

## **2. CIRCUIT DESCRIPTION**

### **A. BASE UNIT**

1. TEL-LINE INTERFACE
2. RING DETECT
3. POWER SUPPLY
4. AUDIO AMPLIFIER AND COMPANDOR
5. DTMF GENERATOR
6. RSSI CONTROL
7. DATA COMMUNICATION INTERFACE
8. BASE RF MODULE

### **B. PORTABLE UNIT**

1. LOW BATTERY DETECTION CIRCUIT
2. BUZZER
3. INDICATOR CATEGORY
4. AUDIO AMPLIFIER AND COMPANDOR
5. PORTABLE RF MODULE

## A. BASE SET

### 1. TEL-LINE INTERFACE

TEL-LINE INTERFACE CIRCUIT CONSISTS OF SWITCH TRANSISTOR (Q7,Q11,Q9) DIODE BRIDGE (D6~D9), AND SPEECH NETWORK CIRCUIT AS FOLLOWS FIG.1

A DC LOOP IS CONFIGURED WHEN CPU PIN 23 ARE SET HI.

THE LOOP CURRENT FLOWS AS FOLLOWS : TIP -> FUSE1 ->L1 ->D6 -> R13 -> Q11 -> D9 ->L2 RING

THE PULSE SIGNAL FROM CPU PIN 23 ARE TRANSMITTED THROUGH LS1 TO TURN ON AND OFF THE TEL-LINE.

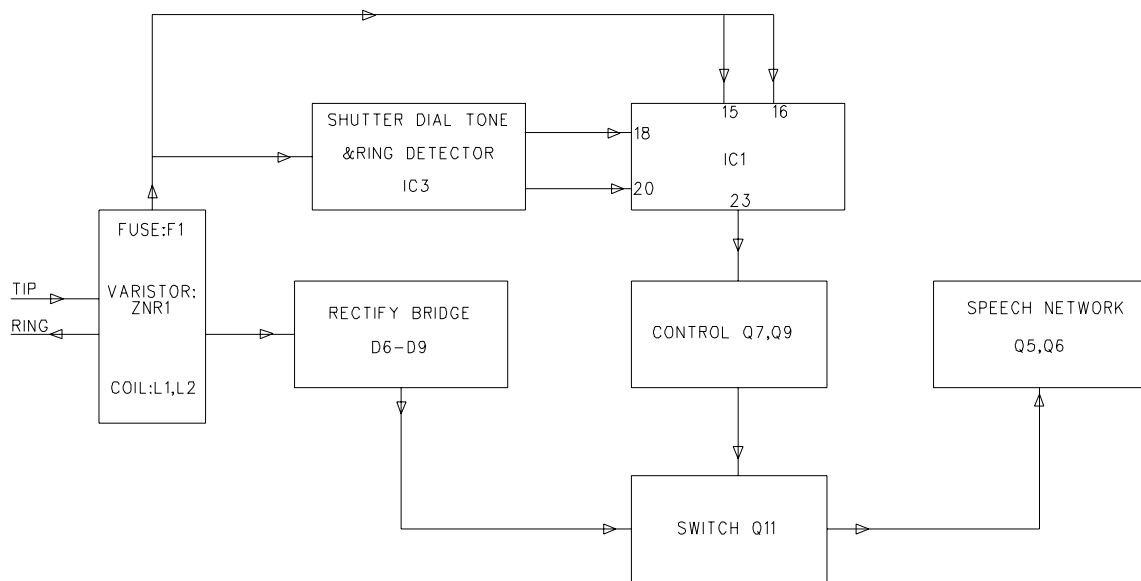
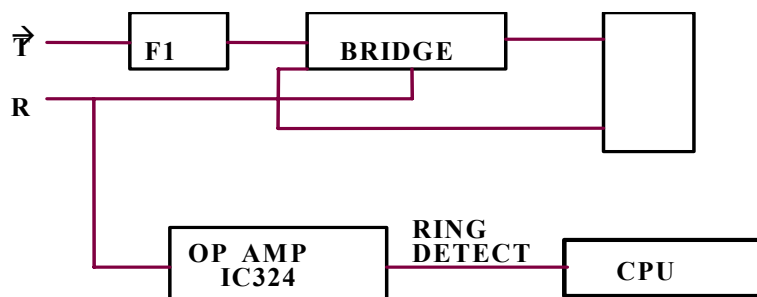


FIG.1

### 2. RING DETECT

TIP/RING → F1 → L1/L2 → R57/R56 → C80/C44 → OP AMP (IC3)



**FIG.2**

### 3. POWER SUPPLY

3-1 THE OUTPUT VOLTAGE OF U2 IS REGULATED 5V AND THIS VOLTAGE IS USED BY MAIN SUPPLYING VOLTAGE OF CPU AND TX,RX POWER.

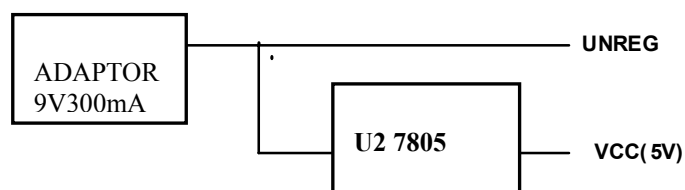


FIG.3

#### 4. AUDIO AMPLIFIER AND COMPANDOR

##### 4-1 TX PART:

THE TRANSMITTED SIGNALS FROM TELEPHONE LINE ARE FEED TO COMPANDOR IC(IC4) THROUGH THE AUDIO AMPLIFIER AND THE RECEIVED SIGNALS FROM TELEPHONE LINE ARE ALSO FEED TO AUDIO AMPLIFIER THROUGH THE SPEECH NETWORK CIRCUIT.

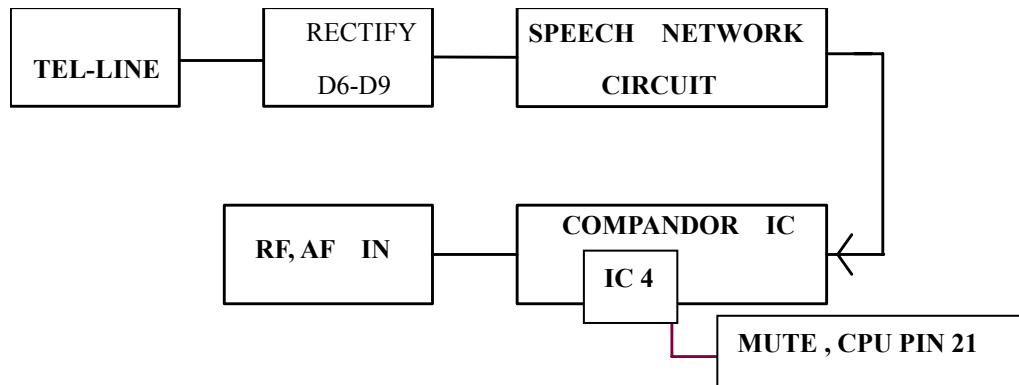


FIG.4

##### 4-2 RX PART:

THE RECEIVED SIGNALS FROM AF OUT OF RF MODULE, FEED TO COMPANDOR FOR NOISE ELIMINATION. THIS SIGNAL THROUGH MATCHING TRANS D6-D9, ALSO FEED TO TELEPHONE LINE THROUGH THE SPEECH NETWORK CIRCUIT TO. TRANSFER TO OTHER PARTY.

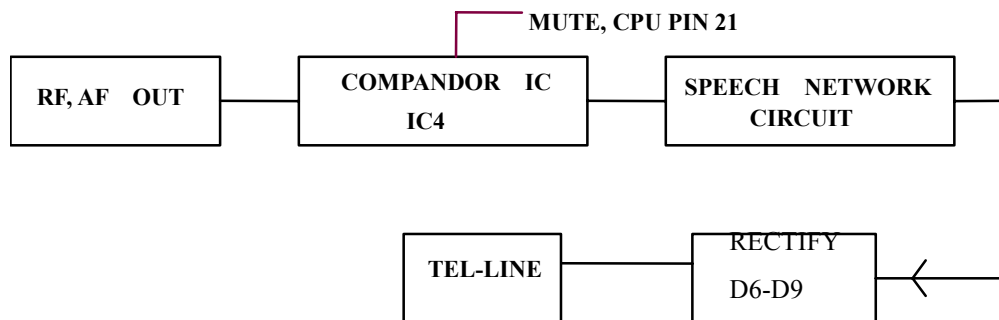


FIG.5

## **5. DTMF GENARATOR**

THE DTMF GENERATOR IN CPU IS INTENDED TO PROVIDE DUAL-TONE MULTI-FREQUENCY (DTMF) FOR TONE DIALLING SYSTEM.



FIG.6

## **6. RSSI CONTROL**

RSSI LEVEL OUTPUT FROM THE IF IC THROUGH Q13 OUT OF IS DETECTING BY PIN 13 OF CPU.

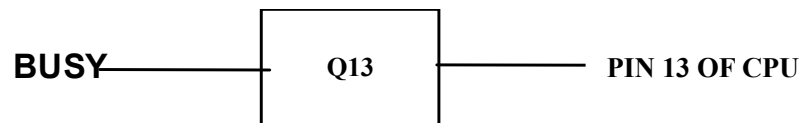


FIG.7

## **7. DATA COMMUNICATION INTERFACE.**

\* DATA COMMUNICATION IS OPERATED SERIAL OUTPUT

7-1 PIN 17(RX DATA) OF CPU :

DATA SIGNAL WILL RECEIVE FROM THE PORTABLE UNIT AS THROUGH FILTER CIRCUIT Q13 AND DATA SIGNAL INPUT PIN 17 (RX DATA) OF CPU

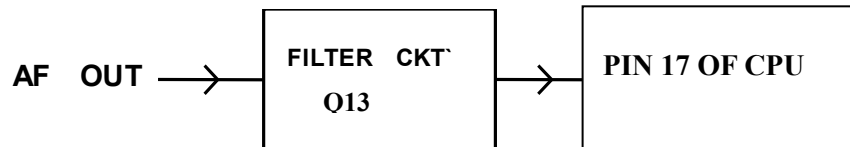


FIG.8

7-2 PIN 8 (TXDATA) OF CPU :

DATA SIGNAL WILL SEND TO THE PORTABLE UNIT AS THROUGH PIN 8 (TX DATA) OF CPU



FIG.9

## **8. PAGING FUNCTION**

PAGING FUNCTION CAN BE SELECTED EITHER FROM BASE TO PORTABLE UNIT. THE INTERCOM FUNCTION CAN BE ENABLED BY PRESSING THE PAGING KEY IN THE BASE SET.

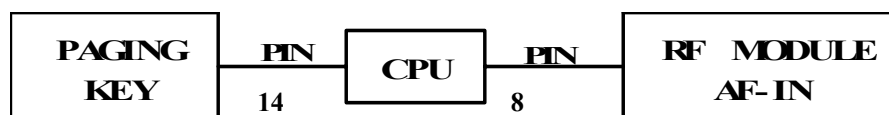


FIG.10

## 9. BASE RF MODULE

### 9-1. RX PART

THE RECEIVER FRONT-END CONTAINS A BPF FILTER, AN RF LOW NOISE AMPLIFIER, A ACTIVE TRANSISTOR MIXER, A MONOLITHIC CRYSTAL FILTER AND 10.7MHz IF AMPLIFIER.

ALSO IT INCLUDES BUFFER AMPLIFIERS FOR THE GENERATION OF LOCAL OSCILATOR POWER.

THIS FRONT-END RECEIVER RECEIVES AN RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 5727.625MHz~5732.500MHz PASS THROUGH RF AMP (Q306) AND BPF FILTER.

AFTER PASSING THROUGH THE BPF FILTER, THE SIGNAL IS MIXED WITHIN 1<sup>ST</sup> LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR.

THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q308,) AND THE SIGNAL PASS THROUGH THE CERAMIC FILTER (10.5MHz).

AFTER THE IF SIGNAL PASS THE CERAMIC FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC.

AND THE SIGNAL IS MIXED IN THE FM IF IC (KA3361).

THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TEMINAL OF THE CONNECTOR 1 TO THE BASE.

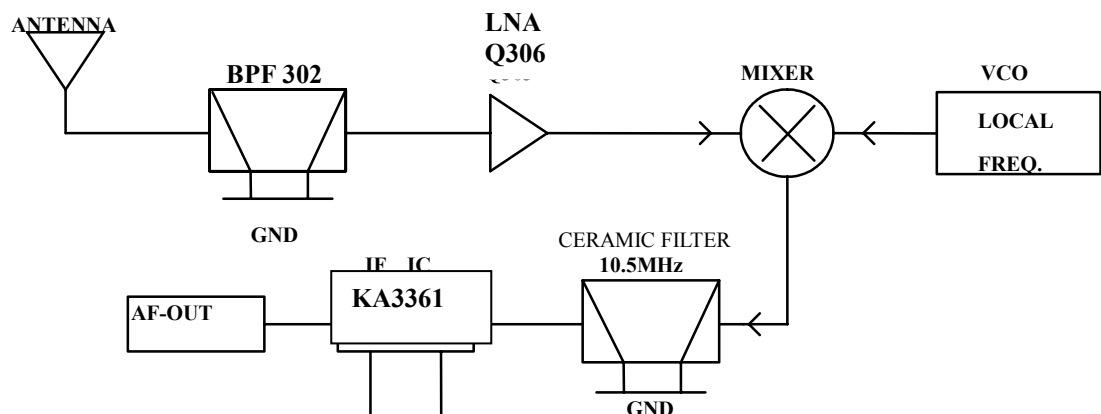


FIG.11

## 9-2. TX PART

THE SIGNAL IS MADE TO THE BASE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR 1.

THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.

THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL.

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q303) ENTER BY THE BPF FILTER.

THE RF SIGNAL PASS THROUGH THE BPF FILTER, TOWARDS THE ANT.

THE LAST TRANSMISSION RF SIGNAL IS 902.150MHz~ 905.075MHz

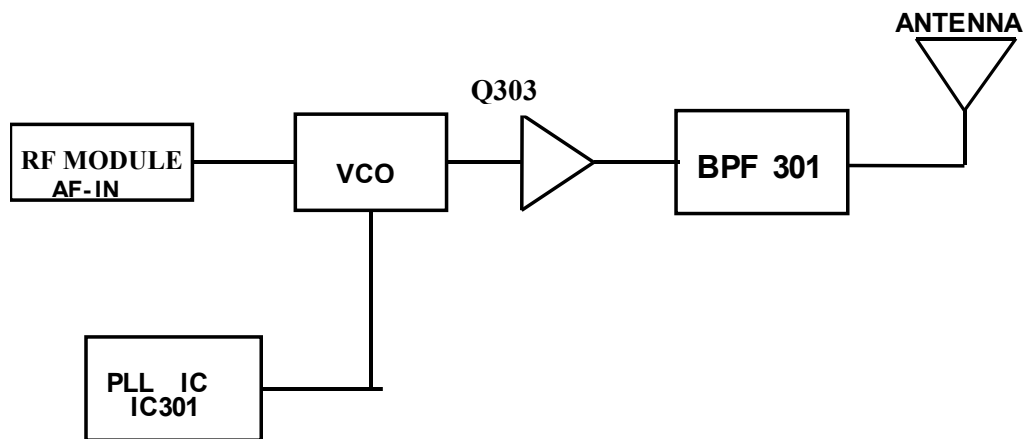


FIG. 12



## B. PORTABLE UNIT

### 1. LOW BATTERY DETECTION CIRCUIT

IC U1 IS CONTROLLED BY BATTERY VOLTAGE.  
IF THE VOLTAGE OF BATTERY PACK IS BELOW 3.3V, CHANGED FROM HIGH TO LOW AT PIN 70 OF CPU THEN CPU BECOMES TO RECOGNIZE TO LOW VOLTAGE OF BATTERY PACK



FIG.13

### 2. BUZZER

BUZZER IS CONTROLLED BY PIN 88,89 OF CPU DURING RECEIVED RING SIGNAL AND KEY INPUT

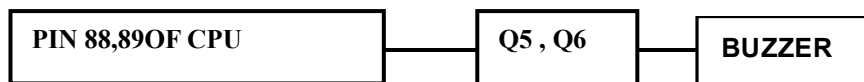


FIG.14

### 3. INDICATOR CATEGORY

ALL INDICATOR IS DISPLAYED AT LCD WINDOW BY THE CPU CONTROL

### 4. AUDIO AMPLIFIER AND COMPANDOR

#### 4-1 TX PART

THE TRANSMITTED SIGNALS FROM MIC ARE FEED TO COMPANDOR IC1 THROUGH SIGNALS INPUT RF MODULE AF-IN

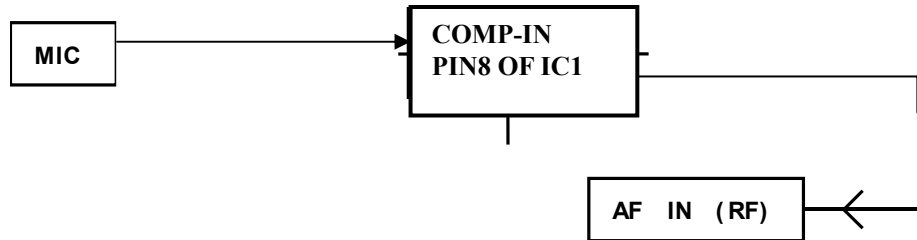


FIG.15

#### 4-2 RX PART

THE RECEIVED SIGNALS FROM AF OUT CONTAIN SIGNALS AND PASS ONLY THROUGH COMPANDOR FOR NOISE ELIMINATION AND SIGNAL INPUT AUDIO AMPLIFIER.

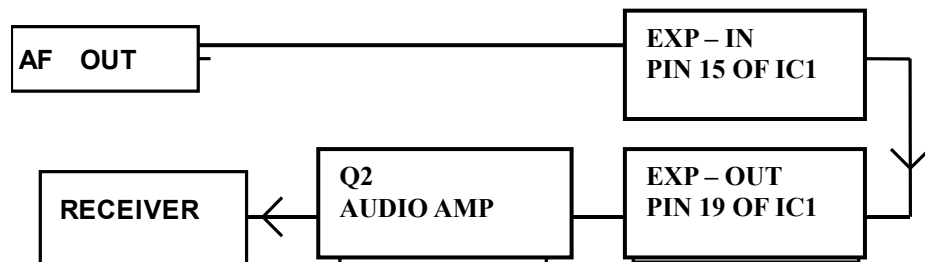


FIG.16

## **5. PORTABLE RF MODULE**

### **5-1. RX PART**

THE RECEIVER FRONT-END CONTAINS A SAW DUPLEX FILTER, AND RF LOW NOISE AMPLIFIER, A ACTIVE TRANSISTOR MIXER, A CERAMIC FILTER AND 10.7MHz "IF" AMPLIFIER. ALSO IT INCLUDES BUFFER AMPLIFIERS OR THE GENERATION OF LOCAL OSCILATOR POWER.

THIS FRONT-END RECEIVES AN RF SIGNAL FROM THE ANTENNA.

AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 902.150MHz~905.075MHz PASS THROUGH BAND PASS FILTER AND RF AMP (Q306).

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THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q308). AND THE SIGNAL PASS THROUGH THE MONOLITHIC CRYSTAL FILTER (10.7MHz) AFTER THE IF SIGNAL PASS THE CERAMIC FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC.

AND THE SIGNAL IS MIXED IN THE FM IF IC (KA3361).

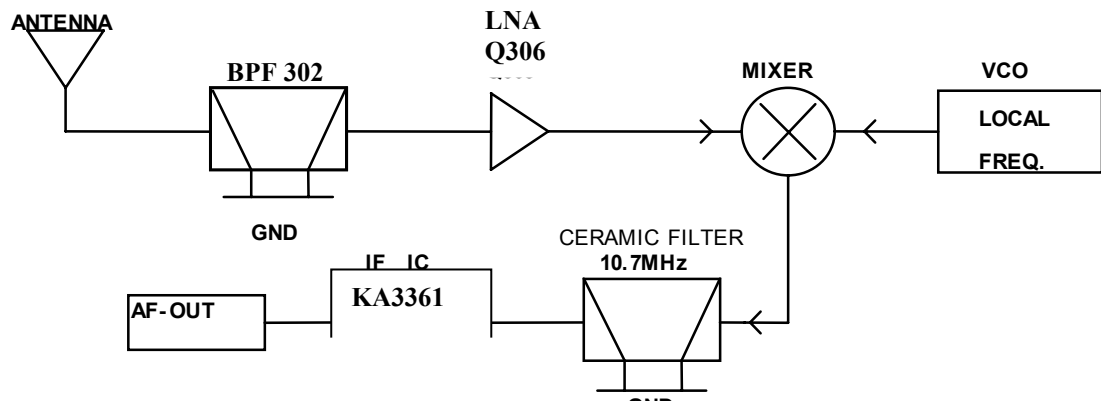


FIG.17

## 5-2. TX PART

THE SIGNAL IS MADE TO THE PORTABLE, ENTER BY THE AF-IN TERMINAL.  
THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.  
THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL.  
THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR  
THE SIGNAL IS AMPLITUDE IN THE Q303,304  
ENTER BY THE SAW FILTER.  
THE RF SIGNAL PASS THROUGH THE BPF FILTER, TOWARDS THE ANT.  
THE LAST TRANSMISSION RF SIGNAL IS 5727.625MHz~5732.500MHz.

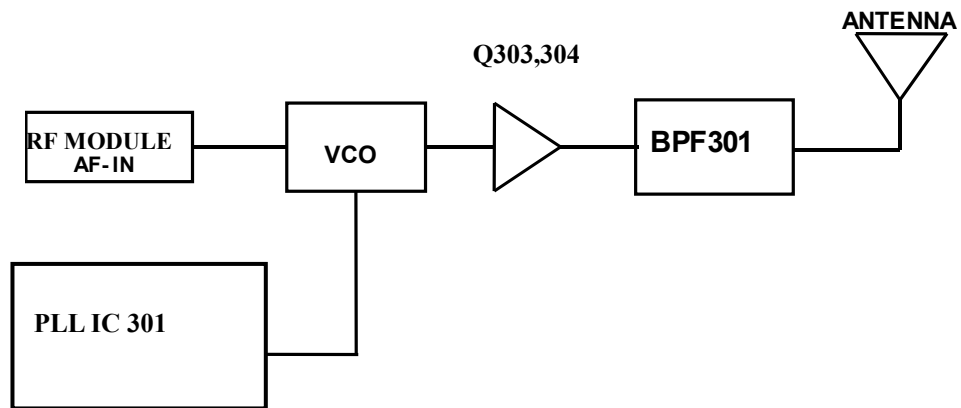


FIG. 18