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RAJAT

TECHNICAL MANUAL FOR

HEAT RUN TEST ON THREE PHASE TRANSFORMER

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HEAT RUN TEST ON THREE PHASE TRANSFORMER

AIM

To study heat run test on a three phase transformer.

INSTRUMENTS REQUIRED

(a) 3 Phase Transformer 1 KVA. 440/440 V, Delta/Delta with terminals brought out on the front sheet.

(b) It consists of MS fabricated box with engraved circuit fitted on the panel with duly marked termination and also back door of the panel having lock facility for safety of panel along with all the required accessories and measuring instruments

(c) Temperature indicator.

(d) RTD fixing in winding of transformer.

THEORY

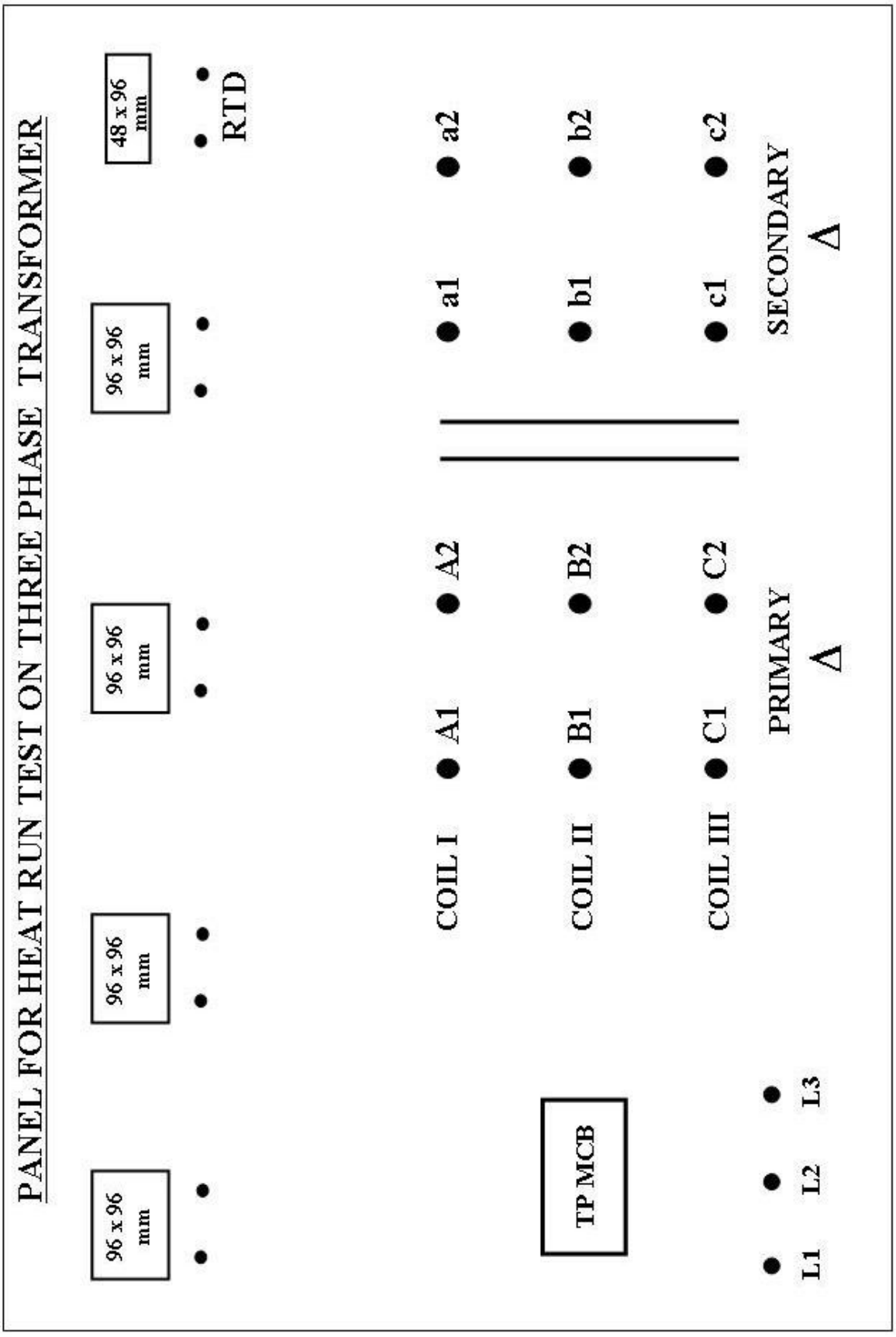
Heat run test is one of the type tests on power transformer. This test is also called temperature rise test. This test reproduces conditions of continuous rated load and the temperature rise occurring during the load. For conducting heat run test on the three phase transformer, full rated voltage is applied to one of the windings which accounts for full load iron losses and other winding is connected in delta, because of balanced condition of all three phases voltage in the delta loop is zero and with the help of external source full load current is circulated in the delta

connected winding of the transformer to account for full load copper losses.

With the help of RTD provided in the winding of transformer temperature of the transformer winding is recorded. Steady state temperature of winding indicates the full load temperature rise of the transformer.

PROCEDURE

1. Make the connections as per the circuit diagram given in fig. attached.
2. Increase the voltage in the primary winding with the help of 3 phase variac to rated voltage.
3. Adjust the current in the closed delta secondary winding to the rated current of the secondary winding.
4. Record the temperature of the winding after every 15 minutes till temperature of winding reaches to a steady state condition i.e. temperature does not rise any more.
5. Time taken to reach the final temperature give idea about the thermal time constant of the transformer and final temperature gives the full load temperature rise of the transformer.


PANEL FOR HEAT RUN TEST ON THREE PHASE TRANSFORMER
96 x 96 mm
96 x 96 mm
96 x 96 mm
48 x 96 mm
RTD
TP MCB
L1
L2
L3
COIL I
A1
A2
a1
a2
COIL II
B1
B2
b1
b2
COIL III
C1
C2
c1
c2
PRIMARY
Δ
SECONDARY
Δ