

# PPR-125 CIRCUIT DESCRIPTION

## 1.0 INTRODUCTION

This section explains the technical theory of operation for the PPR-125 mobile CB radio

## 1.1 PLL CIRCUIT

The Phase Lock Loop (PLL) circuit is responsible for developing the receiver's first local oscillator signal and the transmitter's exciter signal. The PLL circuit consists primarily of IC1, Q15, Q16, Q19, Q20 and D12. The PLL circuit is programmed by the up/down channel switch. The channel switch communicates the correct binary data information to the programmable divider inside of IC1. IC1 then controls the VCO (Voltage Controlled Oscillator) to oscillate on the correct frequency. This signal is fed either into the receiver's first mixer (for receive operation) or the transmitter's mixer (for transmit operation).

## 1.2 RECEIVER CIRCUIT

The incoming RF signal comes into the radio via the antenna and into the front-end pre-amp, Q9. The RF signal is fed into the mixer circuit of Q10/Q11 and then into the AM IF section of the receiver (Q12 Q13). The signal is then detected by the AM detector and then fed to the audio amplifier section of the receiver (Q14 IC2) and finally outs to the speaker.

## 1.3 TRANSMITTER MODULATION CIRCUIT

- (1) The transmitter modulation circuit modulates the low-level RF signal from the PLL exciter circuit with the user's audio voice signal from the microphone. The audio from the microphone is then amplified (Q34) and fed into the transmit amplifier circuit.
- (2) If the transceiver is in the AM mode, the AF power (IC2) amplifier modulates the last RF amplifier, which produces a true amplitude modulated RF signal.

## 1.4 TRANSMITTER AMPLIFIER CIRCUIT

The transmitter takes the basic exciter signal from the TX mixer and amplifies it through a series of amplifiers consisting of Q21, Q22, Q23 and Q24 where it is sent out to the antenna connector.

