



# brushstrokes

The Newsletter of Brush Electrical Machines

PART OF THE  FKI GROUP OF COMPANIES

spring 2000



Once again, I am pleased to welcome you to Brushstrokes, with news from Brush Electrical Machines Ltd.

As our business enters its second new century, Brush Electrical Machines can look ahead with confidence as the forecast for expansion in worldwide electrical power generation requirements gathers pace. At the turn of the last century, a typical generator from Brush produced approximately 1MW. Today that typical generator produces over 50MW.

The next 100 years are certain to be just as exciting and challenging. Here at BEM, just as in the past, we are preparing to confront future challenges with determination and commitment. You can see inside just how we are doing this.

*Tony Saia, Managing Director*

## DAX News

### INCREASED ORDERS FOR DAX

A substantial number of Brush DAX turbogenerators have been ordered by S&S Energy Products for delivery in 2000 as a result of continued high demand for their packaged generator sets in the United States.

Amongst others, S&S Energy Products, a GE Power Systems business, has been awarded a \$280 million contract from Reliant Energy, Houston, Texas, to provide 19x44MW GE LM6000 aeroderivative gas turbine-generator sets.

Fuelled by natural gas, the gas turbines provide the flexible start-and-stop capabilities that Reliant needs in order to quickly, efficiently and safely produce power from its portfolio to meet peak demand. Reliant Energy will operate the gas turbines in simple-cycle mode for peaking power.

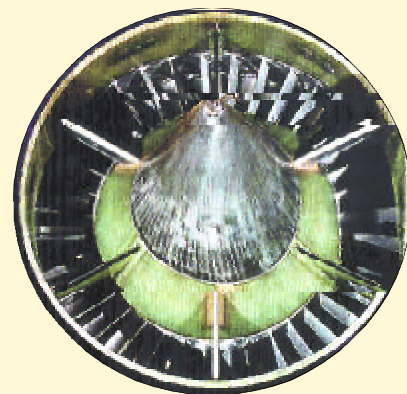
Some units will begin service in the summer of 2000, with the remaining slated for operation in the summer of 2001. Reliant Energy has announced plans to use eight of the units at a site in Shelby County, Illinois.

S&S Energy Products will fabricate and assemble the LM6000 gas turbine generator packages at its Houston manufacturing facility.

*Tony Fogwill  
Manager of Industrial Sales*

### ROLLS-ROYCE ORDERS

Brush Electrical Machines has received an order for the supply of two DAX turbogenerators to Rolls Royce for their industrial Trent packaged power sets. The order for two BDAX 7.290ER machines includes a scope of supply covering acoustic enclosures, air filtration systems and lubrication oil modules. Brush will also supply a complete generator control and protection system for each machine.



## Technical Focus



### QUALITY IN ALL WE DO

Our customers' demands for a high quality, cost competitive product have never been so strong. Aligning this with our high level of orders will be one of our major challenges of the year 2000 and it is with this in mind that we have moved forward with some Quality initiatives.

First of all we have changed the role of the Quality Inspectors. Their role as Product Quality Engineer is much more pro-active in enabling solutions in order to satisfy customers' needs. We have equipped them with PCs so that they can efficiently report quality issues through the monthly Management of Quality Meeting. This meeting, which is attended by all senior management, is the vehicle for focussing on Quality within all functions. Previously, Quality was seen as the domain of the QA Department.

Secondly, we have modernised our methods of managing the contract cycle. Our Project Managers are able to keep abreast with costs and targets using our recently implemented VISIBILITY system. This enables them to properly communicate with all works functions and the customer. The monthly Contract Review meeting underlines important issues and gives direction for any potential problems leading to a much more efficient contract execution.

Thirdly, we have implemented a modern New Product Introduction management system which ensures that new products and systems are designed by all functions in the company. The cycle starts with good customer and marketing data that drives the projects direction. Continuous review and strong leadership means that the new products or improvements to existing products get done on time and increase our bottom line quickly.

As we move through 2000 there will be other initiatives to drive up efficiency and improve the Quality in all that we do. Our shop floor data collection system will improve the quality of cost data, thereby yielding accurate tendering estimates and other benefits. A new PDM (Product Data Management) system will improve the Engineering work-flows and enable product changes to be done swiftly. As well as these we will be focussing on means of ensuring that our manufacturing quality remains excellent during the high workloads of this year.



Scott Holland, Technical Director

## LOOKING TO THE FUTURE

Under the umbrella of project "Phoenix", the BSC 100 salient pole range of Brush machines is being redeveloped. The BSC 100 is a multi- pole machine that is sold principally to Diesel manufacturers for operation in the Industrial and Marine markets.

The increasing demands from our customers, for lower delivery cycles, increased power weight ratio and reduced costs, have created the dynamics for this development.

The current configuration for the BSC 100 is based on a corepack design, mounted in a base frame with pedestal bearings and an outboard exciter. The new machine will be shorter in length for the same output, and can be offered on reduced delivery cycles.

An important component of the development work was to listen to our customers, ensuring that we build machines that meet their challenging demand.

The BSC 100 machine will offer our customers a world class product, it will meet or surpass the expectations on efficiencies, delivery cycles, and power to weight ratio. It will have the benefit of being valued engineered using modern design and manufacturing tools.

## Exhibition Diary

Exhibition	Dates
 Offshore Technology Conference, Houston	1 - 4/5/00
 Powergen Europe, Helsinki	20 - 22/6/00
 Power-Gen USA, Orlando	14 - 16/11/00

## CRUISE SHIPPING CONVENTION

Following on from recent success in the Cruise Ship industry, BEM exhibited at the Seatrade Cruise Shipping Convention held in Miami at the beginning of March.

In an industry which predicts a 9% growth rate for 2000, participating at this show was important in order to maintain BEM's position as the market leader in cruise liner gas turbine generator packages.

Cruise line executives and major shipyard decision makers were also able to gain additional knowledge of other FKI group companies.



Malcolm Stonehouse, General Manager of Houston Office, on the Brush stand.

## Marketing News

### BEM WEBSITE GOES LIVE



In association with the other FKI Engineering Group companies, Brush Electrical Machines Ltd has established its presence on the World Wide Web (WWW) and is using this new medium to communicate with customers all over the world.

Along with the latest product news, experience lists and general company information, customers will be able to download full copies of the company's latest brochures for viewing and printing off-line. This is possible via use of the Adobe Acrobat reader, which is freely available on the Internet.

The BEM pages can be found at [www.fki-eng.com/bem](http://www.fki-eng.com/bem).

*Mark Grayson Wood  
Marketing Manager*

## Service News

### CHRISTMAS SERVICE!

**A story of Service staff dedication to the customer.**

When a leading oil company suffered a rotor earth fault on their twenty-four year old turbo-generator and it was also the only generator capable of powering the sea water injection pumps on an offshore platform serving four production platforms in a North Sea oilfield, they returned the rotor to Brush's Loughborough factory for an urgent investigation and repair. Unfortunately, the problem was far more severe than originally feared and the decision to completely rewind the rotor was unavoidable. The factory schedule for this work predicted a completion date, ex-works, of mid-January 1999, but failure to restart the seawater injection pumps before the end of December 1998 would mean a permanent reduction in the rate at which oil could be extracted from the field, at a time when the price of oil was at a long term low. This would put the financial viability of the whole oilfield into question, pending a rise in the price of oil, which could not be foreseen at that time.

The pressure was on Brush to effect a significant improvement in the schedule for this rewind. This was a team effort involving every part of the Brush organisation and the customer played his part by offering an attractive incentive bonus scheme on a sliding scale; the more the improvement, the more the bonus! The main focus was to attempt to achieve a minimum improvement of two working weeks, so that the rotor could be despatched before the annual Christmas/New Year factory shutdown, saving three calendar weeks.

In the event, by working special shifts and unlimited overtime, the rotor was ready for despatch on the 18th December and was on board the rig on the 21st. If this terrific achievement was not to be wasted, it was necessary, at short notice, to put together a team to install the rotor and re-commission the generator, working offshore through the Christmas holiday. Christmas working is, of course, undertaken every year, but usually only for a small number of jobs which tend to be arranged well in advance. All of the service personnel who had not already arranged to be working over Christmas had, by this time, made personal arrangements involving their families. Nevertheless, the Service Team loyalty was such that a strong team was assembled and mobilised and the mechanical work offshore was completed on the 27th December, with electrical commissioning commencing immediately thereafter. The offshore Service Team members' commitment was rewarded by a generous special deal, financed out of the substantial bonus earned by the Company for early completion.

*Keith Sharpe, Service Manager*

## FKI News



### FKI ACQUIRES HMA POWER SYSTEMS

FKI plc has announced that it has agreed to acquire HMA Power Systems b.v., a Dutch manufacturer of specialist generator and drives components.

HMA, which is based in Ridderkerk, will be integrated within the Rotating Machines Division of FKI's Engineering Group, alongside Brush Electrical Machines and our sister companies. It extends FKI's expertise in marine electrical propulsion systems and provides the group with a range of 4-pole generators rated at up to 50MW.

Bob Beeston, Chief Executive of FKI, commented:

"In FKI's interim statement in November we recorded a record order book for turbogenerators. We made clear our intention to invest in this area in order to exploit the significant growth we expect over the next few years. The acquisition of HMA brings additional capacity to the Group and provides some interesting extensions to our product portfolio.

With long term supply agreements in place with most of our major customers, this is a useful step towards achieving the capacity necessary to grow turnover in our turbogenerator business."

# NEW PRISMIC DEVELOPMENTS AND A FAMILY NAME

Our range of generator control and power management products which include AVR's, rotor earth fault monitors, power system stabilisers etc, have now adopted PRISMIC as their family name. Today the PRISMIC family comprises:



Excitation Controller

PRISMIC A30 - the new top of the line excitation controller derived from the MicroAVR.



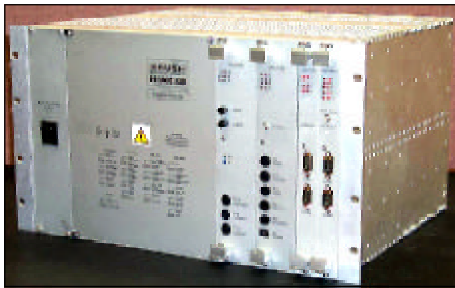
Power Management System

PRISMIC PMS - power management system.



Power System Stabiliser

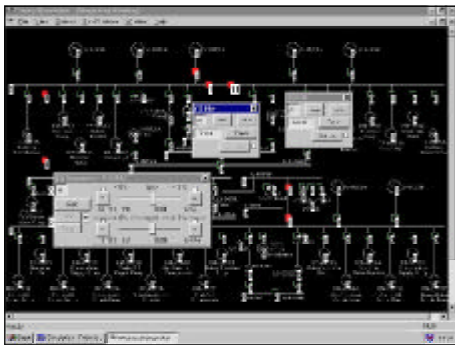
PRISMIC T10 - power system stabiliser.



The Controls Department has recently completed major developments of the PRISMIC PMS and A30.

Later this year we will be launching the PRISMIC A10 compact excitation controller.

The PRISMIC PMS has been developed to include faster input/output cards and processor and a Windows NT based human-machine interface (HMI). A less obvious but possibly even more important part of the project was the development of a software based power system simulator. This is starting to improve throughput in PRISMIC PMS engineering, allowing better delivery times to be achieved. It has also allowed the building of a re-configurable sales demo unit, which has already been used at a number of exhibitions around the world.



The PRISMIC A30 has been developed to replace obsolete 8 bit microprocessors and add improved software for commissioning. The new A30 is also able to talk to customers' plant monitoring or SCADA systems using a communications link. Almost every PRISMIC PMS delivered is now required to talk to a SCADA system and we are now finding that customers are choosing the PRISMIC A30 for its ability to hook into a communication network for remote monitoring.

*Rob Thornton-Jones  
Controls Manager*

## Brush worldwide contact points

COUNTRY	TELEPHONE	FAX	E-MAIL
USA (Houston)	+1 281 580 1314	+1 281 580 5801	admin@houston.rm.fki-eng.com
Germany (Elze)	+49 5068 462 405	+49 5068 462 409	fki-ea@compuserve.com
Oman (Muscat)	+968 692283	+968 602915	janefki@omantel.net.om
Malaysia (Kuala Lumpur)	+603 705 3736	+603 703 9625	fkiasia@po.jaring.my
Australia (Brisbane)	+61 7 3385 4140	+61 7 3888 8671	mcaunt@bigpond.com
S Africa (Johannesburg)	+27 11 7644 673	+27 11 7644 687	fki@iafrica.com

### BRUSH ELECTRICAL MACHINES LTD

#### Head Office

PO Box 18, Loughborough, Leics.  
LE11 1HJ England

Tel: +44 (0)1509 611511

Fax: +44 (0)1509 610440

E-mail: sales@bem.fki-eng.com

Web: www.fki-eng.com/bem



Quality Assurance: ISO 9001

