Testing Procedures for HV Voltage Transformers

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1. Equipment required

Following equipment is necessary to perform testings:
2. General inspection

**Mechanical checks**

- General **visual inspection** and compliance with the drawings and manuals.
- Check nameplate ratings and HV, LV terminal markings.
- Check that all parts of the transformer are properly assembled and tight.
- Check the HV connections are tight.
- Check the cable connections on the LV side and the markings.
- Check the oil levels and inspect for leakage. (Where applicable)

**Capacitor dividers type**

Check that all parts of the transformers are properly assembled.

**Electromagnetic type**

Check the installation of different sections.

**Electrical Checks**

- Check the **equipment grounding** *(Continuity and connection)*
- Check the fuse rating of secondary side.
- Perform the operation described in the following

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**Insulation Resistance Test**

To obtain values as close as possible to the manufacturer’s specifications the insulators must be very clean. Select the megger range corresponding to the ratings of the equipment under test.

*For Primary side, apply voltage depending on rating of voltage rating of VT.*

- For 6.6 kV VT *(example)*, apply 2.5 kV and
- For 132 kV VT *(example)*, apply 5.0 kV.
Figure – Measurement between primary and secondary

Figure – Measurement between primary and ground

Figure – Measurement between secondaries and between secondary and ground
Polarity Test

The polarity is checked using the *flick method* (application of direct current) and check of deflection on a bi-directional milliammeter. The test is also used to check primary and secondary circuit continuity.

- When *switch k* is closed, the milliammeter pointer deflects positive.
- When the circuit is opened, the milliammeter pointer deflects in the negative direction.

![Figure – VT Polarity test](image)

Transformer Turns ratio test

A variable AC source is applied on the primary side. The primary and secondary voltages are measured to determine the ratio $V_2/V_1$

![Figure – Transformer Turns ratio test](image)

Reference: *Contract specific procedure for testing of electrical equipment and 132kV OHL*

Source:

http://electrical-engineering-portal.com/testing-procedures-for-hv-voltage-transformers#content