

Figure 10-4. A—Wiring schematic illustrating how the coil induces current flow in a secondary coil. B—Ignition coil operation. 1–Primary winding. Current flow through the primary winding builds up magnetic field. 2–Secondary winding. High-voltage current developed when magnetic field collapses. Current leaves the coil on its way to the spark plugs.

Older cylinder coils have primary terminals marked with a (+) and (–). The plus sign indicates positive and the minus indicates negative. The wiring harness connectors of newer coils are designed so they cannot be installed incorrectly. The coil must be installed in the primary circuit according to the way the battery is grounded. This alignment of the positive and negative terminals is called ***polarity***. If the battery's negative terminal is grounded, the negative terminal of the coil must be connected through the ignition control module or distributor to ground as applicable. This is done to ensure the correct polarity at the spark plug.

Actual Coil Output

Even though the voltage output of some coils can exceed 100,000 volts, the coil will only build up enough voltage to produce a spark. This may be as low as 2000 volts at idle on an older vehicle without emission controls or as high as 60,000 volts on a new vehicle with the engine operating under a load and using the leanest possible air-fuel mixture.