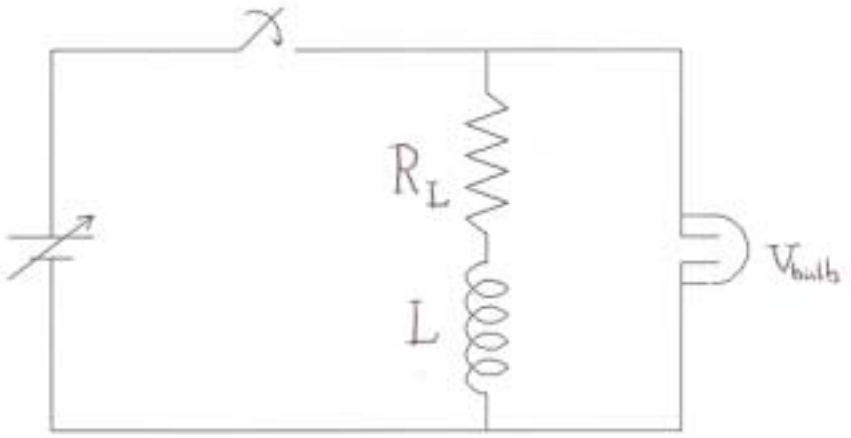
Inductive Voltage Spikes II



When the switch is closed the bulb is in parallel with the power supply, which is at too low a voltage to cause the bulb to glow. However, the inductor stores energy in a magnetic field. When the switch is opened the following equation applies:

$$v_{bulb} = Ldi/dt.$$

If the current changes very quickly, which it does, di/dt is very big and thus the magnitude of v_{bulb} is very big. So when the switch is opened the current changes quickly enough to cause a sufficient voltage($\sim$120V) to fall across the bulb. Thus the bulb glows.