

# DESCRIPTION OF CIRCUIT OPERATION

## BASE UNIT :

### 1. BASE RF MODULE

THOROUGH RF ANTENNA TRANSMITS THE RF SIGNAL. THE WIRING ANTENNA IS SOLDERED ON THE RF MODULE.

#### 1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AND RF LOW NOISE AMPLIFIER, A ACTIVE TRANSISTOR MIXER, A CERAMIC FILTER AND 10.7MHz IF AMPLIFIER.

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

THIS FRONT-END RECEIVER RECEIVERS AND RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 2470MHz ~ 2479.75MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FITER.

AFTER PASSING THROUGH THE BAND PASS FILTER AND THE SIGNAL IS MIXED WITHIN 1'ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE OF AMP TRANSISTOR (Q3) AND THE SIGNAL PASS THROUGH THE CERAMIC FILTER (10.7MHz).

AFTER THE IF SIGNAL PASS THE CERAMIC FILTER, THE SIGNAL ENTER BY THE FM IF(INTERMEDIATE FREQUENCY) IC1.

AND THE SIGNAL IS MIXED IN THE FM IF IC (MC3361). THE SIGNAL PASS THROUGH THE LC FILTER. THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE BASE.

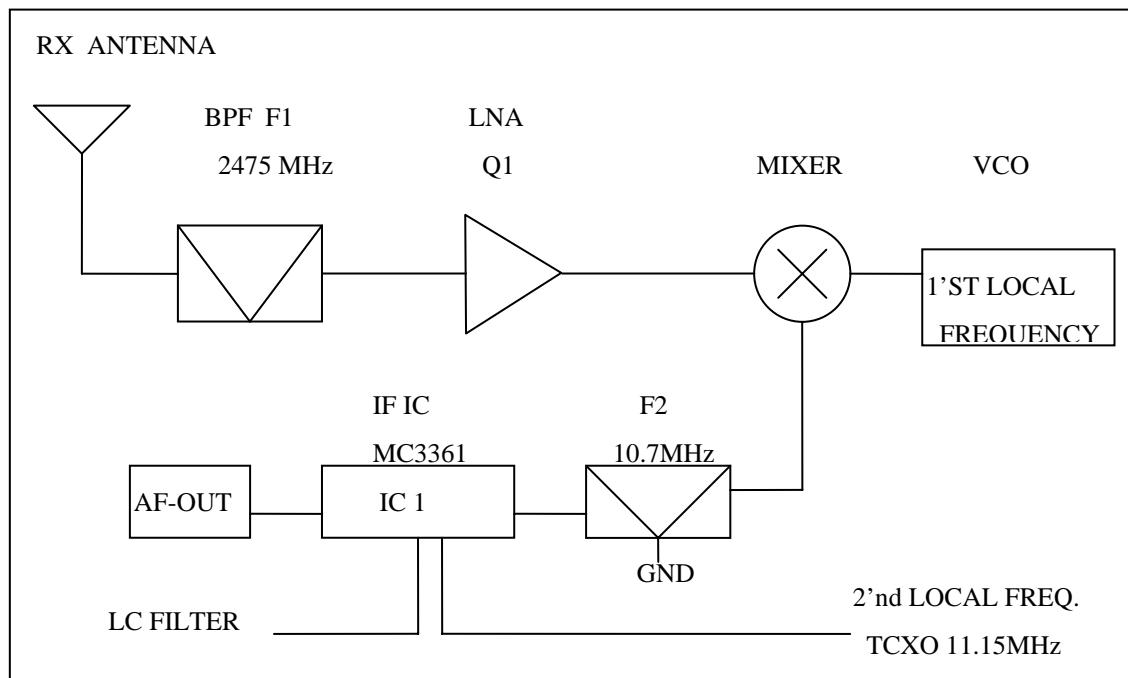


FIG. 1

## 2)TX PART

THE SIGNAL IS MADE TO THE BASE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR (CON1 OF PIN NO.10).

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 ADJUST THE TRIMMER CAPACITOR (VD2).

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR Q7

THE SIGNAL IS AMPLITUDE IN THE Q5. ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TOWARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2400.25MHz ~ 2410MHz.

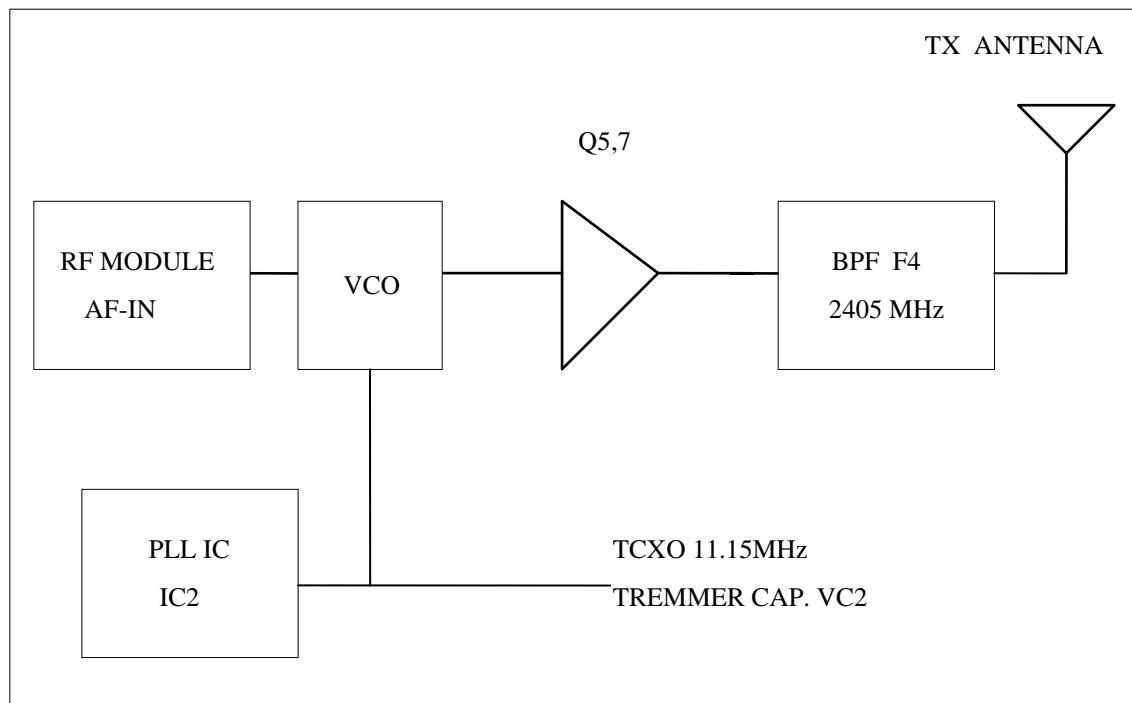


FIG. 2

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.3 of CON1 is sent to IC4-B(COMPANDER IC) Pin no.16 for Expansion. The expended audio signal output from Pin no.19 is coupled to C93

The audio signal is sent to the J3..

The demodulated data code from J3 Pin no.3 is generated by U1-A,U1-B.

It's output is connected to CODE Input Pin no.14 of IC3.

The Audio signal receiving from J3 is input to IC4-A Pin no.8 for compression. The compressed audio signal from Pin no.1 of IC4-A is connected to Pin no.10 of CON1 for TX modulation.

Pin no.31 of IC3 is the output port for data codes that should be transmitted to the handset. The data code is connected to Pin no.10 of CON1 for modulation.

Line controlling is done by Pin no.18 of IC3.

When the handset is placed on the base cradle, the charging is detected by Pin no.13 of IC3 and IC3 sends data codes to handset for security code setting.

When the handset is far away from base unit, squelch circuit of RF module operates and Pin no.17 of IC3 goes "HI". This will be detected by the micro processor and after 20 sec. go to Stand by mode.

The power to the base unit is supplied by U3(5V REGULATOR IC).

HANDSET :

1. PORTABLE RF MODULE

THOROUGH RF ANTENNA TRANSMITS THE RF SIGNAL. THE WIRING ANTENNA IS SOLDERED ON THE RF MODULE.

1) RX RART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AND RF LOW NOISE AMPLIFIER, ACTIVE TRANSISTOR MIXER, CERAMIC FILTER AND 10.7MHz “IF” AMPLIFTER.

ALSO IT INCLUDES BUFFER AMPLIFIERS OR THE GENERATION OF LOCAL OSCILLATOR POWER.

THIS FRONT-END RECEIVERS AND RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 2400.25MHz ~ 2410MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FILTER.

AFTER PASSING THROUGH THE BAND PASS FILTER, THE SIGNAL IS MIXED WITHIN 1'ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED

OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q3) AND THE SIGNAL PASS THROUGH THE CERANIC FILTER (10.7MHz) AFTER THE IF SIGNAL PASS THE MCF FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC. AND THE SIGNAL IS MIXED IN THE FM IF IC (MC3361). THE SIGNAL PASS THROUGH THE LC FILTER.

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

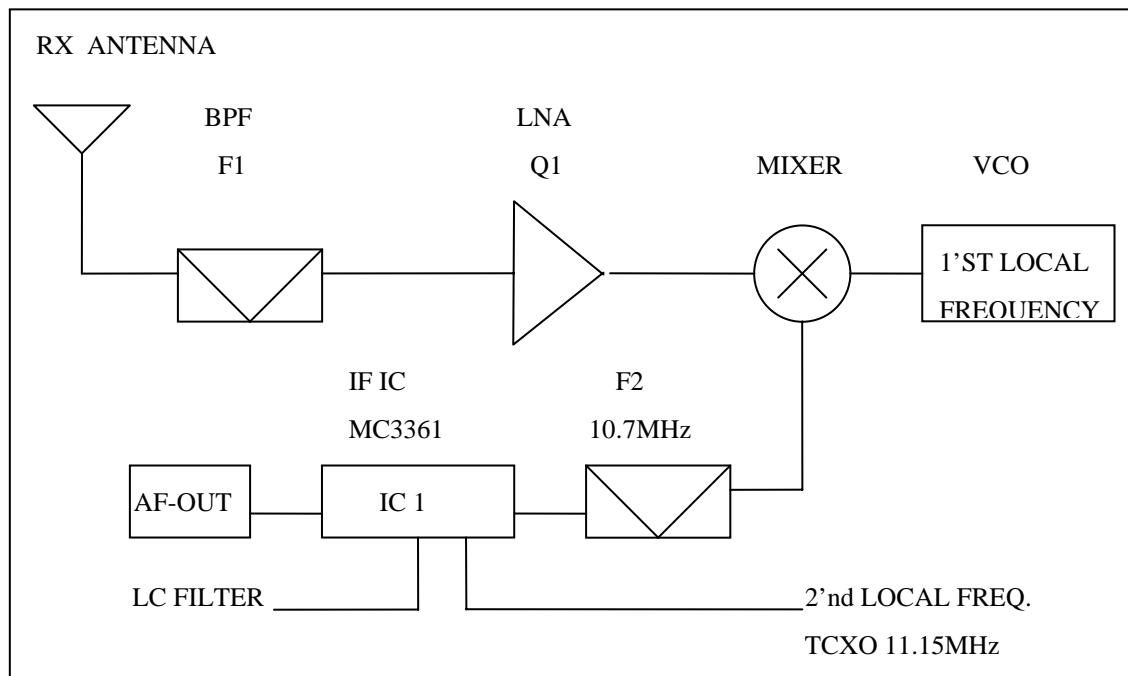


FIG.3

2) TX PART

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

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 ADJUST THE TRIMMER CAPACITOR VC1.

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q5,7). ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TOWARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2470MHz ~ 2479.75MHz.

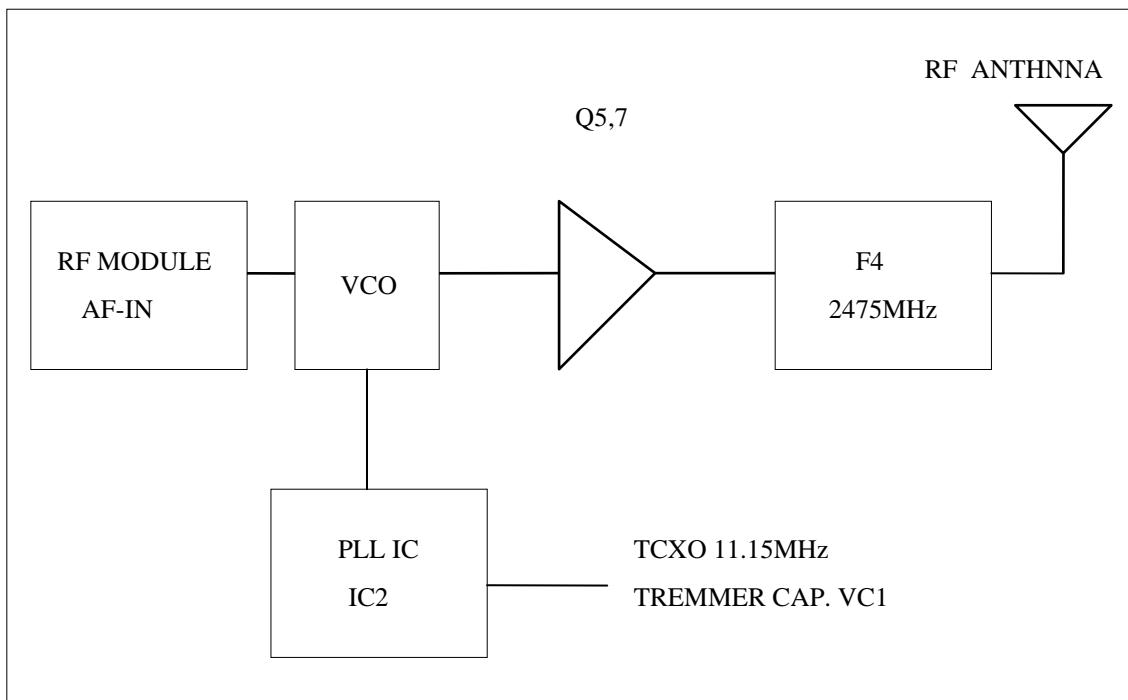


FIG. 4

The demodulated signal, which appears at output Pin no.3 of CON1 is connected to IC4-B Pin no.16 Expander input. The audio output from IC4-B Pin no.19 is finally amplified by Q9 and A.C coupled to the Receiver unit with HAC compatibility.

The demodulated data code from CON1 Pin no.3 is fed to Q19,Q18 is connected to (DATA IN) Pin no. 13 of IC3.

Voice signal from C-MIC is coupled to Pin no.8 of IC4-A. The voice signal is compressed by IC4-A and output Pin no.1 is connected to Pin no.10 of CON1 for modulation.

Pin no.23 of IC3 is the output port for data code that should be transmitted to the base unit. This data code is connected to the Pin no.10 of CON1 for modulation.

During the charging, it is detected by IC3 Pin no.7.

Key board operation is monitored by Pin no.16,17, 18,28,29 of IC3.

Key Tone from Pin no.11 of IC3 drives the BUZZER, and the ringing from Pin no.9 of IC3 drives the BUZZER.