

SECTION ADJUSTMENT PROCEDURES

PREPARATION

When you adjust the contents on page 5-6 or 5-7, SOFTWARE ADJUSTMENT, the optional CS-F30G ADJUSTMENT SOFTWARE, OPC-966 cloning cable and RS-232C straight cable are required.

REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output range 7.5V DC	Audio generator	Frequency range 300-3000Hz
	Current capacity 5A or more		Output level 1-500mV
RF power meter	Measuring range 1-10W	Attenuator	Power attenuator 40 or 50dB
	Frequency range 120-500MHz		Capacity 10W or more
	SWR Less than 1.2:1	Standard signal generator	Frequency range 120-500MHz
Frequency counter	Frequency range 0.1-500MHz		Output level 0.1uV-32mV
	Frequency accuracy 1ppm or better	DC voltmeter	Input impedance 50k Ω V DC or better
Sensitivity 100mV or better	Oscilloscope		Frequency range DC-20MHz
FM deviation meter		Frequency range DC-500MHz	Measuring range 0.01-20V
	Measuring range 0 to 5kHz	AC millivoltmeter	Measuring range 10mV-10V
Digital multimeter	Input impedance 10M Ω V DC or better		

SYSTEM REQUIREMENTS

- IBM PC compatible computer with an RS-232C serial port
- Microsoft Windows95 or Windows98
- Intel i486DX processor or faster (Pentium 100MHz or faster recommended)
- At least 16MB RAM and 10MB of hard disk space
- 640 x 480 pixel display (800 x 600 pixel display recommended)

ADJUSTMENT SOFTWARE INSTALLATION

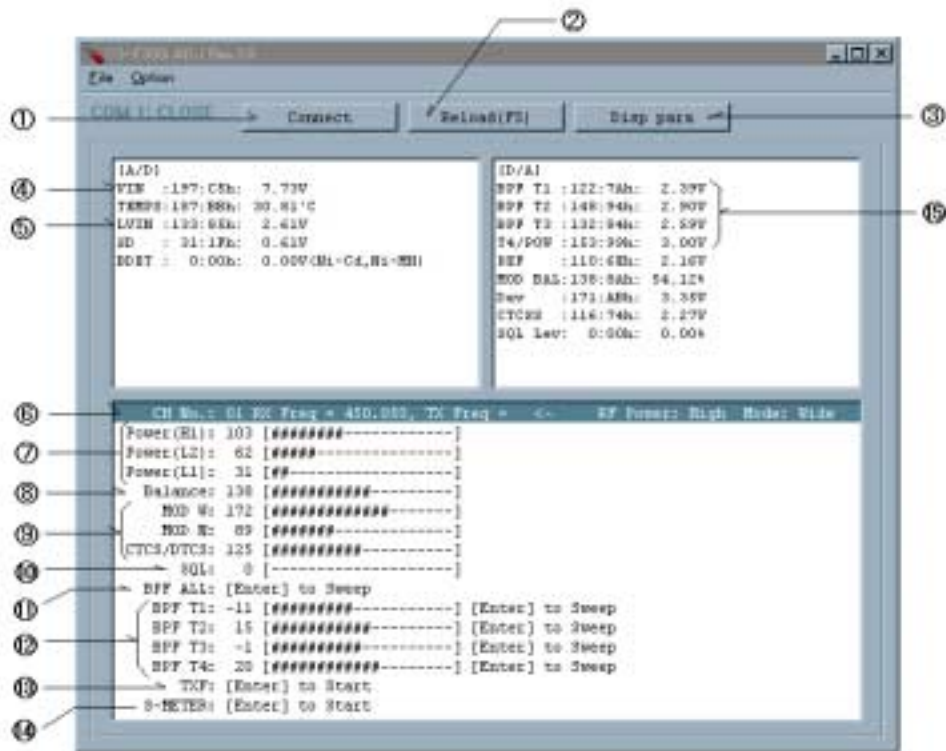
NOTE: Before using the program, make a backup copy of the original disk.
After making a backup copy, keep the original disk in a safe place.

1. Boot up Windows. – Quit all applications when Windows is running.
2. Insert the backup disk1 into the appropriate floppy drive.
3. Select 'Run' from the [Start] menu.
4. Type the setup program name using the full path name, then push the [Enter] key.
5. Follow the prompts.
6. Program group 'CS-F30G ADJ' appears in the 'Programs' folder of the [start] menu.

STARTING SOFTWARE ADJUSTMENT

1. Connect IC-F30GT/GS and PC with the optional OPC-966 and RS-232C straight cable.
2. Boot up Windows, and turn the transceiver power ON.
3. Click the program group 'CS-F30G ADJ' in the 'Programs' folder of the [Start] menu,
Then CS-F30G ADJ's window is appeared.
4. Click 'Connect' on the CS-F30G's window, then appears
5. IC-F30GT/GS's up-to-date condition. Set or modify adjustment data as desired.

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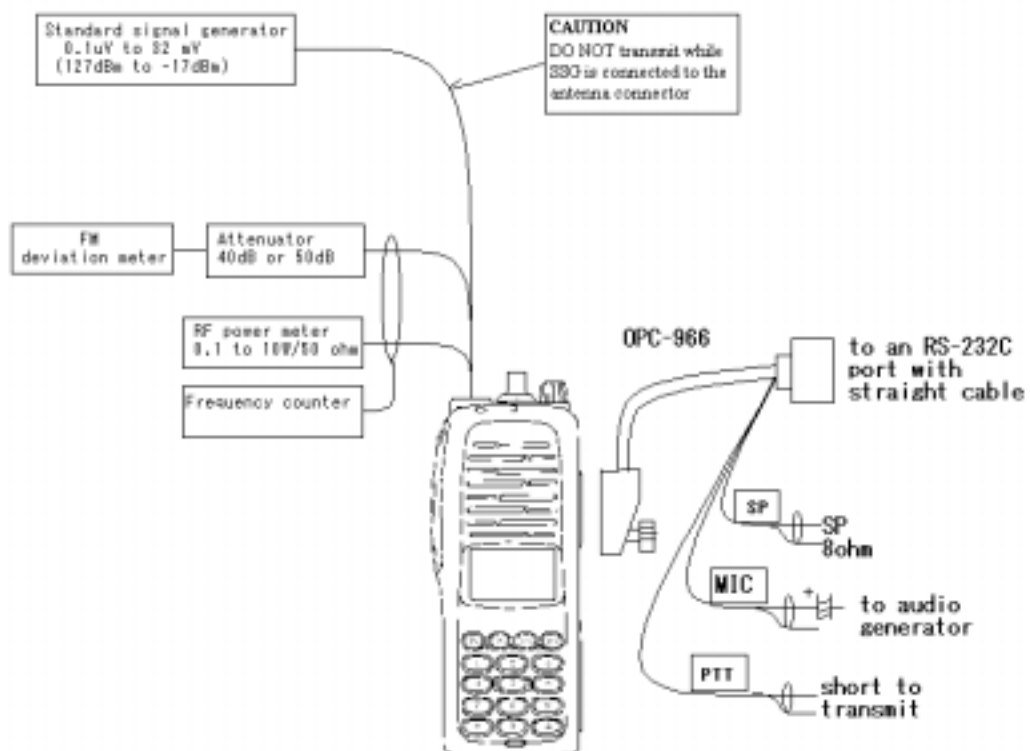


ADJUSTMENT SOFTWARE SCREEN DISPLAY EXAMPLE

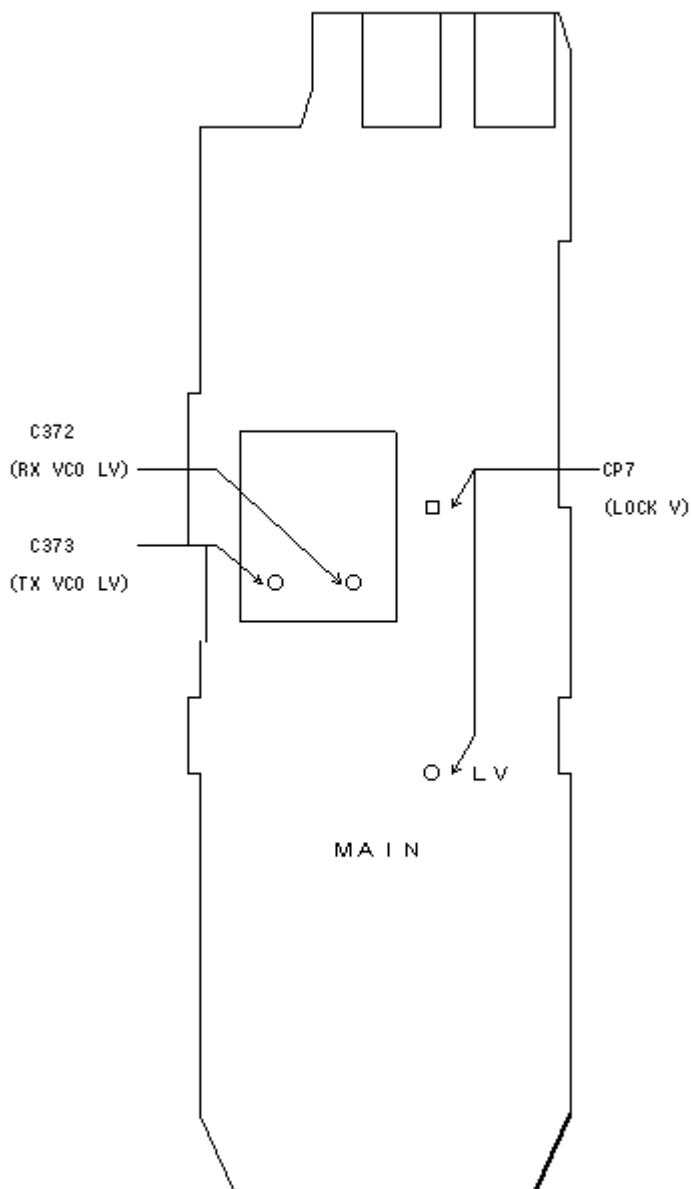
NOTE: The above values for settings are example only.

Each transceiver has its own specific values for each setting.

- | | |
|-----------------------------------|---|
| 1: Transceiver's connection state | 9: FM deviation |
| 2: Reload adjustment data | 10: Squelch level |
| 3: Display adjustment data | 11: Receive sensitivity (automatically) |
| 4: Connected DC voltage | 12: Receive sensitivity (manually) |
| 5: PLL lock voltage | 13: Reference frequency |
| 6: Operating channel select | 14: S-meter |
| 7: RF output power | 15: Receive sensitivity measurement |
| 8: Flat wave form balance | |



□ CONNECTION



PLL LOCK VOLTAGE ADJUSTMENT POINT

PLL ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MESUREMENT		VALUE	ADJUSTMENT	
		UNIT	LOCATION		UNIT	ADJUST
PLL LOCK VOLTAGE	Operating frequency: 400.000MHz	MAIN	Connect a digital multimeter to CP7		MAIN	
	Receiving			1.3V		C372
	Transmitting			1.3V		C373
	Operating frequency: 430.000MHz					
	Receiving			3.0-4.5V		Verify
	Transmitting			3.0-4.5V		Verify

SOFTWARE ADJUSTMENT

Select an operating using [] / [] keys, then set specified value using [] / [] keys on the computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MESUREMENT		VALUE
		UNIT	LOCATION	
REFERENCE FREQUENCY	Operating frequency: 400.000MHz High/Low switch: Low1 Connect the RF power meter or 50 ohm v load to the antenna connector Transmitting	Top panel	Loosely couple a frequency counter to the antenna connector	400.000MHz
OUTPUT POWER (HI)	Operating frequency: 400.000MHz High/Low switch: High Transmitting	Top panel	Connect an RF power meter to the antenna connector	4.0W
OUTPUT POWER	High/Low switch: Low2 Transmitting			2.0W
OUTPUT POWER	High/Low switch: Low1 Transmitting			1.0W
WAVE FORM BALANCE	Operating frequency: 400.000MHz High/Low switch: Low1 Set the FM deviation meter as: HPF OFF LPF 20kHz De-emphasis OFF Detector (p-p)/2 Wide/Narrow switch: Wide Transmitting and push [P0] key	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	Set flat wave form
FM DEVIATION [MOD] WODE	Operating frequency: 400.000MHz High/Low switch: Low1 Connect the audio generator to OPC-966 and set as: 1kHz/ 150mV Wide/Narrow switch: Wide Transmitting	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	4.1kHz
FM DEVIATION [MOD] INAR	Wide/Narrow switch: Narrow Transmitting			2.1kHz
CTCSS TONE DEVIATION	Operating frequency: 400.000MHz High/Low switch: Low1 Wide/Narrow switch: Wide No audio applied to the MIC line. CTCSS tone :88.5Hz Transmitting	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	0.7kHz

SOFTWARE ADJUSTMENT – continued

Select an operating using [] / [] keys, then set specified value using [] / [] keys on the computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MESUREMENT		VALUE	
		UNIT	LOCATION		
RX SENSITIVITY [BPF T1]- [BPF T4]	Connect a standard signal generator to the antenna connector and set as: Frequency 400.000MHz Level +20dBu Modulation 1kHz Deviation 3.5kHz Receiving	0	Top panel	Connect a SINAD meter with an 8 load to OPC -966 SP port	Minimum distortion level
	CONVENIENT: The BPF T1 - BPF T4 can be adjusted automatically. 1.Set the cursor to 'BPF ALL' on the adjustment program and then push [ENTER] key 2.The connected PC turns BPF T1 - BPF T4 to peak levels. or 1.Set the cursor to one of BPF T1,T2,T3, or,T4 as desired. 2.Push [ENTER] key to start tuning. 3.Repeat 1 to 2 perform additional BPF tuning.				
SQUELCH LEVEL	Operating frequency: 400.000MHz Connect a standard signal generator to the antenna connector and set as: Frequency 400.000MHz Level OFF Modulation 1kHz Deviation 3.5kHz Receiving		Top panel	Connect a SINAD meter with an 8 load to OPC -966 SP port	12dB SINAD
	Receiving				At the point where the audio signals just appears.