



GENERATOR & MOTOR SERVICES, LLC  
601 BRADDOCK AVE  
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# GMS NEWS

## GMS Completes Extensive Shop Expansion Project to Better Serve Our Customers

### CONTACT GMS

If you want to eliminate tooth-top cracking on your rotors, replace retaining rings, obtain field service on your stator or overhaul your brushless exciter contact:

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### GMS GENERATOR & EXCITER SERVICES:

- Condition Assessment
- Generator and Exciter Overhaul and Repair
- Life Extension Programs
- Monitoring and Diagnostics

Visit our web site at

[www.gmsinternational.com](http://www.gmsinternational.com)

During the final Quarter of 2003, work was completed on an extensive shop expansion that increases GMS shop floor space by nearly 70% to 25,000 sq. ft. and adds key machinery to the operation. This upgrade will provide our customers with decreased cycle time, allow more jobs to be run in parallel (increasing productivity and reducing costs), reduce mobilization time and improve quality.

### The New “East Bay”

Floor space was added by expanding into a high bay facility located adjacent to the initial GMS shop. A roll up door provides direct access between the new “East Bay” and original “West Bay” work areas.

A major component installed in the new GMS facility is a full tool and die machine shop (see photo below). The shop includes both new and existing machinery used to build or repair all parts on any GMS shop or on-Site project.



Tool and Die Machining Area Added to New East Bay

In addition to the machining area, the new East Bay includes an assembly area to support projects such as the Exciter house Positive Pressure Ventilation Modification (PPVM) program. In this program, housings

for brushless Exciters are configured so that the inside pressure is maintained at a higher level than the outside. This provides a much more effective control of make-up air and significantly reduces the intake of dirt and contamination during operation.



Brushless Exciter Housing Retrofit Operations Underway in New GMS East Bay

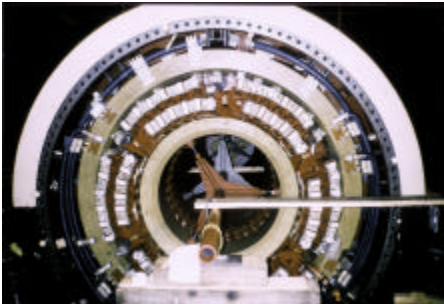
The new GMS East Bay has additional lay-down space, overhead cranes, truck access for deliveries and office facilities.

### “West Bay” Improvements

With the East Bay addition, much needed floor space has been allocated to the West Bay for test, inspection, repair and modifications to generator rotors and exciters. We now have capacity to handle as many as five combinations of rotors and exciters simultaneously.

The GMS West Bay, with 100-ton crane capacity, has been fitted with a second generator rotor lathe having a 90” swing and 40’ centers. This lathe can be transported for use on field projects and complements an existing GMS machine with 60” swing and 50’ centers used for rotor machining.

An additional 5" horizontal boring machine having 8' vertical travel and 12' left-to-right travel has been procured and put into operation along with our existing machine (5" shaft with 6' vertical and 11' left-to-right travel). These machines are used primarily for our tooth-top program, (vent-scoop and shoulder machining), for J-strap modifications and to machine parts for our Stator End-Winding Support Improvement (SESI) System.



GMS Patented SESI System

### Reduced Cycle Time for Tooth Top Modifications and Rotor Rewinds

Other major items in the GMS West Bay include a general assembly station that includes floor plate used for rotor rewinds and set-up applications and a retaining ring assembly station equipped with a 200 kW induction heat system.

Below is a photograph of the GMS West Bay showing three rotors in work simultaneously. Note that the third rotor is located in the environmental enclosure in the back of the shop.

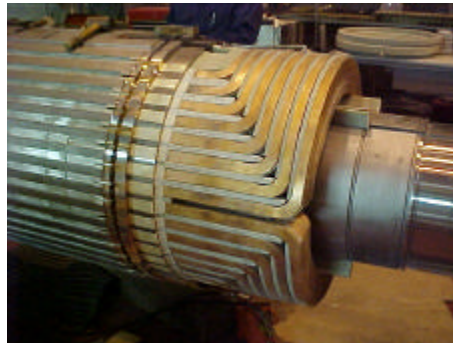


GMS "West Bay" Showing Three Rotors In Work

The improvements described in this newsletter will provide significantly more holding space for completed items and will reduce cycle time by minimizing the number of lifts required to complete rotor work.

Retaining ring machining takes place on 54" and 78" vertical turning centers. Retaining ring forgings that cover the needs of more than 1000 operational generators are stocked to reduce cycle times on our rotor tooth top program.

Included in the West Bay is a winding area with a dual-headed induction brazing station and a resistance brazing system used for coil repairs. The brazing procedures and operators have been qualified to ASME Section IX for both scarf and lap joints used in rotor rewinds.

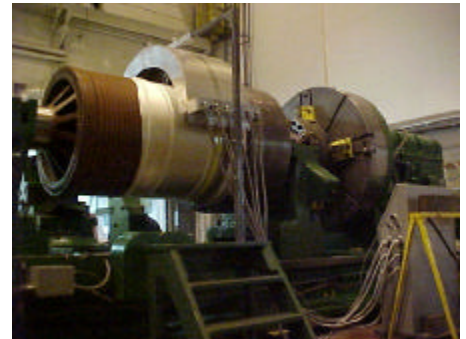


Rewind and Long Ring Modification Underway in GMS West Bay

### Exciter Repair Improvements

The shop expansion project includes a new exciter assembly area with a base plate having full access to the 100-ton overhead crane system. Service can be provided to all brushless exciters currently in place in the World Power Market. During this outage season GMS provided overhaul and repair service on a Model 12N, one of the World's largest Exciter frames, for a nuclear plant customer.

Also included in this assembly area are a silver-plating station, a module testing and assembly station, a painting area and a novel radiant heat curing system. This system allows curing of banding tape while the Exciter rotor is in the lathe to reduce cycle time and avoid risks of heating an entire rotor assembly.



New Exciter Band Curing System

### Reduced Cycle Time for Stator Test and Inspections

GMS has completed upgrades to its two full-size (8 ft. x 20 ft.) tool modules used for on-site test, inspection and repair operations. Both modules were upgraded to include a full compliment of measuring equipment and tools routinely required for off-site stator work. These upgrades will reduce mobilization time and improve on-site productivity.



Upgraded GMS Tool Modules Used for On-Site Work

### Certification Program for the GMS Safety Committee

GMS has instituted a formal Safety Committee Program to improve employee safety awareness. A tracking system has been established to monitor employee training status, inspection of facilities and lockout / tagout procedures as specified by the GMS Safety Manual. The Program will be submitted in the coming Spring to the Pennsylvania Bureau of Workers' Compensation for full certification.

**The GMS Shop Expansion Program Will Reduce Cycle Time and Costs While Improving Quality for Our Customers in 2004**