



Generator & Motor Services Inc.

GENERATOR & MOTOR SERVICES, INC.
601 BRADDOCK AVE
TURTLE CREEK, PA 15145

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GMS NEWS

Another Tooth-Top Cracking Elimination Without A Rewind In Only 21 Days

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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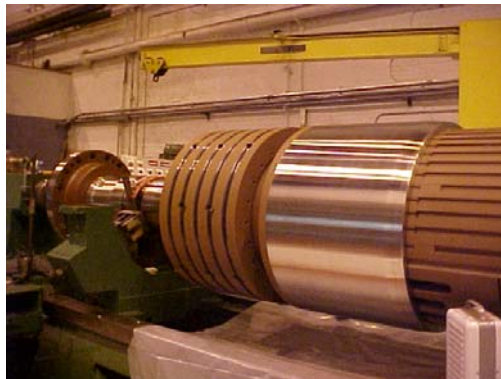
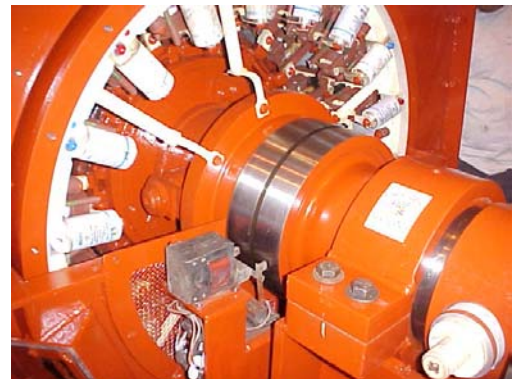
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During the 2003 Spring outage period, another tooth-top cracking repair was completed using the patented GMS rotor modification. This was our 6th tooth-top modification over the past 4 outage periods performed for utilities and was completed in just 21 days, without the need for rewinding or balancing the rotor. Within the 21-day turnaround, GMS also machined and replaced the retaining rings; machined the couplings; inspected and tested the rotor; inspected the entire generator; performed both generator electrical and mechanical testing; re-torqued the stator core; completely re-wedged the stator; and performed a complete exciter overhaul. Even shorter turnaround times are achievable, depending on the needs of the customer.

Our scope of work on the tooth-top repair project included an overhaul of the unit's directly connected 1,320 kW Mark III brushless exciter. The scope included inspecting the rotating rectifier, alternator and PMG; disassembling, cleaning and reassembling



More than 10 years of excellent operation experience benefits our customers with high quality work and reliable and crack-free generator rotor operation.

the rotating rectifier wheel components; cleaning and testing the exciter alternator and PMG; performing electrical testing of the exciter components; repairing exciter bearings, and aligning the exciter.

After completing the tooth-top modification on the generator rotor, installing new retaining rings and coupling the refurbished and newly aligned exciter, the turbine-generator train experienced a significant reduction in vibration at the exciter end.

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

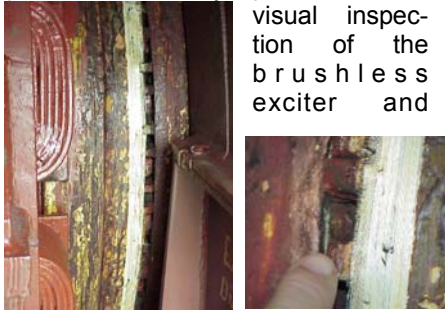
Details of the GMS-patented tooth-top modification are provided in the GMS NEWS, Volume 1, Issue 1, 1st Quarter, 2003.

Rapid Solution to a Nuclear Plant Exciter Problem

In February of this year, GMS was asked by a southern nuclear utility for a rapid

response assessment to resolve a problem found on a brushless exciter that had been shut down to correct another problem not associated with the generator or brushless exciter.

During correction of the unit's original problem, the utility performed a visual inspection of the brushless exciter and



found that parts of the fiberglass banding and two pieces of blocking were lying inside of the exciter housing. The loose banding came from a section covering the leads from the brushless exciter winding at the inboard end of the alternator, as shown in the photographs below.

During the weekend of February 14th, the utility requested GMS to quickly assess the potential damage associated with the loss of the fiberglass banding and to recommend

corrective actions. Understanding the very high cost and, therefore, urgency associated with each day the unit is shut down, GMS assembled a team of technical, repair service, and manufacturing personnel which were flown to the site to assess the situation and implement an immediate response plan.

The GMS team found that banding had peeled from a section where the coils bridge to the radial phase leads connections. The banding in this area is relatively lightly loaded compared to that closer to the core, where the coil end windings are densely packed under the bands. The band that was peeling was 3 inches wide and approximately 0.38-inches thick and the damaged area of the band was about 1.25 inches wide.

After evaluating the damage and assessing the impact, GMS recommended that the loose banding simply be removed and that the remaining banding be coated with a thixotropic epoxy resin to prevent further peeling. GMS personnel concluded that this repair would hold

adequately through continued operation until the next scheduled refueling outage. However, as an added precaution, GMS personnel also recommended that the repaired area be viewed periodically with a strobe light during startup and operation to verify that no further deterioration of the banding was occurring.

After the utility acceptance, the GMS' recommendations were completed. The repaired area was monitored as the unit came to speed and continuing throughout the first hour of operation. Subsequently, the repaired area was also viewed every eight hours for the first day.

As a result of the GMS response, the unit has been back online, without problems, since February 17th, only 3 days after GMS was initially contacted.

The utility informed GMS that other companies had only offered the option of a lengthy and costly exchange of the exciter. In contrast, GMS assisted the utility customer to safely solve an imperative and potentially paralyzing problem and avoid an expensive, unscheduled outage.

Retaining Ring Replacement

With years of experience with retaining ring replacements on different generator rotor designs, GMS is the ideal partner and a real alternative to OEMs for exchanging Mn18Cr5 retaining rings with Mn18Cr18 retaining rings.

GMS now has Mn18Cr18 retaining rings in stock for fast tooth-top modification and/or retaining ring change out.

With the retaining ring forgings that GMS has in stock, we can take care of the needs of more than 1000 generator rotors currently in operation.



GMS Can Support Your Fall and Spring Generator and Exciter Service Needs