Adjustment Description

The radio can be adjusted with PC programming software or by manual adjustment. Manual adjustment procedure of TC-500 is as follow.

Instrument:

Radio Communication Test Set 1 set
Scanner 1 set
3A/10V Power Supply 1 set
Digital Voltmeter 1 set
3A Ammeter 1 set

Adjustment:

1. Initializing:

It's necessary to set the model and initialize the radio before alignment because there is no needed information in EEPROM when the radio is manufactured. Please refer to the "model set mode" in the section Software Description for details.

2. Adjustment:

Some items can be adjusted in conventional communication mode and the others in manual adjust mode. Turn on the power, the radio enters conventional communication mode. If manual adjust mode is enabled, turn on the power while holding down PTT and MONI simultaneously, the radio enters manual adjust mode after 2 seconds. (Refer to the section *Software Description*.)

VCO

Item	Condition	Measurement		Adjustment		Specification /Remarks
		Test Instrument	Terminal	Part	Method	
1.Power supply	1.power voltage DC 6V					
2.Transmit VCO lock voltage	1.TX High. Turn to CH15 in manual adjust mode and press PTT.	Digital Voltmeter	CV	TC1	3.0V±0.1V	
	2.TX Low. Turn to CH14 in manual adjust mode and press PTT.				>0.7V	
3. Receive VCO lock voltage	1.RX High. Turn to CH15 in manual adjust mode.			TC2	2.6V±0.1V	
	2.RX Low. Turn to CH14 in manual adjust mode.				>0.7V	

Note: If transmit VCO can't lock, you can enter manual adjust mode to check. (In manual adjust mode, the radio can transmit whether VCO lock or not.

RECEIVER: (Enter the manual adjust mode)

Item	Condition	Measurement		Adjustment		Specification /Remarks
		Test Instrument	Terminal	Part	Method	
4. Band Pass Filter	1.RX Center. Turn to CH13 in manual adjust mode.	Scanner	ANT . TP2	TC3 TC4 TC5	Adjust the waveform to the top, and the top is flat, the bandwidth is about 20MHz, the sign of RX central frequency is at the middle of the waveform.	
5.sensitivity	1.RX Center. Turn to CH13 in manual adjust mode.	Radio Communica-tion Test Set SSG output: -118dBm MOD:1KHz DEV:±3kHz FILER: 0.3-3.4kHz	ANT Speaker Jack		Check	SINAD: 12dB or higher
	2. RX Low. Turn to CH14 in manual adjust mode.					
	3.RX High. Turn to CH15 in manual adjust mode.					
6.Squelch	1.RX Center. Turn to CH2 in manual adjust mode. Adjust by pressing PTT or MONI.	Radio Communic-ation Test Set SSG output: -117dBm	ANT Speaker Jack		Level 9 Adjust to just close the squelch.	Adjust squelch level 9
	2.RX Center. Turn to CH3 in manual adjust mode. Adjust by pressing PTT or MONI.	Radio Communic-ation Test Set SSG output: -125dBm			Level 3 Adjust to just close the squelch.	Adjust squelch level 3

Transmitter

Item	Condition	Measurement		Adjustment		Specification /Remarks
		Test equipment	Terminal	Parts	Method	
7.Transmit frequency	1.TX Center. Turn to CH13 in manual adjust mode and press PTT.	Radio Communica-tion Test Set	ANT	TC6	Adjust it to center frequency	Error≤±250Hz
8.Max. Deviation	1.TX Center. Turn to CH13 in manual adjust mode and press PTT.	Radio Communica-tion Test Set LPF: 15KHz AF:1KHz 120mV	ANT MIC Jack	VR2	Adjust deviation to: 4.2kHz±100Hz	
9. Modulation Sensitivity	1.TX Center. Turn to CH13 in manual adjust mode and press PTT.	Radio Communica-tion Test Set FILER: 0.3-3.4KHz AF:1KHz 7mV	ANT MIC Jack		Check deviation: 2.2kHz-3.6kHz	
10. CTCSS Balance	1. TX Center. CTCSS: 67.0Hz. Turn to CH4 in manual adjust mode.	Radio Communica-tion Test Set LPF:300Hz	ANT	VR3	Adjust VR3, deviation tested on condition 1 and condition 2 are consistent, the difference≤200Hz	67.0Hz CTCSS
	2. TX Center. CTCSS:250.3Hz. Turn to CH16 in manual adjust mode and press PTT.					250.3Hz CTCSS
11. CTCSS Deviation	1. TX Center. CTCSS: 67.0Hz. Turn to CH4 in manual adjust mode. Adjust by pressing PTT or MONI.	Radio Communica-tion Test Set LPF: 300Hz	ANT		Adjust deviation to: 0.65kHz±100Hz	
12. CDCSS Deviation	1. TX Center. CDCSS: 023. Turn to CH5 in manual adjust mode. Adjust by pressing PTT or MONI.				Adjust deviation to: 0.65kHz±100Hz	
13. Low Battery Alert Level	1. Turn to CH1 in manual adjust mode. Adjust the power supply voltage at 5.3V. Adjust by pressing PTT or MONI.	Digital Voltmeter			Adjust the level to make LED just flash.	

Note: In manual adjust mode, when channel selector knob is positioned at channel 1-channel16, MIC jack can't connect with external cables. After adjustment is completed, short out the two SELF points and then turn the power on, the radio enters model set mode. Then press PTT to disable the manual adjust mode.