

# **MIDLAND 2001 / 3001 /4001**

## **Transmitter Alignment**

### **REQUIRED TEST EQUIPMENT**

DC Power Supply (13.8VDC, 5A)

RF Wattmeter (HF, 25W)

Audio Signal Generator

50  $\Omega$  RF dummy load

Deviation meter

Spectrum Analyzer (1.5 GHz)

Oscilloscope (50 MHz)

### **ALL TESTS TO BE CARRIED OUT WITH 50 $\Omega$ RF DUMMY LOAD CONNECTED TO THE ANTENNA SOCKET.**

#### **RF DRIVER STAGE ALIGNMENT**

1. Switch the radio on and allow it to warm up for 5 minutes, also set to channel 20 TX mode.
2. Connect an Oscilloscope to the Base of Q111.
3. Adjust L107, L109 and L108 for maximum amplitude.
4. Connect an Oscilloscope to the Base of Q112.
5. Adjust L110 for maximum amplitude.

#### **RF POWER AMPLIFIER ALIGNMENT**

1. Set the radio to channel 20 TX mode
2. Connect a RF wattmeter to the antenna socket.
3. Adjust L111, L112, L113 and L115 for maximum power.  
NOTE If you do not have a spectrum analyzer DO NOT ADJUST L115.
4. Go back over L110, L108 and L109 for peak power  
NOTE The power meter should indicate 4 to 5 watts.
5. Connect the spectrum analyzer and adjust L115 for minimum harmonics

#### **MODULATION SENSITIVITY ALIGNMENT**

1. Set the radio to channel 20 TX mode.
2. Connect the Audio Signal Generator and apply 20mv at 1KHz to Pin 4 of the MIC socket.
3. Connect the Deviation Meter.
4. Adjust RV105 for 2.2 KHz shown on the Deviation Meter.