6.2 Exciting current (I_{EX})

Error in transformation is due to exciting current (I_{EX}) because of which the proportionality between primary and secondary current is not maintained. For Class PS CT, this proportionality is retained to a high degree by specifying a low exciting current. Usually I_{EX} <30mA is specified for 1A CT and I_{EX} < 150mA is specified for 5A CT.

6.2.1 Why I_{EX} <30mA or I_{EX} <150mA?

In current balanced scheme to avoid mal operation of protection scheme during normal operating conditions, the spill current through the differential relay should be less than the relay pick up (Refer Fig. 12).

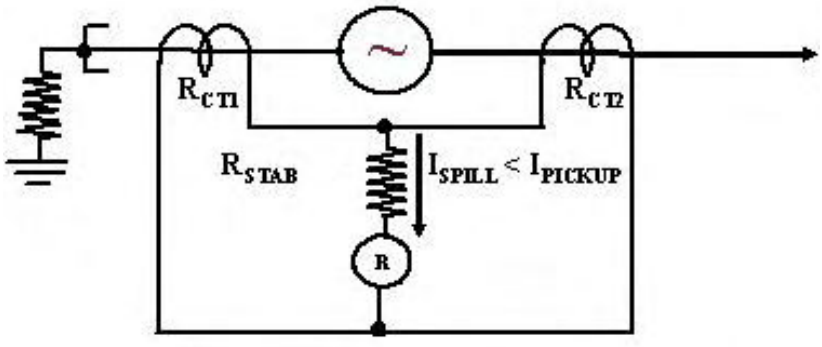

Fig 12

Therefore for such schemes the relay pickup current is set based on the number of CTs in the circuits and the exciting current for each CT. Assuming a relay pickup of 10% i.e. 0.1 A for a 1A CT, the exciting current of CTs can be <30mA when used for a three winding transformer (Refer Fig.13). It can be even 45mA for a 1A CT for a two winding transformer. On similar lines 150mA is normally specified for 5A CT.