



## GE Vernova Shares How a Custom-Built, Large-Capacity Runout Inspection Table Helped Speed Up Rotor Repair & Assembly

“There’s only a handful of companies in the world that can make these types of tables. They’re precision tables. They’re holding tolerances in the millionths of an inch.

We have components that weigh up to 32,000 lbs. To get a table to support that weight, and hold the tolerance we need, is where ABTech’s design came into play for us.”

– **Brandon Malone,**  
Lead Manufacturing Process Engineer,  
Rotor Repair, GE Vernova

# Challenges

Scheduling conflicts at the run out inspection table were impacting lead times and limiting profits.

GE Vernova, a leader in turbine manufacturing and repair, was on a lean journey, and they wanted to trim turnaround times at their Greenville, SC, service center. Analysis had found the rotor repair team had a bottleneck in their process that was slowing things down.



“When we disassemble a rotor, we have to do all those inspections on the rotary table to determine the repairs. But once we’re done with the repairs we put it back on the table a second time, to verify if the repairs fixed the problem. So you’re utilizing the same piece of equipment twice for every part that comes through the shop. Using one machine for two operations is against what we’re trying to do here.”

Adding a new run out inspection table to the shop floor would shorten the total rotor repair time and could increase the number of customer projects completed in a year.

However, it isn’t easy to source an ultra-precision machine for rotating massive gas turbine components; specialized equipment requires a custom build.

“Trying to spin a 30,000 lb turbine part that’s 30 feet long on a rotary table, well, it’s a lot different than when you have a small 2,000 lb part.”

The team at GE knew that only a few companies in America could manufacture a rotary table to support their world-class power turbines.

## Challenges

- Enhancing “lean manufacturing” at GE’s Greenville facility
- Removing the process bottleneck at runout inspection equipment
- Sourcing a tool-builder to support turbine rotor repairs

## Solution

- Reach out to precision motion suppliers able to meet GE’s specifications
- Design & build a large-capacity, ultra-precise rotary table for rotor inspection:
  - 35,000 lb load capacity
  - 0.25  $\mu\text{m}$  rotational accuracy
- Integrate the new machine into manufacturing to optimize workflows

## Results

- Achieve uninterrupted process flow for rotor repair & assembly
- Free up time to repair and/or overhaul more rotors per year
- Gain a qualified supplier for competitive bidding

# Solution

**GE Vernova teamed up with ABTech to create a custom-built, large-capacity rotary table with 0.25  $\mu\text{m}$  accuracy.**



“We’re trying to do lean everything. So, dedicated equipment for dedicated operations.”

Brandon Malone, the GE engineer in charge of the rotor repair process, knew that ABTech (a supplier of precision motion devices) manufactured inspection tables for GE Aerospace. He invited ABTech to bid on building a precision-control 35,000 lb-capacity rotary table; their submission won.

However, gas turbine rotors are significantly heavier than aeroderivative rotors, so ABTech (already familiar with GE Aerospace) had to ‘level up’ their designs, tapping their deep knowledge of precision technology to fulfill GE Vernova’s request.

“It was much larger than the ones they built previously. So it was definitely a challenge for them. But it was something that they were able to push through and get creative for us.”

ABTech designed and constructed a rotary table with an impressive three-foot granite platform foundation; it supported a 35,000-lb load and offered a 0.25  $\mu\text{m}$  rotational accuracy. The table’s hydrostatic oil film bearing technology was key to achieving the required high load capacity, extreme stiffness, and ultra-smooth sub-micron motion.

“Our parts can be over 30 feet long, and we hold a one thou tolerance over the length of that rotor. Those are really tight tolerances for anything, let alone something that large.”

GE could use the new rotary table to check the roundness and flatness of large-scale turbine parts, which helps determine how to position individual components in order to assemble a rotor as close to truly straight as possible.

By collaborating with ABTech, GE ensured the rotary table could merge with the newly built inspection measurement arms. Joining these two technologies—ABTech’s high-capacity rotary table and the measurement arms—gave GE a dedicated run out inspection table for streamlining their turbine repair & assembly process.

The new run out inspection table isn’t just another piece of equipment—it’s a step forward on GE’s lean manufacturing journey

# Results

**Shaving a few days off each rotor repair increased throughput and freed up enough time for GE to accept additional overhaul project**

The new inspection machine is a time saver for rotor repair and assembly.

There's less scheduling conflicts with the dedicated piece of equipment, but it also allows us to streamline our process where parts aren't going back and forth between the same machine over and over again.

ABTech's rotary table can handle some of the heaviest parts of a GE power turbine, speeding up repairs and shortening customer wait times. It helps the rotor repair & assembly team standardize their processes while allowing room in the schedule for non-standard rotor maintenance work.

GE Vernova also strengthened its supply chain by adding a qualified precision motion supplier (ABTech) to its vendor inventory.

Now we can more competitively build and bid these different projects so that we can keep everything better, ultimately, for our customers.





**Do you want to optimize your process with a spindle, linear slide, or rotary table, custom-built to your specific application?**

Reach out to ABTech today.

Contact a Precision Motion Expert

