

Testing Procedures for HV Voltage Transformers



Testing Procedures for HV Voltage Transformers (photo credit: hvcafrica.com)

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1. Equipment required

Following equipment is necessary to perform testings:

- Polarity test kit
- Megger 500-5000V
- Ohmmeter
- Multimeter
- Autotransformers & Step-up transformers

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

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.

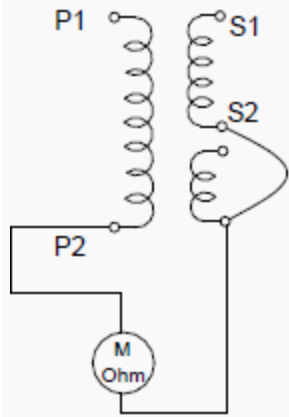


Figure – Measurement between primary and secondary

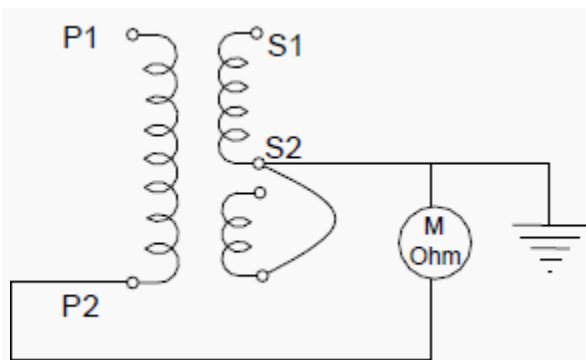


Figure – Measurement between primary and ground

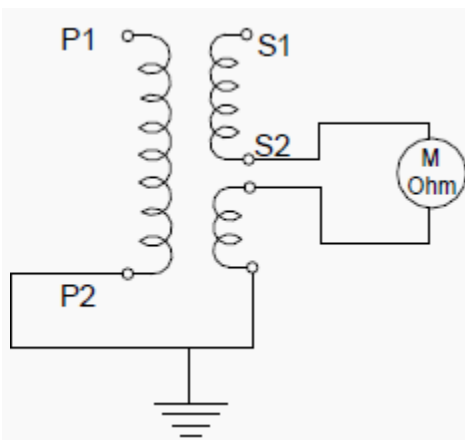


Figure – Measurement between secondaries and between secondary and ground

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.

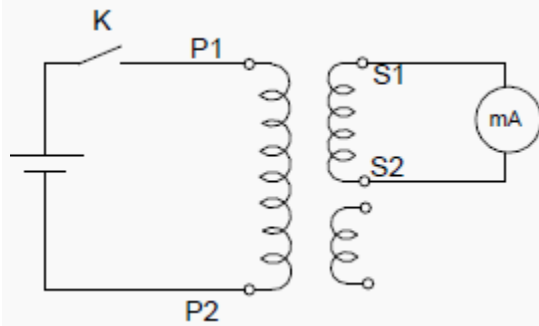
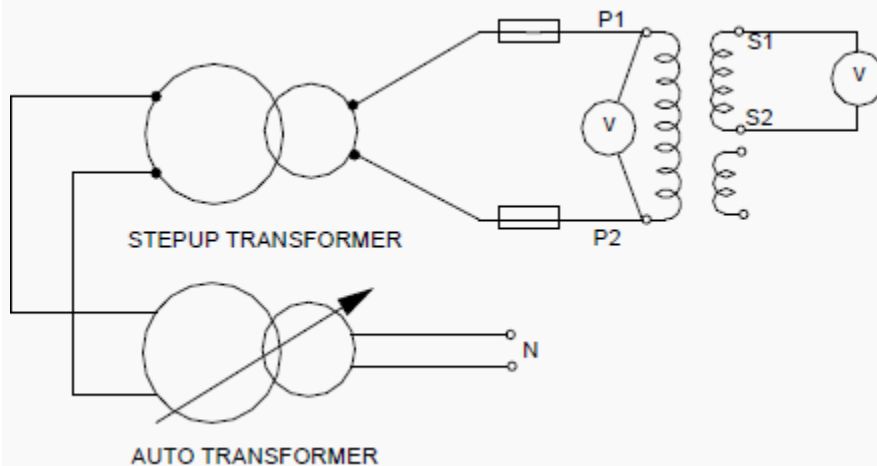


Figure – VT Polarity test

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



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>