Vol. 36 No. 3

May/June 1995

Turbomachield Billing Comment of the Comment of the

Covering the selection, operation, maintenance and overhaul of rotating equipment



Gas Turbine Issue

- Power Generation
- Mechanical Drive
- The kerical Priva

Transportation

Special Pull-out Section: Guide to ASME Turbo Expo'95 Houston, Texas, USA June 5-8



Turbomachinery Publications

Established in 1959

Founders

G. Renfrew Brighton R. Tom Sawyer

Turbomachinery International

Publisher Skip Ruch,114

Editor

Thomas Barker, 115

European Editor Eric Jeffs

Contributing Editors William E. Forsthoffer Walter R. May Diane Raflo

Art Department Director Hans Gschliesser, 146

Assistant Art Director Catherine Wakeman, 157

President James E. Jones, 106

Circulation Manager Arthur Heilman, 136

Director of Production Frances Salamon, 109

Production Manager Peggy Eadie, 138

Telephone extensions are listed next to the names above

Editorial Offices

50 Day Street, P.O. Box 5550 Norwalk, Connecticut, U.S.A. 06856-5550

Tel: (203) 853-6015 Fax: (203) 852-8175

Telex: 353706 BUSJOURNORWK Cable: TURBOMACHI — Norwalk, CT U.S.A.

European Editor - Eric Jeffs Tel: [44] 1494-864-383 Fax: [44] 1494-890-090

Affiliated Research Firm

Forecast International President: Ed Nebinger 22 Commerce Road Newtown, Connecticut, U.S.A. 06470 Tel: (203) 426-0800

Fax: (203) 426-4262

Subscription Rates

U.S.: 1 year \$49: 2 years \$75. Canada: 1 year \$75 (Canadian); 2 years \$98 (Canadian).

Foreign (Sea Mail): 1 year \$60. Foreign (Air Mail): 1 year \$100.

Claims for undelivered copies not honored after 30 days from publication (90 days for overseas).

Turbomachinery International is published for key management and engineering personnel in turbomachinery using industries. Our editorial content is aimed at keeping our readers informed of all important developments in the field. We provide concepts, technical details and business developments to enable our readers to share the experiences of others as to systems, approaches and equipment that have proven valuable, and to stimulate new approaches to energy conversion. Publisher makes no guarantees or recommendations concerning any process, procedure or device described herein. Turbomachinery International is published seven times a year (six magazine issues and one handbook) by Business Journals, Inc. Executive and Editorial offices, 50 Day Street, Norwalk, Connecticut, U.S.A. 0855, Wolume 38, Number 3. Copyright © 1995 by Business Journals, Inc. Second Class postage paid in Norwalk, Connecticut and additional malling offices. (USPS 871-500. ISSN 0149-4147). Turbomachinery International is available on microfilm from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, U.S.A. 48106. Postmaster: Please send address changes to Circulation Manager, Turbomachinery International, P.O. Box 5550, Norwalk, CT 06856-5550 U.S.A.

Turbomachinery

May/June 1995, Vol. 36, No.3

Features

20 GT35: the Aero Engine that Never Was

Rescued from a cancelled Swedish aero engine program in the 1950s, ABBs 17-MW gas turbine continues in demand as a generating package. by Eric Jeffs

25 Greenwich Turbine Supples Senegal with 25 MW in Six Months

Within six months of the contract signing, Greenwich Turbine, Inc supplied a Pratt & Whitney gas turbine which provided a 14% increase to the power generation capacity of Senegal.

29 ESI Offers Russian **Aeroderivatives in the West**

Energy Systems, Inc of East Haven, Connecticut is packaging Russian-built aeroderivative gas turbines for power generation.

by Thomas Barker

33 Introduction to Repowering

Gas turbine repowering has been a part of the power industry since the early 1980s. And we will hear more about it in the future.

34 Bergen Repowering Project **Nears Operation**

The PSE&G Bergen Generating Station, now about to reenter service, provides a good example of why plant operators consider repowering direct-fired plants with gas turbines.

38 Derwent Cogeneration Renews Steam Supply to Courtaulds

A 220-MW gas turbine CHP scheme replaces coal-fired boilers at Courtauld's power station, near Derby, England. It provides steam both to processes and to drive the three existing back-pressure turbines.

by Eric Jeffs

42 GE LM2500+ Power Turbines

General Electric's LM2500+ gas turbine. which will be available with both lowspeed and high-speed power turbines, is intended for the power generation and mechanial-drive markets.

46 Design of a Gas Turbine **Burning Explosive Fuel**

Practical considerations for using naphtha as a gas turbine fuel. Part One of a two-part series. by G.K. Roy, PT Indo-Rama Synthetics

50 Concepts ETI Enters 15th Year with Increased Vigor

The Vermont, USA education and design company recently held their second turbomachinery forum at their new headquarters. by Skip Ruch

Departments

- 2 Publisher's Message
- 10 Calendar
- 14 Contracts and Orders
- 18 Business/Management Update
- 55 Industry News
- 60 New Products
- 60 New Literature
- **62** Advertiser Index

On the Cover: GAS TURBINES **EVERYWHERE!** The Rolls-Royce line-up of turbofan engines for the world's civil fleet provides a range of thrust from the 1900-poundthrust FJ44 business jet engine to the 90,000 lbst Trent 800 (the largest commercial turbofan ever produced by Rolls-Royce). Left to right, top: International Aero Engines V2500, Trent 700, RB211-535E4. Bottom: Tay, RB211-524G, Williams-Rolls FJ44, Trent 800, BMW-Rolls-Royce