \$26,995	Sea Otter \$17,995	TQV-1 Towed Video \$3,995
----------------------------	-------------------------	-----------------------------	------------------------------	-------------------------------------

Circle 245 on Reader Service Card

"Maximize" Your Galley Space!

At only 30-inches wide, the new Lang **Maximizer** range is perfect for tight galleys - hatchable to 26"x66".

The **Maximizer** is built with a windowed door convection oven base, your choice of top arrangements, stainless steel 4" toe base, latches, sea rails, grab bars and stainless steel exterior and interior.

For more information, please call Mark Jones at (206) 885-4045.

Lang
P.O. Box 905 • Redmond, WA • 98073
Fax: (206) 882-2373

Circle 265 on Reader Service Card

CRANKPIN & MAIN JOURNALS
GRINDING, MACHINING, POLISHING
'IN-PLACE' IN YOUR ENGINE.

In-Port or Voyage Repairs.
Anywhere in the World

- ENGINE MAIN BEARING LINE BORING
- OPTICAL MEASUREMENT & ALIGNMENT
- METALSTITCH® REPAIR FOR CAST IRON

IN-PLACE MACHINING COMPANY
USA 800-833-3575 International 414-562-2000 FAX 414-265-1000
24 HOUR EMERGENCY SERVICE...day or night, 365 days a year.

Circle 254 on Reader Service Card

UNL-Built *Mar Almudena* Achieves Higher Speed With CLT Prop



In recent sea trials, the asphalt carrier *Mar Almudena*, built by Union Naval de Levante (UNL) at its factory in Valencia for WW Marpetrol, outdid speed requirements of its contract by .4 knots. This is reportedly one of

the most outstanding features of this tanker, delivered on Dec. 27, 1994, and now on duty carrying liquid asphalt between the Canary Islands and the Spanish mainland.

This success resulted in a new order for UNL by the same owner for a chemical carrier fitted with stainless steel cargo tanks. Upon request by WW Marpetrol, this second vessel will be built with the same hull forms and fitted with an identical CLT propeller, designed by Sistemar. With these specifications, the owner's intention is to ensure a repeat of the efficient power/speed ratio achieved with *Mar Almudena*.

In speed trials prior to delivery, speed measurements were taken by means of advanced differential GPS equipment, to ensure absolute accuracy. Sistemar, the company which designed the CLT propeller installed on the *Mar Almudena*, carried out a detailed speed prediction study with a conventional optimal performance propeller. The results of the study indicated that, with such a propeller, the ship would

have achieved the exact trial speed for which it was designed — 14.49 knots at full load at 100 percent engine MCR: 4,250 bhp with the engine at 750 rpm (propeller at 126.9 rpm). Under the same conditions the CLT reportedly enabled the ship to reach a trial speed of 14.89 knots.

From the operator's perspective, this difference means that 18 percent less power is needed to reach the contract service speed. These results have reportedly been confirmed with the ship now in full operation.

For more information on UNL
Circle 97 on Reader Service Card

***Mar Almudena* Particulars**

Length o.a.	397 ft. (121 m)
Beam	60.7 ft. (18.5 m)
Draft (full load)	24.3 ft. (7.4 m)
Corresponding dwt	9,500 t
Main engine	Wartsila 8R32E
MCR	4,450 hp

Pride Acquires Horizontal Drilling Co.

Pride Petroleum Services executed a letter of intent to purchase Horizon Directional Systems, a Houston-based horizontal and directional drilling company. Said **Ray H. Tolson**, chairman and CEO of Pride, "The acquisition of Horizon is an important step for Pride. A significant portion of our rig fleet is now active in performing horizontal drilling projects for our customers, particularly in the Gulf of Mexico. Horizontal drilling has now gained widespread acceptance in the industry, and the use of this technology has made meaningful improvements in the production capacity of new and recompleted wells ... Horizon has established itself as one of the premier providers of horizontal and directional services in the United States."

Calif. Maritime Academy Graduate Receives Award

Hank Ryan, past president and director of the Society of Port Engineers, Port of San Francisco, presented **Ken Kusano**, California Maritime Academy graduate, with a gold watch in recognition of his excellence in watch standing at the school's commencement exercises in Vallejo, Calif.

Mr. **Kusano** will be receiving an active duty commission with the U.S. Navy as a surface warfare officer.

Hank Ryan (left) presents Ken Kusano with award.



BEST VALUE REPAIRS

ASTANO

P.O. BOX 994
15080 Ferrol
La Coruña - Spain
Tel. (3481) 34 3211
Fax (3481) 34 3252

ASTANDER

P.O. BOX 10
39080 El Astillero
Cantabria - Spain
Tel. (3442) 54 0050
Fax (3442) 54 0026

CADIZ

P.O. BOX 39
11080 Cadiz
Spain
Tel. (3456) 27 3350
Fax (3456) 27 8362

**ASTILLEROS
ESPAÑOLES**

YOU DON'T HAVE TO PAINT ... YOU HAVE A CHOICE!

BIO-KOTE™

BALLAST TANK PRESERVATIVE ...

- Non Hazardous
- Safe
- Firm Film
- Resists Washout
- Not Slippery
- Long Life
- Single Package
- Minimal Surface Prep
- Easy to Apply
- World Wide



ESGARD PROTECTS YOUR INVESTMENT AND PRESERVES YOUR DOLLARS

P.O. Drawer 2698, Lafayette, LA 70502
TEL (318) 234-6327 • FAX (318) 234-0113
1-800-888-2511

ESGARD INTERNATIONAL GmbH
Pollhombogen 8
21107 Hamburg GERMANY
TEL 49-40-751457 • FAX 49-40-755805

Circle 242 on Reader Service Card

"Is That All??" GMDSS



DATA, DISTRESS, ENCRYPTION & TRACKING

The ROSS DSC500 radio should cover one's wish list for this year. Fully GMDSS approved and capable of Laptop PC interface for the transmission and reception of data without a modem directly via the radio, so you can run your favorite DOS software to include vessel information reporting, tracking, and strategic operations coordination. The automatic distress function can send & receive full distress packets (DSC ID, location & situation). The DSC has secure voice/data capability with over 10³ scramble codes that change every half second. These radios can send and receive positions either manually, through keypad, or automatically with vessel tracking software. All of these functions can occur between selected individuals, groups or sub-groups.

Make the choice like your life depends on it... It Does!!!

ROSS DSC500

For more information see your dealer or contact:

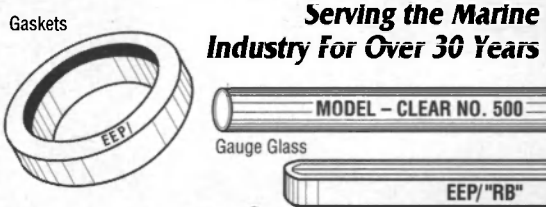
Ross Engineering, 12505 E. Starkey Rd., Largo, FL 34643, Phone: (813) 536-1226 • Fax: (813) 535-4248

Circle 291 on Reader Service Card

E.E.P./
EUGENE ERNST
PRODUCTS CO.

**Contact Us
For Our New
40 Page Catalog!**
Vast Inventory • Prompt Service

**Serving the Marine
Industry For Over 30 Years**



- Gaskets
- Gauge Glass
 - Round Tubular
 - Clear, Redline & Greenline
 - Flat Gauge Glass
 - Plain and Reflex
- Gauges
 - Liquid Level
 - Boiler Water
 - Reflex Insert Gauges
 - Clear Insert Gauges
 - Pressure Gauges
- Level Gauges
- Sight Flow Indicators
- Other EEP/Products
 - Gaskets
 - Mica Shields
 - Water Columns
 - Try Cocks
 - Boiler Gauge Illuminators
 - Gauge Glass Protectors
 - Dial Thermometers
 - Sight Flow Indicators
 - Sight Windows
 - Pipeline Safety Shields

116 MAIN ST., P.O. BOX 427
FARMINGDALE, NJ 07727-0427
TEL: (908) 938-5641 FAX: (908) 938-9463

Circle 329 on Reader Service Card

MARITIME REPORTER AND ENGINEERING NEWS

**THE BEST CIRCULATION
PRODUCES
THE BEST RESULTS!**

**McELROY
DECK EQUIPMENT**
ENGINEERED TO PERFORM
MANUFACTURED TO LAST

P.O. BOX 4454
BILLOXI, MISSISSIPPI 39535-4454
(601) 898-3736

TOW WINCHES **CAPSTANS**

McElroy is ready to design, manufacture and deliver any type deck equipment your requirements call for.

Circle 270 on Reader Service Card

Astilleros Armón Delivers Fishing Vessels



TOP: The *Maicoa Uno*, delivered by Astilleros Armon to Spanish owner **Emilio Fernandez**. BOTTOM: The *Crusader*, delivered by the same yard to Scofish International Ltd.

In December of 1994 and January of 1995, Astilleros Armon, located in the coastal town of Navia in the northern Spanish province of Asturias, delivered two significant fishing ships.

The *Maicoa Uno* is a freezer longliner for fishing in unrestricted waters, built to order from the Spanish owner **Emilio Fernandez**, operating out of Vigo. The ship is equipped with the latest deck machinery for paying out and heaving in longline, as well as advanced freezing and storage equipment to keep catches aboard ship at extremely low temperatures.

The propulsion plant consists of an Anglo Belgian Company engine with a rating of 750 hp at 600 rpm, a Reintjes reduction gear with a ratio of 3:1 and an Adrio five-blade propeller. The auxiliary engines are supplied by Volvo (2 x TMD 122, with a power of 282 hp at 1,500 rpm). The pumps are Azcue and the fuel purifier is by Alfa Laval.

The *Crusader* was delivered in January, and is the first of a pair of wet-fish trawlers that Astilleros Armon is building for Scofish International Ltd.

The hydraulic pumps used to drive this equipment are built by Denison, and the engines are Hagglands. The ship is arranged with a control console in the bridge with a Scancontrol 2000 Autotrawl system which controls all fishing maneuvers.

The propulsive system of the *Crusader* is made up of a Caterpillar 3512 engine producing 900 hp at 1,200 rpm, a Finnøy reduction gear with a ratio of 5:1, and a variable-pitch, four-blade propeller coupled to corresponding shafting. To improve maneuverability, a bowthruster is incorporated.

For more information on Astilleros Armon
Circle 96 on Reader Service Card

Maicoa Uno Main Particulars

Length o.a.	142.7 ft. (43.5 m)
Beam	30.2 ft. (9.2 m)
Depth	12.8 ft. (3.9 m)
Draft	12.1 ft. (3.7 m)
Tons	234

Crusader Particulars

Length	85 ft. (25.9 m)
Beam	26 ft. (8 m)
Depth	14.8 ft. (4.5 m)
Draft	11.5 ft. (3.5 m)
Tons	134.7

Maritime Reporter/Engineering News

The 6th ABB Turbocharger Bonus



Leaders with a partner in common: turbocharger technology by ABB.

With 63 names like these, your reference list becomes a who's who.

We wouldn't dream of dropping names. It's just that we are proud to be selected by the world's leading diesel engine manufacturers. This array of names is but a selection of our clientele. The overall picture reveals that of all motors over 500 kW almost every second turbocharger in use carries the ABB nameplate.

Last year alone, 4 000 units left our Baden production. Together with our licensees, the total surpassed 6 500.

And your bonus? Your confidence is our commitment to keep ahead. To ensure improvement remains a permanent process. To prove our credibility by a consistent performance time and time again.

At ABB Turbo Systems, retaining pole position is our history and our future.

ABB Turbo Systems

ABB Turbo Systems Ltd., CH-5400 Baden/Switzerland
Phone 056/75 40 37, Fax 056/75 51 44

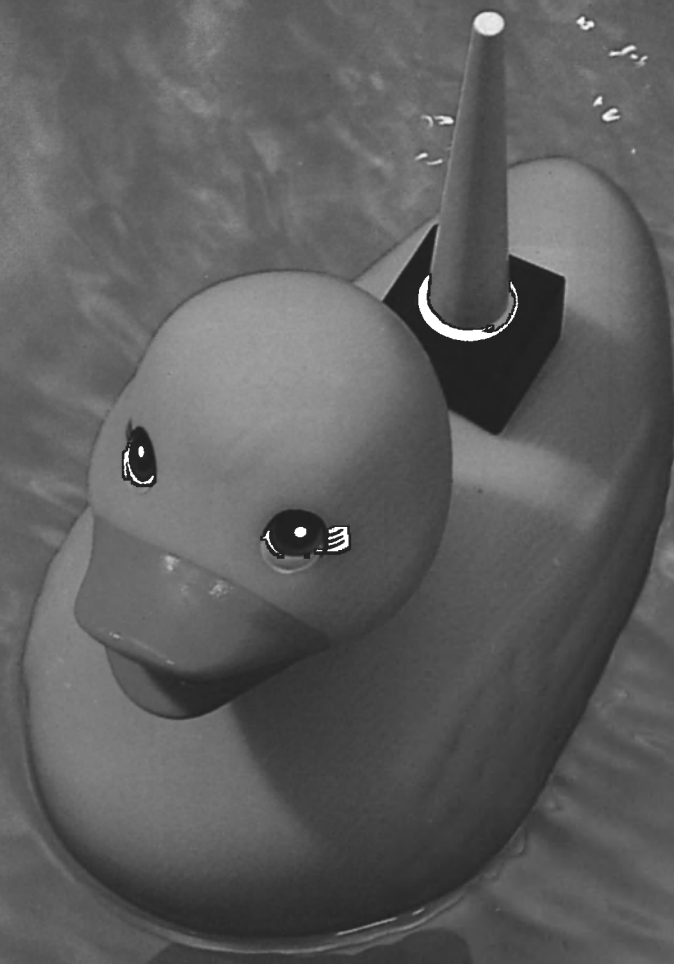
ABB Turbocharger Co.
1460 Livingstone Avenue
North Brunswick/N.J. 08902
Phone (908) 9 326 103
Fax (908) 9 326 378



Circle 33† on Reader Service Card



VIA INMARSAT



These days, it seems that vessels of all shapes and sizes prefer to call Singapore Sentosa Land Earth Station.

Here are 7 good reasons why:

- **No Landline Charge** for calls to the UK and Nordic countries so cost savings are guaranteed – the result of our unique arrangement with British Telecom and Norwegian Telecom.
- **Cost Effectiveness** promised with our rates amongst the lowest in the market.
- **Complete Range Of INMARSAT Services** to meet your needs with our A, C and our new M and B services.
- **Worldwide Connectivity** assured with connections to more than 200 countries.
- **Easy Accessibility** assured with our increased telephone capacity.
- **11 Years Of Experience** in INMARSAT communications.

- **Round-The-Clock Reliability** backed by a sophisticated infrastructure with full redundant systems and 24-hour engineering maintenance.

With all these working in your favour and our coverage now widened to not only the Pacific but also the Indian Ocean for INMARSAT C, M and B services, you can entrust most of your maritime communication needs to us. So fax or call us today.

For more information on INMARSAT A, C, M and B services, call us at (65) 331-6745/6747 or mail this to: The Sales Manager
International Mobile Division, Singapore Telecom
15 Hill Street, Telephone House, 2nd Storey, Singapore 0617
Tel: (65) 331-6745/6747 Fax: (65) 334-6110 Telex: (087) 20213

NAME _____

COMPANY _____

ADDRESS _____

TEL _____ FAX _____

Maritime Reporter - April 1985



Singapore Telecom

Service first. Always.

Circle 30 on Reader Service Card

Raytheon Wins \$74 Million Navy/Air Force Contract For Combat Training System

Raytheon Electronic Systems Division (RES-D) has been awarded a \$73.9 million contract with options up to \$221 million for the Engineering and Manufacturing Development (EMD) of the Joint Tactical Combat Training System (JTCTS).

The JTCTS program is a joint U.S. Navy and Air Force effort to develop and procure tactical training range systems configured for mobile, fixed, and transportable applications for both shore-based and deployed tactical training. JTCTS will provide proficiency training, tactics development, and readiness assessment for Navy fleet and Air Force operational units.

The system supports aircraft, ships, and submarines — either separately or in combination — executing planned tactical scenarios in a dynamic operational environment while aircraft and ships are deployed as they would be under actual battle conditions. RES-D's Portsmouth Facility in Rhode Island will be the JTCTS system integrator with overall design responsibility.

Other Raytheon defense facilities in Massachusetts and California will also support the program. Raytheon's team members — Applied Data Technology Inc. (ADTI) will provide Fixed-Air Combat Range interface design support and DynCorp will provide Fleet Training Range installation and Test and Evaluation support services.

The initial contract will require the development of two Engineering Development Models (EDMs): one for the mobile and another for the fixed and transportable applications. The mobile application will provide full Battle Force training across all warfare areas for air, ship, and submarine crews. It will be comprised of a core unit, participant instrumentation packages (PIPs) for the air/surface/subsurface platforms, and display/debriefing units. System features include the Global Positioning System (GPS) tracking; a separate training data link to connect up to 130 participants within a 400 nautical mile radius; a distributed software architecture for onboard processing as the scenario is played out; weapons and combat systems monitoring; and simulation features.

The JTCTS fixed application is similar to the mobile application except that it will be permanently installed at shore-based ranges such as Fallon, Nev.; Nellis Air Force Base, Nev.; Yuma, Ariz.; Goldwater, Ariz.; Yukon, Alaska; Beaufort, S.C., and the emerging Littoral Warfare Training Complex (LWTC) centered at Cherry Point, N.C.

The transportable application can be packed up for transportation to various worldwide ranges as required. The contract has options valued at approximately \$150 million for eight additional EDM systems for mobile, fixed, and transportable applications. The option also includes procurement of aircraft pods and internal units with

required interface kits for aircraft and ships. In addition to these options, there is a potential for 22 additional systems worth approximately \$250 million.

John Dale, JTCTS program manager, said, "The men and women at the Portsmouth facility are excited about winning this contract which helps us to maintain solid

engineering and production jobs here. As the next-generation realistic combat training system — JTCTS allows us to further develop our technology to enhance realistic combat training for our smaller defense force. We are proud to be a part of this effort for the 21st Century."

Raytheon has extensive experi-

ence in trainer and combat systems; ADTI is an experienced developer of air combat ranges; and DynCorp is experienced in Air Test and Evaluation Range support. Raytheon, headquartered in Lexington, Mass., is a \$10 billion international, high technology company.

For more information on Raytheon Circle 157 on Reader Service Card

In warm seas or polar oceans, catch the tide with Cegelec.



Power generation, electrical propulsion, control and automation

For cruise ships, bulk carriers, chemical tankers, shuttle tankers, warships and offshore applications, Cegelec offers flexible solutions to meet the needs of the customer, whether it be the owner, operator or the shipyard. Our shaft generators and power equipment, AC drives with precision digital control, power management and dynamic positioning systems are designed to optimize safety, operational flexibility and efficiency - improving our customers' competitive advantage.

Cegelec can provide total project management from initial studies through design, procurement, installation and after-sales support. As a result, in the last two years, more than 20 major projects have been entrusted to us.

Cegelec: Electrical Engineering of the Alcatel Alsthom Group.



Cegelec - USA Marine Delegation, 490 Lapp Road, Malvern, PA 19355 - USA - Tel (1 610) 651 7610 - Fax (1 610) 296 0854
Circle 221 on Reader Service Card

Seaway Plans Public Meetings On Seaway Tolls, Restructuring

The Saint Lawrence Seaway Development Corporation is hosting a series of five public meetings in March and April to obtain citizen and industry comments on the recent proposal for a second consecutive Seaway toll freeze in 1995, and

on the waterway's future — especially concerning consideration for the elimination of all Seaway tolls and proposed restructuring of the Corporation. The only remaining public meeting is to be held in Ogdensburg, N.Y. on Wednesday, April 26, from 9:30 a.m. to noon. The meeting will be held at the Ogdensburg Bridge & Port Authority, Bridge Plaza — Board Room. Anyone wishing to make a formal presentation is requested to notify

the Corporation at least ten days prior and provide approximate time desired for the presentation to: **Marc C. Owen**, Chief Counsel, Saint Lawrence Seaway Development Corporation, P.O. Box 44090, Washington, D.C. 20026-4090.

In addition, the Corporation requests an original written text of any formal presentation along with five copies before, at, or within 10 working days after the time of the meeting.

Missouri Casino Operation Joint Effort By Players And Harrahs

Players International, Inc. and Harrah's, the casino entertainment division of Promus, announced that a preliminary agreement to jointly develop a casino entertainment complex in the St. Louis suburb of Maryland Heights, Md. Both companies will abandon plans for separate Maryland Heights operations in favor of the joint effort.

Under the terms of the agreement, each company will develop and operate its own riverboat casino and the two companies will jointly develop a 300,000-sq.-ft. shoreside docking and ticketing facility. The companies have yet to announce the location of the facility. Subject to necessary approvals, construction is targeted to begin in late spring, and to be completed in the spring of 1996.


PPI Receives Pilings Orders

Plastic Pilings, Inc. (PPI) of California completed sales of pilings to the U.S. Navy, the Port of San Francisco and the Washington State Ferry System. The U.S. Navy in Seattle is using PPI's pilings as fender piles for its fuel pier modification project. The Port of San Francisco will use the pilings as part of an upgrade for the Pier 35 fender system. The Washington State Ferry System will use the pilings to remodel its terminal in Edmonds, Wash. PPI says it is the original developer of composite plastic and steel pilings manufactured with recycled plastic, and has been providing pilings for the marine industry since 1986.


For more information on PPI
Circle 109 on Reader Service Card

M.V. Federal Baffin Completed By Daewoo

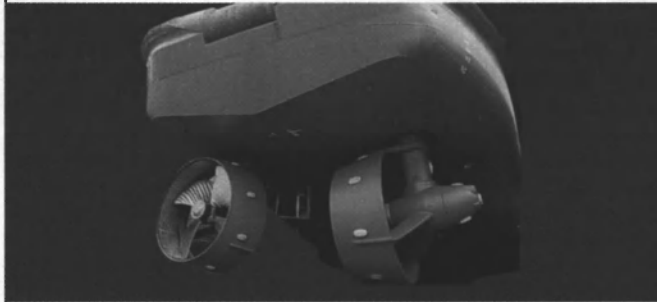
The Fednav Group of Companies, Canada's largest ocean shipping enterprise, announced the completion and delivery of the M.V. *Federal Baffin*. The vessel, built by Daewoo Shipbuilding and Heavy Machinery Ltd., was christened at the Okpo Shipyards, Pusan, Korea, by Mrs. **Lorna Murphy**, wife of **John Murphy**, general manager of transportation for Cominco Ltd. This ice-class vessel of 43,700 dwt, in addition to being an all-purpose handymax ship, represents specialized new technology and is the largest high ice-class bulk carrier built for commercial trading in the Canadian Arctic. This ship, together with her sister vessel, *Federal Franklin*, which has already been delivered to owners, will perform long-term contracts for Cominco carrying lead and zinc concentrates from the Canadian Arctic to overseas destinations. The *Federal Baffin* is the second in a series of eight newbuilding vessels currently on order for Fednav in Korea and China.



ULSTEIN PROPELLER SYSTEM...



WITH TRUSTWORTHY REFERENCES




IN THE MARKET

The Ulstein Compass Thruster concept has proven its unique flexibility since its introduction in 1978. Today, our thrusters are in operation worldwide in a wide range of applications.

The fixed hull mounted Compass Thruster is suitable for all types of applications, like tugs, supply vessels, diving support vessels, inspection vessels and ferries. For these vessels a precision of manoeuvrability and speed of response is of utmost importance, which is often difficult to obtain except with C.P. Compass Thrusters.


Power range 500 – 7000 kW.



ULSTEIN PROPELLER AS
N-6065 Ulsteinvik, Norway.
Tel.: +47-70 01 40 00. Telefax: +47-70 01 40 17.

Ulstein USA
2701 Delaware Ave.
Kenner, LA
70062
Tel: 1-504-464-4561
Fax: 1-504-464-4565


Circle 345 on Reader Service Card



M O B I L E

**THE COMPLETE
WORLDWIDE
INMARSAT
SERVICE PROVIDER**

- Calling Card Programs
- Information Delivery
- Specialized Billing
- Voice Transmission
- Data Transmission 56/64 kpbs
- Operator Services



M O B I L E

JOHN MARRA Bethesda, MD 301-214-8700 FAX: 301-214-8701	DAVID JOHNSON Houston, TX 713-480-9555 FAX: 713-480-8999
MARGE HERMAN Mill Valley, CA 415-388-3780 FAX: 415-388-5380	ROBERT HOKIN Colchester, Essex UK +44 (0) 206 767608 FAX: +44 (0) 206 76524

Circle 279 on Reader Service Card

Seaway Trade Mission Visits European Ports

Industry executives from major U.S. and Canadian Great Lakes ports, transportation companies and trade organizations took part in the St. Lawrence Seaway Development Corporation's Seaway Trade Mission to Milan, Italy, and Casablanca, Morocco, from March 24 to April 1. This spring's bi-national Seaway trade mission is the fifteenth to be organized by the Corporation, and the city stops on the schedule represent return visits. Milan is Italy's leading commercial center, with shipping averages of 500,000 tons annually. Morocco is the Seaway's third largest market for U.S. grain exports. The trade delegations in Milan and Casablanca were also held in late March.

Seaman's Church Institute Celebrates Anniversary of Floating Chapel

To mark the 150th anniversary of its first floating chapel, the Seaman's Church Institute of New York and New Jersey has published a 135-page, fully illustrated history book, *Anchored Within the Vail: A Pictorial History of the Seaman's Church Institute*.

The Seaman's Church Institute of New York and New Jersey is an advocate for the personal and professional well-being of merchant seafarers from around the world. The Institute's Center for Seafarers' Services, Center for Maritime Education and Center for Seafarers' Rights promote safety, dignity and improved working and living conditions for the men and women in the international workplace of the sea.

MRC Marine Opens North American Office

Marine information group MRC, based in the U.K., has opened its first subsidiary office, located in Stamford, Conn. The inauguration of MRC North America is a direct response to the needs of its existing U.S. and Canadian client base. MRC is an independent source of marine company information in the international marketplace, and has a presence in the oil industry, providing researched information to a variety of companies.

For more information on MRC
Circle 169 on Reader Service Card

Shipping Federation Chair: New Congress' Effect On Shipping Will Be Minimal

The new U.S. Congress is predicted to have little impact on international shipping, according to some industry experts. Addressing an audience of the maritime and busi-

ness community at a seminar in London organized by International Registries, Inc., Philip Loree, chairman of the Federation of American Controlled Shipping, said that the new Congress is unlikely to revise OPA 90, despite oversight hearings on the legislation later this year.

"There does not seem to be any evidence that the Clinton Administration, the Secretary of Transportation, the Coast Guard or some

powerful coalition of legislators is committed to seek meaningful changes in OPA 90. In fact, there are many in government who view OPA 90 as a success, since the general consensus is that the law has raised safety and pollution prevention standards in U.S. waters."

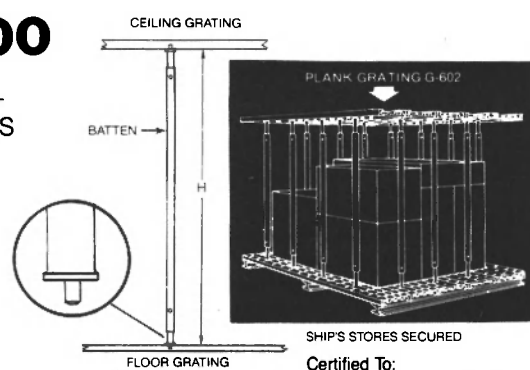
For more information on International Registries, Inc.
Circle 170 on Reader Service Card

Newport News Places \$6.3 M Aqua-Chem Order

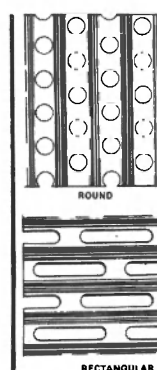
Aqua-Chem, Inc., Water Technologies Division, has announced that Newport News Shipbuilding & Drydock Co. has placed a \$6.3 million order for four Aqua-Chem evaporators, and four large shell and tube heat exchangers. The equipment will be installed on the U.S. Navy's newest

B-600

BATTEN—FOR SHIPS STORES SYSTEM

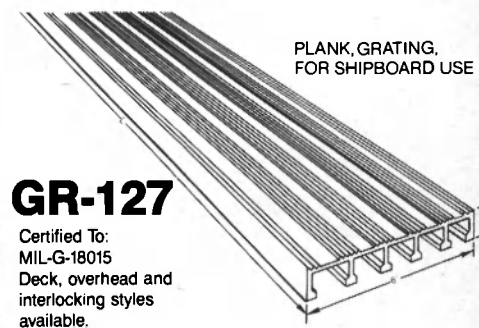


Material—ALUMINUM/STEEL
NAVSEA 804-2425891 (Adjustable) B-600A
Sizes Available—Length As Specified BUSHIPS 805-1749068 (Fixed) B-600F



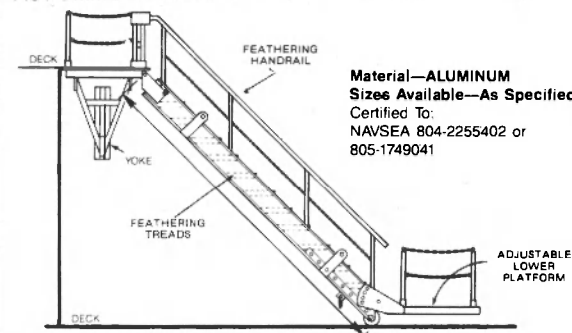
GR-127

Certified To: MIL-G-18015
Deck, overhead and interlocking styles available.



AC-500F

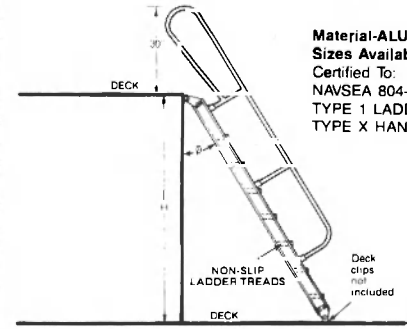
ACCOMMODATION LADDER, FEATHERING



Material—ALUMINUM
Sizes Available—As Specified
Certified To: NAVSEA 804-225402 or 805-1749041

IL-101

INCLINED LADDER FOR DECK TO DECK ACCESS



Material—ALUMINUM
Sizes Available—As Specified
Certified To: NAVSEA 804-1749113
TYPE 1 LADDER
TYPE X HANDRAIL

209

Certified To: RR-T-650C Class C
Type 3

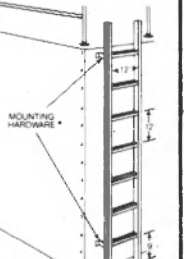


SEA SYSTEMS Inc.

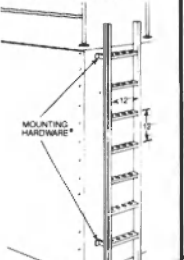
P.O. Box 8379 Ward Hill, MA 01835
Tel (508) 521-4610 Fax (508) 521-2416
ORIGINAL EQUIPMENT MANUFACTURERS

Circle 300 on Reader Service Card

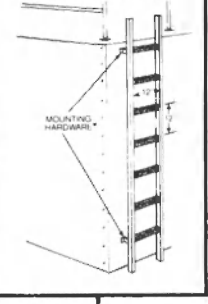
AL-100



S-100

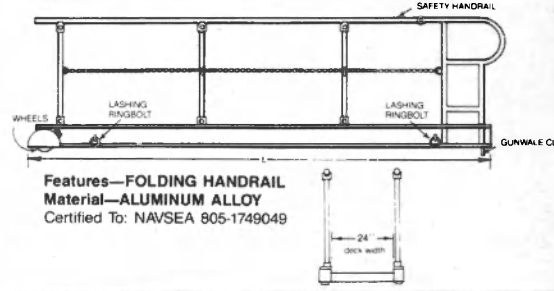


GRP-100



GB-500F

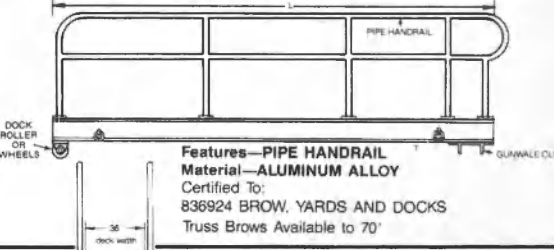
GANGWAY—FOR SHIP TO SHORE ACCESS



Features—FOLDING HANDRAIL
Material—ALUMINUM ALLOY
Certified To: NAVSEA 805-1749049

BB-300

BROW—FOR SHIP TO SHIP ACCESS

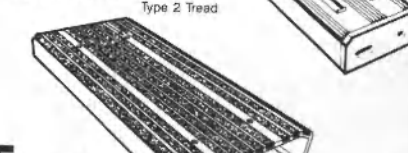


Features—PIPE HANDRAIL
Material—ALUMINUM ALLOY
Certified To: 838924 BROW, YARDS AND DOCKS
Truss Brows Available to 70'

SNH



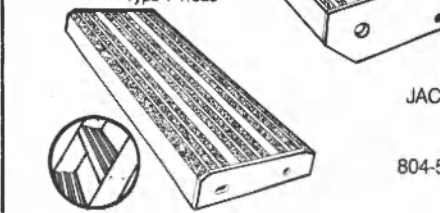
SNC



SNAT-F



SNAT



JL-400

JACOB'S LADDER
Certified To: 804-5959234
804-5000900 Rev. A

nuclear-powered aircraft carrier, CVN 76.

The evaporators are used primarily to provide potable water for the ship's population of 5,000, and the four desalination units produce 100,000 gallons per day of fresh water.

For more information on Aqua-Chem, Inc.
Circle 171 on Reader Service Card

Bazan-Carenas To Repair M.V. Gracia Del Mar

Bazan-Carenas, a ship repair center in Cartagena, has signed a contract for repair work on the M.V. *Gracias Del Mar*. The vessel was fire damaged in an incident in December 1994. The vessel will be towed from Las Palmas Port to Cartagena, where she will be repaired.

BT Inmarsat Introduces Service Enhancements

BT Inmarsat announced a series of initiatives which are designed to bring benefits to customers. The latest benefit package includes price reductions, simplified charge band structures, a reduced discount scheme entry threshold and a switch from billing in gold francs to Special Drawing Rights (SDR).

BT Inmarsat specializes in providing satellite communications solutions for the maritime sector.

For more information on BT Inmarsat
Circle 172 on Reader Service Card

MES Completes Marine Bridge And Star Phoenix

The 135-ton class light alloy-built high-speed passenger catamaran *Marine Bridge* was recently completed at the Tamano Works of Mitsui Engineering & Shipbuilding Co., Ltd. (MES), for the Maritime Credit Corporation. The *Star Phoenix*, a 46,641-dwt bulk carrier, was also recently completed and delivered to its owner, Sanzo Enterprise S.A. of Panama.

For more information on Mitsui Engineering & Shipbuilding
Circle 173 on Reader Service Card

Intrinsically safe.

If all you want in a marine handheld VHF is portability, maybe the Horizon HX220AS is too good.

Sure it meets the industry guidelines for explosive environment applications. But it also has the punch you get from six watts of transmitting power, full-on microprocessor control, gold battery contacts for reliability, generous moisture protection, and careful, intelligent engineering.

It receives all U.S., Canadian and international channels as well as 10 weather channels, and can be programmed to scan any number or combination of them automatically.

One-touch channel selection as well as direct access to channel 16 and the weather channels is so easy it can be done in heavy

gloves. The LCD display is oversized and backlit. And options like the external speaker/microphone which allows hands-free operation make it ideal for tankers, tenders and oil rigs.

The HX220AS is a lot of radio in a remarkably small and lightweight package. To find out more about it, or about Standard's intrinsically-safe eight-channel HX340 UHF and VHF handhelds, call or write today. Just to be on the safe side.

Nothing takes to water like Horizon.

Standard Communications

P.O. Box 92151
Los Angeles, CA 90009-2151
Telephone: (310) 532-5300

Represented in Canada by:
CARDON, Hamilton, Ontario
416/527-1040



Also available: the eight-channel HX340 UHF or VHF.



**Now With
3 YEAR WARRANTY!**



Circle 307 on Reader Service Card

Marine Bridge Particulars

Length	98.4 ft. (30.0 m)
Width	27.2 ft. (8.3 m)
Draft	4.2 ft. (1.3 m)
Weight	135 tons
Main engines	Niigata V-type
.....	water-cooled diesel
Maximum trial speed ...	32.75 knots

Star Phoenix Particulars

Length	622.6 ft. (189.8 m)
Width	101.7 ft. (31 m)
Draft	54.1 ft. (16.5 m)
Weight	27,011 tons

Bird-Johnson Acquires PDI Corp.

The Bird-Johnson Company has acquired the assets of PDI Corporation. PDI provides dynamic response analyses for ship propulsion plants, and will now operate as a division of Bird-Johnson.

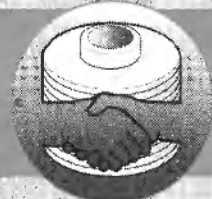
C. Joseph Rubis, former CEO of PDI, has been appointed vice president of Bird-Johnson.

According to Peter J. Gwyn, president and CEO of Bird-Johnson, "PDI's expertise will enhance Bird-Johnson's ability to design and engineer our products and systems for optimum performance under a variety of marine operational conditions."

"In addition," he continued, "PDI will be a valuable asset as Bird-Johnson continues to expand in the international market."

Bird-Johnson Company manufactures and services controllable and fixed pitch propellers, waterjets, thruster systems, and control systems for military and commercial vessels.

For more information on Bird-Johnson
Circle 179 on Reader Service Card



Joining Forces to Defend Against the Wet Environment

In preparation for the America's Cup, the world's best sailors, engineers and designers are joining forces, or *partnering* - in pursuit of vital technological advantages.



enhanced strength as well as minimal rope shrinkage and hardening. The result - significant performance advantages over ordinary twisted nylon ropes including:

- **Excellent breaking strength - 15% stronger**

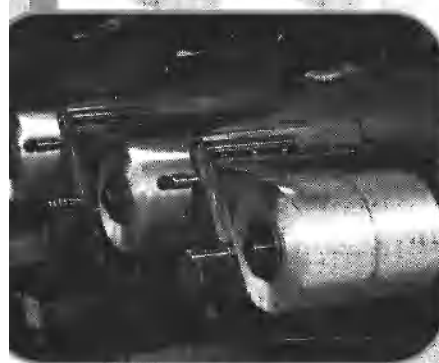


At New England Ropes, *partnering* is also our key to engineering better dock and anchor lines.

Superior wet abrasion resistance - up to 20X greater

Improved resistance to harmful UV rays

Outstanding durability for long-lasting performance



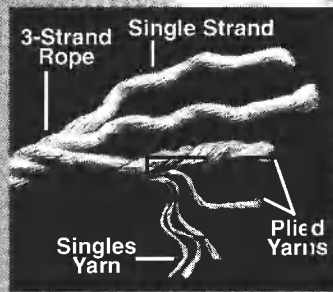
Our rope manufacturing starts with AlliedSignal's high tenacity Caprolan[®] nylon with a proprietary SeaGard[™] marine

overfinish. That's our first line of defense against wet abrasion.

Join the forces that defend against wet abrasion with New England Ropes' 3-strand Dock and Anchor lines - available in a variety of sizes.



By utilizing a special rope stabilization process, we transform these



fibers into a premium rope that's easy to handle, with

For further information, please call or write New England Ropes today.

NEW ENGLAND ROPES

trademark of **AlliedSignal**

Princess Equips Vessels With Malin 3000 Diesel Engine Analyzers

Princess Cruises ordered Malin 3000 portable diesel engine analyzers and Malin CDM crankshaft deflection meters for the *Crown Princess* and *Royal Princess*. Last year the company equipped the *Pacific Princess* and the *Island Princess*

with the same units.

The Malin 3000 is a portable precision diesel engine analyzer which is designed to increase the speed, accuracy and reliability of determining the health of the main and generator diesel engines. Information gathered is then downloaded to a desktop personal computer.

For more information on the Malin products
Circle 124 on Reader Service Card

AEPCO Debuts New Security Monitoring System

Advanced Engineering and Planning Corp., Inc. (AEPCO) has introduced the LB1000 Security Monitoring System for seagoing vessels. LB1000 has undergone testing and is now in service aboard ship, and is reportedly already proving its ability to survive the harsh marine environment.

The turnkey system is designed to provide cost-effective and reliable security and equipment/system monitoring. Typical monitoring includes, but is not limited to fire, flooding, temperature, smoke power loss, alarms, and security against intrusion and vandalism.

For more information from AEPCO
Circle 125 on Reader Service Card

Trimble Signs \$24 Million Deal With AMSC

Trimble signed a contract with American Mobile Satellite Corp (AMSC) which calls for Trimble to supply its Galaxy/GPS land mobile satellite communications terminals for use in AMSC's Mobile Messaging Service Network. The contract is worth \$24 million, and deliveries of the product are to begin this May. Trimble Galaxy terminals are used throughout the U.S. by the trucking, rail and commercial marine industries. The Trimble Galaxy terminals will provide access to AMSC's Mobile Messaging Service using the new AMSC satellite, scheduled to be launched this spring. The new service will provide two-way communications, authorized by the FCC, in the continental U.S., Hawaii, Alaska, Puerto Rico, the Virgin Islands and up to 200 miles offshore.

For more information from Trimble
Circle 126 on Reader Service Card

For more information from AMSC
Circle 127 on Reader Service Card

Monico Inc. Releases Chinese Version Of The "Monitor"

Monico Inc. released the Chinese version of its high performance Engine & Turbine Trending and Alarm System called the "Monitor." The first Chinese configurable Monitor has been installed by Wartsila Diesel in a power plant in southern China. The Monitor is a man machine interface (MMI) software product which is used in combination with programmable logic controllers and high performance turbine control systems. The monitor is designed for a variety of applications, such as cogeneration plants, engine test cells, and other applications which use reciprocating engines and gas or steam turbines.

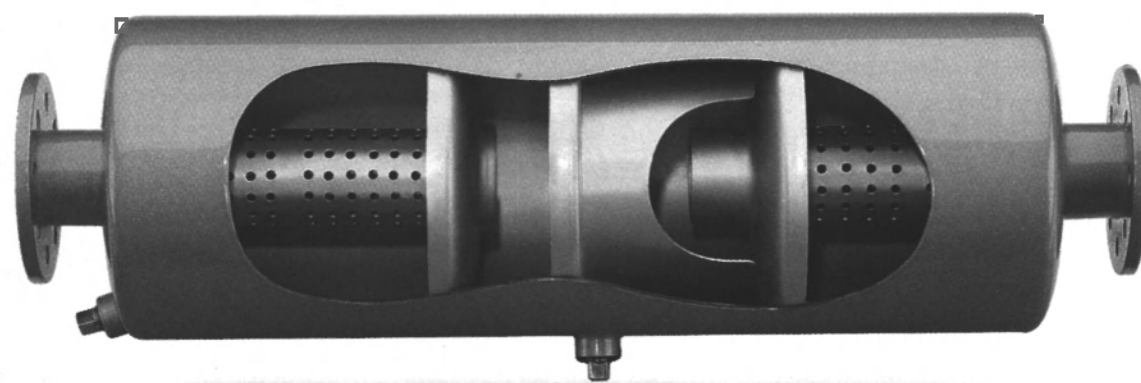
For more information on Monico
Circle 129 on Reader Service Card

Barataria Delivers Lofting Package For Swiftships

Barataria Lofting Co. recently delivered services to Swiftships Inc. located in Morgan City, La. on a 141-ft. (43-m) and a 145-ft. (44-m) crew supply vessel. The job entailed lines fairing, offset generation, part generation and burning machine code along with production related data for the transverse and longitudinal structural aluminum plate comprising the hull.

For more information on Barataria
Circle 130 on Reader Service Card

Think Of It As
The Strong, Silent Type



Nelson Silencers Quietly Outperform The Competition.

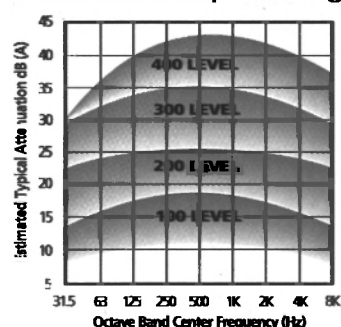
Quiet performance. It's the reason you buy a silencer. But when you buy Nelson silencers, you get so much more. Nelson silencers not only quietly outperform the competition, they outlast them. Our heavy duty aluminized steel construction and three step finishing process resists heat and corrosion, so Nelson silencers last longer and can operate at a maximum temperature of 1250° F. So Nelson silencers don't require costly metco or zinc coatings.

And Nelson silencers are smaller and lighter than competitive silencers, so installation is easy and you save money on freight costs.

What's more, Nelson has an on-site, state-of-the-art acoustical test facility. We test our silencers on several different engines so you know you're getting a silencer that performs. No wonder Nelson silencers are the quietest in the industry.

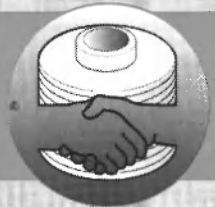
Unlike single-data line curves, which represent only one engine, the Nelson attenuation graph realistically depicts the range of attenuation achieved on various engines.

The bottom line? When you buy a competitively priced Nelson silencer you get the one thing you need most. Sound results.



NELSON DIVISION
Exhaust & Filtration Systems
1861 U.S. Hwy. 51/138
P.O. Box 428
Stoughton, Wisconsin 53589-0428
U.S.A.
Telephone 608-873-4200
Telefax 608-873-1532

Circle 283 on Reader Service Card

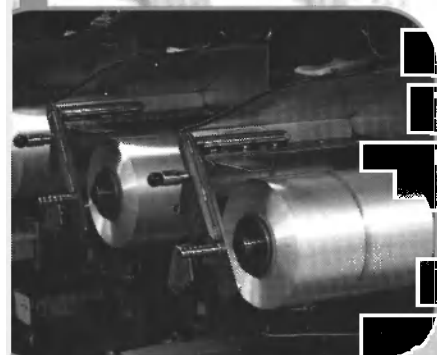


Joining Forces to Defend Against the Wet Environment

In preparation for the America's Cup, the world's best sailors, engineers and designers are joining forces, or *partnering* - in pursuit of vital technological advantages.

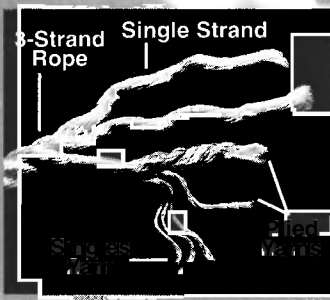


At New England Ropes, *partnering* is also our key to engineering better dock and anchor lines.



Our rope manufacturing starts with AlliedSignal's high tenacity Caprolan® nylon with a proprietary SeaGard® marine overfinish. That's our first line of defense against wet abrasion.

By utilizing a special rope stabilization process, we transform these



fibers into a premium rope that's easy to handle, with

enhanced strength as well as minimal rope shrinkage and hardening. The result - significant performance advantages over ordinary twisted nylon ropes including:

- **Excellent breaking strength - 15% stronger**

- **Superior wet abrasion resistance - up to 20X greater**

- **Improved resistance to harmful UV rays**

- **Outstanding durability for long-lasting performance**

Join the forces that defend against wet abrasion with New England Ropes' 3-strand Dock and Anchor lines - available in a variety of sizes.



For further information, please call or write New England Ropes today.

NEW ENGLAND ROPES

848 Airport Road, Fall River, MA 02720
Tel: (508) 678-8200, Fax: (508) 679-2363

SeaGard® is a registered trademark of



RECENT SHIP SALES

This report, compiled by Shipping Intelligence, Inc., a New York maritime consulting firm, tracks sale prices of secondhand bulk carriers and tankers.

Date Reported	Vessel Name	Vessel Type	Dwt.	Year Built	Sale Price (Millions)
3/5/95	Filpos	Bulker	14,253	77	\$3.3
3/6/95	Australian Granel	Bulker	22,655	81	\$6
3/6/95	Benignity	Bulker	22,670	78	\$4.5
3/6/95	Stamina	Bulker	25,660	69	\$1.7
3/6/95	Presidio	Bulker	26,891	77	\$4.75
2/27/95	Crystal B	Bulker	27,125	81	\$8.9
2/27/95	Petra Lady	Bulker	29,096	73	\$2.7
2/27/95	Barbican Success	Bulker	32,514	84	\$10.1
3/6/95	Hunter	Bulker	33,529	74	\$4.1
3/13/95	Nikea	Bulker	34,173	73	\$4.1
2/27/95	Western Avenir	Bulker	36,955	84	\$13.8
2/27/95	Western Georgios	Bulker	38,406	72	\$3
2/27/95	Nikkei Challenge	Bulker	40,190	85	\$15.5
3/13/95	Silver Target	Bulker	50,317	80	\$8.2
3/6/95	Pakia	Bulker	54,562	73	\$3.65
2/20/95	Brilliant Venture	Bulker	58,412	81	\$11.5
3/6/95	Anita L	Bulker	63,879	83	\$18.33
3/6/95	Peter L	Bulker	63,889	84	\$16.3
3/13/95	Sunroy	Bulker	65,112	76	\$7.3
2/27/95	New Amity	Bulker	68,192	86	\$17.6
2/27/95	Oriental Venus	Bulker	69,585	86	\$17.5
2/27/95	Chengji Star	Bulker	69,734	88	\$20
3/13/95	Victoria II	Bulker	71,200	76	\$6.5
3/13/95	Red Hunter	Bulker	72,059	75	\$4
3/6/95	Toyo Eternity	Bulker	115,977	76	\$5.25
3/13/95	Orinoco	Bulker	148,629	82	\$15
2/20/95	Nokturus	Tanker	23,050	86	\$16
3/13/95	Quebec	Tanker	39,100	77	\$8.5
3/13/95	Pacific Jade	Tanker	39,998	75	\$4.1
3/6/95	Fantasy L	Tanker	42,742	74	\$3
3/13/95	Port Royal	Tanker	45,390	82	\$13
2/20/95	Consul	Tanker	59,650	75	\$4.8
2/27/95	Amra Fin	Tanker	65,682	81	\$11.9
2/27/95	Full Moon River	Tanker	84,995	87	\$26.5
2/20/95	Cloudsdale	Tanker	87,075	75	\$3.8

Cegelec Adds \$50 M Navy Contract To Busy Schedule

by Kathleen Gleaves,
contributing editor

On March 13th, the Martin Marietta team—including Cegelec, Gibbs & Cox, General Electric Corporate Research, Bath Iron Works and Ingalls Shipyard, plus several engineering firms—signed a \$50 million contract with the U.S. Navy to design the fleet of the future.

The philosophy behind the new design represents a revolutionary change in military practice. The specifications were simple; design a common Integrated Power System for both ship's electrical service and electric propulsion for use throughout the entire surface fleet, aircraft carriers to amphibians.

Unlike previous contracts and vessel designs, MM's Integrated Power System proposal was selected not for its high-tech, military exclusivity, but rather for its low-risk design utilizing proven marine electric propulsion technologies that

function equally well for both government and commercial fleets.

As a major player on the Martin Marietta team, Cegelec will supply the propulsion system component generators, motors, converters and switchgear. Cegelec was formed in 1989 by the merger of Britain's GE and CGEE Alsthom of France in 1989. The company recently acquired a controlling interest in AEC the German drive manufacturer. This new corporate configuration according to Cegelec, makes the company the largest drive manufacturer in the world—and therefore an obvious choice to join the MM team.

Integrated Power System Advanced Development

The approach is to use commercially-proven equipment and a zone DC ship service distribution architecture combined with a solid-state propulsion power converter. The generator, a conventional two pole 60 Hz machine, produces a 416 VAC, 3-phase output. Power is distributed in this form via conventional, medium-voltage cable and switchgear to the propulsion converter.

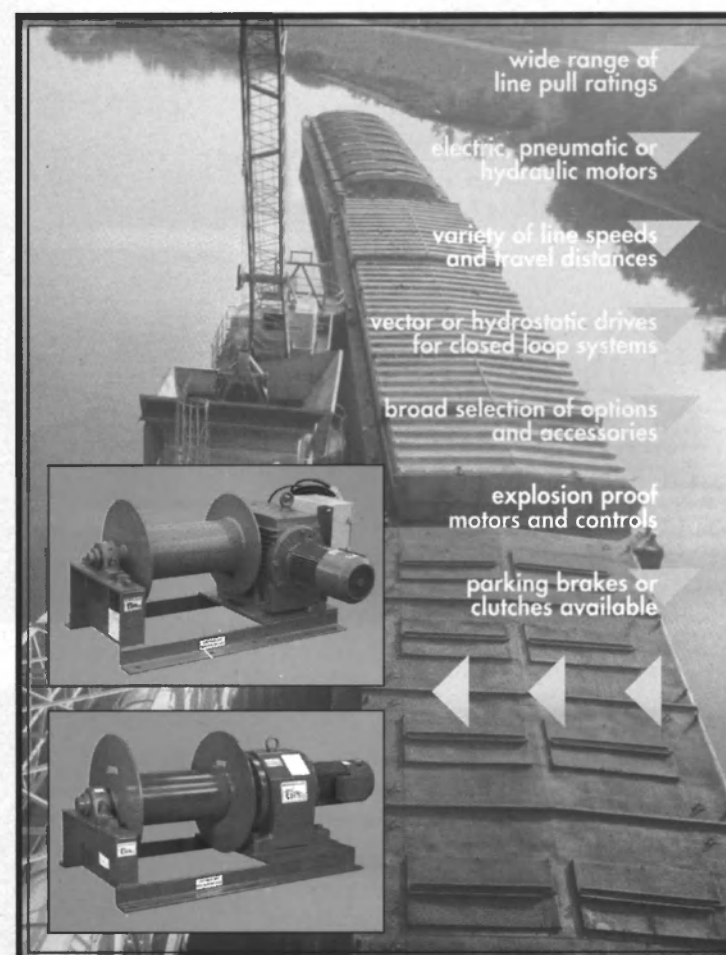
The converter consists of a diode rectifier front end and multiple PWM inverter sections. The converter expands existing IGBT (Insulated Gate Bipolar Transistor) based PWM technology to the medium-voltage range. PWM technology has long been a desirable technology for vessel propulsion, but it has been unavailable in the required power range until now.

Ship service DC power is produced by a conventional transformer and rectifier, distributed via DC cable and then converted to 60 or 400 Hz AC at the load site using soft switching type Ship Service Inverter Modules.

The 15-phase propulsion motor is based on a commercial industrial design. Each unit is installed as a self-contained module. The entire system is driven by Rolls Royce Westinghouse gas turbines.

With a reduced defense budget to consider, affordability and low-risk technology were prime considerations for the project. That means

(Continued on page 38)



THERN BARGE PULLERS TAILORED TO FIT YOUR NEEDS

Every Barge Puller we sell is tailored to its specific use. Our Modular Design means we can quickly create the right combination of motor, reducer, and drum to deliver the exact performance you require. Call us and we will help you analyze your application.

Within a few weeks, or even days, we can deliver a Barge Puller perfectly tailored to fit your needs.



Move It With Thern

TEL 800-478-8764
FAX 507-452-5282

Request ThernFAX 24B for more information.

S. Army Corps Of Engineers Seeks Builder For Crane Barges

The director of the U.S. Army Corps of Engineers' Marine Design Center (MDC) announced an Invitation for Bids number DACW61-95-B-0035 for the design, construction, testing and delivery of three steel crane barges for use in the U.S. Army Corps of Engineers' Maintenance and Repair Mission in the Inland Rivers Systems. Each vessel is to be 150 ft. (45.7 m) long, 30 ft. (9.1 m) wide and 10 ft. (3 m) deep; with steel, welded construction and special consideration given to crane stability and elimination of personnel "pinch points." One vessel will be delivered to the New Orleans district, one to the Rock Island district and one to the St. Paul district. Requests For Proposals are available now. Bid opening is planned for May 18. For more information, contact: Commander and District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pa. 19107; tel: (215) 656-6770; Attn: JENAP-CT (Ms. Linda Toth); Reference: DACW61-95-B-0024.

Rice Debuts New Nozzle, Propeller

Rice Propellers Co. has a new nozzle and a new propeller design, the Lubbed Rice Speed Nozzle and Speed Propeller, respectively. The nozzle has a hydrofoil section which is reportedly similar to an "orange seed shape," designed to be entirely hydrodynamic. A 64-in. Speed Nozzle and a Kaplan Skewed Propeller was installed on the 86-ft. (26.2-m) trawlers *Strike One*, *Strike Two* and *Strike Three*, vessels built by J&J Marine of Bayou La Batre, Ala. The trawlers are each powered by a Caterpillar 3412 engine, which generates 540 hp @ 1,800 rpm.

For more information
Circle 121 on Reader Service Card

Trawler Specifications

Length	86 ft. (26.2 m)
Beam	24 ft. (7.3 m)
Fish hold	5,000 cu. ft.
Speed	10 knots
Auxiliary engines	Caterpillar
Propeller	Rice
Nozzle	Rice
Winch	McElroy
Refrigeration	LadineryHardy

New Saab TankRadar Reported A Success

The third generation Saab TankRadar G3 has, in less than two months since its introduction, been ordered for more than 30 ships, the company reports. The ships are of various type and size, ranging from a VLCC to an FPSO for Shell.

For more information from Saab
Circle 123 on Reader Service Card

Munters Offers Line Of Spray And Mist Eliminators

Munters Corp. Gas Cleaning Div. offers a complete line of spray and mist eliminators for marine engine room and air conditioning air inlets. Munters' eliminators consist of an array of specially designed fixed vanes in custom-built housing. Low maintenance is reportedly achieved

via the fact that there are no moving parts. Munters' vane type eliminators have been used for more than 10 years.

For more information on Munters
Circle 120 on Reader Service Card

Jeamar Introduces New Series Of Hauling Winches

Jeamar Winches introduced its

new series of hauling winches with line pulls ranging from 600 to 20,000 lbs. This new line has been developed specifically for application where rugged pulling is required. The winches can be mounted horizontally or vertically and numerous options are available such as automatic braking, controls, grooved drums, rotary limit switches and explosion proof features.

For more information from Jeamar
Circle 122 on Reader Service Card

Shown Actual Size
[And Almost Actual Weight]

Get ACR quality in the world's smallest, lightest, most versatile EPIRB

ACR's Satellite 406™ MHz EPIRB brings the security of the industry's most trustworthy frequency to any vessel. The Satellite 406™ fits as easily into a handy surface mount or a recessed bulkhead mount as it does on this page. (OK, so we took some liberties with the antenna.) There's even a carry case

WARNING: USE ONLY DURING SITUATIONS OF GRAVE AND IMMEDIATE DANGER.

OPERATION
ON (Automatic Activation): Once separated from bracket, EPIRB will activate via water sensor.

ON (Manual Activation): Pull yellow loop, breaking key on top; confirm switch is ON. Strobe and red light will flash, EPIRB will beep.

STANDBY (Standby): To stop transmission, remove EPIRB from water, move switch to READY, replace key. Reinstall in bracket.

TEST: Move switch to TEST; release after first beep. EPIRB will beep and strobe will flash. (Turning to OFF Pauses EPIRB transmission.)

for transporting from home to vessel for the weekend boater. So, one size fits all. Plus it's from ACR. And that means it'll perform when you need it. Big on dependability, small on size - just what you'd expect from the biggest name in Search and Rescue.

5-Year Limited Warranty

ACR Electronics, Inc., 5757 Ravenswood Road, Fort Lauderdale, FL 33312, U.S.A. Worldwide: +1 (305) 981-3333 Fax: +1 (305) 983-5087
Circle 200 on Reader Service Card

Cegelec Wins Navy Contract

(Continued from page 36)

affordability not just in procurement, but in construction, upgrading, maintenance, and training as well. Commonality throughout the surface fleet will achieve that objective. Sharing the technology with the commercial industry will further reduce procurement costs by increasing volume and streamlining shipyard production.

Cegelec Seeking A Place In The American Marketplace

Although the contract is a milestone in its significance to the marine engineering world, it is a small part of Cegelec's interests in the marine industry.

According to **Brian Pope**, senior vice president of the U.S. office, the company is enjoying a rapidly increasing share of the shipbuilding market worldwide.

The company is currently supplying main electric propulsion drives, onboard electric power generation and many other systems for seventeen large ships under construction primarily in European yards.

First off the production line from the Chantiers de l'Atlantique yard is the *Legend Of The Seas* for RCCL scheduled for delivery later this month.

The ship will cruise Alaska's Inside Passage. A sistership, the *Splendor Of The Seas*, will join her in late 1997. Cegelec will supply five GEC Alsthom diesel generators (11.3MW - 6.6 KV - 514 rpm) and two variable-speed main propulsion drives including double-winding synchronous motors.

Cegelec's Load Commutated Inverter (LCI) technology is finding favor on larger ships, particularly in cases where the ship service load outstrips the propulsion loads, such as on cruise ships. Electric motors eliminate the need for long shafts, increase flexibility in engine room layout and occupy less space overall.

Two additional RCCL ships are under construction in Kvaerner Masa-Yards for delivery in late 1996. Cegelec will supply four diesel generators with a 15.3 MW total capacity, and a 6.6 KV switchboard. Two LCI variable-speed main propulsion drives, the harmonics filtering system, and three 1700 kW AC induction motors for the thrusters round out the package.

Two vessels for the Princess Lines, The *Sun Princess* and the *Dawn Princess*, are currently under construction at Fincantieri and are also slated for delivery in 1996. These ships will also utilize LCI propulsion systems. In addition to the four diesel main generators, Cegelec will supply two emergency generators and nine induction motors for air compressors and transverse thrusters.

LCI drives are also being installed on Antarctic Research and Support vessel and Oceanographic and Fishing Research vessels where quiet propulsion systems are needed to aid research functions.

The first of seven chemical tankers for Sto Nielsen will be delivered in October of this year. This order represents the first tankers to utilize Cegelec's LCI system.

As head of Cegelec's U.S. office, **Brian Pope** is understandably pleased with the work on the U.S. Coast Guard Polar Icebreaker currently under construction at the Avondale shipyard. The company is supplying two variable-speed main propulsion drives consisting of twelve-pulse cycloconverters.

Although only one of the ships on their current schedule is being built in the U.S., Mr. Pope is anxious to see more work completed in American yards.

"There is a problem in our U.S. yards in that they were supported mainly by the Navy and they have to go through a transition, and the problem is a lot of the infrastructure to supply our yards isn't in the country now. A lot of the expertise we need to build these high-tech [commercial] ships is not around."

(Continued on following page)



**Interior Buildouts
Quality On Time
Quality In Budget
...and we will consider your
other priorities.**

1101 Edwards Avenue, Harahan, LA 70123
504/733-5033 Toll-Free 800/445-5033 Fax 504/733-3934

38

Circle 255 on Reader Service Card

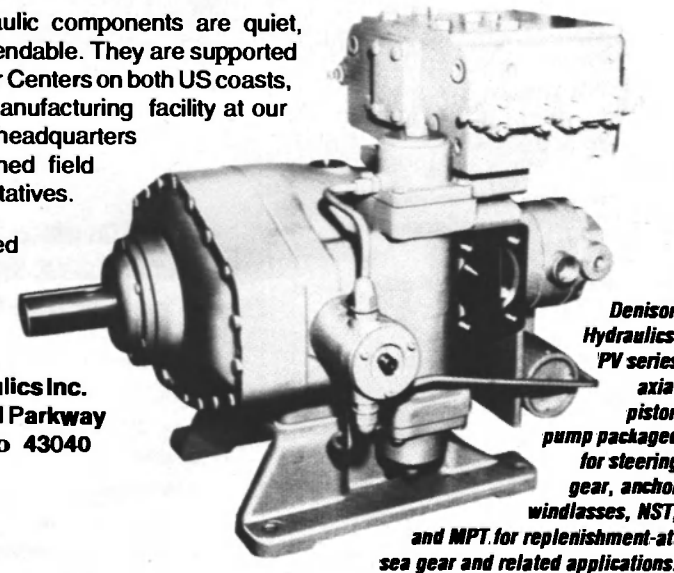
DENISON

KEEPS THE FLEET UNDERWAY

The PV62 axial piston pumps and motors supplied by Denison Hydraulics have become a Navy standard. At 50 years of age, they're still the standard for high pressure fixed or variable shipboard applications. Together with the PV61 and PV63, and complemented by the P24 and P30 units from Denison's established Gold Cup line, our piston equipment meets the Navy's demanding requirements.

Denison's hydraulic components are quiet, rugged and dependable. They are supported by Marine Repair Centers on both US coasts, a dedicated remanufacturing facility at our Marysville, Ohio headquarters and factory-trained field service representatives.

For more detailed information contact us at (513) 644-3915 or write:
Denison Hydraulics Inc.
14249 Industrial Parkway
Marysville, Ohio 43040



Denison Hydraulics' PV series axial piston pump packaged for steering gear, anchor windlasses, WST, and MPT for replenishment-at-sea gear and related applications.

**Innovative Solutions
For Demanding Applications**

DENISON Hydraulics

Circle 349 on Reader Service Card

Maritime Reporter/Engineering News

Hvide Buys Seven Crew Utility Vessels For Offshore Service

Hvide Marine Inc. continued the expansion of its offshore energy services division with the purchase of seven crew utility vessels, said Erik J. Hvide, the company's chairman and CEO.

Four 135-ft. (41-m) vessels, and one each of 100 ft. (30.5 m), 110 ft. (33.5 m) and 120 ft. (36.6 m), were purchased from Crewboats, Inc. of Chalmette, La. Five of the crewboats were built by Breaux Bay Craft.

"These are seven excellent, high-quality vessels, bringing our Seabulk Offshore Ltd. fleet to 42 vessels," Mr. Hvide said. The newly acquired vessels and their crew members will immediately join the other Seabulk vessels servicing oil rigs and platforms in the Gulf of Mexico.

Late last year, Hvide Marine more than doubled its offshore energy services fleet with the acquisition of 20 crewboats, three supply vessels and a utility boat from other companies.

"This latest purchase is part of our long-term acquisition plan aimed

at expanding all four of our divisions, including offshore energy services, harbor and coastal towing services, chemical transportation services and fuel transportation services," Mr. Hvide said.

Hvide Marine, headquartered in Fort Lauderdale, Fla., is a diversified maritime transportation company which owns, operates and manages 77 vessels. Its global operations cover all three U.S. coasts,

the Caribbean, Southeast Asia, and the Middle East.

Players Gets OK To Acquire Showboat Star

Players International, Inc. announced it had received approval from the Louisiana State Police, Riverboat Gaming Enforcement Division, to acquire the Showboat Star

Riverboat Casino and move it to Players' riverboat site in Lake Charles, La. Players received the necessary approvals from the Louisiana Gaming Commission Feb. 8.

Players International, Inc. is a developer and operator of casinos in new gaming markets. The company owns and operates gaming and entertainment facilities on the Ohio River in Metropolis, Ill. and Lake Charles, La.

Cegelec Navy Order

(Continued from previous page)

America can build nuclear-powered aircraft carriers, but the market for the construction of vessels such as luxury liners has been dominated by overseas designers and builders.

Now that the military market is diminishing, Mr. Pope feels America needs to decide whether it is going to be satisfied building low-tech vessels, or modernize its practices. Modernization means re-education of shipowners, shipyards, tradespeople, engineers and architects.

"We are trying to encourage yards to take the leap. I don't think our future is in low-tech ships in the commercial world. I think we have to do the clever ships," said Mr. Pope.

"It comes back to investment in people ... and trying to look beyond the conventional — trying to do new things and taking some technical risks, because that is the only way you will get the leadership back in the end."

Mr. Pope acknowledged that many of America's small yards are producing unique, high-tech boats, but he thinks large ships will dominate the market.

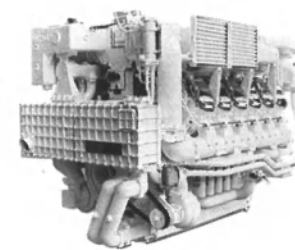
The U.S. branch of Cegelec says it is committed to bringing expertise back to American shores. Cegelec's involvement with Avondale on the Coast Guard icebreaker, and their newest alliance with Martin Marietta on the Integrated Power System project for the Navy, demonstrates its commitment to the U.S. shipbuilding industry.

The driving force in naval propulsion



For proven performance choose lightweight robust PAXMAN high speed marine diesel engines. From 560 to 3655 kWb our engines offer low fuel consumption, dependable performance and extended service intervals, backed by worldwide Customer Support.

PAXMAN - a leader in diesel technology.



G E C A L S T H O M

PAXMAN DIESELS

Paxman Diesels USA, European Gas Turbines Inc., P.O. Box 219129, Houston, Texas 77218, USA.
Telephone: (713) 578 7828 Fax: (713) 492 8277
GEC ALSTHOM Paxman Diesels, Paxman Works, Hythe Hill, Colchester, Essex CO1 2HW, England.
Telephone UK + 44 1206 795151 Fax UK + 44 1206 797869

Princess Equips Vessels With Malin 3000 Diesel Engine Analyzers

Princess Cruises ordered Malin 3000 portable diesel engine analyzers and Malin CDM crankshaft deflection meters for the *Crown Princess* and *Royal Princess*. Last year the company equipped the *Pacific Princess* and the *Island Princess*

with the same units. The Malin 3000 is a portable precision diesel engine analyzer which is designed to increase the speed, accuracy and reliability of determining the health of the main and generator diesel engines. Information gathered is then downloaded to a desktop personal computer. For more information on the Malin products Circle 124 on Reader Service Card

AEPCO Debuts New Security Monitoring System

Advanced Engineering and Planning Corp., Inc. (AEPCO) has introduced the LB1000 Security Monitoring System for seagoing vessels. LB1000 has undergone testing and is now in service aboard ship, and is reportedly already proving its ability to survive the harsh marine en-

vironment. The turnkey system is designed to provide cost-effective and reliable security and equipment/system monitoring. Typical monitoring includes, but is not limited to fire, flooding, temperature, smoke power loss, alarms, and security against intrusion and vandalism. For more information from AEPCO Circle 125 on Reader Service Card

Trimble Signs \$24 Million Deal With AMSC

Trimble signed a contract with American Mobile Satellite Corp. (AMSC) which calls for Trimble to supply its Galaxy/GPS land mobile satellite communications terminal for use in AMSC's Mobile Messaging Service Network. The contract is worth \$24 million, and deliveries of the product are to begin this May. Trimble Galaxy terminals are used throughout the U.S. by the trucking, rail and commercial marine industries. The Trimble Galaxy terminals will provide access to AMSC's Mobile Messaging Service using the new AMSC satellite, scheduled to be launched this spring. The new service will provide two-way communications, authorized by the FCC, in the continental U.S., Hawaii, Alaska, Puerto Rico, the Virgin Islands and up to 200 miles offshore.

For more information from Trimble Circle 126 on Reader Service Card

For more information from AMSC Circle 127 on Reader Service Card

Monico Inc. Releases Chinese Version Of The "Monitor"

Monico Inc. released the Chinese version of its high performance Engine & Turbine Trending and Alarm System called the "Monitor". The first Chinese configurable Monitor has been installed by Wartsila Diesel in a power plant in southern China. The Monitor is a man machine interface (MMI) software product which is used in combination with programmable logic controllers and high performance turbine control systems. The monitor is designed for a variety of applications, such as cogeneration plants, engine test cells, and other applications which use reciprocating engines and gas or steam turbines.

For more information on Monico Circle 129 on Reader Service Card

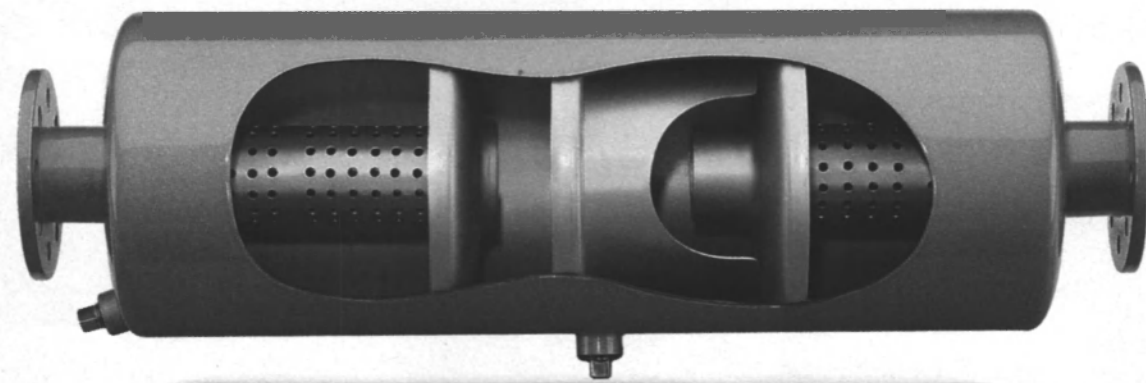
Barataria Delivers Lofting Package For Swiftships

Barataria Lofting Co. recently delivered services to Swiftships Inc. located in Morgan City, La. on a 141-ft. (43-m) and a 145-ft. (44-m) crew supply vessel. The job entailed lines fairing, offset generation, part generation and burning machine code along with production related data for the transverse and longitudinal structural aluminum plate comprising the hull.

For more information on Barataria Circle 130 on Reader Service Card

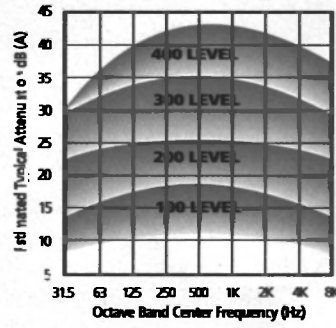
Maritime Reporter/Engineering News

Think Of It As
The Strong, Silent Type



Nelson Silencers Quietly Outperform The Competition.

Quiet performance. It's the reason you buy a silencer. But when you buy Nelson silencers, you get so much more. Nelson silencers not only quietly outperform the competition, they outlast them. Our heavy duty aluminized steel construction and three step finishing process resists heat and corrosion, so Nelson silencers last longer and can operate at a maximum temperature of 1250° F. So Nelson silencers don't require costly metco or zinc coatings.



And Nelson silencers are smaller and lighter than competitive silencers, so installation is easy and you save money on freight costs.

What's more, Nelson has an on-site, state-of-the-art acoustical test facility. We test our silencers on several different engines so you know you're getting a silencer that performs. No wonder Nelson silencers are the quietest in the industry.

Unlike single-data line curves, which represent only one engine, the Nelson attenuation graph realistically depicts the range of attenuation achieved on various engines.

The bottom line? When you buy a competitively priced Nelson silencer you get the one thing you need most. Sound results.

NELSON
Industries, Inc.
NELSON DIVISION
Exhaust & Filtration Systems
1801 U.S. Hwy. 51/138
P.O. Box 428
Stoughton, Wisconsin 53589-0428
U.S.A.
Telephone 608-873-4200
Telefax 608-873-1532

Circle 283 on Reader Service Card

Newport News Shipbuilding, Argent Marine Introduce New Training System

Newport News Shipbuilding (NNS) and Argent Marine have introduced Virtual Environment Trainer (VET), a new training system which combines personal computers with real-life images to create the "virtual environment" of shipboard operations and maintenance.

The companies believe it will fill a critical need of commercial shipowners for affordable, realistic, custom-designed training of the crews who maintain and operate ships. Operating a complex vessel, such as a 125,000-cu.-m Liquefied Natural Gas carrier, offers plenty of financial and technical challenges," said Gary Van Tassel, vice president of operations, Argent Marine

Operations, Inc. "The crew's ability to effectively and economically operate the ship and keep it on-line is a make-it-or-break-it proposition for the owner of a multi-million (dollar) ship."

"Our training system uses a readily available personal computer, loaded with the actual images of the shipboard environment, to simulate the systems and situations the crew will face in an interactive fashion."

Scott Stabler, Newport News Shipbuilding's director of Integrated Logistic Support, said that the key to the success of the VET is the combined experience in shipbuilding and ship operation that the two companies have to offer.

"We know how to build good ships

and we know what it takes to operate them effectively," said Mr. Stabler.

VET is designed to allow the shipowner to get a custom-designed training system that shows the actual equipment configurations aboard the ship whose crew will be trained.

This, in turn, means simulation of the critical operational procedures, casualty scenarios, reference drawings and record-keeping aboard that specific ship type. The heart of the system is NNS's proprietary, Microsoft Windows-based interactive software program known as TourMagic.

For more information on VET
Circle 119 on Reader Service Card

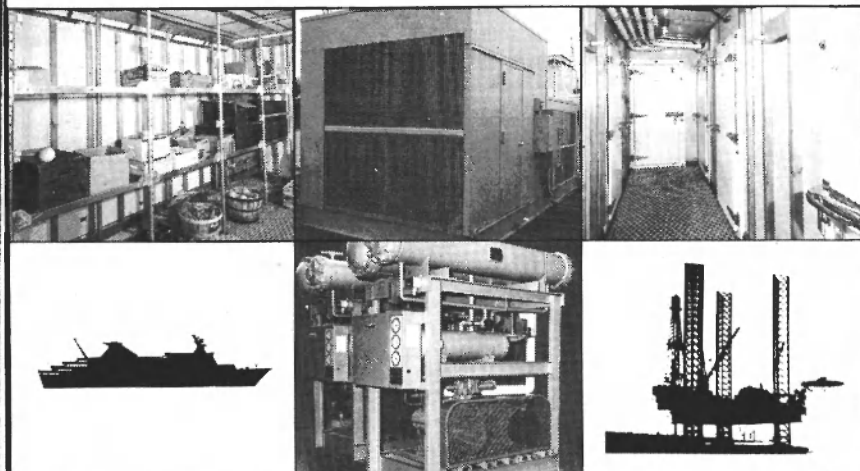
Containerships Target Of New Engine Development

New Sulzer Diesel Ltd. developed a larger-bore low-speed diesel engine specifically for the new generation of larger, faster containerships. The Sulzer RTA96C will be introduced at an output of 7,465 bhp/cylinder (5,490 kW/cylinder) at 100 rpm. The engine is to be built in configurations with up to 12 cylinders. The bore diameter of 960mm has been determined, through technical evaluation and market reviews, to be the optimum size for the new containerships with service speeds of around 25 knots or faster, the engine maker said.

For more information on New Sulzer
Circle 128 on Reader Service Card

Parameters of Sulzer RTA96C	
Bore (mm)	960
Stroke (mm)	2,500
Power output	
bhp/cyl	7,465
kW/cyl	5,490
rpm	100
BMEP, bar	18.2
Mean piston speed, m/s	8.33

Complete Marine Refrigeration Systems Air Conditioning Compressor and Chiller Units Reefer Cargo Box Installation/Repair



Whatever Your Application It Pays To Contact
ADRICK MARINE CORPORATION
CALL US To Put ADRICK'S INNOVATION To Work For You

- Ships Air Conditioning Units
- Walk-in coolers and freezers
- Portable reefer storage units
- Portable A/C dockside systems
- Control room dehumidification systems
- Self contained A/C uprights and compacts
- Fan coil units
- Fiber glass panels with wire mesh
- Ship stores refrigeration unit
- Reefer cargo box doors
- Door gaskets

ADRICK MARINE CORPORATION
141D Central Avenue
Farmingdale, NY 11735
Call (800) 326-ADRICK
(516) 420-4747
FAX: (516) 420-4750



ADRICK
COOLING
CORPORATION

Circle 201 on Reader Service Card

CUT YOUR COSTS ABOVE AND BELOW THE DECK

UNIFLEX RMVA Remote Mechanical Valve Actuators

Deck Boxes & Remote Operators

Available in 5, 150 and 250
turns of indication

Flexible Shaft

A single 3/4" dia., high-tensile,
stainless steel flexible shaft assembly

Output Gear Box

Cyclo gearing, extreme load
capacity up to 333 ft. lbs. output
torque, complete system ratios of
2:1, 4:1, 6:1, 9:1 and 15:1

Valve Couplings

Standard, quick-disconnect type
NAVSEA design



NAVSEA
Approved
Tech Manual
now
Available

Less means more. Less weight (up to 40% less than other remote operating gear systems) and less complex installation (single-shaft design) mean more speed, greater payloads and more cost savings (maintenance, repair and operation) for your company. And, our system is remarkably efficient. With as little as 50 ft. lbs. of input you can generate as much as 333 ft. lbs. output torque.

Tested, tried and true. All components are heat resistant, noncorrosive, Shock- and Vibe-tested. Plus, the Uniflex system is flame tested to AP-607 and submergence tested to MIL-STD-810E. Our growing list of satisfied customers speaks for itself—call for references.

Free literature. For more information on Uniflex RMVA, contact our Valve Control Products team today.



PO Box 773
Binghamton, NY 13902

Telephone (607)772-0404
Fax (607)772-1358

Circle 239 on Reader Service Card

Trinity Delivers Achille, Anchor Handling/Tug Supply Boat

Halter Marine, Inc. of the Trinity Marine Group has delivered the *Achille*, a 218.3-ft., 11,000-hp anchor handling/tug supply boat with a pull of 115 metric tons at the winch, to SURF of Marseilles, France. It is the most powerful of her type ever built by Halter Marine Inc., which claims to have built more supply boats than any other shipbuilder in the world.

Named for Achilles, the mythic Greek warrior and leader in the Trojan War, *Achille* (pronounced "Ah-sheel") was christened by Ms. Nicole Allemande, daughter-in-law of Roland Allemande, U.S. representative for SURF. Also on hand at the christening in New Orleans was Alain de Croix, president of SURF, and Christian Lefevre, SURF's operations manager.

Speaking at the ceremony, Harvey Walpert, Trinity Marine senior vice president of administration, said, "While most shipyards have abandoned oil field service ships, we at Trinity have continued to improve and refine these designs to further strengthen our position as the world leader in the field." He said *Achille* was built using advanced new design and construc-

tion techniques and the boat includes equipment that was unheard of on vessels of this type just a few years ago. As an example, he cited *Achille's* Robertson dynamic positioning system and its Ulstein steering rudders. The latter includes an articulated "flap" or hinged portion near the end of the rudder, like an airplane aileron, for substantially improved handling and maneuverability, particularly at low speeds. *Achille's* maneuverability and thrust are also enhanced by twin four-bladed Berg controllable-pitch propellers surrounded by Kort nozzles and a Berg bowthruster.

Overall, the new vessel is 218.3 ft. long, with a 46-ft. beam, 20-ft.-deep hull and 17-ft. design draft. It is the second of two nearly identical vessels for Trinity for SURF. The first, *Artabaze*, was also built by Halter Marine, Inc. of Lockport, La., and was delivered in December 1994. The 7,260-hp vessel, with 80 metric tons of pull at the tow winch, recently completed a cable-laying project off the coast of Africa.

Achille is powered by two Caterpillar 3612 diesel engines developing a total of 11,000 hp through Reintjes LAF-55 reverse/reduction gears. During sea trials she ex-

ceeded 17 knots. Electrical power is provided by two Caterpillar 3408 diesels driving two 350-kW generators. A 250-kW special service generator is driven by a Caterpillar 3406 diesel engine, and a 60-kW harbor generator is powered by a Caterpillar 3304 diesel engine.

Achille's four dry bulk drilling mud tanks provide space for 6,000 cu. ft. of mud and she can carry 1,650 BBL of drilling fluids in four liquid mud tanks which are equipped with agitators to keep the fluids circulating at all times.

Mr. Walpert said that while other Trinity-built boats have been equipped with similar purpose devices for dry muds, this is the second application for liquid mud tanks. He added that Trinity now has exclusive rights to the design and manufacture of Pnu Tanks, which were formerly built by the SMATCO division of TBW Inc.

Achille's ability to tow and position anchors and other equipment is made possible by an Ulstein double drum tow winch with a maximum line pull of 330,000 lbs., a Fritz Culver stern roller, Fritz Culver tow pins, pennant reels and shark jaw, a 20-ton Fritz Culver tugger and a five-ton-capacity pedestal

mounted EBI hydraulic crane. Her 4,000-sq.-ft. aft deck can accommodate up to 800 metric tons of cargo.

All deck operations can be observed by closed circuit television from the spacious, high visibility pilothouse. The system can monitor the tow winch and several other locations on the vessel.

The new ship has accommodations for up to 24 and each stateroom includes a shower and a toilet. Twenty tons of air conditioning and heating provide comfort for all accommodations areas as well as in the complete galley.

Some capacities are: 24,200 gallons of freshwater; 172,350 gallons of fuel oil; and 266,700 gallons of ballast/drill water.

The new AH/TS carries a Bureau Veritas classification and is SOLAS certified and French-flagged.

Halter Marine, Inc. is part of the Trinity Group, Gulfport, Miss., which is owned by Trinity Industries, Inc., Dallas, Texas. The group includes 19 shipyards in Texas, Louisiana, Mississippi, Florida, Tennessee, Missouri and Pennsylvania.

For more information on Trinity
Circle 178 on Reader Service Card

L.F. GAUBERT & CO. INC.



More Than 45 Years Of Dependable Service!

P.O. BOX 50500 • NEW ORLEANS, LA • 70150

Phone: (504)822-7272 Fax: (504)821-9309

1-800-831-7534 Call Us For Your FREE Newsletter

**DISTRIBUTE & MANUFACTURE
ELECTRICAL SHIPBOARD CABLES**

**NAVY-COMMERCIAL-CONTROL
ELECTRONIC-PORTABLE
COMMUNICATION-SIGNAL-MINING
WELDING-COAXIAL & POWER
CABLES-FABRICATE ELECTRICAL CABLES
TO YOUR SPECIFICATIONS**

Quality Is Our MOST Important Feature!

Circle 246 on Reader Service Card

**When the name of the game is
fast spill response, make sure
the name on the boat is Kvichak.**



Our SRVs are all-aluminum, but their main ingredient is *reliability*. They've proven that where it counts - *on the job* - for people like Alyeska Pipeline, Clean Sound Cooperative, Foss Environmental, Riedel, and others. Talk to us soon, and put a Kvichak boat on your response team.

Kvichak
Marine Industries

615 North 34th Street
Seattle, WA 98103 USA
Phone (206) 545-8485
FAX (206) 545-3504

Circle 344 on Reader Service Card

Maritime Reporter/Engineering News

USCG Implements Annual Commercial Inspection User Fees

Beginning May 1, 1995, U.S. Coast Guard (USCG) inspections and examinations of U.S. and foreign commercial vessels will no longer be performed free of charge. Under newly published regulations, U.S. vessels and foreign vessels receiving a USCG Certificate of Inspection (COI) must pay an annual vessel inspection fee on or before a pre-established user fee anniversary date. Under the Omnibus Budget Reconciliation Act of 1990, the USCG is required to establish and collect user fees for its services relating to the inspection and examination of U.S. and foreign commercial vessels. A collection system for vessel inspection fees has also been established. Vessel owners/operators, for the most part, will mail the payments directly to a central collection point in Atlanta, Ga., and payment entries will be made in the USCG database.

Approximately six weeks prior to a vessel's fee anniversary date, the USCG will send a user fee notification letter to the owner of a vessel operating with a Coast Guard COI. Payment of the user fees will entitle a vessel owner or operator to all periodic and follow-on inspection services related to the COI during the year. Foreign vessels, such as tankships that are required to have a USCG Tank Exam (TVE) Letter or USCG Letter of Compliance (LOC), or Mobile Offshore Drilling Units required to have a LOC, must pay the examination fee before any examination services are provided. For more specific information regarding the user fee payment process, vessel owners may call (800) 941-3337.

CSC Selected For Two U.S. Navy Contracts

Computer Sciences Corp. (CSC) was awarded two contracts by the U.S. Naval Command, Control and Ocean Surveillance Center in San Diego. The awards are valued at a total of \$29.3 million if all options are exercised. Under a \$24.8 million, five-year award, CSC will provide systems engineering and integration services for the Navy's Operations Support System (OSS) development program. The second award is a three-year contract valued at \$4.5 million to perform Independent Verification and Validation (IV&V) and engineering support for tactical data systems for the Caribbean Regional Operations Center. Both contracts will be performed by CSC's Applied Technology Division. Team members with CSC on the OSS contract are FGM Inc., in Herndon, Va.; and Norex Co. and SAIC, both of San Diego. Collaborating with CSC on the Caribbean contract is Trandes Corp. of San Diego.

For more information on CSC
Circle 118 on Reader Service Card

WCS Develops Window-Based Communications Accounting Software

World Communication Systems (WCS) now offers AstroCount, a software package which allows the ship operator to accurately monitor, manage and control communications overhead. With the advent of GMDSS, increased reliance on ship-

to-shore communications is a significant element in the shipowner's profit and loss scenario. The new package provides a means for real-time management of these expenditures.

AstroCount is designed to be simple and flexible. At menu prompts the operator enters the per-minute charges for the Inmarsat Coast Earth Stations which are used, identifies high and low peak periods, and assigns area codes to the

countries called.

WCS President **Armin Jabs** announced the appointment of **Johan Hansen** to the position of marketing manager, responsible for Scandinavia. Mr. **Hansen** has an extensive professional knowledge of the maritime trade from his association in positions with Standard Electric A/S, ITT Marine, Thrane and Thrane A/S and Skanti A/S.

For more information on WCS
Circle 131 on Reader Service Card



ABS CAN IMPROVE YOUR BULK CARRIER DESIGN.

In September 1993, ABS launched the SafeHull™ System for tanker newbuildings.

This computer-based tool simulates the real-life experience of ships at sea.

Then we introduced our ABS SafeHull Condition Assessment Services for existing tankers.

Now we offer the SafeHull System for new and existing bulk carriers.

The system determines the specific dynamic loads which act upon a bulk carrier at sea. It identifies critical structural areas that require enhancement, to lower the ship's operating stresses.

ABS SafeHull for bulk carriers benefits designers, owners and operators. It helps reduce the risk of structural failures, thereby lowering your life-cycle maintenance and repair costs. SafeHull fulfills the ABS mission of promoting the safety of life and property at sea.

For more information, call your nearest ABS office.

New York.....212 839-5000
Houston.....713 873-0700
Singapore.....65 276-8700
London.....44 71 247-3255

THE ABS SAFEHULL SYSTEM
SAFETY OF SHIP STRUCTURES BY DYNAMIC BASED DESIGN AND EVALUATION



Circle 207 on Reader Service Card

U.S.-UAE Joint Ship Building Venture Wins First Contract

Abu Dhabi Ship Building (ADSB), a joint venture between the emirates and Newport News Shipbuilding (NNS), won a multi-million dollar contract to overhaul six vessels for the UAE Navy. The award to Abu Dhabi Ship Building Co. marks the beginning

of what is expected to be a major ship construction and repair business in the Gulf region for both commercial and military customers. The managing director of ADSB from Newport News Shipbuilding, **Lawrence E. Holliday**, said that the overhaul project is expected to begin by mid-year and should be completed in approximately three years. Work will be performed at facilities in the Mussafah industrial

area of Abu Dhabi. The total value of the contract was not available.

The UAE will retain majority ownership of ADSB, as prescribed by national law. Newport News Shipbuilding will serve as the major investor, with the additional responsibility for developing the shipyards and managing its operations.

For more information on the venture from NNS
Circle 150 on Reader Service Card

Voith Schneider Confirms CMS Contract For Two Tugs

J.M. Voith GmbH/Voith Schneider America Inc. has confirmed the order of two ship sets of the Voith Schneider propulsion system designed for installation aboard two new Crowley Marine Services (CMS) tractor tugs. These tractor tugs are being built for Crowley's current and future ship assist and escort requirements.

Crowley's new Voith Schneider Tractor series joins the worldwide Voith Schneider propulsion tractor tug fleet of about 650 vessels.

For more information on Voith Schneider America Inc.
Circle 174 on Reader Service Card

International Hydrofoil Society Celebrates Anniversary

The International Hydrofoil Society celebrates its 25th anniversary this year. The purposes of the society are to advance the development of hydrofoil technology, to stimulate the utilization of hydrofoils for commercial and military applications and to assist in the development of procedures and regulations.

For more information on the International Hydrofoil Society
Circle 163 on Reader Service Card

Port of Rotterdam Invests \$60 Million In Facility

The Port of Rotterdam will invest \$60 million in site preparation and infrastructure development for its new Maasvlakte Distripark facility.

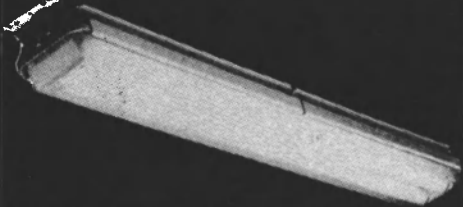
The 300-acre Maasvlakte storage and distribution complex is the Port's third distripark, located at the point where the Rhine River estuary joins the North Sea. It is designed to provide major logistical support services to companies using the Port as a major transshipment center.

Austal Ships Awarded \$10 M Contract

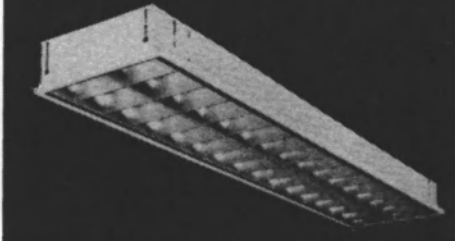
Western Australian shipbuilder Austal Ships has won a \$10 million contract to build another gas turbine-powered catamaran, its 24th sale to China. Austal has pioneered the introduction of the gas turbine-powered craft into the Chinese market, with the delivery of four vessels to Hong Kong in 1994. The gas turbine engine on the vessel will ensure a service speed of 40 knots loaded with a capacity of 354 passengers. The propulsion system consists of twin Textron Lycoming TF40 engines driving KaMeWa 71S waterjets through Cincinnati Gear MA-107 gearboxes.

For more information on Austal Ships
Circle 160 on Reader Service Card

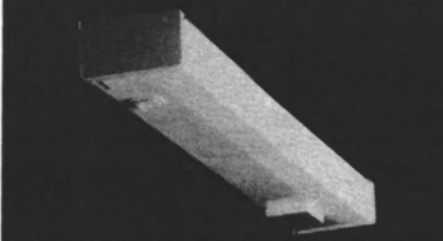
Complete family of splash proof and water tight fixtures for normal & low temperature operation.



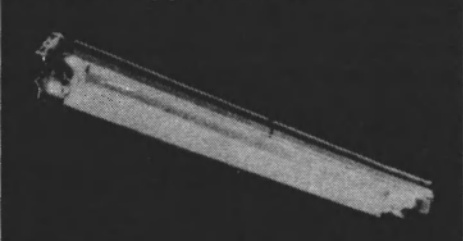
Wide range of surface and recessed fixtures for a variety of marine ceiling systems.



Interior surface and recessed mounted for bedhead, bathroom, etc..



Wide range of fluorescent fixtures for hazardous and offshore applications.



GLAMOX - one of the worlds largest manufactures of marine and offshore light fixtures-establishes presence in North America with manufacturing, sales and distribution.

GLAMOX North America can now offer UL, USCG, ABS, CSA, NRTL, etc products around the world and European approved products in North America.

GLAMOX is known worldwide for its high quality light fixtures and service. With almost about 50 years experience, technical expertise and sophisticated computer software Glamox can optimize your lighting requirements and minimize your costs.

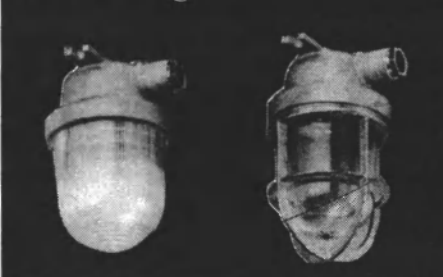
A complete line of navigation and signalling lights with international approvals.



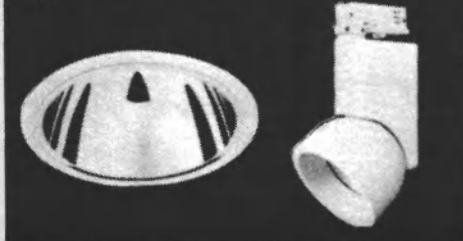
Our experience with emergency lighting goes way back.



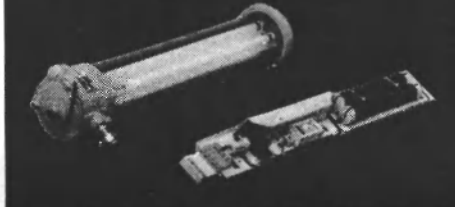
Standard and explosion proof brass fittings.



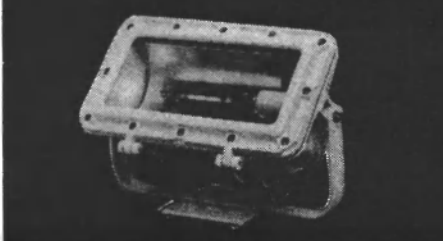
Wide range of downlight, spotlights and decorative lights available.



Most fluorescent fixtures available with electronic control gear and integrated emergency battery packs.

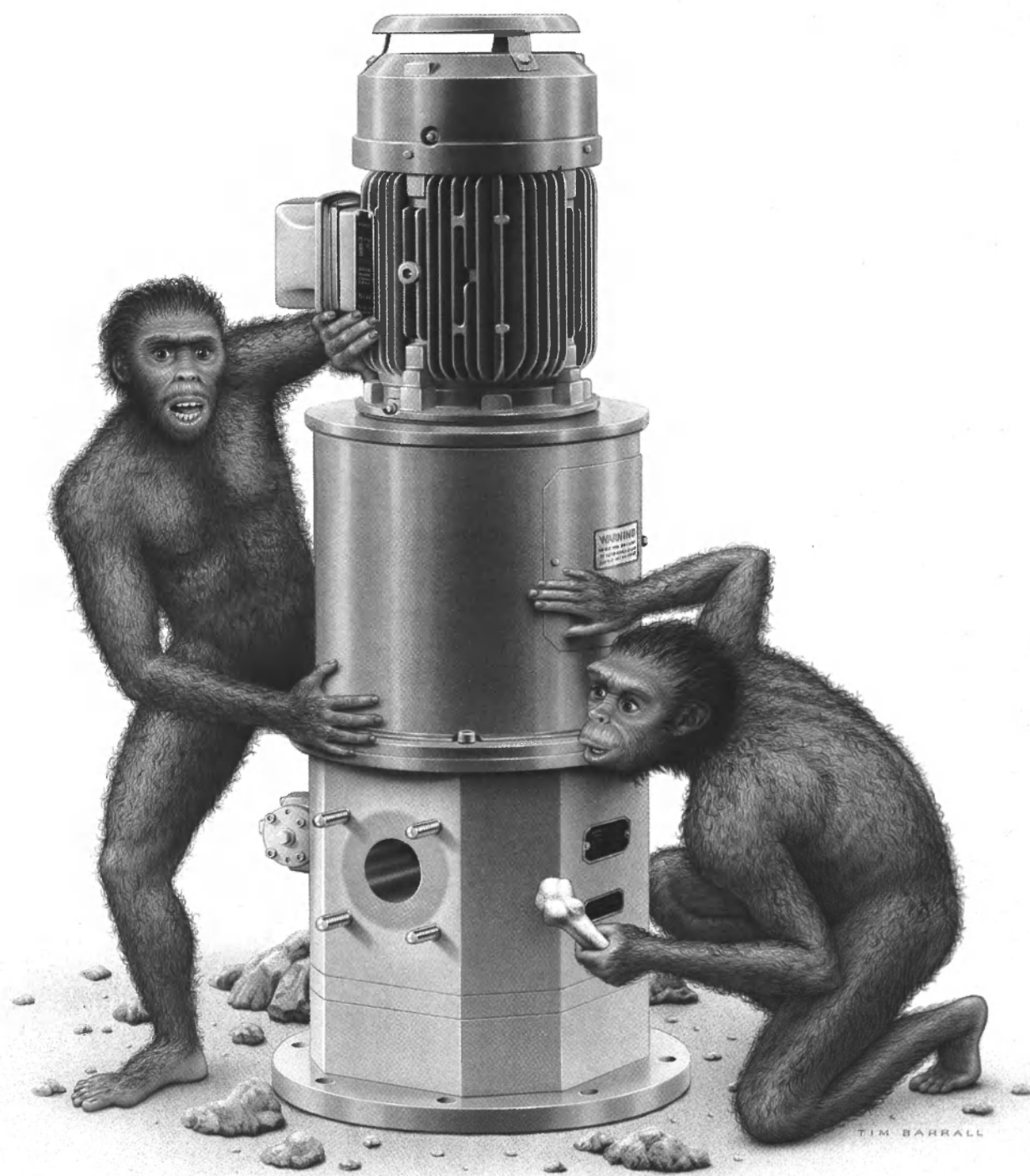


Explosion proof, watertight, marine and industrial floodlights, beacons,, etc.



44 Austin Street, P.O. Box 13522, St. John's, NF Canada A1B 4B8 Tel: (709) 753-2294 Fax: (709) 753-2295
Circle 331 on Reader Service Card

Maritime Reporter/Engineering News



EVOLUTION OF THE VERTICAL SCREW PUMP

Once early man stood upright, his descendants were destined to master the planet. Now, in our own time, we are privileged to witness the evolution of the vertical rotary screw pump from Leistriz.

No, it doesn't talk or walk. But it *is* uniquely gifted with wonderful new capabilities that are denied to its horizontal relatives.

First, the vertical configuration incorporates pump and motor into a single unit. This is a true vertical pump with the motor supported in the embrace of the pump body. Permanent alignment is inherent in the design, eliminating a major source of vibration and coupling wear.

Second, the space savings are obvious. The vertical screw pump from Leistriz makes its home on a single, small footprint.

Input and discharge piping are in line, not offset... simplifying installation. Easy seal maintenance through spacer coupling is available. The pump can also be provided with seal-less magnetic drive.

Some might expect such a marvel to originate from a "higher source". However, for more information you would contact:

LEISTRITZ CORPORATION,
165 Chestnut Street, Allendale, NJ 07401, U.S.A.
Telephone: (201) 934-8262 FAX: (201) 934-8266

Leistriz

Circle 267 on Reader Service Card

B²

Carnival's 100,000-Ton Ship Unveiled

\$400-million vessel dubbed Destiny

The *Carnival Destiny* is the name chosen by Carnival Cruise Lines for the world's first 100,000-grt cruise ship. Carnival unveiled details of the jumbo-sized vessel at a recent Miami trade show. Under construction by the Italian shipyard Fincantieri Cantieri Navali Italiani, S.p.A. of Trieste, the \$400-million vessel will begin sailing from the Port of Miami in the fall of 1996.

The *Carnival Destiny* will mark Carnival's eleventh new ship in 14 years. Carnival President Bob Dickinson said that Carnival had not set out to build the largest passenger vessel in the world. "You've heard of the

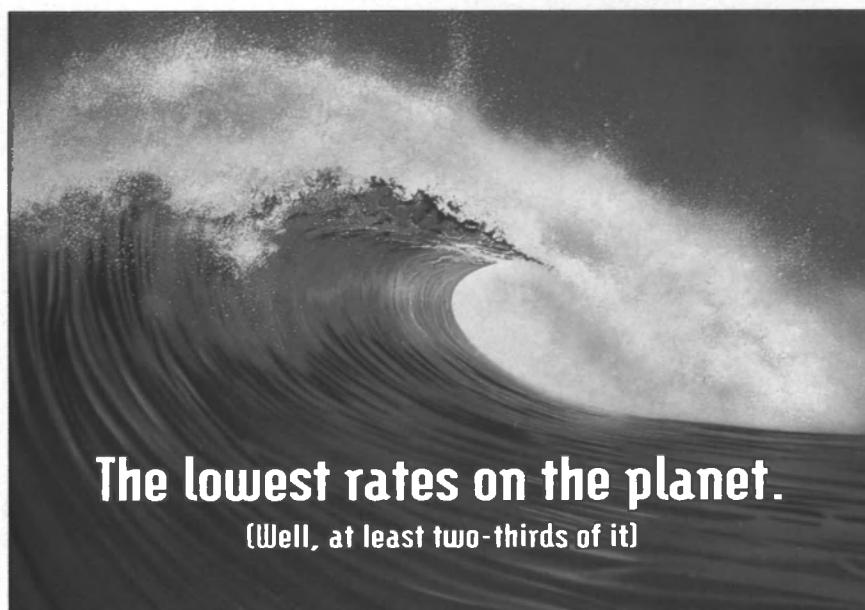
'Dream Team' in basketball, well this is our dream ship, incorporating all the amenities and features for the ultimate vacation...it just turned out to be this big," he explained.

The *Carnival Destiny* will be 892 ft. (272 m) long with a maximum beam of 125 ft. (38 m) and a total capacity of 3,350 passengers. The vessel will tower 207 ft. (63 m) above the water at its highest point.

The majority of the *Carnival Destiny* cabins will be ocean view, many with private verandas. A three-deck-high showroom will utilize the latest technical

advancements, providing the capability to stage sophisticated productions. Both of *Carnival Destiny's* dining rooms will be two decks high with large picture windows. The *Carnival Destiny* features three outdoor pools. One of these may be enclosed with a sliding glass cover in the event of inclement weather. Another features swim-up bars while the third lies at the end of a twisting, turning, serpentine slide more than 115 ft. (35 m) long.

For more information on Fincantieri
Circle 139 on Reader Service Card



The lowest rates on the planet.
(Well, at least two-thirds of it)

Introducing the next wave in maritime communications: MSAT service from CPCI. Only our service lets you call from just \$1.49 per minute. Plus, we can integrate it with Inmarsat and cellular services. Call CPCI at 1-800-566-CPCI (2724) or see your CPCI dealer. We'll connect you to any phone on the planet. At the lowest rates on the high seas.



Circle 230 on Reader Service Card

Manly Marine Closures are built to outlast your vessel

Since 1964 Manly closures have set the standard for quality. Call Manly for the following custom built products:

- MANLY DOORS**
 - Dutch & wheelhouse
 - Aluminum & steel construction
 - Watertight doors, marine & construction
 - Joiner doors, B-15 fire rating
 - Airtight doors
- MANLY HATCHES**
 - Escape • Access
 - Fish hold covers
 - Manholes
- MANLY WINDOWS**



Manly
Marine Closures Ltd.

20 Brooksbank Avenue
P.O. 86788, North Vancouver
B.C. V7L 4L3 Canada
Tel: (604) 984-4635
Fax: (604) 983-2713

Circle 272 on Reader Service Card

Maritime Reporter/Engineering News

**American President
Names New Chief
Executive VP And CFO**

American President Companies announced that **L. Dale Crandall** will become the company's executive vice president and chief financial officer. He will succeed **Will M. Storey**, who will be retiring this August. Mr. Crandall will have overall responsibility for the company's financial functions, including controller, corporate finance, internal audit and taxation. Mr. Crandall is currently managing partner in the Los Angeles office of Price Waterhouse. He has been responsible for the firm's services to a number of leading U.S. corporations, including Hewlett-Packard, Raychem Corp. and Chevron Corp. American President Companies provides container transportation and related services in Asia, the Americas, Europe and the Middle East through an intermodal system combining ocean, rail and truck transportation. The company is headquartered in Oakland, Calif.

**AWO:
Making Giant Strides In
Safety With Responsible
Carrier Program**

The American Waterways Operators (AWO) officially launched the AWO Responsible Carrier Program, a safety program for barge and towing companies.

A significant new initiative for AWO, the Responsible Carrier Program implements the directive of AWO's strategic plan, AWO 2000, that the association "improve industry safety and environmental protection by establishing preferred industry operating principles and practices." Participants at a briefing on the plan included **Thomas Allegretti**, AWO president; **Jennifer Kelly**, AWO director - government affairs; and **Michael Hagan**, president, American Commercial Barge Line Company, and incoming AWO chairman of the board. In outlining the philosophy behind the program, Mr. Allegretti said, "Industry must be the first line of defense in the effort to assure safe and environmentally benign operations. Industry must be the first to identify operational problems and to devise solutions. It is only when we fail to do so that we should look to government to fill the void we've left."

The product of an intensive, eight-month effort by a specially-constituted task force of senior barge and towing industry executives, the Responsible Carrier Program is a code of practice for AWO's more than 150 carrier member companies. The program includes three principal parts — management/administration, equipment/inspection, and human factors — reflecting the role each of these compo-


nents plays in ensuring safe and efficient vessel operations. The program seeks to complement and build upon governmental initiatives to improve safety in the barge and towing industry by identifying sound operating principles and practices which meet or exceed legislative and regulatory requirements for industry operations. The program is meant to improve waterway safety, reduce accidents and ultimately save lives. The AWO board of directors has

set January 1, 1998, as the target date for full member compliance with the Responsible Carrier Program. During this three-year implementation, the association will pursue a member assistance program aimed at ensuring that all AWO member companies have the tools they need to adopt the new safety program. AWO will also work to identify tangible incentives for companies adopting the Responsible Carrier Program. "Corporate practice in this

industry has long exceeded federal regulatory requirements in most aspects of towing vessel operations. In fact, industry standards have risen dramatically in recent years, propelled by marketplace pressures and the changing composition of the industry. Safety is simply an imperative in this business and we, not the Congress or the Coast Guard, are the ones with the most ability and responsibility to make this industry safer," said Mr. Hagan.

Amerguide®

Quick Stripping Shipboard Cables




Amerguide® quick stripping shipboard cables are designed for easy, reduced cost installations. This high quality product from AmerCable, America's manufacturer of specialty cables, features a flexible crosslinked polyolefin outer jacket and a rubber-based water blocking material.

Amerguide is available in a multitude of conductor sizes and configurations to match your specifications.

Kevlar® rip cords can be grasped and pulled, allowing the jacket and water block to be peeled back in one piece for quick preparation.

- Low Smoke • Non-Halogen
- Armored or Unarmored
- Mil-C-24643 / 14, 15, 16, 17, 19, 22

Distributed exclusively by



Seacoast
ELECTRIC COMPANY INC.
50 Broadway • Hawthorne, NY
(914) 747-3870

AMERGUIDE is a registered trademark of AmerCable, a division of Associated Materials Incorporated

AmerCable

350 Bailey Road • El Dorado, Arkansas • Fax (501) 862-9613 • (501) 862-4919 • (800) 643-1516

Expansion Of Marine Training And Safety Center

The completion of the classroom and simulator facilities for The Center for Marine Training and Safety, located in Galveston, Texas, is scheduled for May. The multipurpose campus trains personnel in maritime safety and emergency preparedness, providing hands-on training in areas such as offshore

survival, oil spill response, engineering skills, radar operation and ship's bridge team management.

A state-of-the-art oil spill simulator is also being developed under a federal grant to the center and the USCG, and should be on-line by the fall. Newly constructed facilities include a wave pool for use with the offshore survival training program.

The Center for Marine Training and Safety was established in 1992, and in 1994, became a partnership

between the Texas Engineering Extension Service and Texas A&M University at Galveston.

For more information on the Center
Circle 1 on Reader Service Card

Bisso Christens New Tug

The Bisso Towboat Company, Inc. has christened tug *Scott T. Slatten*. *Scott T. Slatten* is a triple screw tug built by Main Iron Works, Inc. of

Houma, La., and will be used primarily for ship assist work, but is also capable of performing offshore services. Bisso operates 20 vessels, with the addition of the new tug.

For more information on
Main Iron Works
Circle 2 on Reader Service Card

USCG Proposes Changes To Bulk Liquid Facility Regs

To update and clarify the current regulations for facilities transferring oil and hazardous materials in bulk, the U.S. Coast Guard (USCG) has proposed revisions of certain sections of 33 CFR Part 154. The proposed revisions are intended to make the regulations more effective in providing a higher level of environmental protection, and result from the findings of a task force created on the basis of a report written by the USCG Accounting office. The rules in 33 CFR 154, created in 1990, set standards for an estimated 2,591 fixed and 539 mobile oil and hazardous material facilities that transfer to or from a vessel with a capacity of 250 barrels or more. The proposed regulations would make changes to operational methods, record keeping, personnel training, testing and safety standards. USCG estimates the proposed regulations will cost more than \$5 million annually.

GL Launches New Ship Classification Concept

A new concept in ship classification called On-Line Class is being launched by Germanischer Lloyd (GL) along with its partners in EEIG (Unitas - Bureau Veritas and RINA). The new approach offers two new class notations: RSD (Rational Ship Design) for new vessel classification, and STAR (System of Traceability and Analysis of Records) for ships in service. The new service is being offered individually by the three class societies, and each is developing its own software for the RSD package. GL's program, Poseidon, permits fast hull dimensioning based on GL's construction rules and through direct calculations. Poseidon can also be used for the assessment of the condition of vessels in operation, using measurement data. On-Line Class will help yards to plan and dimension newbuildings and will assist owners in improving maintenance strategies.

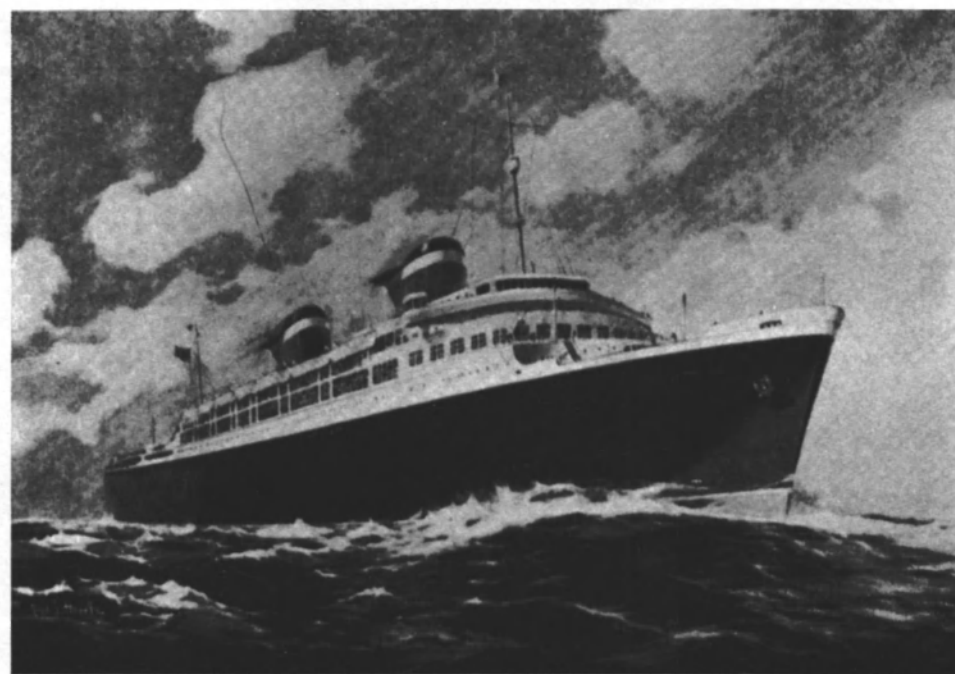
For more information on GL
Circle 4 on Reader Service Card

Beede Offers New Marine Instrumentation Catalog

Beede Electrical Instrument Co., Inc. has released a new catalog detailing its product line for marine gauges. It provides information and specs on speedometers, tachometers and various engine monitoring and marine function gauges.

For more information from Beede
Circle 5 on Reader Service Card

50 YEARS AGO IT WAS A BIG DEAL IT STILL IS !



The new United States Liner *America* which will make her maiden voyage on August 10 to begin a series of twelve-day cruises.

AMERICA ENTERS CRUISE SERVICE AUGUST 10

That the new steamship *America*, largest and costliest commercial vessel built in this country, would be employed in the West Indies cruise trade instead of being tied up until the end of the war, was confirmed by John M. Franklin, president of the United States Lines. He said the company's 27,000-gross-ton, \$17,500,000 flagship would leave here at noon on Aug. 10 on her maiden voyage to begin a series of twelve-day cruises to the neutral ports of St. Thomas, Virgin Islands; San Juan, Puerto Rico; Port au Prince, Haiti, and Havana, Cuba.

The luxury liner was built to run with the *Manhattan* and the *Washington* to England, Ireland, France and Germany, but not

long before she was completed by the Newport News Shipbuilding and Dry Dock Company the war had broken out and American shipping was barred from the trade by the neutrality act.

Up until a few weeks ago it was expected that the United States Lines would be forced to tie up the *America*, the *Manhattan* and the *Washington*, but a way was found to keep them running under the provisions of the Bailey-Bland bill, which provides financial assistance to all American companies whose vessels have been forced out of their regular services by the neutrality act.

Since 1939 Maritime Reporter has Built a Tradition for Delivering Late Breaking News...
Insightful Editorial . . . In-depth Technical Articles... In Short . . . Need to Know Information . . .
for the Largest Readership in the History of Marine Publishing. Today over 28,000 Marine
Decision Makers Rely on Maritime Reporter . . . WERE GLAD YOUR ONE OF THEM!

MARITIME
REPORTER
AND
ENGINEERING NEWS

Seaway Towing Purchases Barge

Seaway Towing Co., Inc. has purchased an oceangoing flat-deck barge, the *Robert W.* The barge is 236 ft. (72.8 m) by 50-ft. (15.24 m), with a 14.6-ft. (4.5-m) depth and a capacity of 3,500 tons. The vessel is fitted with RoRo ramps on the stern. The *Robert W.* was purchased from Marin Tug and Barge Co., and will be converted to an ABS semi-submersible flat-deck barge at Seaway's facility in Alameda.

Great Lakes/Seaway Ports Win Award

The St. Lawrence Seaway Development Corporation announced that 11 U.S. Great Lakes/St. Lawrence Seaway ports have earned the 1995 Seaway Port Pacesetter Award. The award is presented to ports which registered increased international tonnage during the 1994 navigation season.

According to **Stanford E. Parris**, administrator of the St. Lawrence Seaway Development Corporation, the large number of winning ports is a result of an improved regional economy, a cost-effective waterway, and stronger marketing initiatives by port officials.

"The Seaway's overall tonnage was up 20 percent while U.S. trade through the Seaway was up more than 25 percent, marking the third consecutive year that U.S. Seaway trade with overseas markets has increased," said Mr. Parris.

Unitor Appointed Distributor For Zodiac Liferrafts



Liferaft designed by Zodiac Hurricane Technologies Inc.

Unitor Ships Service Inc. has been named the regional dealer for sales and service of Zodiac liferafts for the west coast of British Columbia.

Recently inspected and approved as an authorized liferaft service station by the Canadian Coast Guard, Unitor's Vancouver branch is fully equipped to service and supply the complete range of Zodiac commercial throwover liferafts capable of carrying from four to 25 persons. Other types of Zodiac liferafts available through Unitor include 45 and 75 person open reversible platform liferafts and davit launched liferafts capable of holding from 12 to 37 people.

Unitor's range of marine products includes rescue and safety equipment, marine refrigeration systems and firefighting equipment.

For more information on Unitor
Circle 21 on Reader Service Card

Morgan Marine Awarded Contract

Morgan Marine has won a contract from Halter Marine, Inc. for a Morgan crane to be installed on the U.S. Navy vessel T-AGS 63, which is being built by the Halter Marine division of Trinity Marine, Inc. Delivery of the crane is scheduled for late 1995. The crane selected will be ABS-certified. Morgan cranes are installed on the previous T-AGS 60, 61 and 62.

For more information on Morgan Marine
Circle 27 on Reader Service Card

Contract Awarded To Penn Yan

Penn Yan Marine Manufacturing Corp. has been awarded a contract by the City of Redondo Beach, Calif., for its second Penn Yan fire and patrol boat. The fire patrol boat ordered under the contract is a 262 Competitor, with twin 5.7 liter Mercruiser sterndrive engines. The boat will be outfitted with a custom designed 34-ft. (10.3-m) wide water-tight stern door, full fiberglass transom platform, de-watering pump, and radar arch with full electronics. The firefighting equipment will include a 750-gpm fire pump powered by a Mercruiser 3.0-liter engine, a monitor distribution system and all stainless steel fittings.

For more information on Penn Yan
Circle 58 on Reader Service Card

Perkins Engines Supplies Dutch Vessels

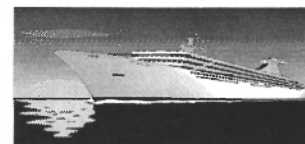
Perkins Engines Limited has supplied two of its Sea King marine engines for main propulsion duties on Dutch-owned coastal vessels. Both Sea King 8 engines are turbocharged, rated at 911 bph. They have been installed on the *Snipe* and the *Seagull II*. Sea King engines comprise six and eight cylinder in-line and 12 and 16 cylinder V-form engines covering the power band 300-1,970 bhp, and the manufacturer has designed the engines for low emission levels and high specific power outputs. Perkins Engines Ltd., formerly Dorman Diesels, was recently acquired by the Perkins Group.

For more information on Perkins Engines Limited
Circle 88 on Reader Service Card

Marine Interior Specialists

JOINER CONTRACTOR

CRUISE SHIPS • DINNER BOATS • FERRY BOATS • CASINO VESSELS



CSI



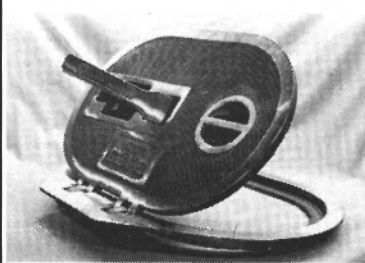
Custom Ship Interiors, Inc.

P.O. Box 237 • Lusby, MD 20657 • Fax: 410-326-9125

410-326-9122

Circle 231 on Reader Service Card

HATCHES



quick-open or bolt down
8" round to 33"x48"

We also specialize in
POT HAULERS

10" and 12"

Deck Hardware

cleats • blocks • deck irons •
rosemounts • hawse rings • etc.

CUSTOM CASTING

brass and aluminum

BAYWOOD, INC.

Bellingham, WA

TEL (360) 734-3900

OR 1-800-386-6156

FAX (360) 647-0740

Circle 213 on Reader Service Card

JIM'S PUMP REPAIR INC.

Established 1974

Jim Lagonikos, President
Bob Mooney, Sales & Service

Reconditioned Coffin & Pacific Pumps
A-1 Condition
TYPE - F - CG - DE - DEB - IND - T - DEB - 22
TBA - 12 - 16 - 16 1/2

All Parts Made In U.S.A. And Are Fully Guaranteed

TEL: 718-392-4444 TLX - TWX
FAX: 718-482-8372 710-582-4847 JPRNYK

48-55 36th Street, Long Island City, NY 11101

Authorized Agents

U.S.A.

Calhoun & DeJong, Inc.
3907 N Interstate
Portland, OR 97227
Tel: (503) 288-5091
Fax: (503) 288-4507

Superb Marine
2901 Fox Run Court
Mobile, AL 36609
Tel: (205) 604-3162
Fax: (205) 661-1939

DUBAI

Vrettoship S.A.
Sharjah U.A.E.
Tel: 06-358244
Fax: 06-369594
Tlx: 68908 VSHIPEM

HOLLAND

M.P.R.S. Pump Repair Service
F. Van Eedenplaats 49
Tel: (010) 450 7085
Fax: (010) 450 7085

SINGAPORE

Kvaerner Singapore Pte. Ltd.
15 Benoi Crescent
Jurong Singapore 2262
Tel: 261 6066
Fax: 261 6011

Circle 260 on Reader Service Card

Carrier Transicold Names Hogan President



Randall J. Hogan has been appointed president of Carrier Corporation's Transicold division. Formerly, Mr. Hogan served as vice president of Pratt & Whitney Turbo Power and Marine Systems and general manager of marketing and customer service for General Electric's Electrical Distribution and Control business unit. Carrier Transicold, a division of Carrier Corporation, manufactures transport refrigeration and air conditioning equipment for the marine industry. Carrier and Pratt & Whitney are subsidiaries of United Technologies Corporation.

For more information on Carrier
Circle 24 on Reader Service Card

Inmarsat-P Affiliate Company Elects Board

A new company was formed recently to implement the Inmarsat-P global handheld satellite phone system, and a board of directors was elected at the first shareholders' meeting in London. The board members represent several nations, each holding an executive position in world-renowned telecommunication networks.

Olof Lundberg, director general, Inmarsat, and **Daryll Smith**, general manager, Telstra (Australia) serve as directors of the board from Inmarsat.

Kazuo Yosida, senior managing director of KDD (Japan), chairman-elect of the new company, commented on the success of the meeting, "It was an excellent start to building a truly international, private enterprise. Within the next

few months the board will make decisions on the chief executive officer, staffing, location, permanent name, and contracts for the manufacturing of the satellites and development of earth stations."

When it commences operation in 1999, the new system will provide a unique, low-cost global satellite phone system, as well as data, fax and paging, using handheld pocket-size terminals.

Fully complementary with terrestrial cellular/PCN, it will extend the benefits of mobile communications to anyone, anywhere in the world.

The 38 affiliate investors from countries spanning six continents comprise many of the world's leading telecommunications operators, a number of which are already major providers of mobile services.

For more information on
Inmarsat's new affiliate company
Circle 26 on Reader Service Card

Unitor Acquires Sotec

Unitor Ships Service, Inc., part of Unitor A/S, has reached an agreement to purchase the New Orleans-based fire and safety company Southern Offshore Technical Services Inc. (Sotec), strengthening the company's position within the international fire and safety sector.

Unitor offers a NICET-certified, professional technical staff to perform regulatory inspections and the design and installation of fire protection and gas detection systems which comply to NFPA, NMS, ABS and USCG standards. The purchase of Sotec will enable Unitor to offer a complete engineering, design, installation, documentation and maintenance service to its customers. Among Sotec's current projects is the full servicing of portable fire extinguishers, low-pressure carbon dioxide systems, and Halon fire suppression systems aboard several Military Sealift Command vessels around the world.

Unitor is a worldwide supplier to the industrial, offshore and marine markets.

For more information on Unitor A/S
Circle 89 on Reader Service Card

EXPERIENCE	DERBYSHIRE	QUALITY
	IS ON BOARD	
	VALVES GLOBE, ANGLE, CROSS, GATE, STOP, PLUG, NEEDLE, CHECK, CONTROL, BLOW, EXHAUST, RELIEF, FOOT, FLOAT, SHEAR, MANIFOLD, CARTRIDGE AND MIL-V-24109	
	EDUCTORS & PERI-JETS® CUSTOM DESIGNED UNITS TO SUIT ANY CUSTOMER REQUIREMENT INCLUDING PUMPING, MIXING AND DREDGING. ALL CONFORM TO MIL-E-24127	
<p>Since 1905 Derbyshire has been designing and manufacturing a multitude of products for the marine industry. Along with our standard product lines, we invite inquiries for your special product needs including prototypes. CNC machining using CAD-CAM is our specialty. Quality is assured by our approved MIL-I-45208 system. Non-destructive testing includes radiography, dye penetrant and ultrasonic inspection. Complete material mill certification and traceability are available. Experience combined with a solid commitment to quality guarantees that you will receive the best product available in the industry. Made in U.S.A. Give us a call.</p> <p>LET OUR EXPERIENCE HELP YOU! 5100 BELFIELD AVE. PHILADELPHIA, PENNSYLVANIA 19144-1788 PH: (215) 844-3200 FAX: (215) 849-8680</p>		

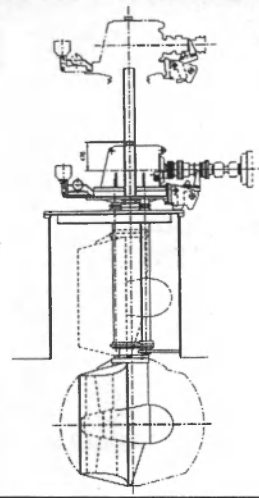
Circle 234 on Reader Service Card

FYI: BEST AVAILABLE TECHNOLOGY..... RETRACTABLE AZIMUTHING BOW THRUSTERS

AQUAMASTER COMBI TUGS: Existing single-screw tugboats facing obsolescence can have their useful life extended. Fitting a retractable azimuthing bow thruster improves maneuverability, provides redundant takehome power, and can be used to augment the bollard pull of the tug.

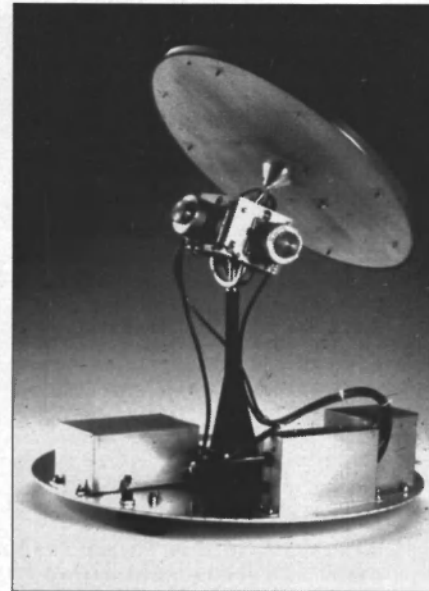
AQUAMASTER PSV: The retractable azimuthing bow thruster can be a cost-effective means of providing dynamic station keeping capability for platform supply vessels. This configuration provides excellent fuel economy when the vessel is in the standby mode, as well as providing redundant propulsion.

For more information please call
AQUAMASTER-RAUMA, INC. 504-883-8340



Circle 206 on Reader Service Card

KVH Signs Telecom Contract With Mitsubishi



KVH satellite tracking antenna.

KVH Industries has signed a contract with Mitsubishi Electric Company to manufacture satellite tracking antennas for use in Mitsubishi's new marine telecommunications product. The new product will provide direct-dial telecommunications capability with voice and data as standard features and facsimile as an optional feature. It will allow offshore vessels to place calls by dialing a telephone number in a fashion similar to that in which a landline or cellular call is made. The product is designed for use on the American Mobile Satellite Corporation (AMSC) Mobile Satellite (MSAT) system. KVH Industries manufactures a series of electronic compass products for the military and marine markets.

For more information on KVH Industries
Circle 23 on Reader Service Card

IDB Mobile Appoints Jalbert President

Michael E. Jalbert has been appointed president and CEO of IDB Mobile Communications, Inc. Prior to joining IDB Mobile, Mr. Jalbert was president for Diversey Corporation, CSD Division.

IDB Mobile Communications, Inc. is a global provider of Inmarsat telecommunication services to the marine industry, and operates satellite earth stations in New York and California.

For more information on IDB Mobile Communications, Inc. Circle 100 on Reader Service Card

New Executive VP At Scania

Lars Ohosson-Leijon, formerly executive vice president of Saab-Scania AB, was appointed executive vice president of Scania AB and head of finance within the Scania Group. Mr. Ohosson-Leijon will assume his position in May.

President, CEO Resigns From OSI

Offshore Systems International Ltd. (OSI) announced the resignation of Boris Sawicky as president and CEO of the company. Mr. Sawicky tendered his resignation to the board of directors and resigned as a director of the company in order to pursue other business ventures.

Barry Allcock has been appointed president and CFO of the company. Mr. Allcock worked closely with Mr. Sawicky in all areas of the business and was involved in the decision making process. In addition, through his two and a half year involvement with Offshore, Mr. Allcock has acquired an excellent understanding of the industry, the technology and the internal workings of the company.

APL To Start All-Water Service From Asia

American President Lines (APL) said it would launch an expedited all-water service from Asia to Panama, the Caribbean and the north coast of South America the week of March 20, with westbound service to Asia commencing the week of April 24. The service will be supported by APL's global telecommunication system, and will provide Latin American customers with access to the company's entire Asian and Middle Eastern service network of 33 key ports and some 550 service points — the most extensive in the container transport industry.

The new service will relay Caribbean and Latin American cargoes in conjunction with an all-water service from Asia to the U.S. East Coast that is being introduced

jointly by APL and its "Global Alliance" partners. The alliance includes Mitsui OSK Line of Japan, Nedlloyd Line of The Netherlands and OOCL of Hong Kong.

Nordic Prince Retired From RCCL Fleet; Sold For \$55M

The 22,945-ton cruise ship *Nordic Prince* was retired from the Royal Caribbean fleet after almost 24 years

of service, about 650,000 passengers, more than 800 cruises and about two million miles sailed. Built in 1971, the 1,012-passenger ship has been sold to British vacation company Airtours plc for about \$55 million. It is the first ship built for Royal Caribbean which the company has retired from service.

Between 1995 and 1998, Royal Caribbean plans to introduce as many as six more ships with a total additional capacity of 11,500 pas-

sengers. The first of those, the 1,804-passenger *Legend of the Seas*, enters service on May 16.

Hornbeck Adds Senior VP

Hornbeck Offshore Services, Inc. has created a new position, senior vice president and chief operating officer, which has been awarded to Bernie Stewart, who has spent 25 years in the offshore industry.

DREW ELECTRIC™ 2000 The Responsible Alternative

Some of our fans are more vocal than others, but everyone gains! 1-1-1 trichloroethane has been banned, and Drew has a great replacement.

DREW ELECTRIC™ 2000 motor and parts cleaner is a non-chlorinated solvent that spares the environment while it does the job — efficiently removing oily deposits from generator and motor components. Our new cleaner evaporates at a controlled rate that permits improved saturation of deposits for more thorough cleaning action — and less product waste.

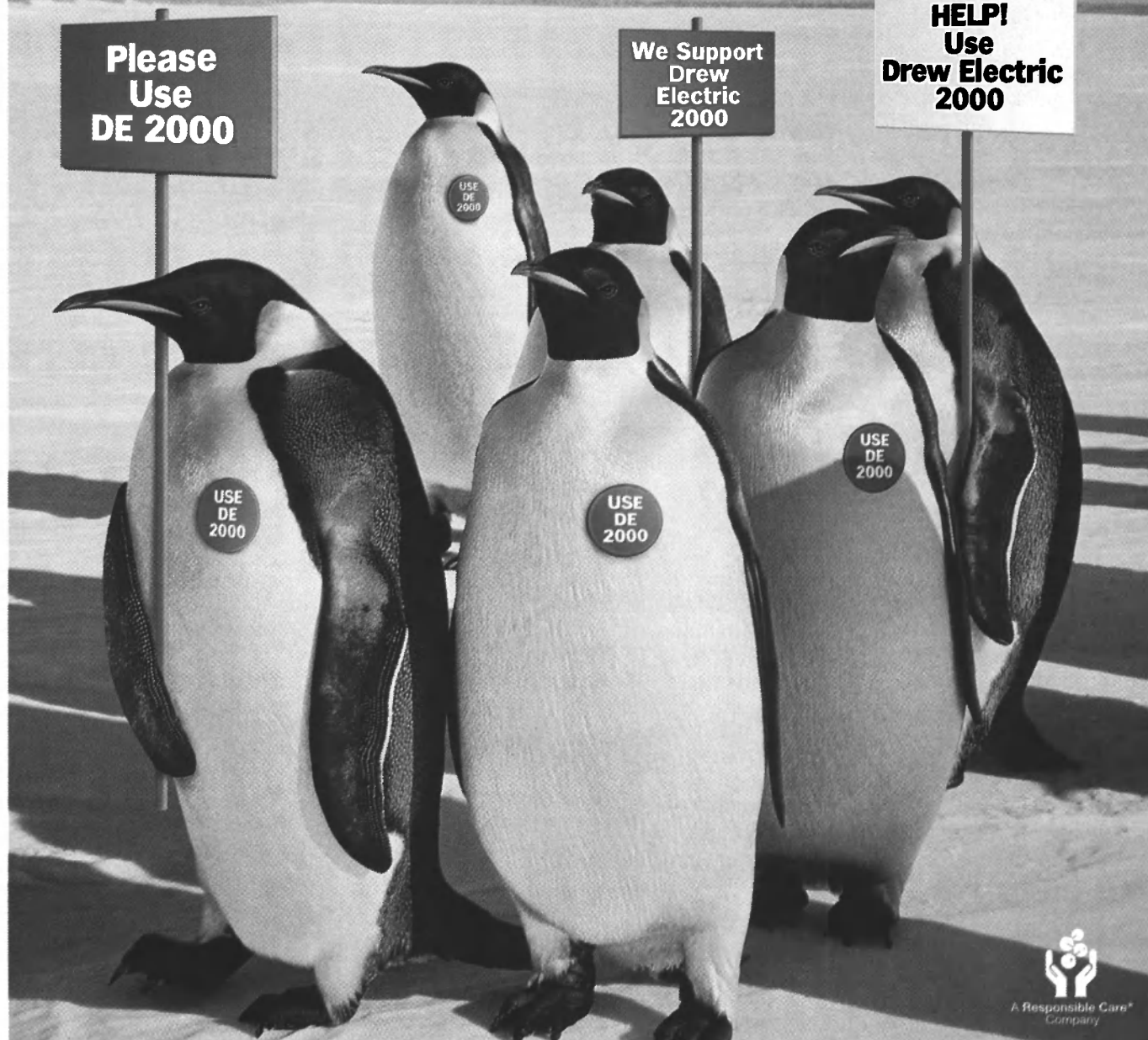
We've included other features to promote safe handling and economical use: • a very high flash point in excess of 93°C (200°F) • non-corrosive to metals • highly non-conductive • low non-volatile residue • concentrated formulation.

Best of all, DREW ELECTRIC 2000 cleaner is more cost-effective than its 1-1-1 predecessor. It's one more value-added solution from the leading supplier of specialty marine chemicals. Available through our worldwide network of 150 supply locations serving 800 ports worldwide.

MAKE YOUR VOICE HEARD!

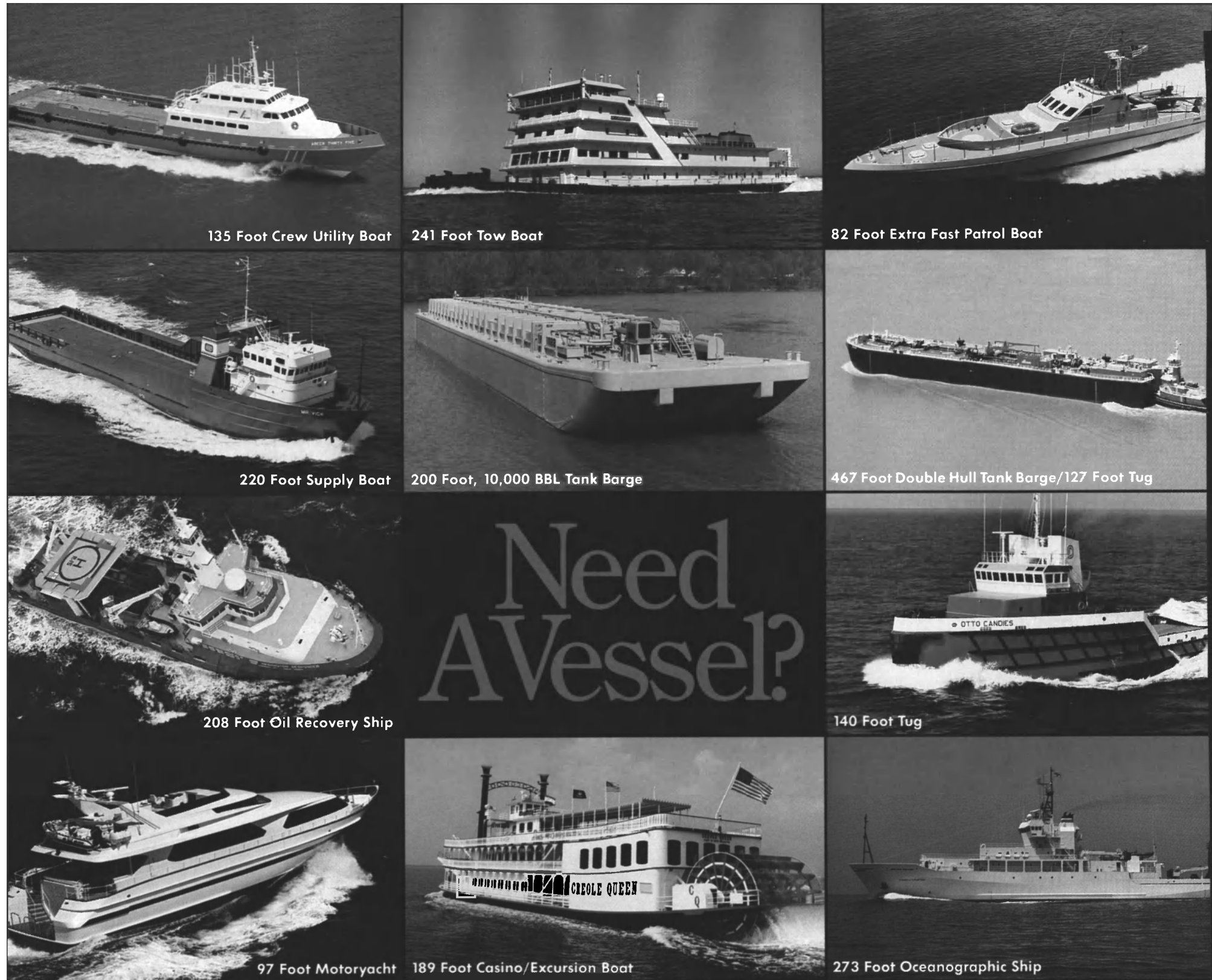
Drew Amerold Marine Division
Ashland Chemical Company Division of Ashland Oil, Inc.
One Drew Plaza Boonton, NJ 07005 USA
Tel: (201) 263-7600 Telex: 6853392 AMER ORD Fax: (201) 263-4491

Ashland Chemical



© Drew Chemical Corporation.™ Drew Chemical Corporation.® Registered service mark of Chemical Manufacturers Assoc. © 1995 Ashland Oil, Inc. All rights reserved.

Circle 236 on Reader Service Card



Trinity's Probably Already Designed And Built It.

Since the 1800's, our 13 shipyards have designed and built over 14,000 ships, boats, and barges. Name the type of vessel you need, and we've probably already designed and built many. You can use one of our designs, modify one, or let us design to your specifications. And we meet the requirements of worldwide regulatory agencies.

We employ leading edge technology in design and construction, and are

backed by the financial strength and stability of our parent company, Trinity Industries, Inc., a "Fortune 500" company.

Because of our high quality and on-time

deliveries, we have built vessels for 27 foreign nations, scores of private customers, and the U.S. Navy, Army, Air Force and Coast Guard. We also have five dry docks for ship repair, overhaul and conversion.

No other shipbuilder can match Trinity's experience in building such a wide variety of vessels in steel, aluminum and GRP. We can, and want to build your next vessel.



TRINITY MARINE GROUP

Trinity Industries, Inc.

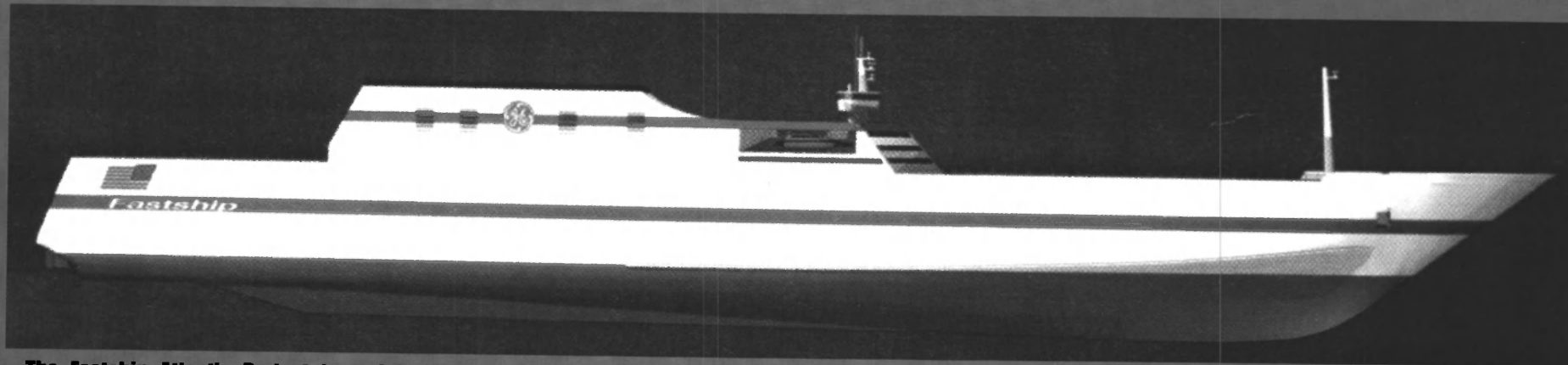
13085 Industrial Seaway Road, Gulfport, MS 39503 USA
Tel: 601-896-0029, Fax: 601-897-4828, Telex: 6821246, Cable: HALMAR, Easylink: 62218740

Circle 313 on Reader Service Card

Maritime Reporter & Engineering News'

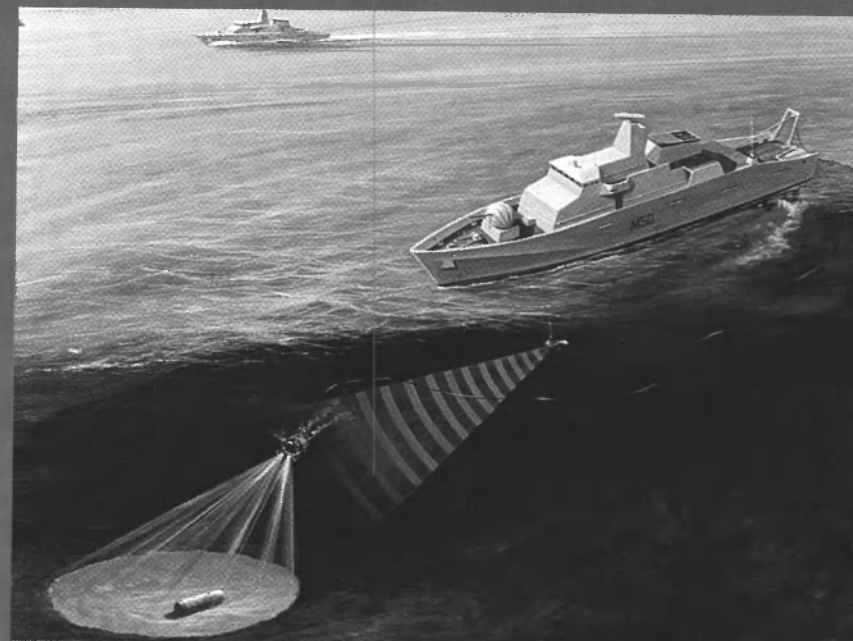
MARINE TECHNOLOGY

Yearbook



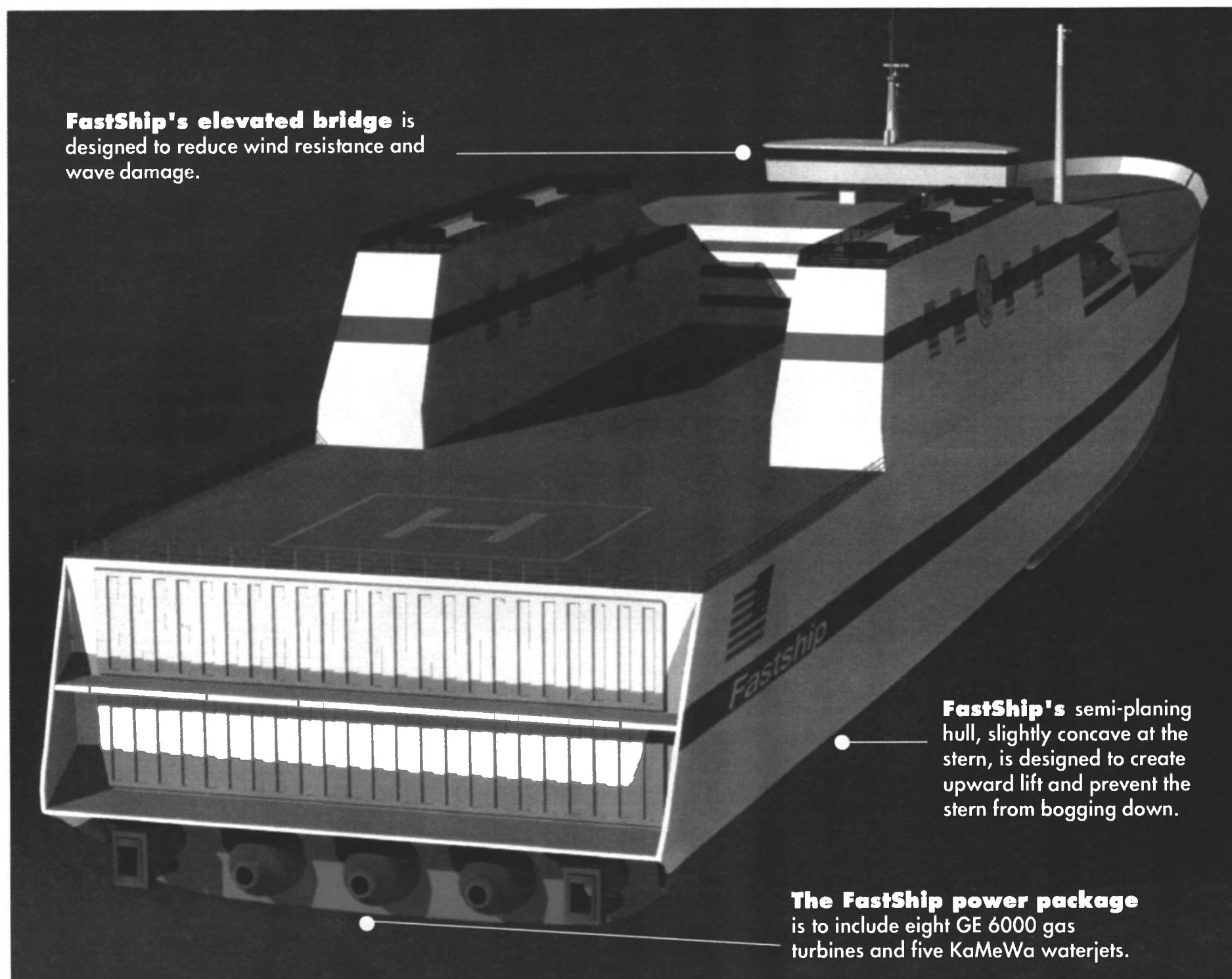
The Fastship Atlantic Project has picked up speed, earning partnership and support from MIT and a high-profile trial of its unique loading system. (See page 54).

Monohull version of Vosper Thornycroft's next generation Patrol/Mine countermeasure vessel. (See page 56).



GE LM1600 gas turbines will power two SeaJet passenger/car fast ferries for Danish operator Mols-Linien. The vessel was designed by Danyard A/S in conjunction with NQEA of Australia. (See page 64).





FastShip's elevated bridge is designed to reduce wind resistance and wave damage.

FastShip's semi-planing hull, slightly concave at the stern, is designed to create upward lift and prevent the stern from bogging down.

The FastShip power package is to include eight GE 6000 gas turbines and five KaMeWa waterjets.

FASTSHIP Update

With the June 1998 projected operation date approaching, investors, technological experts and port cities are continuing to rally around the TG-770 FastShip, the semi-planing monohull capable of speeds up to 40 knots, which has the potential to revolutionize ocean transportation of high value, time sensitive cargo. Two significant events which have added credibility to the FastShip cause include the testing of the Alicon loading system, and the addition of the Massachusetts Institute of Technology to the FastShip team. Also, the Port of Philadelphia continues to raise support for the project, in hopes that the high-speed

freighter will provide a financial transfusion for the port's shipping industry. (See related story, p. 58)

FastShip Needs Fast Loading

In March, the port of Gothenburg, Sweden — in collaboration with the port of Zeebrugge, Belgium and the Volvo Transport Corporation — tested the innovative Alicon (Air-Lift Container) system to load and off-load cargo from FastShip vessels. The system test focused on Alicon's ability to traverse different grades under different surface and weather conditions, as well as the air-lift containers' ability to travel over bends or knuckles in terrain.

The Alicon system uses multiple steel pallets, each carrying double stacked FEU (40-ft. equivalent) cargo containers, supported by a cushion of air to make loading and unloading frictionless. The pallets actually hover about 3mm off the ground, and are towed by a tractor similar to that used to pull jumbo jets at airports. There is a single, centered rail to guide the Alicons.

The Alicon system fully loads or unloads a FastShip in four to six hours, which is a vital component in the development of the transatlantic transportation system. By comparison, conventional freighters, which load containers one by one, take about 24 hours to fully

load and unload. Entire trains of Alicons can be moved onto and off FastShip at the vessel's stern.

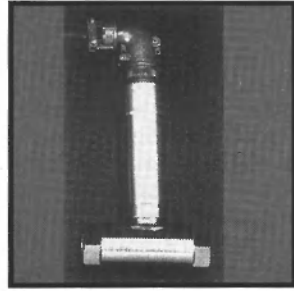
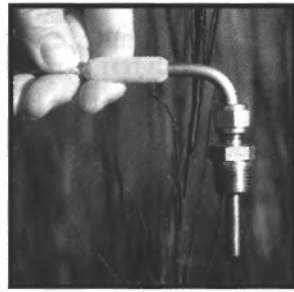
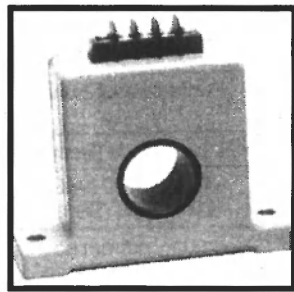
Thornycroft, Giles and Company, designer of FastShip and the Alicon system, has patents on the loading system.

M.I.T. Joins Team

FastShip Atlantic, Inc. and M.I.T. have decided to collaborate in the marketing and technical research of FastShip.

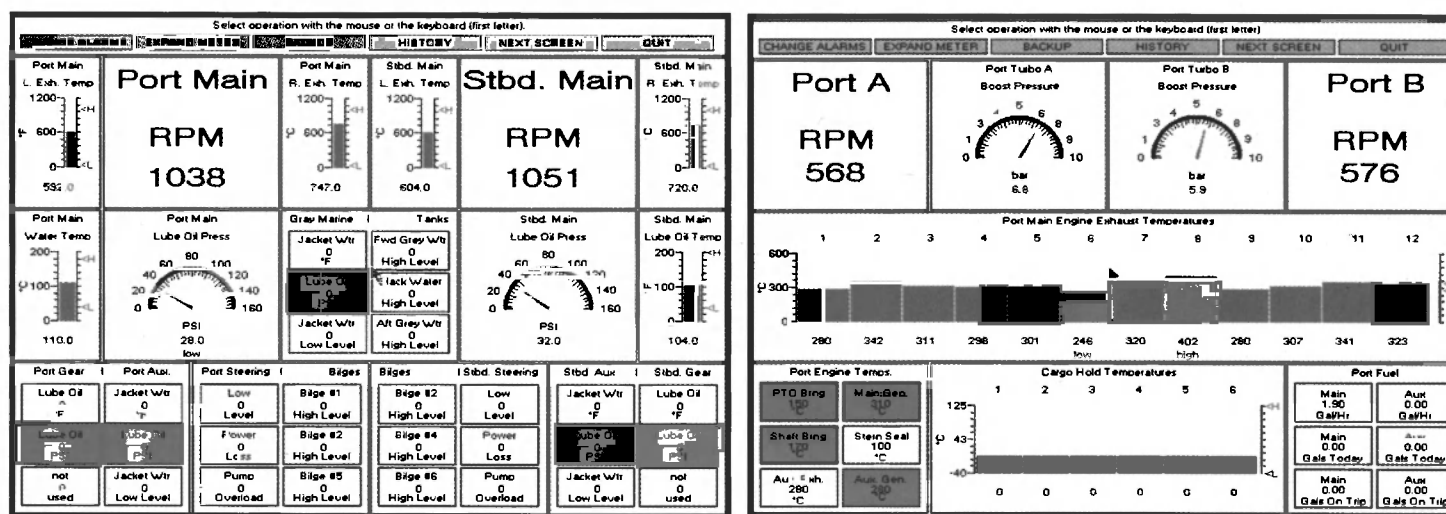
According to the head of M.I.T.'s department of ocean engineering, Professor **Chrysostomos**

(Continued on page 58)

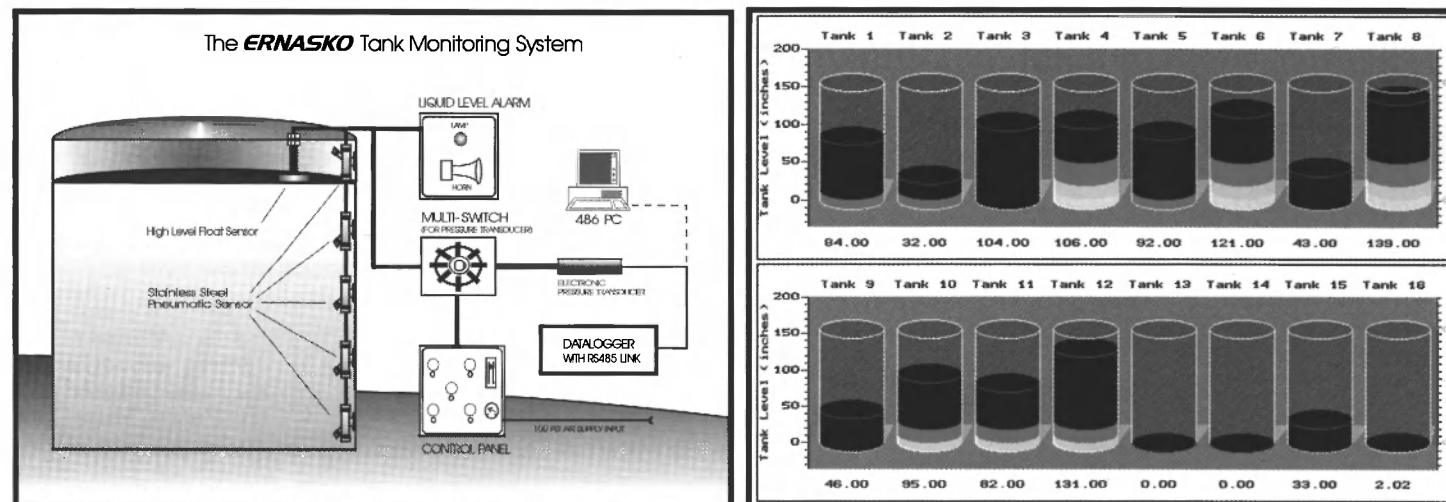


MONITORING IS OUR BUSINESS

Nobody else monitors like we do. We supply a complete system including sensors, computer, software and plug-in boards, ready to install and ready to go. You can monitor your ship's status or the tanks which supply the fuel. Data is displayed as you want it, in a form that you can easily understand. Software is designed to produce reports in graphic or digital format showing any condition of the monitored function during any time period. Alarm circuits can be included and can be set for any or every monitored function. **If you have existing sensors, they can be incorporated into the system, saving your earlier investment.** If you have special requirements, give us a call!



Two different types of Vessel Monitoring are shown, above. Screen display can be easily tailored to meet your requirements. Any red display shows an abnormal (or alarm) operating condition which you can set (with the proper security code, of course). Ease of operation is paramount. System operation can be learned in less than 15 minutes and requires only the use of a mouse or trackball.

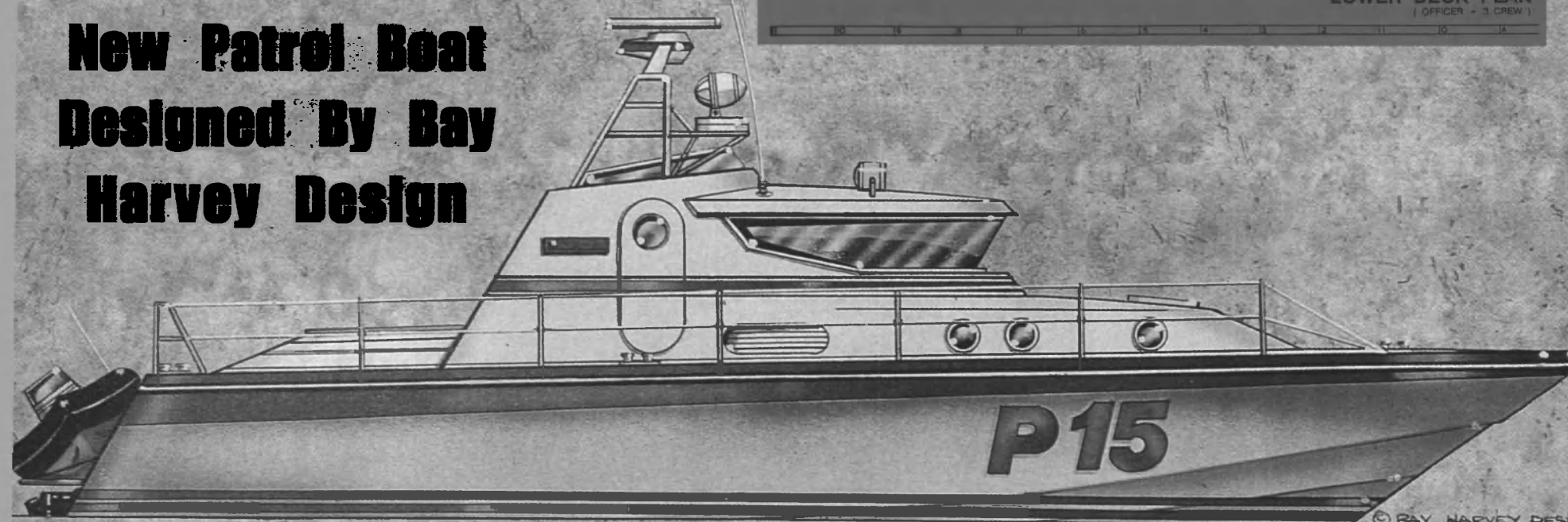


Monitoring and Alarm System for a fuel tank facility are shown above. This system can be used to monitor hundreds of tanks for fuel level, specific gravity, inventory, leakage, etc. Tank sensors are pneumatic (intrinsically safe). Conversion to electrical signals in a safe area allows all data to be monitored and logged in a standard IBM* compatible computer. Independent Liquid Level Alarm is pneumatic for safety. Graphic display (right) also displays digitally, showing layering of material. PLEASE CONTACT US WITH YOUR SPECIAL NEEDS!

Many different types of sensors are available from ERNASKO: At left, from top to bottom - RPM, Electronic Pressure (-15 to 3,000 psi), Electrical (Current, Voltage, Watts, etc.), Pneumatic Pressure (0.5 in. dia., 0 to 300 psi), Pneumatic Pressure (1 in. dia., 0 to 2,000 psi), Temperature (-50 to 150 and 0 to 2000 degrees C), and Flow Meter. Other sensors are available on request. Virtually any type of sensor will work with these Monitoring Systems.

ERNASKO, INC.
18717 - 76th Ave. W. Suite E
Lynnwood, WA 98037 USA
Telephone: 206-771-4479
FAX: 206-771-3547

New Patrol Boat Designed By Ray Harvey Design



The Star Shipyard in Israel commissioned Ray Harvey Design to design a 49-ft. (15-m) high speed patrol craft to be used for anti-drug smuggling, coast guard, rescue and patrol craft duties. The vessel — designed to be built of either aluminum alloy or high-strength steel — is currently being marketed by the yard and will be fitted with Rafael's Sea Eye stabilized thermal imaging system for all-weather detection and interception of both personnel and

marine craft surveillance system. The hull is designed as a smooth riding, high-speed, shallow draft, chine section, planing form. It was developed from experience with similar high-speed craft of this size, and designed for optimum efficiency and endurance at full, patrol and loitering speeds. It is designed to operate in all sea and weather conditions, and to provide excellent wave riding capabilities.

The basic design is fitted with twin Caterpillar 3408B diesel marine engines developing 800 hp @ 2,300 rpm each, producing a speed in excess of 35 knots. Alternative engines are available to produce speeds between 20 and 50 knots. To facilitate shallow water accessibility, the vessel will be fitted with twin waterjets. With waterjet propulsion and drawing only 24 in. (600mm), the vessel is capable of high-speed pursuit in

restricted waters. The foredeck of the craft includes a recess for the self stowing anchor and the automatic electric anchor windlass as well as a position for a removable tripod gun mount if required. The forward raked windscreen is designed to add an aggressive personality to the vessel and produce an open and clear vision field free of all reflection and glare.

For more information
Circle 82 on Reader Service Card

FastShip Technology: Port City Banks On Technology

In Philadelphia, where a major military yard is closing, and thousands of workers stand to lose their jobs, one would assume the outlook is bleak. It's not. Area officials are working furiously to ensure the long term success of the port city by attracting overseas investors and investing in next-generation technology. While the city negotiates with Meyer Werft for a private takeover of the Philadelphia Naval Shipyard (see *MR/EN* March 1995, p. 18), port officials and business interests are searching for ways to revive the declining shipping trade and newbuilding industry.

The FastShip technology has the potential to make its home port a major center of cargo traffic, and Philadelphia has taken the initiative, gaining exclusive location rights for the technology, by investing millions of dollars in the development of the high-speed, semi-planing monohull that could reinvent the port as a powerful shipping force.

According to Paul Drayton, executive director of the Delaware River Port Authority (DRPA), the agency charged with improvements for the Ports of Philadelphia and Camden, N.J., taxpayers and business investors alike are rallying around the FastShip proposal. Recently, a "FastShip Update For Port And Business Community" conference was held and "the response we received was overwhelmingly positive," said Mr. Drayton.

In fact, the favor of the business community is climbing at a rate proportionate to the amount of

dollars, about \$10.8 million, already invested in the speculative project by the DRPA. As stated by Mr. Drayton, "Being the only U.S. port that has FastShip service would be a tremendous marketing asset for the port — businesses may decide they want to be closer to the FastShip operation, therein lies the potential for catapulting Philadelphia into the forefront of U.S. ports."

The proposed site for the FastShip port is the naval base, close to air transportation, rail lines and roads which would be used to transport high value time sensitive (HVT) cargo to port to be whisked across the Atlantic by FastShip. If the proposal is ultimately enacted, Philadelphia would be the East Coast center for HVT cargo.

New trading is expected to spring up as a side effect of a shipping service offering increased efficiency at decreased cost, and Philadelphia has prepared to address this by establishing an Office of Export Assistance and International Trade. Philadelphia has supported FastShip with the amount of dollars it has contributed to the project, but realistically, the technology may be more than a few years in coming, or may never happen at all. According to Mr. Drayton, "There are shared risks and successes. The agreement was structured with this in mind. The DRPA is ultimately responsible (to the tollpayers). We're trying up front to protect our tollpayers to ensure that this project is feasible. It is as measured a risk as we can possibly make it."

FASTSHIP Update

(Continued from page 54)

Chryssostomidis, "The commercialization of the technology developed by M.I.T. and FastShip could lead to a rebound in American competitiveness in shipbuilding and an expanded role for the U.S. in global transportation of high-value cargoes."

M.I.T.'s Center for Transportation Studies will join forces with the technical teams to help define and reach the new market which is expected to spring up as a result of the FastShip technology. The university's Technology Licensing Office, which specializes in bringing new technology to commercial markets, will be a force in recruiting project support and capital. M.I.T.'s Technology Licensing Office has helped more than 60 companies establish businesses worldwide in the last nine years, with a combined worth of more than \$2 billion.

TG-770 FastShip Specs

Length o.a.	774 ft. (236 m)
Beam (molded)	116.5 ft. (35.5 m)
Draft (full load)	34.3 ft. (10.4 m)
Displacement (full load)	30,480 tons
Avg. Service Speed	42 knots
w/8 engines at 97% MCR	
w/6 engines at 97% MCR	37 knots
Endurance (w/ 10% fuel reserve)	4,800 nm
At 37.5 knots	4,800 nm
At 42 knots	3,200 nm
Hold Capacity	Approx. 2 million cu. ft.
Engines	(8) GE LM 6000 gas turbines
Thrusters	(3) KaMeWa waterjet propulsors
	(2) KaMeWa maneuvering waterjets
Gearboxes	(4) GE reduction gears

FastShip Versus Conventional Freighters On The North Atlantic

	Conventional	FastShip
Speed	18-24 knots	37.5 knots
Capacity	3,500-4,500 TEU	1,360 TEU
Seatime	7-8 days	3.5 days
No. of ports	8-12	2
Door to door time	14-35 days	5-7 days

MHI Bio-Reactor Uses Bacteria To Convert Oil

Mitsubishi Heavy Industries has discovered bacteria which can decompose oil to water and carbon dioxide, and has succeeded in the commercialization of a biological emulsion oil treatment system using the bacteria. The MHI Bio-Reactor, reportedly easy to install and operate, can process fresh or seawater contaminated with oil. Commercialized to treat the bilge water drained from the ship engine room, the system reportedly reduces oil density of 1,000 ppm waste water to 5 ppm, below the level required by the marine regulation for oily drainage from the ship.

The oil can even be in the form of an emulsion and be successfully treated since the unit creates its own surfactant. The Bio-Reactor comes in sizes ranging from two through 10 cu. m through-put per day. The system consists of a pre-treatment unit (floating oil separation); bio-reactor (oil decomposition); and after treatment unit (solid and liquid separation). The system developed by MHI uses a .5-cu.-m bio-reactor and is able to treat 2 cu. m bilge water including 100 ppm concentration of oil per day.

For more information on the MHI Bio-Reactor
Circle 79 on Reader Service Card

Vela Intl. Selects Nautical Technology For Fleet Automation

Vela International Marine Ltd. is installing Nautical Technology Corp.'s comprehensive ship management microcomputer system, NTC Ship Manager. The multiple module software will be installed on board 27 of Vela's tankers and shoreside at its Dhahran headquarters and five worldwide offices.

Vela will use NTC Ship Manager to cover all shipboard operations and will have it interface directly with its main financial computer system. The system's built-in data exchange capability will help ensure that all shipboard and shoreside sites share up-to-the-minute information allowing for tighter management control, improved procedures and productivity gains. The microcomputer system consists of program modules which can be installed independently or integrated with other modules. The modules cover operations such as purchasing, inventory control, preventative maintenance, maintenance management and service ordering, crew management, crew payroll and communications. NTC Ship Manager will operate on a variety of client/server and network microcomputer environments as well as on PCs.

For more information on NTC
Circle 80 on Reader Service Card

Intergraph Offers Integrated Ship Design And Production

Intergraph is dedicated to interactive computer graphics, and has been supplying computer graphics CAD/CAM systems to the shipbuilding industry since the late 1970s. In the mid-1980s, the company began

to apply its experience in shipbuilding to a new generation of hardware and software technology; the result is a suite of products that provide an Integrated Ship Design and Production (ISDP) environment.

The Intergraph ISDP environment provides systems and services to support the design, construction, maintenance, overhaul, alteration,

repair and refurbishment of ships and shipboard systems.

The ISDP system is built around the concept of the 3D Product Model, where graphics and database attributes are integrated to maintain a full associative relationship between all components in the design.

For more information on Intergraph
Circle 77 on Reader Service Card

Digital Gyro Repeaters



- Large super-bright Digital Heading Display.
- Analog Turning Indicator - allowing instant estimation of turning rate.
- Will work from most types of gyro compasses - now also directly from Sperry SR 100/SR220 Master Compass.
- Programmable as Master Repeater or Slave Repeater.
- Digital Data output (RS422) - NMEA 0183 and several other protocols - for intergration with survey and navigation coputers.

SCAN Repeater
DIGITAL HEADING REPEATERS

P.O. Box 155, N-1411 Kolbotn, Norway
Phone + 47 66 80 71 07
Fax + 47 66 80 80 95

scandinavian micro systems

Circle 295 on Reader Service Card

A Commitment to Excellence A Reputation for Achievement



KB Electronics designs and manufactures a complete line of fully hardened and ruggedized static power conversion equipment in the 1-10 KW power range and battery management systems for military and critical commercial applications.

In the design and manufacture of all products we apply the same commitment to quality that has earned KBE a reputation for meeting or exceeding customer requirements.

KBE provides integrated logistic support services for its family of products. For rapid response to our customer requirements, our engineering capabilities are complemented by in-house EMI, vibration and environmental test facilities.

KB ELECTRONICS (1989) LIMITED

Designers and Manufacturers of Power Conversion Equipment and Battery Management Systems

150 Bluewater Road, Bedford, Nova Scotia, Canada B4B 1G8
Tel: (902) 835-7268 • Fax: (902) 835-8026

Circle 261 on Reader Service Card

GHS General HydroStatics

GHS is flexible!

- Create your own commands
- Make your own menus
- Specify your own stability criteria
- Arrange your own reports

GHS is both DOS and Windows compatible - we don't lock you in!



CREATIVE SYSTEMS INC.
CREATORS OF GHS

Stability Software Products

GHS Full-featured hydrostatics
BHS Mid-range package
BHS/YACHT Yacht designer's package
GLM Shipboard trim and stability
GHS/SALVAGE Salvage oriented package

P.O. Box 1910 Port Townsend, WA 98368 USA
TEL (360) 385-6212 FAX (360) 385-6213

Developers of advanced hydrostatics software since 1972.



Circle 227 on Reader Service Card

Pelmatic High-Speed Fast Ferry Designed For Optimal Loading/Unloading

Based on its experience in commercial and military ship design, Pelmatic has developed a series of high-speed monohull ferries for passengers and cars. The vessels range in size from 104 ft. (32 m) to 410 ft. (125 m). The design philosophy of the new series is represented by Pelmatic's HS710, which was made to ensure optimum logistics of loading and unloading of vehicles to reduce handling time in port. Base concepts are designed for composite, aluminum or steel hulls depending on size and customer preference.

The Pelmatic HS710 is a monohull car/passenger high-speed ferry with a capacity of 450 passengers and 43 cars, at an overall length of 232 ft. (71 m), with one passenger deck and two car decks. The vessel is intended for medium-range coastal service. The service speed is approximately 33 knots laden. The hull has a hard chine V-hull form to ensure optimum seakeeping, and the vessel is equipped with an active stabilization system in order to increase passenger comfort.

Propulsion is arranged with four waterjets coupled to four high-speed diesel engines via reduction gears. The system concentrates on efficiency and maneuverability, again reducing time in port. Composite shafts have been selected to attain a more favorable weight distribution, allowing for an increased payload.

Pelmatic is also focusing on monohull vessels for their high-speed designs, as the monohull offers good seakeeping in rough conditions and a high load carrying capacity.

Pelmatic HS710
450 passenger/43 car monohull

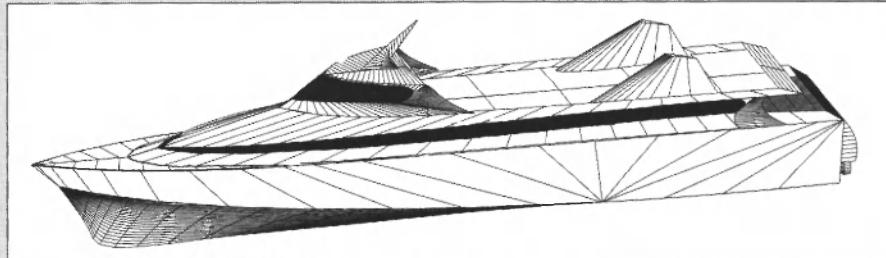
HS710 Main Particulars

Length 232 ft. (71 m)
Speed 33 knots
Engines 4x 2,300 kW
Propulsion waterjets

Materials (hull/superstructure)
..... aluminum or composite

For more information on Pelmatic
Circle 3 on Reader Service Card

Pelmatic's high-speed ferry design.



THE ESTABLISHED STANDARD IN LIFEBOAT & DAVIT SYSTEMS

	LIFEBOATS:	Totally Enclosed Partially Enclosed Freefall Open
	DAVITS:	Marine/Ship Installations Offshore Installations
	RESCUE BOATS, RIGID INFLATABLES, COMMERCIAL:	Reliance Sea Responder Zodiac Hurricane
	LAUNCH ENHANCEMENT:	Prod System

SERVICE, SALES, PARTS, INSPECTION & TRAINING, (Onsite & Factory) (3) United States Service Points:
- FLORIDA
- LOUISIANA
- VIRGINIA

SALES CENTER:

167 Bell Avenue
Oak Hill, Florida 32759
TEL: (904) 345-3483
FAX: (904) 345-4304



SERVICE CENTER:

912 Hwy. 90 East
New Iberia, LA 70560
TEL: (318) 365-5451
FAX: (318) 367-2816

Circle 296 on Reader Service Card

	THE GOOD THE BAD THE UGLY	THE WET THE DRY THE HAZARDOUS THE VERTICAL THE INCLINE THE POWER PLANT THE REFINERY THE SHIPBOARD THE SHIPYARD THE PORT CRANE THE DAM THE TRANSPORT HUB THE INDOOR THE OUTDOOR THE ABOVE GROUND THE UNDERGROUND
	Alimak Passenger, Service, Freight Elevators & Specials ISO 9001 certified manufacturer	THE ANSWER: ALIMAK ALIMAK ELEVATOR COMPANY 1100 Boston Ave., Bridgeport, CT 06610 Tel: (203) 367-7400 Fax: (203) 367-9251 Atlanta (404) 441-9055 Los Angeles (310) 698-2571 Chicago (708) 998-4646 Northeast (203) 367-7400 Houston (713) 338-1114 Canada (416) 625-1360 Latin America (713) 338-1114

Over 45 Years in the Industry • Member NAEC, NAESA
MAKERS OF THE FINEST INDUSTRIAL ELEVATORS IN THE WORLD
Circle 202 on Reader Service Card

TURN YOUR
SHIP
INTO A
SEE-GOING
VESSEL

SOLASOLV™ ROLLER SCREENS KEEP OUT GLARE, HEAT AND ULTRAVIOLET RAYS FOR BETTER VISIBILITY.

At sea, it is critical to have good visibility. Solasolv Roller Screens provide it. These easy-to-fit, easy-to-operate screens offer these advantages:

- Cut out glare, heat and UV rays during the day
- Roll out of sight when not needed
- Provide safer, more comfortable working area

For more information, contact us today!

MARKETEC, INC.
P.O. Box 999 • Pisgah Forest, NC 28768
Tel: (704) 884-5070 • Fax: (704) 884-5072

Circle 276 on Reader Service Card

Advertisement

COMSAT's MobileTrac™: Providing Security and Information Control Throughout Shipping Operations

In today's competitive environment, the need to track and manage a large fleet of vessels, in sometimes dangerous at-sea conditions, is perhaps the greatest test facing fleet managers. But what does a commercial fleet operator have in common with the race management of the prestigious BOC Challenge around-the-world race?

Realizing the complexity of managing numerous vessels around the globe and needing accurate reports on each vessel's position, speed, heading and other variables, the BOC race management approached COMSAT for a communications solution.

MobileTrac™ Adds Operation and Management Control

When the race set sail from Charleston, South Carolina this past September, the fleet of boats, ranging from 40-60 feet, left port equipped with COMSAT's Inmarsat-C data communications and MobileTrac™ vessel tracking service for all their communications needs.

And with good reason. Because COMSAT's vessel tracking service allows on-shore managers to track the location of each participant, race organizers were able to keep a close eye on the fleet and respond to any emergency that might possibly arise.

Indeed, such an emergency occurred. Midway through the first leg, one of the yachts, skippered by Josh Hall, ran into a submerged object that crippled his boat and put his life on the line. Josh was able to use COMSAT C-Link™ to summon help. Then, the vessel tracking software was used to locate Josh and the nearest vessel to coordinate the successful rescue.

Proven Security Means Operations Enhancement

Managing a race of this caliber and managing a fleet of commercial shipping or fishing vessels are both critical and difficult tasks. But MobileTrac™ can make it easier—to save time, money and even lives.

In its commercial application, MobileTrac™ offers unlimited flexibility in viewing, storing and analyzing data from ships. The basic function of the system is position reporting, which is accomplished by sending Global Positioning System (GPS) data received on board to a shore-based computer and plotting these positions on a global or area map. The positions are reported automatically, without any additional burden on the vessel operator, and the frequency of reports can be changed at any time.

In addition to position reports, the system can be set up to send critical operating data from engine monitoring systems such as temperature, fuel consumption, etc. The Inmarsat-C service also allows you to send and receive messages at any time, for coordinating crucial business issues or sending a note to family.

Integrating Technology and Information

The statistical capabilities of the MobileTrac™ system can be used to compute useful information including distance to destination, speed and heading. The graphical capabilities give users the option for custom labeling.

Most importantly, when emergencies arise, MobileTrac™ and the C-Link™ service can assist by polling each vessel in a fleet to find the nearest vessel or port. The system can also be adjusted to report positions more frequently to monitor the status of a rescue or vessel in danger.

MobileTrac's™ Range of Services

MobileTrac's™ greatest feature is its flexibility to meet different user needs. Users can easily customize the system display, the position reporting intervals and the information reported by the vessels.

COMSAT's MobileTrac™ service utilizes Inmarsat-C terminals that feature integrated GPS receivers on each vessel being tracked. On-shore managers can use an MS-DOS computer, running Windows and a modem to receive the reports.

For fleet operators, the computer can be connected to X.25 Public Switched Data Networks for efficient and economical transmission of position data.

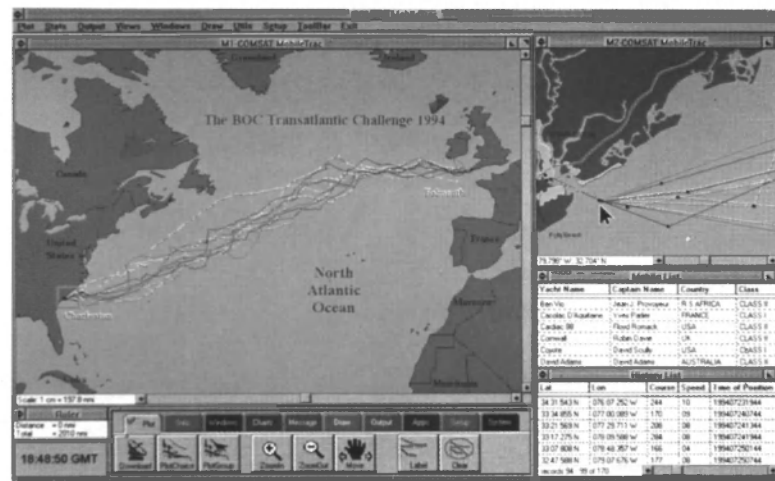
In addition to using the Inmarsat-C terminals for tracking, the vessel will be able to send and receive messages, weather updates and communicate via numerous electronic mail services or send messages to fax machines.

Offering Technology That Fits Maritime Needs

With this C-Link™ system in place, on-shore managers receive the peace of mind that comes from knowing they are in constant communication with their vessels all over the world. The vessel operators also gain peace of mind, because they will know their location at all times and be assured that they can communicate to land, anywhere in the world, seven days a week, 24 hours a day.

To reduce disasters at sea, including loss of life and cargo, more and more cruise lines, shipping and commercial fishing fleets are turning to COMSAT's satellite communications for use in tracking and safety.

The MobileTrac™ system is an effective partner in making on-shore management a simple task by offering state-of-the-art technology and services that fit today's maritime needs.



Using COMSAT's MobileTrac™ services, fleet managers can take advantage of enhanced Inmarsat-C communications to plot the course and location of their vessels.

Proven Performance. Total Solution Support.

COMSAT's MobileTrac™ system: a marketable distinction and a true competitive advantage for today's fleet manager. Call us for more information and you will see that we're more than cutting-edge technology.

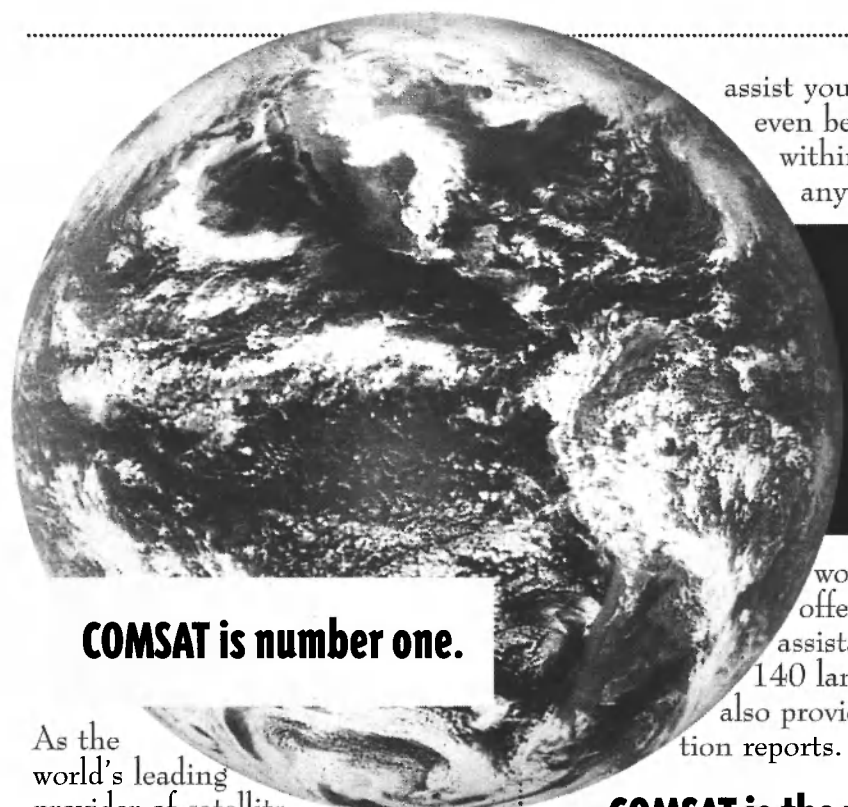
ADVANTAGES OF COMSAT'S MobileTrac™ VESSEL TRACKING SERVICE

- Worry-free, hands-off reporting that transmits a vessel's position automatically.
- Improved management through instant retrieval of information on each terminal position.
- Enhanced reporting with numerous options for sharing in-progress information with terminal users.
- Ease of operation that requires only an MS-DOS computer with running Windows.
- At a glance understanding of each vessel's progress through displays.
- Selective data retrieval through an adjustable viewing range.
- Precise measurement capabilities with the use of a movable "ruler".
- Advanced plotting abilities.
- Definable alarm zones.



22300 COMSAT Drive, Clarksburg, MD 20871-9951 Telephone: 301-428-2379 Toll Free in the U.S.: 1-800-424-9152

COMSAT. New Low Rates...And A Global Network Of Value-Added Service.



COMSAT is number one.

As the world's leading provider of satellite communications, COMSAT makes it easy for you to call anybody, anywhere. For easy international calling, just dial "01" for Inmarsat-A; for Inmarsat-M/B global coverage, dial "001."

COMSAT is the global coverage leader.

COMSAT has earth stations in every ocean region, to provide you with seamless worldwide Inmarsat-A, -B and -M coverage. We offer you one-stop shopping for fax, data, voice and telex service around the world—you won't have to hassle with regional provider agreements.

COMSAT is the premiere service operator.

Seven days a week, 24 hours a day, COMSAT has experienced operators, and a sales team with technical and application expertise, at your disposal. If you need service, our engineers are on call to

assist you—and can even be on site within 24 hours, anywhere in the

high-speed data and vessel tracking.

New low prices and billing options.

You'll find our pricing very competitive. We've introduced new low rates on Inmarsat-A, -B and -M, and we

have volume discount plans for service in all directions. We offer specialized billing, with options including account codes for bill-back and diskette call record.

world. We offer language assistance in over 140 languages. We also provide call duration reports.

COMSAT is the value-added service provider.

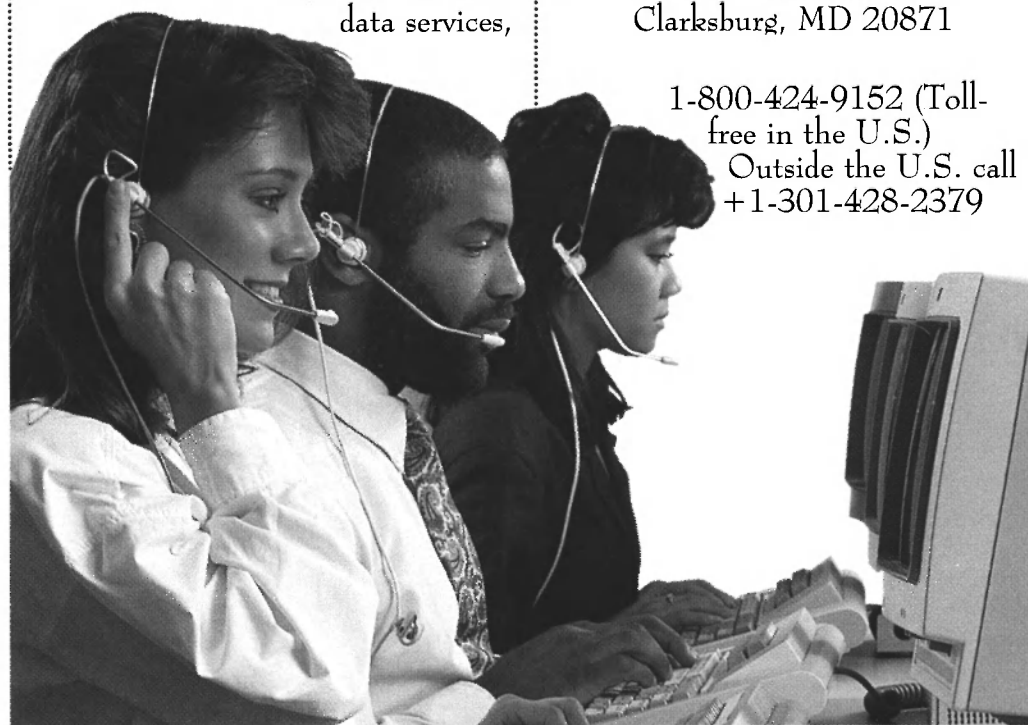
With COMSAT, you benefit from a full range of communications choices, such as multilingual news services, FaxMail, videoconferencing, LES-hubbed data services,

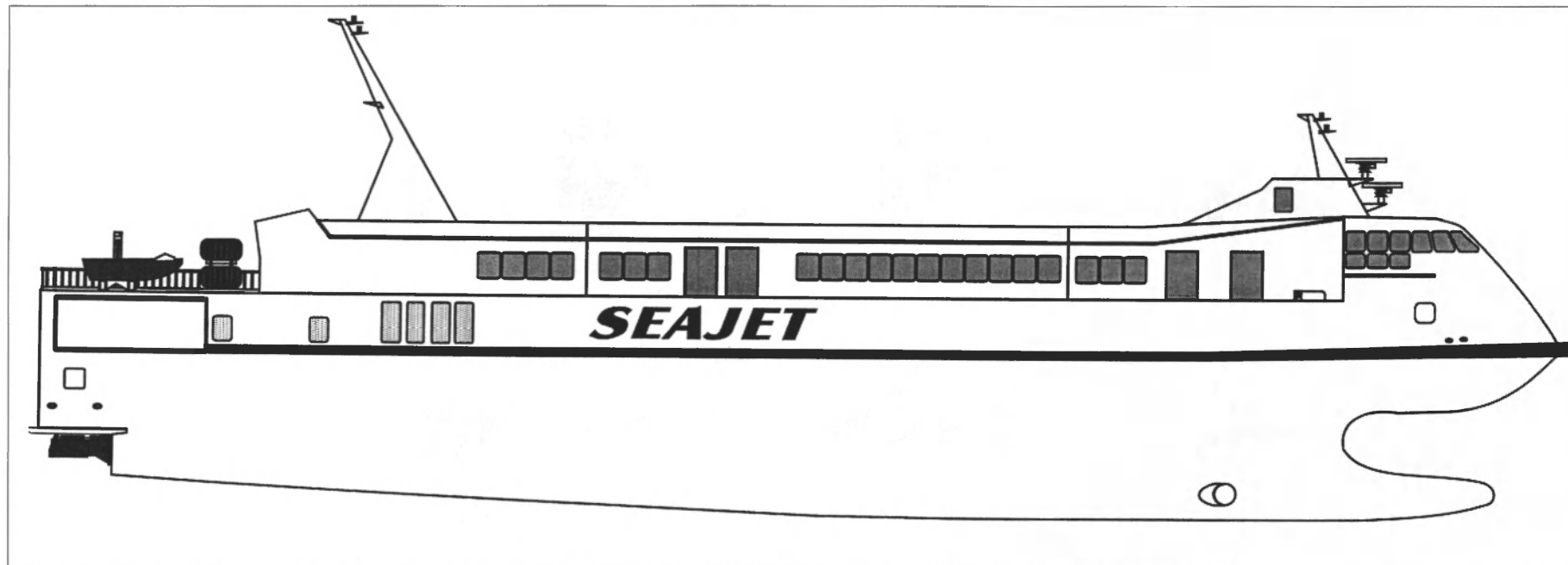


Around the World. Around the Clock.

22300 COMSAT Drive
Clarksburg, MD 20871

1-800-424-9152 (Toll-free in the U.S.)
Outside the U.S. call
+1-301-428-2379





Two SeaJets — designed by Danyard A/S in conjunction with NQEA of Australia and being built for Mols-Liener — will be powered by four GE LM1600s each.

GE Turbines Ordered For SeaJet Ferries

Four GE LM1600 gas turbines were ordered by Kvaerner Energy of Oslo for the Danish operator Mols-Linien to power two Danyard-built SeaJet 250 passenger/car fast ferries. The SeaJet was designed by Danyard in cooperation with NQEA of Australia.

The two new SeaJets will replace conventional ferries on the Ebeltoft/Odden service between Jutland and Sjaelland, cutting the trip time from one hour and 45 minutes to 45 minutes.

Design: Speed & Comfort

The vessel is designed to withstand the forces generated when operating at speeds in excess of 40 knots and in sea conditions of 8.2 ft. (2.5 m) significant wave height and zero crossing period (T_z) at 4.5 seconds.

It is also designed to withstand the forces generated when operat-

ing at 20 knots in sea conditions of 14.75 ft. (4.5 m) significant wave height.

The vessel is of all-welded aluminum construction. The aluminum plates and extruded sections are approved by DNV.

The longitudinal stringers of the vessel are supported by transverse web frames and bulkheads, with an upper section designed to withstand hull bridging forces.

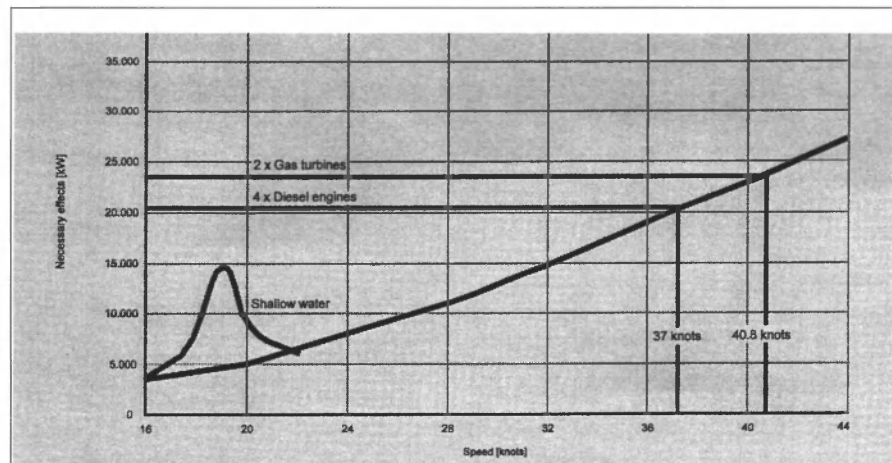
Each hull is fitted with the appropriate number of main transverse bulkheads, these providing watertight subdivisions.

A main focus of the design effort was expended on ensuring excellent seakeeping characteristics, i.e. passenger comfort.

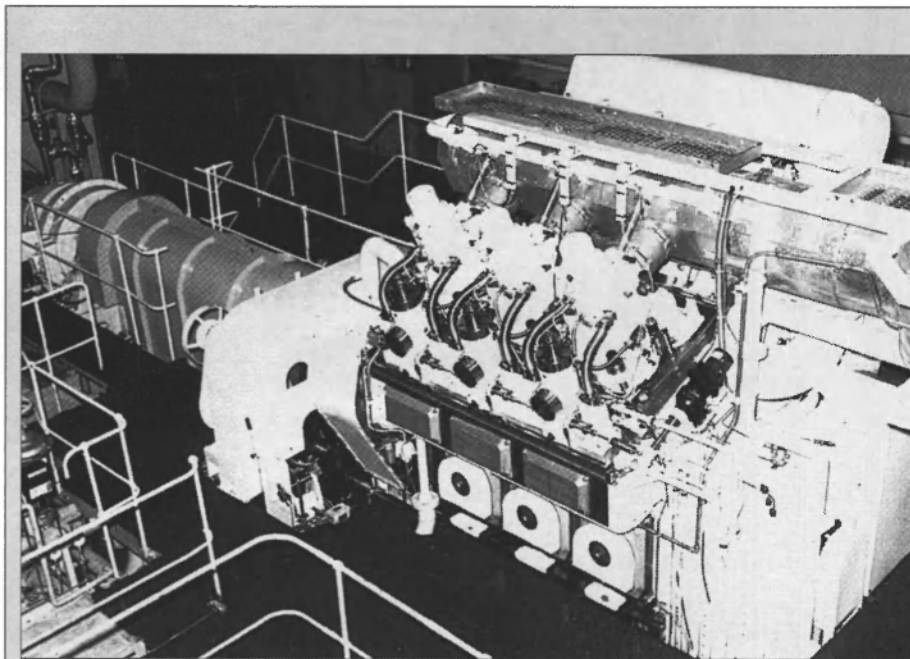
To ensure this was achieved:

- the water plane area was kept to a minimum, to reduce wave-induced motion

(Continued top of next page)



Considerable efforts have been put into tank testing. Tests have proved that the SeaJet is capable of operating with a service speed of 40.8 knots, when equipped with gas turbine, and 37 knots when equipped with diesel engines. A unique hull design helps minimize the power required to operate at such high speeds.



Rising Sun Engine Project

Engine to package 10 to 15% fuel savings with 40 to 50% specific weight reduction

by Graeme MacLennan, international editor

A long-term Japanese national research and development program to develop a very high performance and super efficient medium-speed engine has achieved initial success with the extended test bed running of the prototype at the works of Mitsui Engineering & Shipbuilding Co. The project, with the code name "Rising Sun," was initiated as long ago as 1983 by a consortium of the leading engine builders: Mitsui, Kawasaki and Hitachi, and the Japan Development Bank, sponsored by

the Japan Shipbuilding Industries Foundation.

Other concerns and organizations with interests to contribute joined at a later date. The development of any entirely new design of engine, as opposed to the up- or down-scaling of an already satisfactory model, calls for the expenditure of immense resources in time, labor and money. Past diesel engine history is liberally sprinkled with mechanical and commercial disasters and today no one can risk introducing an engine in which every component has not

(Continued on page 66)

GE Turbines Ordered For SeaJet Ferries

- utilizing the total beam to keep roll acceleration to a minimum
- the natural frequencies for heave, pitch and roll are kept separate to avoid interference between them in a seaway.

The semi-SWATH hull form has a very small added resistance in seaways (less than four to five percent in significant wave heights up to 6.5 ft. (2 m). This ensures the vessel's ability to keep to sailing schedules, even in rough seaways. The model was tested in shallow water to ensure that the vessel will be able to operate in a seaway where a part of the route passes through shallow water, without any problems in keeping to the schedule. The test showed that extra power is needed for continuing acceleration from 16 to 21 knots.

The Power

"This order marks the first use of GE's aeroderivative gas turbines in the fastest growing segment of the fast ferry market, specifically the 20 to 26-MW power requirements, which traditionally applies diesel engines for propulsion power," said **John Ferrera**, vice president, Europe, Middle East and Africa, GE Marine & Industrial Engines (M&IE). "With penetration into this power range of the catamaran fast ferry market, we see unlimited potential for all of GE's aeroderivative gas turbines. The SeaJet marks the first fast ferry to be powered exclusively by LM1600s."

The two SeaJet fast ferries will each have propulsion packages with a total power output of 24,800 kW. The gas turbines will be manufactured by M&IE at its Lynn, Mass. plant; the propulsion system packages will be built at Kvaerner Energy's Agotnes facility on the west coast of Norway.

For more information on Danyard
Circle 64 on Reader Service Card

For more information on GE
Circle 65 on Reader Service Card

For more information on
Kvaerner Energy
Circle 66 on Reader Service Card

SeaJet Principal Dimensions

Length (oa)	250 ft. (76.1 m)
Beam (molded)	77 ft. (23.4 m)
Draft (loaded)	11 ft. (3.36 m)
Service Speed	40.8 knots
Propulsion	GE gas turbine
Propulsion type	LM1600
Power	2 x 12.4 MW
Specific fuel consumption	241 g/kWh (100% MCR)
Range at max. speed	240 nautical miles
DWT	250
Car capacity	120
Passenger capacity	450
Construction material	Aluminum
Classification	+1A1 HSLC R2 Passenger Car Ferry A EO ICS NAUT

April, 1995

Canadansk: Patent Pending On Simplified Measurement System

Canadansk Systems Inc. was established to provide the measurement and correction of drive shaft systems and other associated machinery. Canadansk seeks to provide clients measurement, diagnosis and correction. Specifically, measurement of drive shafts and flanges, and measurement of hull flexibility; diagnosis of alignment, noise and

vibration; and correction where needed. To achieve its goal, Canadansk has developed a system that simplifies the measurement of shafts, flanges, gearboxes and generators. And although the system was developed for marine equipment, it can be adapted for use with other industrial equipment. The Canadansk technique is patent

pending. The system uses a digital laser beam in conjunction with a computerized gyro technique which provides the client with printouts of all X-Y and flange diagrams. It takes a team of two technicians to perform all measuring, diagnosis and correction, and the work is all completed while the vessel is in water.

For more information on Canadansk
Circle 76 on Reader Service Card

Competence in Dredging Technology



Floating dredgers

- ▷ Hopper suction dredgers
- ▷ Cutter suction dredgers
- ▷ Suction dredgers with underwater cutting wheel (UCW)
- ▷ Plain suction dredgers
- ▷ Barge suction dredgers
- ▷ Silt dredgers
- ▷ Bucket dredgers


KRUPP FÖRDERTECHNIK

Krupp Fordertechnik GmbH · Marine Technology
Einsiedelstr. 6 · D-23554 Lubeck
Tel. +49(451) 4501-0 · Fax +49(451) 4501-750

Circle 264 on Reader Service Card

DE-BUG™

KILLS DIESEL FUEL ALGAE

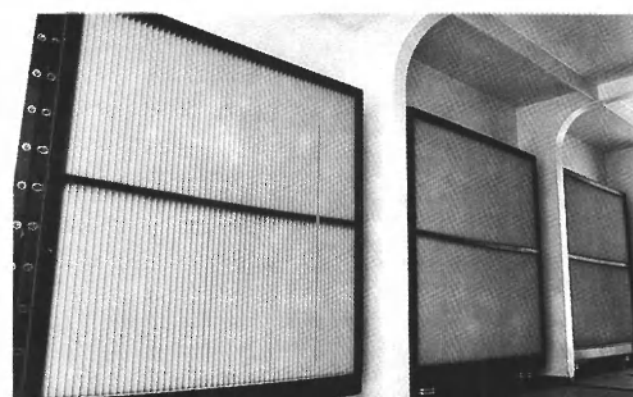


De-Bug's patented magnetic technology ends clogged filters and down-time by killing microorganisms in diesel fuel. No biocides, no problems...no kidding! Call, Fax or write for free literature and complete technical information.

NORTH STAR
MARINE & INDUSTRIAL PRODUCTS, INC.
84 Wall Street • Farmingdale, NY 11735
Tel. 516-454-8844 • Fax 516-454-8894

Circle 324 on Reader Service Card

It goes topside to protect down below. Munters Marine Salt Spray Eliminator.



Below deck corrosion is the worst enemy of performance, maintenance and resale value.

Munters Marine Salt Spray Eliminator stops the harmful effects of salt spray while preserving power, fuel economy and your warranty. While allowing air in, Munters keeps salt out. It's better for your boat, better for the environment and better for you.



108 Sixth Street Southeast • Fort Myers, Florida 33907
1-800-446-6868 Fax: 813-278-1316

Munters Euroform Postfach 1089/1866
D-52011 Aachen GERMANY 0241-8900-0

Circle 282 on Reader Service Card

65

Rising Sun Engine Project

Engine to package 10 to 15% fuel savings with 40 to 50% specific weight reduction

(Continued from page 64)

been tested exhaustively, and does not at least match the competition in economy. The long gestation of this engine can be explained by the aims of the project and the very high working parameters necessary to attain these aims — far above existing practice.

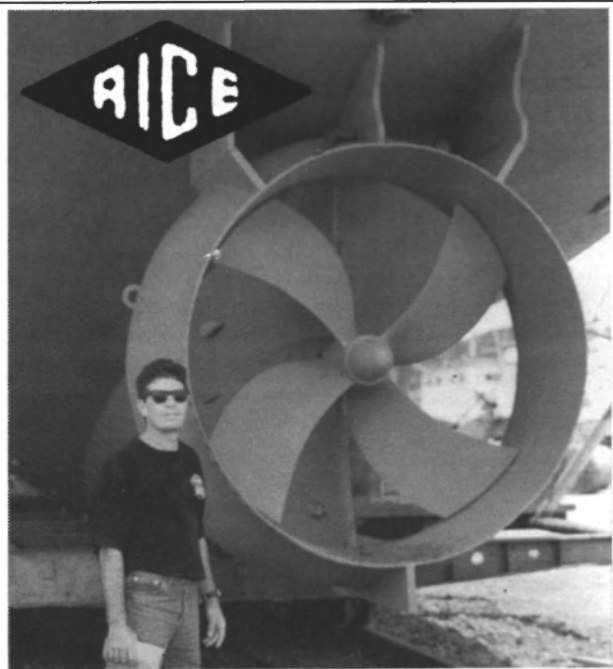
The prototype being test run is a six-cylinder V-form, with a 300mm bore and a 480mm piston stroke, developing 4,340 kW (5,900 bhp) at 750 rpm. This performance corresponds to a bmep of 31.4 bar (495 lb./in.2) and a mean piston speed of 12 m/s (2,360 ft./m), both quite exceptional figures for an

engine with these cylinder dimensions. Only the lightweight engines for fast naval craft and running at up to 1,300 rpm reach 12 m/s; and 10 m/s would be a very good figure for a contemporary 750-rpm engine. This has been made possible by the extensive use of ceramic materials, not hitherto reported as being used in ic engines of more than chainsaw size. A ceramic material has been applied, by plasma-coating, to the cylinder liners and piston rings. This combination has a very low coefficient of friction and high anti-wear properties. The lubricant works under much less severe condi-

tions in spite of the higher rating. Further, a porous form of ceramic, diffusion-bonded to the piston crown, acts as an insulating layer to reduce heat stress. The porosity affords a flexibility to prevent cracking and damage to the liner, while these layers, together, reduce heat dissipation to the cooling water and piston oil, retaining it in the combustion chamber for conversion to extra work and recovery in the high-efficiency compound turbochargers.

Side-mounted fuel injectors work at up to 2,000 bar and the single inlet and exhaust valves are hydraulically operated, with com-

puter-controlled Mechatronics which intervene to alter the fuel injection and gas valve timing to suit altered loadings, notably at lower power and starting; normally problems with very highly rated engines. The results claimed include fuel consumption reduction by 10 to 15 percent, together with a specific output (mean cylinder pressure x mean piston speed) increased by 50 to 80 percent. The specific weight is reduced by 40 to 50 percent. Reliability must be measured after some years in actual service, but measurements suggest long life of wearing components.



**GET THE NOZZLE SYSTEM THAT
WON'T DRAG YOUR BOAT
RICE SPEED NOZZLE**

WITH

KA-SPEED PROP.

**FROM 40" UP TO 140" DIAM.
TOTALLY HYDRODYNAMIC SECTION**

- * MAXIMUM FUEL SAVING
- * 6% MORE THRUST
- * 10% MORE FREE RUNNING
OVER KORT 19-A NOZZLE

**RICE PROPELLERS
AV. RIOS ESPINOZA # 88
MAZATLAN, MEXICO 82180
TEL: 011 (526) 983-6552
FAX: 011 (526) 984-2533**

Circle 332 on Reader Service Card

MMC CLOSED SAMPLING

MMC's new Closed Sampling Tape has its own built-in sampling port.

Take a look. The sampling port is located at the base of the barrel. Just put the tape in place on any one of a wide range of existing MMC deck valves, twist the collar and you're ready to go. (There's even a handy adaptor to make it fit non-MMC valves.)

Its closed construction keeps emissions from escaping into the atmosphere so you're in compliance with all applicable vapor-control regulations. A return hose assembly even directs vapors displaced from the sample bottle back into the system. The sample bottle is then quickly and neatly removed, and capped for testing and/or laboratory analysis.

One final point: it's all made in the USA by MMC, a name you've learned to trust for over 50 years.

SAMPLING MADE SIMPLE!

IDEAL FOR SOUR CRUDE OIL

MMC Keeping You In Control

MMC International Corp. 60 Inip Drive Irwood, NY 11096-0664 U.S.A. Phone: 800-645-7339 1-718-327-3430 • 1-516-239-7339 Telex: 96-0140 MAMCAF INND Fax: 516-371-3134	MMC (Europe) Ltd. South Nelson Road South Nelson Industrial Estate Cranlington Northumberland NE23 9HL UK Phone: (01670) 738111 Telex: 537005 MARINE G Fax: (01670) 738789	MMC (Asia) Ltd. 7-7, 2-Chome, Kotonoo-Cho Chuo-ku, Kobe 651 Japan Phone: (078) 251-1033 Telex: 5624163 OPECK J Fax: (078) 252-0265
---	---	--

Circle 326 on Reader Service Card

Maritime Reporter/Engineering News

Safety Study Focuses On Machinery

In 1994 some prominent members of the shipping community formed the Redundant Ship Machinery Consortium, with the overall goal of increasing the machinery-related safety of merchant ships.

Findings of the consortium were divulged recently via a paper at a tanker industry convention.

Focus On Safety

While the project focused mainly on propulsion machinery, it also explored steering machinery. A cornerstone of the project was that ships — such as tankers and passenger vessels — should not be built with machinery concepts, containing many components in the engine room, the single failure of any of which is critical for the propulsion or for the maneuvering of the vessel.

Fully redundant machinery solutions generally have inherent advantages, the consortium found, such as good availability and maneuverability. Other forces pushing the drive for redundancy include growing interest among shipowners and pending legislation.

Setting The Standards

The implementation of redundancy requires clear criteria, and such criteria will be available this July in the form of voluntary class notations issued by Det Norske Veritas, developed as part of the project.

Technical solutions which comply with these rules to come were presented in the context of the project as well. The solutions are based on a twin-screw/twin-rudder configuration including system redundancy, with the higher degree of redundancy featuring a fire-insulated watertight separation bulkhead.

One conclusion of the project was that, for a comparatively small extra cost, ships can be built to comply with the most stringent of the new class notations, with the following criteria:

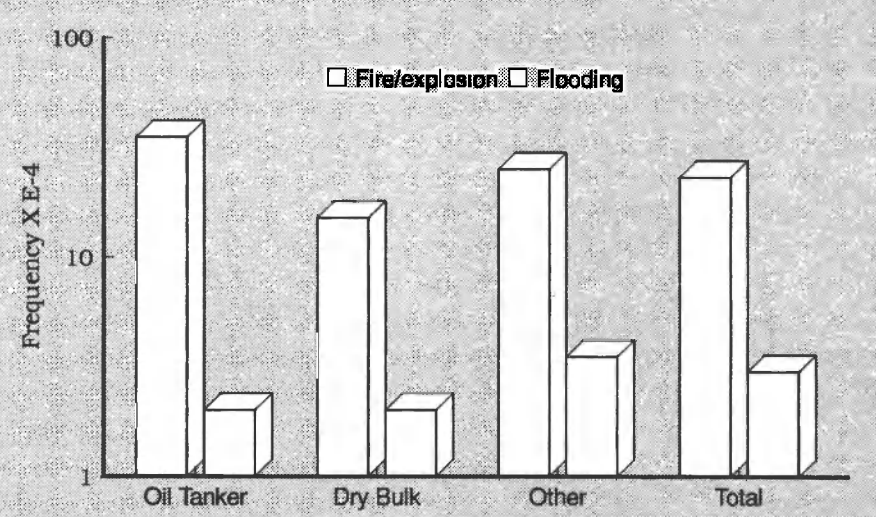
At least 50 percent of the propulsion power and adequate steering capability of the ship will be maintained in the following situations:

- A single failure of any component in the propulsion or steering machinery or related auxiliary piping, ducting, electrical or other systems supplying it.
- A fire of whatever size in any (but only one) machinery space or control room.
- Flooding of any (but only one) watertight compartment.

The Redundant Ship Machinery Project brought together several prestigious organizations in an effort to successfully blend the technical, financial and rules-related issues into a cohesive conclusion. Here's a rundown of the participants and their roles.

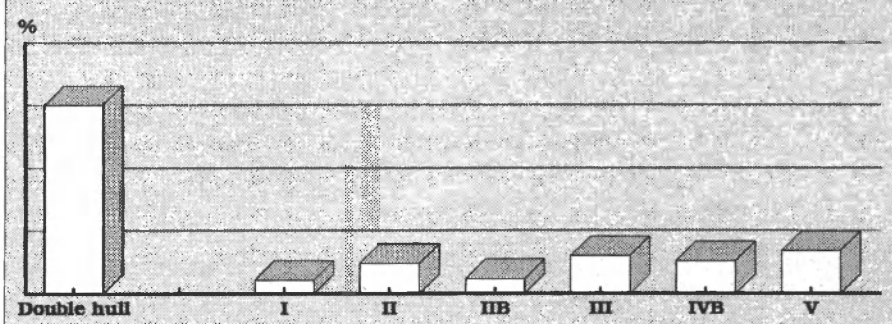
For more information on any of the companies listed, circle the corresponding number on the Reader Service Card in this issue.

ANNUAL FREQUENCY OF FIRE/EXPLOSION AND FLOODING IN ENGINE ROOM Ships > 5999 GRT



EFFECT ON TANKER NEWBUILDING PRICES

- Redundant machinery concepts compared with a traditional low-speed & fixed pitch solution (option IV)
- Double hull compared with single hull



Group Participants

Det Norske Veritas

Role: Rule text for class notations; casualty & availability analysis; bad weather analysis.
Circle 67 on Reader Service Card

Finnish National Board of Navigation

Role: Current international legislation development work; general background from previous casualties.
Circle 68 on Reader Service Card

Industrial Insurance

Role: Investigation of statistics of insurance claims; clarification of applicable insurance matters and fees.
Circle 69 on Reader Service Card

Kvaerner Masa-Yards

Role: Calculations and drawings related to ship design questions; building cost analysis.
Circle 70 on Reader Service Card

Neste Shipping

Role: Evaluation of operational matters; background data from sailing fleet of tankers.

Wartsila Diesel

Role: Machinery-related diagrams and calculations; investigation of tanker total loss statistics.
Circle 71 on Reader Service Card

Wartsila Propulsion

Role: Hydrodynamic and ship theoretical evaluations.
Circle 72 on Reader Service Card

GOLTENS — 'ROUND THE CLOCK, 'ROUND THE WORLD.

LINE BORING

For your alignment needs, Goltens has the expertise to get things running again, quickly. Using our own specially designed laser equipment, we will align your gears, stern tubes, engine blocks, etc.

And with our special line boring tools

Goltens' experts will accomplish all your line boring needs. We are familiar with all makes of engines and are experienced with in-situ machining of all types. So count on Goltens. We'll do the job right away...and we'll do it right.

Goltens WORLDWIDE

Oslo (47-22) 68 90 80
Hong Kong (852) 7550161 • Dubai (971-4) 341642
Shanghai (86) 21 4811721 • Singapore (65) 8 61 52 20
Rotterdam (31-10) 4 16 79 00 • Jakarta (6221) 640 8091
Wilmington, CA (310) 549-2550 • Miami, FL (305) 576-4410
Fairhaven, MA (508) 993-2631 • New York, NY (718) 855-7200

Circle 25C on Reader Service Card

New Propellers Help Make M/V *Dixie Commander* Quieter & Faster

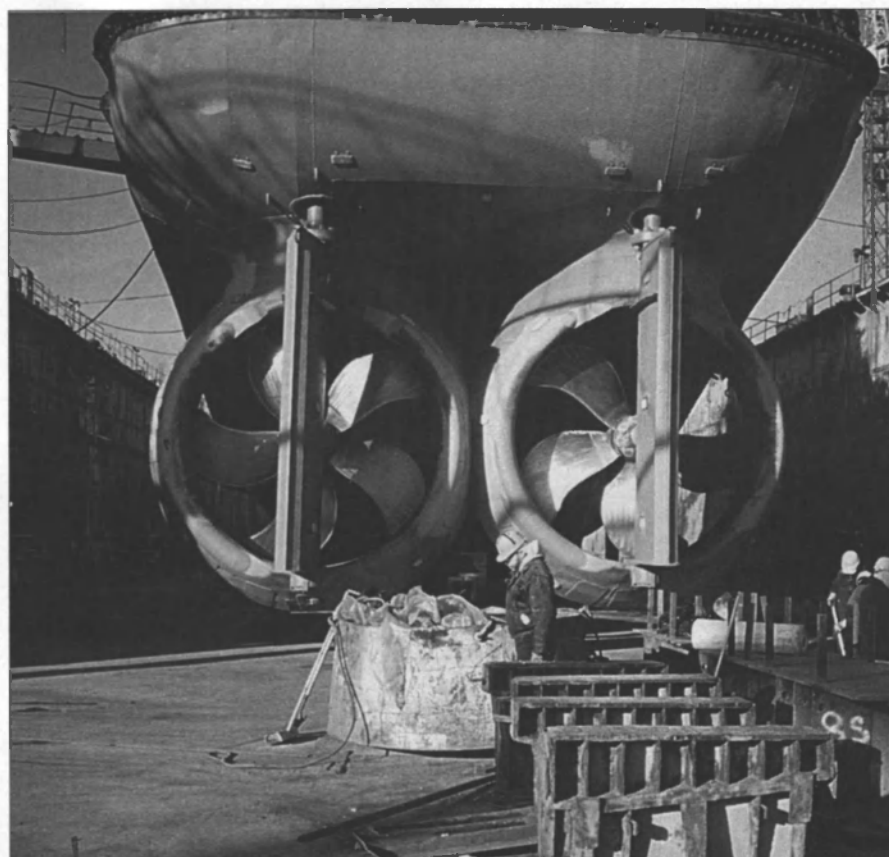
Dixie Carriers Inc., Offshore Div. purchased the *Dixie Commander*/DXE 1640 OS in late 1992 and started operating the tug/barge unit in mid-1993. During the first year and a half of operation, the vessel did not perform up to the company's expectations, as it vibrated severely when the main engines reached maximum rated rpm.

The boat entered Norshipco in January for propeller replacement. A pair of Bird Johnson New Generation Workwheel propellers was installed, and today the vessel can reach full rated rpm with no vibration. It is currently under contract operating from Marcus Hook, Pa. up the eastern seaboard, the owner reports.

From Two To One

It seems the *Dixie Commander* has a unique history. It was built from two 1941 military single-screw tugboat hulls. The forward section and the superstructure were removed from both hulls, and the two after sections were fitted together. A new forebody and superstructure were fitted, making a twin-screw boat.

Dixie Carriers reports there were two contributing factors in the vessel's poor performance: the unique hull design and the wide skags on the barge — both believed to cause cavitation in the propellers. As it was deemed expensive to rectify these problems, the vessel



was instead relegated to operating below its full potential. At maximum, the two diesel engines onboard were able to produce 800 to 810 rpm before the vibration became so strong that the crew feared mechanical fail-

ure. The average speed of the boat was between 8.5 and 9 knots with a loaded barge or in a ballast condition, and the operator was able to use only about 75 percent of the 7,200 hp available due to the

cavitation vibration.

New Propellers, Less Vibration

Bird Johnson approached Dixie Carriers with its new propeller design, and claimed the props would eliminate 40 to 50 percent of the cavitation vibration on the vessel. The five-bladed New Generation Workwheel was designed using the latest technologies, and incorporates five blades to reduce unsteady blade forces. The propeller's pitch distribution was developed to minimize cavitation while maintaining optimal efficiency. The series also boasts modified VLR blade sections, of advanced airfoil type for optimal cavitation performance. The combination of advanced blade sections, variable pitch distribution, increased number of blades and blade skew allows the manufacturer to quote significant vibration reduction.

Following installation of the new propellers at Norshipco, the boat made its trial run from Norfolk to Philadelphia via the Chesapeake Bay. The crew was reportedly amazed at the vibration reduction, and the vessel steamed up the bay averaging 10.2 knots with a ballast barge.

For more information from Bird Johnson
Circle 105 on Reader Service Card

For more information on Norshipco
Circle 106 on Reader Service Card

Environmental Hazards Kept In Check With Ultrasonic Technology

As cargo ships grow larger and environmental laws get tougher, the use of ultrasonic instruments to test for gas leaks and fugitive emissions is steadily growing in popularity. The simplicity of these tools as well as their ability to adapt to many different types of situations and inspection requirements have helped shipowners save time and money, maintain the quality of product, and ensure the safety of employees and the environment.

Ultrasonics allows an operator to check the watertightness of hatchcovers and doors in place of using conventional hose testing.

Ultrasonic testing reduces the number of maintenance and repair hours logged in by a vessel because it allows operators to identify and arrest leaks rapidly and efficiently, eliminating the need for less efficient visual inspection methods.

Other uses of ultrasound include testing the gas pressure or vacuum leakages of cargo tanks, as well as inspections of steam traps and valves, bearings, bulkheads, the engine room and the

main deck.

Ultrasonic testing is extremely helpful in keeping vessels compliant with vapor recovery laws. Ships carrying petroleum products are required to prevent fugitive emissions from entering the atmosphere, and vapor recovery zones are set up by locale to enforce these regulations.

If a vessel employs ultrasonic testing to check for unlawful atmospheric emissions, the safety of the vessel and the environment can be efficiently maintained, avoiding mandated, costly slow-downs by air quality control boards.

It has been reported that ultrasonic technology is spreading worldwide, used by companies such as U.S.-based Chevron Shipping, Stolt Parcel Tankers, Inc., South African-based A.R. Brink & Associates, Antwerp-based Sparks & Co., and London-based Aalmar Surveys.

Complying With Vapor Recovery Laws

San Francisco-based Chevron Shipping operates a fleet of 40 company-owned vessels both internationally and nationally. The ships carry



Ultrasonic testing gun in action.

petroleum products such as crude oils and gasoline blends that are covered under vapor recovery regulations.

For the past three years, Chevron has been using ultrasonic testing as part of its preventive maintenance program to eliminate or minimize

fugitive emissions from its cargo tanks. "Before entering into a vapor recovery zone (which varies with each locale) we must eliminate any fugitive emissions from entering into the atmosphere," said **Lou Lanza**, senior marine superintendent for Chevron. "Frequently, a representative from an air quality board will board a vessel and check for fugitive emissions. The inspector checks us with a device that measures hydrocarbons. If fugitive emissions are found which are in excess of what is allowed, the board can shut down the operation until the problem is corrected."

"We want to avoid unnecessary delays and we also want to be sure that we're in compliance with the requirements," continued Mr. Lanza. "So before entering into a restricted zone we use ultrasonics to routinely check any potential area where we might have leakage. We want to detect all leaks and repair them before we enter into a restricted area."

According to Mr. Lanza, ultrasonic testing provides Chevron with a quick and easy way to check for almost any leak. "If, for example, our maintenance person is testing a circular Butterworth plate about a foot and a half in diameter, he points the probe of the ultrasonic instrument about two inches from the plate and slowly moves along the perimeter, listening for leakage along the gasket. In a very short time, he can walk from location to location along the deck and check the problem areas. "We're continually looking for ways to comply with the vapor recovery laws in the West Coast area, and ultrasonic detection is helping us meet our obligations," said Mr. Lanza.

The Technology

The theory of airborne ultrasonic detection is relatively simple. Ultrasonic instruments are sensitive to sounds beyond the limits of normal human hearing. An ultrasonic detector translates ultrasound to the range of human hearing. Frequency, the number of times a sound wave cycles from trough to crest, is expressed in "cycles per second" and measured in "hertz." One kilohertz (kHz), for example, is one thousand cycles per second. The best human ears can hear noises in the range of 20 hertz to about 20,000 hertz.

Many ultrasonic detectors start at approximately 20 kHz and work upward to sounds as high as 100 kHz.

Thus inspectors using the ultrasound equipment can tune into and "hear" faults in electrical systems, operating machinery, and leaks in vacuum or pressurized systems.

Fluid and gas systems, electrical systems, and working machinery all produce consistent ultrasound patterns. Changes in the sonic signatures can be readily recognized as loose connections, faulty equip-

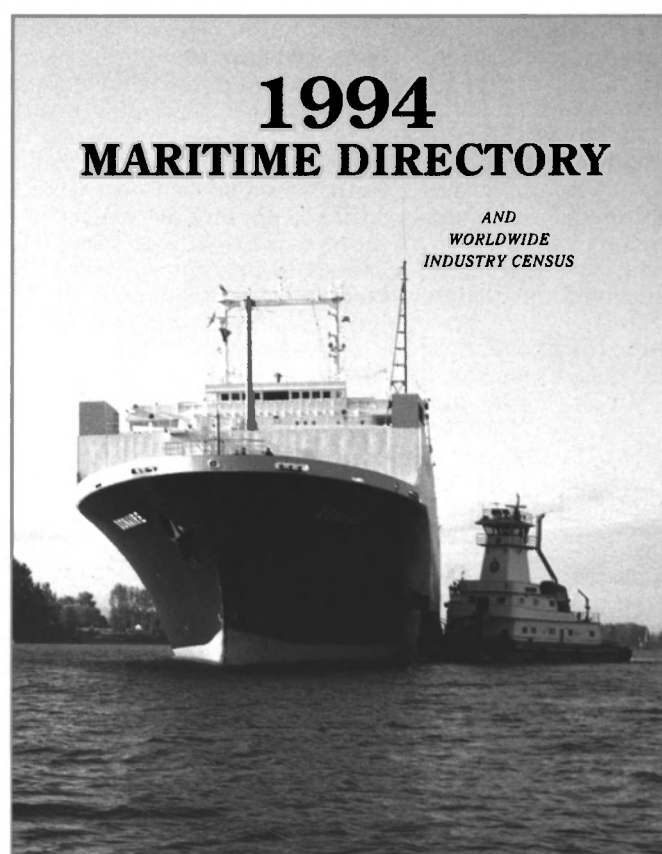
ment, wear in components or leakage. An ultrasonic detector senses subtle changes in the ultrasonic signature of a component and pinpoints potential sources of failure before they can cause costly damage. Ultrasonic detectors are ideal for isolating machinery leaks.

For years, ultrasonic inspection

has been a cornerstone of predictive and preventive maintenance programs in a wide range of industries. As the maritime industry begins to embrace this technology, engineers and senior management are already recognizing substantial savings and doing their part to create a safer environment.

The preceding is based on an article by Alan S. Bades, vice president of UE Systems, Inc., Elmsford, N.Y.

For more information on ultrasonic testing
Circle 61 on Reader Service Card



OUR LATEST MARITIME DIRECTORY

Other maritime directories have met their match. Because now with the **1994 MARITIME DIRECTORY**, you have easy access to the entire marine world. This information-packed directory is backed by the oldest and most well known name in marine publishing -- **Maritime Reporter and Engineering News**.

The **1994 MARITIME DIRECTORY** is both user-friendly and filled with all the information about the marine world you could want.

Why are we so special? Inside you'll find...

- Over 800 pages of detailed information on over 10,000 marine companies...
- Thousands of Vessel Operating companies worldwide...

- Thousands of Ship/Boatbuilders and Repairers worldwide...
- Names, addresses and titles of key personnel...
- A complete index of thousands of marine equipment suppliers and manufacturers...

Can you afford to miss out?

These directories are printed in limited quantities and have *sold out completely* the past five years; once they're gone they won't be available again until next year. Act now and reserve your copy of the **1994 MARITIME DIRECTORY** before they're all gone.

You can have the *entire marine world* at your fingertips by returning the attached card...

If you order now, you will receive the **1994 MARITIME DIRECTORY** at a special rate of *only* \$132. That's **20% off** the cover price!

YES! I want to reserve my copy of the world's best maritime directory... the 1994 MARITIME DIRECTORY.

My check for \$132 is enclosed. Bill my company. Bill me.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____ CITY _____

STATE _____ COUNTRY _____ POSTAL CODE _____

SIGNATURE _____

Make all checks payable to Maritime Reporter and mail to:
118 East 25th Street, New York, NY 10010

(212)477-6700
(212)254-6271 fax

TRADE SHOW PREVIEW

Cruise + Ferry '95

According to a survey of exhibitors conducted by the organizers of Cruise + Ferry '95, 90 percent expect the world fleet of cruise ships to grow by at least 10 percent over the next 10 years, while 80 percent expect the number of conventional ferries to remain stable or to increase.

Cruise + Ferry '95 is scheduled to take place at Olympia 2, part of London's Olympia exhibition facility, from May 16 to 18. The show and conference has attracted exhibitors from 18 countries including the U.K., Finland, Germany, Denmark, Spain, Canada, France, Sweden, Italy, and Australia. Ten national pavilions include Austria, Norway and the U.S.

Shipyards taking part include the five leading cruise ship builders: Kvaerner Masa, Fincantieri, Chantiers de l'Atlantique, Meyer Werft and Bremer Vulkan.

Equipment suppliers, outfitters and refinishers are also well represented, as are designers, port authorities and destination developers.

Cruise & Ferry Market:

Massive Expansion To Come

A "period of restraint" is likely to be overtaken by a period of investment in new cruise ships with an average of eight vessels and 13,000 berths per annum due to enter service between 1995 and 1997, with a peak in 1996 when 13 vessels comprising 16,330 berths are due for delivery, reported G P Wild's *International Cruise Market Monitor* late last year.

It estimated a 68 percent increase in cruise ship passengers between 1988 and 1994 and predicted an increase from 6.1 million to 8.1 million passengers by 1997.

Where The Business Will Be

"Quite a number of conventional ferries will be replaced by fast ferries," says the Projjet high-speed, high-power, gearbox supplier MAAG Gear. The Swiss company recently secured orders for a number of high-tech projects, such as further gearboxes for the Stena HSS and two Kvaerner Fjellstrand Foilcats.

Exhibitors pin the expected overall boom down to a combination of improved economic conditions, increased leisure time and demands for faster travel, and more comfort and safety.

"Air congestion, pollution, higher incomes, and the drive for speed," said a representative from shipbuilder Mjelllem & Karlsen. The company has a new monohull fast ferry, built for European Ferries Denmark AS, coming into

operation between Grenaa and Hundested during the Cruise + Ferry '95 exhibition.

Newbuilds are not the only cause for confidence within the industry. Substantial refurbishment and refitting — driven primarily by safety issues — is also predicted by Cruise + Ferry '95 exhibitors. Sixty percent expect 30 percent or more of the cruise ship fleet to be refurbished or refitted within the next 10 years; while 10 percent are expecting half of the fleet or more to receive attention. Half the exhibitors expect 30 percent or more of ferries to be refurbished or refitted and 30 percent expect the newer fleet of fast ferries to be upgraded.

Asked to grade the driving forces for these updates, exhibitors identified safety as topping the list, followed by product enhancement and efficiency of operation. Other factors included: environmental factors; carrying capacity/speed; and obsolescence/technical advance.

Fast Ferries: Future's Bright

Those involved in fast ferries are excited about the unlimited prospects for these fast developing craft.

The survey of Cruise + Ferry '95 exhibitors revealed that all expect the number of fast ferries to rise in the next 10 years; half expect a 30 percent increase. In this atmosphere, claims of the fastest or biggest are soon overtaken.

"Startup routes are being actively sought by entrepreneurial operators and shipowners," said a representative of Incat Australia. Having completed a new shipyard investment, the company is now able to build up to seven vessels a year capable of breaking the 50-knot speed barrier.

The owner and operator of two 256-ft. (78-m) Incat fast ferries, Holyman, will also be exhibiting at the show.

"Passengers wish to travel more and more quickly," said a representative from FBM Marine. The shipbuilder and designer claims its 147.6-ft. (45-m) TriCat is "the fastest passenger catamaran in the world." It has five of these low wash vessels under construction for Hong Kong operators, each powered by gas turbines and offering a maximum speed of 50 knots.

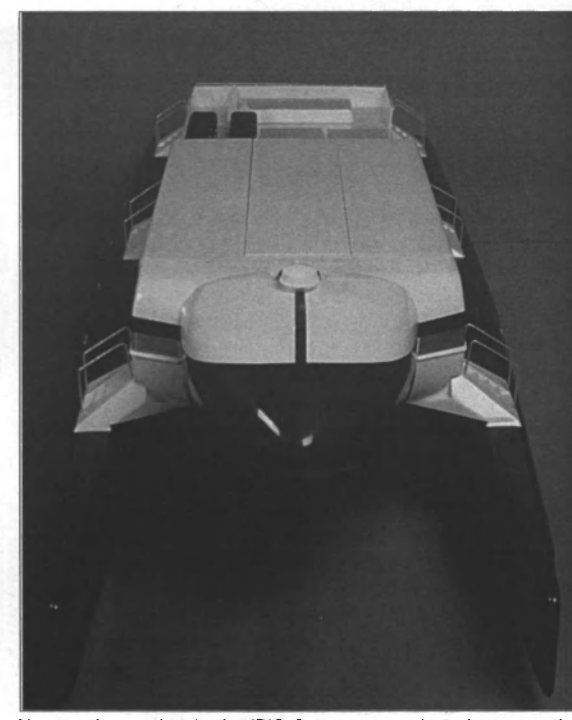
"High speed ferries will replace conventional ferries," said a representative from Advanced Multi-Hull Designs, the Cruise + Ferry '95 exhibitor that claims design responsibility for the world's largest high-speed ferry (the 328-ft. (100-m) AMD1500 MkII wave-piercing catamaran with a maximum speed of 35.5 knots) and the world's fastest high-speed car ferry (the 229.6-ft. (70-m) K55 cat powered by four Caterpillar 3616 diesel engines driving KaMeWa 80 waterjets and capable of 50 knots).

Other ferry companies at the show include Swede Ship, builder of more than 100 fast ferries including the new rough weather Westamarin Foilcat 3000 and the recently developed Foilcat 2900.

A representative of Leroux et Lotz, which will be showing details of its Corsaire range of fast ferries, including the 11000, 6000/7000, and 4000/5000, said the excellent seakeeping qualities of monohulls are scoring now with operators.

A number of exhibitors mentioned the Far East as an important market for fast ferries.

Among these is shipbroker Harpain Shipping,



New to the market is the IRIS Catamarans. Late last year the company (IRIS stands for Inter Islands Shuttle) launched its new concept in high speed passenger craft. Designed to carry up to 120 people at speeds up to 36 knots, the vessels make use of fiberglass materials for construction. To date, three 124.6-ft. (38-m) craft have been designed, featuring interchangeable passenger and freight modules.

which is forecasting a 30 percent increase in the world fleet of fast ferries over the next 10 years.

"Asian countries are developing such that they are now becoming able to afford high-speed ferries," agrees Wavemaster International. "Technology is also developing such that high-speed ferries are able to transport both cars and passengers very economically."

New to the market is IRIS Catamarans. Late last year the company (IRIS stands for Inter Islands Shuttle) launched a new concept in high-speed passenger craft. Its idea is to build a range of multimodal catamarans that will carry both passengers, containers and outside loads, thus optimizing usage in cases of fluctuating seasonal demand. Three 124.6-ft. (38-m) craft have been designed, powered by high-speed diesel engines driving waterjets, and featuring interchangeable passenger and freight modules. Capable of carrying up to 120 passengers at speeds of up to 36 knots, the vessels make use of fiberglass materials and construction techniques.

IRIS is not the only company coming up with innovative ideas. Royal Schelde, which will include on its stand a model of the 249-ft. (76-m) car carrying catamaran it is building for Catamaran Lines Shipping, has been working on the design and production of a RoRo trailer carrier and an amphibious transport ship for the Royal Dutch Navy.

The exhibition is held in conjunction with the Cruise + Ferry '95 conference. For more information, contact: Cruise + Ferry Secretariat, 2 Station Road, Rickmansworth, Herts, England WD3 1QP; tel: +44 1923 776363; fax: +44 1923 777206.

Cruise & Ferry '95 Times & Places

Admission to the exhibition is free to accredited industry executives.

Opening times are:

Tuesday, May 16 9 a.m. to 6 p.m.
Wednesday, May 17 9 a.m. to 5 p.m.
Thursday, May 18 9 a.m. to 5 p.m.

LOOK to *Maritime Reporter's* May 1995 edition for

- Cruise + Ferry Exhibitor previews
- Fast Ferry Review

Trinity Marine, MarAd To Develop MultiPurpose Ship

Halter Marine Inc. of the Trinity Marine Group, the Maritime Administration (MarAd) and the U.S. Department of Defense have entered into an agreement to develop a medium sized, multipurpose ship. The Advanced Research Projects Agency (ARPA) will act as the agent for MarAd in the approximate \$2 million contract.

Fifty percent of the contract will be funded by Trinity and its sub-contractors.

The goal is to design a ship that could be introduced to vessel operators at a competitive price. U.S. and foreign innovation and practices which reduce worker hours and increase productivity will be applied. Under the agreement, Halter Marine will examine coastal and inter-island shipping capable of up to 600 TEU containers, with various combinations of cargo carrying configurations. Other capabilities being examined will be degree of self loading/unloading, RoRo, deck versus below-deck stowage, as well as ship limiting characteristics like draft, beam and speed.

The ship will be designed to compete as a smaller vessel in markets left in a vacuum by the large container ships. The ship will be capable of carrying sufficient payloads to warrant entrance into the foreign commerce of the U.S.

For more information on Trinity
Circle 78 on Reader Service Card

Portapaint: Dedicated Paint Coating Thickness Gauge

Portapaint, a dedicated paint coating thickness gauge for marine survey and all ferrous type materials, is reportedly controlled by a state-of-the-art microprocessor technology. Measurement range is 10 microns to 8mm, and mm/micron conversion is provided at the touch of a button. This feature allows readings to be displayed on the LCD display as millimeters and microns. Accuracy level is +/- 10 microns/.01mm.

For more information on Portapaint
Circle 75 on Reader Service Card

SatCon Wins DoD Contract To Apply Turbine, Alternator, Drive Technology

SatCon Technology Corp. was awarded three new contracts through the Department of Defense (DoD), Small Business Innovation Research Program. The three contracts combined are potentially worth \$3.2 million, and follow contracts won by the company from the DoD in February which total \$1.8 million.

The most contracts call for SatCon to research the production of a gas turbine engine and light-weight, high-performance alternator-generator sets for the Army, as

well as permanent magnet variable speed drives for applications on Navy ships. "These contracts represent the practical application of technology SatCon has developed for other projects," said **David Eisenhaure**, president and CEO of SatCon. "Our continuing strategy is to bring our technology to broader commercial markets. SatCon's turbine engines have enormous potential because of their tremendous power and efficiency, while variable speed drives

provide precise speed control and high power density in uses such as hydraulic pumps and compressors. In addition, our alternator-generator sets are positioned to compete in a market that exceeds \$15 billion annually."

SatCon Technology Corp., Cambridge, was founded in 1985 to apply expertise in magnetics and active motion control to solving problems for industries and consumers. SatCon has developed an extensive

base of proprietary knowledge that it implements in all of the company's products and projects.

A SatCon flywheel reportedly holds the world record for perimeter speed at 4,668 mph. Other SatCon technologies include magnetic, non-contact bearings and high-output, long-life electric motors for industry.

For more information on SatCon
Circle 81 on Reader Service Card

Proven, Top-Performing Ventilator Makes Waves In The Marine Industry!

Confined air ventilation has never been so easy! The Americ Vane Axial Fan combines the power and performance of conventional ventilators with the latest technologies to create a durable, portable, light-weight ventilator at an affordable price.



Model VAF-3000 - \$488.00 each

- Durable, Industrial Strength Plastic Shell
- Powerful 1 HP Motor
- Portable, Light-Weight - Only 32.5 lbs
- Stackable to Maximize Storage Space
- Positive & Negative Airflow at 2300 CFM's
- Pneumatic Version Available Soon!
- 12" Ducting

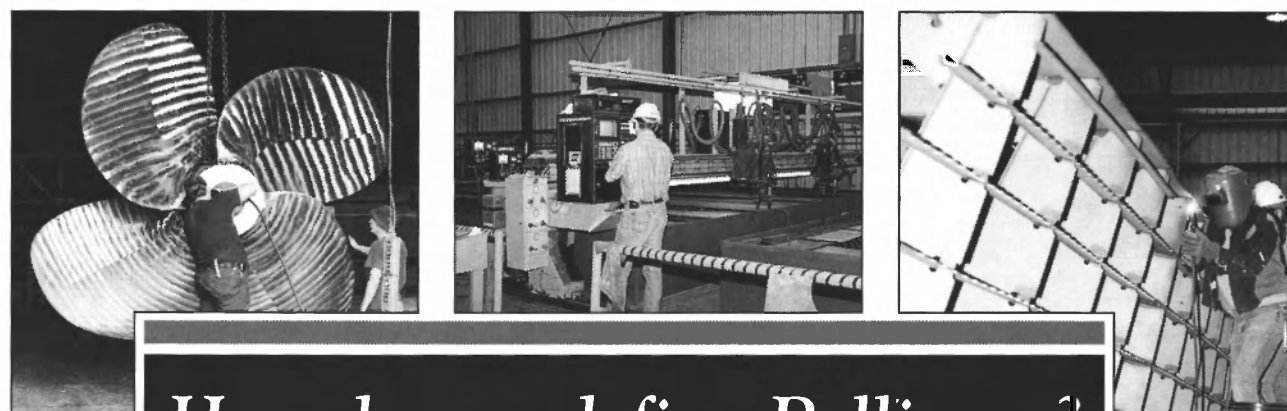
For more information contact:



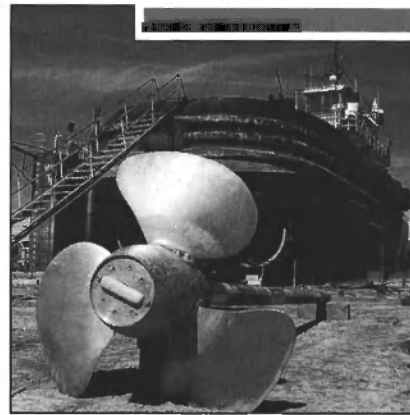
Dry Air TECHNOLOGY

313 N. Oak Street, Burlington, WA 98233 Tel: 360/755-9176 Fax: 360/755-9236

Circle 237 on Reader Service Card



How do you define Bollinger?



Bol-lin-ger'bäl-in-jør\ n. Synonym for quality and service; also known as "The Boat People;" see also: COMPLETE MARINE SERVICE.

Bollinger... redefining your idea about new construction and repair.

Bollinger

P.O. Box 250 • 8365 Highway 308 South • Lockport, LA 70374
Phoner: 504/532-2554 • Fax: 504/532-7225

Circle 216 on Reader Service Card

The End Of World War II: Looking Back 50 Years

British account in the U.S. and, indirectly, for the American Liberty ships. The first of those built in America was the *Ocean Vanguard*, launched by Todd California on October 15, 1941. She was well named, since she was in fact the vanguard of the Ocean class vessels built for the British.

The Emergency Shipbuilding Program

With the need for shipping becoming critical it was natural that the U.S. Maritime Commission would think of the British program as a model for a possible American program of emergency shipbuilding.

The matter was reviewed in considerable detail during the latter part of November and early December, 1940. Admiral **Emory S. Land**, chairman of the Maritime Commission, wanted the British and American programs kept distinct and came around to the acceptance of the idea of a plan to build emergency ships on the same simple style of the British ones, in the proportion of two thirds to one third of C1 and C2 type which the Commission was already building.

President **Roosevelt** viewed the

matter differently. The President appears to have decided upon the emergency shipbuilding program just before Christmas. By Dec. 26, the matter had become a project to build 200 emergency ships.

The primary fact about the Liberty ship is that it was an emergency vessel. Before the name "Liberty" was attached to ships of this type they were referred to simply as "emergency" ships. They were given the "EC2" designation by the Maritime Commission, which indicated that they were within the length range of the C2 ships, but unlike those long-range program vessels, the Liberties were intended primarily to meet the needs of the war emergency.

Justifying the Design

The Liberty ship began its career under the handicap of being described by President **Roosevelt**, during a fireside chat which reached radio listeners from coast to coast, as an unprepossessing looking vessel. Given the nickname "Ugly Duckling" before anyone had a chance to really see one of the ships, the name clung to the ship, barnacle fashion, until her reliability and general util-

ity won for her the more complimentary title of "Workhorse of the Fleet."

On July 2, 1941, the *Washington Star* contained an article by **Richard L. Stokes**, Washington correspondent to the *St. Louis Post-Dispatch*, which was headlined: "Held Ideal Targets For Stukas; Maritime Commission, Having Acted In Haste, Now Has Leisure To Wonder." The opening blast read, in part:

"Instead of summoning American inventive genius to out-think what Nazi planes and submarines are doing now, the Maritime Commission reverted to a 1918 British type of simplified cargo boat... the Commission is at last finding the leisure to speculate as to whether targets more ideal for German Stuka bombers and undersea craft could have been hit upon if Air Marshal **Goering** and Admiral **Raeder** themselves had been called into consultation."

It is evident that this article caused something of a stir within the Commission for Admiral **Howard L. Vickery** requested the chief of the Design Specifications and Priorities Section of the Construction division, a Mr. **Flesher**,

to report on the matter.

In this report Mr. **Flesher** reminded the Admiral that the decision on the design had been due to the fact that it represented what the British considered to be the most desirable type of ship for this particular service, "and they were closer to the actual need, naturally, than we were; likewise, they had eliminated many details of design which were practical to accept, in order to assure a satisfactory and reliable ship, which is so necessary in a large program." The design permitted ready operation by English crews and emergency repairs in England. In the design of the ship as a whole "we kept in mind simplicity at the expense of efficiency, in order to expedite construction by inexperienced personnel."

Another primary consideration had been to have the engine parts interchangeable. The interchangeability and consequent availability of engine parts made for great savings in time needed for repairs. This applied even in foreign waters where it was not possible to secure parts

(Continued on page 76)

MA-107

**THE RELIABILITY YOU NEED TODAY.
THE CAPABILITY YOU NEED TOMORROW.**

In the world of high performance marine reduction gears, The Cincinnati Gear Company's reputation for quality and reliability is unsurpassed.

Experience gained from over 20 years of high performance marine gear design and production has been used to develop the MA-107, one of CINTI's MA Series of standard gas turbine powered gearboxes.

The MA-107 was designed with higher power capability to accommodate anticipated increases in turbine power ratings in the years ahead. This makes

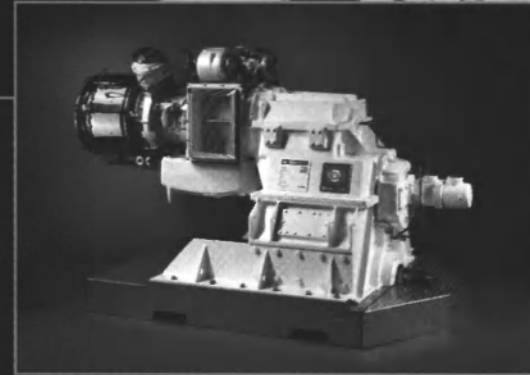
MA-107 capable of handling higher power in the future, without expensive gearbox replacements and ship modifications.

Rated Power: 7000 HP/5221 Kw
Reduction Ratio: 6.2:1 thru 24.1:1*
Output Speed: 2500 / 640 RPM*
Turbines: TF-40 / 501 / LM-500 / Taurus
Dry Weight: 3637 Lbs. / 1649 Kg
Cast Aluminum Housing
C or Z Drive Configurations
Complete Lube System
CODOG & CODAG Arrangements

* Gear Ratio is fixed. Ratios and speeds above show ranges available.



The CIN-TEC™ monitoring/control system is now available as an optional feature for all CGCo applications.



THE CINCINNATI GEAR COMPANY

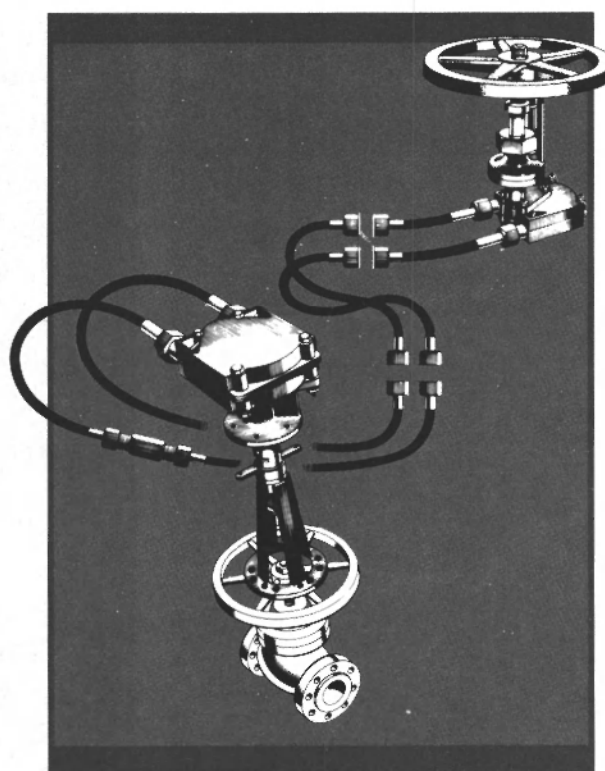
5657 WOOSTER PIKE • CINCINNATI, OH 45227
513-271-7700 • 513-271-0049 FAX USA

For remote valve operation...

Nobody's Remotely Close To Teleflex

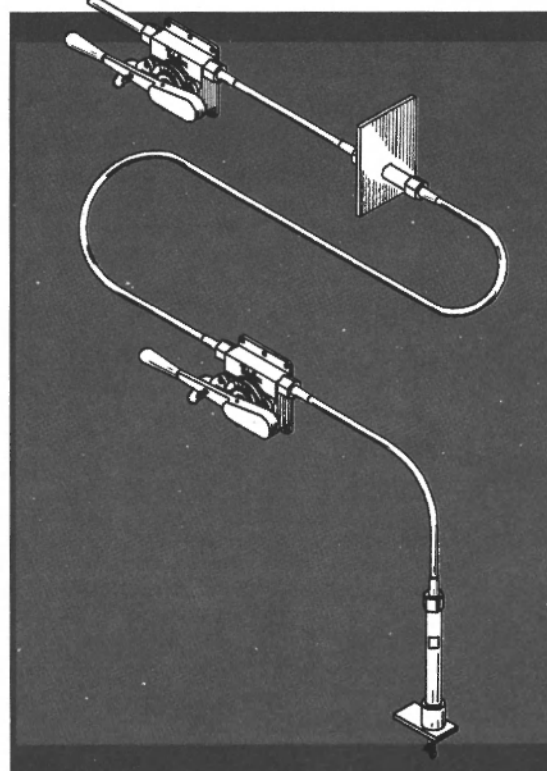
Simpler by design: Teleflex Remote Valve Operators — RMVA, RTVA, and RVVO — are clearly in a class by themselves. Each system employs the Teleflex Flexible Cable Technology to mechanically transfer rotary and linear motion through complex routings over long distances.

Proven Cost Effective: Whatever type of valves you need to operate, Teleflex can provide a system that is easy to install and maintenance free. Teleflex Remote Operator Systems are totally reliable in harsh environments. They are designed to exceed the shock, vibration, and corrosion resistance requirements for naval, commercial marine, and industrial applications. No other equipment comes remotely close.



RMVA: Remote Mechanical Valve Actuator Systems for applications requiring delivery of multiple-turn rotary motion from remote locations.

- Meets U.S. Navy MIL-STD-777E and Tech. Manual S6435-QJ-MMC-010



RTVA: Remote Trip Valve Actuator Systems for applications requiring delivery of quick-acting linear motion from remote locations. Systems include a patented shock compensator coupling.

- Meets U.S. Navy MIL-A-24780 and Tech. Manual S6438-AA-DDT-010/ODME5



RVVO: Remote Vent Valve Operator Systems are lightweight, low-profile operators that bolt directly to flanges of 1/4-turn ventilation valves. Systems incorporate a patented override feature at the valve for local operation.

- Meets U.S. Navy Tech. Manual S6435-QJ-MMC-010

Call or write for complete Design Manuals on each system.

Circle 31 on Reader Service Card



205 Church Road • North Wales, PA 19454-0901
Phone: (215) 699-4861 • Fax: (215) 699-7080

The End Of World War II: Looking Back 50 Years

directly from production lines going at full blast. This was achieved by "cannibalizing" vessels damaged beyond repair.

According to **Daniel S. Brierley**, in charge of maintenance and repair work in the War Shipping Administration, "Incredible as it may

seem, it was actually possible to remove pistons, complete with rings, from an engine of a West Coast manufacturer, install them in an engine of an East Coast manufacturer in a vessel needing comparable minor repairs, without any alteration or machine work whatsoever."

Liberty Fleet Day

The Liberty ship was introduced to the American public on what was called Liberty Fleet Day.

President **Roosevelt**, addressing a special message to the American people on September 27, 1941, as 14 new merchant ships took to the wa-

ter in dawn-to-sunset launchings from coast to coast, expressed determination to maintain freedom of the seas for the U.S. by protecting the expanding merchant marine "from torpedo, from shell or from bomb."

In his message, which he delivered by electrical transcription at each of the fourteen launchings and over a nationwide radio network, the President declared that the U.S. merchant and naval shipbuilding program "is one of our answers to the aggressors who would strike at our liberty."

His message was broadcast at 12:55 p.m., Eastern daylight time, half an hour before the *Patrick Henry*, first of the Maritime Commission's emergency Liberty fleet, slid into the Patapsco River in Baltimore. The launchings ranged from that of the *Surprise* at Chester, Pa., at 7 a.m., to that of the *Ocean Ventura* on the Pacific Coast at 9:30 p.m., Eastern daylight time.

"Since 1936, when Congress en-

The concussion lifted the Moultrie literally out of the water and she struck so hard on coming down that she bounced ... the vessel righted itself and appeared to have suffered no serious damage.

acted the present Merchant Marine Law," said President **Roosevelt** in his address, "we have been rehabilitating a merchant marine which had fallen to a low level. Today we are continuing that program at accelerated speed ... The *Patrick Henry*, as one of the Liberty ships launched today, renews that great patriot's stirring demand: 'Give me liberty or give me death.'"

The Liberty At War

Although only a very small percentage of the Liberty ships suffered serious fractures, small cracks were far from unusual and the Commission was very concerned to discover the best way to remove this hazard. It was recognized that cold temperatures as well as severe seas brought about breaks and this was emphasized by the fact that practically all of them occurred in the cold

**ABOVE
EXCELLENT
PERFORMANCE
UNDER
THE WORST
CONDITIONS**

ORKOT
'TLM MARINE'

On shore, on deck and below the waterline, Orkot provides the specialised approach to the most demanding problems.

- Exceptional wear resistance with or without lubrication
- Excellent dimensional stability in water
- Outstanding impact resistance and compression strength
- Specified for rudder, propeller and fin bearings on vessels throughout the world
- Classification Society approved



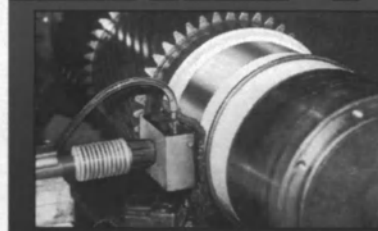
Available from stock worldwide or machined to individual specification

ORKOT

Orkot Engineering Plastics Inc.,
2535 Prairie Road, Eugene, Oregon 97402
Tel : 503 688 5529 Fax : 503 688 2079
See Us At ASNE Booth No. 321

Circle 287 on Reader Service Card

PORTABLE REPAIR SYSTEM



Using SIFCO Process technology and our selective electroplating system, you can perform many repairs in-place. The SIFCO Process selectively plates localized areas without using an immersion tank. In addition to providing corrosion resistant coatings, you can repair:

- Pinion gear shafts
- Propeller shafts
- Cylinder liner seats
- Shaft couplings
- Impeller bores
- Valve stems
- Slip rings
- Reduction gear boxes

and many other components that require metal build up or defect repair — all with a portable, compact system with minimal environmental concerns.

Purchase the system — we install and train — or let us provide contract services.

WORLD LOCATIONS
LOS ANGELES
HARTFORD
NORFOLK
FT. LAUDERDALE
REDDITCH, UK
PARIS
SINGAPORE
TOKYO
SEOUL

SIFCO
SELECTIVE PLATING

5708 SCHAFF ROAD
CLEVELAND, OH 44131
PH: 216/524-0099
FAX: 216/524-6331
ABS # 93-QE-10247-X

Circle 304 on Reader Service Card



you now have an alternative!

Hydrasearch

Hydrasearch manufactures and sells Navy approved hose and fittings in 2" through 8" sizes to Military Specifications **MIL-H-24136, MIL-H-24136, MIL-F-24787, MIL-C-24386** and **MIL-H-22240**. These products are interchangeable with Aeroquip 2580, 150901, 2652, 2560 and FC 267 hoses. Related fittings include straight and 90 degree elbow flanged ends, split clamp ends, and hose to hose dogleg fittings.

Hydrasearch also manufactures a complete line of equipment for **Underway Replenishment at Sea** including probes, probe receivers, pelican hooks, strongbacks, and trolleys for Fuel, Water, and Solid Cargo transfer-at-sea.

Call, FAX, or write today for more information.
Distributor inquiries welcome

Hydrasearch Co., Inc.

100 Log Case Circle
Stevensville, MD 21666
Phone(410)643-8900 Fax(410)643-8954

"See us at A.S.N.E. Booth No. 150"

Circle 341 on Reader Service Card

The End Of World War II: Looking Back 50 Years

waters of the North Atlantic or the North Pacific. This was borne out, particularly, by the series of fractures suffered by vessels under the Russian flag and operating in the cold waters of the Aleutian area. Out of a total of about 28 such vessels operating at the beginning of 1944, six, all Liberty ships, suffered cracks which caused them to be laid up for repairs. One of these was the *Valeri Chkalov*, which broke completely in two.

Spectacular failures attracted more attention than notable successes among individual ships. A comprehensive view of the Liberty ship program requires the mention of one followed by the other. The SS *William Moultrie* affords an example of a Liberty ship which underwent repeated bombing attacks and came through with hull intact and no

worked like a clock. She steered like a yacht. She steers as well going astern as she does going ahead ... I have been Master for forty years both sail and steam and this Liberty is the best handling heavy cargo ship that ever I was on."

The Fate of the Liberties

Handsome of line, seaworthy and tough, the Liberty ships were the backbone of the American Merchant Marine, delivering 6,000 tons of cargo every hour throughout the war.

In my opinion, the Liberty ship was a good and reliable vessel and one that satisfied the needs of the wartime emergency. I do not know, nor do I think anyone can know positively, that given the circumstances, a better ship could have

"You built us a darned good job. The engines worked like a clock. She steered like a yacht ... this Liberty is the best handling heavy cargo ship that ever I was on."
— A Liberty Ship Captain

leaks. On one occasion she was near an ammunition ship which blew up. The concussion lifted the *Moultrie* literally out of the water and she struck so hard on coming down that she bounced. Then the bow went under but the vessel righted itself and appeared to have suffered no serious damage. On her return voyage to the U.S. she experienced heavy weather, but again, she came through intact.

By 1943 the Liberty ship was beginning to win the respect of shipping circles. The disparaging name "Ugly Duckling" was heard less and less.

Admiral Land received a letter from the Captain of the Liberty ship SS *Richmond Munford Pearson* and sent it on for publication at the Delta Shipbuilding Company where the vessel was built. After stating that he had been under attack several times in heavy seas in the Atlantic and the Caribbean, the Master went on to say, "You built us a darned good job. The engines

From One Generation . . .

. . . To the Next

LSD-41

LPD-17

Colt-Pielstick*
The **PROVEN** Propulsion

Coltec Industries

Fairbanks Morse
Engine Division

SEMT-PIELSTICK
S.E.M.T.—Pielstick is a registered trademark of Societe d'Etudes de Machines Thermiques Paris, France

THE NAVIGATOR

A High Precision ECS/DGPS System

The Navigator is the DGPS ChartViewer of the 90's. With 10 ft. accuracy when supplied with its 12 channel differential receiver, our detailed chart displays your precise movement directly on the screen.

- Shows all Depth Markings & Bottom Contours.
- Add/Delete Nav aids.
- Worldwide Navigation Database.
- Chart Update Program.
- Voyage Recorder.
- Automatic Beacon Selection.
- Vessel Traffic Surveillance Capability, ADS.
- Portable Pilot Pack Version.



THE NAVIGATOR is built to the following Mil Spec Specifications; Water Resistance & Salt Exposure MIL-T 28800c para 4.5 6.2 Vibration 1.5g 10-100H Shock 5G peak.

Electronic Marine Systems, Inc.

800 Ferndale Pl. • Rahway, New Jersey • 07065
908-382-4344 fax 908-388-5111

Circle 238 on Reader Service Card

been designed and built with the same speed to meet the requirements of 1941. When the desperate need for the Liberty ships was over and criticisms of the ship were voiced, Vice Admiral Land saltily defended the ship, "we did the best we could with the tools we had. We built the ships; the war was won. And if you don't like that, you can go to hell."

After the war nearly 1,200 Liberty ships were sold to U.S. and foreign interests. As commercial ships they helped to rebuild a war-torn world. There was a great hesitancy in buying the Liberties due to questions of their quality. These fears turned out to be completely false. For their price they turned out to be the finest "tramps" ever produced in maritime history. Once their worth was recognized they were snapped up. Up until the early 1970s they operated under many flags and one could see their familiar profile in the more crowded ports of the world, and the most far-off roads, loading and unloading cargoes ranging from the most usual to the most improbable. Their sturdiness in the face of the roughest kinds of cargo, in all kinds of weather, was truly astonishing.

"Incredible as it may seem, it was actually possible to remove pistons, complete with rings, from an engine of a West Coast manufacturer; install them in an engine of an East Coast manufacturer ... without any alteration or machine work whatsoever."
— Daniel S. Brierley, War Shipping Administration

Those Liberties not sold were placed in the National Defense Reserve Fleet and maintained in a state of emergency readiness. Some were reactivated for use in the Korean War. With one or two exceptions all have now been sold for scrap. Still proving their worth when sold for scrap, the ships realized a cash return to the U.S. Treasury.

The yards where the Liberties were built have long since disappeared. The ancestral home of the Liberty ships, the J.L. Thompson yard, closed in the 1960s. The area is now a park.

The *Empire Liberty* was scrapped in Osaka, Japan in 1960. The *Ocean Vanguard* was sunk by a German U-boat in the West Indies on September 13, 1942.

On August 14, 1945 Japan agreed to accept surrender terms and on October 30, 1945 the last Liberty ship, the *Albert M. Bow*, was delivered.

In 1958 a rusty veteran of the seas was towed up the Patapsco River in Baltimore. Faded letters on her bow spelled out the name that deserves to be remembered in the annals of the sea: *Patrick Henry*. She was coming back to be scrapped at the same place where she had been launched with cheers and fanfare some 17 years earlier.

The *Patrick Henry* deserved a better fate than the scrapper's torch. She was the first Liberty ship in the greatest single shipbuilding effort the world has ever seen.

REDEFINING SHIP DESIGN

Naval Architecture Software with the sophistication to match your creative designs.

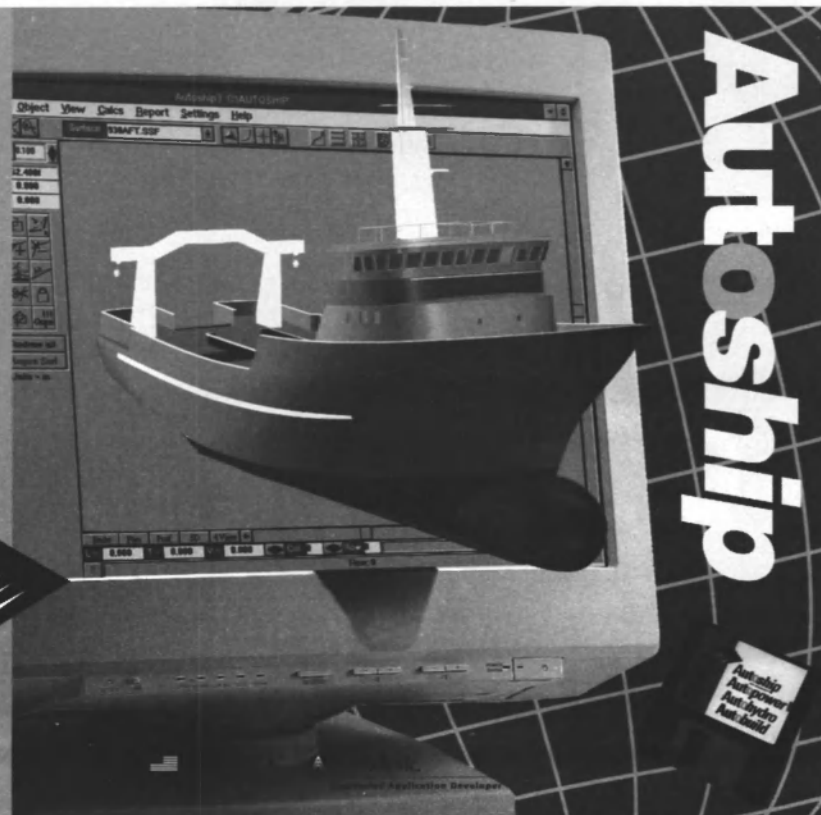
- Design
- Hydrostatics
- Power S
- Resistance
- Construction

All with the superior user interface of Windows.

To preview how you can gain the competitive edge, ask for your free demo disk and catalog.

autoship
Systems Corporation

603 - 611 Alexander Street,
Vancouver, Canada V6A 1E1
Tel: (604) 254-4171
Fax: (604) 254-5171



Circle 211 on Reader Service Card

ASNE Day '95

"Very Much Alive In '95"

May 17-19
Washington, D.C.

"Naval Engineering — Very Much Alive in '95," is the theme of this year's ASNE Day. The American Society of Naval Engineers' annual society meeting is scheduled to be held in Washington, D.C. from May 17-19 at the Washington Sheraton Hotel.

The annual ASNE meeting will combine technical presentations, updates from national leaders on policy matters, as well as exhibits and recognition awards. Special events include the High School Science Fair Exhibition and the Career Development Panel, which focuses on promoting career growth and opportunities for the young engineer.

In attendance at ASNE Day '95 will be society members, science and engineering students, corporate managers, senior engineers, laboratory directors, architects and a full spectrum of highly specialized engineers.

For more information on ASNE Day '95, contact the American Society of Naval Engineers, 1452 Duke Street, Alexandria, Va. 22314-3458, tel: (703) 836-6727; fax: (703) 836-7491.

Session topics of note include:

May 18th

Trimaran Ships - The Configuration For The Frigate Of The Future
Waterjet Versus Propeller Engine Matching Characteristics

May 19th

Investigating New Computing Technologies For Shipboard Combat Systems
Making Design Everybody's Job: The Warship Design Process

ASNE '95 Exhibitors

A.W. Chesterton Co.	Lakeshore Inc.
AES Americas	Lockshore Inc.
ATIS, Inc.	Lokring Corporation
Advanced Marine Enterprises	Lonseal Inc.
Aero Nav Laboratories, Inc.	M. Rosenblatt and Son, Inc.
Allison Engine Company	MTU North America
Appleton Marine Inc.	Marotta Scientific Controls
B.W. Elliott Mfg. Co. Inc.	Martin Marietta
Bath Iron Works Corporation	Martin Marietta Govt Elec. Systems
CAE Link Corporation	Metlape Inc.
CPV Manufacturing Company	NKF Engineering Inc.
Caterpillar Inc.	NMP Corp. Marine Division
Cegelec Automation, Inc.	NSWC-Cardero Division
Cincinnati Gear Company	Nelson-Firestop Products
Cleveland Gear Company	Newport News Shipbuilding
Coltec Industries, Inc.	Nu-Torque, Inc.
Comark Corporation	Olympus America Inc. - IFD
Control Masters Inc.	Orkol Engineering Plastics
Crane Pumps & Systems	PDI Corporation
Crossfield Products, Inc.	PRC Inc.
Cummins Marine	Paxman Diesel
Dayton T. Brown, Inc.	Philadelphia Gear
Denison Hydraulics Inc.	Port of Portland
Designers and Planners, Inc.	Portsmouth Naval Shipyard
Deutsch Metal Components	Power Systems Group
Dynamic Instruments Inc.	Prime Technology/Inf Inst.
Envirowac, Inc.	Retfil Testing Laboratories
Eaton/Pressure Sensors Div.	Rochem Separation Systems
Electrotech Welco	Rolls Royce
GE Aircraft Engines	SAIC-ANSEC
GardayMcGrath International	Seacor
General Dynamics	SPD Technologies
General Dynamics, Electric Boat Division	SSS Clutch Company Inc.
George G. Sharp, Inc.	Ships Part Control Center
Gibbs & Cox, Inc.	Sperry Marine Inc.
HiTest Laboratories	TRW, Inc.
Hamilton Jet	Technical Products & Prcns. Mig
Hemisphere Development Service Inc.	Teleflex Naval Technologies
Hydrasearch Company, Inc.	The Titus Company
IMO Industries Inc.	Tidewater Section ASNE
ITP Corp.	Tranter Inc.
ITW Philadelphia Resins Corp.	Tri-Tec Company
Ingalls Shipbuilding, Inc.	Trinity Marine Group
Integrated Systems Analysts	VSE Corporation
Intergraph Corporation	Village Marine Tec
Jered Brown Brothers, Inc.	Wartsila Diesel
John J. McMullen Associates	Westinghouse Electronic Systems
Kasco Fuel Maintenance	Wilcoxon Research, Inc.
Kvaerner Masa Marine Inc.	

43 knots on Chockfast

with 450 passengers
and 126 cars



ITW Philadelphia Resins

P.O. Box 309, Montgomeryville, PA 18936 • Telephone 215.855.8450 Fax 215.855.4688

Owner: TIRRENI di Navigazione, Napoli, Italy
Chockfast installation by FINCANTIERI, Genoa, Italy

Circle 257 on Reader Service Card

Raytheon Completes Anschutz Acquisition

Raytheon Marine Company and Anschutz's navigation business division have completed their merger, and the newly formed company will be called Raytheon Anschutz GmbH.



Carsten Peters

Carsten Peters has been appointed managing director. Mr. Peters has led the European headquarters of Raytheon Marine in Denmark and the U.K. since 1989.

For more information
Circle 104 on Reader Service Card

New President For Private Puerto Rico Shipper

Ronald M. Katims has been named president of NPR, Inc., the

new owners of Navieras, the container shipping line recently sold to private interests by the government of Puerto Rico.

Mr. Katims is a former president of Puerto Rico Marine Management Inc., which managed Navieras for the government.

Navieras' only shipping route is between the U.S. mainland and the islands of the Caribbean, and therefore is capable of providing expert weekly service via 40-ft. equivalent (FEU) Lancer-type containerships

between San Juan and New York, Baltimore, Charleston and New Orleans.

NPR, Inc. has offices throughout the U.S. and Puerto Rico, and an operational center in Florida which handles all bookings, rates and customer service for Navieras.

Mouton Appointed VP of Beier Radio

Frank L. Beier Radio, Inc. announced the appointment of Joseph Mouton, Jr. to the position of vice president/general manager. Mr. Mouton will be responsible for the coordination of work for all production departments, sales, service and installations.

He has served as vice president in charge of sales for three years and has been with the company for nine years.

Beier Radio specializes in the sale, service and installation of marine electronic communications, particularly navigation and control systems.

For more information on
Frank L. Beier Radio, Inc.
Circle 102 on Reader Service Card

Openshaw Appointed Manager At Sonsub

Sonsub International Management, Inc. has announced the promotion of Graham Openshaw to the position of systems development manager.

Mr. Openshaw will oversee the remote systems development program, and assume responsibility for the development of Sonsub's internal information management capabilities.

Since 1990, Mr. Openshaw has worked in the Asia Pacific region, particularly Australia, taking part in Sonsub's designing, engineering and operating of a number of sea intervention systems.

Sonsub develops cost-effective solutions for subsea and hazardous environments.

For more information on Sonsub
Circle 137 on Reader Service Card

GEC Alsthom New Zealand Ltd. Is Formed

After more than 65 years in the territory, GEC Alsthom is to form a new company, GEC Alsthom New Zealand, Ltd., to work with GEC Alsthom Australia, which has recently had success in expanding into South East Asia on several major turnkey projects.

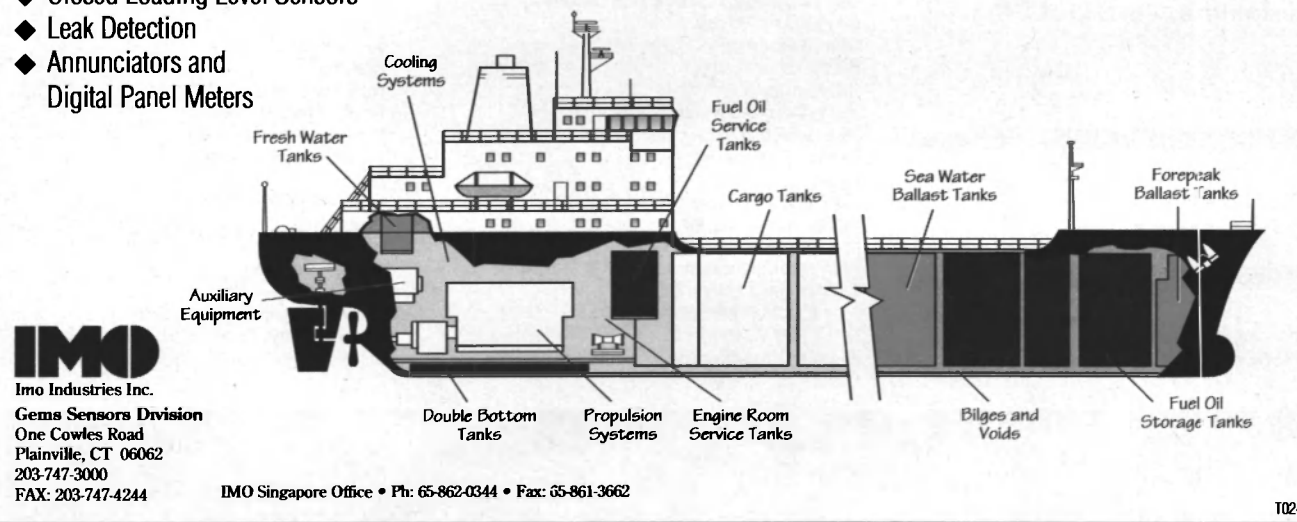
The company has also acquired the ECNZ subsidiary, Powermark New Zealand Ltd., a specialist in the provision of such services as project facilities management, installation, and more.

GEMS Liquid Level & Flow Sensors

Your Complete Source for Liquid Sensors

- ◆ Level Switches
- ◆ Flow Switches
- ◆ Continuous Level Transmitters
- ◆ SureSite® Visual Gauges
- ◆ Closed Loading Level Sensors
- ◆ Leak Detection
- ◆ Annunciators and Digital Panel Meters

Stern to bow, Gems Sensors has all your shipboard liquid level and flow sensing needs covered. All of our marine components are precisely engineered for a wide variety of specialized needs throughout ships and off shore rigs. Call today for new or retrofit application information: **800-321-6070**



IMO
Imo Industries Inc.
Gems Sensors Division
One Cowles Road
Plainville, CT 06062
203-747-3000
FAX: 203-747-4244

IMO Singapore Office • Ph: 65-862-0344 • Fax: 65-861-3662

Circle 252 on Reader Service Card

IF MORE ACCURACY OF CONTROL IS REQUIRED

UNIVERSAL TELEGRAPHS

Suitable for each type/make of Remote Control System.

On request provided with:
 • actual pitch indication
 • actual r.p.m. indication
 • electric shaft (for lever synchronization)

The Stork-Kwant Universal Telegraphs have been fully Type Approved by:
 ABS - BV - DNV - GL - CCS (CC) - LIS - NK - RINA -
 The USSR Register of Shipping.

Specials on request.

STORK-KWANT

QUALITY IN COMMAND

Stork-Kwant B.V. Voltastraat 3 / P.O. Box 23 / 8600 AA SNEEK HOLLAND phone: 05150 13745 int. +31 5150 13745 fax: 05150 22478 int. +31 5150 22478

Circle 306 on Reader Service Card

Management Change Within Dockwise N.V.

Mr. A. Goede, the former executive vice president of Dockwise N.V., has been appointed executive vice president of the Herema Group, Geneva. The main activities of the Group are fabrication of steel structures, offshore installation and sea transportation of large and heavy objects. Mr. Goede will be responsible for the identification and coordination of opportunities for the Group and its divisions in order to expand the company's growth in certain markets.

Mr. C.B. van der Zwan, president and CEO, and Mr. H.M. Bekker, executive vice president, will form the management of Dockwise N.V.

For more information on Dockwise N.V. Circle 135 on Reader Service Card

Organizational Changes, New Software For Appleton

Appleton Electric Company is a light manufacturing company that manufactures a line of stainless steel hardware for corrosion resistance in harsh environments. The company has introduced new lighting applications software, and made organizational changes.

Jack Dwyer is retiring as vice president of sales after 35 years with the company, and will be retained on a consulting basis. Dick Stone, former intermountain regional manager, has been named vice president of sales. George R. Mulligan will continue as director of international sales, and Michael D. Welte will remain director of marketing. Thomas J. Mueller, director of distribution and inventory control, will take on responsibility for all customer service functions. Miriam Blazowski, director of sales administration, will take on the added responsibility for all major sales program initiatives.

For more information on Appleton Electric Company Circle 103 on Reader Service Card

U.S. Ambassador Visits Bremerhaven

U.S. Ambassador Charles E. Redman visited Bremerhaven, Germany, at the invitation of Bremen's Senator for Foreign Trade and Ports, Uwe Beckmeyer.

Ambassador Redman was briefed on the recent developments in container and automobile transshipment in Bremerhaven, particularly the development of U.S. traffic via the German port. More than 20 carriers with scheduled services currently link U.S. ports with Bremerhaven. Ambassador Redman was advised that rail links

to locations in eastern Europe have been fully developed, and that Bremerhaven is capable of acting as a feeder connection to Poland, Hungary and the Czech Republic.

Ship's Force Pitches In On USS Enterprise Overhaul

The U.S.S. Enterprise service steam piping was plagued with numerous leaks prior to its recent refueling overhaul at Newport News.

This habitability system was comprised of copper pipe with silver braze joints, and repairs were complicated by the fact that the ship's system was divided into only two zones.

The proposed work package, which included creating multiple zones with isolation points, ran into funding problems. It was proposed to use the ship's force during the overhaul to do a large portion of the work. Although sufficient ship's force labor was available, it was still

a significant undertaking and skilled brazers were reportedly in short supply. The decision was made to employ NAVSEA-approved elastic strain preload (ESP) mechanically attached fittings and the ship's available labor. A team of machinist mates from the Service Steam Shop, outfitted with this technology, reportedly accomplished complex piping repairs and replacement ahead of schedule.

For more information Circle 142 on Reader Service Card

CALL SEACOAST FOR ALL YOUR MARINE CABLES

More Than 60 Years of Dependable Service

SHIPBOARD CABLE

U.S. Navy, Commercial Marine - I-EEEE, U.L., Coast Guard

MARINE ELECTRICAL EQUIPMENT

GLAMOX Lighting
SPD TECHNOLOGIES Circuit Breakers
Boxes, Switches, Transformers, Panels

ACCESSORIES

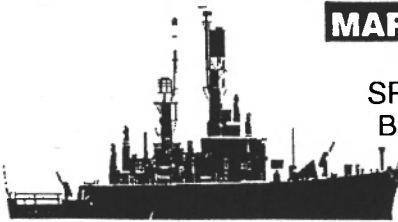
NMP ROX SYSTEM
Stuffing Tubes, Swage Tubes, Cable Hangers

FACILITY SUPPORT CABLES

Fiber, Tray, Plenum, Portable, Welding, Portable

VALUE ADDED SERVICES

Armoring, Kitting, JIT, Warehouse and Inventory Management Services



Offices in New York, Norfolk, Gulf Coast, California - Call us and let us show you the SEACOAST SERVICE

"See us at SNAME Booth No. 220/222"



50 BROADWAY, HAWTHORNE, NY 10532
TELEPHONE: (914) 747-3870 • FAX: (914) 747-3919

Circle 298 on Reader Service Card

Our Eco-Cat Laps Up Spills.

Intermarine's 35 metre GRP ECO-CAT is designed to clean up ecologically sensitive materials from solid waste to high-density hydrocarbon products.

The stable catamaran hull makes it ideal for ocean search, salvage and underwater exploration operations.

Economical to operate, the 35 metre ECO-CAT is designed to achieve maximum effectiveness with a minimum of personnel.

For more information call Intermarine at 912-234-6579.



Post Office Box 3045
301 North Lathrop Ave.
Savannah, Georgia
31402-3045 U.S.A.

Tel: 912-234-6579
Fax: 912-234-0717



Circle 256 on Reader Service Card

Simrad Debuts Shipmate RS 5400

Simrad recently introduced the Shipmate RS 5400, a navigation tool that combines GPS positioning and electronic chart system with track plotting capability.

With C-Map electronic charts, navigation and multi-point route planning is reportedly simplified. Equipped with a dual speed indicator, the RS 5400's speedometer com-

bination offers digital readout for average speed with an analog pointer to show sudden changes. Ten filter settings provide optimum vessel adjustment.

For more information from Simrad
Circle 143 on Reader Service Card

New Low-Maintenance Disc Coupling Line From Falk

The Falk Corp. introduced a brochure for its new, low-maintenance,

FDC close-coupled disc coupling line. The eight-page catalog features coupling specifications, cut-away pictures, dimension and engineering data.

For a copy of the brochure from Falk
Circle 144 on Reader Service Card

New NightSight Uses Infrared To See In The Dark

Texas Instruments and Hughes Aircraft Co. teamed to introduce a

new infrared video camera for use in areas of little or no light. This camera is the key component of the NightSight Thermal Vision System, a system which works by detecting slight temperature differences between the various objects and people in its field of view. The basic NightSight camera features an integral fixed-focus lens and standard RS-170 video output. The initial production unit is in a fixed-mount configuration for use on vehicles and marine craft, as well as other uses.

For more information on NightSight
Circle 145 on Reader Service Card

KCS Announces Tribon Upgrade

Tribon Initial Design (formerly BMT Icon's Hulltech) is now integrated in the Tribon system. Hull surfaces created in Tribon Initial Design can now be directly accessed by the Tribon Hull application.

With the continued use of robots in shipbuilding, robot programming software and Tribon applications have reached a level which makes the robot applications productive, Kockums Computer Systems (KCS) reports.

An interface for profile cutting is now included in the Tribon system, and the main reason for this feature is to make nested profiles available for profile cutting robots. In the welding area, the Tribon Robot Interface is extended and is now incorporated into the Work Preparation application, so that data to support robot welding for each assembly stage can be created.

A number of improvements have been made to improve designer productivity, including:

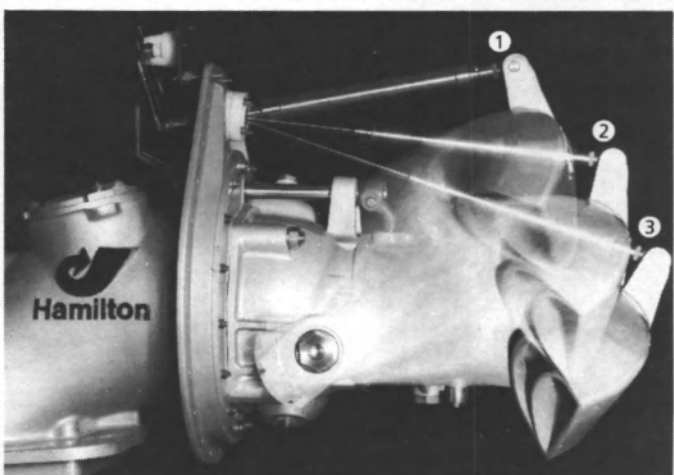
- Group function to allow simultaneous update of a number of hull structure items at one time
- New Jumbo panel splitting and splitting of stiffeners functions to break down major structural panels such as complete decks and bulkheads into smaller panels for production purposes during the design process when more details are added to the Product Information Model
- Extended functionality in various areas to enable pipe insulation to be handled efficiently.

The need for software internationalization has become more of a market demand, according to KCS, especially for the Asian market. The majority of languages used by Tribon customers today are based on an alphabetical system, most Asian languages are based on ideographic character systems. In Tribon Release 2.0 there is extended language support.

For more information on Tribon
Circle 146 on Reader Service Card

Midland Names MIC Marine Distributor

Midland Manufacturing Corp., a leading manufacturer of level gauges, alarms, loading monitors,



- 1 AHEAD.
- 2 ZERO-SPEED. Full steering effect in this mode.
- 3 ASTERN.

We've just taken another step ahead by going astern.

When you're firmly established as a world leader, it can be easy to become complacent.

But for HamiltonJet, quite the reverse is true... literally.

As the first to introduce the split duct deflector for superior astern thrust and vessel manoeuvrability, HamiltonJet has just advanced this concept another step.

The result is the patented HSRX servo-hydraulic follow-up control system. This major advance in applied hydraulics features a unique rotary valve integral with the deflector actuating cylinder.

The new HSRX gives full follow-up movement with enhanced reaction time and precision at the zero-speed position... simply. And all with inboard hydraulics for long life and easy maintenance.

HamiltonJet.

Definitely not astern in going ahead.



Highly Specified. Hamilton Jet

Manufactured in New Zealand by CWF Hamilton and Co. Ltd., P.O. Box 709, Christchurch, New Zealand. Ph: 64-3-348-4179. Fax: 64-3-348-6969.
Worldwide Distributors — Italy, Spain, UK, USA, Canada, India, France, Germany, Holland, Australia, Finland, Hong Kong, Indonesia, Korea, Norway, Greece, Singapore, Sweden, Taiwan, Japan, Malaysia, Thailand, Denmark, Philippines, Panama, South Africa.

CWF 0153

Circle 333 on Reader Service Card

pressure vacuum and spill valves for the barge industry, named Marine Industries Corp. (MIC) of Jeffersonville, Ind. as its distributor-representative for the Upper Mississippi and Ohio River Valley territory.

MIC represents more than 1,200 products and has a customer base which exceeds 5,000 throughout the inland river and coastal markets. MIC will represent Midland's complete line of marine products and feature them in the upcoming issue of its catalog.

For more information on Midland Manufacturing
Circle 147 on Reader Service Card

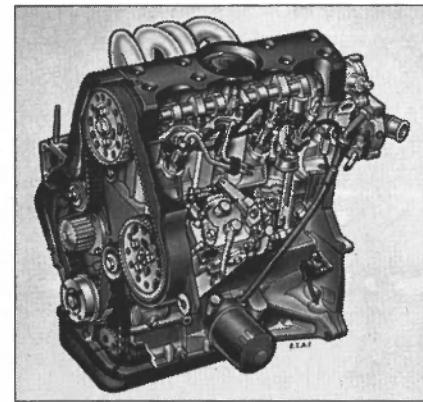
Silvertech To Supply Britannia Platform Control System

The Silvertech Group was awarded the Britannia platform integrated control and safety system contract utilizing its Sentrol Unified Control System (UCS). The alliance type contract is worth approximately \$4.5 million, and partners include Chevron and Conoco and its alliance design contractor AMEC.

The UCS concept provides a common hardware and software platform for all systems and Silvertech's scope covers the design and supply of all major control and safety systems including process control, shutdown, fire and safety critical systems.

For more information on Silvertech Group
Circle 148 on Reader Service Card

Peugeot Citroën Expands N.A. Product Line



The TUD5 model, part of Peugeot Citroën Engines' line.

Peugeot Citroën Engines reinforced the power range of engines for industrial and OEM applications during the past year by adding one gasoline engine and three diesels to the product line it offers for the North American OEM market. The additional engines include the 1.7-liter gasoline engine (model XU7), a 1.5-liter diesel (model TUD5), a 2.1-liter diesel (model XUD11) and a 2.5-liter diesel (model D35).

Peugeot Citroën manufactures gas and diesel engines for buyers in the automotive and industrial mar-

kets. For every diesel in the company's line of industrial engines, the company offers a corresponding gasoline engine.

For more information on Peugeot Citroën
Circle 83 on Reader Service Card

Spectrex Offers New Dual Gas And Flame Detector

Spectrex Inc. introduced SafEye, a patented electro-optical "open path"

flame and gas detector. The SafEye system uses high-technology to provide a powerful explosion-proof detection system for ambient escaping highly flammable/toxic gases and vapors. SafEye has two major components, a unique modulated light emission source as a UV/IR transmitter and a specifically designed detector which incorporates an attenuation response analyzer operating at selected spectral bands. Also incorporated within the SafEye is state-of-the-art IR3 flame detection

capability.

For more information from Spectrex
Circle 149 on Reader Service Card

Merger Creates New Service And Repair Company

Aalborg Sunrod USA has been formed as a result of a merger between the Aalborg Industries

(Continued on page 87)

If something goes wrong out here...



...YOU CAN'T WALK HOME

The sea respects no one — least of all the weak. She demands respect and receives it from those who live on her. We at Leslie Controls understand this and have made our products with the quality and reliability necessary for marine service. Quality and reliability are designed into each product.

Leslie Controls produces the most complete line of

shipboard fluid control products in the industry. These include Control Valves, Temperature Regulators, Pressure Reducing Valves, Butterfly Valves, Ball Valves, Pump Pressure Regulators, Steam Water Heaters, Duplex Strainers, "Y" Strainers, Relief Valves, Magazine Sprinkler Valves, Air & Electric Whistles, and Electric and Pneumatic Instruments.

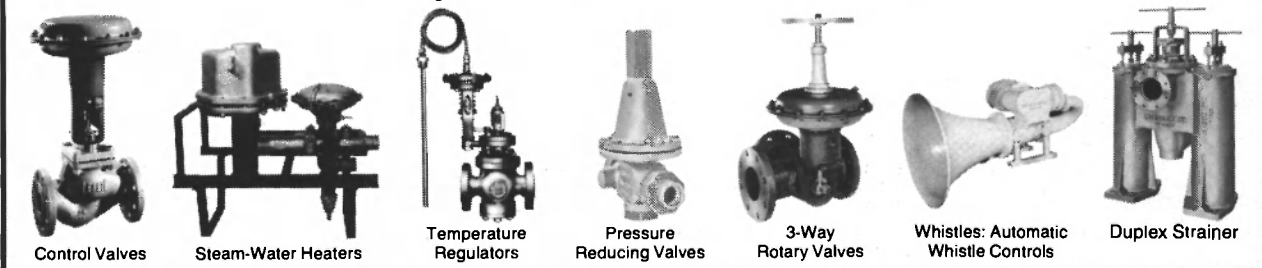
Leslie Controls . . . A tradition at sea.



LESLIE CONTROLS, INC.

12501 Telecom Drive, Tampa FL 33637-0903
(813) 978-1000 • Telex: 136445 • Fax: 813-978-0984

Quality Products for the Marine Industry . . .



Circle 268 on Reader Service Card

RIBS, SKIFFS & OTHER SMALL WORKBOATS

USA Catamarans Develops All-Aluminum RIB

USA Catamarans, Inc. has developed a 32.8-ft. (10-m) all-aluminum RIB, the first of USA Catamarans' Avenger class. The vessel is made of 5083-H116 alloy, with aluminum D-shaped tubes and hull voids filled with polyurethane foam to render the boat unsinkable. A pair of Volvo KAD 42 DP 216-hp Diesel I/O units with counter rotating S.S. propellers drive the RIB at speeds in excess of 55 mph. The Avenger 32.8-ft. has a fuel tank capacity of 160 gallons and a range of 350 miles at full speed. The USCG has approved the vessel for 18-passenger snorkel/dive operations.

Expansion of the Avenger class will begin in March, with the sea trials of a 39.3-ft. (12-m) RIB, powered by a pair of CAT 3126s.

For more information on USA Catamarans
Circle 13 on Reader Service Card

RTK Marine Awarded U.K. And Tunisian Contracts

RTK Marine of Poole Dorset has been awarded a contract to build 14 of its 21.3-ft. (6.5-m) Beach Raider design craft, for the U.K. Ministry of Defense. The 21.3-ft. Beach Raider is capable of speeds in excess of 30 knots laden, 40 knots light, fitted with twin 140-hp outboard engines. The keel and sponsons are fitted with stainless steel skegs. Other features include elastomer coated, foam filled fender and seat cushions to provide troops and crew with comfortable rides at high speeds. The vessel design is based on the RTK Mark I 17-ft. (5.2-m) Rigid Raiding Craft, used by the U.K. for twenty years. The Beach Raiders have been ordered following the successful entry of service of the RTK Marine vessels ordered by the Ministry of Defense in 1993.

For more information on RTK Marine
Circle 15 on Reader Service Card

Willard Marine Delivers Boats

Willard Marine, Inc. announced that Avon Marine, national distributor of Avon Inflatables, will represent its line of Sea Force™ commercial RIBs ranging in size from 17.7 ft. (5.4 m) to 23.9 ft. (7.3 m). Willard Marine has also announced the delivery of the first five Sea Force 730 Diesel Jet RIBs to the Mexican Navy. The boats are 24 ft. (7.31 m) and powered by Cummins Marine 300-hp diesel engines and Hamilton model 273



Safe-T-Craft 140 vessel powers through the water.

waterjets. Willard Marine is one of the largest builders of RIBs in the U.S., including three models built to SOLAS requirements.

For more information on Willard Marine
Circle 17 on Reader Service Card

Workskiff Offers Adaptable RIBs For Severe Duty

The Workskiff line, designed by George Lundgren, is reportedly built for severe duty and is readily adaptable for a wide range of applications. The company line features 16, 19 and 23-ft. (4.8, 5.7, 7-m) unsinkable boats used for a variety of purposes — for example, as fishing research vessels and fast ski-tow boats. One Workskiff boat is being equipped by the Corp of Engineers with a variety of electronic gear to survey dissolved gases in the Columbia River. Workskiff features efficient, economical and seaworthy skiffs, in various applications.

For more information on Workskiff
Circle 18 on Reader Service Card

AB Inflatables Design Works As Fishing, Dive Boat

Originally designed for the Italian Coast Guard, AB Inflatables' 7.40VS rigid inflatable is a reportedly safe, spacious craft that alternately functions as a coastal fishing craft or dive boat. This 24-ft. (7.3-m) craft features rugged hull and tube construction, with ample deck space for gear and supplies. Six tube air chambers and one hull air chamber improve safety on the water, and a special baffle system keeps the chambers sealed off from one another to equalize pressure between them for improved stability. The tubes are made of heavy-duty 1670 dtex neoprene-hypalon that resists abrasions, severe weather and sun exposure. The fiberglass hull is an easy-planing deep-V design with a high

bow, providing a smooth, dry ride on rough seas. Power is provided by one or two outboards with a total of up to 200 hp.

For more information on AB Inflatables
Circle 57 on Reader Service Card

American Eagle's SAFE Boat — Durable In Rough Seas

The SAFE line of boats, manufactured by American Eagle Manufacturing, are all-welded 5000 marine grade aluminum construction surrounded by a rigid, closed cell foam collar, patented by Norseman. The SAFE boat is equipped with a high density, resilient foam collar coated with a durable vinyl and bolted directly to the outside of the low-profile aluminum hull, creating an unusually spacious interior compartment.

SAFE boat's polyethylene collar cannot deflate or fill with water, which provides durability and safety in rough seas. The narrow beam performance hull provides a superior ride due to its deep-V construction. The boats are available in 13 to 32 ft. (3.9-9.75 m) models, and can be equipped with cabins or center consoles.

For more information on American Eagle
Circle 62 on Reader Service Card

Boston Whaler's Versatile 21-Ft. Impact

Boston Whaler Inc.'s 21-ft. Impact commercial boat features a large foam collar encircling a



The 21-ft. Impact from Boston Whaler.



American Eagle Manufacturing's 21-ft. Safeboat.

deep-V fiberglass hull, and can be adapted for a variety of applications. The vessel's collaring system cushions the shock associated with making contact with other boats or structures — its design emphasizes a solid ride.

Several options are available on the Impact, including a door cut-out for easier access for swimmers and scuba divers. The vessel has been used by divers, military operators, law-enforcement agencies, as well as for a number of other recreational and commercial applications. The U.S. Geological Service customized its Impact with a radial arm davit used in obtaining water samples. Another popular application of the Impact is as a tender for megayachts. The 21-ft. RIB can be custom-designed to match the decor of any vessel. "AT&T bought four Impacts to assist in transatlantic cable installation," said Doug Nettles, sales and marketing manager. "Meanwhile, on the other side of the globe, the Government of Kuwait selected the Impact for military applications." For more information on Boston Whaler Circle 74 on Reader Service Card

Almar Offers Unique Tubing Design

Almar (Aluminum Marine Construction Inc.) specializes in aluminum hulled rigid inflatables from 16 to 35 ft. (4.8 to 10.6 m). The vessel hulls are welded from 5086 marine aluminum and feature a completely sealed hull filled with polyurethane foam. All models are water tested without tubes attached and can operate with the tubes deflated. The tubes are of welded construction utilizing Cooley 33 oz. and 40 oz. polyurethane, and feature five compartments, over pressure and fill valves. Almar offers gas or diesel I/O or outboard power. Models with a crew cabin are available. Almar's recent contracts include a 32-ft. by 10-ft. (9.7-m by 3.04-m) vessel with 320-hp Volvo diesel engine and Hamilton Jet for a tour operation in Saipan, and a 26-ft. by 10-ft. (7.9-m by 3.04-m) vessel with 350-hp Yanmar Diesel and Kodiak Jet, for a U.S. rescue operator in Rhode Island.

For more information on Almar Circle 73 on Reader Service Card

Safe-T-Craft Features Search & Rescue Application

Safe-T-Craft Marine Incorporated offers a hybrid of RIBs, and reportedly, the company's sales figures indicate the growing popularity of its search and rescue models. Popular applications also include workboats and recreational user models such as the scuba craft. Safe-T-Craft's products aim to display the safety, stability and performance characteristics of RIBs, with the durability and low maintenance of welded aluminum hulls and tubes. The shallow-drafted craft are available in 14 to 36 ft. (4.2 to 10.9 m) models. A unique feature of Safe-T-Craft vessels is the "D" shape profile of the tubes, providing more open space in the internal beam of the

April, 1995

Finally, a boat that is not full of hot air.



SAFE
SECURE AROUND FLOTATION EQUIPPED

All welded aluminum hull with full height gunwales surrounded by a rugged laminated foam collar. Powered by Mercury, the leader in outboard engines.

American Eagle Mfg.
780 Pearle Jensen Way
LaConner, WA 98257
(360) 466-5925

POWERED BY
MERCURY
OUTBOARDS

US Patent No. 5,288,436. Trademark of Norseman Marine Products, Inc.

Circle 338 on Reader Service Card

MARINE PROFESSIONALS ASSOCIATED
French spare parts & material service centre

Supply of new and second hand equipment

Reconditioned spare parts service
class certificate on request

Technical Assistance

- * Main/auxiliary engines and parts
- * Turbo chargers
- * Generating sets
- * Purifiers * Pumps

engines and deck equipment

- * Anchors and chains
- * Life-boats/life-rafts/gangways
- * Safety equipment
- * Navigation and deck equipment

20 bis Bd. de LAUNAY, 44100 NANTES France Phone: (33) 40.73.61.76 Fax: (33) 40.69.68.73 Tlx: 710307

Circle 274 on Reader Service Card

THE BETTER ALTERNATIVE FOR ANY APPLICATION



45 YEARS OF SERVICE IN THE MARINE INDUSTRY

- Azimuthing thrusters up to 6000 kW
- Heavy-duty jet propulsion systems up to 3500 kW
- Transverse thrusters
- Complete power packages and controls

OUR NEW ADDRESS:
SCHOTTEL NORTH AMERICA INC.
1505 Corbin Avenue, Hammond, LA 70403
Phone: (5 04) 5 42-71 74 - Fax: (5 04) 5 42-53 47

SCHOTTEL
FOR PROGRESSIVE PROPULSION

SCHOTTEL-Werft, D-56322 Spay/Rhein (Germany)
Phone: +49 26 28/6 10 - Fax: +49 26 28/6 13 00
We offer worldwide sales and service

The certification authorities of ABS, BV, DNV and GL have simultaneously confirmed that our quality management system complies with DIN ISO 9001.

Circle 297 on Reader Service Card

85

EUROPEAN UPDATE



The standard British Royal Navy 22-ft. (6.7-m) seaboot.

RIBs come of age

by Carol Fulford and Andy Smith
contributing editors

Europeans have played a major role in the universal acceptance of the rigid inflatable (RIB) as a serious working boat. When the type first appeared around three decades ago, it was primarily a fun craft but a number of its inherent advantages eventually triggered European manufacturers and potential users into exploring its potential for commercial applications. The result is a runaway success.

In its simplest form, the RIB comprises a high-speed narrow hull which is economical to produce. The hull is surrounded by an air-filled tube to give a more conventional overall beam to length ratio for good seakeeping qualities in a lightweight vessel with ample buoyancy. Easy

to launch from land or mother vessel it soon became apparent that, if built to the right standards, the RIB could play a long and dominant role with rescue, police and military authorities alike.

French company Zodiac claims the honor of inventing the inflatable boat some fifty years ago, but exactly when the first rigid hull was incorporated is not exactly clear. Early interest by the British Royal Navy and the need for fast, effective rescue craft in the British sector of the North Sea oilfields has led to the proliferation of the U.K. RIB industry. (Unless stated otherwise, the companies mentioned below are U.K.-based).

Although in many ways the out-

board motor still provides the ideal propulsion option, in workboat terms the RIB can be said to have come of age when safer, more reliable inboard diesels were installed. A good deal of the credit must go to the Royal Navy. Working together with south coast builder Halmatic, a standard 22-ft. (6.7-m) design evolved incorporating an extensively tried, tested and analyzed turbocharged and intercooled marinized four-cylinder Ford-based diesel (initially developing 150 hp but now producing closer to 200 hp) coupled to a Stern-Powr drive leg. How many craft the Navy has of this type is not general public knowledge but it is probably around 200. Much imitated, and now more often

fitted with a waterjet, this basic concept has been employed by many of Europe's navies and the rescue organizations operating in the North Sea. For these latter applications the same engine has been uprated and built to SOLAS (Safety of Life at Sea) requirements with automatic cut-off and water ingress protection upon inversion.

Halmatic is currently in the midst of a 15-boat order following the original specification for the Royal Navy, and has just completed a rather special version in an unusual color to match the livery of the Antarctic research ship HMS *Endurance*, the only red vessel in the fleet. The

(Continued on page 91)

Seven orders for OPVs

Work is accelerating at the French yards of Leroux et Lotz as the company announces that no fewer than seven orders for its latest design OPV (Offshore Patrol Vessel) are in hand. This year the group, which comprises family-owned yards at Dieppe, Lorient, St. Malo and Nantes, is scheduled to deliver two of a three OPV 54 vessel order for its home navy and to commence delivery of four OPV 64s for the Royal Moroccan Navy which will be delivered at intervals between 1995 and 1997.

Additionally, military department manager **Gerard de la Cochetiere** confirms that two additional OPV 54s are to be built at the CMN yard, again for the French Navy.

Approval of the design has been swift indeed as all of these orders come with only one actually having been built and delivered to Mauritania last year. But Leroux et Lotz attributes much of the success to its 30 year long cooperation with French Naval State Shipyards (DCN) on various projects for submarines, frigates, corvettes and

aircraft carriers. Nonetheless, it is immediately apparent that, in keeping with trends throughout Europe's naval yards, the OPV range has been developed with two notable bonus factors: a competitive price tag and a multi-role capability.

Available in three lengths — 177 ft. (54 m), 210 ft. (64 m) and 259 ft. (79 m) — each is suited to principal duties of general surveillance (200 nm range/20 days duration) and interception tasks, but can also be used for firefighting, pollution control and inter-island transportation. With steel hulls and light aluminum alloy superstructures, vessels are capable of speeds from 22-27 knots depending on propulsion system. The French Navy has opted for a CODAD arrangement comprising two 3,000-hp MWM 620-16s and twin 1,000-hp MWM TBD 234-12 Vs for 22 knots while Morocco, for its larger OPV 64s, has selected twin Wartsila Nohab 16V 25s, each at 5,200 hp, and two slow electric engines for a maximum speed of 22 knots and 6-8 knots loiter capability.

SKB buys Beliard Polyship

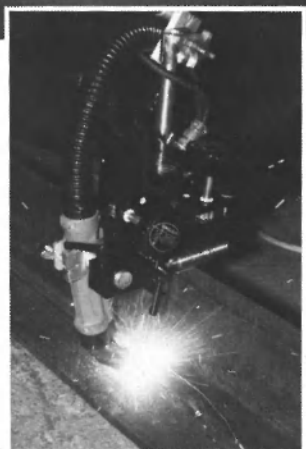
Belgian yard Beliard Polyship, threatened by closure during the latter part of 1994, is to commence building activities again in April following a rescue buy-out by fellow Belgian, SKB. **Leopold Longeville** is managing director of the new company, which has been renamed SKB Polyship. He explained: "We will receive a most significant and vital start having been selected by the Belgian government to design and construct four of a new generation of coastal mine-sweepers for the Belgian Navy." Such news is, in fact, confirmation of an oft repeated rumor that the navy intended to place its order with Polyship — although this was insufficient at the time for its owners, the private company Mercantile-Beliard, to consider keeping the yard and its workforce of 200 going. Naval orders are not new, as the yard was instrumental in the development of the Tripartite class of minehunter, so named because of the three-way involvement of France, Holland and Belgium, ten of which were built by Polyship and are currently in service with the Belgian Navy.

WELD COAMINGS QUICKLY, EASILY, AND ECONOMICALLY.



The patented design of the UNI-BUG enables it to run directly on the workpiece without a track. The UNI-BUG is lightweight and compact 8 lbs. (3.6 kg); you can carry it anywhere with ease. Because of its small size the UNI-BUG will fit into tight areas where space is a problem.

The UNI-BUG will run from a straight down to a 6" (153 mm) radius inside or out. The machine follows the shape of the workpiece and can run in a wide variety of positions. The UNI-BUG is a versatile machine that can be adapted for an infinite number of applications.



For more information call:

BUG-O SYSTEMS
(412) 331-1776 Ext. 55
Fax: (412) 331-0383



UNI-BUG
THE UNIVERSAL
BUG-O

Circle 219 on Reader Service Card

April, 1995

Mackay COMMUNICATIONS



ALL DIGITAL INMARSAT **SATURN B** TERMINAL FOR CLASS III VOICE, TELEFAX, AND DATA COMMUNICATIONS

CONTROL UNIT FOR BULKHEAD OR DESK TOP MOUNTING WITH:

- 5 RJ-11 Jacks for remote telephones
- G3 Fax and PABX Interfaces
- RS-232/V.35 modem interfaces
- Telex printer output line
- HSD.56/64 KBPS option

HANDSET CONTROLLER WITH DUAL KEYPADS FOR:

- LES default programming
- Short number dialing
- Readout of status records
- Antenna Controller
- Test diagnostics

SYSTEM OPERATION FROM A VARIETY OF A.C. AND D.C. VOLTAGES

For further information, contact Mackay Communications

300 Columbus Circle, Edison, New Jersey 08837 Tel.: (908) 225-0909 Fax: (908) 225-2848



COMSAT'S Mobile Link™ service uses Land Earth Station code 001 and provides a global link to the Inmarsat satellite system and offers the advantage of voice, fax and data communications that are virtually the same as those in the office or home. Call COMSAT at 1-301-428-2279 for information.

Circle 271 on Reader Service Card

89

Munson's "Hammerhead" Hull Provides Stability

Munson Manufacturing's aluminum boats feature a "hammerhead" hull design, with wide chines forward to create a dry side, and wider chines aft as well as a deep fore-front to provide hull stability. Munson RIB applications include

workboats, patrol boats, and dive boats.

Munson has recently combined technology and expertise with American Eagle Manufacturing, and moved its facility to LaConner, Wash.

For more information on
Munson Manufacturing
Circle 140 on Reader Service Card

Ambar Alsafe RIBs Enter U.S. Market

Ambar Marine, Inc. has introduced its Alsafe RIB to the U.S. after twelve years of use on the North Sea. These boats have use marine grade aluminum extrusions for the outer hull structure for durability and longitudinal rigidity. Low-density polyurethane foam is

incorporated into compartments under the deck to provide positive floatation. The sponson is made of variable density closed-cell foam and is modular in nature to allow for rapid installation and removal, and a large amount of deck space.

Alsafe RIBs are available in models from 18 ft. to 29.5 ft. (5.5 m to 9 m), and custom construction is available in lengths up to 49.2 ft. (15 m). Propulsion options include diesel/water jets combinations and outboards.

For more information on
Ambar Marine, Inc.
Circle 152 on Reader Service Card

CONSEIL INTERNATIONAL
DES MACHINES A COMBUSTION



INTERNATIONAL COUNCIL
ON COMBUSTION ENGINES



Prof. Meinrad K. Eberle
President of the 1995 CIMAC Congress

Dr. George Lustgarten
President CIMAC

and the Swiss National CIMAC Committee
are pleased to invite you to participate at the

21st Congress of CIMAC in Interlaken/Switzerland, May 15th - 18th, 1995

The 1995 CIMAC Congress will reflect valuable suggestions made over the years with a clear priority setting of the themes each day:

- Day 1 Opportunities and Constraints for the Industry
- Day 2 Technological Outlook
- Day 3 Environmental Challenge
- Day 4 Interaction between Users and Industry

A special effort is made to attract the younger generation. A full day, in parallel, will be devoted to computational reactive fluid dynamics (in short combustion) and the latest developments in diagnostics for internal combustion applications will be presented and discussed.

A fine evening program and superb optional tours will be offered.

For information and registration, please contact the official Congress Organizer:
MCI Travel -CIMAC 1995-
Bruno Grotto
Weinbergstrasse 11, CH - 8001 Zurich/Switzerland
Tel. ++41-1-252 50 30,
Fax ++41-1-251 31 49

Circle 350 on Reader Service Card

Escort Tugs

(Continued from page 60)

Last fall Trinity Group's Halter Marine delivered the second of two 155-ft. (47.2-m), 8,000-hp enhanced tractor tugs to Foss Maritime of Seattle. The *Garth Foss* — which was designed primarily in-house by the Foss Design team with assistance from Glostsen Associates and Trinity — features a Voith Schneider cycloidal propulsion system and is working for BP. The design and construction of the tugs resulted from a two-year, \$500,000 engineering study conducted by ARCO Marine and Foss with the assistance of the Glostsen Associates.

AWO: Local Conditions Are Critical In Determining Where To Have Escort Requirements

The American Waterways Operators (AWO), the national trade association representing the inland and coastal barge and towing industry, has offered opinions to the U.S. Coast Guard (USCG) regarding the rules which are to be issued regarding escort vessels in certain U.S. Waters.

In a letter dated February 13, AWO made clear that its "comments are premised on our firm belief that local factors and conditions are of overriding importance in the establishment of meaningful tug escort requirements. We believe local factors are of critical importance both in identifying those waterways in which tug escorts should be required and in establishing performance standards for tug escorts in those areas."

AWO believes that once that the USCG has determined that local conditions justify the imposition of escort requirements, it believes that those requirements must be designed with the characteristics of the waterway clearly in mind. AWO is concerned by the USCG's stated objective of transferring the performance standards established specifically for Prince William Sound and Puget Sound to those other waterways which it ultimately decides to establish escort requirements.

EUROPEAN UPDATE

RIBs come of age

Continued from page 88

design follows the standard naval seaboard fit-out with Mermaid Turbo-Four Ford-based diesel and Stern-Powr 101 sterndrive, but with stainless steel ice protection to leading below water line areas and a stainless "knife" deflector in front of the propeller. "The vessel was completed to a very tight program in order to catch the scheduled sailing of HMSEndurance from Portsmouth to the Antarctic," said sales manager Roy Barr. He also advised that the company has recently delivered a 34-knot, 23-ft. (7-m) version with Volvo 41 WJ diesel and Castoldi waterjet to the Swedish Sea Rescue Service and another, of the same size, to the Danish Ministry of Fisheries with a Yanmar diesel and PP115 waterjet.

Avon, long-established builder of both leisure and military inflatables, is actively attacking the commercial market with its first SOLAS approved RIB. It is surely no coincidence that this craft is 21 ft. (6.4 m) long and Mermaid Turbo-Four powered, but Avon has opted for a Hamilton 273 waterjet. The company has already achieved notable success in supplying various navies, coast guard and police authorities with boats, mainly outboard powered, and is in the midst of building five 17.7-ft. (5.4-m) boats for Hong Kong Marine Police and three 27.5-ft. (8.4-m) units for the Middle East.

One of the obvious advantages of the inflatable collar in policing roles is its fendering effect when boarding other vessels, but this has proved a benefit which coxswains have found all too easy to abuse. Too often, a punctured collar rendered the vessel inoperable and resulted in extended downtime. To overcome this, the Hong Kong Police worked together with TaskForce Boats in the early eighties to develop a system of modular "collarettes" which were attached to a curved recess formed in the hull with a quick release mechanism. Not only could spares be carried on board (as straddle seating) and a replacement effected while at sea, but the units could be rotated to equalize wear at especially vulnerable points. This design is now in the hands of Cheverton Workboats which has recently supplied a 19-ft. (6-m) boat powered by twin 90-hp Mercury outboards to the Fire Brigade in Hamburg, Germany, following the supply of several similar vessels to the DLRG, the German rescue organization. A 22-ft. (6.7-m) version has recently been delivered to the Maputo Pilot Authority in Mozambique.

Carson Marine is also in the vanguard of RIB technology with its own sectional collar system and the first production stepped rigid inflatable hull. The 25-ft. (7.6-m) long hull has a very deep V of 25 degrees and a single step claimed to give increased speed, reduced pitching and improved fuel economy. "We had four orders before completion of the mold," said Barry Carson. "All will have the optional two berth cabin and aft positioned inboard engine," he added. At least two of the four will be supplied with Carson's own surface drive system. Other recent contracts include a 50-knot, 29.5-ft. (9-m) twin diesel engine vessel for Norway.

Another 30-ft. (9-m) craft for Scandinavia with advanced features, including seating designed by an orthopedic surgeon, has been supplied by Vector Marine. The overall design concept was by the Swedish Sea Rescue Society and includes handle bar steering, open transom and a deck extension over the waterjet. A Cummins 6BTA developing 300 hp drives an Ultra Jet 300 to give a top speed of 32 knots.

Despite the obvious success of U.K. manufac-

turers in Scandinavia, the circumstances which led to the strength of British companies in the RIB field were repeated in Norway, a country with a long indented coastline to defend and a big presence in North Sea oil and gas. This experience has paid off for Norsafe AS in securing the order for five boats from Tideway Pacific in Alaska. These boats have 210-hp Cummins diesels driving Hamilton 273 waterjets and will





This Moody 1100 RIB features a cabin.

PROPULSION SHAFT SEALS BULKHEAD SEALS RUDDER STOCK SEALS

Non-Polluting • Fully Split/Partially Split • Lip Seals/Face Seals
Oil/Water Applications • Worldwide 24 Hour Service

JOHN CRANE MARINE
25 Years of Naval and Commercial Marine Experience

From Workboats to Super Tankers  Leaders
From Patrol Boats to Aircraft Carriers  World Wide

JOHN CRANE MARINE • 1536 Barclay Boulevard, Buffalo Grove, IL 60089 • (708) 808-9240

Circle 226 on Reader Service Card

ULTRASONIC THICKNESS TESTING CAN BE DONE ON DECKS, BULKHEADS, TANKS & HULL PLATES WITHOUT GRINDING SPOTS IN VALUABLE COATINGS!



- Coatings **DO NOT** have to be removed — measures only the metal thickness
- Do not have to destroy the integrity of perfectly good and costly coatings
- No costly coating repairs
- Saves time and money
- Available in a variety of hand held models
- Uses the multiple echo measuring technique



P.O. Box 3127
Annapolis, MD 21403
Tel.: 410-267-9771
Fax: 410-268-2013

Circle 232 on Reader Service Card



"I HOPE YOU REALIZE YOU'VE MADE YOUR BIRTHDAY CAKE FALL!"

EUROPEAN UPDATE

RIBs come of age

(Continued from page 91)

be used for crew transport with rescue and oil cleanup standby roles. The other big player in the field from Norway is UFAS with a main-

stream range of SOLAS-approved craft, called Seabear, spanning 23 to 33 ft. (7-10 m). It is currently building the last of a four-boat order from the Norwegian Coast Guard for 24.6-ft. (7.5-m) craft with a high level of fit-out, 315-hp Yanmar engines and Hamilton waterjets. Fin-

land also has its own RIB builder in Boomeranger Boats with a standard product line at 15.4 ft. (4.7 m), 25 ft. (7.6 m) and 30 ft. (9.2 m) and a customer reference list which includes the Finnish Coast Guard, National Board of Navigation and Finnish Lifeboat Society. SOLAS

approval is expected shortly on the two smaller models although the 25-ft. (7.6-m) version already has DNV classification. The company said that a range of 33-50 ft. (10-15 m) boats with cabins is at the design stage.

Serving the Mediterranean market with commercial RIBs is Astilleros Neumaticos Duarry SA from Spain and the Italian company Novurania S.p.A. Duarry has a range up to 25 ft. (7.6 m) — many of which are available in Kevlar sandwich construction. The 24-ft. (7.3-m) version is used by the Spanish Navy and uses a single 200-hp diesel plus sterndrive propulsion system to give a 35-knot top speed. Novurania's largest commercial RIB is at 21.3 ft. (6.5 m) and, although certain craft in the range are SOLAS-approved, they are only available with outboard motor propulsion.

Two companies in Ireland have been making a name for themselves. In the Republic's County Waterford, Lencraft has become well established with a range of boats extending from 14.8 to 30 ft. (4.5 to 9.5 m) and advises that a number of boats have been delivered recently to anti-terrorist organizations. "For security reasons we cannot tell you more," said Managing Director **Jimmy Lenane**. North of the border in County Antrim, Red Bay Boats began building RIBs in 1993 for local diving clubs.

A race boat powered by twin 65-hp outboards set the fastest descent of the Shannon, Ireland's longest river, and holds the record for crossing from Ireland to Scotland in only 23 minutes. According to Managing Director **Tom McLaughlin**, these successes have prompted the company to design a 24-ft. (7.4-m) boat capable of taking an inboard diesel up to 240 hp coupled to a sterndrive, and two have been ordered.

A 38-ft. (11.6-m) twin diesel version with totally enclosed wheelhouse is planned and will be used as a 12-person ferry serving the islands of Islay, Juna, Mull and Barra off the west coast of Scotland.

This latest development is indicative of the trend toward larger RIBs. Delta Power Services has five of its 31-ft. (9.5-m) enclosed wheelhouse versions operating with Boston Putford Offshore Safety Limited on the North Sea with another in build. Halmatic is building a 32-ft. (9.75-m) twin diesel/waterjet boat for Hamble Rescue operating off Southampton and the Dutch concern Mulder & Rijke has supplied the Ukraine with a 42-ft. (12.7-m) search and rescue command RIB for the Black Sea and another, only slightly shorter, for combined rescue and salvage operations off the Dutch coast.

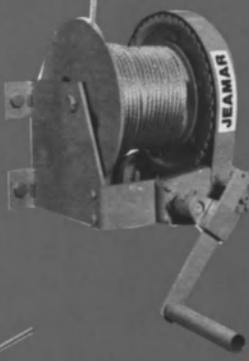
Both these vessels have identical propulsion systems, each having a total of 800 diesel hp and two waterjets. Moody RIBs are new to the scene, although developed by a long established U.K. company pre-

HEAVY DUTY HAND WINCHES

AUTOMATIC BRAKE HOLDS LOAD AND PREVENTS RECOIL

Heavy Duty Worm

- Designed for continuous heavy duty applications
- Rigid all steel frame construction
- Six models: 550 to 11,000 lbs line pull

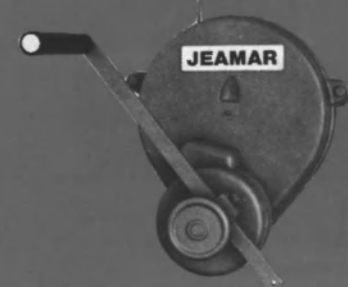
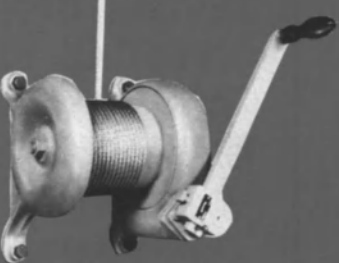


Compact Lightweight

- Light but tough for heavy duty applications
- All cast aluminium construction
- Three models: 150 to 550 lbs line pull

Heavy Duty Sealed Gear

- All gears totally enclosed and permanently lubricated
- Silent in operation
- Ideal for corrosive or contaminated areas
- Three models: 550 to 1650 lbs



Controlled Free Fall

- Load can be lowered by controlled free fall
- Automatic brake governs pay out speed (user-determined maximum)
- Load stops instantly and is held on release of handle
- Four models: 660 to 3300 lbs line pull

Options for Heavy Duty Worm Gear Winch

1. Centre flange to enable two ropes to be used on the drum at the same time.
2. Chain drive with 40 ft of chain for use of winch in inaccessible applications.

Jeamar Winches Inc.

1051 Clinton Street, Buffalo, N.Y., U.S.A. 14206
TEL: (716) 854-3211 FAX: (716) 854-4141

Circle 256 on Reader Service Card

Dress Your Decks with Lonseal...

Heavy duty commercial grade vinyl matting/decking for marine installation.



Designed for installation aboard all types of commercial and passenger vessels. Used in passenger and crew areas, engine machinery and electrical spaces, heads, galleys, pilothouses, etc. Easily installed. Lonseal matting/decking is resilient, abrasion resistant and virtually maintenance free.

Available in a wide selection of attractive patterns and colors to complement the styling of your vessel.

Currently used by boatbuilders, vessel operators, the Navy and Coast Guard.

Let Lonseal cover your decks. For further information, contact:

Lonseal, Inc.

828 E. 238th St.
Carson, CA 90745
Tel: 800-832-7111
Fax: 310-830-9986

Circle 269 on Reader Service Card

Next time you think of steering -- steer to Jastram!

Seaspan International Ltd. and Syla Shipyard Ltd. chose Jastram Steering Systems when building the 50 foot Twin Screw Tug "SEASPAN SCOUT"

Jastram Marine Hydraulic Steering Systems are an ideal choice when designing a new vessel or considering a retrofit



485-489 Mountain Hwy.
North Vancouver,
BC V7J 2L3
Tel: 1 (604) 986 0714
Fax: 1 (604) 986 0334

Jastram
ENGINEERING LTD.

Circle 258 on Reader Service Card



Avon's 21-ft. (6.4-m) Searider diesel design has gained SOLAS approval.

viously best known for its leisure activities, with a range of enclosed wheelhouse RIBs ranging from 33 to 40 ft. (10 to 12 m). Norway's UFAS probably tops the scale with three 49-ft. (15-m) and three 65-ft. (20-m) RIBs being built under license at the Aux-Naval yard in Spain for local rescue use. The original 20-m prototype, the Alusafe 2000, was built in Norway and is already in operation in Spain, achieving 34 knots from twin 1,000-hp Caterpillar diesels coupled to Hamilton waterjets.

Although the majority of craft mentioned so far have a fiberglass reinforced polyester or carbon epoxy Kevlar rigid hull, aluminum as a construction material has not been ignored by many of the manufacturers mentioned — several work in both materials. Ocean Dynamics has close to its home base in Wales a notorious

reef of volcanic rocks with a 16 knot tide race and the company decided to use this natural test bed to compare the qualities of similar 29.5-ft. (9-m) boats in fiberglass and aluminum. Powered by 300-hp Caterpillar 3116 diesels driving PP waterjets, the aluminum craft suffered minimal damage even at 35 knots. The fiberglass holed at speeds far below this.

Ribtec, once exclusively a fiberglass specialist, has also built its first aluminum RIB — a 21.6-ft. (6.6-m) Mermaid Turbo-Four/waterjet configuration giving a top speed of 29 knots for the Kenyan Navy. London's Metropolitan Police have two Ribtec RIBs, again waterjet propelled but powered by the advanced 212-hp Steyr diesel engine from Austria with remarkably low emission levels — a distinct advantage on sensitive waters such as the River Thames.

Marine Fittings Partnership Formed

Flagg Brass and Gerlin Inc. announced an agreement to provide a single, broad resource offering the full range of copper nickel fittings for marine applications. Flagg Brass' line of socket-weld and threaded connections will combine with Gerlin's capabilities in butt-weld fittings. The marine fittings sold under this partnership will be marketed by Flagg Brass and will carry the corresponding name and logo.

For more information on Flagg Brass
Circle 115 on Reader Service Card

DMV GmbH Supplies Marine Diesels

The holder Bremer Vulkan Verbund AG has reorganized its diesel engine manufacturing activities. The engine building works of Bremer Vulkan Werft and Maschinenfabrik GmbH merged to form DMV GmbH, and will continue diesel engine manufacturing from production plants in Rostock and Bremen. DMV GmbH will produce and supply marine engines with an output range up to 68,520 kW under licenses from MAN B&W Diesel A/S, Mitsubishi Heavy Industries Ltd. and New Sulzer Diesel AG. DMV's subsidiaries produce shafts, controllable pitch propeller units and fixed pitch propeller units, making DMV GmbH a complete marine propulsion provider.

For more information on DMV GmbH
Circle 19 on Reader Service Card

H.M.S. Marine Executive Appointments

H.M.S. Fleet Services, Inc. of Houston has appointed Eric B. Hendrix to the office of vice president, and Michael G. Wirtz has been named corporate secretary. H.M.S. Fleet Services is a subsidiary of H.M.S. Marine Services, Inc. and provides consulting services to shipyards worldwide in hazardous material training and spill management services.

For more information on H.M.S. Marine
Circle 28 on Reader Service Card

GET A PHD IN ENVIRONMENTALLY AWARE MARINE LUBRICATION

1-800-989-ROYAL

Our Royal Lubricants technical service representatives are extremely knowledgeable in all aspects of lubricant use and environmental requirements. That's why we've set up a lubrication hotline that offers you a PHD (Professionally Helpful Dialogue).

You will find out they know almost everything about marine applications, specifications and, if course, product data. Ranging from high performance, corrosion inhibiting, fire resistant marine lubricating oils and greases, to synthetic biodegradable hydraulic fluids. In fact, your PHD will bring you the immediate benefits of nearly fifty years' experience in synthetic and petroleum based lubricant technology.

If you prefer, you can fax us at 201-605-1818. Or drop us a note. Royal Lubricants Company, Inc., 6 Campus Drive, Parsippany, NJ 07054.



Royal Lubricants

A subsidiary of Shell Oil Company

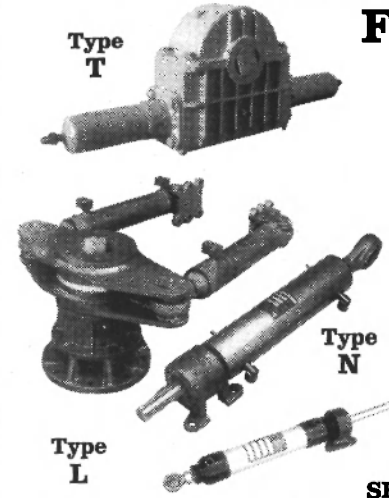
ISO 9002 Registered

Circle 293 on Reader Service Card



HYDRAULIC STEERING

From a 20' sailboat to a 50,000 DWT freighter...



Wagner provides hydraulic steering systems, complete from wheel to rudder. Choose from four systems, their progressive cylinder sizes, components and accessories to suit your vessel. Wagner offers one source complete system compatibility and one supplier responsibility.

Call or fax for literature and your nearest dealer.

DESIGNED AND MANUFACTURED BY

Summer Equipment LTD.

24 West 4th Avenue, Vancouver, B.C. V5Y 1G3
Telephone (604) 873-4545 Fax (604) 873-2382

Circle 310 on Reader Service Card

Place Your Products in the All New Edition
of the Worldwide Annual...

MARINE EQUIPMENT CATALOG



**In Shipyards,
Vessel Operating Companies,
and Design Firms**

*...wherever Marine and Naval
Equipment and Products are needed,
the Marine Equipment Catalog is there,
selling for you all year long.*

Used by over 12,000 buyers.



RATES

Equipment Section (BLACK & WHITE PAGES)		Advertising Section* (COLOR PAGES)			
			1X	3X (or more)	
1 or 2 Listings	\$849 each	Full Page	7" x 10"	\$1,150	\$1,025
3 to 5 Listings	529 each	2/3 Page	4 1/2" x 10"	1,000	890
6 or more Listings	399 each	1/2 Page Vertical	3 1/2" x 10"	775	640
		1/2 Page Horizontal	7" x 5"	775	640
Each listing page includes a 7" x 10" black and white illustration (shown in sample).		1/3 Page	4 1/2" x 5"	575	490
		1/3 Page	2 1/4" x 10"	575	490
		1/4 Page	3 1/2" x 5"	450	390

* Color Rates for Advertising Section only.
Standard AAAA Red, Blue, Green, Orange, Yellow, per page, per color, extra \$200.
Four-color process, one page, extra \$700. LAST CLOSING DATE APRIL 1.

Equipment
Section:
7" x 10"
black &
white
product
illustrations
only

THIS IS YOUR
7" x 10"
PRODUCT
ILLUSTRATION

THIS IS YOUR
7" x 1"
COMPANY
LISTING

Hydraulic Products for Marine, Naval and Workboat Applications

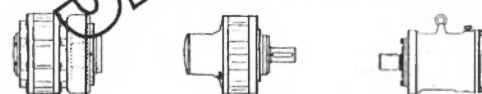


GEAR PUMPS & GEAR MOTORS

Single, tandem, triple and quadruple configurations - Extruded aluminum housings for rugged applications -
LW & R-directional rotation capabilities - Lower noise levels - High efficiencies - Many options and configurations

SEMI VALVES

Electro hydraulic servo valves - Available flows and options for application in environmental conditions - High pressure factor - explosive environments & sea - precise control - High response in necessary - Special versions available to perform under water



LOW SPEED, HIGH-TORQUE RADIAL OR AXIAL PISTON MOTORS

Rotating shaft motors - Rotating case (wheel) motors - Rotating shaft motors with safety brakes - Rotating
case (wheel) motors with drum brakes - Two speed motors - Motors with integral gearboxes - Precise low
speed performance - Several valve options - Special versions available to perform under water

AMERICAN HYDRAULIC COMPANY
148 Regentry Drive
Hondkirk, Illinois 60667

How It Works!

*A full-page black and white illustration will be
devoted to your product in each appropriate category.
All you buy is a listing on the bottom of the page
identifying your company (address, etc.) as the
manufacturer or supplier of the products.*

*Just send us material suitable for reproduction for the
7" x 10" black and white illustration and the company
name and address to "list" at the bottom of the page.*

MARINE EQUIPMENT CATALOG

**Don't miss this once a year opportunity
to reach 12,000 buyers... all year long.
Telephone (212) 477-6700 or
fax (212) 254-6271 today!**

PRINCIPAL WORLD SHIPBUILDING CONTRACTS RECORDED - FEBRUARY 1995

Ferliship is an international commercial strategy consultancy. The company develops commercial strategies and international marketing programs for the Spanish shipbuilding sector. Particularly, the company's Shipbuilding Industry Div. makes short, medium and long range market research reports and advises according to projected development. Ferliship's database, covering the entire International Shipbuilding Registry, allows the company to do general research, top level reports, as well as market research in all aspects. For more information, contact: Ferliship, San Francisco de Sales No. 8, 28003, Madrid, Spain; tel: +341 441 41 38/40 96; fax: +341 441 41 38.

Owner/Operator	Shipyard	Type	No.	TEU	TPM	GT	Car/Trailer/Pax	M. Cu.	Delivery	Price (M\$)
APO OCEAN S.A.	HASHIHAMA	BULK CARRIER	1		45,000	26,400			10/95	
BHP TRANSPORT	DAEWOO HEAVY INDUSTRIES	BULK CARRIER	1		164,000				12/96	
BLACK SEA SHIPPING	OKEAN SHIPYARD	BULK CARRIER	6		70,000	38,000			96/97	
COSCO	SANOYASU	BULK CARRIER	2		45,000				96/97	25
DI NAVIGATIONE	FINCANTIERI CASTELLMARE	BULK CARRIER	3		74,500				96/97	42
EPFLOIA SHIPPING	HITACHI ZOSEN	BULK CARRIER	3		71,000				97	30.2
GEARBULK	DALIAN NEW SHIPYARD	BULK CARRIER	2		46,000					
GOLDEN										
LIGHT OVERSEAS	KANASAH	BULK CARRIER	1		28,500	17,450			9/95	
HALLA MERCHANT MARINE	HALLA ENG AND HI	BULK CARRIER	2		70,000				96	
IRISL	BRODSPLIT	BULK CARRIER	2		21,800	16,000			96/97	
JAPANESE INTEREST	KAWASAKI HI	BULK CARRIER	1		171,100	88,500			3/96	
JOHN M. CARRAS	HALLA	BULK CARRIER	4		168,000					43
K LINE	DAEWOO HEAVY INDUSTRIES	BULK CARRIER	1		170,000				3/97	
K/S DANANG										
BOTTIGUERI CHARTER	BURMEISTER & WAIN	BULK CARRIER	1		74,500				2/96	
MITSUMI O.S.K. LINES	SANOYAS	BULK CARRIER	1		46,500	39,100			11/95	
MOEBIUS SHIPPING	HITACHI ZOSEN	BULK CARRIER	1						9/96	26
NAVIX	KANDA SHIPBUILDING CO.	BULK CARRIER	2		23,000					
NYK	ONOMICHI	BULK CARRIER	1		23,400					
PACIFIC BASIN BULK SHIPPING	HUNDONG SHIPYARD	BULK CARRIER	1		27,000				97	18.5
PACIFIC BASIN BULK SHIPPING	XINGANG SHIPYARD	BULK CARRIER	2		27,000				97	19
SEIHO KAIUN	KANREI	BULK CARRIER	1		8,200	5,330			7/95	
TOP GLORY	OSHIWA	BULK CARRIER	2						96	27.5
TRITEA MARITIME LTD.	ALABAMA SHIPYARD	BULK CARRIER	4		27,000					25
UNKNOWN	BALAMBAN SHIPYARD	BULK CARRIER	1		10,000				96	
GUNDEMAR HUBE	WENHOU EASTERN	BULK CARRIER	2		3,300					
H. CORP	MITSUMI	BULK CARRIER	2		46,000	27,000			96	24.22
MITSUMI	MITSUMI	BULK CARRIER	1		46,000	27,000			96	24.22
GERMAN GOVERNMENT	MACHINEFABRIEK MAASKANT	BUOY-LAYING	1							
DEN NORSKE										
AMERIKANLINJE	SUMITOMOHEAVY INDUSTRIES	CAR CARRIER	1			6,000			96	
W. WILHELMSEN	MHI	COMBI	1	2,800	45,000				10/96	80
HERMAN BUSS KG	MTW	CONTAINER	2	1,618					96	16
ALPHA SHIPS	GDYNIA	CONTAINER	2	1,600	25,000				96	28
CONTI REEDEREI	DAEWOO	CONTAINER	6	3,660					4/97	
COSCO	KYOKUYO	CONTAINER	4	600	9,000				96	
DANAOS SHIPPING	GDANSK STOCZNIA	CONTAINER	3	3,500					97	45
DIETER TAMKE	SZCZECIN	CONTAINER	1	1,700						
EGON OLDENDORFF	DALIAN	CONTAINER	2	1,200	28,000				97	22
ERICA NAVIGATION	IWAGI	CONTAINER	1	626	9,000	9,300			9/95	
GERMAN INTEREST	BLOHM+VOSS	CONTAINER	1	1,544	20,280				96	
GERMAN INTEREST	ELBEWERFT BOIZENBURG	CONTAINER	1	300	3,500				3/96	
H. BUSS	PETERS WEWELSFLTH	CONTAINER	1		7,015	4,984			10/95	
HARTMANN	PATJE S. OF WATERHUIZEN	CONTAINER	2	450	6,000				96	23
HELMSHIP, BRAKE	ELBEWERFT BOIZENBURG	CONTAINER	1	300	3,500				6/96	
HERM DAUELSBERG	GDYNIA	CONTAINER	2	1,900	33,000				96	33
ISLAMAR	HYUNDAI	CONTAINER	1		5,500				96	35
IYI DENIZ TENOISERI	YARDIMCI	CONTAINER	2	380						
KIENG HUNG	SHIN KURUSHIMA	CONTAINER	1		23,650	17,800			6/96	
MARITIME	BLOHM & VOSS	CONTAINER	1	1,500					2/96	
NORDEUSTCHE VERMOGENSANLAGE	HYUNDAI KOREA S.	CONTAINER	3	2,800	34,900				96/97	35
PROJEX SCHIFFFAHRTS-GESELLSCHAFTGDYNIA	POLAND	CONTAINER	2	2,000					96/97	
SPIC	MHI	CONTAINER	1	1,128	15,000	13,500			12/95	
WODAN SHIPPING	DAE DONG SHIPBUILDING	CONTAINER	4	544	6,300				96/97	18
CARNIVAL CRUISE LINE	FINCANTIERI MONFALCONE	CRUISE	1			110,000	2,600		98	
CHAMBON	CH. NAVAL DE MARSEILLE	CRUISE						70		
	HOLLAND AMERICA LINE									
CARNIVAL	FINCANTIERI MARGHERA	CRUISE	1		62,000	1,320			97	
JAPANESE INTEREST	HONDA	DREDGER	1		2,100	749			7/95	
ANTILLES TRANS										
EXPRESS	MARINTEKNIK SINGAPORE PTE. L.	FERRY	1						5/95	
BUGUEBUS	E.N. BAZAN	FERRY	1			1,200,250				

PRINCIPAL WORLD SHIPBUILDING CONTRACTS RECORDED — FEBRUARY 1995

Owner/Operator	Shipyard	Type	No.	TEU	TPM	GT	Car/Trailer/Pax	M. Cu.	Delivery	Price
BUQUEBUS	INTERNATIONAL CATAMARANS	FERRY	1						9/95	
PENGUIN BOAT SERVICES	ALUMINIUM CRAFT	FERRY	1						10/95	
STYRSOBLAGET	BATSERVICE HOLDING AS	FERRY	1				45		8/95	2.3
UNKNOWN	MIL DAVIE	FERRY	2							
ANTARTIC LON - GLINING III	BRATTVAAG SKIPSVERFT AS	FISHING	1						6/95	
GERMAN INTEREST	DIEDRICH OLDERSUM	FISHING	5		60				10/95	
GERMAN INTEREST	UNKNOWN	GAS CARRIER	2						96	13
AKABOSHI KISEN	TACHIBANA	GENERAL CARGO	1		1,600	499			7/95	
CHOFUKU KISEN	SHIN KOCHI JUKO	GENERAL CARGO	1		7,500				5/95	
GLORY NAVIGATION	NISHI	GENERAL CARGO	2		7,000	5,550			95/96	
HIRAMATSU SHOKAI	HONDA	GENERAL CARGO	1		1,855	699			5/95	
IKEDA KAIUN	HONDA	GENERAL CARGO	1		818	229			8/95	
KIRMAN DENIZCILIK	CELIKTEKNE SANAYII	GENERAL CARGO	1		12,500				7/96	
KREY SCHIFFAHT GmbH	JINAGYANG	GENERAL CARGO	4	374	5,400				96/97	
MARS SHIPPING CO.	HIGAKI	GENERAL CARGO	1		7,400	6,350			5/95	
ORIENT HAKUSAN SHIPPING	SHIN KOCHI JUKO	GENERAL CARGO	1		7,500				5/95	
OWN ACCOUNT	MUTZELFLEDTWERFT CUXHAVEN	GENERAL CARGO	1		5,300	4,000			12/96	
RORD BRAREN	PETERS WEWELSFLETH	GENERAL CARGO	1		6,350				1/96	
SETO MARINE	SHIN KURUSHIMA	GENERAL CARGO	1		7,400	6,600			8/95	
SHINOMIYA KAIUN	TACHIBANA	GENERAL CARGO	1		1,200	420			7/95	
SHIYOSHIN KAIUN	MUURA	GENERAL CARGO	1		1,350	499			3/95	
STEENSTRA	P. SCHEEPSBOUW BV	GENERAL CARGO	1		2,600	1,700			4/96	
TSUKIBOSHI KAIUN	TACHIBANA	GENERAL CARGO	1		2,100	749			5/95	
UNKNOWN	YARNA SHIPYARD	GENERAL CARGO	1		9,370	7,640			11/95	
CORAL CANAL S.A.	MİYOSHI	LPG	1		3,600	3,300			3/95	
CHRISTIAN HAALAND	HITACHI ZOSEN	LPG	1		29,850	25,500		39,000	6/96	55
IINO KAIUM KAISHA	MITSUBISHI	LPG	1					78,000	1/97	
IINO KAIUM KAISHA	MHI	LPG	1		48,000			78,000	1/97	
IZUMI KISEN	SHIN KURUSHIMA	LPG	1					1,600	11/95	
MATSUI KISEN	SASAKI	LPG	1			1,200		1,700	7/95	
SLOMAN NEPTUNE	APPLEDORE SHIPBUILDERS	LPG	1					5,600	7/97	
KG JEBSEN	HYUNDAI	OBO	1		108,700				96	50
OBO SHIP TWO LTD.	HYUNDAI HEAVY INDUSTRIES	OBO	1		110,000				7/97	
GILBERT CHERAMIE BOAT CO.	BOLLINGER	OFFSHORE SUPPLY	1						11/95	
SEA JET SHIPPING CO.	OSKARSHAMNS VARV	PASSENGER	1				400		6/95	
MARITIMA DEL NORTE	C.N.P. FREIRE	REEFER	2		6,000	4,970			96	
ENGSHIP TURKU	STERKODER KRISTIANSUND	RoRo	1	7,500			1,400		96	
MARIEHAMN	STERKODER KRISTIANSUND	RoRo	1	7,500			1,400		96	
NORWEGIAN AMERICA LINE	SHI'S OPPAMA	RoRo	1				6,000		97	60
OSHIMA UNYU KK	HAYASHIKANE	RoRo	1		4,700				9/95	
RED FUNNEL	FERGUSON SHIPBUILDERS	RoRo	1			2,881			7/95	12
TRIO HAPPINESS S.A.	SHIN KOCHI JUKO	RoRo	1		5,800				7/95	
HALLIBURTON ENERGY SERVICE	BOLLINGER	SUPPLY	1						11/95	
HARRISONS (CLYDE)-STIRLING SHIPPING	FERGUSON	SUPPLY	1		4,500				6/96	
MAERSK SUPPLY SERVICE	MARYSTOWN SHIPYARD	SUPPLY	2		3,570				96	
SOLSTAD SHIPPING	ULSTEIN GROUP	SUPPLY	1		2,800				1/96	
STATOIL	BRATTVAAG SHIPYARD	SUPPLY	2		4,000				96	22.6
UK HYDROGRAPHIC	APPLEDORE SHIPBUILDERS	SURVEY	1						5/97	
ANDERS WILHELMSEN	DALIAN NEW SHIPYARD	TANKER	1		150,000					
CISPA GAS TRASPORTI	CANTIERE NAVALE DI PESARO	TANKER	2		6,500	5,300			96	
FONG CHANG FISH	CHING FU	TANKER	1		3,000	2,000			5/96	
HIRO NAVIERA S.A.	USUKI	TANKER	1		5,600				6/95	
HOYU TANKER CO. LTD.	HANJIN-KOREA TACOMA MAR.	TANKER	1		11,000	8,000			8/95	
IVERSHIPS/VROON	KHERSON	TANKER	2		26,100				96	23.5
NAGATA SENPAKU-NEW SEAGULL S.S.A.	KURINOURA	TANKER	1		9300	5800			7/95	
NEPTUNE ORIENT LINES	ONOMICHI DOCKYARD CO. LTD.	TANKER	2+2		46,500				6/96	
RUSSIAN INTEREST	SEDEF GEMI	TANKER	1		6,000	4,000			3/96	
SANSKO KAIUN	FUKUOKA	TANKER	1		4,700				7/95	
SHAMLOCK	SHIN KURUSHIMA	TANKER	2		15,000	9,500			95	
TAIKO TANKER	SHIN KURUSHIMA	TANKER	1		2,050	749			5/95	
TOKIO MARINE/DAICHI TANKER	IHI -ISC	TANKER	1					3,000	11/95	
TSURUMI YUSO CO. LTD.	MURAKAMI HIDE	TANKER	2		6,500				95	
UNITED TANKERS	UNION NAVAL DE LEVANTE	TANKER	1		5,570			6,860	96	
VEGA REDERI AB	SIONG HUAT SY.	TANKER	1						4/95	
BOLUDA GROUP	ASTILLEROS GONDAN	TUG	2						95/96	7.5
KUANTAN PORT AUTHORITY	PENANG S.B. Corp.	TUG	1			337			8/95	
LES ABELLES	LEROUX ET LOTZ	TUG	1						96	
SERTOSA	C.N. SANTODOMINGO	TUG	1						12/95	

MacMillan Joins Matson Leasing Co.

Matson Leasing Company (MLC) announced that **Graham MacMillan** has been appointed director of operations. Mr. MacMillan will oversee and develop procedures in the areas of: equipment and maintenance repair, the company's depot audit program, container design and specifications and EDI programs. He is a current participant in the Concord EDI Group, a trade association of leasing companies, shipping lines, depot operators, survey companies and industry-related service providers, of which MLC was a founding member. MLC is an ocean container leasing company with offices worldwide, and is a subsidiary of Matson Navigation Company, Inc., owned by Alexander & Baldwin, Inc.

For more information on Matson Leasing
Circle 20 on Reader Service Card

Nalfleet Appoints Marketing Manager

Nalfleet, the marine division of Alcalco, announced the appointment of **John Coleman** as marketing manager.



Mr. Coleman will be responsible for the worldwide marketing of Nalfleet products and services, and the continuing strategic expansion of the company within the international marine specialty chemicals sector.

Nalfleet Marine Chemicals supplies chemicals and services to the international marine industry.

For more information on Nalfleet
Circle 29 on Reader Service Card

ATN Provides Design And Construction Services



Gotzon Urresti of ATN (right) greets **Carlos Martinez Albornoz**, president, Astilleros Espanoles.

ATN is a Spanish company that offers marine technical consultancy. ATN has worked for yards worldwide, including Astilleros Espanoles, for whom it has outsourced design and production technology. According to **Gotzon Urresti**, managing director, ATN philosophy stresses that shipyards need to optimize the efficiency of shipyard production processes.

For more information on ATN
Circle 25 on Reader Service Card

Oceaneering International Elects Board Director

Oceaneering International, Inc. announced the election of **Gordon M. Anderson** to the board of directors. Mr. Anderson is chairman, president and CEO of Santa Fe International Corporation in Dallas.

Oceaneering is an applied technology company which provides engineering services and hardware

to customers operating in the marine environment.

For more information on Oceaneering
Circle 116 on Reader Service Card

Sperry Marine Opens Middle East Office

Sperry Marine Inc. has opened a Middle East sales and service office in Dubai, U.A.E. The new office

will be responsible for sales and service coordination activities in the Arabian Gulf area. **Thomas D'Sa**, formerly marine manager of Zener UAE, joins Sperry as sales and service manager of its new office.

Sperry Marine, headquartered in Virginia, is a developer and manufacturer of advanced navigation systems.

For more information on Sperry
Circle 22 on Reader Service Card



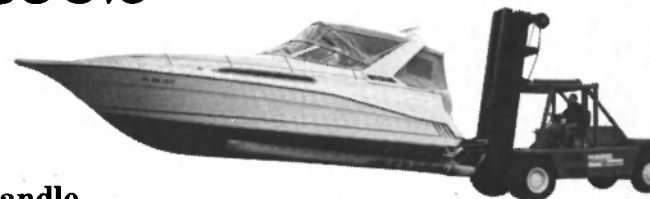
A model 300 BFM mobile hoist rated at 600,000 lbs. shown at Fairhaven Shipyard, Fairhaven, MA.

With the 300 BFM mobile boat hoist you get the capacity and features sure to make your large boat handling faster and more efficient • 660,000 lbs. (300 mT) capacity • Powered adjustable sling spacing • Full view operator's

Handle The Big Boats

- Full instrumentation
- Heavy-duty slings with chine and keel pads • 90° Pivot steering • Easy maintenance • Handle boats with beams to 30 ft. (9.1 m) • Direct chain drive, eight wheel stance.

Details and specifications on the 300 BFM or our complete line of mobile boat hoists with capacities from 16.5 to 550 tons (15 mT to 500 mT), or our line of Mariner® forklifts, are available from your local representative or Marine Travelift, Inc., 49 E. Yew St., P.O. Box 66, Sturgeon Bay, WI 54235 USA • Phone: 414-743-6202, • Fax: 414-743-1522.



Marine Travelift's
Model 300 BFM Has Been Rated To Handle
660,000 lbs. (300 mT).

"The No. 1 Hoist Supplier...
Over 2,500 Units in Service Worldwide!"

MARINE TRAVELIFT INC.

Circle 275 on Reader Service Card

Crowley Marine Receives Tug Delivery

Crowley Marine Services, Inc. (CMS) has made a \$5.4 million investment, taking delivery of two 86-ft. (26.2-m) shallow-draft tugs newly built for coastal and river operations in its western Alaska services. The tugs will provide the power for combination deck cargo/oil barges serving coastal villages

and other remote sites in western Alaska.

McDermott Shipyard, in Morgan, La., constructed the tugs, which are powered by Caterpillar 3412 engines generating 1,250 maximum continuous brake hp. The tugs, to be named *Siku* and *Sinuk*, will be christened in Seattle in April.

For more information on Crowley Marine Services, Inc. Circle 180 on Reader Service Card

Schuyler Rubber Co. Awarded Contract

Schuyler Rubber Co. has been awarded a contract to provide the complete shipset of fenders for a 100-ft. (30.4 m) tractor tug being constructed by Atlantic Marine for shipowner Hvide Marine of Ft. Lauderdale, Fla. Schuyler model SR3D type fenders were chosen for the

vessel after consultation with the tug's architects, Elliot Bay Design Group. The SR3D fenders are being specified on other tug and barge applications this year.

For more information on Schuyler Circle 176 on Reader Service Card

Zidell Launches Barge

Zidell Marine Corporation (ZMC) recently launched an ocean deck cargo barge, the *ZB 286*. The vessel measures 285 ft. (86.8 m) by 78 ft. (23.7 m). The launching was dedicated to Vice President Jack Zidell, for 42 years of service. The barge will become part of ZMC's fleet of leased barges.

Canadian Exporter To Develop \$40 M Facility At Port Of Portland

Canpotex Limited, a Canadian potash export association, has announced plans to develop a \$40 million mineral bulk facility on a 60-acre site at the Port of Portland. Beginning in late 1996, the facility will initially export one million tons of potash, a fertilizer, to markets in Asia, Latin America and South America. It is estimated that the operation will generate up to 100 jobs within a few years of its start-up.

The Port of Portland has also announced a project to expand rail capacity for shippers in the area.

Surveys Reflect Positive Trend In Intermodal Service

The Intermodal Association of North America (IANA) and the National Industrial Transportation League (NITL) collaborated on sponsoring a research effort that measured shipper perceptions about intermodal freight transportation.

The project, the *1994 Intermodal Index*, revealed that 77 percent of shippers surveyed use intermodal transportation and that such services represent an 18 percent share of the market for freight moving more than 500 miles. The intermodal industry's share of inter-city freight moving more than 500 miles is expected to increase to 25 percent by 1997, reported the *Index*.

According to Ed Emmett, president of NITL, "The League and IANA will continue to work together on issues to meet the informational and transportation service needs of shippers."

A coalition, known as the Freight Connectors Coalition (FCC), has also been formed in order to inform the U.S. House and Senate subcommittees of the importance of having a system that efficiently connects U.S. port, rail and truck intermodal facilities to a national highway system. The American Institute of Merchant Shipping is a member of the coalition.



THE INTERNATIONAL SHIPPING EXHIBITION WITH RUSSIA AND THE REPUBLICS

NEVA 95

The business opportunity for shipbuilding, ship equipment, offshore energy, and maritime services, St. Petersburg, 12-16th September, 1995.

NEVA 95 will focus on the real opportunities for increased co-operation and trade in shipping between Russia and all States of the Former Soviet Union with the international maritime market.

THE MAJOR MARKET OPPORTUNITIES IN:-

- SHIPBUILDING, REPAIR AND CONVERSION INCLUDING OIL AND GAS FACILITIES
- SHIP AND OFFSHORE EQUIPMENT, MACHINERY AND TECHNOLOGY
- SUPPLY AND MAINTENANCE FOR YARDS, SHIPS AND RIGS
- MANAGEMENT, REGISTRY, CLASSIFICATION, BROKING SPECIALISTS
- BANKING, FINANCE, INSURANCE AND LEGAL SERVICES

THE MAJOR INDUSTRIES ACTIVE AT NEVA 95:-

- SHIPBUILDERS OF SEA AND WATERWAY VESSELS
- MARINE ENGINEERING AND COMPONENT MANUFACTURERS
- OFFSHORE OIL AND GAS FACILITIES AND MACHINERY
- PORTS HANDLING AND OPERATING EQUIPMENT

NEVA 95 - Exhibition, Conference, Technical Seminars - provides the most wide-ranging programme of business opportunities with the maritime industries of the Commonwealth of Independent States.

For full details contact :-

DOLPHIN EXHIBITIONS LTD., 112 High Street, Bildeston, Suffolk, IP7 7EB, England
Tel: (44) + 449-741801 Fax: (44) +449-741628 Telex: 987882 MRM INT G

Circle 30 on Reader Service Card

SHIPBUILDING INDUSTRY OUTLOOK

a detailed assessment of 20 market niches that will drive construction demand and ship system orders over the next five years

*Report No. 7125 — April 1995
\$875 per copy*

The construction tempo in world shipbuilding will more than double over the next five years — from 500 large ships per year in the first half of the 1990's to 1,050 ships annually in the second half. Coinciding with this growth will be major competitive realignments — resulting from traditional builders being impacted by labor cost increases, exchange rate changes, new players entering the market and major changes in ship design and ship system technology. There are excellent opportunities in this sector for players willing to invest the capital, management and marketing resources needed to penetrate and secure position.

From a U.S. perspective, we describe this market in a totally new study that ■ succinctly describes the current business and competitive situation in world shipbuilding ■ identifies 20 specific market niches that offer greatest opportunity for shipbuilders and ship system suppliers ■ shows decision makers and traces the sources of buying power in each market niche ■ forecasts construction demand and provides an estimate of available revenues over the next five years.

20 PROMISING MARKET NICHES

- ◆ **Product tankers** — the biggest opportunity, given increased U.S. refined imports
- ◆ **Crude carriers and shuttle tankers** — 50 % of current world inventory over 20 years old
- ◆ **Chemical parcel tankers** — expensive, complex ships entering replacement cycle
- ◆ **Midsize LPG tankers** — a market we expect to blossom over the next five years
- ◆ **LNG carriers** — expensive ships, but business dependent on large projects occurring
- ◆ **Handysize and handymax bulk carriers** — big market, but relatively simple ships
- ◆ **Cruise ships** — expensive ships, but current players have strong position
- ◆ **Feeder and mega containerships** — ship designs pushing the capacity envelope
- ◆ **Reefer ships** — scrapping and trade growth will likely pump up orders
- ◆ **Vehicle carriers** — distribution changes will impact ship requirements
- ◆ **Municipal and fast ferries** — many interesting near and midterm opportunities
- ◆ **Dinner/excursion/casino vessels** — gaming approaching saturation, but still interesting
- ◆ **Offshore support equipment** — abandonment market equipment particularly significant
- ◆ **Escort tugs** — pending Coast Guard and state regulations generating requirements
- ◆ **Seagoing barges and ITB's** — changes in coastal trade flows driving future demand
- ◆ **River barges and towboats** — market may begin to stir over next five years
- ◆ **Megayachts** — lots of life in a sector that was wiped out in the early 1990's
- ◆ **Sealift ships** — new designs being developed for commercially viable ship
- ◆ **Combatant ships** — drastically reduced from the past, but still big dollars
- ◆ **Floating power plants** — market potential seems to get bigger every year

We assess how U.S. shipbuilders are positioning for contract opportunities in each of these market niches — utilizing financing guarantees of the federal government, cost sharing projects to develop new designs and collaboration with foreign builders and suppliers to reengineer from military to commercial work.

* * * * *

To order this study please contact *IMA Associates, Inc. — 600 New Hampshire Ave., NW — Suite 140
Washington, DC. 20037 USA — Telephone: 202-333-8501 — Fax: 202-333-8504*

Baunton To Head Perkins Group

Michael Baunton has been appointed group chief executive of the Perkins Group of companies, a business of Varsity Corporation. Mr. Baunton is a former president of Walker Manufacturing in the U.S., a unit of Tenneco Inc. Perkins is a manufacturer of die-

sel engines for marine, military, and industrial applications. Perkins has formed a long-term partnership with the Halla Business Group, whereby Perkins' Eagle automotive diesel engines of its 1000 and 2000 Series will be built and marketed at Halla's Soi, South Korea production facility.

For more information on the Perkins Group
Circle 161 on Reader Service Card

Sonsub Awarded Trenching Contract In North Sea

Sonsub North Sea Ltd. has been awarded a contract by Rockwater to provide trenching services in Amerada Hess Limited's South Scott Field in the North Sea sector. Sonsub will mobilize a Flexjet 2 ROV/Trencher to support flowline subsea tie-back operations from a four-slot

manifold in the South Scott Field to the Scott PLEM in Block 15/21. Sonsub develops and applies solutions for subsea and hazardous environments.

For more information on Sonsub
Circle 162 on Reader Service Card

Stolt Comex Seaway And Kvaerner Form Alliance

Stolt Comex Seaway S.A. announced the signing of an agreement to form a strategic alliance with Kvaerner A.S. of Norway. The alliance will offer customers a complete service for the subsea development of satellite fields which are tied back to existing production platforms, or for subsea developments in conjunction with floating production systems. The initial agreement is for the Norwegian and British sectors of the North Sea.

For more information on Stolt Comex Seaway
Circle 164 on Reader Service Card

For more information on Kvaerner A.S.
Circle 165 on Reader Service Card

Smit Tak Team Refloats Chesapeake Bay

Chesapeake Bay, a 2,500-TEU container vessel, is in drydock in Palermo following its refloating by Smit Tak.

The vessel went aground on the first of February in Marsaxlokk Bay, in the approaches to the Maltese port of Benghisa. After a series of repairs to the ballast tanks and the bowthruster room, an unexpected rise in swell provided opportunity for the vessel to be refloated, and then towed to drydock.

For more information on Smit Tak
Circle 166 on Reader Service Card

Evergreen Group Orders Ten Container Vessels

The Evergreen Group of Taiwan has ordered ten 1,162-TEU cellular container vessels to be built by the Hayashikane yard in Japan.

The first three ships have been ordered by Evergreen Marine Corporation while the remaining seven are for the account of Uniglor Marine Corporation. Designated A type vessels, the first will be delivered in May 1996.

Evergreen will use its vessels on feeder routes to connect outports with the main points served by its deepsea vessels which operate between Asia, North America and Europe.

The company currently owns 40 ships, including eight 4,229-TEU type vessels. Uniglor, owner of 20 ships, will integrate the newly ordered vessels into its existing fleet allowing other vessels to be retired.

SET YOUR COURSE FOR

EURO 95 PORT

27th International Marine Exhibition
9th International Inland Shipping Exhibition
14 - 18 November 1995

Please send to:
Europort 95
Amsterdam RAI
Postal code 77777
1070 MS Amsterdam
Netherlands
Tel.: +31 (0)20 5491212
Fax: +31 (0)20 6464469

Amsterdam RAI

R E P L Y C O U P O N

Please send information about participation in Europort 95
 Please send any additional information about congresses and visitor's information

Name: _____
Firm: _____
Address: _____
P.O. Box/City: _____
Country: _____

Circle 243 on Reader Service Card

Formation Of Marine Management Company

Marine Construction Management Inc. (MCM) has been formed, as announced by **Jeffrey Dale Welsh**, the company's president. MCM will represent yacht/vessel owners' interests during new construction, refits and major repairs.

MCM's founders have more than 50 years of experience in construction management, marine construction and maritime law as owners, owners' representatives and operators. MCM has access to yards suited to effect particular construction or repairs, interior designers, electricians, carpenters, mechanics and painters. Additionally, MCM has assembled insurance brokers, surveyors qualified in vessel types and maritime lawyers.

For more information on MCM
Circle 6 on Reader Service Card

Captain And Management Team For Showboat Branson Belle



Oscar Fittipaldi

Oscar Fittipaldi has been named captain of the Showboat *Branson Belle*. Formerly, Mr. Fittipaldi worked for Odyssey Cruises in Chicago, where he piloted excursion vessels on Lake Michigan.



Larry Schmitt

Larry Schmitt has been named director of operations, and will be responsible for supervising 200 employees, vessel operations, and the entertainment and food departments. **Wanda Nicol** has been appointed food and beverage manager. **Marty Reilly** will join the Showboat crew as entertainment manager. *Branson Belle* will cruise the waters of Table Rock Lake, providing family entertainment without gaming.

Ultra Hydraulics Appoints European Distributor

Ultra Hydraulics Ltd. has appointed European Marine & Machinery Agencies (EMA) as its British and Irish distributor of ultrajets.

Ultra Hydraulics Ltd. is a supplier of waterjet propulsion systems used for commercial and defense-related craft and amphibious vessels. Ultrajets are designed and manufactured in Britain and Ultra Hydraulics Ltd. has ISO 9001 and AQAP 1 quality registration. The range includes units from 60 hp to 1,300 hp.

For more information on Ultra Hydraulics Ltd.
Circle 10 on Reader Service Card

Walz & Krenzer — Special Closure Supplier — Opens West Coast Branch

Walz & Krenzer, Inc., a supplier of special closures for the maritime industry, announced that D.W. Lerch & Co., Inc., Seattle, Wash. will represent its business on the West Coast.

This venture will strengthen Walz & Krenzer's sales and service efforts on the West Coast by providing more opportunities for personal visits and technical assistance.

Walz & Krenzer supplies sliding watertight doors, hydraulic sideports, cargo doors and bulkhead doors, conveyor gates and other special closures.

Mapeco Products, Inc., a division of Walz & Krenzer, is a strong in-

dustry force in the field of propeller, rudder stock, coupling bolt and keyless shaft coupling installations.

D.W. Lerch is formerly of Marco Seattle, where he served as chief engineer, chief naval architect, vice president of engineering and manager of the pollution control division.

For more information on Walz & Krenzer
Circle 9 on Reader Service Card



'NETEC, INC.

NEW ENGLAND TRAWLER EQUIPMENT COMPANY
CUSTOM ENGINEERED DECK MACHINERY FOR OVER 65 YEARS.



WINCHES

WINDLASSES

CAPSTANS

CRANES

DAVITS

HYDRAULIC POWER UNITS

Distributors of Seattle Cranes, Braden Winches, Gearmatic Winches.

291 Eastern Ave.
Chelsea, MA 02150

AMERICAN MADE AMERICAN OWNED



Tel. 617/884-4354
Fax. 617/889-5240

Circle 285 on Reader Service Card

We Made a Name for Ourselves in Transformers. Now We've Changed It.

introducing...



A Power Paragon Company

formerly MagneTek Power Magnetics
Call us at (800) 777-1119 for more information.

Marine and offshore transformers.
from 1 kVA to 5,000 kVA.
UL, CSA and ABS-certified.
See us at OTC, booth 3314

Circle 327 on Reader Service Card

FOR DIESEL ENGINES ...
CHECK CYLINDER LOAD DISTRIBUTION WITH --

BMEP BALANCER MODEL 300-A



ATTACHES TO STANDARD INDICATOR VALVE
INDICATES CHANGE IN CYLINDER LOAD WHILE ADJUSTING FUEL RACK
GAUGE READING COMPARABLE TO AREA OF INDICATOR CARD
SIMPLE TO USE
REQUIRES NO MAINTENANCE
ACCURATE
RELIABLE

CLIP & MAIL

J. LETO

General Thermodynamics Corporation

210 SOUTH MEADOW ROAD, PLYMOUTH, MASSACHUSETTS 02360
TELEPHONE: (508) 746-0200 FAX: (508) 747-0172

Please send free catalog on balancer

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

Circle 247 on Reader Service Card

SHOW PREVIEW

OTC '95

May 1-4
Houston, Texas

The offshore industry is on the move technologically and geographically, and this trend will be reflected at the 1995 Offshore Technology Conference (OTC), scheduled for May 1-4 in Texas at the Houston Astrodome.

More than 30,000 professionals from 80 countries are expected to attend the 1995 conference, in order to share the latest technology, information, equipment and services from 1,300 exhibiting companies. Expanding offshore technical capabilities and geographical arenas — and the challenges associated with both — are recurring themes in the conference's 49-session technical program.

Topics of special interest include:

- Flexible pipe technology for

deepwater application

- Major issues impacting the economic development of marginal and deepwater fields
- Offshore pipelines: installation and repair technology

In conjunction with lecture sessions and topical luncheons, OTC Distinguished Achievement Awards will be given to **Jay B. Weidler**, senior vice president and chief marine engineer at Brown & Root Inc., and French company Coflexip, designers, manufacturers and installers of flexible steel pipe.

For more information on the Offshore Technology Conference '95, contact: OTC, **Fred Herbst**, public relations manager, P.O. Box 833868, Richardson, Texas 75083-3868, tel: (214) 952-9494; fax: (214) 952-9435.



NEW

**Smith
Berger**

The leader in deck hardware for 60 years

RELEASABLE CHAIN STOPPERS

*A cost effective solution for the mooring
of FPS and FPSO type vessels*

- Instant, simultaneous release of all anchor lines while loaded up to the proof load value.
- Ratcheting pawl ensures positive chain engagement during pre-tensioning of anchor lines.
- Operates on ship's 50-60 psi air.
- Chain tensioning systems are also available.
- ABS certified.

For information, please contact:

Smith Berger Marine, Inc.

516 S. Chicago St. Seattle, WA 98108 206/764-4650 FAX: 206/764-4653

Circle 306 on Reader Service Card



**Barataria Lofting
Company, Inc.**

**COMPUTER LOFTING AND
NC PLATE CUTTING**

The Perfect Combination To Increase Productivity

ADVANTAGES -

- NC Plate Cutting eliminates the labor intensive manual methods of cutting plate parts
- Greater accuracy of parts reduces man-hours involved with fitting and welding
- Total repeatability results in a better learning curve that compounds savings in series construction

SERVICES PROVIDED -

- Lines Fairing
- Lofted Offsets
- CAD Drawings (*compliment your drafting effort with lofted contours*)
- Code for NC Burning Machine
- Production related data (*reports tailored to your specific needs*)
- Arrangements for cutting

**FINALLY, A COST EFFECTIVE WAY TO ENJOY
THE BENEFITS OF THIS TECHNOLOGY, PREVIOUSLY
RESERVED FOR THE LARGER OPERATIONS.**

Phone/Fax: (504) 340-5859

1616 Barataria Blvd., Ste. 4 • Marrero, LA 70072

Circle 212 on Reader Service Card

Maritime Reporter/Engineering News

Management Change At R.A. Stearn

John J. McMullen Associates, Inc. (JJMA) announced that **Donald V. Walter** has assumed responsibility for managing JJMA's R.A. Stearn operation located in Sturgeon Bay, Wis.

Mr. **Walter** has spent more than 30 years in the shipbuilding industry, and has held positions with Vosper Thornycroft, the Advanced Marine Technologies division of Litton Industries, Ingalls Shipbuilding Company, and the National Steel & Shipbuilding Company (NASSCO), where he served as project engineer for the Sealift Conversion program and chief naval architect. R. A. Stearn is a full service naval architecture and marine engineering firm.

For more information on R.A. Stearn
Circle 7 on Reader Service Card

Intermodal Ground-Breaking At N.J. Port Authority Marine Terminal

In early March, **Lillian C. Liburdi**, director of the Port Department of the Port Authority of N.Y. and N.J., joined representatives of the maritime, rail and labor industries in a ground-breaking ceremony for the new permanent ExpressRail facility at the Elizabeth Port Authority Marine Terminal.

ExpressRail, an on-dock rail facility in operation on an interim basis since 1991, allows for more efficient transfer of containerized cargo from ship to rail, faster cargo movement through the port, and easier access for shippers to the Midwest and eastern Canada.

In 1994, the interim ExpressRail facility processed 75,000 containers. The permanent facility is expected to handle 100,000, with a storage capacity of up to 200,000 containers.

Management Change At ABB Turbochargers Amsterdam

Ger Schrotten, managing director of ABB Turbocharger BV, Amsterdam/Netherlands has announced his retirement. Mr. **Schrotten** started as a sales clerk at ABB Turbocharger more than 40 years ago. **Michel van Wees**, general service manager and deputy managing director, will fill the position.

For more information on ABB Turbochargers
Circle 11 on Reader Service Card

Joins Intertanko As Deputy Managing Director

Arne Lunde has been appointed deputy managing director of the International Association of Independent Tanker Owners

(Intertanko). Mr. **Lunde** is currently executive vice president and general manager of Denmorske Bank AS, New York branch, and will succeed **Tormod Rafgard** at Intertanko, who plans to retire after 25 years.

Intertanko represents 400 members from more than 40 nations who together control 80 percent of the world independent tanker fleet. Its objectives are to promote free competition in tanker shipping, safe

transport and cleaner seas.

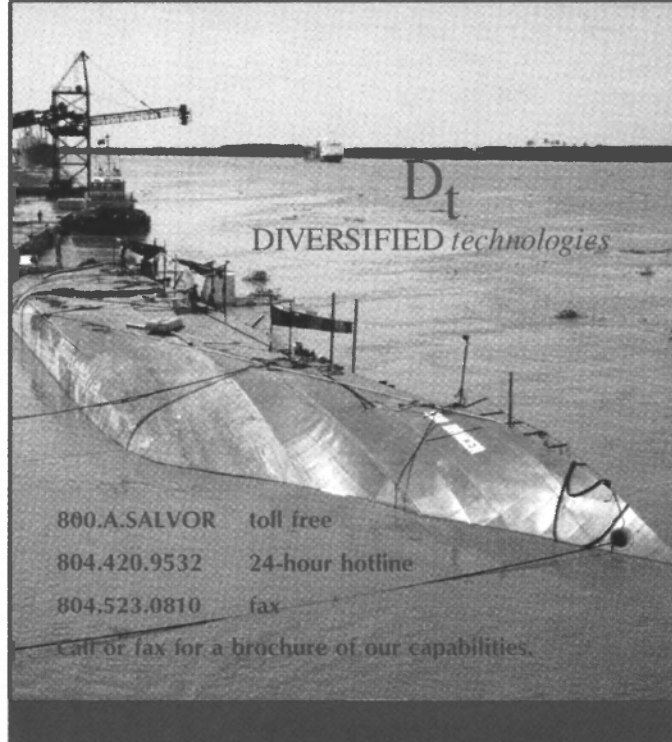
For more information on Intertanko
Circle 8 on Reader Service Card

UW Law Grad Wins National Fellowship

Chris Pallister, a University of Washington law graduate, has been awarded the John A. Knauss fellow-

ship from the National Sea Grant College. The fellowship provides the opportunity for recipients to serve one year with a federal congressional staff or executive agency dealing with marine affairs in Washington, D.C. Mr. **Pallister** will be working with the staff of Senator **Frank Murkowski** (R-Alaska), who chairs the Committee on Energy and Natural Resources.

Do the OPA 90 requirements have you down?



800.A.SALVOR toll free
804.420.9532 24-hour hotline
804.523.0810 fax
Call or fax for a brochure of our capabilities.

Circle 235 on Reader Service Card

We Made a Name for Ourselves in Power Systems. Now We've Changed It.

Introducing...

POWER SYSTEMS GROUP
A Power Paragon Company

formerly MagneTek Military Power Systems
Call us at (800) 777-4638 for more information.

Military, Commercial, Industrial
Power Distribution Equipment
and System Design.

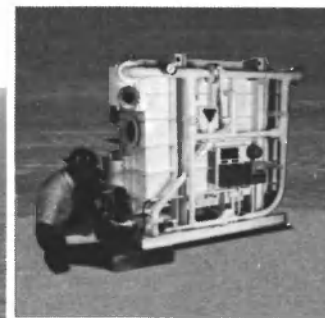
See us at ASNE, booth 17/18.

Circle 328 on Reader Service Card

MAXIM® EVAPORATORS

The First Name in Fresh Water!

Whether it is called a freshwater generator, distiller, evaporator or just a watermaker, MAXIM has the unit to supply all your freshwater needs. Few names have ever been better known for quality and dependability than MAXIM. Backed by over 50 years of field experience, MAXIM can supply waste heat recovery evaporators in a wide range of standard sizes or design a unit to meet your specific requirements. The unit shown below is one of two aboard the Great Atwood Ltd., drilling rig Kedarnath. A patented design provides stable operation under varying engine loads and aids in preventing scale formation. All material in contact with sea water is of 90-10 copper nickel alloy for maximum corrosion resistance. Insist on MAXIM, the first name in fresh-water system reliability and service. MAXIM backs it up everywhere! Call or write Beaird Industries, 601 Benton Kelly Street, Shreveport, LA 71106-7198. Phone 318-865-6351. Fax 318-868-1701.

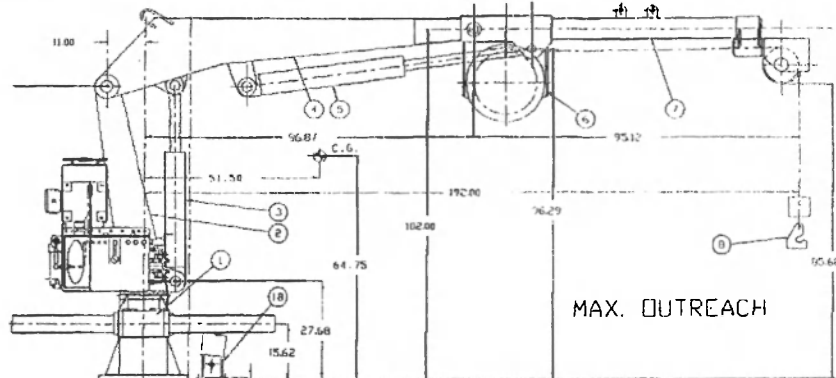


Beaird
INDUSTRIES, INC.

"See MAXIM® Evaporators at OTC,
May 1-4, 1995, Houston, TX. Booth #6325

Circle 214 on Reader Service Card

morgan marine cranes ~ knuckle ~ fixed ~ telescopic



morgan marine
1300 normandy place
santa ana, ca. 92705

douglas m. weidner
714.667.6024 phone
714.667.1906 fax

Circle 280 on Reader Service Card

KIENE

With you worldwide – wherever diesels work

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

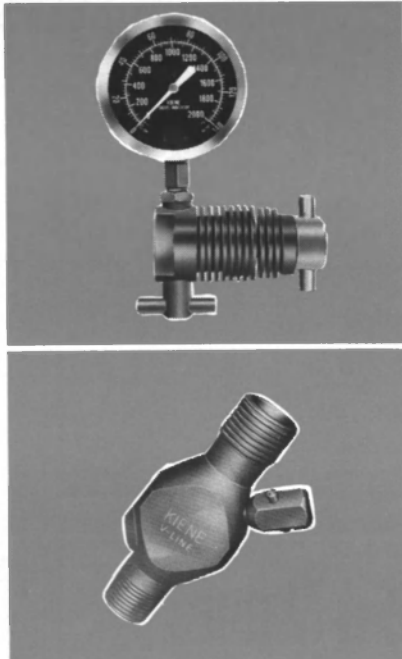
- Optimize fuel consumption
- Reduce maintenance costs
- Pinpoint engine problems
- Improve engine availability
- Recommended and used by major engine builders

**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.
Addison, IL 60101
PHONE: 708/543-5951

... for greater diesel reliability



KIENE
DIESEL ACCESSORIES, INC.

Circle 262 on Reader Service Card



We Make It Happen!

- | | |
|------------------|-------------------|
| NEW CONSTRUCTION | GAMBLING VESSELS |
| CONVERSIONS | INLAND PUSHBOATS |
| REPAIRS | SUPPLY BOATS |
| DRYDOCKING | SEISMIC VESSELS |
| | BARGES |
| | SPECIALTY VESSELS |

Hwy. 90 East
P.O. Box 1190
Jennings, LA 70546

PH. 318/824-2210
FAX 318/824-2970

Circle 266 on Reader Service Card

Capitol Diesel

"Repower Specialists"

Specializing in
New, Remanufactured and Used
Engines and Generators.

Authorized Dealers For ZF, Northern Lights & Peninsular

REBUILT ENGINES
USED ENGINES
MARINE GEARS

218 W. 23rd Street
New York, NY 10011
(212) 929-6132
(800) 528-0853
Alan Gordon

490 Taylor Lane
Dania, FL 33004
(305) 927-0902
(800) 336-4463
Mike Cobb

Circle 220 on Reader Service Card

RTCM

The Radio Technical Commission for Maritime Services (RTCM) has scheduled its annual meeting for May 7-13 in St. Petersburg Beach, Fla. at the Tradewinds Hotel. The conference format includes several panel discussions with distinguished moderators.

Topics of note to be addressed are: maritime law and the electronic chart; building a global infrastructure for mobile satellite services; ECS systems using multiple databases; and Differential GNSS (Global Navigation Satellite Systems) service. For more information contact: RTCM, 655 Fifteenth St. N.W., Suite 300, Washington, D.C. 20005.

RTCM Assembly Meeting Exhibitors

The following is a listing and short description of RTCM exhibitors (as of press time). For more information on individual companies, circle the corresponding number on the Reader Service Card.

Mackay Communications, Inc.

Circle 30 on Reader Service Card
Mackay will feature the introduction of ABB Nera Saturn Portable B Terminal. Unit weighs approximately 35 lbs.

COMSAT Mobile Communications

Circle 31 on Reader Service Card
COMSAT Maritime Services provides satellite communications services for ships at sea including voice, data, telephone, fax and video via the Inmarsat satellite system.

Alden Electronics, Inc.

Circle 32 on Reader Service Card
Alden will demonstrate its Saphire M system, marine and briefcase versions, 406-EPIRBs, Navtex, SART and its weather chart recorders.

ORBCOMM

Circle 33 on Reader Service Card
Orbital Communications is reportedly providing the world's first mobile two-way data communication service using constellation of low-Earth orbit satellites.

Furuno U.S.A.

Circle 34 on Reader Service Card
Furuno U.S.A. will display key elements of its vast marine product line, such as radar, color radar, ARPA, navigat and communications as well as GMDSS.

ViaSat Technology

Circle 35 on Reader Service Card
The company will focus on the LYNXX Inmarsat-B Transp able Satellite Earth Station and the Sea-LYNXX Inmar: Maritime Terminal.

CAST, Inc.

Circle 36 on Reader Service Card
Computing Applications Software Technology will fe GPST, a GPS Test system, and ADS, Automated Depre Surveillance System, a Differential GPS navigation : used to augment VTS and other vessel monitoring sy

IDB Mobile Communications

Circle 37 on Reader Service Card
This company offers satellite communications servi sixth largest Inmarsat provider in a field of 31 estc earth stations providing worldwide coverage.

Magnavox Electronic Systems Company

Circle 38 on Reader Service Card
Magnavox will display marine and transportable A, M & C satcom equipment.

Raytheon Marine Company

Circle 39 on Reader Service Card
This company manufactures and distributes, vic wide sales and service network, a complete line electronics equipment for vessels of all kinds.

Maritime Reporter/Engineeri

Jerry Marine Inc.
Circle 40 on Reader Service Card
 Leading manufacturer and integrator of navigation, control and communications equipment and service for the maritime industry.

Canadian Centre For Marine Comm.
Circle 41 on Reader Service Card
 CCMC assists companies developing marine products which include the Infonav ECS, NavMux, SmartMATE response product, the RSI-2000 radar interface and the Titan radar display.

Mobile Telesystems, Inc.
Circle 42 on Reader Service Card
 MTI will display Inmarsat-B, Inmarsat-C and a line of GMDSS communications including consoles, SARTs and radios.

Offshore Systems International, Inc.
Circle 43 on Reader Service Card
 ECPINS links precise positioning and navigational data to the electronic chart. Features include relative motion display and "route up" orientations.

Seacoast Electronics, Inc.
Circle 44 on Reader Service Card
 The company provides global communication and navigation systems. Authorized worldwide sales and service for major equipment manufacturers. SEASERVE global maintenance program and GMDSS will be featured.

Laser Plot, Inc.
Circle 45 on Reader Service Card
 The company will feature ChartNav family of integrated electronic chart navigation systems using full color government chart reproductions on Sea-D disks.

World Communication Systems
Circle 46 on Reader Service Card
 This company produces mobile communication automation and integration devices, providing guaranteed optimization and cost-effectiveness to all industry segments.

Electronic Marine Systems, Inc.
Circle 47 on Reader Service Card
 The company will feature the Navigator 12 channel DGPS system with vector based worldwide chart database.

Radio Holland U.S.A.
Circle 48 on Reader Service Card
 Radio Holland, with Kelvin Hughes, will display Nucleus radar/chart/integrated bridge systems, Sailor GMDSS/Inmarsat Communications Systems, and Praxis automation/control systems.

Kelvin Hughes
Circle 49 on Reader Service Card
 Kelvin Hughes, in conjunction with Radio Holland, will demonstrate its Nucleus product series.

Ashtech, Inc.
Circle 50 on Reader Service Card
 Displayed will be the Marine GPS Differential Reference Station, an all-in-view receiver with built-in MSK modulator, recently chosen by the U.S. Coast Guard.

BOATRACS
Circle 51 on Reader Service Card
 This company provides worldwide satellite communications, offering 24-hour message relaying, mobile terminal tracking, emergency

monitoring and systems integration for commercial fishing, workboat and recreational vessels.

CP Communications International
Circle 52 on Reader Service Card
 CPIC is a mobile satellite communications provider for Inmarsat and AMSC services. The company provides communication solutions for maritime operations.

Transas Marine (USA) Inc.

Circle 53 on Reader Service Card
 This company manufactures EDCIS, ship and cargo, and GMDSS simulators. Transas has developed a vector chart database covering all major shipping lanes and ports.

Hughes Aerospace & Electronics Co.
Circle 56 on Reader Service Card
 Hughes is an integrator of high-technology electronics for transportation and communications, develops integrated displays, sensors, systems for tracking and correla-

tion, and advanced software interfaces.
Loral
Circle 54 on Reader Service Card
 Loral and STN Atlas Elektronik provide Vessel Traffic Services systems for coastal and inland waterway surveillance, monitoring and reporting.

Trimble Navigation Ltd.
Circle 55 on Reader Service Card
 Trimble manufactures GPS receivers and accessories for a variety of applications.

Cost-effective solutions for your shipping & storage needs.

Quality
 You need products you can depend upon to meet your needs and perform without failure.

- ✓ UV stabilized for extended product life on outside applications.
- ✓ Patented high-strength cord reinforcement resists punctures and tears.
- ✓ Lightweight for ease of handling.
- ✓ Heat shrinkable available for added protection.
- ✓ Fire retardant to comply with federal, state and local regulations.

Experience
 Reef Industries, Inc. has been manufacturing and fabricating industrial plastics since 1957. Let us help you select the right material and configuration to fit your unique application and your budget.

Call today for your personal price quote.
800/231-6074 ext. 515

Griffolyn® Reinforced Plastic Fabrics

For your convenience, stock rolls and sheeting from 50" x 100' to 40' x 100' are available for quick shipment. (Lengths can be longer if specified.)

Reef Industries, Inc. • P.O. Box 750250
 Houston, TX 77275 • 713/507-4200 • 713/507-4295 FAX

©1995 Reef Industries, Inc. Griffolyn is a registered trademark of Reef Industries, Inc.
Circle 323 on Reader Service Card

Marine Deck Hardware and Equipment

- ◆ ANCHORS ◆
 50 to 60,000 Lbs. - New and Used
 Stockless - Danforth - L.W.T. - Halls - Snug Stowing
- ◆ CHAIN ◆
 3/4" to 5 1/2" - New and Used
 Stud Link - Cast Steel - Grades 2 and 3 - Oil Rig Quality for Moorings, Towing, Barge Handling, Ship's Replacement
- ◆ WINCHES - WINDLASSES - CAPSTANS ◆
 Vertical or Horizontal Hand, Electric, Diesel, Hydraulic or Repowered to your specs
- ◆ HATCHES - WATERTIGHT DOORS
 MANHOLE COVERS - SCUTLES - PORTHOLES ◆
 All Sizes - New or Reconditioned
- ◆ PANAMA CHOCKS - DOUBLE BITTS
 SINGLE BITTS - CAST STEEL CLEATS
 AND KEVELS ◆
 All Sizes Available, New & Used
- ◆ FENDERS PNEUMATIC ◆
 For Rent or Sale
 All Sizes
 New & Used

GIGANTIC INVENTORY NEW & USED IN STOCK NOW
 Call Toll-Free (800) 322-3131 in the West Coast East Coast and The Gulf

WE ARE SERVING THE MARINE & OIL INDUSTRIES FOR OVER 35 YEARS
 WE ARE DIRECT FACTORY DISTRIBUTORS & IMPORTERS

WATERMAN SUPPLY CO., INC.
 P.O. BOX 596
 WILMINGTON, CA 90748
 PH: (310) 436-4288
 FAX: (310) 495-1045

Circle 318 on Reader Service Card

ROLLA

In this world,

ROLLA SP PROPELLERS SA TEL. 091-439361 - FAX 091-430653
 VIA SILVA 5 - P.O. BOX 251 - 6828 BALERNA - SWITZERLAND
 ROLLA SP PROPELLERS USA INC. TEL. 407-242-7552 - FAX 407-242-7771
 4030 MUSTANG ROAD - MELBOURNE - FLORIDA 32934 USA
thirty years of being fastest

Circle 289 on Reader Service Card

CALENDAR

APRIL

CyberNautics '95 (SNAME California Joint Sections Meeting): April 20-22, RMS Queen Mary Hotel, Long Beach, Calif.
Contact: **Richard H. Lovdahl**, fax: (310) 590-4708; voicemail: (310) 590-4554.

IBC's Third Annual Oil Spill Response Conference and Workshop: April 24-26, Kuala Lumpur Hilton, Malaysia.
Contact: **Paul Singh Gill** or **Joseph Pang**, tel: (65) 732-1970; fax: (65) 733-5087.

Pipeline Conference: April 24-26, Loews Anatole, Dallas, Texas.
Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Sea Ice Mechanics and Arctic Modeling Workshop: April 25-28, Anchorage, Alaska.
Contact: NorthWest Research Associates, Inc., Sea Ice Mechanics Workshop, Attn: **Twyla Nordby**, P.O. Box 3027 Bellevue, Wash. 98009-3027, tel: (206) 453-8141; fax: (206) 646-9123.

Marine Indonesia - The 8th International Marine, Shipping, Port Equipment & Cargo Handling Exhibition: April 26-29, Jakarta International Exhibition Center, Jakarta, Indonesia.
Contact: **Eileen M. Lavine**, Information Services, Inc., 4733 Bethesda Ave., Suite 700, Bethesda, Md. 20814, tel: (301) 656-2942; fax: (301) 656-3179.

MAY

27th Annual Offshore Technology Conference: May 1-4, Astro-dome, Houston, Texas.
Contact: Society of Naval Architects and Marine Engineers (SNAME), 601 Pavonia Ave., Jersey City, N.J. 07306, fax: (201) 798-4975.

SPE Forum Series in the Asia Pacific: May 7-12, Nusa Dua, Indonesia.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

American Petroleum Institute (API) Refining Mid-Year Meeting: May 8-10, Stouffer Tower City/Ritz-Carlton/Marriott, Cleveland, Ohio.
Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

Institute of Electrical and Electronic Engineers (IEEE) International Radar Conference: May 8-11, Radisson Hotel, Washington, D.C.

Contact: Radar 95, 1000 Wilson Blvd., 30th Floor, Arlington, Va. 22209-3905, tel: (703) 247-2988.

European Formation Damage Symposium: May 15-16, The Hague, The Netherlands.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

21st Congress of CIMAC (International Council On Combustion Engines): May 15-18, Interlaken, Switzerland.
Contact: MCI Travel "CIMAC 1995," **Bruno Grotto** and **Daniel Tschudy**, Weinbergstrasse 11, CH-8001 Zurich, Switzerland, tel: 41 1 252 50 30, fax: 41 1 251 31 49.

Equiport '95: May 16-19, LaHavre, France.
Contact: Edit Expo International, 12 rue Vauvenargues 75018 Paris, France, tel: +33 1 42 23 13 56, fax: +33 1 42 23 13 7.

ASNE Day '95: May 17-19, Sheraton Washington Hotel, Washington, D.C.
Contact: ASNE, tel: (703) 836-6727, fax: (703) 836-7491.

Second International Oil Spill Research and Development Forum: May 23-26, London, U.K.
Contact: International Maritime Organization, 4 Albert Embankment, London, U.K.

IMAS '95 - Management and Operation of Ships: Practical Techniques for Today and Tomorrow: May 24-25, London, England.
Contact: **Fleur Heapy**, conferences assistant, The Institute of Marine Engineers, The Memorial Building, 76 Mark Lane, London EC3R 7JN, tel: +44 71 481 8493; fax: +44 71 488 1854.

JUNE

MARICHEM Asia '95: June 7-9, Raffles City Convention Center, Singapore.
Contact: RAI Exhibitions Singapore Pte. Ltd.

19th World Ports Conference of the International Association of Ports and Harbors: June 10-16, Westin Hotel, Seattle, Wash.
Contact: Port of Seattle, Port Communications, Attn: IAPH 19th World Conference, P.O. Box 1209, Seattle, Wash. 98111.

1995 International Offshore and Polar Engineering Conference: June 11-16, The Hague, The Netherlands.

Contact: The International Society of Offshore and Polar Engineers (ISOPE) '95, The Hague TPC, P.O. Box 1107, Golden, Col. 80402-1107, fax: (303) 420-3760.

SPE Petroleum Computer Conference: June 11-14, Houston, Texas.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

Nor-Shipping '95: June 13-16, 1995, Sjolyst Exhibition Center, Oslo, Norway.
Contact: Norwegian Trade Fair Foundation, P.O. Box 130 Skoyen, N-0212 Oslo, Norway, tel: +47 22 43 91 00; fax: +47 22 43 19 14.

XIV Copinaval, Marine Expo '95, Pan-American Congress of Naval Engineering, Maritime Transportation and Port Engineering: June 13-16, Lima, Peru.
Contact: XIV Copinaval, Organizing Committee, Av. Contralmirante Mora 1102, Base Naval del Callao, P.O. Box 112, Callao, Peru, tel: +51 14 652171; fax: +51 14 657966.

Warship '95: Offshore Protection Vessels: June 14-15, London, U.K.
Contact: **Amanda Wilkes-Brough**, Royal Institution of Naval Architects, 10 Upper Belgrave St., London, U.K. SW1X 8BQ, tel: +44 171 235 4622; fax: +44 171 245 6959.

International Hydrofoil Society 25th Anniversary Celebration and Conference: June 14-16, Army-Navy Country Club, Arlington, Va.
Contact: IHS, PO Box 51, Cabin John, Md. 20818

3rd Annual NAVSEA/NAVSUP International Logistics Symposium: June 19-22, Hyatt Regency Hotel, Crystal City, Va.
Contact: **Sandra Kramer**, NAVSEA, tel: (703) 602-9000; fax: (703) 602-7951.

International Heavy Oil Symposium: June 25-27, Calgary, Canada.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

International Rope Technology Workshop (IRTW): June 25-28, Cornell University, Ithaca, N.Y.
Contact: IRTW c/o Pigeon Mountain Industries, P.O. Box 803, Lafayette, Ga. 30728, tel: (706) 764-1437; fax: (706) 764-1531.

American Petroleum Institute (API) Production Annual Standardization Conference: June 26-29, Palliser Hotel & Skyline Plaza, Calgary, Canada.

Contact: API, 1220 L. Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

International Fisheries Conference: June 28-30, Cape Town, South Africa.
Contact: MGH Bremen GmbH, tel: +49 421 3630521; fax: +49 421 321485.

AUGUST

Dam Engineering '95: August 1-2, Kuala Lumpur, Malaysia.
Contact: **John S. Y. Tan**, Dam Engineering '95, conference secretariat, 150 Orchard Road, #07-14, Orchard Plaza, Singapore 0923, tel: +65 7332922; fax: +65 2353530.

8th American Water Jet Conference: August 26-30, J.W. Marriott Hotel, Houston, Texas.
Contact: WJTA, 818 Olive St., Suite 918, St. Louis, Mo. 63101-1598, tel: (314) 241-1445, fax: (314) 241-1449.

MARTRANS '95: August 30-September 1, Plymouth, U.K.
Contact: **Paula Doughty-Young**, MARTRANS '95 conference secretariat, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, U.K., tel: +44 703 293223; fax: +44 703 292853.

SEPTEMBER

Offshore Europe: September 5-8, Aberdeen.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

American Waterways Operators (AWO) Fall Convention & Board of Directors Meeting: September 7-8, Seattle, Wash.
Contact: AWO, fax: (703) 841-0389.

SPE Forum Series in Europe: September 10-29, Seefeld, Austria.
Contact: SPE, Office, 4 Mandeville Pl., WIM 5LA, London, England, tel: +44 71 487 4250; fax: +44 71 487 4229.

Morintex '95 - International Conference and Exhibition on Marine Intellectual Technologies: September 12-16, St. Petersburg, Russia.
Contact: Morintex 95 Organizing Committee, Lotzmanskaya str. 3, St. Petersburg, Russia, 198008, tel: 812-113-71-36, fax: 812-113-81-09.

IEVA '95 - The International Shipping Exhibition with Russia and the Republics: September 12-16, St. Petersburg, Russia. Contact: **Roderick Keay**, Dolphin Exhibitions Ltd., 112 High Street, Bildeston, Suffolk IP7 7EB, England, tel: +44 449 741801; fax: +44 449 741628.

Third Thematic Conference on Remote Sensing for Marine and Coastal Environments: September 18-20, Westin Hotel, Seattle, Wash. Contact: ERIM/Marine Environmental Conference, P.O. Box 134001, Ann Arbor, Mich. 48113-4001, tel: (313) 994-1200, ext. 3234, fax: (313) 994-5123.

American Petroleum Institute (API) Electronic Data Interchange Conference & User Group Meeting: September 25-27, New Orleans Hilton, New Orleans, La. Contact: API, 1220 L Street, N.W., Washington, D.C. 20005, tel: (202) 662-8000; fax: (202) 682-8223.

OCTOBER

NASPL: October 1-3, Minneapolis Convention Center, Minneapolis, Minn. Contact: World Gaming Congress & Expo, Seven Penn Plaza, N.Y., N.Y. 10001-3900, tel: (212) 594-4120; fax: (212) 714-0514.

SNAME Annual Meeting and International Maritime Exposition: October 4-7, Washington Hilton, Washington, D.C. Contact: Society of Naval Architects and Marine Engineers (SNAME), 601 Pavonia Ave., Jersey City, N.J. 07306, fax: (201) 798-4975.

World Gaming Congress & Expo: October 17-19, Las Vegas Convention Center, Las Vegas, Nev. Contact: World Gaming Congress & Expo, Seven Penn Plaza, N.Y., N.Y. 10001-3900, tel: (212) 594-4120; fax: (212) 714-0514.

Fleet Maintenance Symposium '95 - Fleet Maintenance in the Joint Environment: October 23-25, Virginia Beach, Va. Contact: **Bill Conley**, ASNE, 1452 Duke St., Alexandria, Va. 22314-3458, tel: (804) 857-4922; fax: (804) 857-4934.

Newbuild 2000 And The Role Of The Naval Architect: October 24-25, London, U.K. Contact: **Amanda Wilkes-Brough**, Royal Institution of Naval Architects, 10 Upper Belgrave St., London, U.K. SW1X 8BQ, tel: +44 171 235 4622, fax: +44 171 245

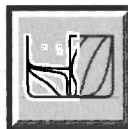
6959.

Pacific Structural Steel Conference (PSSC) 1995: October 25-27, The Mandarin Hotel,

Singapore. Contact: **John S.Y. Tan**, PSSC 1995, Fourth Pacific Structural Steel Conference, 150 Orchard Road, #07-14, Orchard Plaza, Singapore 0923, tel: +65 7332922; fax: +65 2353530.

To have your event considered for inclusion in this forum, please send or fax details to: Maritime Reporter & Engineering News, ATTN: EDITOR, 118 E. 25th St., New York, N.Y. 10010; fax: (212) 254-6271

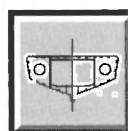
LEADERS IN MARINE DESIGN SOFTWARE



FAST SHIP

from Proteus Engineering

FAST SHIP uses NURBS surfaces to assure fairness and flexibility when designing any hull, appendage or superstructure. Featuring real time lines update while editing, hydrostatics and export to IMSA & CAD programs, FAST SHIP is used from concept to final fairing by the US Navy and leading ship designers and builders.



SHIPCAM & NC-PYROS

from Albacore Research Ltd.

ShipCAM4: Fairing, lofting, surface/surface intersection, filleting between two surfaces and shell expansion for developable and compound curvature surfaces for ship construction and repair.

NC-Pyros is a NC-code generator for burning featuring automatic path connection, leads and interference check.



GENERAL HYDROSTATICS (GHS)

from Creative Systems, Inc.

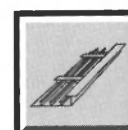
Widely recognized as the most advanced and productive trim/stability/strength software. Specialized versions are available for ship operators, for salvage engineers and for small craft designers. Includes efficient modeling for all types of complex vessels, and the ability to analyze them both afloat and aground.



NAVCAD

from HydroComp, Inc.

NavCad offers an integrated platform to predict resistance and power, and to determine optimum propeller parameters. With NavCad each aspect of a ship's performance can be evaluated for virtually every type of displacement hull, semi-displacement and planing craft, river barge train, catamaran and auxiliary-powered sailboat.



MAESTRO

from Proteus Engineering

MAESTRO is a structural design tool which combines finite element analysis, failure mode evaluation and multiobjective structural optimization. Rapid modeling of structure and of realistic ship loads enable full ship structural analysis to be an integral aspect of the design process for ships, advanced and high performance vehicles, offshore structures and submarines.



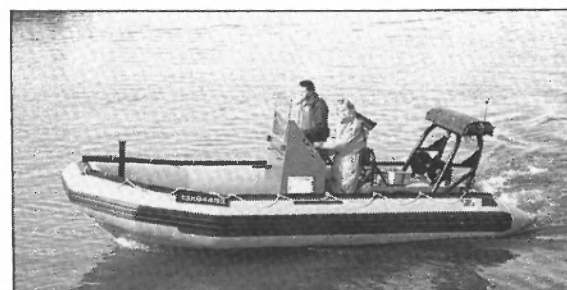
INTERNATIONAL MARINE SOFTWARE ASSOCIATES

A cooperative association of software developers with complementary marine design products.

Bush Corporate Center, 202 C Packets Court, Williamsburg, VA 23185 USA
tel (804) 229-1115 • fax (804) 229-1116

Circle 253 on Reader Service Card

You may not be going around the world but it's nice to know that you could!



ZODIAC HURRICANE 590



ZODIAC, manufacturer of Sunrider, the only inflatable to circle the globe, brings you boats designed for heavy duty commercial applications.

We'll help you tackle any sea you want to cross!

Work boats • Tow boats • Rescue boats
• Boarding Platforms

Widely used by Coast Guards, Navies, Enforcement and Special Operations forces. The boat of choice for the Antarctic and Sunrider Expeditions.

ZODIAC OF NORTH AMERICA, INC.

P. O. Box 400 Stevensville, MD 21666
(410) 643-4141 Ext. 3008 or 3009 FAX: 410-643-7269

Circle 322 on Reader Service Card

ROLLA



some are more equal than others.

ROLLA SP PROPELLERS SA TEL. 091/439361 - FAX 091/430653
VIA SILVA 5 - P.O. BOX 251 - 6828 BALERNA - SWITZERLAND
ROLLA SP PROPELLERS USA INC. TEL. 407-242-7552 - FAX 407-242-7771
4030 MUSTANG ROAD - MELBOURNE - FLORIDA 32934 USA

thirty years of being fastest

Circle 290 on Reader Service Card

BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the reader of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machine equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertiser's contract, MREN assumes responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

ABRASIVES

Ervin Industries, Inc., 3893 Research Park Drive, Ann Arbor, MI 48106-1668
Minerals Research & Recovery Inc., 4620 South Coach Dr., Tucson, AZ 85714
Hyers Minerals & Minerals, 801 Second Ave., Suite 1505, Seattle, WA 98104

ADHESIVES

Haz Mat Response, 5841 Box Canyon Rd., La Jolla, CA 92037

AIR CONDITIONING AND REFRIGERATION - Repair & Installation

Adick Marine, 1410 Central Ave., Farmingdale, NY 11735
Bill Brown Enterprises, Inc., 4995 Ocean Pines, Berlin, MD 21811
Carrier Transicold, P.O. Box 4805, Syracuse, NY 13221
Johnson Brothers, 180 Greengrove Avenue, Pittsford, LA 70392
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

ALARMS, FACTORY MUTUAL-APPROVED

Midsouth Mfg. Co., 7733 Gross Point Rd., Skokie, IL 60075-0226

ALUMINUM BOATS

Worskoff, Inc., 10824 Borhell Hwy S.E., Bothell, WA 98012-6889

ANTENNA/RATE OF TURN INDICATOR

Rivertronics, 2624 East Broadway, Alton, IL 62002

ASBESTOS ABATEMENT

Chempac Environmental Prod., Inc., 3405 Highway 33, Neptune, NJ 07753

BALLAST

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

BARGE BUILDING

Mineral Research & Recovery Inc., 4620 South Coach Dr., Tucson, AZ 85714

BARREL STRAINERS

Boat Industries, P.O. Box 11115, Shreveport, LA 71130

BEARING -Rubber, Metallic, Non-Metallic

B.F. Goodrich, Engineered Polymer Products, 150 Division Dr., Wilmington, NC 28401
Bohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363, -0168
Kahnberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Oron Corp., 1111 Cedar Creek Rd., Grafton, WI 53024
Orkot Engineered Prods., 2535 Prairie Rd., Unit D, Eugene, OR 97402
Thornton Bearings Inc., 3225 Mainway, Burlington, Ont., CANADA L7M 1A6

BILGE OIL/FUEL ABSORBER

Northstar Marine, 84 Wall Street, Farmingdale, NY 11735

BILGE SYSTEMS

Nelson Division, Exhaust & Filtration Systems, Hwy. 51 West, P.O. Box 428, Slough, TN 35889

BOAT ROOMS

Sea Systems Inc., 187 Ward Hill Ave., Ward Hill, MA 01835-0679

BOW THRUSTER

Thrusterstar of Texas P.O. Box 840189 Houston, TX 77284-0189

BROKERS

151 Maritime Services, 34082 El Encanto B, Dana Pt. CA 92629
Captain Azad Company, Inc., P.O. Box 350486, Ft. Lauderdale, FL 33335
Jacki Facilities, 2419 Caddy Lane, P.O. Box 371, Flossmoor, IL 60422
Mowbray's Tugs & Barge Sales Corp., 35 De Hart St., Monstonsdown NJ 07960

BULKHEAD SEALS

Bohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

CABINETRY

Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

CABLE ASSEMBLIES

Times Microwave Systems, P.O. Box 5039, Wallingford, CT 06492

CABLE CLAMPS - STAINLESS STEEL

Band-It P.O. Box 16307 Denver, CO 16307

CABLE TRANSIT SYSTEMS

NAMP Corp., P.O. Box 35495, Texas OK 74153-0493

CELLULAR TELEPHONE SERVICE

Defel Corp., 400 Main St., Ste. 800, Stamford, CT 06901-3004

CHAINS

Al Alpha Intl., Inc. P.O. Box 489895, Cincinnati, OH 45249
Crandall Dry Dock Engineers Inc./Mark Chan, 21 Pottery Lane, Dedham MA 02026
Washington Chain & Supply Inc., Box 3645, Seattle, WA 98124
Waltham Supply Co., P.O. Box 596, Wilmington, CA 90748

CHAIRS

Gasser Chair Co., 4136 Loganway, Youngstown, OH 44505
Shelby-Williams Industries, Inc., 150 Shelby Williams Dr., Monstonsdown TN 37813

CHEMICALS

Drew Ameroid Marine, One Drew Plaza, Boonton, NJ 07005
Unio Ship service Inc., 2375 West Esther Street, Long Beach, CA 90813

CLAMPING - Peps, Tubers, Hose

TSI, 12749 Richfield Ct., Livonia, MI 48150

CLASSIFICATION SOCIETY

American Bureau of Shipping, 2 World Trade Center, 106th Fl, New York, NY 10048

COATING WELDER

Buy-O-Systems, 3003 W. Carson St., Pittsburgh, PA 15204

COAXIAL CABLES

Times Microwave Systems, P.O. Box 5039, Wallingford, CT 06492

COMPOUNDS

TW Polysiloxane Resins, 130 Commerce Dr., Montgomeryville, PA 18936

COMPUTER LOFTING

Barataria Lofting Co., Inc., 1616 Barataria Blvd., Ste. 4, Manero, LA 70072

COMPUTER SOFTWARE

Creative Systems, Inc., P.O. Box 1910, Port Townsend, WA 98368

COMPUTERIZED INFORMATION SYSTEMS

Al Alpha Intl., Inc., P.O. Box 489895, Cincinnati, OH 45249
Autoshop Systems Corp., 403, 611 Alexander St., Vancouver, BC, Canada V6A1E
Chang Corporation, 157 Hwy 654, Mathews, LA 70375
Creative Systems, Inc., P.O. Box 1910, Port Townsend, WA 98368
Intergraph Corporation, 2051 Mercator Drive, Reston, VA 22091-3413
Kockum Computer Systems AB, PO Box 50555, s-202 15 Malmö, SWEDEN
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029
TIMSCO, P.O. Box 91360, Mobile AL 36691

CONDENSERS/REPARATORS

Beard Industries Inc., P.O. Box 31115, Shreveport LA 71130

CONTROL SYSTEM - Monitoring

Autonica Marine AS, Drammensveien 126, N-4277 Oslo 2, NORWAY
Engine Monitor, Inc., 179 Hickory Ave, Haraahan, LA 70123
Kobel Mig. Co., 11720 Horseshoe Way, Richmond, BC, CANADA V7A 4V5
IMO Industries, Gems Sensors Division, One Cowles Rd., Plainville CT 06062
IMC International, 60 Inp Dr., Inwood NY 11696
Marine Electric RPD, Inc., 50 Canal St., P.O. Box 1135, Clifton, NJ 07014-1135
Roberson Marine Systems, 3000 Kingman St., Suite 207, Metairie, LA 70006
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

CONTROL SYSTEM -Steering

Engine Monitor, Inc., 179 Hickory Avenue Haraahan, LA 70123
Kokum Sonics, Inc., 619 Veterans Blvd., Suite 201, Kenner, LA 70066

CONTROL VALVES

Leslie Controls, 12501 Telecom Dr., Tampa, FL 33637

CONVERSIONS & REPAIRS

Vancouver Shipyards, 50 Pemberton Ave., N. Vancouver, B.C. CANADA V7P 2P2

COUPLINGS

American Vulcan, P.O. Drawer 673, Winter Haven, FL 32382
Holset Engineering, 1320 Kemper Meadow Drive, Cincinnati, OH 45240
Lo-Rax Vibration Control Ltd., 186 West 8th Avenue, Vancouver, BC CANADA V5Y 1N2
Mapoco Products, 90 Forest Avenue, P.O. Box 382, Locust Valley, NY 11580
Oakvale Steel Inc., 1447 New Litchfield St., Torrington, CT 06790
Anclyde, 240 E. Plato Blvd., Saint Paul, MN 551071609

CRANE-HOIST-DERRICK-WIRBLEYS

Bisso Marine Co. P.O. Box 413, New Orleans, LA 70178
Del Gavo Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072
Lieber-West Neuring G&S, mbb, P.O. Box 10, A-6710 Neuring, AUSTRIA
Macgregor USA 20 Chapin Rd., Pine Brook, NJ 07058
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
J.D. Neuhaus Hebezuege GmbH, D-5810 Wilten, GERMANY
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150

CRANES

AnClyde, 240 E. Plato Blvd., Saint Paul, MN 551071609
Lakeshore, Inc., P.O. Box 809, Iron Mountain, MI 49801
Morgan Marine, 1300 Normandy Place, Santa Ana, CA 92705
Tech Crane Intl., Inc., 61130 Timberden Dr., Lacombe, LA 70445

CRANKSHAFT DEFLECTION ANALYZER

FCS, Inc., 22 Main Street, Centerbrook, CT 06409

CRANKSHAFT REPAIR

Gottens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
In-Place Machinery Co., Inc., 1529 North Buttern Street, Milwaukee, WI 53212-3793

DECK CAULKING/REPAIR

Life Industries, Corp., 205 Sweet Hollow Rd., Old Bethpage, NY 11084

DECK MACHINERY - Cargo Handling Equipment

Lakeshore, Inc., PO Box 809, Iron Mountain, MI 49801
MacGregor-Navine Group, 34 Bedford Rd., Clapham North, London SW4 7HH
Metlay Machinery Co., Inc., P.O. Box 24788, Seattle, WA 98124-0788
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Shoikum/Rope Master, P.O. Box 280, Hubbard, OR 97032
Smith Berger Marine Inc., 516 South Chicago Street, Seattle, WA 98108

DECK MACHINERY

AnClyde, 240 E. Plato Blvd., Saint Paul, MN 551071609
American Block Co. 6311 Breun Rd., Houston, TX 77066
Lakeshore, Inc., PO Box 809, Iron Mountain, MI 49801
McElroy Machine & Mfg. Co., Inc., P.O. Box 4454, Biloxi, MS 39535-4454
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario CANADA L6M 2G2
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Papes, PO Box 102, N-4818, Faerik, NORWAY
Skoolum/Rope Master, P.O. Box 280, Hubbard, OR 97032
Smith Berger Marine Inc., 516 South Chicago St., Seattle, WA 98108
Waltham Supply Co., P.O. Box 596, Wilmington, CA 90748

DECK STRUCTURES/CONTROL CABS

Canada Coast PO Box 6307, Portland, OR 97263

DESALINATION - REVERSE OSMOSIS

Rochem Separation Systems, Inc., 3904 Del Amo Blvd., Ste. 801, Torrance, CA 90503
Rochem Separation Systems, P.O. Box 156, 54 Rue Agasse, 1211 Geneva 17, SWITZERLAND

DIESEL ACCESSORIES

FCS, Inc., 22 Main Street, Centerbrook, CT 06409
General Thermodynamics Corp., 210 South Meadow Rd., P.O. Box 1105, Plymouth, MA 02960
Hisco & Kirk, Inc., 801 McFarland Rd., Houston, TX 77011
Kiene Diesel Accessories, 325 S. Fairbanks St., P.O. Box 386, Addison, IL 60101

DIESEL ENGINE - Spares Parts & Repair

45B Industry Co., 1001 Meadowbrook, Waukegan, IL 60059
Aboard Ship Diesel, P.O. Box 1000, Franklin, TX 75783
Alaska Diesel 4420 14th Ave. NW Seattle WA 98107
Caldwell, Inc., Engine Div., P.O. Box 510, Meville, IL 61552-0610
Collec Industries, 701 Lawton Ave., Beloit, WI 53511
Cummins Engine Co., 4500 Leets Ave., Ste. 301, Charleston, SC 29406-8521
Cummins Mid-South, Inc., 110 E. Arline Highway, Kenner, LA 70062
John Deere, John Deere Rd., Moline, IL 61265
Gottens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231
In-Place Machinery Co., Inc., 1529 North Buttern Street, Milwaukee, WI 53212-3793
Kiene Diesel, 325 S. Fairbanks, Addison, IL 60101
MAN B&W Diesel AG, Starbuchsstrasse 1, D-86153 Augsburg 1, GERMANY
MAN B&W Diesel AS, Topholmsgade 41, DK-3450 Copenhagen SV, DENMARK
MAN B&W Diesel 17 State St., New York, NY 10004
Motor-Service AB, Box 2115, S-144 04 Rominge, SWEDEN
Motor Service-Happ Stamp, 3180 S.W. 4th Ave., Ft. Lauderdale, FL 33315
New Sulzer Diesel US, Inc., 525 Washington Blvd., Ste 2408, Jersey City, NJ 07310
Non-Tech, Inc., 100 Wall St., New York, NY 10005
Ocear Power & Equipment, 571 Central Ave., Suite 112, New Providence, NJ 07974
Paxman Diesels, P.O. Box 8, Paxman Works, Colchester, Essex, CO1 2HW, ENGLAND
Paxman Diesels USA, (A Div. of Ruston Gas Turbines, Inc.), 15950 Park Row, Houston, TX 77064
Ustlen Bergen AS, PO Box 924, N0022 Bergen, NORWAY
Wartsila/Diesel, 201 Delaware Highway, Annapolis, MD 21401

DIVING & SALVAGE

Bisso Marine Co. P.O. Box 413, New Orleans, LA 70178
H.J. Merihue, P.O. Box 23123, New Orleans LA 70183
Muldson Marine Services, Inc., P.O. Box 3221, Terminal Island, CA 90731

DOORS - MARINE & INDUSTRIAL

Insulations, Inc., 1101 Edwards Ave., Haraahan, LA 70123
Mapoco Products, Inc., 90 Forest Ave., Locust Valley, NY 11560
Maritime Services Corp., 3457 Guignard Drive, Hood River OR 97031

DRY DOCK-Design

Conrad Industries, 1501 Front Street, P.O. Box 790, Morgan City, LA 70381

ELECTRODUCTS

Vita Modstar, 566 Parker St., Newark, NJ 07104

ELECTRICAL EQUIPMENT

L. F. Gaubert & Co., Inc., P. O. Box 50020, New Orleans LA 70150
MMC International, 60 Inp Dr., Inwood NY 11696

ELECTRICAL WIRE DEVICES

Meltrix Corp., 1935 Ace World Wide Lane, Cudahy, WI 53110

ELECTRONIC DISPLAY

Kokum Sonics, Inc., 619 Veterans Blvd., Suite 201, Kenner, LA 70068

ELECTRONIC INFORMATION SUPPORT

Scandinavian Micro Systems, P.O. Box 155, N-1411, Kobolton, NORWAY

EMISSION CONTROLS

Holboj Topsoe Nymoltelev 55, DK-2600, Lyngby, Denmark

EMPLOYMENT

Boat Crews, 1 Seine Court, Suite 309, New Orleans, LA 70114

ENGINEERING SERVICES

AN-Clyde, 240 E. Plato Blvd., Saint Paul, MN 551071609

Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029

ENGINE ROOM LIGHTING

Pauluhn Electric Mfg. Co., Inc., 1616 N. Main, P.O. Box 53, Pearland, TX 77581

ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Rd., Plymouth, I 02360

ENVIRONMENTAL SYSTEMS

Foss Environmental Services, 7440 West Marginal Way So., Seattle, WA 98108-

EPHIRS

Acpi Electronics, Inc., 5757 Ravenswood Rd., P.O. Box 5247, Ft. Lauderdale FL 33310-5247
Alden Electronics, 40 Washington St., Westborough, MA 01581

EQUIPMENT - Marine

Bonnet & Associates, 1150 Rue Rochelle, Sidiell, VA 70458

EVAPORATORS

Aqua-Nal Separation, Inc., 955 Meane Rd., Warrminster, PA 18974
Beard Industries Inc., P.O. Box 31115, Shreveport, LA 71130
NEI Clarke Chapman Canada, 1075 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2G2

FANS - VENTILATORS - BLOWERS

Jon M. Liss Associates, Inc., 411 Borel Ave., San Mateo, CA 94402

FAREWERS

Jamestown Distributors, 28 Narragansett Ave., P.O. Box 348, Jamestown, RI 0283

FENDERING SYSTEMS/BUOYS - Dock & Vessel

B.F. Goodrich, 150 Division Drive, Wilmington, NC 28401
Kahnberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Schuyler Mfg. Co., Inc., 16901 Woodville-Redmond Rd., Woodville, MA 98072
Advanced International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook, VA 22624
Ultra Poly Inc., 2926 South Steele, Tacoma, WA 98409
Viking Fender Co., 340 Leigh Ave., Plent Amboy, NJ 08861

FIBERS

Allied Signal, Meyer I. Box, 101 Columbia Rd., Morristown, NJ 07962

FILTER SYSTEMS

Everpure Inc., 660 N. Backhawk Dr., Westmont, IL 60559

FIN STABILIZERS

Bohm & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

FIRE DETECTION SYSTEMS

Autonca Marine AS, Drammensveien 126, N-4277 Oslo 2, NORWAY

FLAME CUTTING MACHINES

Buy-O-Systems, 3003 West Carson St., Pittsburgh, PA 15204

FLEXIBLE COUPLINGS

American Vulcan, P.O. Drawer 673, Winter Haven, FL 32382

GALLEY EQUIPMENT

Cospolich Refrigerator Co., 949 Industry Rd., Kenner LA 70062
Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Lang Manufacturing, P.O. Box 305, Redmond, WA 98073
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031

GANWAYS/LADDERS

Sea Systems Inc., 187 Ward Hill Ave., Ward Hill, MA 01835-0679
Wooster Products Inc., 1000 Spruce St., P.O. Box 886, Wooster, OH 44691

GENERATORS

Sasakura Engineering, 7-32 Takeshima 4 - Choma, Nishiyodogawa Ku Osaka, JAPAN

HATCH COVER SEAL RENOVATION

Sealright Inc., 3841 Soudersway, Bellingham, WA 98223
KIBI Corporation, U.S. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

HEAT EXCHANGERS

Afa-Laval Separation, Inc., 955 Meane Rd., Warrminster, PA 18974
Beard Industries Inc., P.O. Box 31115, Shreveport, LA 71130

HORN/HWISTLES

Kahnberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
Kokum Sonics, Inc., 619 Veterans Blvd., Suite 201, Kenner, LA 70066

HYDRAULICS

Del Gavo Marine Hydraulics Inc., 619 Industrial Rd., Carlstadt, NJ 07072
Engine Monitor, Inc., 179 Hickory Ave, Haraahan, LA 70123
Hydraulic Jet, P.O. Box 929, Christchurch, New Zealand

INERT GAS SYSTEMS

Hiler Systems, 3710 Lakeside Court, Mobile AL 36693

INSULATION

Insulations, Inc.,

LIQUID LEVEL GAUGES

Eggon Ernst Products Co., 116 Main St., Farmingdale, N.J. 07727

LIQUID LEVEL INDICATORS

Midland Mfg. Corp., 7733 Gross Point Rd., Skokie, IL 60076-0226
E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026
Methage, Inc., 59 Potter Rd., Littleton, MA 01460
Midland Mfg. Corp., 7733 Gross Point Rd., Skokie, IL 60076-0226

LOGISTICS

Newport News Shipbuilding, Logistics & Technical Services, 12129 Jefferson Ave., Newport News, VA 23603
CED, 4646 N. Winchuck Road, Virginia Beach, VA 23456
VI Logistics Consultants, Inc., 3420 Bellevue Blvd., Ocean Springs, MS 38964

LOW-SMOKE CABLES

Times Microwave Systems, P.O. Box 5039, Wallingford, CT 06492

LUBRICANTS

Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

MACHINE MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

Del Gaudio, 619 Industrial Rd., Carlstadt, NJ 07072
Golden Marine Company Inc., 160 Van Brunt Street, Brooklyn, NY 11231
New England Trailer Equipment Co., 201 Eastern Avenue, Chelsea, MA 02150
Electronic Marine Systems, 800 Fernside Pl., Mahwah, NJ 07065

MACHINE MONITOR AND CONTROL SYSTEMS

Directions in Design, Inc., 633 Emerson, Suite 100, St. Louis, MO 63141
Hopeman Brothers, P.O. Box 820, 435 Essex Ave., Waynesboro, VA 22986
Jamestown Metal Marine Sales, Inc., 4710 Northwest Second Ave., Boca Raton, FL 33431
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031

MARINE CEILING

The Cape Corp., 403 S. Black River St., Sparta, WI 54586
Hydro-Aluminum, Vik Verk, N-5880 VKI SOGN, Norway

MARINE COATINGS

Devco Coatings, 4000 Dupont Circle, Louisville, KY 40207
International Zinc, 450 Seventh Ave., New York, NY 10123

MARINE DECKING

Selby, P.O. Box 1600, Sapulpa, OK 74067

MARINE ELECTRONICS

Frank L. Best Radio, 2001 Ridgeway Drive, Metairie, LA 70001
Kokum Sonics, Inc., 819 Veljeke Blvd., Suite 201, Kenner, LA 70068
Saab Marine Electronics AB, Box 13045, 402 S1 Goleberg, SWEDEN

MARINE ELEVATORS

Airmar Elevator Co., 1100 Boston Ave., Bridgeport, CT 06611
McElroy Machine, 1101 Lorraine Rd., Bloom, MI 48305-4434

MARINE EQUIPMENT

McElroy Machine, P.O. Box 4454, Bloom, MI 48305-4454

MARINE FENDERS

Vikora Fender Co., 340 Lehigh Ave., Parth Amboy, NJ 08861

MARINE FINANCING

Safeco Credit Co., Inc., 4909 156th Ave. NE, Redmond, WA 98052

MARINE FIRE PROTECTION

Heller Systems, 3710 Lakeside, Mobile, AL 36693
Unitor Ship Services, 2375 West Esther Street, Long Beach, CA 90813

MARINE FURNITURE

Directions In Design, 633 Emerson, Ste. 100, St. Louis, MO 63141
Engineered Data Products, P.O. Box 565, Woodbury, NJ 08096-7565
Jamestown Metal Marine Sales, Inc., 4710 NW Second Ave., Boca Raton, FL 33431
Maritime Services Corp., 3457 Guignard Dr., Hood River, OR 97031

MARINE GEARS

Cincinnati Gear Co., 5657 Woodier Pike, Cincinnati, OH 45227
The Falk Corp., P.O. Box 452, Milwaukee, WI 53201-9492

MARINE INSURANCE

John G. Alden, 1500 77th St., Fort Lauderdale, FL 33316

MARINE INSPECTION

Ultrasonic & Magnetics Corp., P.O. Box 8787, New Orleans, LA 70182

MARINE INTERIORS

Jamestown Metal Marine Sales, 4710 Northwest Second Ave., Boca Raton, FL 33431
Johnson Construction Specialties, Inc., 3420 Rusk P.O. Box 1360 Houston Texas 77251
Maritime Services Corp., 3457 Guignard Drive, Hood River, OR 97031

MARINE LADDERS

Sisa Systems, Inc., 75 Arvo Rd., Ward Hill, MA 01835

MARINE LUBRICANTS

Royal Lubricants Co., 6 campus Drive, Parsippany, NJ 07054

MARINE PUMPS

Bill Brown Enterprises, Inc., 4995 Ocean Pines, Berlin, MD 21111

MARINE SHIP MANAGEMENT

Boths-Kelton, 1810 West, Cherry Hill, NJ 08002

MARINE SURPLUS SALES

Defense Reutilization & Marketing Service, 2163 Airways Blvd., Memphis, TN 38114

MONITOR CONTROL ALARMS

Engine Monitor, Inc., 179 Hickory Ave. Harahan, LA 70123
Racor Marcon, 800 Fernside Pl., Mahwah, NJ 07065

MULTI-CABLE PENETRATION DEVICE

NMP, 12437 E. 60th St., Tulsa, OK 74153

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Services, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202
CDI Marine Co., 4049 Woodcock Dr., Suite 200, Jacksonville, FL 32207
Childs Engineering Corp., Box 553, Middlefield, MA 02052
Cranford Dry Dock Engrs., Inc., 21 Pottery Ln., Dedham, MA 02026
Crane Consultants, 15301 First Ave S., Seattle WA 98148
C. R. Guthrie, 18 Vesey St., New York, NY 10007
CT Marine, 56 Crooked Trail, Rowayton, CT 06853
Arthur D. Dardon, 3000 Hedgelake Dr., Suite 403, Metairie, LA 70002
Dakong & Leber, Inc., 1734 Emerson Street, Jacksonville, FL 32207
Design Associates Inc., 14300 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, 2120 Washington Blvd., Ste. 200, Arlington, VA 22204
Diversified Technologies, 812 Live Oak Dr., Chesapeake, VA 23060
Elkoi Bay Design Group 5301 Shishake Ave. N.W. Ste. 200, Seattle, WA 98107
Econ Mgmt & Engineering Consultant Services, P.O. Box 7700, Beaumont, TX 77706
GHM Inc. (Ind. Measurement Consultants), P.O. Box 1836, Newport News, VA 23601
Gibbs & Cox, Inc., 50 West 23rd St., New York, NY 10010
John W. Gilbert & Assoc., Inc., 66 Long Wharf, Boston, MA 02110
The Glosten Assoc., Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104
Guido Perta & Assoc., 4039 21st Ave., Ste. 300, Seattle, WA 98199
Karris Gustafson Associates, Inc., 130 Sutter St., Ste. 400, San Francisco, CA 94104
C. Raymond Hunt Associates, 69 Long Wharf, Boston MA 02110
Hydrocomp, Inc., 202 C Pockets Court, Williamsburg, VA 23181
J.H. Inc., No. 4 Estevan Campus, Culbert Blvd & Route 70, P.O. Box 5201, Cherry Hill, NJ 08034
R.D. Jacobs & Associates, 1405 Main St., Roscoe, IL 61073
James S. Kropp, 799 Bicknell Plaza Ste. 701, Miami, FL 33131
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225
MCA Engineers, Inc., 2960 Airways Ave., MA-103, Costa Mesa, CA 92626
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
McElroy Machine & Mfg Co., Inc., P.O. Box 4454, Bloom, MI 48305-4454
John J. McKelton Associates, Inc., 1 World Trade Ctr., Ste. 3000, N.Y.N.Y. 10048
Fendall Marbury, P.O. Box 2321, Annapolis, MD 21401
Marine Design & Operations, Inc., 226 Chestnut St., Roske Park, NJ 07204
Marine Management Systems Inc., 102 Hamilton Ave., Stamford CT 06902
Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109
Maritech, Seacell, Bay Road, Newmarket, NH 03857
Maritime Design, Inc., 2020 Hervey Rd., Jacksonville, FL 32257
R.J. Mellasi & Co., 71 Hudson St., New York, NY 10013
Nautical Designs, Inc., 2101 S. Andrews Ave., Suite 202, Ft. Lauderdale, FL 33316
Ocean Motions Co., P.O. Box 130, 49 Shore Drive, Barrington, RI 02806-0130
Ocean Marine Surveyors Co., P.O. Box 283, Port Jefferson, NY 11777
QED Systems Inc., 4646 Winchuck Rd., Virginia Beach, VA 23455
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 620 Fulton St., Ste. 301, San Francisco, CA 94107
Sargoni & Herkes, 225 Baronne St., Suite 1405, New Orleans LA 70112
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029
Sea School, 10812 Gandy Boulevard, St. Petersburg, FL 33702
Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06626; 17 Battery Pl., New York, NY 10004; P.O. Box 975, Bamegat Light, NJ 08006; 2 Skyline Pl., 5203 Leeburg Pike, Suite 700, Falls Church, VA 22041; 50 Veehnd Way, Orlinda, CA 94953
George G. Sharp, Inc., 100 Church St., New York, NY 10007

R.A. Steam, Inc., 253 N. 1st Ave., Slurgeon Bay, WI 54235
A.K. Such & Ass., 3004 18th St., Metairie, LA 70002-4989
TIMSCO, P.O. Box 91360, Mobile AL 36691

NAVIGATION & COMMUNICATIONS EQUIPMENT

Autovox Marine A/S, Dronningmøllen 126, N-0277 Oslo 2, NORWAY
CelleNet Corp., 400 Main St., Stamford, CT 06901-3004
ComNav Marine Ltd., 1420 Finnes St., Vancouver, BC, CANADA V6L 1Y9
Consat Marine Services, 561 E. Grand Plaza SW, Washington DC 20024
CruisePhone, 2100 Park Central N., Pompano Beach, FL 33064
Electronic Marine Systems, 800 Fernside Pl., Mahwah, NJ 07065
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94408
Hose-McCam, 1241 W. Newport Center Dr., Deerfield Beach, FL 33442
ICS Electronics Ltd., Unit V, Radford Industrial Estate, Ford, Ayrshire, West Essex, UK
Mackay Communications, 300 Columbus Circle, Edison, NJ 08837
Marr Technologies, Inc., 342 Perrywell Rd., St. John, N.F., CANADA A1C 5J2
Megatrace, Inc., 4 Preston Court, Bedford MA 01732-2360
Mobile Telesystems, Inc., 300 Professional Dr., Gaithersburg, MD 20879
Negrin Marine Consultants, 840 Bond Street, Elizabeth, NJ 07201
Norwegian Telecom, P.O. Box 0701, Oslo 1, NORWAY
Pauhin Electric Mfg. Co., Inc., 1616 N. Main, P.O. Box 53, Pearland, TX 77581
RD Instruments, 9655 Businesspark Ave., San Diego, CA 92131
Raytheon Marine Co., 676 Island Ford Rd., Manchester, NH 03109-5420
Ross Engineering, 12505 E. Starkey Rd., Largo, FL 34643
Scandinavian Micro Systems P.O. Box 155, N-1411, Kolbotn, NORWAY
Scientific Atlanta, 4291 Communications Dr., Norcross, GA 30093
Sea, Inc., 7030 220th S.W., Mountlake Terrace, WA 98043
Seacoast Electronics, Inc., 240 Tallyrand Ave., Jacksonville, FL 32202
SGC, Inc. P.O. Box 3226 Bellevue, WA 98009
Simrad, 18210 33rd Avenue West, Lynnwood, WA 98036
Simrad Robertson, 18001 Harwood, Suite 100, Houston, TX 77043-1923
Sound Propeller, 1608 Fairview Ave., E. Seattle, WA 98102
SPD Technologies, 13200 Roosevelt Blvd., Philadelphia, PA 19116
Sperry Marine Inc., 1070 Semple Trail, Charlottesville VA 22901
Standard Communications, P.O. Box 92151, Los Angeles, CA 90009
Sunnet Equipment Ltd., 24 West 4th Ave., Vancouver V5Y 1G3, CANADA
Tribble Navigation, 365 North Mary Avenue, P.O. Box 3642, Sunnyvale, CA 94086
Waterway Communications System, Inc., 453 E. Park Pl., Jeffersonville, IN 47130

NOZZLE SYSTEM

Rice Propellers, Av Rio Espinoza 488, Mazatlan, MEXICO 82180

OIL-Marine-Additives

Labco-Finor, Inc., 2659 Duane Drive, Dallas, TX 75240
Mobil Oil Corporation, 3225 Galveston Road, Fairfax, VA 22037-0001

OIL SPILL CONTAINMENT

Texaco, International, 2000 Westchester Avenue, White Plains NY 10650

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556
Blom & Voss AG, P.O. Box 10 07 20, D-2000 Hamburg 1, GERMANY
U.S.A. Reps: Simplex-Turner Inc., P.O. Box 168, Little Neck, NY 11363-0168

OILWATER SEPARATORS

Alco-Laval Separation, Inc., 950 Meams Rd., Warminster, PA 18974-0556

TRAINERS & FILTERS
Kraiss Co., 299 Williams Ave., Hackensack, NJ 07601

TUFFING BOXES
Kühnberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

URVIVAL EQUIPMENT
Schaf Watercraft, P.O. Box 7008, Newark, DE 19714
Sea, Inc. 7030 220th St., Mountlake Terrace, WA 98043
Viking Life Saving Equipment, 1825 N Miami Ave., Miami FL 33136

ANK LEVELING INDICATORS
American United Marine Corp., 5 Broadway, Rt. 1, Saugus, MA 01906
Aurionca Marine A/S, Drammensveien 125, N-2277 Oslo 2, NORWAY
Bergan Tank, 3409 Gulf Breeze Pkwy, Gulf Breeze, FL 32561
ERL Marine Products Div., PO Box 1026, New Albany, IN 47151-1026
Jan-Connard Bergan, 3409 Gulf Breeze Parkway, Gulf Breeze, FL 32561
IMO Industries, Gens Sensors Division, One Cowles Rd, Plainville CT 06062
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
MMC International, 60 Inp Dr., Inwood NY 11696
Saab Marine Electronics AB, P.O. Box 13045, S-402 51 Goleborg SWEDEN

TANK LIQUID LEVEL GAUGES
Ardon Industries, 200 Williams Street, Portchester, NY 10573
Kockum Sonics, Inc., 819 Veterans Blvd., Suite 201, Kenner, LA 70068
Meritape, Inc. 59 Porter Rd., Littleton, MA 01460
Midland Mfg. Corp., 7733 Gross Point Rd., Skokie, IL 60076-0226

TEMPORARY/PERMANENT SHELTERS
Universal Shelters, U.S. Hwy. 19 S., Pelham, GA 31779

TESTING SERVICES
Wyle Laboratories, 7800 Goven's Dr. S.W., Huntsville, AL 35807

THERMAL INSULATION
Insulations, Inc., 1101 Edwards Ave., Harahan, LA 70123

THICKNESS TESTING
Cygnus Instruments, P.O. Box 3127, Annapolis, MD 21403
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

TOOLS
Aurand Mfg. 1210 Ellis St., Cincinnati, OH 45223
Tri Tool Inc., 3826 Security Bank Drive, Rancho Cordova, CA 95742-6990

TORSIONAL VIBRATION SPECIALISTS
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331
T.W. Spitzberg, 156 W. 8th Ave., Vancouver, BC, CANADA V5Y 1N2
Vibration Engineering Corp., 9300 Gamebird, Houston, TX 77034

TOWING - Barges, Vessel Chartering, Lighterage, Salvage, etc.
Jack Faulkner, 2419 Cuddy Lane, Flossmoor IL 60422

TRAINING COURSES
Fisher Maritime Counselors 71 Valley St., South Orange, NJ 07079
Star Center, 2 West Dixie Highway, Dania, FL 33004

TURBOCHARGERS
ABB Turbocharger Co., 1460 Livingston Ave., North Brunswick, NJ 08902

ULTRASONIC TESTING
M.A.C.E., 5910 N.E. 15th Ave., Fort Lauderdale, FL 33331

ULTRASONIC THICKNESS GAUGES
Cygnus Instruments, Inc., 1993 Moreland Pkwy, Suite 202, Annapolis, MD 21401

VACUUM TOILET SYSTEM
Envirowac Inc., 1260 Turner Dr., Rockford, IL 61111
Fast Systems, Inc., 3240 N. Broadway, St. Louis, MO 63147
Jacs Vacuum Squeeze System, P.O. Box 14, N-2600 Harnd, NORWAY

VALVES AND FITTINGS
Cia-Val Co., P.O. Box 1325, Newport Beach, CA 92663
Dethybine Machine & Tool, 5100 Bellfield Ave., Philadelphia, PA 19144-1788
ERL Marine Products Div., PO Box 1026, New Albany, IN 47151-1026
Hydra Search Co Inc., 100 Log Canoe Circle Stevensville, MD 21666
MMC International, 60 Inp Dr., Inwood NY 11696
Midland Mfg. corp., 7733 Gross Point Rd., Skokie, IL 60076-0226
Teletex Naval Tech., 205 Church Rd., North Wales, PA 19454
Zisel Explotation, Inc., 3121 SW Moody Ave., Portland OR 97201

VAPOR RECOVERY CONTROLS
E.R.L. Marine Products, P.O. Box 1026, New Albany, IN 47151-1026
Midland Mfg. Corp., 7733 gross point rd., Skokie IL 60076-0226

VENTILATION PRODUCTS
Dry Air Technology, 4401 Kingsway, Anacortes, WA 98221

VIBRATION ANALYSIS
DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110
T. W. Snaatgens, 186 W 8th Ave., Vancouver BC CANADA V5Y 1N2
Vibration Engineering Corp., 9300 Gamebird, Houston, TX 77034

WASTE SERVICES
Browning-Ferris Industry, (Medical Waste Systems) 757 N. Eldridge, Houston, TX 77079

WASTE WATER TREATMENT
Envirowac, 1260 Turner Drive, Rockford, IL 61111
Research Products Blankenship, 2639 Andon Dallas, TX 7522

WATER PURIFIERS
Alfa-Laval, Desalt A/S, Stanholmen 93, DK-2650 Hvidovre, Copenhagen, DENMARK
Alfa-Laval Separation Inc., 955 Meams Rd., Warramster, PA 16974
Beard Industries Inc., P.O. Box 3115, Shaweeport LA 71150
Eurepura, Inc., 650 N. Beachpark Dr., Westport, IL 62559
LifeStream Water Purification Equip., 16611 Gemini Lane, Huntington Beach, CA 92647
NEI Clarke Chapman Canada, 1975 N. Service Rd. W., Unit 4, Oakville, Ontario, CANADA L6M 2S2
Sea Recovery Corp., P.O. Box 2580, Gardena, CA 90247-0550

WEATHER CHART RECORDERS
Alcon Electronics, 40 Washington St., Westborough, MA 01581

WEATHER INSTRUMENTS
Aanderaa Instruments, Faravæien 13B, 5050 Nestun, Bergen, Norway

WELDING
Bug-O-Systems, 3003 W. Carson St., Pittsburg, PA 15204
Miller Electric Manufacturing, P. O. Box 1079, Appleton, WI 54912
Welding Consultants USA, 10389 Paradise Blvd., #101, St. Petersburg, FL 33706

WELDING AND REFRIGERANT PRODUCTS
Drew Ameroid Marine, One Drew Plaza, Bonton, NJ 07005
Unitor Ship Service Inc., 2275 West Esther Street, Long Beach, CA 90813

WINCHES AND FAIRLEADS
AmClyde, Inc., 240 East Plato Blvd., St. Paul, MN 55107-1631
Jettmar Winches Ltd., 53 Maple Ave., Richmond Hill, Ontario L4C 6P3, CANADA
MMC International, 60 Inp Dr., Inwood NY 11696
Markey Machinery Co., 79 South Horton St., Seattle, WA 98134
McDroy Machine & Mfg. Co., Inc., P.O. Box 4454, Box MS 39035-4454
New England Trawler Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150
Skookum/RopeMaster, P.O. Box 780, Hubbard, OH 97029
Smith Berge Marine Inc., 516 S. Chicago St., Seattle, WA 98108

WIND MONITORING SYSTEMS
Aanderaa Instruments, Faravæien 13B, 5051 Bergen, NORWAY

WINDOWS - Windshield Wipers
Marketec, Inc., P.O. Box 999, Pisgah Forest, NC 28768

WIRE AND CABLE
Seacoast Electric Company, 50 Broadway, Hawthorne, NY 10532

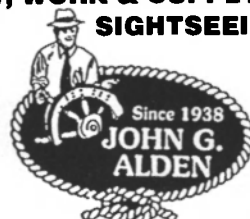
WORKBOATS
American Eagle Mfg. Inc., 780 E. Pearle Jensen Way, LaConner, WA 98257
Boston Whaler, 1149 Hingham St., Rockland, MA 02370-0511
Workskill, Inc., 10824 Bothell Hwy. S.E., Bothell, WA 98012-6869
Zodiac of N.A. Inc., Thompson Creek Rd., P.O. Box 400, Stevensville, MD 21666

PROFESSIONAL

JOHN G. ALDEN QUOTE LINE

1-800-330-3370

For fast response on
TUGS • BARGES • RIGS
CREW, WORK & SUPPLY BOATS,
SIGHTSEEING.



MARINE INSURANCE

1300 SE 17th Street, Fort Lauderdale, FL 33316

Fax: 305-525-0588



29 BROADWAY
NEW YORK, N.Y. 10006
PHONE 212-269-2515
FAX 212-809-1665
WORLD WIDE SERVICE
SINCE 1962

Marine Piping Design



AutoCAD® / AutoPLANT®
ISOGEN®
2-D & 3-D Modeling
USCG / Navy
Commerical

Anvil Corporation

(360) 671-1450 Bellingham, WA

CAPTAIN ASTAD COMPANY INC.

• SHIPBROKERS & MARINE CONSULTANTS
• SALE & PURCHASE - ANY TYPE VESSELS
• NEW CONSTRUCTION - CONVERSIONS
• OWNERS REPRESENTATIVE

2900 Energy Centre, 1100 Poydras Street, Office, Private
New Orleans, LA 70163-2900 Phone: (504) 585-7317 • (504) 522-8007
Fax: (504) 585-7301 • (504) 522-8008



C. BAXTER, JR. & ASSOCIATES

NAVAL ARCHITECTS/ENGINEERS
& SURVEYORS

3113 Cottage Hill Road
Mobile, AL 36609

Tel: (205) 476-1998
(800) 398-6691



CHILOS ENGINEERING CORPORATION

WATERFRONT ENGINEERING-DIVING INSPECTION

BOX 333 1180FIELD, MA 02082 (603) 358-8848

CBH SERVICES, INC.

MARINE ENGINEERS

• Topside Repairs • Deepwater Dock

• Vessel Worldwide Delivery

• Reconditioned Turbo Generator Sales

Nederland, Texas

Phone: (409) 722-8043

Supporting The Marine
Engineering Industry

JACKSONVILLE
(904) 359-4550
PHILADELPHIA
(610) 228-1853
PORTSMOUTH
(804) 387-8000
BREMERTON
(206) 479-8828
SAN DIEGO
(619) 425-7230
BOSTON
(617) 345-8958

GRAPHICS & PHOTO
CONFIGURATION DATABASES

COMPUTER & VIDEO BASED
TRAINING & SAFETY

MATERIALS MANAGEMENT

MAINTENANCE MANAGEMENT

Windows™ Based Software

Standard & Custom Packages • Installation • Support • Implementation

157 HWY 654, MATHEWS, LOUISIANA 70375
PHONE (504) 532-2512 / FAX (504) 532-2571

Serving the marine industry for over 140 years

Consulting • Design • Inspection
Railway and Floating Dry Docks
Dry Dock Hardware and Equipment

Box 505804 Chelsea, MA 02150 (617) 329-3240 Fax (617) 884-8466

15301 1st Ave. So. Seattle, Washington 98148
(206) 246-7962 FAX (206) 246-1010
Crane hoist, materials handling specialists

PROFESSIONAL

GHS
General HydroStatics

CREATIVE SYSTEMS, INC.
CREATORS OF GHS

Stability Software Products
 GHS Full-featured hydrostatics
 BHS Mid-range package
 BHS/YACHT Yacht designer's package
 GLM Shipboard trim and stability
 GHS/SALVAGE Salvage oriented package

Developers of advanced hydrostatics software since 1972

P.O. Box 1910 Port Townsend, WA 98168 USA
 TEL (206) 385-6212 FAX (206) 385-6213

DLI MARINE VIBRATION ANALYSIS NOISE CONTROL
ENGINEERING CORPORATION

253 Winslow Way West, Bainbridge Island, WA 98110
 (206) 842-7656

Measurement, recording and analysis of mechanical, structural and electrical phenomena.

Seattle, Washington
 Phone: 206-624-7850
 Fax: 206-682-9117

THE GLOSTEN ASSOCIATES, inc.
 CONSULTING ENGINEERS SERVING THE MARINE COMMUNITY

CT MARINE

• NAVAL ARCHITECTS • MARINE ENGINEERS •

• A OR RECOVERY
 • TUGS
 • TOWBOATS
 • BARGES

Tel. 203-831-0405 Fax. 203-831-0407
 56 CROOKED TRAIL, ROWAYTON CT. 06853

ENCON Management Incorporated

Marine Structures • Engineering Analysis • Marine Survey
 Project Management • Loss Prevention • Naval Architecture

P.O. Box 7760 • Beaumont, Texas 77726
 (409) 842-9181

HEGER DRY DOCK ENGINEERS, Inc.

P.O. Box 6605, 426 South Street, Holliston, Massachusetts, 01746

Specialists in all types of dry docks

- Design
- Inspections
- Certifications
- Docking Calculations
- Dockmaster Training Classes
- Engineer/Diver
- U.S. Navy (62SC) Facility Certification Reports

Telephone: (508) 429-1800 Fax: (508) 429-1811

C. R. CUSHING & CO., INC.

NAVAL ARCHITECTS, MARINE ENGINEERS & TRANSPORTATION CONSULTANTS

18 Vesey Street
 NEW YORK, N.Y. 10007

TEL (212) 964-1180 TX: 752481 CABLE CUSHINGCO

CompuMaint™

A Planned Maintenance System designed specifically for the marine and offshore industries.

- ABS Approved for "Survey Based on Preventative Maintenance Techniques"
- Runs on PC, LAN, and mainframes

TEL: (713)789-0755
 FAX: (713)789-0252

Engineering Management Consultants, Inc. a project of 7670 Woodway Suite 330 Houston, TX 77063

- Installations and/or repair of ships monitoring and automation systems.
- Updating shipboard electrical drawings to include circuit verification and termination overhaul.

Hinton Electrical Marine, Inc.
 160 N.E. 18th Street Homestead, FL 33030
 Phone: (305) 245-4040

ARTHUR D. DARDEN
INCORPORATED

NAVAL ARCHITECTS & MARINE ENGINEERS

3200 RIDGELAKE DRIVE, SUITE 403
 METAIRIE, LOUISIANA 70002

(504) 832-3952 FAX (504) 832-3953

1311 Legget Drive
 Kanata, Ontario, Canada
 Phone: (613) 592 2830
 Fax: (613) 592 4950

FTL FLEET TECHNOLOGY

Trials and Instrumentation
 Structural Assessment
 Fatigue/Fracture Experts
 Shafting/Vibration Analysis
 Performance Prediction
 Model Testing

C. Raymond Hunt Associates, Inc.
 High Speed Powerboat Design

69 Long Wharf - Boston, MA 02110
 Tel: (617) 742-5669/FAX: (617) 742-6354

DESIGNERS & PLANNERS, INC.

NAVAL ENGINEERING • ENVIRONMENT & SAFETY • INFORMATION SYSTEMS

2120 - Washington Boulevard, Suite 200,
 Sequoia Plaza, Arlington, VA 22204-5717

PHONE (703) 920-7070
 FAX: (703) 920-7177

Member of the BMT Group of Companies

Capt. E.S. Geary, ASA

Accredited Senior Appraiser - Ships & Yachts
 AMERICAN SOCIETY OF APPRAISERS

CERTIFIED SHIP VALUATIONS WORLDWIDE TO ANY TONNAGE
 P.O. Box 1246 - Fajardo - Puerto Rico 00738 - USA
 Tel: (809) 860-1508 • Fax: (809) 863-9019

Consulting in Naval Architecture & Marine Engineering
NavCad™ Marine Engineering Software

45 JAMES FARM - LEE
 P.O. BOX 865
 DURHAM, NH 03824
 603-659-2660
 FAX 659-6667

HYDROCOMP

Dt DIVERSIFIED technologies

NAVAL ARCHITECTURE
 MARINE ENGINEERING
 SALVAGE ENGINEERING

812 Live Oak Drive
 Chesapeake, VA 23320
 (804) 420-9532

675 S. Washington Street
 Alexandria, VA 22314
 (703) 739-8844

GIBBS & COX INC

NAVAL ARCHITECTS & MARINE ENGINEERS

50 West 23rd Street • New York, NY 10010
 (212) 366-3900

LEADERS IN MARINE DESIGN SOFTWARE

FAST SHIP from Design Systems & Services, Inc.
 Used by the US Navy and leading ship designers and builders for hull design, from concept to final fairing.

GENERAL HYDROSTATICS (GHS)
 from Creative Systems, Inc.
 Widely recognized as the most advanced and productive trim/stability/strength software.

NAVCAD from HydroComp, Inc.
 NavCad offers an integrated platform to predict resistance and power, and to determine optimum propeller parameters.

SHIPCAM & NC-PYROS from Albacore Research Ltd.
 ShipCAM4: Proven fairing, lofting and shell expansion for ship construction and repair. NC-Pyros: NC-code generation for burning with automatic path optimization.

MAESTRO from Ross-McNair Naval Architects
 MAESTRO is a structural design tool which combines finite element analysis, failure mode evaluation and multiobjective structural optimization.

INTERNATIONAL MARINE SOFTWARE ASSOCIATES
 45 James Farm-Lee, P.O. Box 865 Durham, NH 03824 USA
 tel: (603) 659-2660 • fax: (603) 659-6667

ELLIOTT BAY DESIGN GROUP

NAVAL ARCHITECTS MARINE ENGINEERS SHIPYARD SUPPORT

Providing responsive & innovative solutions for your marine business environment

5301 Shilshole Ave. NW, Suite 200 Seattle, WA 98107
 (206) 782-3082 FAX: (206) 782-3449

JOHN W. GILBERT ASSOCIATES, INC.


Naval Architects Marine Engineers

(617) 523-4370
 FAX (617) 523-2178

199 STATE STREET
 BOSTON, MASS 02109

PROFESSIONAL

IAC International Freight Forwarders
 Air - Ocean - International - Domestic
Specialists in Marine Equipment Moves
 IAC International
 240 McClellan Highway • East Boston MA 02128
 Tel: (617)567-2600 • Fax: (617)567-2626

Speed & Propulsion Power Policy

FENDALL MARBURY
 NAVAL ARCHITECT
 P.O. Box 2321 Phone: 410-268-2608
 Annapolis, MD 21401 Fax: 410-268-4271


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. For more information contact R.J. Mellus & Co., 71 Hudson Street, New York, N.Y. 10013, Tel: (212) 962-1590 Fax: (212) 385-0920

Computer Based Training (CBT)

Stability for Ship Operations
 Stability for Naval Vessels

Onboard and Classroom Training Software for

Shipping Lines
 Fishing Vessels
 Maritime Academies
 Stevedors
 Navy & Military
 Coast Guard


ITS/Innovative Training Systems
 Tel: (714) 455-9921 • Fax: (714) 837-6698

P.O. Box 10455
 Jacksonville, FL 32247-0455
 (904) 387-4784
Murray D. Black
 President
MARINE DRILLING & BLASTING, INC.
 Marine Contractors • Underwater Drilling & Blasting
 Contract Consulting

H. J. Merrihue
DIVING
 and
MARINE SERVICES

All Underwater Needs
 For Shipping

CRANE BARGE SERVICE

MAGNETOMETER/SONARS

INSURED MARITIME

(504) 466-2800
 NEW ORLEANS
 24 HOURS

M.A.C.E.

FT. LAUDERDALE - USA - WORLDWIDE

PHONE: (305) 493-8913 • FAX: (305) 493-9559

- Thickness - hardness - crack determination
- Ultrasonic flaw detection
- Vibration - noise - structural/modal analysis
- Field balancing
- Torque - torsional vibration analysis
- Predictive Maintenance • Telemetry systems

IAFCO Marine

Tug & barge sales

YOUR MARINE CONSULTANTS (708) 798-2419
 P.O. Box 371, Flossmoor, Illinois 60422-0371 FAX (708) 798-1077
 ESTABLISHED 1954

MARINE DESIGN SERVICES INC.
 OPERATING IN ALL COASTAL WATERS

- SHIP • DRYDOCK • SHORE FACILITIES •
- UNDERWATER VIDEO INSPECTIONS •
- DRYDOCK CERTIFICATION INSPECTION •
- DRYDOCK TRAINING PROGRAMS •
- COMPUTER AIDS •

HOME OFFICE: P.O. BOX 928
 BONITA, CA 92002
 (619) 427-4219

PHONES: (201) 984-2295
 1-800-762-8383

MOWBRAY'S
TUG AND BARGE SALES CORP.
 35 DE HART STREET
 1 JOURISTOWN, N.J. 07960

NIGHT: (201) 538-1789

FAX: (201) 984-6181

SPECIALISTS IN BUYING, SELLING AND RENTING TUGBOATS • BARGES CONTRACTORS FLOATING EQUIPMENT

YOUR MARINE CONSULTANTS

JJH
 A Division of XeroTechnix, Inc.

Bensalem, PA
(215) 633-9331

Arlington, VA
(703) 415-1403

Portsmouth, VA
(804) 399-4096

Naval Architects • Marine Engineers • Marine Consultants

USCG APPROVED
RADAR: Recerts: WALK-IN
 Originals: Monthly
FLASHING LIGHT CERTIFICATION
 TEST HERE ANY DAY!!
 Prepare for ALL USCG EXAMS
 CALL 1-800-423-9267
 Ft. Lauderdale, FL

MULDOON
 COMMERCIAL DIVING
 WELDING, HULL CLEANING,
 PROP POLISHING AND INSPECTION

- High Capacity Pumping (Hazardous Certified Personnel)
- Nondestructive Testing Underwater/Topside

MULDOON MARINE SERVICES, INC.
 (310) 432-5670 • FAX (310) 432-6623
 PO Box 3223 • Terminal Island, CA • 90731

JAMES S. KROGEN & CO., INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS
 Tel: (305) 577-3455 Fax: (305) 577-6062
 799 Brickell Plaza, Ste. 701 Miami, FL 33131

Alan C. McClure Associates, Inc.
 NAVAL ARCHITECTS • ENGINEERS
 2600 South Gessner • Suite 504 • Houston, Texas 77063
 (713) 789-1940 • (713) 789-1347 Fax

CRUISE SHIP SPECIALISTS

NAUTICAL DESIGN'S INC.
 NAVAL ARCHITECTS & MARINE ENGINEERS
 2101 S. ANDREWS AVE. FORT LAUDERDALE, FL 33316 (305) 463-2033

RODNEY E. LAY & ASSOCIATES
 NAVAL ARCHITECTS
 NAVAL ARCHITECTS • MARINE ENGINEERS
 13891 Atlantic Blvd.
 Jacksonville, Florida 32225
 (904) 221-7447 FAX (904) 221-1363

John J. McMullen Associates, Inc.

JJMA

Naval Architects • Marine Engineers • Transportation Consultants

New York N.Y. • Arlington Va. • Newport News, Va. •
 Port Hueneme, Ca. • Bath, Me. • Seattle, Wa. • Pascagoula, Ms.
 One World Trade Center/Suite 3000/New York, New York 10048/(212) 466-2200

Q.E.D. SYSTEMS, INC. VIRGINIA BEACH (804) 490-5000

MARINE ENGINEERS • NAVAL ARCHITECTS
 LOGISTICS ENGINEERS

ARLINGTON LAKEHURST
 BREMERTON SAN DIEGO CHARLESTON
 JACKSONVILLE PHILADELPHIA SAN FRANCISCO

PROFESSIONAL

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

New York City
350 Broadway
New York, NY 10013
(212) 431-8900

San Francisco
620 Folsom Street
San Francisco, CA 94107
(415) 777-0500

Bremerton
San Diego
Oxnard
Bath

Boston
Philadelphia
Washington, D.C.
Newport News
Charleston
Norfolk

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

R.A. STEARN INC.
NAVAL ARCHITECTS and MARINE ENGINEERS

253 N. 1st Avenue
Sturgeon Bay, WI 54235
Phone (414) 743-8282 FAX (414) 743-9543

STURGEON BAY MODEL SHOP
SHIP MODELS SINCE 1941

Wm. L. Herbst
187 N. Ninth Ave
Sturgeon Bay, WI 54235

phone
414/994-2858
414/743-2921
414/744-3361

DISPLAY & DESIGN
MODELS

SARGENT & HERKES, INC.
NAVAL ARCHITECTS • MARINE ENGINEERS

255 BARONNE ST., SUITE 1405
NEW ORLEANS, LA 70112
504-524-1612 • 504-523-2576 (Fax)

TIMSCO

Infrared - Thermographic Surveys
Vibration Analysis & Monitoring - Balancing Services
Inventory Control - Planned Maintenance
Technical Documentation
P.O. Box 91360
Mobile, Alabama 36691 205/666-7121

GEORGE G. SHARP, INC.
SYSTEMS ANALYSIS
NAVAL ARCHITECTS - MARINE ENGINEERS

100 CHURCH STREET - NEW YORK, N.Y. 10007
(212) 732-2800 FAX (212) 732-2809

WASHINGTON, D.C. (703) 893-4000
VIRGINIA BEACH, VA. (804) 499-4125
PHILADELPHIA, PA. (609) 773-0888

sms
Naval Architects, Mechanical Engineers, Instrumentation Engineers, Software Engineers
Scientific Marine Services, Inc.

A FULL SERVICE MARINE ENGINEERING and OFFSHORE INSTRUMENTATION COMPANY

101 State Plaza, Suite F
Escondido, CA 92029
Tel: (619) 737-3505
Fax: (619) 737-0232

UNIVERSAL PERSONNEL SERVICE COMPANY

A Division of Universal Consolidated Services, Inc.

4949 BULLARD AVE. 2710 BEACH BLVD. SUITE 6D
NEW ORLEANS, LA 70128 BILOXI, MS 39531
(504) 241-1724 (601) 388-3065
FAX (504) 246-8759 FAX (601) 388-3160

12141 HOLLY KNOLL CIRCLE
GREAT FALLS, VA 22101
(703) 450-8572

Sensors, Instrumentation and Monitoring Systems for Harsh Environments

- Ship & Offshore Platform Response/Environment Monitors
- CALM Buoy Spill Prevention Monitors
- Cranes, Winch, & Mooring Tension/Payout
- Subsea Vibration & Stress Measuring Systems
- Fatigue/Motions Monitors for Towed Barges

SPATA
9455 Towne Centre Drive
San Diego, CA 92121-1964 • (619) 455-1650 PH • (619) 455-1698 FAX

SEABORNE TRADERS CORPORATION
801 West Bay Drive, Suite 509
Largo, Florida 34640

Experienced Professionals:

- Vessel Management
- Bare-bottom Vessel Operations
- Chartering
- Dry Cargo Brokers
- Engineering - Major Repairs
- Foreign Crew Procurement
- Dry-Dock Supervision/Cost Controls

Phone: (813) 588-4439/2639
Fax: (813) 588-4538

Vacanti Software
Boat, Ship, Yacht Design & Analysis Software

PC Compatible Software
PROLINES - Hull Design & Hydrostatics
PRO-HYDRO - Damage Stability
FOIL/KLIFDRA - Control Surfaces

Since 1984
17226 163 PL SE, Renton WA 98058
Fax/Phone 206-277-0288
24 Hrs - 206-644-3109

"SOMETHING HAS TO BE DONE ABOUT THIS BEACH EROSION!"

Seaworthy Systems, Inc.
MARINE ENGINEERS AND NAVAL ARCHITECTS

Essex, CT 06426
SAN FRANCISCO (203) 767-9061 FALLS CHURCH
NEW YORK BARNEGAT LIGHT

A. K. Suda & Associates, Inc.
Naval Architects and Marine Engineers

3004 19TH STREET
MSTAIRIE, LOUISIANA 70002

TEL: (504) 831-8371
FAX: (504) 831-8371 EXT. 20

VL Logistics, Inc.

INTEGRATED LOGISTIC SUPPORT SERVICES

APERTURE CARDS MICROFILMING

SUPPLY SUPPORT, TRAINING

CONFIGURATION DATA MANAGEMENT

RELIABILITY & MAINTAINABILITY STUDIES

TECHNICAL PUBLICATIONS

3400 BENVILLE BLVD., OCEAN SPRINGS, MS 39554
PHONE: (601) 872-2768 FAX: (601) 875-6443

VIBRANALYSIS ENGINEERING CORP

- PREDICTIVE MAINTENANCE PROGRAMS
- VIBRATION ANALYSIS
- FIELD & SHOP BALANCE
- ACOUSTICAL CONSULTANTS
- COMPUTERIZED DATA COLLECTION
- MARINE APPLICATIONS

VIBRANALYSIS ENGINEERING CORP 800-553-1614
9300 Gamebird 713-944-3633
Houston, TX 77034 Fax: 713-944-8737

INFORMATION SHOWCASE

Get Free Information Fast
Circle the appropriate Reader Service Number
on the opposite page



ADVERTISER	EQUIPMENT /SERVICE	CIRCLE NO.
ABB TURBO SYSTEMS	TURBOCHARGER	334
ACR ELECTRONICS	EPIRB	200
ADRIK MARINE	REFRIGERATION/AIR CONDITIONING UNITS	201
ALIMAK ELEVATOR	MARINE ELEVATORS	202
ALLIED SIGNAL	ROPES/FIBERS	203
AMBAR MARINE	RIBS WORKBOATS	204
AMCLYDE ENGINEERING	ENGINEERING PRODUCTS	205
AMERCABLE	SHIPBOARD CABLES	206
AMERICAN BUREAU OF SHIPPING	SHIP CERTIFICATION	207
AMERICAN EAGLE MFG.	RIGID INFLATABLE BOATS	338
AMERICAN INTERNATIONAL SHIPBUILDING EXPO.	SHOW	208
AQUAMASTER-RAUMA, INC.	PROPELLERS	209
ASTILLEROS ESPAÑOLES	SHIPBUILDING	210
AUTOSHIP SYSTEMS CORP.	HULL DESIGN	211
BARATARIA LOFTING CO.	COMPUTER LOFTING	212
BAYWOOD, INC.	HATCH COVERS	213
BEAIRD INDUSTRIES	FRESH WATER EVAPORATORS	214
BML BUSINESS MEETINGS	CONFERENCE	215
BOLLINGER	SHIPYARD	216
BRITISH TELECOM	TELECOMMUNICATIONS	217
BILL BROWN ENTERPRISES	AIR CONDITIONING	218
BUG-O-SYSTEMS	COAMING WELDER	219
CAPITOL DIESEL, INC.	ENGINES & GENERATORS	220
CEGELEC	ELECTRICAL ENGINEERING	221
CINCINNATI GEAR CO.	MARINE GEARS	222
COLTEC INDUSTRIES	DIESEL ENGINES	223
COMSAT MOBILE COMM.	SATELLITE COMMUNICATIONS	224
COSPOLISH REFRIGERATION	REFRIGERATION	225
JOHN CRANE MARINE	SEALS	226
CREATIVESYSTEMS	HYDROSTATIC HARDWARE	227
CRUCIBLE SERVICE CENTER DIVISION	BOAT SHAFTING	229
CRUISEPHONE	COMMUNICATION	230
CUMMINS MARINE	DIESEL ENGINES	335
CUSTOM SHIP INTERIORS	JOINER CONTRACTORS	231
CYGNUS INSTRUMENTS	ULTRA SONIC THICKNESS TESTING	232
DEL GAVIO MARINE	MARINE HYDRAULICS	233
DERBYSHIRE MACHINE & TOOL	VALVES, FITTINGS, EDUCATORS	234
DIVERSIFIED TECHNOLOGY	SALVAGE ENGINEERING	235
DREW AMERIOD	MOTOR & PARTS CLEANER	236
DRY AIR TECHNOLOGY	VENTILATION PRODUCTS	237
ELECTRONIC MARINE SYSTEMS	NAVIGATION	238
ELLIOTT MFG.	REMOTE VALVE OPERATORS	239
ELTECH INT'L	SANITATION DEVICES	240
ENVIROVAC, INC.	VACUUM TOILET SYSTEM	241
ERNASKO, INC.	ENGINE MONITORING	336
EUGENE ERNST	BOILER PARTS	329
ESGARD, INC.	COATINGS	242
EUROPORT 95	EXHIBITION	243
EVERPURE, INC.	FILTER SYSTEMS	244
J.W. FISHER	UNDERWATER METAL DETECTORS	245
L.F. GAUBERT & CO.	ELECTRICAL CABLE	246
GENERAL THERMODYNAMIC	BMEP BALANCER	247
GENSTAR STONE PRODUCTS	BALLAST CRETE	248
GIBBS & COX	NAVAL ARCHITECTS	249
GLAMOX	MARINE LIGHTING	331
GOLTEN WORLDWIDE	SHIP REPAIR	250
HAMILTON JET	WATER JETS	333
HYDRASEARCH CO., INC.	HOSE & FITTINGS	341
IHI MARINE TECHNOLOGY	SHIP REPAIR / DRY DOCK	251
IMO INDUSTRIES	SENSORS	252
IMSA	MARINE DESIGN SOFTWARE	253
IN-PLACE MACHINING, INC.	REPAIRS & SERVICES	254
INSULATIONS, INC.	MARINE CONTRACTORS	255
INTERMARINE, U.S.A.	SHIPBUILDING & REPAIR	256
ITW PHILADELPHIA RESINS	CHOCKFAST COATING CMPS	257
JASTRAM ENGINEERING CO.	HYDRAULIC STEERING SYSTEM	258
JEAMAR WINCHES, INC.	WINCHES	259
JIM'S PUMPS	PUMP REPAIR	260
KB ELECTRONICS	POWER CONVERSION EQUIPMENT	261
KIENE DIESEL	DIESEL ENGINE TEST & SERVICE	262
KRAISSL CO.	STRAINER & FILTERS	263
KRUPP	FLOATING DREDGERS	264

ADVERTISER	EQUIPMENT /SERVICE	CIRCLE NO.
KVICHAK MARINE	WORKBOATS	344
LANG MFG.	GALLEY EQUIPMENT	265
LEEVAC SHIPYARDS	SHIPYARD	266
LEICA NAVIGATION & POSITIONING	NAVIGATION PRODUCTS	325
LEISTRITZ CORP.	PUMPS	267
LESLIE CONTROLS	VALVES/PUMPS	268
LONSEAL, INC.	MATTING & DECKING	269
MACKAY COMMUNICATIONS	COMMUNICATIONS	271
MANLY MARINE CLOSURES	MARINE CLOSURES	272
MAPECO, WALZ, KREUZER, INC.	SLIDING DOORS	273
MARINE PROFESSIONAL ASSOC.	ENGINE & DECK EQUIPMENT	274
MARINE TRAVELIFT	CRANES/HOISTS	275
MARKETEC, INC.	SCREENS	276
MCELROY MACHINE	MARINE EQUIPMENT	270
MICROPHOR	MARINE SANITATION	278
MINERALS RESEARCH & RECOVERY	PERMA BLAST	340
MMC INT'L	CLOSED SAMPLING TAPE	326
MOBILE TELESYSTEMS, INC.	NAVIGATION & COMM.	330
MORGAN CRANE	CRANES	280
MP PUMPS	PUMPS	281
MUNTERS	SPRAY & MIST ELIMINATORS	282
NELSON INDUSTRIES	ECOVENT RECIRCULATOR	283
JD NEUHAUS	HOISTS	284
NEW ENGLAND TRAWLER	DECK MACHINERY	285
NINE POINTS	ART/LIMITED EDITION	343
NORTHSTAR MARINE	FUEL TREATMENT	324
NORGES VAREMESSE	NOR SHIPPING '95	286
ORKOT ENGINEERED PRODS.	BEARINGS	287
POWER PARAGON	POWER MAGNETICS	327
POWER PARAGON	POWER SYSTEMS GROUP	328
REEF INDUSTRIES	MFG. OF INDUSTRIAL PLASTICS	323
RICE PROPELLERS	NOZZLE SYSTEM	332
ROCHEM SEPARATION SYSTEMS	WATER PURIFICATION SYSTEMS	346
ROLLA S.P.	PROPELLERS	289
ROLLA S.P.	PROPELLERS	290
ROSS ENGINEERING	NAVIGATION COMM.	291
ROYAL CHEMICAL	BALLAST & VOID COATINGS	292
ROYAL LUBRICANTS CO.	MARINE LUBRICANTS	293
SASAKURA ENGINEERING	FRESH WATER GENERATOR	294
SCANDINAVIAN MICRO SYSTEMS	DIGITAL GYRO REPEATERS	295
SCHAT WATERCRAFT	SAFETY SURVIVAL EQUIPMENT	296
SCHOTTEL-WERFT GMBH	PROPULSION	297
SCIENTIFIC ATLANTA	NAVIGATION/COMMUNICATIONS EQUIP.	339
SEACAST ELECTRIC	WIRE/CABLE	298
SEACOS	COMPUTER INFORMATION CENTER	299
SEA SYSTEMS	MARINE LADDERS	300
SEAWARD INT'L	FENDERS	302
KARL SENNER	SHIPBUILDING	303
SIFCO SELECTIVE PLATING	PLATING EQUIPMENT	304
SINGAPORE TELECOM	COMMUNICATIONS	305
SMITH BERGER MARINE	CHAIN STOPPERS	306
STANDARD COMMUNICATIONS	HAND-HELD VHF RADIO	307
STN SYSTEMTECHNIK NORD GMBH	ELECTRONICS	309
STORK-KWANT	CONTROLS	308
SUMMER EQUIPMENT	HYDRAULIC STEERING	310
TELEFLEX NAVAL TECH.	VALVES	311
TERN, INC.	BARGE PULLERS	342
THORDON BEARINGS, INC.	BEARINGS	337
TRIMBLE NAVIGATION	NAVIGATION/COMMUNICATION	312
TRINITY MARINE	SHIPBUILDERS	313
ULSTEIN PROPELLER A/S	PROPELLERS	345
UNIVERSAL SHELTERS	TEMP-PERMANENT SHELTERS	314
VIANOVA ENGINEERING SOLUTIONS	SHIPBUILDING EQUIP.	315
VITA MOTIVATOR	EDUCTORS	316
WARTSILLA DIESEL	DIESEL ENGINES	317
WASHINGTON CHAIN & SUPPLY	CHAINS	347
WATERMAN SUPPLY	MARINE EQUIPMENT	318
WESTERN MACHINE WORKS	HYDRAULIC TOW PINS	319
WILLARD MARINE	RIGID INFLATABLE BOATS	320
ZODIAC OF NORTH AMERICA	RIGID INFLATABLE BOATS	322

The listings above are an editorial service provided for the convenience of our readers.

THE MARINE MART

The Classified and Employment Section

HOW TO PLACE YOUR CLASSIFIED AD - IT'S EASY!

MARITIME REPORTER'S Classified Section Has It All

- Employment/Recruitment
- Vessels For Sale or Charter
- Equipment and Products For Sale

CONTACT: Susan Cosme, Maritime Reporter, 118 East 25th Street, New York, NY 10010 Telephone: (212) 477-6700 or Fax your ad copy to (212) 254-6271 ...

DEADLINE: The 15th of the month for the following months ad

FREQUENCY DISCOUNT RATES

1X\$80 ea.
3X\$75 ea.
6X\$70 ea.
9X\$65 ea.
12X\$50 ea.

COLUMN WIDTH	COLUMN DEPTH
1 COLUMN - 3"	MINIMUM - 1"
2 COLUMN - 6 1/4"	MAXIMUM - 12"
3 COLUMN - 9 1/2"	

EQUIPMENT/PRODUCTS/SERVICES FOR SALE

NEW 14"x10" PANAMA CHOCKS 7" RADIUS

(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.

MARITIME POWER CORPORATION
200 Henderson Street, Jersey City, NJ 07302
Phone: (201) 433-0870 • Fax: (201) 433-9287

SERVICE • REPAIR • PARTS CONSULTING • DESIGN

CUNNINGHAM MARINE HYDRAULICS CO., INC.

201 Harrison St. • Hoboken, N.J. 07030
(201) 792-0500 (212) 267-0328
FAX # (201) 792-7716

JACKSONVILLE, Florida 32202
(201) 792-0500
TWX 710-730-5224 CMH Hoboken, NJ



Smith Berger Marine, Inc.
SHIPBOARD SYSTEMS & FISH PROCESSING EQUIPMENT
The leader in deck hardware for over 60 years.
Ph: 206/764-4650 Fax: 206/764-4653
Smith Berger Marine, Inc. 516 S. Chicago St. Seattle, WA 98108

FOR SALE

Active Offshore Boat Company in South Texas - Docks, Warehouse with 3 furnished offices, 10 ton Cherrypicker, 2 trucks, Spare Parts, Tools etc., five Passenger/Supply Vessels USCG certified, 100-125', built 1978-1982

(512) 758-3673

KEEP IT COOL!

with WALTER KEEL COOLERS

- Trouble-free cooling for propulsion and auxiliary engines, A/C, refrigeration and RSW systems since 1927!
- Closed circuit cooling eliminates raw-water pump headaches and clogged sea strainers!
- Premium 70/30 Cupronickel WALTER Turbo Tube; turbulent action maximizes heat exchange!
- Streamlined, lightweight and demountable design conforms to hull curvature!

3 STYLES, 2 WITH ONLY
1 THRU-HULL FITTING

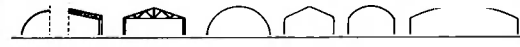


THE WALTER MACHINE CO., INC.
Tel: 201-656-5654 Fax: 201-656-0318
98 Cambridge Ave., Jersey City, NJ 07307

SHELTERS FOR SALE WE SHIP WORLDWIDE

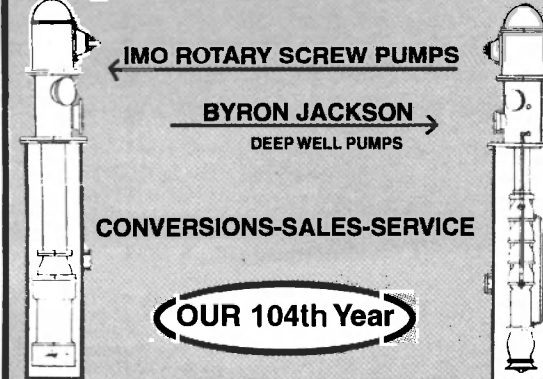


Work & containment shelters for sand blasting, paint spraying, and 100's of other applications. Sizes from 12' W x 12' L to 300' W x 1000' L. All clear span from 83' - 815' sq. ft. Galvanized steel frame with industrial grade vinyl fabric covers. Warranties from 5 - 20 years. Erect in hours, no slab or foundation required. Custom hanging, rolling & side mount shelters available. Call for free brochure, other standard shapes/styles:



poly-steel SHELTERS
1-800-330-9294 FAX 407-286-0166

BARGE PUMPS




CONVERSIONS-SALES-SERVICE

OUR 104th Year

DUVIC'S PUMPS

"Greater downtown" HARVEY, LA 70059
Box 1237 • 504-341-1654

EQUIPMENT/PRODUCTS/SERVICES FOR SALE



Shipbuilding & Repair
SMEC-DH, Shanghai, China

- China's largest shipbuilding & repair base
- Over 15 major shipyards & marine institutes
- Modern facilities & experienced work force
- Container ships, bulk carriers, tankers, etc.
- Model tank test, design & drafting services
- Port machinery & ship's equipment
- Salvage, dredging & geological survey
- Offshore supplies, anchors, chains, etc.

HCG Accommodation System

- Highly flexible regarding to bulkhead sizes
- Robust, uniform construction
- Low cost, Easy to install and maintain
- Superior fire resistance (SOLAS)
- Excellent sound reduction (44dB)
- Pleasing finished appearance
- Widely used in many types of ship

SEACOS Loading Computer

- MS-Windows and NT based
- Works w/ all leading gauging/sounding systems
- Graphical and pictorial presentations
- ABS, LR, DNV, GL, BV, KR, NKK approved
- Used on more than 350 ships/vessels
- Other marine software

Your Exclusive Agent in North America
ALL ALPHA INTERNATIONAL, INC.
P.O. Box 498985, Cincinnati, OH 45249 U.S.A.
Tel: (513) 683-6589 Fax: (513) 683-5359

Attention Owners of
30 Year Old Tank Barges
Federal Register Vol. 58, No. 194 & OPA 90

The above regulations specify that these tank barges must have local and overall structural strength calculated by a Certified Professional Engineer for submittal to USCG for Certificate of Inspection every 5 years starting Nov. 8, 1993 at first internal inspection.

Fax 203-831-0407 or write to receive a complete quotation package, including all-inclusive costs for immediate calculation turnaround and NAVIC 10-92 USCG submittal. Quantity discounts available.

Corning Townsend, PE #9470




CT MARINE
NAVAL ARCHITECTS • MARINE ENGINEERS
56 Crooked Trail
Rowayton, CT 06853

CUT AND POST!

LARGE VESSEL MOORING EQUIPMENT

- Large Pedestal Fairleads with 15" rollers.
- Large Bulkhead Chocks 18"x24" bow and stern.
- Smit Brackets S.W.L. 200 ton for 76m.m., 3" chain
- 200 ton S.W.L. Bow Stopper and Plinth

ALL IN STOCK - IMMEDIATE DELIVERY

MARITIME POWER CORPORATION
200 Henderson Street, Jersey City, NJ 07302
Phone: (201) 433-0870 • Fax: (201) 433-9287

FOR SALE PIPELINE EQUIPMENT

6-2450 HP NORDBERG DUAL FUEL ENGINES TYPE
FSG 138 HSC 514 RPM 6 CYLINDER 13 1/2 X 16 1/2

13 - BINGHAM-WILLAMETTE PUMPS
10,000 - 16,000 GPM

14 x 14 x 16 1/4	11,700 GPM
14 x 14 x 15 1/2	9,800 GPM
16 x 18 x 27	11,800 GPM
16 x 18 x 30	11,700 GPM

12 - 2400 HP SPEED INCREASERS
WESTERN GEAR CORP. 7.196:1
DOMINION ENGINEERING 6.127:1
LUFKIN FOUNDRY 3.524:1

THE ABOVE IS IN EXCELLENT CONDITION AND AVAILABLE FOR IMMEDIATE SHIPMENT FROM VANCOUVER, B.C. SUBJECT TO PRIOR SALE.
(718) 428-4862



Archway has a new Marine Products Catalog

We now feature Medical and Safety Products. Our catalog will save you Money, Time and Effort!

Please call, fax or write for your FREE COPY today!

Archway Marine Lighting
4501 Swan Avenue • St. Louis, MO 63110
Ph: (800) 737-1314 • Fax: (800) 627-1065
Ph: (314) 535-1314 • Fax: (314) 535-5471

HAMPTON ROADS MARITIME TRAINING CENTER

- The best maritime training available and at fair prices
- U.S. COAST GUARD APPROVED COURSES.
- Courses held every week.
- 5 Radar Displays - Radar Simulator Training since 1983.
- Examination Prep Courses for all licenses/USMMD's.

COAST GUARD APPROVED COURSES

RADAR (Original)	5 Day	\$ 300.00
RADAR (Renewal)	3 Day	\$ 150.00
RADAR (Renewal)	1 Day	\$ 75.00
ARPA (Original)	5 Day	\$ 425.00
FLASHING LIGHT		\$ 100.00

207 GRANBY STREET, SUITE 307
NORFOLK, VA 23510
(Across From The Federal Building)
PHONE: (804) 622-1869 or 625-2126

JON M. LISS ASSOCIATES, INC.
411 BOREL AVENUE, SUITE 505 • SAN MATEO, CALIFORNIA 94402



NAVY STANDARD VANEAXIAL FANS
Delivery From Stock

(415) 573-9191
FAX (415) 572-8458

LOW COST PRECISION ANALYZERS

Portable Malin 3000 - Diesel Engine Analyzer
Malin CDM - Crankshaft Deflection Meter

Award Winning

FCS, INC. 22 Main Street, Centerbrook, CT 06409
Tel: (203) 787-3095 Fax: (203) 787-1283

FOR SALE

(2) HALEY GEAR BOXES • NEW

- Model RH 2435
- 2000 H.P @ 850 R.P.M.
- 3.58:1 Ratio

(1) 750 TON PRESS BRAKE

- 16' Bed With Dies

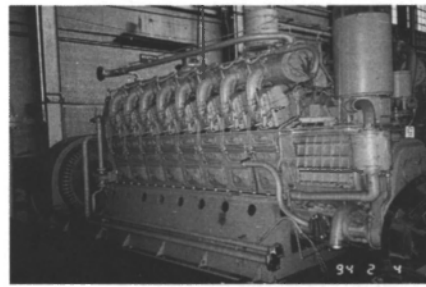
Contact: Danny Walker - James Marine, Inc.
(502) 898-7392

50 th ANNIV

THOUSANDS OF NEW AND USED MARINE AND INDUSTRIAL ITEMS AT
GENERATORS - WINCHES - WINDLASSES - CHAIN - ANCHORS - DIESEL

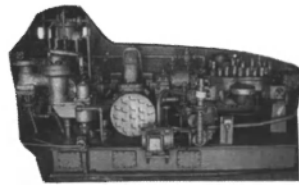
ALL AT GIVEAWAY PRICES - COME VISIT US AT

THREE EMD 16-278A 1000 KW GENERATOR SETS RECONDITIONED



Type: 2 Cycle Hp: 1600 RPM: 720
Generator: Ideal KW: 1000 Volt: 4160/2300
Cycles: 60 Phase: 3 Type: Single Bearing

NEW FEED PUMPS



Feed Turbine-Turbodyne - Frame: 284SWVK CCW
Rotation 1070hp 1370# 750° F 40# Exh. 287° Exh.
Temp. 7350rpm Order # U19964 Ber. #33533.
PUMP - Ingersoll - Rand Size 3DM - 4700 @ 4250'
7000rpm 2700# Hydro Ser. #0475 - 78. CAN BE
OPERATED AT LOWER PRESSURE.

FOSTER WHEELER ECONIMZER ELEMENTS



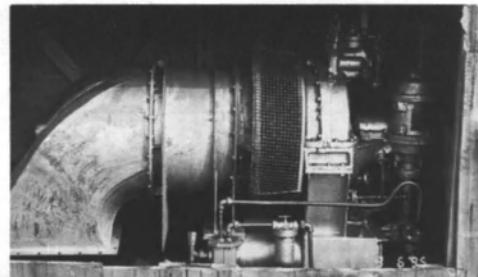
1 1/2 Stud tubes - 1500 lb test - Brand new cost
\$3500 each per section - We Offer at \$795 Each -
60-8 tube sections available - other economizers
available

WORTHINGTON DUPLEX PUMP RECONDITIONED



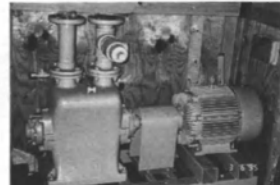
SIZE 10 X 11 X 12, S/N 1088751

WORTHINGTON - HORIZONTAL VANAXIAL FANS FORCED DRAFT



CFM: 19,300, PRESS: 25-35, RPM: 5075
Steam Press: 575 PSIG, Exhaust: 15 PSIG

4 NEW MEGATOR PUMPS with MOTORS



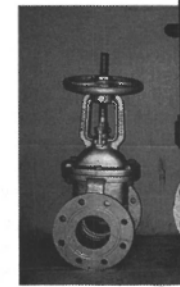
150 GPM @ 50 psi ALL BRONZE
Model: H300 S/N 9064 RPM: 875
MOTOR: Marathon 10 HP 230/460 Volt

ANCHORS & CHAIN

9 - Shots NEW 70MM Gr3 Anchor
Chain with ABS Cert. \$2,750/Per
Shot Connecting Links & other
fittings at similar low prices.

Also: 13,000# & 15,000# Anchors

VALVES RECOND



GATE VALVES

ANGLE VALVES

48" 100 lbs. \$5500/each	20" 150 lbs. \$1800/each
44" 100 lbs. \$5000/each	18" 150 lbs. \$1800/each
34" 100 lbs. \$3500/each	14" 150 lbs. \$1800/each
32" 100 lbs. \$3000/each	12" 150 lbs. \$1800/each
24" 100 lbs. \$1800/each	10" 125 lbs. \$1800/each

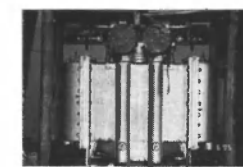
We have *hundreds* of other valves in stock down to 1/2" diam.

NEW WORTHINGTON HORIZONTAL PUMP



GPM: 1000 PSI: 150 RPM: 1840 Impeller: 19-1/8"
Model: 6LA4 S/N 1618686 ALL BRONZE MOTOR:
Reliance 150 HP, CAN BE FURNISHED WITH 440 AC
MOTOR RPM: 1840 FRAME: 505 AS AMP:531

NEW C H WHEELER AIR EJECTOR ASSEMBLY



Model: 4H300 S/N 38269 Steam: 300#



Maritime Reporter/Engineering News

RESARY SALE

ACRE YARD AND WAREHOUSE PUMPS - MOTORS - TURBINES - DIESEL
S - BOILER PARTS - ECONOMISERS - FANS - COMPRESSORS - VALVES

THE RIVER FROM THE WORLD TRADE CENTER

RECONDITIONED & NEW



GLOBE VALVES

ch 16" 125 lbs. \$2500/each
ch 10" 125 lbs. \$900 /each
ch 8" 125 lbs. \$400 /each
ch 6" 150 lbs. \$300 /each
ch 5" 150 lbs. \$200 /each
Please contact us with your specific require-

RECONDITIONED COFFIN TURBO PUMP



TYPE: CG GPM: 320 @ 1330' Head PSI: 430 Exhaust
PSIG: 7 S/N 11688R-CG

NEW ENGLAND TRAWLER POWERED WINCH/DRUM



11000 lbs. @ 45 Feet Per Minute Drum Diam: 14"
HP: 15 Volt: 440 Cycles: 60

ER CORPORATION

ITY, N.J. 07302 • TELEPHONE: 201-433-0870
TELEX: 620533 MARPOW
FAX: 201-433-9287



April, 1995

TWO (2) B & W 8-26 MTBH - 40 1008 KW GENERATOR SETS

HP:1400 RPM: 600
Generator: Nebb KW: 1008 Volt: 460
Phase: 3 Cycles: 60

NEW - SPENCER TURBINE BLOWERS



CAN EXHAUST HAZARDOUS FUMES
55 CFM, 2 HP, 3500RPM, 440 Volt, Inlet Press: 14.7
PSIG Diff. Press: 30 HzO

2 WORTHINGTON HIGH PRESSURE PUMPS

GPM: 1200 @ 1155' Head Size: 8 x 6 RPM: 3550
S/N ZS-8011 MOTOR: General Dynamics 500 HP
2300 Volt 3560 RPM 585WS Frame
2 NEW WARREN SCREW PUMPS
Type: Lube Oil Vertical Size: 3.5 GPM: 150 @ 168'
Head RPM: 1150 Suction Lift: 15 Discharge: 60#
S/N W-1509

DE LAVAL FUEL PUMP

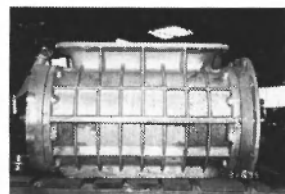
Type: M31P131 GPM: 6.5 RPM: 1070-1430 PSI:
450 S/N 301899

4 NEW DESTROYER FORCED DRAFT FANS



MAX: 22,000 CFM @ 7,900 RPM - MIN: 15,000 CFM @
5,400 RPM - PSI: 570, Temp: 640, Type: 44bh -
Exhaust Press: 15, Size: 15, HP: 250

2 RECONDITIONED EMD BLOWERS

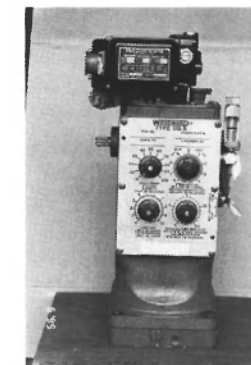


For Model 645E 12 Cyl. P/N 8189438

AVAILABLE DIESEL PARTS FOR ALL LARGE ENGINES:

ENTERPRISE M: Connecting Rod, P/N M-4799 -Pistons
Gen Engine, P/N M-4210 - Bearing Shells, Conn Rod, P/N
M-4754 - Bearing Shells, Center Main, P/N M-4757 - Bear-
ing Shells, Crank Shaft, P/N M-4755
ENTERPRISE R: Pistons, P/N 1A-1737 - Connecting Rod,
P/N 1A-1838 - Bearing Shell, P/N R-3406 - Bearing, P/N
03-310-03-OH - Bearing, P/N 03-340-05 AG/AE - Cylinder
Head, P/N 1A-6446 - Valve Assembly, P/N 1A-6250 - Valve
Assembly, P/N 1A-5634
PIELSTICK: Exhaust Valve, P/N 3435K126 - Intake Valve,
P/N P12605488 - Rocker Arm Assy, P/N P12610667
CLEVELAND 278A: Bearing, P/N 3320545 - Cylinder Head
- Lube Oil Pump, P/N 3246357 - Liners, P/N 3303322
CLEVELAND 268A: Liners, P/N 3303124 - Head, P/N
3229544 - Water Pump, P/N 3230056 - Injectors, P/N
5227330 - Bearings, P/N 3249660 - Bearings, P/N 3262585
- Upper Rod Shell, P/N 3320381 - Lower Rod Shell, P/N
3320382
YANMAR Z280L: Crankshaft, P/N 753623-21010 - Main
Bearings, P/N 153636-02350 - Relief Valves, P/N 153623-
03530 - Piston Rings, P/N 153623-22120
SULZER RD90: Bush for Cover, P/N E-25125 -Thrust Bear-
ing, P/N E-25151 - Bearing for Exhaust Valve, P/N25161 -
Coupling Lever for Exh. Valve, P/N E-25306
SULZER RND90: Relief Valve Seats, P/N 621327701 -
Relief Valve Spindles, P/N M27704 - Fuel Injector Nozzle,
P/N 6219-272502 - Fuel Injector Nozzle, P/N 6219-27580 -
Nozzles, P/N M27240 - Nozzles, P/N 6219-272502
EMD ENGINE: Injector Gear, P/N 5226498 - Lower Center
Main Bearing, P/N 8060787 - Lower Front Main Bearing, P/
N 8060789 - Lower Rear Main Bearing, P/N 8060791 - Pair
of Blowers, P/N 8189438

NEW WOODARD TYPE UG-8 GOVERNOR



121

EMPLOYMENT/RECRUITMENT

MARIT ~ Since 1904 ~

- Stud Link Anchor Chain
- Open Link Chain
- Marine Railway Hauling Chain
- Chafe Chain
- Anchors, Shackles & Fittings

ETS. MARIT
856 Chemin De L'Empire
59230 Saint Amand Les Eaux
FRANCE
Tel: 3327 48 42 15
Fax: 3327 48 90 00

CLASSIFICATION
SOCIETY APPROVED

Need a Better Job?

The Mariner's Employment Guide can help you! Listings by states, unions, schools, shipboard, offshore, yachts, riverboat casinos, cruise ships, etc. Includes help in license procedures, average wages, position descriptions, travel paid, vacation pay, etc. 350 pages, over 8,000 addresses, covering 50 states, and much more. Send \$39.95 plus \$4.00 S&H to:

Marine Techniques
126 Western Avenue, Suite 266
Augusta, Maine 04330-7252
Phone: 207-622-7984

Credit Card Orders Only phone Bluewater Books & Charts:
800-942-2583 ISBN 0-9644915-0-3
Dealer Inquiries Welcomed ISBN 1080-3289

GILCO SERVICES
Marine Brokers


P.O. BOX 22580
HONOLULU, HI 96823 USA
Tel/Fax: (808) 597-8550

Further Work
Workboats
Barges
Dredges

Demolition
Tankers
Bulkcarriers
Drill Ships

Offshore Contractors Equipment
Oil Rigs
Floating Equipment

TACHOMETER
Guaranteed accurate to 1 RPM. Withstands severe marine use.
AETNA ENGINEERING
800-776-7962 FAX 818-366-7896



EMI
ENGINE MONITOR INC.

179 Hickory Ave.
Harahan, LA 70123
TEL: (504) 737-3172
FAX: (504) 737-1094

"INNOVATIVE PRODUCTS FOR THE MARINE INDUSTRY"

- AEVADS
- MODULAR ALARM SYSTEMS
- PUBLIC ADDRESS SYSTEMS
- DIGITAL ALARMS & MONITORING
- ANALOG / DIGITAL METERS
- DIGITAL STEERING / CONTROLS
- ELECTRO-HYDRAULIC STEERING
- WATERJET CUTTING
- LASER GRAPHICS PRODUCTS
- NAVIGATION LIGHTING PANELS

CUSTOM DESIGNED MICROPROCESSOR BASED INTERMITTENT CONTROL, MONITORING AND ALARM SYSTEMS

WANTED TO BUY

MARINE & SCRAP BROKERS

- Marine Salvage
- Ships
- Floating Equipment
- Barges For Scrap

Fax Description, Location, Price to:
815-722-1795 or 815-725-3845

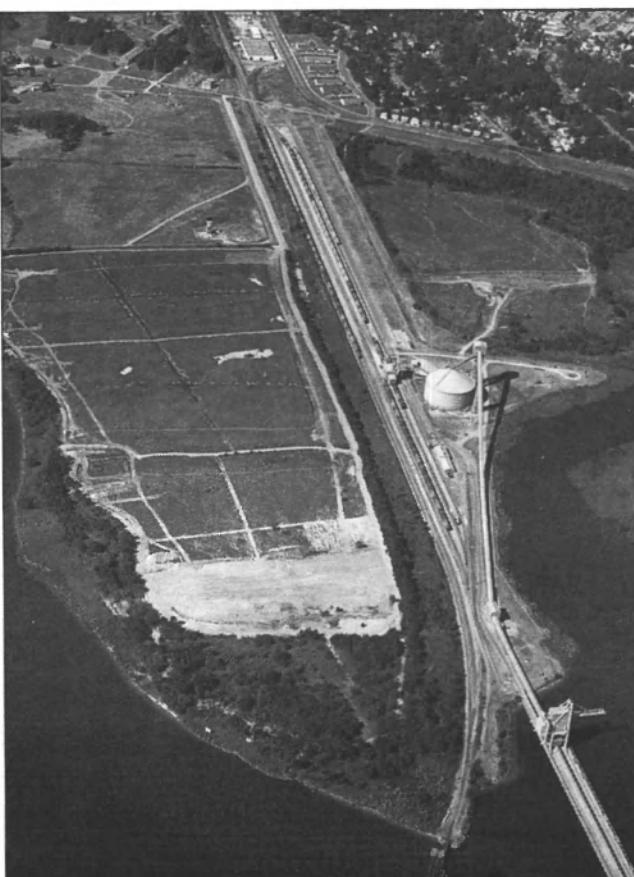
FOREIGN SPARE PARTS

SCARDANA

Fax: (1) 514-671-3898 (24 hrs.)
Tel: (1) 514-465-2480 (24 hrs.)


M/E - T/C - Aux. - Machinery - Equipment.

FOR SALE
Prime Waterfront Site
in the Port of Hampton Roads

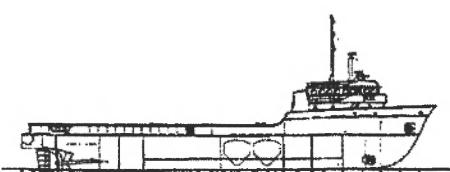


- 96.6 cleared, industrially zoned acres on 35 foot channel
- Just 18 miles from the open sea fronting 3500 feet on the Southern Branch of the Elizabeth River
- Rail abuts northern boundary of the property
- Part of the Port of Hampton Roads - one of the busiest ports on the East Coast
- Ample skilled and semi-skilled labor in the nation's northernmost Right-To-Work State
- In the heart of Hampton Roads, the 27th largest metro area in the country
- Within a 750 mile radius of 2/3 of the U.S. population and industrial activity

For more information contact: Donald Z. Goldberg, Executive Director, Chesapeake Port Authority, 860 Greenbrier Circle, Tower I, Suite 304, Chesapeake, VA 23320 Phone (804) 523-1100 Fax (804) 523-4235



**VESSELS FOR
SALE/CHARTER**

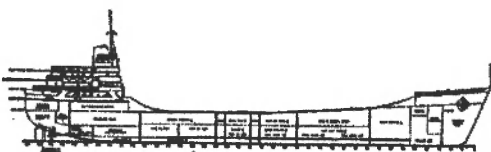


'OSV NORTH SEAHORSE

190' X 40' X 18'

PRICE: \$1,200,000.00

"As Is/Where Is"



Ex-Drill Ship **GLOMAR CONCEPTION**

400' X 65' X 26'9"

PRICE: \$2,000,000.00

Contact: Linda Lewis at Bender Shipbuilding and Repair Co., Inc. (334) 431-7949, for further information or to arrange inspection. Broker inquiries invited.



Specializing in

- Water Transportation of General Cargo, Chemicals and Bulk Petroleum
- Sales, Charters and Brokerage of Marine Equipment and Vessels
- Vessel Design, Construction and Repair



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

**FOR SALE OR CHARTER
CARGO DECK BARGE**

Barge Dimensions: Length 250 ft., Width 72ft. Height 15 ft., 6 in.
Gross Registered Tonnage: 2238 ton
Maximum cargo capacity: 5500 ton
Location: Green Cove Springs, Florida
Availability: Immediate
Charter Rate: Negotiable depending on duration, use and location

Contact:
MARINER TOWING LTD.
169 Pope Road
Summerside, P.E.I. Canada, C1N 5C6
Phone: (902) 436-5967
Fax: (902) 436-6944

OCEAN DECK BARGE FOR SALE

200' x 54' x 12', built 1973 as 160' barge, lengthened 40' in 1979 & laidup in fresh water ever since, 1/2" & 7/16" hull, 20 watertight cpts, 20 rakes & 12 midbody cpts, approx. 2600 ST DWT at ABS loadline, good audio-gage readings & excellent appearance, can work as-is but renewing ABS loadline estimated to cost \$80,000., can be shortened 20' for use as square-sterned crane barge, located Houston, \$350,000.

HOUSTON BARGE & BOAT SALES
c/o Jim Brooks PH: 713-558-1199

FOR SALE

4000 HP Tugboat, EMD20-645-E5. Built in 1942; major conversions in 1968 & 1993. 123' x 30' x 14.6', ABS all oceans, bow thruster. Located on the West Coast. Asking \$685,000. (206) 632-5206.

PROPOSALS

REQUEST FOR PROPOSALS

Investors group requests interested parties to submit designs and proposals for the construction of two high speed ferries. Ships to be built to USCG, ABS, IMO requirements. Basic criteria: 100 meters, 450 passengers, 100-125 automobiles, 300-400 ton cargo pay load, 50 kt. sea speed. Respond to:

**Box #401
Maritime Reporter
118 East 25th Street
New York, NY 10010**

**When you need to make those tough decisions...
make sure you have the current facts...
in your hands every 10 days with**

**THE Marine
Newsletter**

Edited for Marine Industry decision-makers like yourself... and packed with the kind of "Need To Know"

information that you rely on to make critical business decisions... Every 10 days you'll receive your personal First Class copy of The Marine Newsletter... Order yours today!

**SPECIAL CHARTER SUBSCRIPTION OFFER
20% DISCOUNT — SAVE \$59!**

For FAST service, FAX your order to (212) 677-8843
Or mail your check for \$236 to: **MARITIME REPORTER**
118 East 25th Street, New York, NY 10010 USA

Yes! Enter my subscription to **The Marine Newsletter**. I'll receive a Full Year—36 news-packed issues at the special introductory rate of \$236.

Enclosed is payment of \$236. Bill me. Bill my company.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Country _____

Signature _____

EMPLOYMENT/RECRUITMENT

CRANE MAINTENANCE SUPERINTENDENT

Progressive organization in the marine transportation industry seeks responsible individual with minimum of three years experience in container crane maintenance field with Bachelor of Science in electrical, mechanical or marine engineering. Training in electronic and mechanical repair/troubleshooting is recommended. Experience in project development and management highly desirable. The successful candidate will exhibit excellent communications skills and must have strong Management/Human Resources problem solving abilities. Please submit resume and salary requirements to: P.O. Box 1494, Savannah, GA 31402. An Equal Opportunity Employer, M/F/H/V.

MARITIME EMPLOYMENT DIRECTORY

EXPANDED FOR '95 LARGEST EDITION YET!
NATIONAL SOURCE BOOK OF MARINE COMPANIES, SCHOOLS & NAUTICAL BOOK STORES. Names, Addresses, Phone & Fax Numbers, Deep Sea, Coastwise, Casinos, Inland, US & Foreign Flag Listed A to Z by State.
Send \$29.95 TO: AMERICAN AGENDA
PO BOX 1408R, Port Aransas TX 78373
MONEY BACK GUARANTEE
COD SHIPMENT 512-749-6910
COD Chg. \$8.00 Total \$37.95

DESIGN MANAGER

A progressive Naval Architecture and Marine Engineering firm is currently looking for a talented and motivated individual with demonstrated years of experience in Drawingroom Management.

Areas of necessary experience must include Navy and Commercial ship design and repair, ability to coordinate and monitor drawing schedules and work performance, develop cost estimates, negotiate Change Orders and strong administrative planning and communication skills.

In addition to salary, this challenging position offers paid vacations, personal time and holidays, health care plan and life insurance.

Interested parties should mail or fax resumes to:

 **TIDEWATER**
NAVAL ARCHITECTS, INC.
355 Crawford Parkway, Suite 214, Portsmouth, VA 23704
Fax: (804) 399-0325

A Superior Crew Service
Officers & Ratings immediately available
Rotterdam

For shorter or longer employment.
Salaries depending on Nationality and education (certificates).
For further information and supply, please contact:

La Crosse Consultants AG Holland
a Marine Temp Agency offering ship owners and managers a profitable course of crewing.
Tel: +31-10-486 4022 • Fax: +31-10-423 2002
• Telex: 20061 cross nl
P.O. Box 5737, 3008 AS Rotterdam -The Netherlands

PORT CAPTAIN OIL TANKER

With Bachelor of Science or equivalent in Naval Science or Marine Engineering and 5 years experience in job offered or 5 years experience as a Supertanker Captain. Manage on/offshore activities for crude oil tanker vessels by supervising vessels' operation to assure safety and oil pollution prevention in port. Monitor delivery/receipt of dry and wet cargo. Arrange for other services, as per federal and state regulations, such as ship safety inspections, tests, overhauls, spill response, etc. Board supertankers to develop safe operation plan. Salary \$61,750/year, 40 hours/week. Apply at the Texas Employment Commission, Houston, Texas, or send resume to the Texas Employment Commission, TEC Building, Austin, Texas 78778, J.O. #TX7212249. Ad paid by an Equal Opportunity Employer.

WANTED: Operator for Midstream Handling Facility at Deep Water Port on the Mississippi River

Strategically located midstream mooring facility on the lower Mississippi with 45-foot channel. Dry bulk and general cargo can be transferred between ship and barge efficiently and cost-effectively at the head of deep water navigation on the Mississippi for transshipment through the Intracoastal Canal and the Red River to points west, east and north. For more information, contact Gary K. Pruitt, executive director at the Port of Greater Baton Rouge.

Telephone: (504) 342-1660 Fax: (504) 342-1666

TO RESERVE YOUR
CLASSIFIED AD

CALL (212) 477-6700

OR


FAX YOUR ORDER TO

(212) 254-6271

Deadline For Advertising is the 15th
of the Month prior to issue.

Michael R. Keough, CPC
KEOUGH ASSOCIATES
P.O. Box 010990
Slaten Island, N.Y. 10301-0006
PH: (718) 979-8698 FAX: (718) 667-8347
Recruitment & Personnel Consultants to the Marine Industry

PORT ENGINEERS - American Systems Engineering Corp. (AMSEC)
has provided Port Engineers and related marine services to the U.S. Navy, other government vessel operators and major ship operating companies for many years. As we expand our Marine Services Operations, we seek USCG licensed engineers with at least a BS in engineering, at least six years prior merchant vessel operational experience and significant depot/shipyard experience. NOAA, MARAD, MSC or commercial senior engineering management experience desirable. U.S. citizenship required. EOE. For further information, contact Andy Ott at (804)463-6666. Send resumes to:

 Director of Human Resources
AMSEC, Dept. HR 04-137
2829 Guardian Lane
Virginia Beach, VA 23452



MANAGEMENT POSITION AVAILABLE

Vessel Maintenance - Port Engineer for a marine towing company. Must have experience. Send resumes to:
Human Resources
4227 Canal Street,
New Orleans, LA 70119

"BOAT CREWS"

Captains, Pilots, Mates, Deckhands,
Tankermen, AB's, and Engineers.

CREWS NEEDED ASAP!

To work on tugs and vessels operating
offshore and inland waters.

Boat Crews USA - New Orleans, LA
(504) 362-8809

CONSTRUCTION CLAIMS CONSULTANTS

Resolution Management Consultants Inc. seeks Jr. & Sr. level consultants experienced in CPM scheduling (C/SCS), estimating, construction management, and the analysis of claims. Familiarity with scheduling, spreadsheet, database and graphics software a definite plus. Engineering degree required. PE and advanced degrees desired. Resolution Management, a leader in its field, provides an excellent benefits package with salary commensurate with experience. Send resume to:

Director of Human Resources at
6065 Atlantic Boulevard, Suite E
Norcross, Georgia 30071

No calls please.

EOE

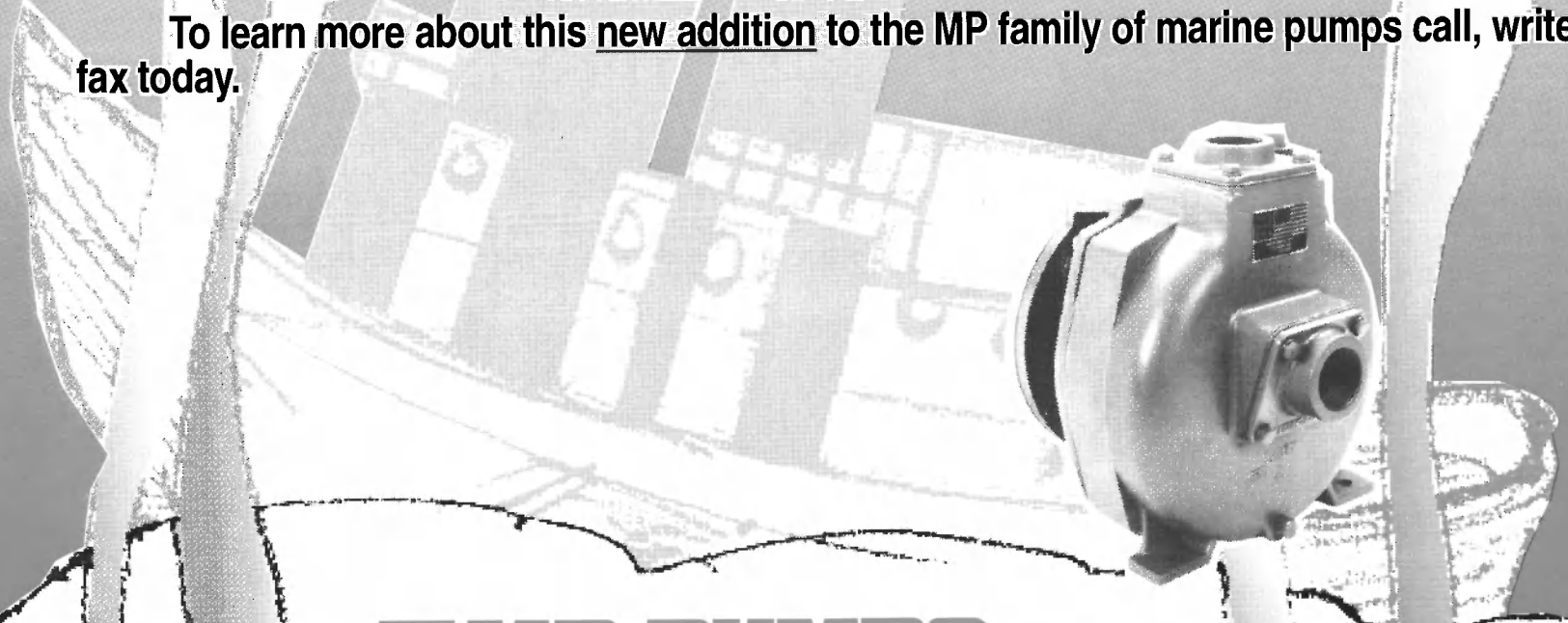


I Should Have Bought a New MP HHLF!!!

Pump impellers of composition rubber often burn up, and though cheap and easy to replace, it happens at sea frequently. Your demands for firefighting and auxiliary pumping are critical.

Iron or bronze are the proven materials used in the manufacture of MP's new HHLF. Designed for high pressures, they exceed USCG requirements for fire control.

To learn more about this new addition to the MP family of marine pumps call, write or fax today.



MP PUMPS, INC.
TECUMSEH PRODUCTS COMPANY
34800 BENNETT DRIVE • FRASER, MI 48026-1686
(810) 293-8240 • FAX (810) 293-8469
Circle 281 on Reader Service Card

*Scientific-Atlanta MariStar® Multi-M Satellite
Communications System improves passenger service
while increasing per passenger revenue.*



Scientific-Atlanta helps make the civilized world more so.



Reap the benefits of the most advanced satellite communications technology available today. MariStar®-M satcom provides high quality global telephone, fax and data communications via Inmarsat.

MariStar-M systems are available with 1-16 channel configurations, while MariStar Multi-M systems can be supplied with a 56/64 kbps channel if required.

Net revenue per passenger will increase dramatically, facilitated by low initial capital investment, and reduced costs for usage and credit card processing. For Multi-M channel configurations, a very user friendly Monitor & Control system (M&C) records all call details. Your passengers will be delighted with the improved service and so will you.

Join the many passenger vessels that are enjoying the advantages of Scientific-Atlanta's MariStar-M system. Regardless of your vessel's size and itinerary, we can offer you a cost effective solution. For the full story, please call +1-404-903-6001.



MariStar is a registered trademark of Scientific-Atlanta, Inc.

Scientific-Atlanta, Inc.
Mobile Satellite Systems,
1650 International Court
Norcross, Georgia 30093 USA

**Scientific
Atlanta**

Circle 33 on Reader Service Card