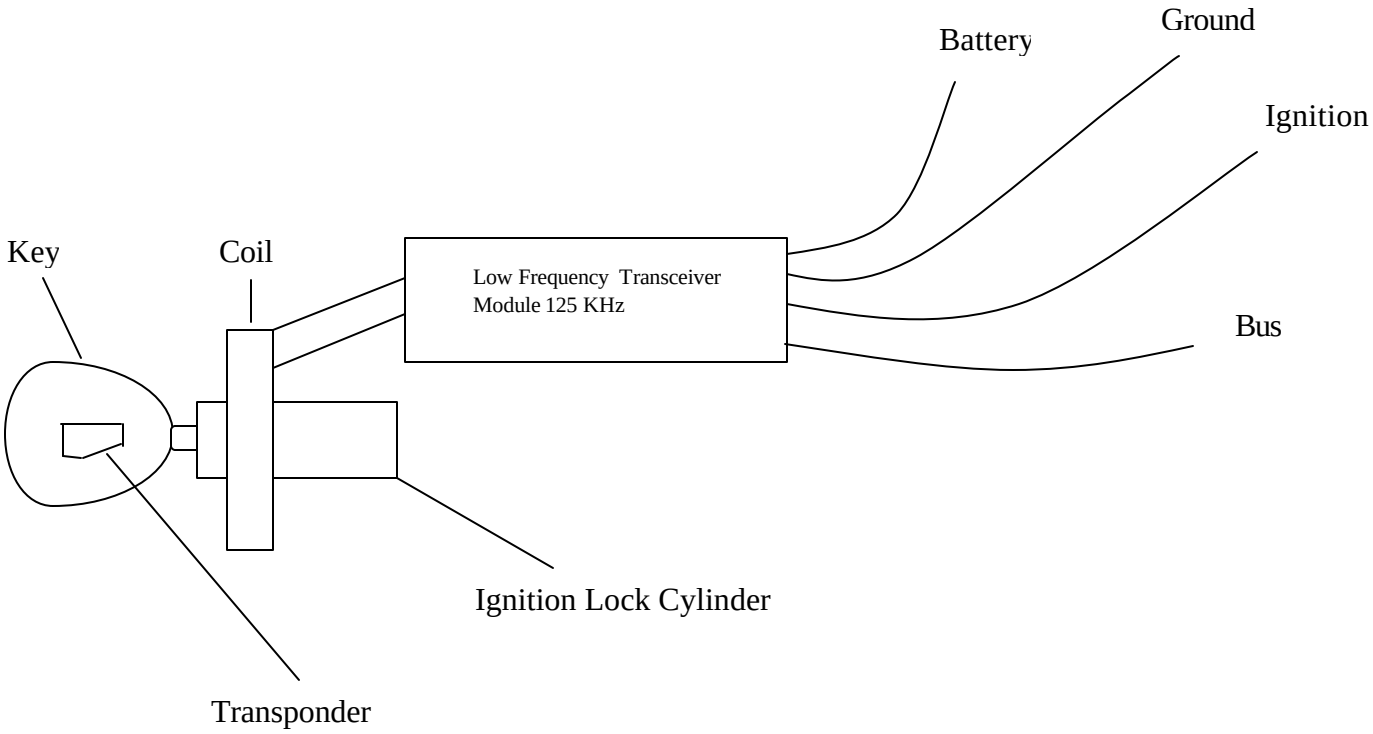
PK3+ Functional Description

The PK3 immobilizer module is a passive anti-theft system whose purpose is to prevent the engine from starting if the module does not detect a valid key upon engine startup. The key contains a battery-less electronic device (transponder) that derives its energy from the low frequency field. The key electronic device acts as a transceiver when communicating with the module. The module contains a 125 kHz transceiver, a microprocessor, and a vehicle bus transceiver.

Upon inserting and turning the key in the ignition lock cylinder of the vehicle, the module is triggered to check the validity of the key by mutual authentication. The module sends a challenge to the key by modulating the 125 kHz carrier signal and then waiting for a response from the key while keeping the carrier on. If the challenge is valid, the key responds with its password by modulating the module carrier signal. The entire radio frequency communication process lasts 62 ms typically. The outcome of this authentication process is sent on the vehicle bus via the bus transceiver. The microprocessor controls the low frequency transceiver by encoding and decoding data to the key. It also handles the communication on the bus.



Block Diagram of Immobilizer System Operation