

OPERATION PRINCIPLE OF DIFFERENTIAL RELAY

AT NORMAL CONDITION, THE CT PRIMARY CURRENT I_1 FLOWING IN TO TRANSFORMER AND I_2 FLOWING OUT FROM THE TRANSFORMER ARE EQUAL.

CT - SECONDARY CURRENT i_1 AND i_2 FLOWING IN TO DIFFERENTIAL RELAY ARE ALSO EQUAL.

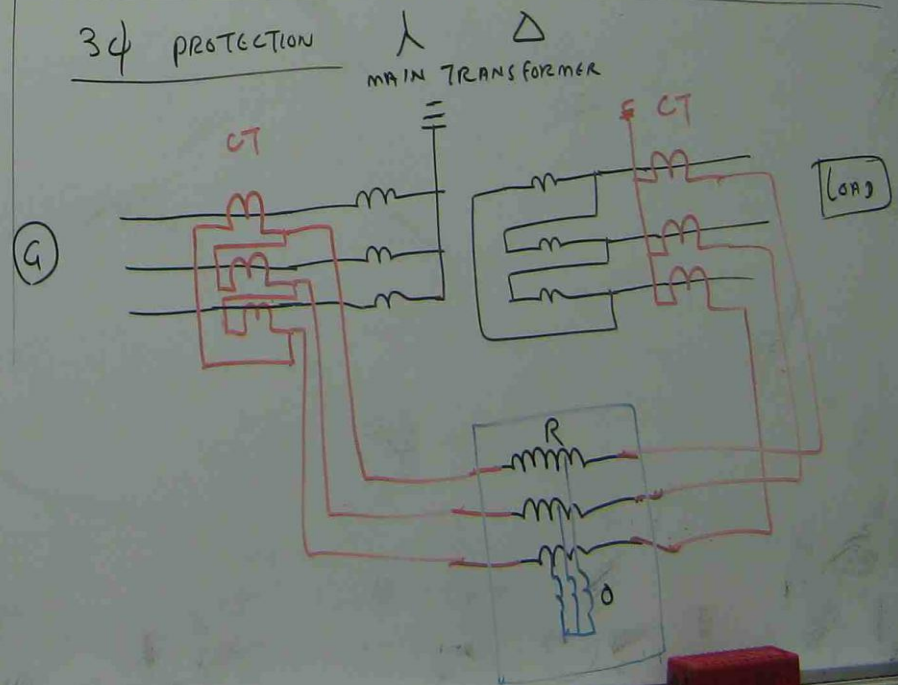
NO RESULTANT CURRENT FLOWS IN TO RELAY OPERATING COIL. ONLY THE CURRENTS FLOW IN TO RELAY RESTRAINING COIL.

RELAY OPERATING COIL IS NOT ENERGIZED AND THE RELAY DOES NOT OPERATE

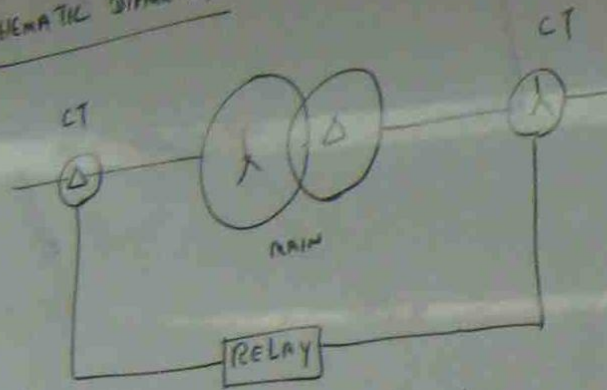
WHEN THE FAULT OCCURS IN MAIN TRANSFORMER,
 $I_1 \neq I_2$ AND $i_1 \neq i_2$

THE RESULTANT CURRENT I_0 FLOWS IN RELAY OPERATING COIL.

RELAY OPERATES.



SCHEMATIC DIAGRAM



MAIN TRANSFORMER IS λ/Δ , CT CONNECTION IS Δ/λ TO REDUCE THE PHASE DISPLACEMENT.

SETTING OF DIFFERENTIAL RELAY

THE RATIO BETWEEN OPERATING CURRENT AND RESTRAINING CURRENT NEEDS TO BE SET FOR CORRECT EFFECTIVE OPERATION

$$\% \text{BIAS} = \frac{\text{OPERATING CURRENT}}{\text{RESTRAINING CURRENT}} \times 100$$