FAIRDEAL
Electricals & Engineering P Ltd
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Manufacturers of Power & Distribution Transformers

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MAGNETIC BALANCE TEST ON TRANSFORMERS- FAULT DIAGNOSIS

Magnetic Balance Test as it is called is performed to detect faults / defects in the magnetic core structure, shifting and/or de-shaping of windings, failure in inter-turn insulation or fault in Tap Changer. The faults described above change the effective reluctance of the magnetic circuit which then affects the magnetizing current required to establish flux in the core.

When fault occurs in your system, to check whether your transformer is in good condition or not, this is the simplest test, which can be carried out. Any changes/fault/dimensional instability inside the transformer will be visible in the readings.

To carry out the test, you will require the following:

a) A single phase supply source preferably having voltage of 230~250 volts,
b) A Multi-meter or a simple voltmeter will also work,
c) A pair of PVC insulated cable to be used to apply voltage to the transformer from your supply source.

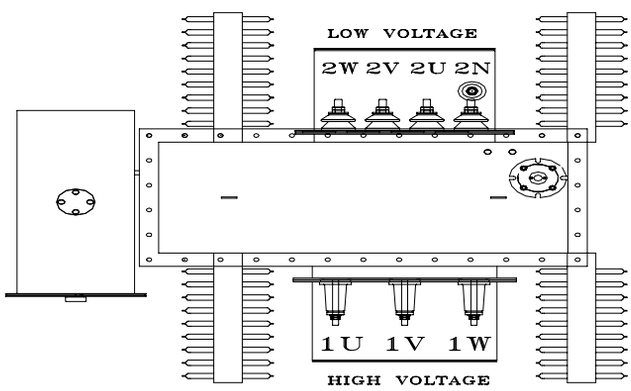

DIAGRAM OF A TYPICAL DISTRIBUTION TRANSFORMER

Now the procedure to carry-out the test:

1. On the transformer, you have primary high-voltage terminal (11/22/33kV etc.) & Secondary low-voltage terminal (415/433/575/750 V etc.),
2. Disconnect cables from both sides of the transformer,
3. Connect single phase 230 Volts supply between first and second phase of primary side of transformer (between 1U & 1V)
4. Measure voltages between 1U~1V, 1V~1W, and between 1W~1U,
5. Similarly measure voltages between 2U~2N, 2V~2N & 2W~2N
6. Then connect single-phase supply between second and third phase on primary side (between 1V~1W), and again record readings as mentioned in 5 & 6 above.
7. Then connect single-phase supply between third and first phase on primary side (between 1V~1W), and again record readings as mentioned in 5 & 6 above.
8. Record the readings in the table given below:

1U~1V	1V~1W	1W~1U	2U~2N	2V~2N	2W~2N
a1	b1	c1	a2	b2	c2
d1	a1	d1	d2	a2	d2
c1	b1	a1	c2	b2	a2

9. A transformer will be deemed in good condition if the readings are in above order. Incase of fault, there will be deviation or maybe zero voltage may be recorded in any particular phase depending on the type of fault.

For proper evaluation, mail back the reading to us at "**fairdeal.nsk@gmail.com**".