Tap-changer services
24/7 support from ABB’s tap-changer and transformer experts

Tap-changers have become increasingly complex to maintain, even for the most experienced utilities and industrials. Factors resulting from interconnections and power networks to aging equipment and the declining pool of technical experts add to the challenge.

Tap-changers cause concern due to their service needs and their failure probability. Reports from international studies show that faults associated to tap-changers are the origin of up to one third of the transformer failures in service¹.

Preventive service
Service of tap-changers consists of three major steps:
- Inspection
- Maintenance
- Contact replacement

Inspection
Inspections once a year are recommended. This primarily concerns the motor-drive mechanism and refers to a visual inspection inside the cabinet to check that nothing is loose, and the heater is functioning.

It is also recommended for both conventional and vacuum tap-changers to take an oil sample and perform a dissolved gas analysis (DGA), breakdown voltage test and moisture content test every 2-3 years during the inspection.

Maintenance
The contact life and the frequency of operations determine the time interval between maintenance. The registered number of operations should be noted at every inspection and maintenance.

For conventional non-vacuum types, the tap-changer should be maintained regularly at intervals of 1/5 of the estimated contact life. The contact life is around 500K operations, therefore the maintenance interval is typically every 100,000 operations or every 7 years depending on application.

For vacuum types, the maintenance interval is set by number of operations only, avoiding the need for time-based maintenance and its associated costs. Depending on application, vacuum tap-changers are expected to have 3X the amount of operations before maintenance is needed compared to conventional tap-changers.

ABB offers a comprehensive and systematic approach to effectively maintain many manufacturers’ tap-changers. Our tap-changer program can supplement existing in-house programs or work independently to satisfy your total maintenance needs. ABB’s tap-changer team provides 24/7 support, and all field services are furnished by qualified technicians and engineers.


Windings 40%
Bushings 17%
Other 10%
Tap-Changers 27%

Contact replacement
The estimated contact life is stated on the tap-changer’s rating plate. For normal power transformers, the number of operations is approximately 20 per day, which means that replacement of the contacts normally is not necessary during the life of the transformer. For tap-changers on furnace transformers and other industrial applications, the frequency of operations may be considerably higher.

Repairs, replacements and upgrades
In the event of a transformer failure related to the tap-changer, ABB has a network of service engineers around the world ready to support 24/7.

There are multiple reasons a tap-changer could be replaced. Whether it is to replace a broken unit, proactively replace to reduce risk of failure or to upgrade for newer technology to reduce maintenance costs.

ABB has manufactured tap-changers for over a hundred years and has one of the largest numbers of installed tap-changers around the world. Older models that become limited and obsolete should be replaced before the availability of spare parts and service declines.

ABB offers plug-and-play-solutions to upgrade conventional tap-changers to vacuum by replacing the diverter switch. By upgrading to vacuum, the maintenance interval can be greatly extended and thereby lowering the overall maintenance costs.

There are numerous solutions available for replacing non-ABB tap-changers due to failure, lack of spare parts/service or suppliers with protective service strategies. With a global expert network for both tap-changers and transformers, no other partner is better suited for support.

Online monitoring
Valuable information to support asset managers in their decisions is also obtainable using on-line ABB monitoring solutions. These solutions have been widely developed in the past decade and installed in an increasing number of transformers.

The CoreTec™ transformer monitoring platform allows a more refined diagnosis of tap-changer issues. It predicts service needs based on actual condition, not just the number of switching operations.

Spare parts
Critical parts for the tap-changer are recommended to be kept in stock. This becomes especially essential for tap-changers that are limited or obsolete to avoid long lead times or unavailable parts.

For critical units with a high number of switching operations, it is normal practice to keep double diverter switches in stock. This enables service to be performed on the unit that is not in operation and helps greatly to reduce the downtime.

We make every effort to supply spares that fit your equipment. As materials and manufacturing technology improves, it’s not uncommon for older parts to change or get upgraded. To make sure the correct part is selected, our qualified parts teams will request the type designation and serial number for providing the correct solution to match your needs.

Why ABB
Our transformer experts focus on designing components that are reliable and safe while providing a service level that can support the entire life cycle of your transformer assets.
Additional information

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