Brief Description Of Operation.

The Immobiliser is part of a vehicle anti theft system. It includes a digital processing unit with memory, a transceiver and an energiser coil in the same housing. The energiser coil is fitted around the Steering Column Lock where the key is placed to start the engine. The Immobiliser is connected to the vehicle battery and the vehicle Engine Control Module unit. This system communicates with a transponder which is mounted in the head of the vehicle ignition key. The transponder has no internal power supply and is active only when it is in the electromagnetic field produced by the energiser coil.

When the ignition is turned on, the oscillator in the Immobiliser unit drives the energiser coil to produce a 125 kHz electromagnetic field which activates the transponder. The transponder and the Immobiliser exchange data by modulating the electromagnetic field. A block diagram of the 125 kHz transceiver is shown in Figure 1. An encrypted protocol is used to ensure that the exchange of data is secured. The protocol and format of the data exchange is shown in Figure 2. The identity code of the transponder which is unique for each ignition key is transmitted to the Immobiliser unit and forwarded to the Engine Control module using serial link. If the transponder identity is recognised the engine is allowed to start, otherwise the engine will not start.