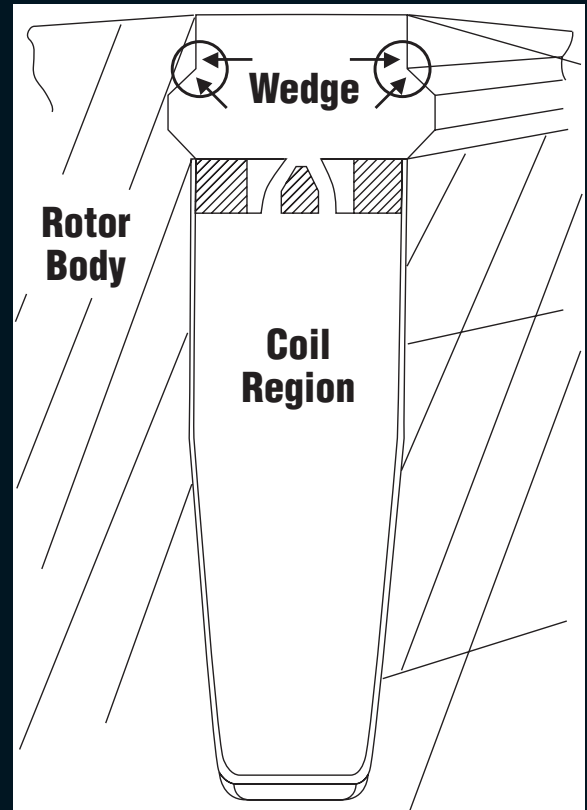


## **CRACK DETECTION ON DOVETAIL LOAD SURFACES:**

*MD&A provides permanent and economical solutions for addressing the potential fretting or cracking of generator rotor slot dovetail surfaces.*

### **GENERATOR ROTOR WEDGE SLOT DOVETAIL INSPECTION AND REPAIR OPTIONS**

*Indications and cracks have been detected in the dovetail region of generator field forging. Areas most likely affected include loading surfaces at wedge butt.*



#### **Cause Identification:**

*Crack indications located along the wedge loading surfaces are the result of a combination of factors. These include fretting created at the butt-ends of the field wedges, excessive starts / stops, and cyclic stresses resulting from rotor "bending" while on turning gear. Negative sequence current events have also been found to aggravate the effects.*

#### **Units that may experience dovetail cracking on the rotor teeth include:**

- *Generators with excessive start / stop cycles*
- *Generators with excessive turning gear operation*
- *Units that have been subjected to negative sequence events resulting in arc strikes to the dovetail surface, the rotor teeth or the mating surfaces of the slot wedges*
- *Rotors whose geometry can be described as "long and thin" resulting in a higher susceptibility to bending*
- *Rotors containing steel wedges are more severely affected than those containing only aluminum wedges*

## **Engineered Repair Alternatives**

*MD&A provides economic alternatives for addressing issues associated with generator rotor dovetail load surface cracking.*

*MD&A's methods meet all OEM requirements and includes testing of critical regions which may be susceptible to cracking.*



*Recommendations for addressing these issues may vary depending on a variety of factors. The objectives of MD&A's recommendations are:*

- *To provide reliable alternative repairs for our customers*
- *To meet or exceed OEM recommendations*
- *To provide inspection and repairs that are cost effective, reliable and meet the operating needs of the owner*

### **MD&A Inspection Scope and Repair Options Include:**

- *Work can be performed at the owner's site or in our St. Louis repair facility*
- *Remove retaining rings and slot wedges, as needed*
- *Visual inspection of all rotor dovetail surfaces and wedges*
- *NDE of wedge slot dovetail load surfaces using Eddy Current Testing*
- *Replacement of steel wedges with newly designed aluminum wedges which incorporate larger end radii*
- *Redesign of wedge lengths when appropriate to move the location where fretting can occur*
- *Machining of the affected load surface areas to remove indications, if any, and / or provide increased reliability when appropriate*

***For more information on this product or service please contact your MD&A Regional Sales Manager or call the MD&A Corporate Office at 518-399-3616.***



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