

RF SIGNAL RECEPTION

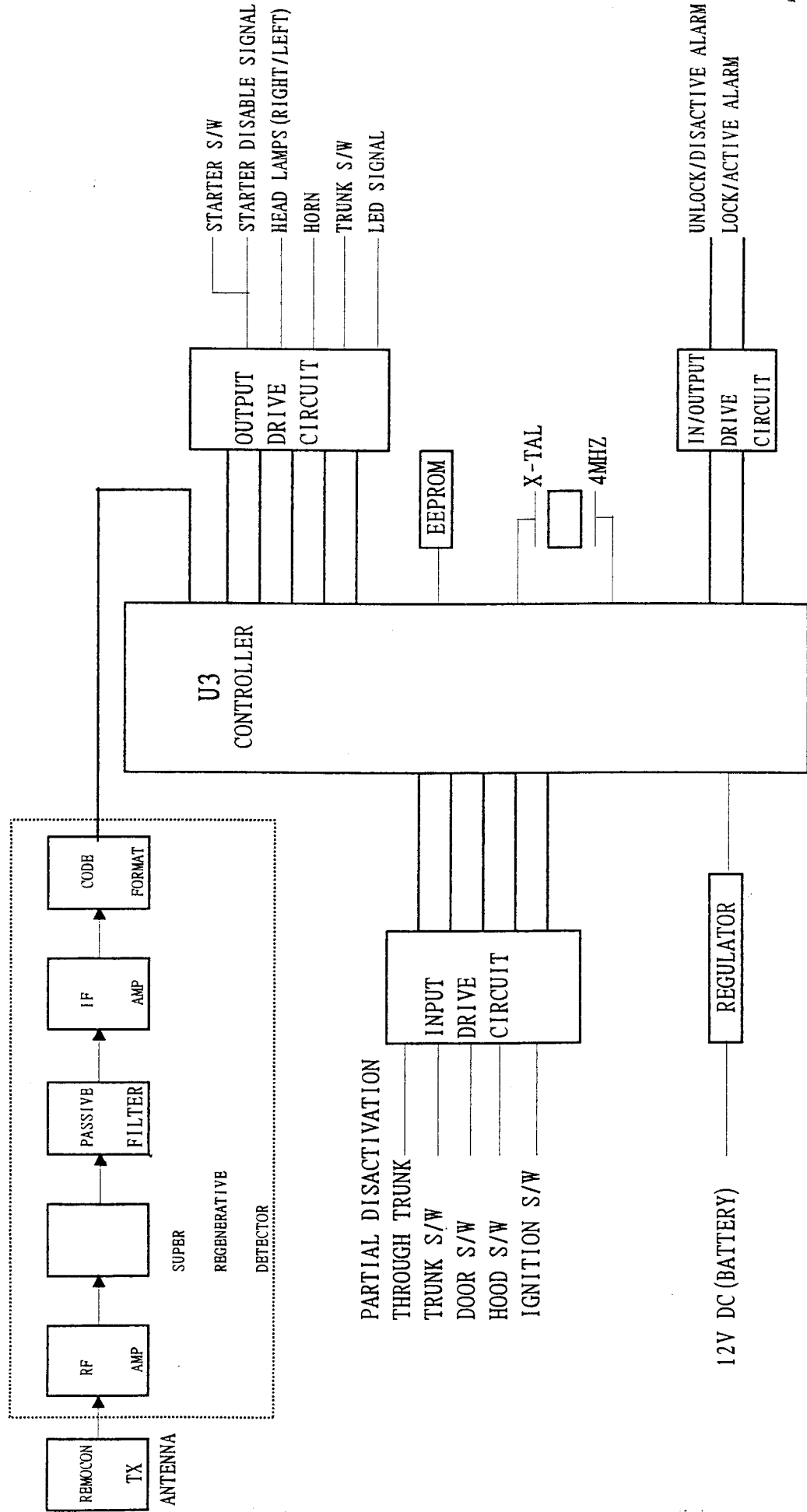


FIGURE 1 : CAR ALARM RECEIVER UNIT BLOCK DIAGRAM

TECHNICAL DESCRIPTION OF RECEIVER

This unit is composed of RF signal reception circuit, controller and the related circuits like oscillator and EEPROM. The modulated signal from the remote TX unit (transmitter) is amplified by amplifier (Q1) and fed into a super regenerative detector (Q2) through the antenna and passes through a high pass filter and IF amplifier (U1B).

Finally, it changes the appropriate square wave from the code format circuit (U1A).

The controller, 8-bit microprocessor (PIC16C57) accepts the formatted code and controls output according to software (RX input condition and TX input).

EEPROM initially stores the unique secret code from the transmitter and the stored secret code is used for the information of comparison and judgement from the controller based on the dispatched code from the transmitter.

A BLOCK DIAGRAM AND CIRCUIT DIAGRAM ARE ATTACHED.

A. BLOCK DIAGRAM DESCRIPTION FOR CAR ALARM MAIN UNIT (RECEIVER)

1. 3.7V REGULATOR CIRCUIT.
2. INPUT DRIVE CIRCUIT
 - 2.1 BATTERY
 - 2.2 GND
 - 2.3 IGNITION SWITCH
 - 2.4 HOOD SWITCH
 - 2.5 DOOR SWITCH
 - 2.6 TRUNK SWITCH
 - 2.7 PARTIAL DISACTIVATION THROUGH TRUNK
3. RF SIGNAL RECEPTION CIRCUIT
 - 3.1 RF AMPLIFIER
 - 3.2 SUPER REGENERATIVE DETECTOR
 - 3.3 PASSIVE FILTER
 - 3.4 IF AMPLIFIER
 - 3.5 CODE FORMAT PART
4. RESONATOR (OSCILLATOR)
5. EEPROM
6. CONTROLLER
7. OUTPUT DRIVER CIRCUIT
 - 7.1 START SWITCH
 - 7.2 START DISABLE SIGNAL (RELAY)
 - 7.3 HEAD LAMP DRIVE
 - 7.4 HORN DRIVE
 - 7.5 TRUNK OPEN DRIVE
 - 7.6 STATUS LED DRIVE
 - 7.7 DOOR LOCK DRIVE
 - 7.8 DOOR UNLOCK DRIVE

B. DESCRIPTION FOR BLOCK DIAGRAM

1. 3.7V REGULATOR CIRCUIT

3.7V REGULATOR PROVIDES THE SETTED +3.7V FROM +12V BATTERY.
IT IS USED AS THE SOURCE OF ELECTRONIC POWER FOR THE COMPONENTS ON THE MAIN UNIT.

2. INPUT DRIVER CIRCUIT

2.1 INPUT POWER

IT IS BATTERY INPUT (12V DC) AS THE SOURCE OF VEHICLE

2.2 INPUT DRIVE CIRCUIT IS THE INTERFACE CIRCUIT WHICH CHANGE SWITCH INPUTS TO APPROPRIATE ELECTRICAL INPUTS FOR CONTROLLER.

1) IGNITION SWITCH; "ACC" INPUT.

2) HOOD/TRUNK/DOOR/PARTIAL DISACTIVATION SWITCH; GND INPUT.

3. RF SIGNAL RECEPTION CIRCUIT

3.1 RF AMPLIFIER

THE RF SIGNAL RECEIVED THROUGH ANTENNA COULD BE GET HIGH-SENSITIVITY BY AMPLIFIER TR (Q1)

3.2 SUPER REGENERATIVE DETECTOR

YOU CAN GET LARGE "Q" IN TUNING CIRCUIT CONNECTED TO THE COLLECTOR OF TR (Q2) AND THEN YOU CAN GET HIGH SENSITIVITY BY IMPROVING THE REQUIRED FREQUENCY RANGE AS LIKE ABOVE, YOU CAN GET THE HIGH RECEPTION SENSITIVITY REGARDING YOUR REQUIRED FREQUENCY RANGE BY SUPER REGENERATIVE RECEPTION CIRCUIT.

3.3 PASSIVE FILTER

THIS CIRCUIT FILTERS THE HIGH FREQUENCY SIGNAL FROM THE SUPER REGENERATIVE DETECTOR AND RECEIVER THE IF SIGNAL.

3.4 IF AMPLIFIER

THIS CIRCUIT AMPLIFIES THE IF SIGNAL.

3.5 CODE FORMAT CIRCUIT

THIS CIRCUIT MAKES AN UNSTABLE ANALOG FROM IF AMPLIFIER TO AN APPROPRIATE SQUARE WAVE SIGNAL AND MAKE CONTROLLER TO ACKNOWLEDGE THE FORMATTED SIGNAL.

4. RESONATOR (OSCILLATOR)

THIS CIRCUIT USE A 4MHZ CRYSTAL OSCILLATOR AS A CLOCK.

5. EEPROM

IT STORE THE UNIQUE SECRET CODE FROM EACH TRANSMITTER.

THE STORED CODES IN EEPROM ARE USED FOR BEING COMPARED WITH THE DISPATCHED CODE

CAR ALARM SYSTEM

WHEN TX ARE PRESSED.

6. CONTROLLER

8BIT MICRO PROCESSOR (PIC16C57) CONTROLS INPUTS AND OUTPUTS ACCORDING TO SOFTWARE ON THE CONTROLLER.

7. OUTPUT DRIVER CIRCUIT

THIS PARTS DRIVE THE MODULES CONNECTED TO RX MAIN UNIT.