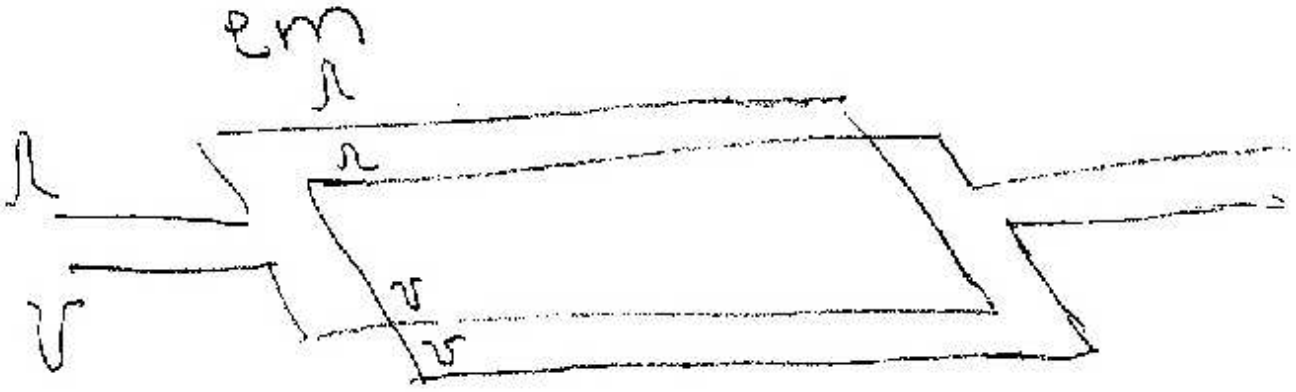
The One Turn Transformer

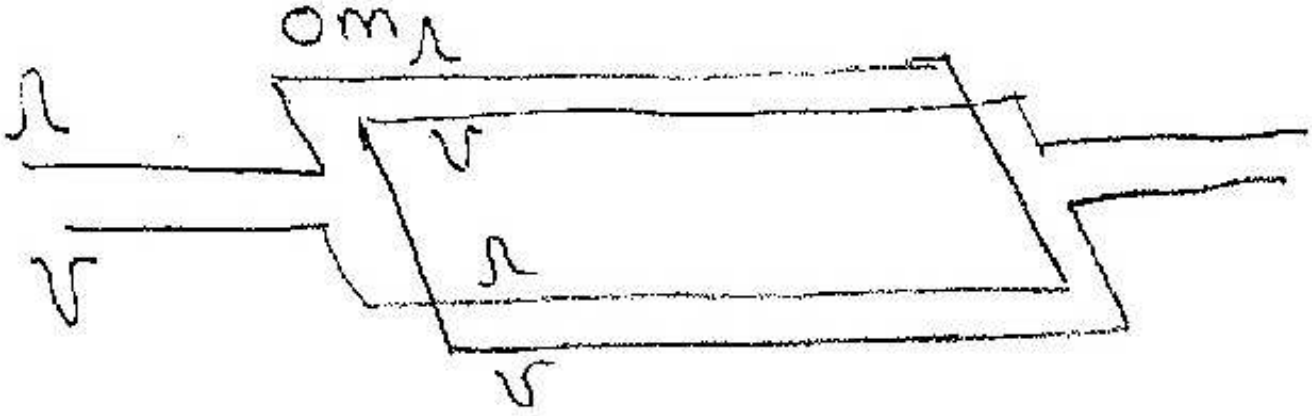
Use classical theory (Theory N) . Signal into the one turn transformer meets a partial short. This means that that total voltage of the two modes on the secondary must be zero, but not the current of the two modes.

Even Mode



Input

Odd Mode



These pictures, from http://www.ivorcatt.co.uk/x0305.htm , illustrate what happens at the input to a one turn transformer.

The input pulse, third trace of Figure 35, cannot cause a voltage on the front end of the secondary, which is shorted. However, the resulting two modes, even and odd, equal in voltage, may separate out as they traverse the transformer.

Figs. 35 and 36. Same as Figs. 28 and 29 but with front end of passive line shorted to ground instead of open.

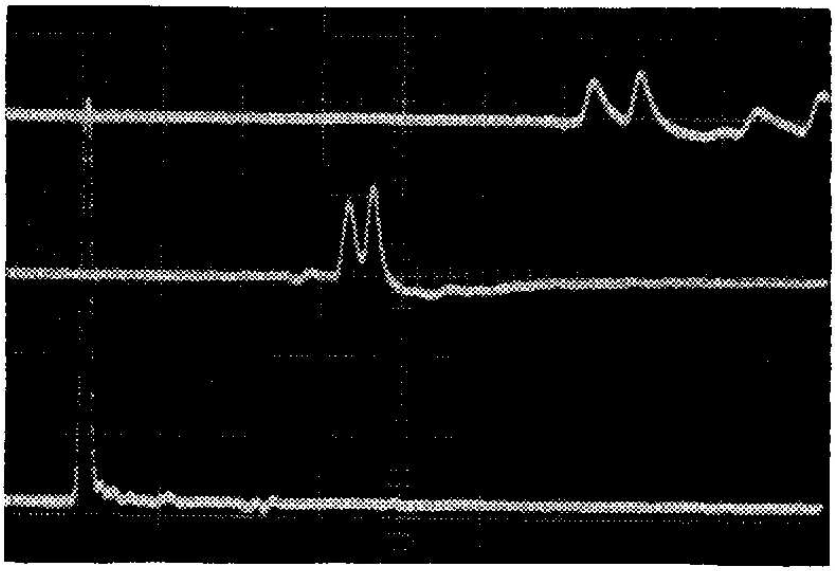


Fig. 35

Primary

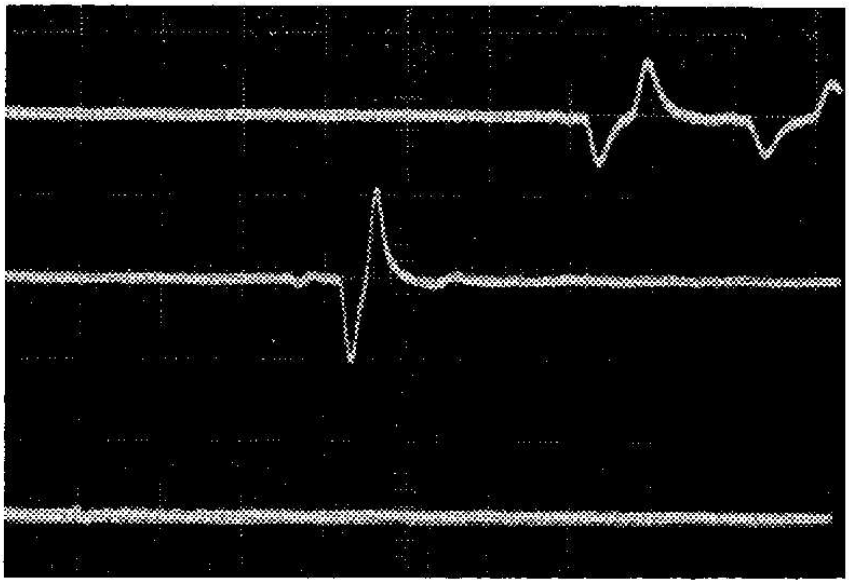


Fig. 36

Secondary