

## Theory of transmitter for QP-650V1

### Transmit audio and CTCSS/CDCSS Encoder

The audio signal from microphone is amplified, pre-emphasized, filtered, and then enters VCO for direct FM modulation.

CTC/CDC signaling produced by CTC\_OUT (is generated by U611) pass a low pass filter and then enters VC-TCXO. CTC/CDC signaling produced by CTC\_OUT pass a low pass filter and then mixed with audio signal before enters VCO.

The block diagram is shown as fig.1

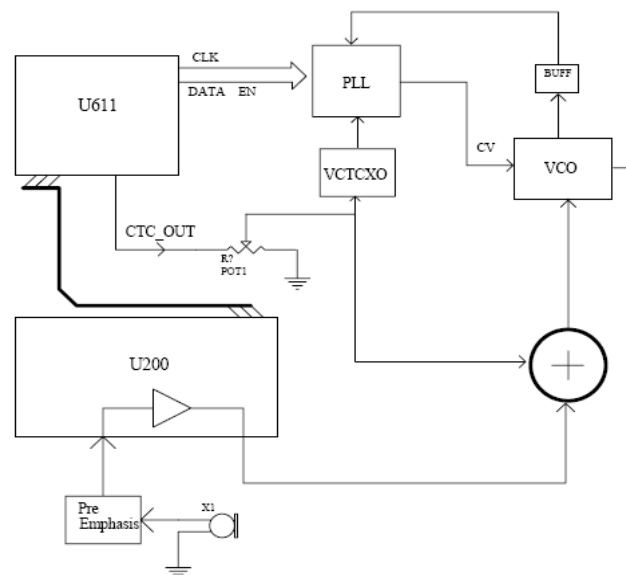


Fig.1

### RF Power Amplifier

The transmit signal from VCO buffer amplifier is amplified by Q400 and Q401. The amplified signal is then amplified by the power amplifier Q402 and Q403 (including a two-stage FET amplifier) to create 5.0W RF power (see fig.2).

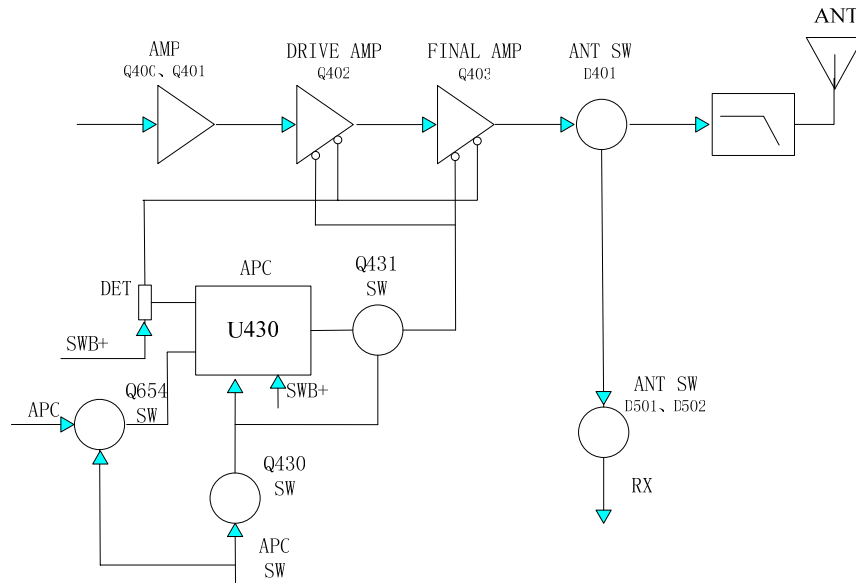


Fig.2

## Antenna Switch and LPF

The RF amplifier output signal is passed through a low-pass filter network and a transmit/receive switch circuit before it is passed to the antenna terminal. The transmit/receive switch circuit is comprised of D401 and D502, D503. They is turned on in transmit mode and off in receive mode.