THEORY OF OPERATION

Model: CL906

REV: 0.0

2002.01.14

THEORY OF OPERATION

1) BASE UNIT:

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no,5 of CONJ2 is sent to U7 Pin no,5 for Expansion.
The expended audio signal output from U7 Pin no.19 is coupled to R97,Q13,Q14 during the TEL. mode.
The audio signal is sent to the Telephone Line via hybrid Transformer TR1.

The demodulated data code from CONJ2 Pin no,5 is Generated by R100,U3.
It's output is connected to CODE Input Pin no 93 of U5

The Audio signal receiving from TEL-LINE is input to U7 Pin no.8 for compression.
The compressed audio signal from Pin no.1 of U5 is connected to Pin no,1 of CON J2 3 for TX modulation,

Pin no.66 of U5 is the output port for data codes that should be transmitted to the handset the data code is connected to Pin no.3 of CON J2 for modulation.

Tel-line controlling is done by Pin no.89 of U5.
Ring signal monitored by U1 (PHOTO COUPLER IC) is detected by Pin no.5 of U7 resulting a data code is sent to the handset.

DTMF dialing is output by Pin no.2 of U5 and this signal output through the TR1.

When the handset is placed on the charger cradle, the charging is detected by Pin no.70 of Q9 and Q15 sends data codes to handset for security code setting.

When the handset is far away form base unit, squelch circuit of U5 operates and Pin no.63 of U5 goes "HI". This will be detected by the micro processor and after 30 sec. go to Stand by mode.

The power to the base unit is supplied by U2 (5V REGULATOR IC).

IN-USE LED display control Pin no.97 of U 5 ,VOICE MAIL LED display control Pin no.80 of U 5

Caller ID data passing through C65 and C74 from Tel-line. It's connected pin no.6,7 of U5.
CAS data passing through C10,C11,U3-A and U3-8 from Tel-line.

It's connected pin no 5 of U4, STUTTER-TONE data passing through C6,C7,U3-D and U4 from Tel-line. It's connected pin no73 of U5.
Extention phone is detected by U6 8,Q17 and Q2. It's connected pin no95 of U5.

2) HAND SET

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output pin no,5 of CON1 is connected to pin no,16 of U3 Expander input. The audio output from U3 Pin no.19 is finally amplified by Q1 coupled to the Receiver unit with HAC compatibility,

The data code from pin no.5 of CONl is fed to Q7,8.
Q7,8 is connected to Pin no.77 of U1.

Voice signal from MIC I is coupled to pin no.9 of U3. The voice signal is compressed by pin no.1 of U3 is connected to Pin no,3 of Jl for modulation.

Pin no.58 of U1 is the output port for data code that should be transmitted to the base unit.
This data code is connected to the pin no.3 of CONl for modulation,

During the charging, it is detected by pin no. 106 of U1.

Key board operation is monitored by pin no.79-84,86-90 of U1

Key Tone from pin no.94 of U1 drives the BUZZER.
Ring signal from pin no.95 of U1 drives the BUZZER.

1. BASE RF MODULE

1) RX PART THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER (BPF), AND RF LOW NOISE AMPLIFIER(LNA), 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 925.05MHz - 927.85MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FILTER
AFTER PASSING THROUGH THE BAND PASS FILTER AND THE SIGNAL IS MIXED WITHIN 1ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE OF AMP TRANSISTOR (Q2) 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 (KA3361/S1T8531). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE BASE.

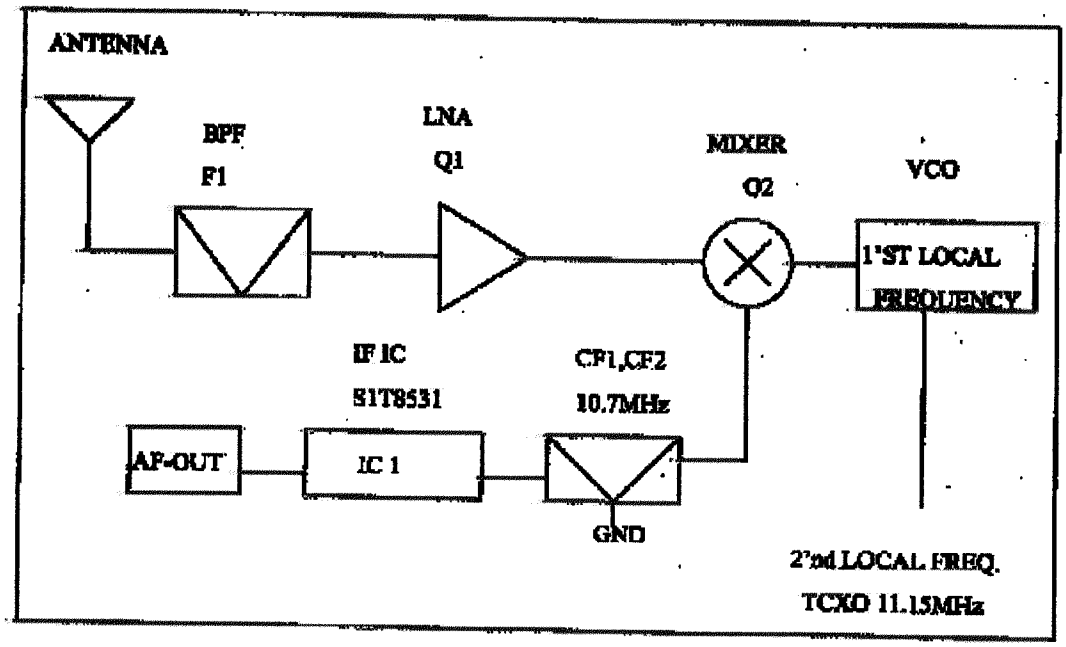

FIG. 1

2)TX PART

THE SIGNAL IS MADE TO THE BASE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR (PIN NO.3 OF CN1).
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 INDUCTOR (L3).
THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR Q7 THE SIGNAL IS AMPLITUDE IN THE Q5. ENTER BY THE BAND PASS FILTER (BPF). THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TO WARDS THE ANTENNA.
THE LAST TRANSMISSION RF SIGNAL IS 902.15MHz - 904,95MHz

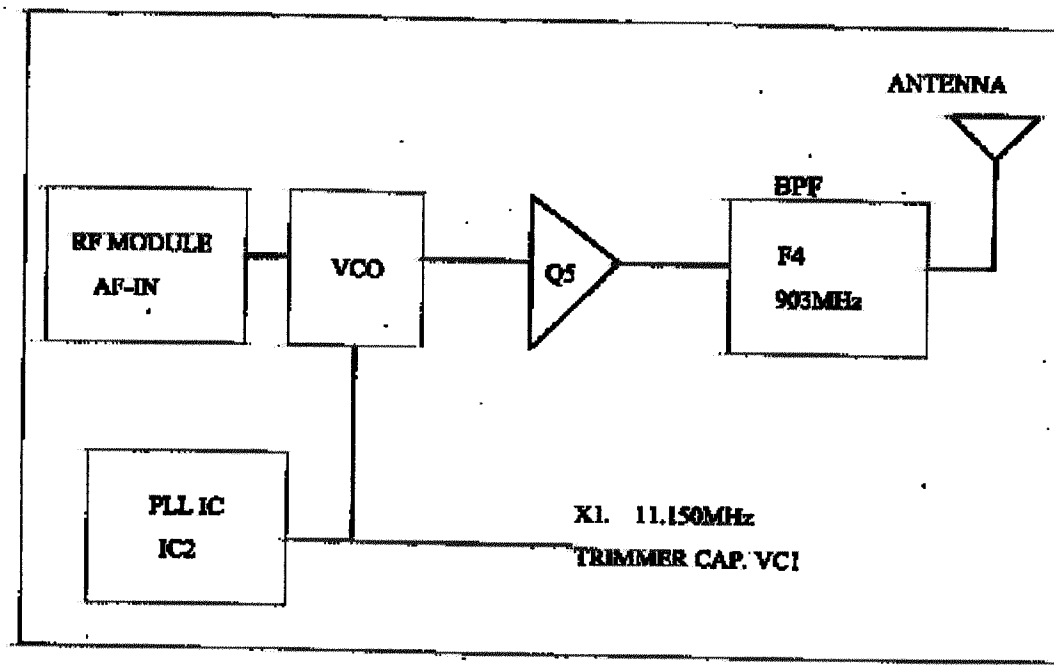

FIG. 2

2.HAND RF MODULE

1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER (BPF),AND RF LOW NOISE AMPLIFIER(LNA), ACTIVE TRANSISTOR MIXER, CERAMIC FILTER AND 10.7MHz "IF" AMPLIFIER

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 902.15MHz - 904.95MHz PASS THROUGH RF AMP (Ql) 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 (Q2) AND THE SIGNAL PASS THROUGH THE CERAMIC FILTER (10.7MHz) AFTER THE IF SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) CN1. AND THE SIGNAL IS MIXED IN THE FM IF IC1 (KA3361/S1T8531).THE OUTPUT SIGNAL IN THE FM IF IC1 STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE PORTABLE.

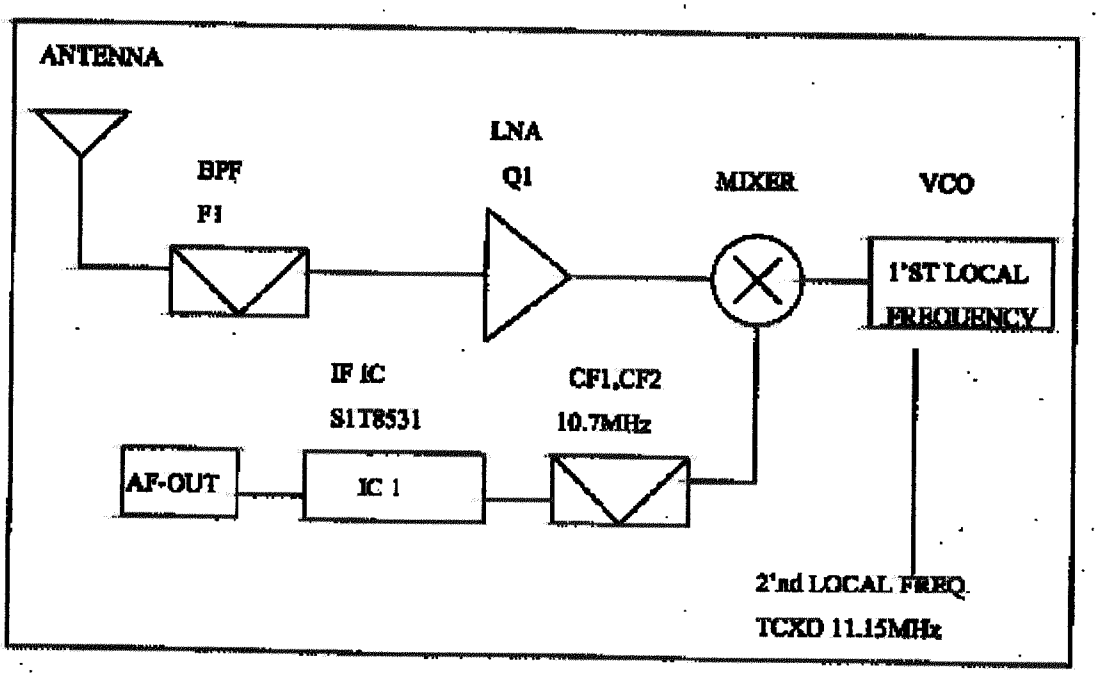

FIG.3

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 INDUCTOR L3.
THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q5), ENTER BY THE BAND PASS FILTER (BPF).
THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TO WARDS THE ANTENNA. THE LAST TRANSMISSION RF SIGNAL IS 925.05MHz -927,85MHz.

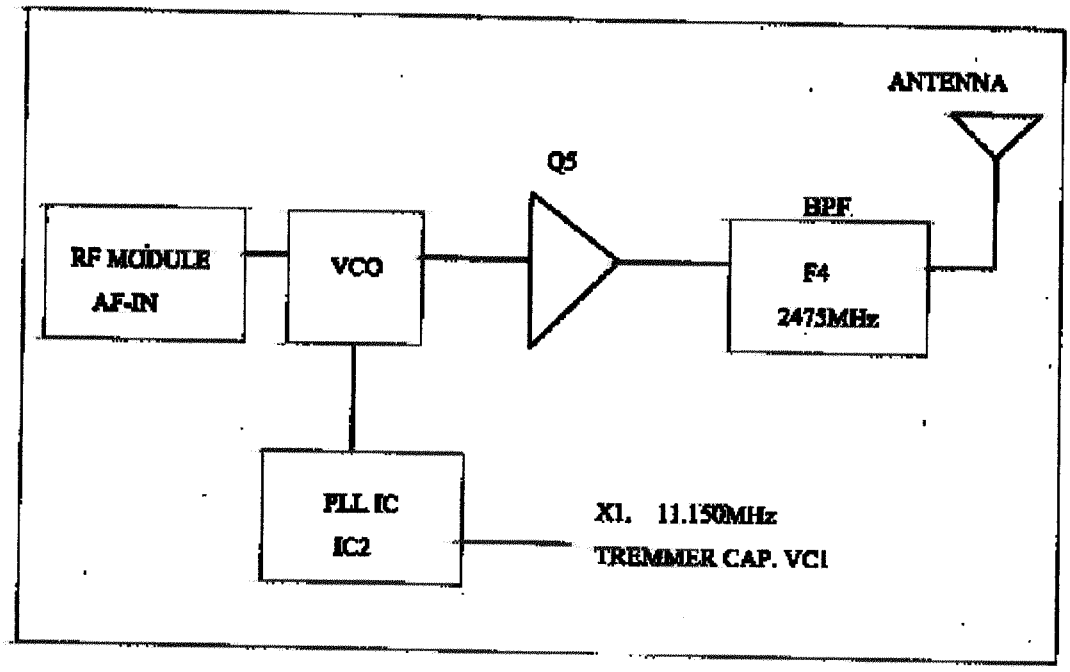

FIG. 4