(d)-(9) Tune-up procedure at specific operating power levels:

(1) Vcc voltage of RF AMP block

DC-DC converter output is +5V constant. It supplies Vcc of the RF AMP block.
Voltage regulator output is +3V constant. It supplies Vcc of the VCO(CP401).

(2) Measurement of RF power output.

RF power output is measured at output terminal (CN402).

VCO(CP401) output is applied to RF AMP block and the output is applied to L.P.F.and isolator. So RF power output is decided by VCO and RF AMP block output power, L.P.F. insertion loss and isolator insertion loss.

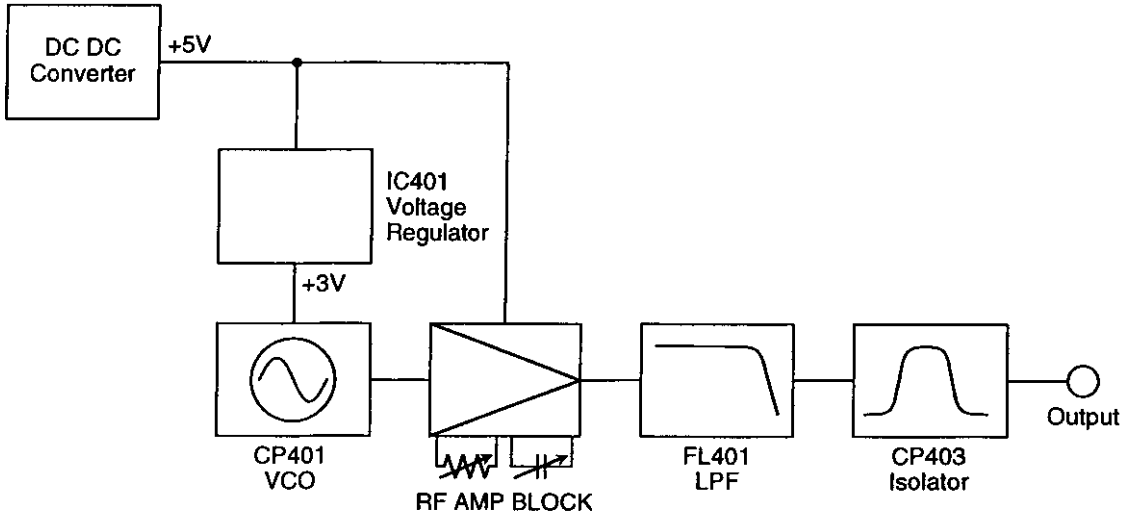
1) VCO RF output power is -1.5 ~ +2.0dBm(at 50Ω load) at 3V power supply voltage.

2) Adjust CT401 and RV401 so that RF AMP block output power is 16 ~ 19dBm (at 50Ω load) when RF AMP block input power is -1.5 ~ +2.0dBm and 5V power supply voltage.

3) L.P.F. insertion loss is less than 0.6dB.

4) Isolator insertion loss is 0.5 ~ 0.9dB.

Therefore RF output power is 50mW(±5mW) by adjusting CT401 and RV401.



(d)-(10)A description of circuitry for determining and stabilizing frequency:

Determination and stability of frequency on PLL synthesizer

1. Divide the oscillation frequency[f] from the VCO(CP401) by a prescaler[1/M](IC401). A counter[1/A](IC401) and N counter[1/N](IC401) and apply it [fr'] to a phase detector.

$$fr' = \frac{1}{MN+A} f \quad \text{---- (1)}$$

2. The integrated output signal of the phase detector, which is taken by the phase difference from[fr'] to a reference oscillator[fr], and use the signal as the control voltage for the VCO.

3. With the above 1 and 2(loop 1 through 2), the circuit maintains its balance.

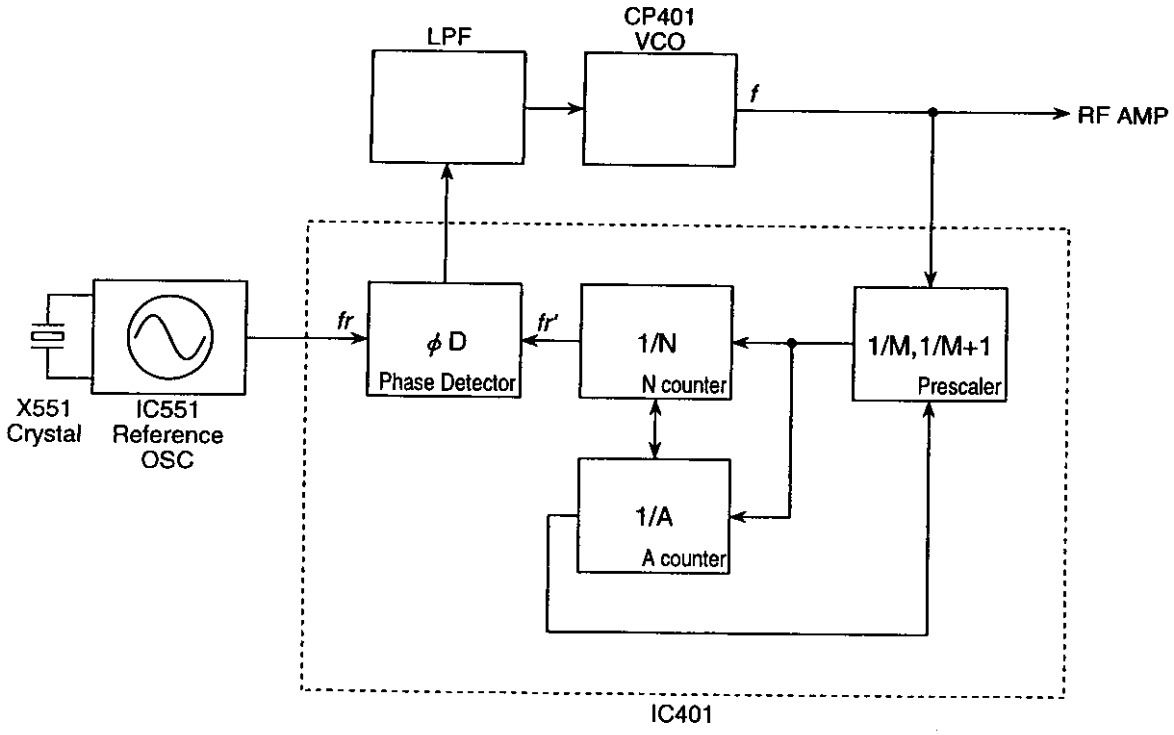
$$fr = fr' \quad \text{---- (2)}$$

by expression of (1), (2)

$$f = (MN+A)fr \quad \text{---- (3)}$$

4. Therefore transmitting frequency[f] is determined by [M], [N], [A], [fr] and stability is decided by stability of reference frequency[fr].

5. Stability of the reference frequency[fr] is ±35ppm(by stability of X'tal(X551) spec). So stability of transmitting frequency[f] is ±50ppm(0.005%).



(d)-(11)A description of circuits for suppression of spurious radiation:

1. Radiation of higher harmonics are suppressed by installation of low pass filter and isolator in the next to a RF AMP.

2. By introducing direct oscillation system of transmitting frequency by the VCO, RF AMP are straightly amplified. So there is no spurious caused by frequency multiplier.

3. Shield of the VCO and the RF AMP block suppress spurious emission radiated from the transmitter chassis.