

## TECHNICAL DESCRIPTION

Model : 99150

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- **Receiver Section**

Radio Frequency signal received by the antenna(ANT1), passing through the Low Pass Filter (L1-L3, C2-C4). The R.F.(Radio Freq.) signal is then amplified by Low Noise Amplifier Q1 and passes through a Band Pass Filter FL1(465mHZ.). The Filtered signal within the range of 462mHZ.-467mHZ. is then mixed with the first Local Oscillator signal from the V.C.O. (Voltage Controlled Oscillator) Circuit (Q9-Q11,D7,L18), through Q3, a portion of V.C.O. signal is then feedback to the PLL IC2 for phase comparison generating a stable RX Frequency, the output signal is filtered by FL2(21.7mHZ.) which is the first Intermediate Freq.( I.F.) and is then amplified by Q4. The I.F. signal is fed to the discriminator IC1, KA3361 pin 16 which is then mixed with the second Local Oscillator supplied by crystal X1(21.25mHZ.) to produce a reduced second I.F. signal which is then filtered by FL3(CFW450HTW). Demodulated signal is recovered through correct adjustment of I.F. tank coil IFT1 and the internal discriminator circuit of IC1 (3361). The recovered Audio signal is outputted at pin 9 of IC1 and then processed through filtering done by IC103B circuit, the fully recovered audio signal is then further amplified by Power Amplifier I.C. 101. An audible sound is therefore produced by the speaker SPK100, which can be varied from minimum to maximum through the key function (up/down) and process by the CPU IC102.

- **Transmitter Section**

Switch SW1 (PTT) when push triggers the Transmitter Circuit "ON", the voice signal generated by the surrounding noise passes through the Microphone MIC100 where mechanical to electrical transformation occurs, the electrical transformed signal is then filtered by a Band Pass Filter IC103A,D, and C. The output signal is Modulated by a modulator circuit with a varactor diode D7 and L18. The external components from Q9-Q11 form a V.C.O. Circuit which generates the required oscillating frequency for transmission, a portion of this signal is feedback to the PLL IC2 pin 14 for phase comparison in order to produce a stabilized TX frequency. The modulated signal is then amplified by a Cascaded Amplifier Circuit Q7 and Q8 and again amplified by Q5 and Q6 to produce a sufficient Radio Frequency signal emitted by the Antenna(ANT1).

- **Call Transmission**

By pushing the **CALL** key, a signal is detected by the CPU IC102, a **CALL data** is then produced by the CPU IC102. This data passes through the Band Pass Filter IC103C and modulated by the varactor diode D7 and L18. The signal follows its conventional **transmission section** path through the antenna.

- **Battery Low Detection**

Battery Low Detection is controlled by the CPU IC102 as detect on the LCD 100, however a voltage divider circuit R111 and R110 serve as the stabilize reference voltage for the CPU IC102 to process its detection.

- **Squelch Detection**

Supported by the Linear I.C. Circuit IC1, variable resistor SVR1 sets the level of detection and Diode D3 acts as a comparator circuit interface with the CPU IC102.

- **Power Supply**

Supply voltage of 6 Volts d.c. is needed to power **"ON"** the whole circuitry, by four (4) batteries "AAA" size.

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