

## DESCRIPTION OF CIRCUIT OPERATION

### BASE UNIT :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.3 of J3 is sent to IC4 (COMPANDER IC) Pin no.16 for Expansion. The expanded audio signal output from Pin no.19 is coupled to Q9,10 during the TEL. mode. The audio signal is sent to the Telephone Line via hybrid Transformer HBY1.

The demodulated data code from J3 Pin no.3 is Generated by U1-C,U1-D. It's output is connected to CODE Input Pin no.18 of IC6

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

Pin no.21 of IC4 is the output port for data codes that should be transmitted to the handset the data code is connected to Pin no.10 of J3 for modulation.

Line controlling is done by Pin no.10 of IC6.

Ring signal monitored by IC12 (PHOTO COUPLER IC) is detected by Pin no.28 of IC6 resulting a data code to the handset.

DTMF dialing is generated by IC6 Pin no.38 this signal output through the HYB1.

When the handset is placed on the base cradle, the charging is detected by Pin no.8 of IC6 and IC6 sends data codes to handset for security code setting.

When the handset is far away from base unit, squelch circuit of IC6 operates and Pin no.9 of IC6 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 IC15(5V REGULATOR IC).

LED display control Pin no.26,28 of IC6.

Speaker phone(ic5) control pin no.12 of ic6.

## HAND SET :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.3 of CON1 is connected to U2 Pin no.16 Expander input. The audio output from U2 Pin no.19 is finally amplified by Q8 and A.C coupled to the Receiver unit with HAC compatibility.

The demodulated data code from CON1 Pin no.3 is fed to Q9,10.  
Q9 is connected to (DATA IN) Pin no.26 of U1.

Voice signal from C-MIC is coupled to Pin no.8 of U2. The voice signal is compressed by U2 and output Pin no.1 is connected to Pin no.10 of CON1 for modulation.

Pin no.29 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.10 of CON1 for modulation.

During the charging, it is detected by U1 Pin no.23.

Key board operation is monitored by Pin no.50~ 61of U1.

Key Tone and the ringing from Pin no.62 of U1 drives the BUZZER.

## 1. BASE 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 2403.05MHz ~ 2475.95MHz 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 (DBL5018V). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE BASE.

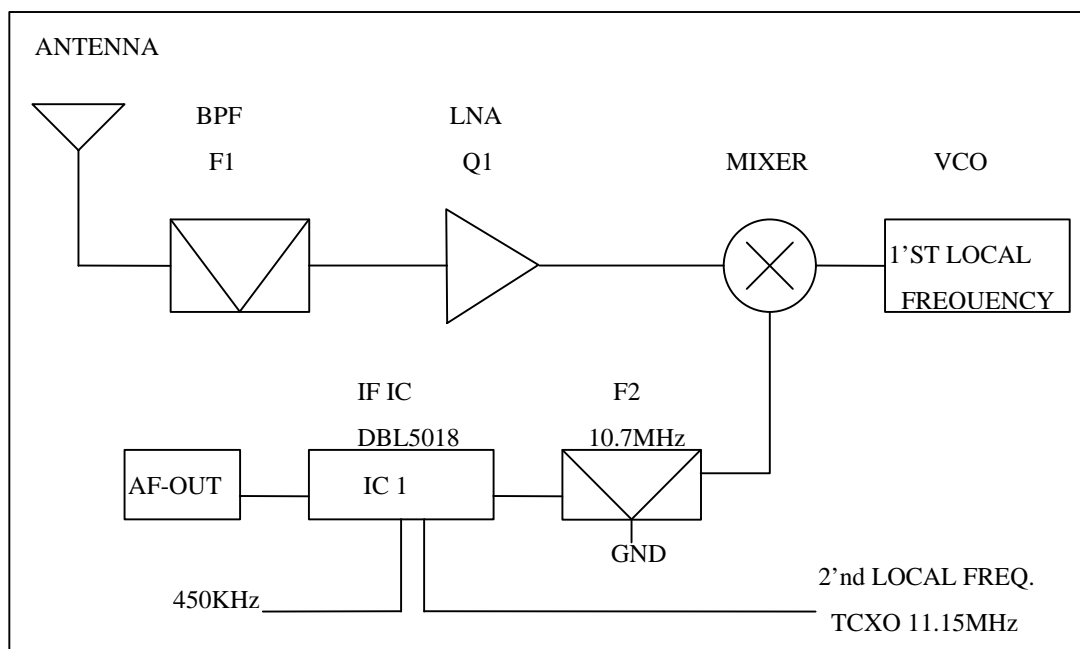


FIG. 1

## 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 (VC1).

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR Q5

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

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TO WARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2403.05MHz ~ 2475.95MHz.

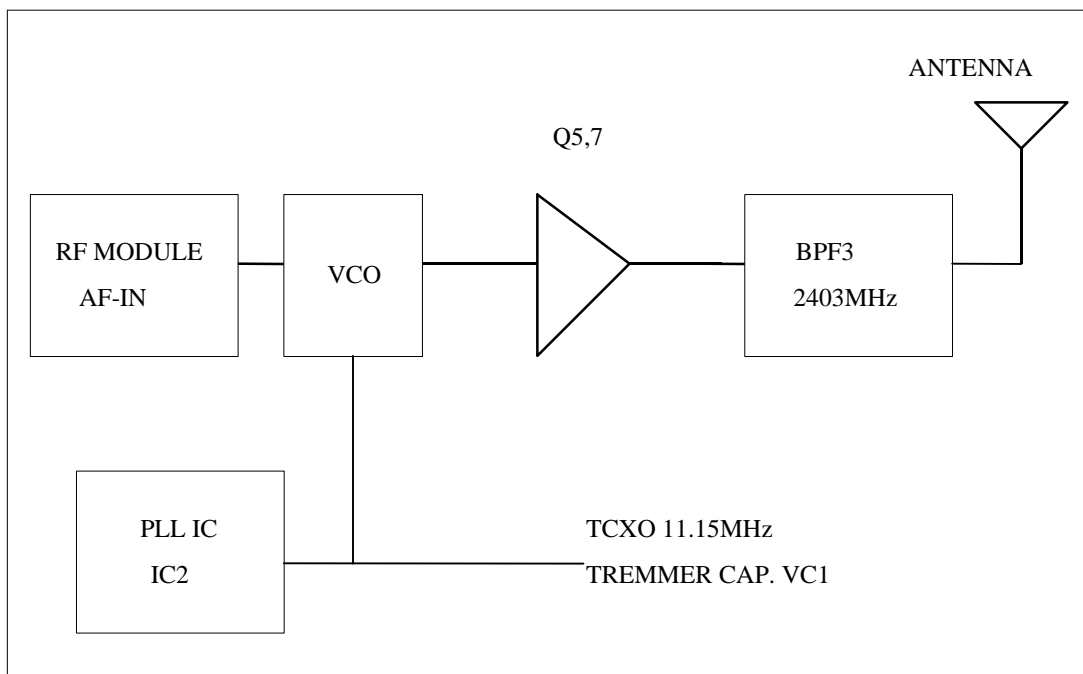


FIG. 2

## 2. PORTABLE RF MODULE

### 1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AND RF LOW NOISE AMPLIFIER, 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 RECEIVES AND RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 2403.05MHz ~ 2475.95MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FILTER..

AFTER PASSING THROUGH THE BAND PASS 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 (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 (DBL5018V). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR 1 TO THE PORTABLE.

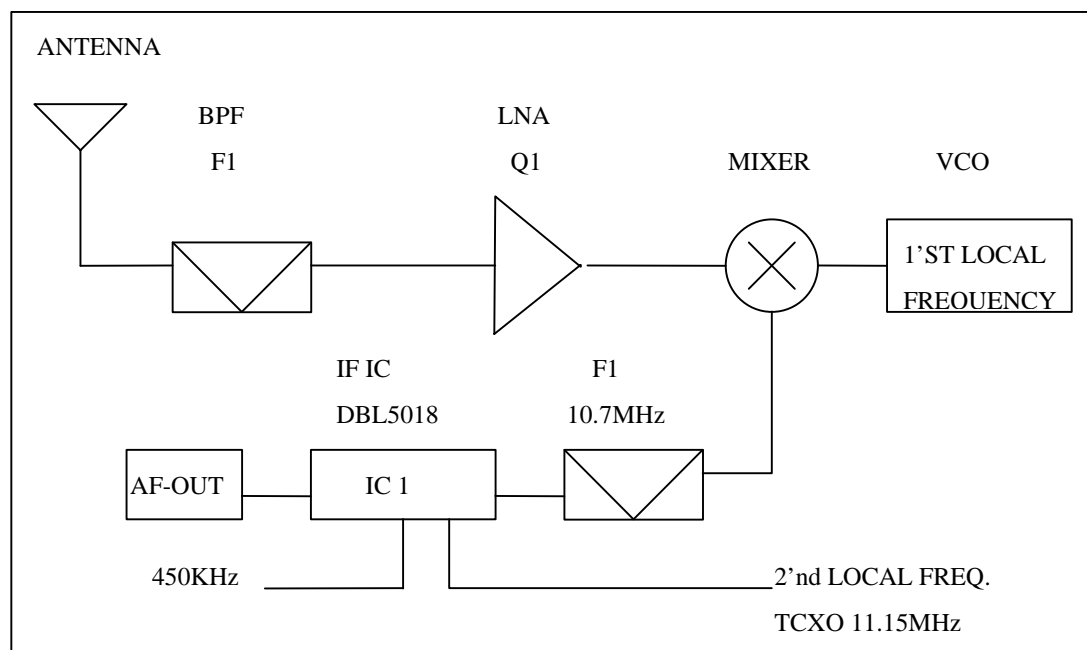


FIG.3

## 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, TO WARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2403.025MHz ~ 2475.95MHz.

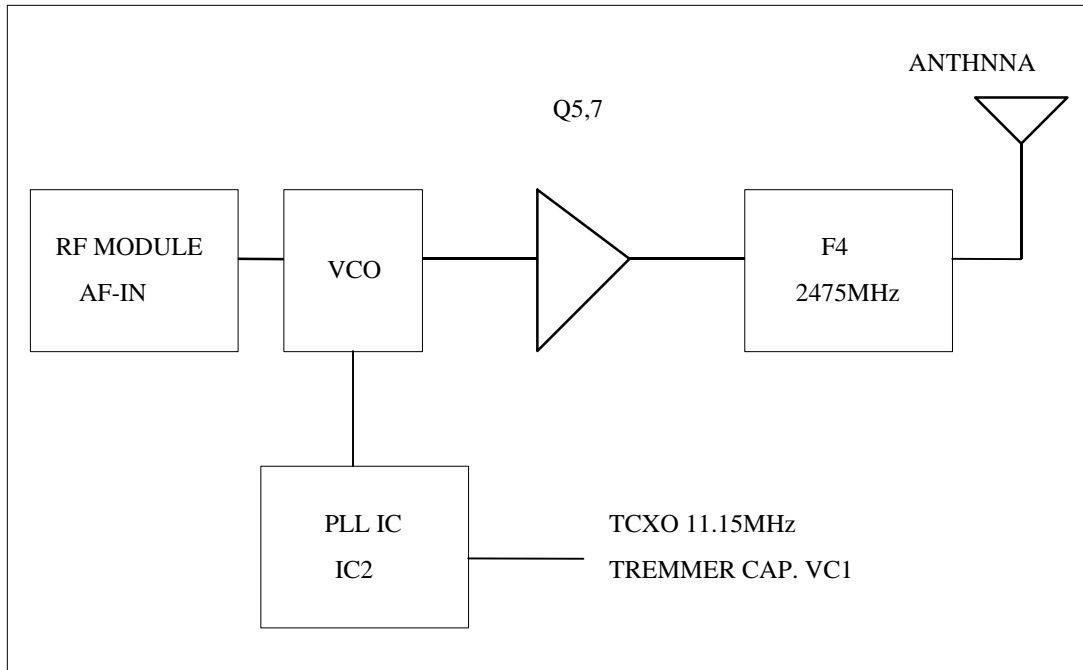


FIG. 4

## &lt;HANDY&gt;

## &lt;BASE&gt;

Ch	Tx(MHz)	Tx_Vco(MHz)	Rx(MHz)	Rx_Vco(MHz)	Tx(MHz)	Tx_Vco(MHz)	Rx(MHz)	Rx_Vco(MHz)
1	2,474.000	824.6666667	2402.55	797.283	2402.55	797.283	2,474.000	824.6666667
2	2,474.050	824.6833333	2402.6	797.300	2402.6	797.300	2,474.050	824.6833333
3	2,474.100	824.7	2402.65	797.317	2402.65	797.317	2,474.100	824.7
4	2,474.150	824.7166667	2402.7	797.333	2402.7	797.333	2,474.150	824.7166667
5	2,474.200	824.7333333	2402.75	797.350	2402.75	797.350	2,474.200	824.7333333
6	2,474.250	824.75	2402.8	797.367	2402.8	797.367	2,474.250	824.75
7	2,474.300	824.7666667	2402.85	797.383	2402.85	797.383	2,474.300	824.7666667
8	2,474.350	824.7833333	2402.9	797.400	2402.9	797.400	2,474.350	824.7833333
9	2,474.400	824.8	2402.95	797.417	2402.95	797.417	2,474.400	824.8
10	2,474.450	824.8166667	2403	797.433	2403	797.433	2,474.450	824.8166667
11	2,474.500	824.8333333	2403.05	797.450	2403.05	797.450	2,474.500	824.8333333
12	2,474.550	824.85	2403.1	797.467	2403.1	797.467	2,474.550	824.85
13	2,474.600	824.8666667	2403.15	797.483	2403.15	797.483	2,474.600	824.8666667
14	2,474.650	824.8833333	2403.2	797.500	2403.2	797.500	2,474.650	824.8833333
15	2,474.700	824.9	2403.25	797.517	2403.25	797.517	2,474.700	824.9
16	2,474.750	824.9166667	2403.3	797.533	2403.3	797.533	2,474.750	824.9166667
17	2,474.800	824.9333333	2403.35	797.550	2403.35	797.550	2,474.800	824.9333333
18	2,474.850	824.95	2403.4	797.567	2403.4	797.567	2,474.850	824.95
19	2,474.900	824.9666667	2403.45	797.583	2403.45	797.583	2,474.900	824.9666667
20	2,474.950	824.9833333	2403.5	797.600	2403.5	797.600	2,474.950	824.9833333
21	2,475.000	825	2403.55	797.617	2403.55	797.617	2,475.000	825
22	2,475.050	825.0166667	2403.6	797.633	2403.6	797.633	2,475.050	825.0166667
23	2,475.100	825.0333333	2403.65	797.650	2403.65	797.650	2,475.100	825.0333333
24	2,475.150	825.05	2403.7	797.667	2403.7	797.667	2,475.150	825.05
25	2,475.200	825.0666667	2403.75	797.683	2403.75	797.683	2,475.200	825.0666667
26	2,475.250	825.0833333	2403.8	797.700	2403.8	797.700	2,475.250	825.0833333
27	2,475.300	825.1	2403.85	797.717	2403.85	797.717	2,475.300	825.1
28	2,475.350	825.1166667	2403.9	797.733	2403.9	797.733	2,475.350	825.1166667
29	2,475.400	825.1333333	2403.95	797.750	2403.95	797.750	2,475.400	825.1333333
30	2,475.450	825.15	2404	797.767	2404	797.767	2,475.450	825.15
31	2,475.500	825.1666667	2404.05	797.783	2404.05	797.783	2,475.500	825.1666667
32	2,475.550	825.1833333	2404.1	797.800	2404.1	797.800	2,475.550	825.1833333
33	2,475.600	825.2	2404.15	797.817	2404.15	797.817	2,475.600	825.2
34	2,475.650	825.2166667	2404.2	797.833	2404.2	797.833	2,475.650	825.2166667
35	2,475.700	825.2333333	2404.25	797.850	2404.25	797.850	2,475.700	825.2333333
36	2,475.750	825.25	2404.3	797.867	2404.3	797.867	2,475.750	825.25
37	2,475.800	825.2666667	2404.35	797.883	2404.35	797.883	2,475.800	825.2666667
38	2,475.850	825.2833333	2404.4	797.900	2404.4	797.900	2,475.850	825.2833333
39	2,475.900	825.3	2404.45	797.917	2404.45	797.917	2,475.900	825.3
40	2,475.950	825.3166667	2404.5	797.933	2404.5	797.933	2,475.950	825.3166667
41	2,476.000	825.3333333	2404.55	797.950	2404.55	797.950	2,476.000	825.3333333
42	2,476.050	825.35	2404.6	797.967	2404.6	797.967	2,476.050	825.35
43	2,476.100	825.3666667	2404.65	797.983	2404.65	797.983	2,476.100	825.3666667
44	2,476.150	825.3833333	2404.7	798.000	2404.7	798.000	2,476.150	825.3833333
45	2,476.200	825.4	2404.75	798.017	2404.75	798.017	2,476.200	825.4
46	2,476.250	825.4166667	2404.8	798.033	2404.8	798.033	2,476.250	825.4166667
47	2,476.300	825.4333333	2404.85	798.050	2404.85	798.050	2,476.300	825.4333333
48	2,476.350	825.45	2404.9	798.067	2404.9	798.067	2,476.350	825.45
49	2,476.400	825.4666667	2404.95	798.083	2404.95	798.083	2,476.400	825.4666667
50	2,476.450	825.4833333	2405	798.100	2405	798.100	2,476.450	825.4833333