

Inspection and maintenance of synchronous motors and generators

Valid for AMS and GBA

Your ABB motor or generator is serving your process during many years of operation. In order to minimize unscheduled operation downtime and ensure the longest possible lifetime of your equipment ABB offers a four level maintenance program.

The work is conveniently performed by ABB professionals in cooperation with your personnel. A smooth inspection performance ensures a minimum of process interruption.

A maintenance report is provided with the completion of each inspection. This report provides hints on additional measures to be taken for a smooth and profitable motor/generator operation.

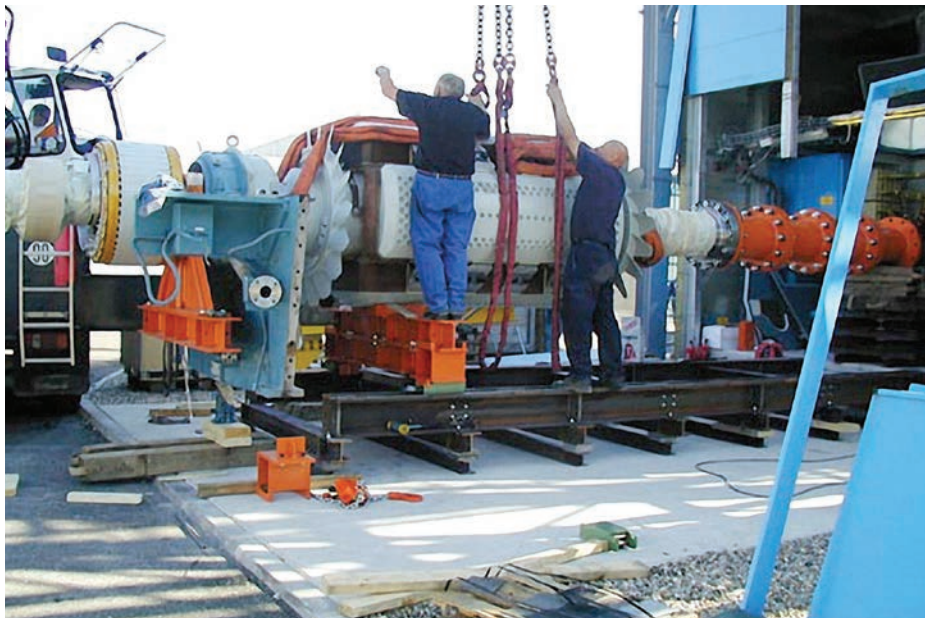


ABB has considerable experience in supplying motor and generator systems for industrial plants and other operations. The machines are built for a long operating time. Together with a regular maintenance the performance of your investment is increased.

In order to prevent damages and unscheduled downtime as far as possible, a maintenance schedule is matched with specific site and operating conditions.

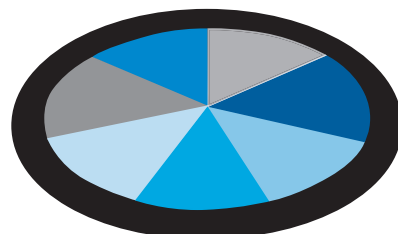
ABB professional maintenance program offers:

- Minimum of operation downtime
- Prevention of damages
- Convenient inspection scheduling
- Smooth inspection performance
- Inspection performed by skilled and experienced motor/generator engineers
- Maintenance tools providing safety for service engineers and preventing damages to the motor/generator
- Hints for additional efficiency, reliability and safety measures reported in detailed inspection report

Please refer to the next page for overviews of an maintenance program and a maintenance schedule.

Product lifecycle services

- Installation & commissioning
- Training
- Support & remote services
- Spare parts & repairs
- Maintenance & field services
- Migration & retrofits
- Optimization



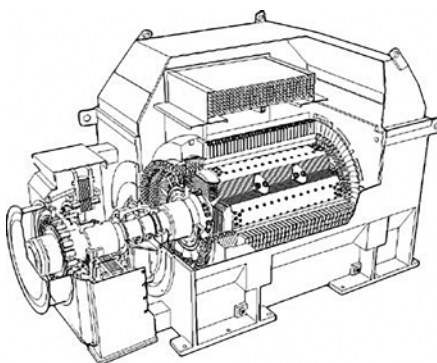
Level of inspection	Level 1 (L1)	Level 2 (L2)	Level 3 (L3)	Level 4 (L4)
Interval	Max. 10,000 hours (equivalent hours ¹) of operation. Or annually.	Max. 20,000 hours (equivalent hours ¹) of operation. Or max. 3 years operation.	Max. 40,000 hours (equivalent hours ¹) of operation. Or max. 6 years operation.	Max. 80,000 hours (equivalent hours ¹) of operation. Or max. 12 years operation.
Preparation	Opening of inspection covers.	Opening of inspection covers.	Opening of bearings and water coolers (if cooler).	Dismantling of bearings. Removal of rotor and exciter. Opening of water coolers (if cooler).
Tools and instruments		Megger stator. ² Megger rotor.	Megger stator. ² Megger rotor. Impedance measurement rotor coils. Bearing and exciter removal equipment. Fibre-optic or video bore scope. Rectifier test equipment.	Megger stator. ² Megger rotor. Impedance measurement rotor coils. Bearing and exciter removal equipment. Rotor removal equipment. Rectifier test equipment.
Parts and spare parts	Bearing shell or liners. Shaft seals. Airlock filter (bearing). Control pulse unit. Thyristors. Diodes. Other specific parts.	Same as L1 and suggestions from L1 inspections. Silicon tape.	Same as L2 and suggestions from earlier inspections. Water cooler (if cooler). Rectifier kit. Bearing kit. Gaskets.	Same as L3 and suggestions from earlier inspections. Rotor kit.
Expected downtime	Approx. 1 day.	Approx 2 days.	Approx 5 days. ³	Approx. 10 days. ³

¹ Equivalent hours = Total hours of operations + number of starts x 20.

² Option: Diagnostic insulation test of the stator winding.

³ Depending on the accessibility of the machine and the lifting equipment.

The inspection report provides detailed information in words and illustrations about the work performed, the condition of the motor/generator and recommendations for additional measurements.



Example of maintenance schedule

Interval hours x 1000	10	20	30	40	50	60	70	80
Program	L1	L1	L1	L3	L1	L1	L1	L4

For more information please contact:
www.abb.com/motors&generators

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