

Turbine electro-hydraulic control system audit services

The complete maintenance program



ABB's turbine electro-hydraulic control (EHC) audit service assists plant maintenance staff with providing a complete EHC maintenance program while conducting a thorough system examination.

ABB's comprehensive hydraulic maintenance program helps to eliminate electro-hydraulic control system problems due to worn and damaged components. Equipment evaluation and planning enables fast and comprehensive maintenance during scheduled outages.

ABB understands the critical tolerances required for actuator assemblies, servo valves, pumping stations, and the repair and reconditioning services required to keep plants safe and on-line.

During the EHC audit, the ABB engineer will work closely with plant staff to understand your current maintenance program and review the existing state of the EHC system in order to provide maintenance recommendations, identify operation and performance problems, and to suggest solutions for system improvements and turbine life extension. The EHC audit provides tools and knowledge needed to plan for future maintenance, extend the life of the steam turbine EHC system and improve system reliability and safety.

On-site inspection

The first part of the audit includes data collection and an on-site inspection of the steam turbine EHC system. The audit is typically performed with the unit on-line in order to witness current system operation, but can also be performed off-line.

The goal is to collect all necessary information to generate a report and subsequent recommendations. The on-site inspection typically includes the following activities:

- Discussion of EHC system performance with all plant staff involved in the operation and maintenance of the EHC system
- Review of current operation and maintenance procedures with the plant staff
- Physical inspection of the entire EHC system including taking photographs (with customer approval) and recording operating data
- Requesting control system historical data
- Review of EHC fluid analysis records
- Review of outage reports and maintenance records
- Review of inventory lists and available spare parts
- Wrap-up meeting with plant staff to summarize findings and identify critical issues

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Audit report

An audit report is generated after the on-site inspection and data collection. This report is customized and tailored to your specific EHC system and will provide recommendations and suggestions on the following items:

- Safety guidelines and improvements regarding the operation and maintenance of the system
- Correcting critical and/or specific items identified during the on-site inspection
- Long term maintenance including maintenance plans, intervals and checklists
- Operational inspections including intervals and checklists
- Items that may need to be repaired or replaced
- EHC fluid health and future actions
- Spare parts inventory and quantities
- Special tools and equipment required for maintenance and flushing
- On-site services for maintenance or repairs
- System enhancements and upgrades to improve maintenance and reliability
- Component upgrades to address obsolescence issues
- Troubleshooting procedures for critical system components

Optional products and services

In addition to the EHC system audit as described on page 1, a number of optional products and services can be provided for the steam turbine EHC system. Some of these optional services that require on-site activities can be executed in conjunction with the audit, others will require an outage.

- On-site fluid analysis (particle count and water content) and complete EHC fluid analysis
- Steam valve actuator trip time set-up and adjustment
- Steam valve actuator spring load checks, closed end and open end overtravel checks
- Trip system response time measurements
- EHC system flushing including chemical flush, high velocity flush and fluid conversions
- Complete refurbishment of EHC system components
- Trip system upgrades
- Hydraulic Power Unit upgrades and replacements
- Steam valve actuator enhancements
- Unit specific and detailed system flushing procedures
- System description tailored to specific EHC system
- On-site operations and maintenance training
- EHC system drawing updates

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