

## **2. RECEIVER SECTION (Parent Unit)**

The receiver is a conversion superheterodyne with the local oscillator at frequency higher the received frequency to produce the IF 10.7Mhz.

### **Local Oscillator**

IC U6 functions as a local oscillation. D2, C69, L8, L9 and built in U6 combined the VCO circuit. XT2 (or XT3) functions as the reference oscillation that will compare with the divided frequency of the local oscillation in the PLL circuit built in IC U6 to obtain the stability frequency.

### **RF amplifier**

RF signal from antenna is fed to the base of TR14. TR17 is second stages RF amplifier. The output from the collector of TR17 is given to the base of TR15 for the mixing.

### **Mixer Circuit**

TR15 functions as a mixer.

### **IF amplifier**

TR16, TR18, CF1 and built in IC U5 functions as the IF amplifier that which the IF signal output is fed to demodulation circuit built IC U5.

### **Demodulation**

XT1 is discriminator which and the built circuit of IC U5 function as the demodulation circuit.

### **Audio Power Amplifier and Volume Control**

The audio amplifier is built in IC U5. Pin 24 of U5 is the input pin of audio amplifier. The Audio output from pin27 of U5 fed to speaker. VR3 is the volume control.

### **RF Level Indication**

IC U1 and Led LD2-LD6 function as RF received level indication.

### **Out – of – Range detector**

When the unit haven't receive the signal from the transmitter unit, the pin 23 of U5 output the noise that is fed the band passed amplifier (U4A and U4B), and then noise is transferred to DC by TR23 to make TR28 goes to ON through TR8 and TR27. Then red LED ON. When the unit received the signal, the transistor TR29 goes to ON and TR28 to OFF, so the green LED ON and the red LED OFF.

### **Regulator**

IC XC1 is a regulator designed in the parent unit to provide constant voltage onto RF amplifier, local oscillator and mixer circuit.

(3)

### **Low Battery Detector and Cut-Off**

Low Battery Detector consists of TR12. When the battery low, the transistor TR12 OFF and TR13 ON, so the green LED off and red LED ON. Transistor TR2, TR10 and TR11 is used to cut-off the discharge of the rechargeable batteries.