



# Vibration Analysis and Balancing

Turbine Diagnostic Services, Inc. (TDS) has a staff of experienced turbine mechanical engineers and mechanical service representatives that are knowledgeable in the mechanical assembly of medium (industrial size), large (utility size) steam turbines, gas turbines and generators. TDS has an experienced millwright labor force to support and man contract and forced outage services. To support some of our Customer's requirements our crews have been annually safety trained at the Florida Phosphate Contractor Safety Training and also receive classroom training to meet the requirements of the Mining Safety and Health Administration (MSHA) regulations.

## Your Complete Source For:

- Mechanical Maintenance for Steam & Gas
- Forced Outage Response
- Vibration Analysis and Balancing
- Technical Direction, Job Management and Outage Planning
- Steam Turbine Major & Minor Inspections
- Combustion System, Hot Gas Path, and Gas Turbine Major Inspections
- Valve Inspections
- Contract Maintenance
- Generator Maintenance
- Installations and Relocation
- Training

## VIBRATION ANALYSIS and BALANCING

TDS specializes in the vibration analysis and balance of turbine generator equipment when possible. Our specialized experience is with multi-shaft large steam, medium steam and gas turbine generators.

TDS utilizes Bently Nevada technology, for real time vibration data collection and analysis. TDS currently has 24 channels of real time vibration analysis equipment and can monitor the largest steam turbine generator equipment in service in the world. TDS uses the Bently Nevada "ADRE for Windows" software for vibration data presentation.



TDS can install and utilize specialized, temporary vibration instrumentation equipment to fully instrument a machine that has no permanent vibration monitoring equipment.

TDS normally installs the additional proximity and velocity vibration probes to troubleshoot turbine generator vibration equipment.

TDS has extensive experience performing field vibration analysis and balancing of an extremely wide range of turbine generator equipment around the world.



TDS is proficient at the diagnostic techniques required to determine the vibration causes in steam and gas turbine generators. TDS is intimate with the internal construction of steam and gas turbine generators, and the causes of problems and their resulting vibration characteristics. TDS is fully aware of the normal expansion characteristics of steam and gas turbine generators and is aware of the binding points and misalignment that causes certain vibration patterns in turbine generator equipment. TDS also thoroughly understands the characteristics that generators and gear boxes can introduce to machine vibrations. This experience results in minimal wasted time addressing an issue that cannot be solved through balance or that might be considered normal. TDS can also monitor the multi-axis expansion of turbine generator equipment to determine misaligning conditions.



Determining the cause of the machine's vibration is vitally important in turbine generator equipment due to the costs of down time. Balancing efforts are only prescribed based on substantiating evidence that the balance of the rotating equipment will have a positive improvement of the vibration conditions on the machines.

TDS has experienced engineers and technicians fully capable of collecting the required vibration data and evaluating the data in the field. If additional support is required additional experience and expertise is available at our home office in Odessa, FL.

Along with the vibration analysis and multi-plane balancing capability, Turbine Diagnostic Services, Inc. has knowledge of turbine generator controls, excitation controls, generator inspection & testing, operation, start up, troubleshooting, oil filtration, mechanical maintenance services. This makes **TDS a COMPLETE TURBINE GENERATOR SERVICE COMPANY.**

**Turbine Diagnostic Services, Inc. (TDS)** is a full service turbine generator field service organization based in Odessa, Florida. We offer full mechanical and electrical service coverage, outage planning and scheduling, parts procurement, site labor, job staffing and management. TDS maintains an expert and experienced workforce of startup engineers, mechanical turbine engineers, mechanical service representatives, generator engineers/specialists, excitation control engineers, turbine control engineers, control and vibration technicians, and turbine millwrights. TDS specializes in conducting steam & gas turbine generator planned & emergency maintenance controls troubleshooting, and vibration analysis & balancing services.

We are available for your planned outages, or immediately to support your emergency assistance with any mechanical or control failure forced outages.

**Contact us at:**



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