

## **SMC MASTR II NARROWBAND UPGRADE DIRECT FM TRANSMITTER ALIGNMENT (UHF)**

### **REQUIRED TEST EQUIPMENT:**

- \*Communications service monitor
- \*RF Wattmeter and 50 ohm load (preferably Bird model 6154 or equivalent)
- \*Audio tone generator
- \*RF Wattmeter capable of measuring .5 watts full scale

### **PRELIMINARY SET-UP AND TUNING:**

- 1, Turn R213 on the transmitter power amplifier fully counter-clockwise.
2. Turn R103 and R104 on the exciter fully counter-clockwise.

### **TX TUNING PROCEDURE: (EXCITER 190432679G2)**

1. Connect a 50 ohm wattmeter capable of measuring .5 watts full scale to J101 of exciter, terminated into a 50 ohm load. Using communications service monitor with a local antenna near XY101 (Transmit ICOM), key transmitter and adjust XY101 to actual crystal frequency marked on XY101 (fc divided by 36). Unkey transmitter.
2. P901 is a 21 pin Molex connector that is keyed for offset mating with P902 on the Exciter Board. Remove the green wire and Molex pin from slot 8 of P901 (10V regulated DC). Connect a DC current meter capable of measuring .5 amps in series between the extracted green wire and the pin on the exciter that presents in slot 8 of P901. Key transmitter, and adjust in order: T101, T102, T103, T104, T105, T106 and T107 for maximum current reading on meter. Adjust C155, C157, C167, and C171 for maximum power output as indicated on wattmeter. Repeat until no further gain is achieved. Power output should indicate about 250 mw. Unkey transmitter, remove DC ammeter and replace the green wire and Molex pin in slot 8 of P901.
3. Turn mod adjust R104 and CG mod adjust R103 pots all the way down (counter-clockwise). Using the audio tone generator, inject a 1000 Hz tone with a level of 1VAC RMS between pin 6 and pin 4 of P902 on the exciter. Key transmitter and adjust R104 (mod) to indicate 2.0 kHz of deviation on the communications monitor. Unkey transmitter, remove audio tone generator.
4. For units with CG encode, connect CTCSS encoder, key transmitter, and adjust R103 (CG) to indicate a deviation of 375 kHz on the communications service monitor. Unkey transmitter.
5. Disconnect 50 ohm wattmeter and load.

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(POWER AMPLIFIER 100W)**

1. Connect RF wattmeter and 50 ohm load to TX antenna port on power amplifier.
2. Key transmitter and adjust R213 for a wattmeter reading of no more than 90 watts and adjust C2 and C4 on the Antenna Matching Unit repeatedly to obtain maximum RF output power
3. Reset R213 to a power level of 100 watts.
4. Unkey transmitter, disconnect RF wattmeter and load.

