

# ROBOTIC GENERATOR IN-SITU INSPECTION

Eliminate Unnecessary Downtime with MD&A Air Gap-Bot

Traditionally, a generator inspection requires the field be removed from the stator, which can lead to additional outage time. MD&A utilizes Nova Technology's Generator Explorer (GenEX) robotic generator inspection crawler—which can be used on generators with entrance gaps as narrow as 0.9"—to perform full generator inspections without removing the field.

## MD&A AIR GAP-BOT

### Overview

MD&A can provide the customer with time and location stamped high-definition video and still images. We can also use the MD&A Air Gap-Bot to perform Vision Inspection, Wedge assessment, and Electromagnetic Core Imperfection Detection (ELCID) in order to find possible faults, shorts, material deterioration and more.

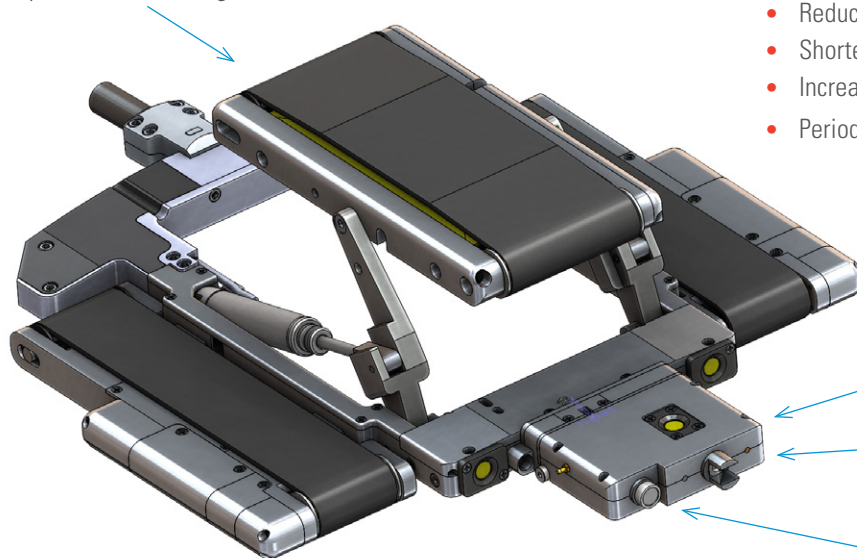
### 360° Inspection Capabilities

Unlike magnetic crawlers, MD&A's robot can easily maneuver around the generator field, allowing its two HD video cameras to fully inspect the field and stator surfaces inside your electrical generator.

### Robotic Inspection Benefits

- Reduced inspection cost
- Shorter outage duration
- Increased time between field pulls
- Periodic monitoring of known conditions

*computer assisted navigation*



*detachable "head" for visual, ELCID and Wedge Tapping*

*right angle camera with rotation and variable focus*

*forward facing camera*

### Visual Inspection

Unlike magnetic crawlers, our robotic crawler has unparalleled maneuverability. Utilizing MD&A Air Gap-Bot's two high-resolution cameras and enhanced LED lighting, our team can inspect stator and field components in even the most challenging environments. A flexible 15-meter umbilical camera provides easy visual access to hard to reach areas without field removal, meeting traditional inspection requirements at a fraction of the cost.

Data from the visual inspection can be used to assess the severity of field component heating; inspect high field vibration related to cooling flow variances; and to evaluate stator core, stator bar, slot support problems, or surface contamination.

### Stator Wedge Tightness Assessment

Maintaining the tightness of stator slot wedges is crucial to prevent trepidation and erosion of stator insulation, abrasion of ground-wall insulation, and failure by ground fault. MD&A can use the Air Gap-Bot to perform a Stator Wedge Tightness Assessment to assess your need for wedge tightening or replacement. Results generate a "wedge tightness map."

### Electromagnetic Core Imperfection Detection (ELCID)

Mechanical, electrical, and environmental stresses can cause a breakdown in the insulation on stator core assemblies. Electromagnetic Core Imperfection Detection (ELCID) is an important tool to prevent hot spots that can cause deterioration of the core lamination insulation, leading to permanent damage of the stator winding insulation and core iron. MD&A can perform an ELCID inspection using the Air Gap-Bot to detect fault currents that result from core insulation damage.

