



SCOPE OF WORK
(SOW)

TURBO GEN SERVICES
(TGS)

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1 Objectives

The objective of this document is to outline the services that are required from turbo generator maintenance companies to service the Eskom Power Stations. It seeks to ensure that the proposed services required are executed in a planned and structured manner, and that all quality requirements during inspection, refurbishment and preassemble are met. These include Outage preparation activities in the pre-outage deliverables, spares and resource identification, quality management, efficient outage execution, plant reliability and determination of refurbishment scope. The processes should ensure that the outage due dates are met, spares are readily available and serviceable, refurbishment scope is clear and executed efficiently, plant is commissioned and continues to operate until the next maintenance cycle. All scope need to be executed in a way that supports the critical path of the full outage duration, which must not exceed a period of 50 calendar days.

2 Description

Precision turbine component Laser alignment equipment is a tool that is used to measure actual position of steam path components with reference to a target object or component. It quantifies how much the component is misaligned and technical team execute the moves as per measurement displayed by the laser alignment equipment to correct such misalignment.

Turbine alignment systems make the measurement and adjustment work of diaphragms and bearings easier using wireless detector unit and measurement programs guiding the operator through the measurement process.

2.1 *Types of laser alignment devices and accessories*

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1. Easy-Laser E960-B kit. Bores 200mm to 4000mm

Accessories:

2. Measuring Probe ruby, 5mm
3. Measuring Probe ruby, 2.5mm
4. Offset Hub arm kit for 100-500mm diameters
5. Set of extension arms
6. XT22 laser kit
7. Short Stroke kit with slide-able beam and brackets

3 Scope of services

The scope of responsibility includes supply of new equipment as well as providing turbine components alignment services in order to achieve set target during outage execution.

4 General Requirements

4.1 Quality

- Ensure quick, accurate moves are provided to correct the misalignment turbine component detected by the equipment.
- Alignment activity to be carried out in accordance with OEM check sheets.
- Equipment should have calibration certificate and must be valid.

4.2 Experience of staff

- The service requested will require highly skilled technical personnel to execute turbine component alignment service.
- When ERI acquires new equipment, the service provider will work together with the ERI TGS Training Department to provide training to the personnel identified to operate the equipment.

4.3 Spares

- All spares that would need refurbishment or replacement will be sourced and supplied by the service provider to ERI within required contractual turnaround time. Delivery should not take more than 10 weeks on receipt of a written purchase order.
- All Transport requirements for spares and components will be supplied by the service provider to the respective power stations or to ERI head office.

4.4 Documentation

- A full service report will be compiled and provided to ERI for equipment refurbished by the service provider. The report will contain a high level description of the work done during the refurbishment.
- Operating Procedures and Manuals to be provided by service provider for all supplied equipment.

5 Scope of Work (SOW)

Precision turbine component Laser alignment equipment is a tool that is used to measure actual position with reference to a target object or component. It quantifies how much the component is misaligned and technical team execute the moves as per measurement displayed by the laser alignment equipment to correct such misalignment.

Turbine alignment systems make the measurement and adjustment work of diaphragms and bearings easier using wireless detector unit and measurement programs guiding the operator through the measurement process.

4.4.2 Quality Assurance Services:

- All newly supplied and refurbished equipment must be fit for use, with no defects or anomalies.

6 SHEQ REQUIREMENTS

All service providers are expected to comply with, but not limited to the following:

- Compliance with the Occupational Health and Safety Act 85 of 1993 is compulsory.
- Adherence to Quality Management System Policies, Procedures and related requirements of ISO 9001.
- Adherence to Occupational Health and Safety Policies, Procedures and related requirements of the OHSAS 18001.
- Adherence to environmental aspects, related impacts and legal requirements associated with work activities in accordance with ISO 14001.
- Adherence to Life Saving Rules.
- Compliance with the Eskom Plant Safety Regulations.
- Only authorised documents and processes are to be used in the execution of duties.
- Continuously seek methods for improvements from a process, quality and safety perspective.
- Obey all instructions.
- Familiarize with:
 - The applicable work instructions and procedures in place.
 - Safe working conditions and procedures.
 - All legal and contractual requirements.
 - Discipline and integrity.
- Compliance to all ERI Work Instructions, processes, procedures, and standards
- Adherence to ERI's disciplinary code or practice.
- Set example to co-workers and others.
- Participate in Risk Assessments.
- Responsible for own safety.
- Responsible for Personal Protective Equipment issued.
- Execute duties promptly and safely.
- Safeguard tools and safety equipment issued.
- Keep good relationship with all personnel.
- Compile a HIRA for each and every activity that needs to be performed.
- Ensure the activities are carried out following a Works Instructions and Procedure.
- Adhere to clean condition policy where required.
- All activities to be carried out as per the documented processes and comply with the requirements of ISO and OHSAS certification
- Service provider to comply to Eskom PPE (Personal Protective Equipment) Policy with regards to issuing of PPE to resources
- Proper use of PPE to be followed
- Ensure that tools and equipment are stored correctly in a safe place.

7 KEY DELIVERABLES

The following deliverables are to be met by the service provider:

During the project duration:

- No customer complaints
- Compliance to all ERI Work Instructions, processes, procedures, and standards
- No SHEQ incidents
- Project Milestones are to be achieved on time, or earlier

8 Key Performance Indicators

The performance of the contractor will be evaluated on the KPIs in the table below:

Objective	Key Performance Indicator	Measure	Unit of Measure	Source of Evidence
Safety Sustainability	LTI Free days	LTI Free days	Days	To be provided by supplier
Due Date Performance	Due Date Performance	Average contracted delivery days	Days	To be provided by supplier
Reduce the Number of Rework Incidents	No of Rework Incidents	Number of Rework Incidents	Nr	To be provided by supplier
Reduce the Rework Duration	Rework Duration (Days additional to planned outage duration)	Number of Days Rework Duration Impacts Outage Due Date	Days	To be provided by supplier
No of Legal & Environmental Contraventions	No of Legal & Environmental Contraventions	Number of contraventions	Nr	To be provided by supplier
Zero Fatalities Excl 3rd party at fault	Zero Fatalities Excl 3rd party at fault	Number of fatalities	Nr	To be provided by supplier

- The service provider will be responsible for the successful commissioning of the equipment where services were required.