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Tune-up Procedures

Refer to drawing 85-630C

PLEASE NOTE: All of the adjustments below are only made during Factory test and adjustment. No adjustable controls are available to end-users.

406MHz Transmitter

No frequency adjustment is made as the 406MHz signal is derived from an ultra-stable 12.68838MHz OCXO OSC1.

The output power is set to 5W by adjustment of VR2 which adjusts the bias voltage to the 406 Power Amplifier IC8.

The phase modulation is adjusted by VR1. Q2 and associated components act as a phase modulator. The LAT and DAT lines from the micro-controller, IC1 output the encoded message data to Q2 via the scaling network R8, 9, 49, 80 and VR1. This is adjusted for a nominal modulation of ± 1.1 radians.

(The equivalent resistance of network VR1, R8, R9 and R49, combined with C7, form a single pole R-C filter, which acts to shape the modulating waveform, thereby limiting the occupied bandwidth of the modulated 406MHz transmission.)

121.5MHz Transmitter

The 121.5MHz signal is generated by a Crystal controlled oscillator, X1 and Q4 which provides the ± 50 ppm stability required over the temperature range. The centre frequency is set by adjustment of C13.

No adjustment to the output power is made because the PA, Q8, is operated in saturated mode and supplied by a regulated 8V supply by IC11, Q11 and Q15.

Antenna Matching

The antenna is matched to a nominal 50 ohms by adjustment of:

- C84 at 406MHz.
- L16 at 121.5MHz.

(The only other adjustment made is to VR3, which sets the volume of the piezo sounder, P1.)

Richard Read
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McMurdo Limited.

