

Service note

Preventive maintenance for Emax low voltage air circuit breakers

In order to guarantee high levels of efficiency and reliability to your electrical plant, ABB suggests regular Preventive Maintenance on your installed air circuit breakers.

Preventive Maintenance on air circuit breakers includes testing, measurements and maintenance, and repair or replacement activities. These activities are based on specially designed technical plans, aimed at reducing the probability of failure or the working deterioration of the apparatus.

ABB, a leader in the design and production of low voltage air circuit breakers, always pays particular attention to customer satisfaction. Thanks to its highly qualified organization, ABB Low Voltage Service provides support to its customers during all phases of the product's life, from the selection to the after-sales assistance.

Benefits

Preventive Maintenance creates value over the long-term by:-
Providing the best management of maintenance costs, in particular:

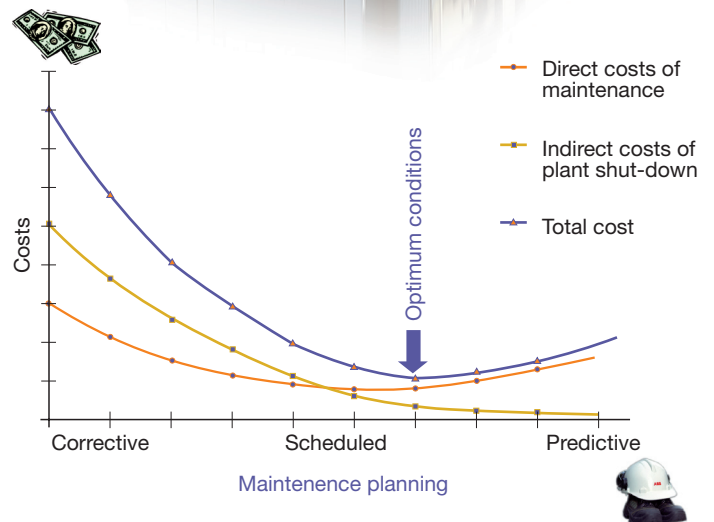
- Less expensive direct costs of urgent, reactive maintenance
- Less expensive indirect costs of plant shut-down, taking advantage of the scheduled stops
- Ensuring better efficiency and reliability of the plant
- Extending the circuit-breaker's life
- Guaranteeing plant safety for a longer time

Preventive Maintenance Program

ABB has designed maintenance schedules for all circuit breaker families, based on technical knowledge of the products and on experience in the field.

The Preventive Maintenance Program has the following main targets:

- Check the preservation and the efficiency status of the apparatus
- Anticipate the trend of deterioration of the circuit breakers, signalling the need of replacement for excessively worn out components, or suggest alternative solutions for bringing them up to date.



Provided Services

Considering the importance of the maintenance activity and the required technical know-how, ABB guarantees professional competence and interventions performed only by skilled technicians.

After the inspection and measuring activities, ABB technicians give all the indications related to the future maintenance needs and any possible corrective actions, while releasing the final report according to local standards.

Maintenance Schedule

ABB created a systematic and functional Preventive Maintenance Program. Besides the ordinary maintenance activities described in the air circuit breaker manual, ABB proposes a maintenance intervention every three years directed to extend the product's life. (Extraordinary

Maintenance). Service intervals shall have to be suitably assessed in case of non-standard service and environmental conditions.

The offer foresees the following maintenance schedule:

EMAX	Year from the production																				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Mechanical Components																					
Arcing Chambers				(R)			(R)			(R)			(R)			(R)			(R)		I
Arcing and main contacts				P			P			P			P			P			P		I
Operating Mechanism		I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I
Racking-in/out device (for withdrawable circuit-breakers)		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Jaw-type isolating contacts (only for withdrawable circuit-breaker)				(R)			(R)			(R)			(R)			(R)			(R)		I
Main circuit - Busbars connections																					
Terminals		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Auxiliary Connections																					
Auxiliary Contacts		I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I
Electrical and mechanical accessories																					
Geared motor		I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	P
Undervoltage release		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Shunt opening release		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Shunt closing release		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Circuit-breaker locked in the open position (with key or padlocks)		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Circuit-breaker auxiliary contacts		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Locking devices for circuit-breakers connected and disconnected		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Interlocking devices between circuit-breakers mounted side by side and/or one on top of another		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Optional Performances																					
Thermographic check		(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)	(P)
Insulating resistance				(P)			(P)			(P)			(P)			(P)			(P)		
Electronical components																					
Protection trip unit		I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I	P	I	I

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*** Recommended maintenance schedule is based on normal usage within clean operating environments. Special applications (extreme atmospheric conditions, low temperature environment, polluted atmosphere or vibration) are subject to additional maintenance requirements. Contact your local ABB representative for details.

Legend

I (Inspection)	Inspections and tests, corrective actions and, if required, replacement of the component
P (Performance)	Tests, measurements and any "maintenance", "repair" or "replacement" activity, if required, aimed at improving the product life
(R) (Replacement under condition)	Any replacement of component suggested by ABB qualified technician after Ordinary and/or Extraordinary Preventive Maintenance Inspections
(P) (Performance under condition)	Tests performed only if provided for contract and/or if deemed necessary by ABB qualified technician
R (Replacement)	Obligatory replacement of component during preventive maintenance activity (never provided for this circuit breaker)

Reference shall be made to the circuit breaker manual "Installation, Service and Maintenance Instructions" for Ordinary Maintenance performance. Please contact your local ABB representative for information on Extraordinary Maintenance.

For more information please contact:

ABB Inc.

Low Voltage Service

1425 Discovery Parkway

Wauwatosa, WI 53226 USA

www.abb.com/lowvoltage