

WORTHINGTON ER224 JET GAS EXPANDERS

By Scott MacFarlane

RMS was contracted to refurbish two complete Worthington ER224 Jet Gas Expander (JGE) assemblies. The JGE's, driven by Pratt & Whitney GG4 aeroderivative engines, were formerly used as power generation "peakers" but are repurposed and will be used for "Black Start" emergencies in the future. Under RMS Field Service direction the expanders were removed from service in November/December of 2015. RMS Field Service returned in May of 2016 to direct the reinstallation. As a customer specification, each expander was to be returned in a zero hour condition at 95% OEM specifications.

As part of the refurbishment, the expanders were completely disassembled including the rotors being destacked and debladed. All components of both expanders were completely disassembled and inspected in RMS' shop. Their condition was documented and sent to the customer with a recommended repair workscope. Once approved and due to the tight schedule, RMS quickly devised a strategy for around-the-clock engineering, repairs and reassembly.

Upon initial inspections, several components from both expanders were identified as being in critical condition and needed to be either repaired or replaced. Every major casing component required extensive repair through blending, remachining, weld repairs, metal stitching and/or stop drilling. In addition, all outer casing hardware was deemed non-reusable and needed to be replaced. Because of the CNC machining capability throughout the RMS shop, we were able to replace over 700 custom studs and several other crucial components to help complete the rebuild. All in all, almost every component on each expander was either repaired or replaced by RMS.

The Worthington ER224 JGE's were completely reassembled within OEM specifications and reinstalled in the field in May of 2016. The refurbished JGE's had successful startups with vibration levels for both expanders well below 1mil.

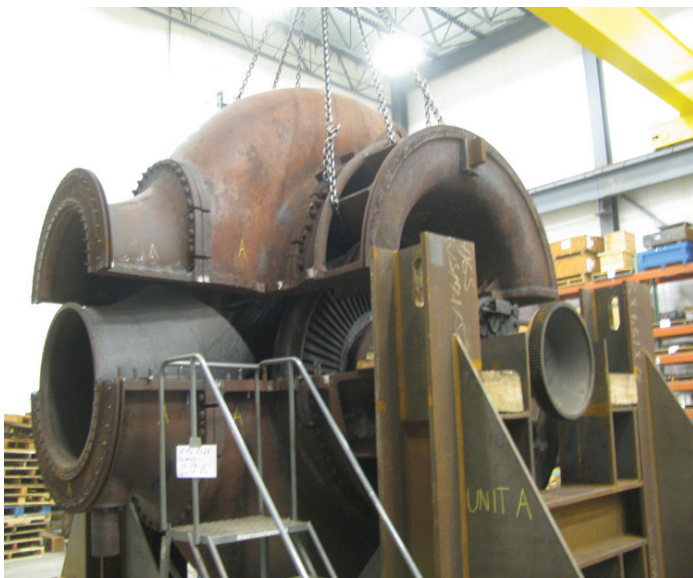


Figure 1



Figure 2

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