



# Steam Turbine Field Service

## *Inspection, overhaul and installation*



### **Reliability and Availability**

Efficient processes for quality work and reducing outage time

GE combines fleet experience with the latest technology to provide quick and effective outages for all types of steam turbine.

### **Background**

Steam turbines are shut down at recommended intervals for the inspection and overhaul of key components. These outages are typically categorised as follows:

- Limited, non-intrusive inspection
- Minor inspection of key components, such as bearings
- Major inspection with casings opened and rotors removed

Lost generating time equates to lost revenue. Inadequate planning leads to poor coordination and time spent waiting for parts. Emergent work can lead to extensive delays.

### **Field Service Offering**

GE performs the whole range of overhaul and field services, and has a wealth of experience covering all machine types; impulse and reaction, GE and non-GE. These include 3,000 and 3,600 rpm fossil units, nuclear units (including half-speed 'wet' machines) and industrial turbines.

Our Field Service function provides outage planning, management and execution activities. Unplanned work is reduced by reference to our extensive Fleet Management experience. At all times, we liaise closely with the customer to provide spare parts and co-ordinate site work. We can also work with customers to prepare for unplanned, or 'forced', outages.

With a global network of service centres, GE provides quick and effective engineering services to any location. This gives a speedy turnaround for major work that can not be performed on site. Our extensive engineering capabilities



Maintenance work on LP cylinders

include the manufacture, or specialist repair, of any part, from individual blades to complete new rotors. There are also facilities for high speed rotor balancing, both for turbines and generators.

We are continually improving our capabilities in the following areas:

#### **PLANNING**

- Significant commercial gains can be realized by speeding up activities that lie on the critical path of the outage schedule. GE employs the latest planning tools and processes, and our Fleet Management knowledge allows us to anticipate possible emergent work.
- Laser scanning and computer modelling are often used for preparing simulations and coordinating site work with the customer and other contractors. This is particularly true for retrofits and upgrades, where the movement and fitting of large assemblies can be tested in advance.

**INSPECTION TECHNOLOGY**

- Investment in state-of-the-art Non-destructive Testing (NDT) technology pays dividends when it comes to an outage. Not only does it mitigate the risk of undetected flaws, but the speed and consistency of modern inspection equipment (which is often automated) can save considerable time on the critical path.

**TOOLING**

- GE invests in the latest tooling for disassembly and re-assembly. The company also has many repair techniques to save on the cost of new parts and avoid long lead times.
- With extensive experience on different fleets and machine types, GE can reverse-engineer any original part. Laser scanning is used to produce a digital model that can be analysed for design improvements, such as the use of superior materials.

**DIGITAL APPROACH**

The Industrial Internet is reshaping the way we execute services. GE's digital platform, FieldVision, allows us to:

- Automate processes and connect key personnel.
- Improve efficiency and data analytics.
- Provide customers with status reports and documentation.

The continual development of FieldVision gives the prospect of even greater efficiencies.

**GLOBAL PROVISION**

- Through our continual investment in local resources and reliable supply chains, we offer regionally-compliant services in every region of the globe.
- Our On-Site Services (OSS) division uses mobile workshops, increasingly equipped with specialized tools for inspection and repair. This avoids the problems associated with transporting components off site.

**Additional Services**

In addition to its standard services, GE offers condition assessments, performance assessments and advice. The scope of this work can extend to any other area of plant.

For long term service needs, GE offers the Multi-Year Agreement (MYA). This contract goes beyond the simple provision of parts and servicing, because it is based on agreed outcomes, tailored to individual customer drivers. With GE's resources and experience, customers can mitigate risks and invest wisely for the future.



**Benefits**

- Extensive fleet experience
- Global service network
- Mobile workshops
- Proven repair solutions
- Extendable scope

**Applicability**

Our Field Services apply to all steam turbine types.

**References**

GE has a long list of Field Service references from around the world.

To learn more about this offering, contact your GE sales representative or visit [powergen.gepower.com](http://powergen.gepower.com).