

Services note

Cut ACS 1000 AC drive operating costs with preventive maintenance service



ABB recommends its preventive maintenance to help control and cut operating costs associated with its drives. On-site preventive maintenance is designed around drive maintenance schedules and significantly reduces the risk of failure while increasing the lifetime of a drive. This service contributes to higher reliability of the installed plant which in turn helps maintain high productivity.

The importance of maintenance

The failure probability of industrial products equipped with electronic components, such as drives, increases over time. The main reason for failure is aging of components, but it is also greatly affected by the operational conditions. A demanding environment, such as high ambient temperature, humidity, dirt, dust and cyclic heavy loads, can shorten component lifetime as well as maintenance and component replacement intervals.

A component failure may cause consequential damage to other parts of the drive, including power semiconductors.

A maintenance schedule provides a systematic and functional means of maintaining a specific drive type and is based on ABB's extensive experience and know-how of manufacturing and maintaining electric drives.

Preventive maintenance – essential in extending the life cycle of your drive

Drive preventive maintenance consists of annual drive inspections and component replacements according to the product specific maintenance schedule. Specifications of component suppliers are carefully observed, while the environmental and operational conditions of the drive are also considered.

Preventive maintenance is carried out during planned production shutdowns. It should be planned well in advance and the required resources and service parts reserved. Parts and materials used in preventive maintenance are bundled into preventive maintenance kits which are delivered to a lead-time, unlike normal spare parts.

All labor and service parts included

The preventive maintenance service includes labor, if not agreed otherwise, and the service parts to perform the work according to the maintenance schedule.

Included are inspections of the:

- electric drive and its environmental conditions
- connections
- fan and cooling system (functional inspection)
- emergency stop circuit
- circuit to prevent unexpected startup
- fault logger
- parameters
- batteries
- ESD protected cleaning of the drive

Tests include:

- functional testing of the drive under normal conditions
- basic measurements with supply voltage
- testing of the capacitors
- testing of fiber optic cables

In addition, the following can be purchased as options:

- drive spare part inventory
- insulation test

A detailed service report, including recommendations for future actions, is provided once the maintenance work is completed and the inspection data fully analyzed.

	Years from startup																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Air cooling																				
Air filters ¹	I	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	I
Cooling fan (continuous operation) ^{2, A}	I	I	P	I	R	I	P	I	R	I	P	I	R	I	P	I	R	I	P	I
Cooling fan (redundant) ^{2, B}	I	I	P	I	P	I	P	I	R	I	P	I	P	I	P	I	R	I	P	I
Water cooling ^C																				
Deionizer, microfilter and strainer ³	I	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I
Cooling pump gasket					R				R				R				R			
Cooling pump (continuous operation) ²	I	I	P	I	R	I	P	I	R	I	P	I	R	I	P	I	R	I	P	I
Cooling pump (redundant) ²	I	I	P	I	P	I	P	I	R	I	P	I	P	I	P	I	R	I	P	I
Hoses	I	I	I	I	I	I	I	I	R	I	I	I	I	I	I	I	R	I	I	I
Plastic tubes and connectors	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Aging																				
Capacitors ⁴	I	I	I	I	I	I	I	I	P	I	P	I	P	I	P	I	P	I	P	I
Printed circuit boards, power supplies											R									
Batteries ^D	I	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I
Connections and operational conditions																				
Optical fibers ⁵							P		P		P		P		P		P		P	
Cable connections	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Dustiness, corrosion, temperature	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Improvements and spare parts																				
Software, hardware upgrades ⁶	I		I		I		I		I		P		I		I		I		I	
Spare parts	I		I		P		I		P		I		P		I		P		I	
Measurements and tests																				
Measurements with auxiliary voltage	I	I	P	I	P	I	P	I	P	I	P	I	P	I	P	I	P	I	P	I
Insulation					P				P				P				P			
Safety circuits	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Note! Recommended maintenance intervals and component replacements are based on specified operational and environmental conditions. ABB recommends annual drive inspections to ensure the highest reliability and optimum performance. More detailed maintenance information can be found in maintenance instructions, product manuals and on the Internet.

Legend:

R = Replacement of the component

I = Inspection (visual inspection; corrective measures, repair and/or replacement of component if needed)

P = Performance of on-site work (commissioning, tests, measurements, etc.)

^A = Applies to ACS 1000i, ACS 1000A, ACS 1000W, ACS 2000, ACS 5000A, ACS 5000W, ACS 6000, MEGADrive-LCI

^B = Applies to ACS 1000i, ACS 1000A, ACS 1000W, ACS 2000, ACS 5000A, ACS 5000W

^C = Applies to all water-cooled drives

^D = Applies only to ACS 1000i, ACS 1000A, ACS 1000W

¹ = Air filters can be replaced or cleaned. The decision to replace or clean a filter depends on the condition of the filter.

² = The device can be serviced or be replaced by authorized service personnel. It is recommended to replace the device after four years of operation.

³ = The average lifetime of the deionizer is 2-4 years, depending mainly on the water quality. At the same time the deionizer is changed, the micro filter should also be replaced and the strainer should be cleaned.

⁴ = The expected lifetime of the capacitors depends mainly on the ambient conditions. The recommended intervals are based on operation with rated current and maximum permitted temperature. A capacitor should be replaced when regularly taken measurements show significant deviation from the rated capacitance.

⁵ = The expected lifetime of the optical fibers depends mainly on the ambient conditions. The recommended intervals are based on operation with rated current and maximum permitted temperature. An optical fiber should be replaced when regularly taken measurements show significant deterioration of the fiber.

⁶ = Improvements based on further development, software modifications, etc. When printed circuit boards must be replaced, an upgrade of the control system should be considered as well.

For more information please contact your local ABB representative or visit:

www.abb.com/drives

www.abb.com/drivespartners

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