1. GENERAL TECHNICAL DESCRIPTION

1-1 INTENDED USE AND OPERATION INSTRUCTIONS

This equipment, known as an immobilizer, is a vehicle anti-theft device to prevent the unauthorized use of a motor vehicle. The equipment allows the ignition system to be disabled when the ignition system is manipulated without using the proper key, such as by direct connection of the power supplying lines or breakdown of the key-cylinder. The system is a radio frequency apparatus comprising of a transponder integrally incorporated within the ignition key, a radio frequency module (antenna/amplifier) installed on the key-cylinder case and a controller controlling the operation of the RF module.

When the proper key is inserted into the key-cylinder and rotated to the ON or cranking position, the amplifier sends an unmodulated pulse current of frequency 134.2 kHz to the antenna for a period of 50 msec. upon command of the controller, and the antenna thereby generates an electro-magnetic field. Consequently, the resonant circuit of the transponder is energized and the induced voltage is rectified by the integrated circuit to charge the capacitor. As soon as the transponder detects the end of the charge burst, it transmits FM/FSK modulated signals composed of binary code (123.7 kHz/134.7 kHz) including identification code for a period of 16 msec., utilizing the energy stored in the capacitor. The radio frequency module remains responsive for a duration of 20 msec. after emitting the electro-magnetic field, so that it amplifies/demodulates the received signals and sends the identification code contained in the signals to the controller. The controller compares the received code with the pre-stored code in the non-volatile memory of the controller (max. 5 code storable). The comparison is repeated three times when no code or any code different from the stored code is received. After the comparison, the controller sends the result of the comparison to the engine control computer. When coincidence has been verified, the engine control computer enables the engine to be activated, but when the result is negative it will not allow the engine to be activated.

Whenever the ignition switch is turned from the ON position to the OFF position during processing, the system is shifted to ignition OFF mode. The controller causes the indication lamp on the dashboard to flash when the ignition switch is in the OFF position or a malfunction of the system occurs. The engine control computer sends a rolling code to the controller every time the ignition switch is turned from the ON position to the OFF position in order to watch for an unauthorized replacement or a manipulation of the controller.

1-2 APPLIED REGULATIONS

This equipment will be operated under FCC Rules and Regulations Part 15.

1-3 TRANSITION PROVISIONS

This equipment is not intended to be approved under FCC Rules and Regulations Section 15.37.