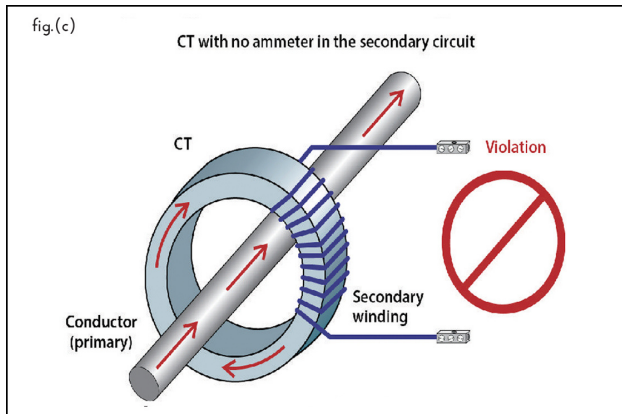




CT secondary opened when primary is energized:

When secondary circuit is an open circuit as shown in fig. (c), a very high back Emf voltage is generated according to Lenz's law of electricity.



In fig b, when secondary circuit is open, there is no secondary current I_2 and hence counter-balancing flux Φ_2 is absent and hence Net flux = $\Phi = \Phi_1$ which is very large and this produces a very high back emf as per Lenz's equation.

Lenz's equation for electromagnetic induction is as follows:

Lenz's Law

$$E_b = -N \left(\frac{\Delta\Phi}{\Delta t} \right)$$

This voltage (back emf) is extremely dangerous. It can result in deadly shock to the person who opened the secondary. This extreme high voltage can exceed insulation levels of CT and result in fire hazard and even explosion of CT. CT secondary is terminated to the Meter. If there is a loose connection or open circuit at meter end, such hazard might happen.

Conclusion

When CT secondary is terminated at Meter, it must be ensured that the connections for secondary circuit are secure and reliable in order to avoid fire and shock hazard.