Product Information

Extended Service Intervals for Tap-Changer type UC

1. Tap-changer type UC
The production of the in-tank type UC started in 1963, and since then more than 8000 units have been delivered.
The UC type has a unique open design for quick and easy overhaul, requiring no special tools or specialist skill. Overhaul can be carried out in any tap-position and without dismantling the shafts.

2. Network applications
An OLTC in a network transformer carries out approximately 5-20 operations a day in a stable network and the average load is normally far below the rated load. The contact life is typically 400 000 to 500 000 operations depending on the through current. The low operation frequency means that the contact life is normally as long as the transformer’s.

3. Normal Overhaul Intervals
Overhaul requires that the transformer is taken out of service and is normally required every 7 years of service or every 80 000 – 100 000 operations (1/5 of the contact life), whichever comes first. The 7-year interval is the normally set limit in network applications for the reasons described above.
The reason for requiring overhaul every 7th year is concern of oil deterioration, contamination and moisture.

3.1 Extended overhaul intervals
The time-based overhaul intervals can be extended from 7 to 15 years. The overhaul intervals based on the number of operations are extended from 80 000 – 100 000 operations to 150 000 to 200 000 operations (2/5 the expected contact life), provided an oil sample is taken prior to commissioning the tap-changer and then every 4th year and analysed in compliance with IEC 60422.

In addition, the following minimum dielectric strength values according to IEC 60156 apply

- Neutral point application: 25 kV.
- Delta, single phase and Auto transformer with the highest system voltage up to 72.5 kV: 30 kV.
- Delta, single phase and Auto transformer with the highest system voltage above 72.5 kV: 40 kV.

To maintain a dielectric strength of 40 kV, an oil filter for continuous filtering has to be fitted, see below.

The ABB oil filter unit operates continuously providing very good filtration, low flow rate and simple control equipment. The oil filter unit reduces the amount of particles to approximately 0.1 % of that of non-filtered oil. At overhaul no oil filtration or cleaning of the OLTC compartment is necessary, which reduces the maintenance time and cost considerably.

4. Order Information
It is important to specify in the ordering data the OLTC is going to be used in an application requiring extended overhaul intervals. The extra piping required for allowing oil samples to be taken during service will then be fitted and, if required continuous oil filtration provided.