

CIRCUIT DESCRIPTION

4.1 GENERAL

4.1.1 INTRODUCTION

The main subassemblies of this transceiver are the RF board, VCO board, and TCXO. A block diagram of the transceiver is located in Figure 4-1.

The VCO board is enclosed by a metal shield and soldered directly to the RF board. The VCO is not serviceable.

The 3474 is available with a reference oscillator stability of ± 1.5 PPM. The TCXO (Temperature Compensated Crystal Oscillator) is soldered directly to the RF board.

4.1.2 SYNTHESIZER

The VCO (voltage-controlled oscillator) output signal is the receiver first injection frequency in the Receive mode and the transmit frequency in the Transmit mode. The first injection frequency is 52.95 MHz above the receive frequency. The frequency of this oscillator is controlled by a DC voltage produced by the phase detector in synthesizer chip U801.

Channels are selected by programming counters in U801 to divide by a certain number. This programming is performed over a serial bus formed by the Synth Clock, Synth Enable, and Synth Data pins of J201. This programming is performed by user supplied hardware and software (see Section).

The frequency stability of the synthesizer in both the receive and transmit modes is established by the stability of the reference oscillator described in the preceding section. These oscillators are stable over a temperature range of -30° to $+60^{\circ}$ C (-22° to $+140^{\circ}$ F).

4.1.3 RECEIVER

The receiver is a double-conversion type with intermediate frequencies of 52.95 MHz / 450 kHz. Two helical bandpass filters reject the image, half IF, injection, and other unwanted frequencies. A four-pole crystal filter enhances receiver selectivity

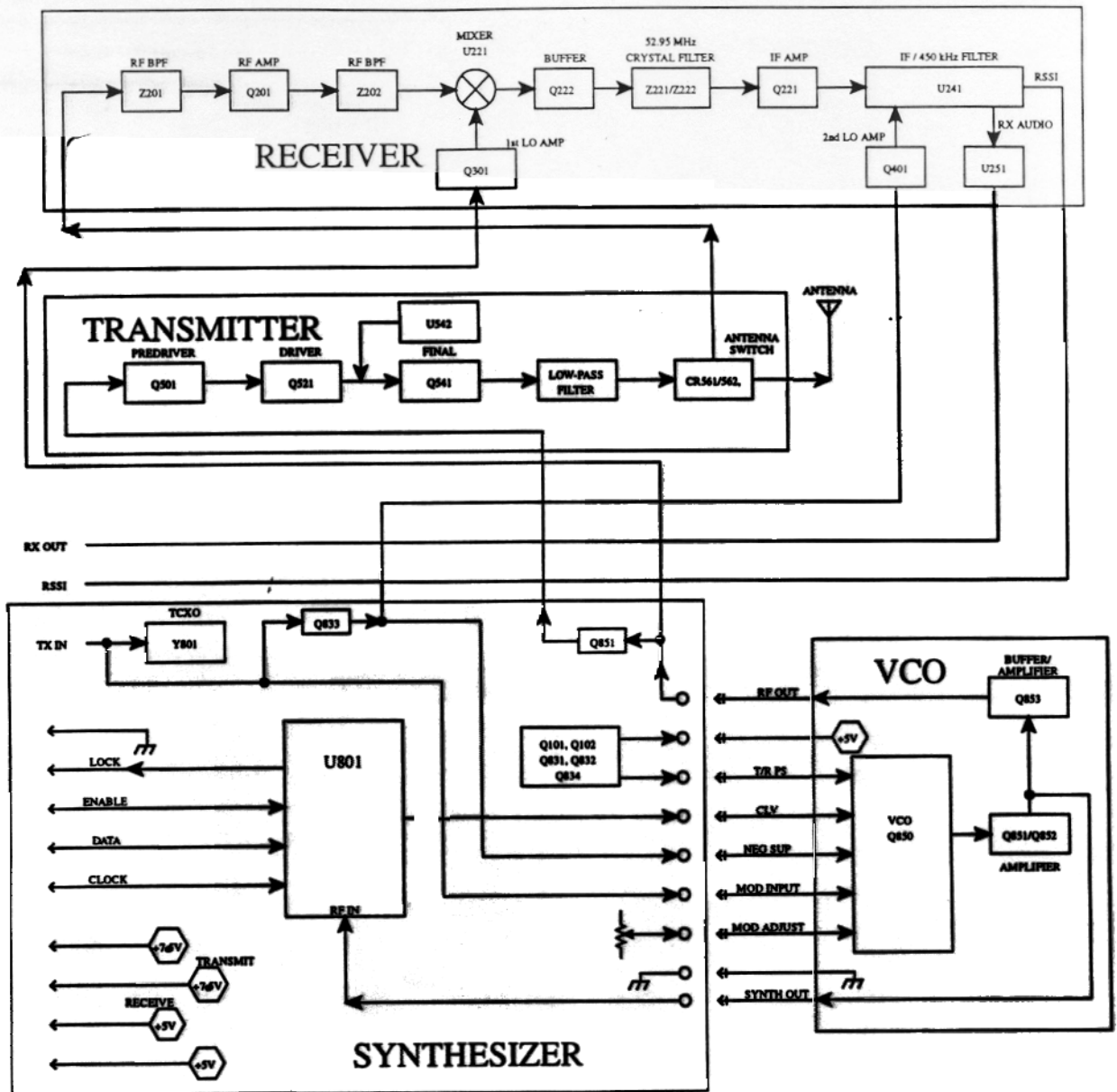


Figure 4-1 DATA TRANSCEIVER BLOCK DIAGRAM