7. ALIGNMENT PROCEDURES

7.1 RECEIVER PART

1) BPF-101 and BPF-102 alignment
   Connect the signal generator to the Rx antenna connector of KG510. Align the BPF-101 and BPF-102 to obtain the maximum sensitivity. For better align-ment, if you have spectrum analyzer and tracking generator, connect the tracking generator to the Rx antenna connector and pick up the output signal from J101 to connect spectrum analyzer. Align the BPF-101 and BPF-102 to have cover the desired bandwidth of receiving frequencies.

2) FVR101 alignment
   This is to adjust the squelch tight level.

3) VCO alignment
   The VCO has already been aligned at the factory, so needless to adjust. However, if you need to re-adjust after repair, set the VCO voltage at 10.5V by L303 at the highest sub band frequency.

7.2 TRANSMITTER PART

1) FVR201 alignment
   This potentiometer determines the modulation level. Carefully align this potentiometer to obtain flat deviation from the lowest to the highest frequency installed n the transmitter.

2) FVR202 alignment
   This potentiometer determines the low frequency (below 300Hz) deviation. When POCSAG, CTCSS or DCS are used, necessary to align to have enough deviation at low frequency.

3) FVR203 alignment
   This potentiometer sets the maximum deviation, normally set at 5KHz. 2KHz or 2.5KHz deviation for narrow spacing can be set by programming software.

4) FVR204 alignment
   This is to adjust the transmitter output power.

5) VCO alignment
   The VCO has been aligned at the factory, so needless to adjust. However, if you need to re-adjust after repair, set the VCO voltage at 10.5V at the highest sub band frequency.

7.3 POWER AMPLIFIER PART

The power amplifier covers full sub band, from 39MHz to 50MHz without any re-adjustment. However, if alignment is required after repair, the following steps are recommended.

1) FVC505
   This variable capacitor to be adjusted to gain the maximum efficiency as well as the maximum power output at the final transistor of the power amplifier.

2) FVR501
   This potentiometer to be adjusted at the minimum reverse power detecting point When the antenna is terminated with 50 ohms load.

3) FVR502
This potentiometer to be set at the point where reverse power is detected.

4) FVR503
This potentiometer to be set at the point where low-power-alarm is detected.

5) FVR504
This potentiometer to be set at the maximum power from the final transistor, however, do not adjust exceeding 120 watts.

7.4 LOGIC PART

1) FVR1 alignment
This potentiometer is to obtain 600 ohm 0dBm output of the RF signal.

2) FVR2 alignment
This is to set the deviation level when KG510 is used for a repeater.

3) FVR3 alignment
This is to set the Tx output power level indicating on the LCD.

1) FVC1 alignment
This is to shift the CPU clock frequency when necessary. A beat interference sometimes happens at certain frequency. In such case, shifting the CPU clock frequency may eliminate the interference.

7.5 FRONT CONTROL PANEL PART

1) VR401 alignment
This is a volume controller.

2) VR402 alignment
This is a squelch level controller.

3) FVR401 alignment
This is to set the HI-POWER-LEVEL of the Tx output power.

4) FVR402 alignment
This is to set the LO-POWER=LEVEL of the Tx output power.

5) FVR403 alignment
This is to set the contrast of the LCD back light.