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Experiment no - 8

→ **Title:** To perform open circuit test on transformer.

→ **Objectives:** To determine the no-load current and losses of the transformer.

→ **Apparatus:**

Sr. No.	Item	Rating	Quantity.
1.	1 phase dimmer stat.	-	1
2.	AC Ammeter.	0 - 5amp	1
3.	AC voltmeter.	0 - 150 V	2
4.	Wattmeter.	5A, 150V	1
5.	Transformer.	-	1.

→ **Theory**

Consider circuit diagram for open circuit test on transformer. wherein one winding is connected to supply of normal voltage and frequency as per rating and other is kept open. The consideration are as follows:

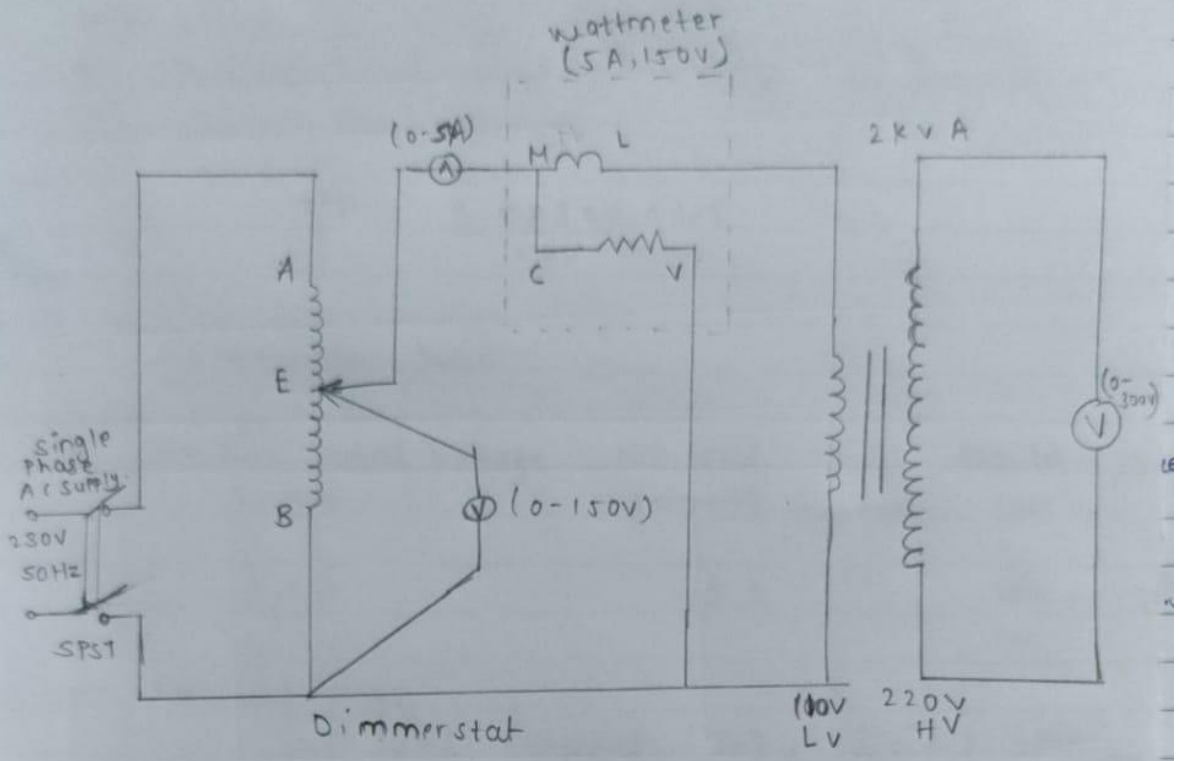
1. Ammeter connected in the circuit gives no load current drawn by transformer.
2. As no load current ~~hence~~ is very small as compared to full load current hence copper losses

in this test are very small.

3. wattmeter connected in the circuits indicates iron losses occuring in the transformer.

4. In this test we can calculate W_o, I_o, V_o, i.e wattmeter, ammeter and voltmeter respectively and also $\cos\phi$ i.e power factor of transformer.

circuit diagram.



→ Procedure

1. Connect the circuit as per provided circuit diagram.
2. check the connections twice.
3. start the main switch.
4. Adjust the required voltage on demonstrate
5. Take the reading.

$$MF = \frac{2.5 \times 300}{500} = 1.5$$

→ Observation table :

Applied rated voltage V_o (volt)	No load current I_o (amp)	No load power loss W_o
220	1.1	$15 \times 1.5 = 22.5$

→ Calculations;

No load current (I_o) is divided into two components.

i. Magnetizing current (I_μ) = $I_o \sin\phi$.
ii. Active current (I_w) = $I_o \cos\phi$.
iii. We can also calculate
Magnetizing reactance, $x = V/I_u$
Equivalent resistance, $R = V/I_w$.

→ Conclusion : secondary voltage is exactly double to primary voltage.