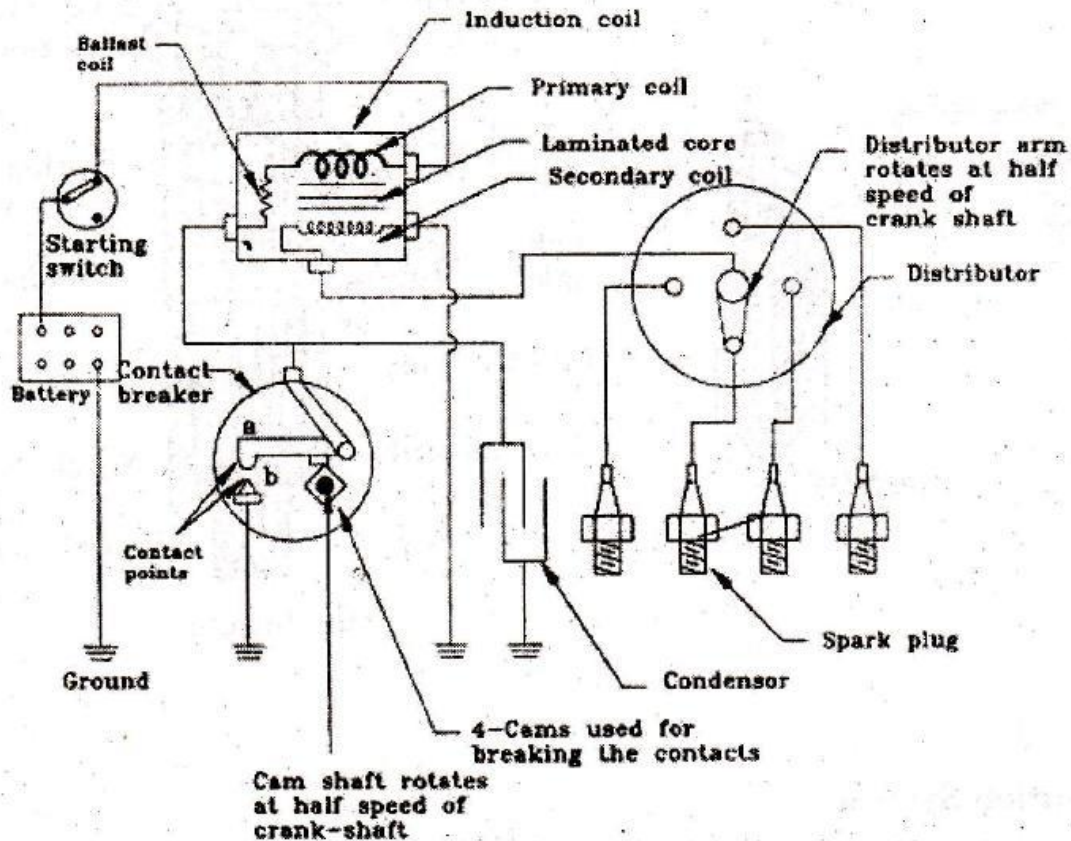


Aircraft Magnetos



How it Works

The primary winding of the coil consists of 200 turns or so of heavy gauge copper wire wound around a laminated iron armature. One end of the coil is permanently grounded to the case of the magneto, while the other end is connected to a set of cam operated breaker points. Normally, the breaker points are closed, grounding both ends of the primary coil and allowing current induced by the rotor magnet to flow continuously around and around the coil. This current flow produces a powerful magnetic field in the primary coil. At the moment of ignition, the magneto's cam opens the breaker points, interrupting the flow of current in the primary coil winding, and causing the magnetic field in the coil's core to collapse quite suddenly. The collapse of the core's magnetic field induces a large voltage spike in the primary, which may be as high as 200 or 300 volts.

The secondary winding of the coil consists of a very large number of turns of very fine magnet wire — perhaps 20,000 or so — wound around the same core as the primary. The two coil windings act as a special sort of step-up transformer. Since the secondary winding has something like 100 times as many turns as the primary, the 200- to 300-volt spike produced in the primary when the breaker points open induces a voltage 100 times as large in the secondary: 20,000 to 30,000 volts. Now that is enough to produce a nice, hot spark!

Faraday's Law: The electro-magnetic field (voltage) **induced** in a circuit is proportional to the rate of change of the magnetic field in that that circuit.