

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

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

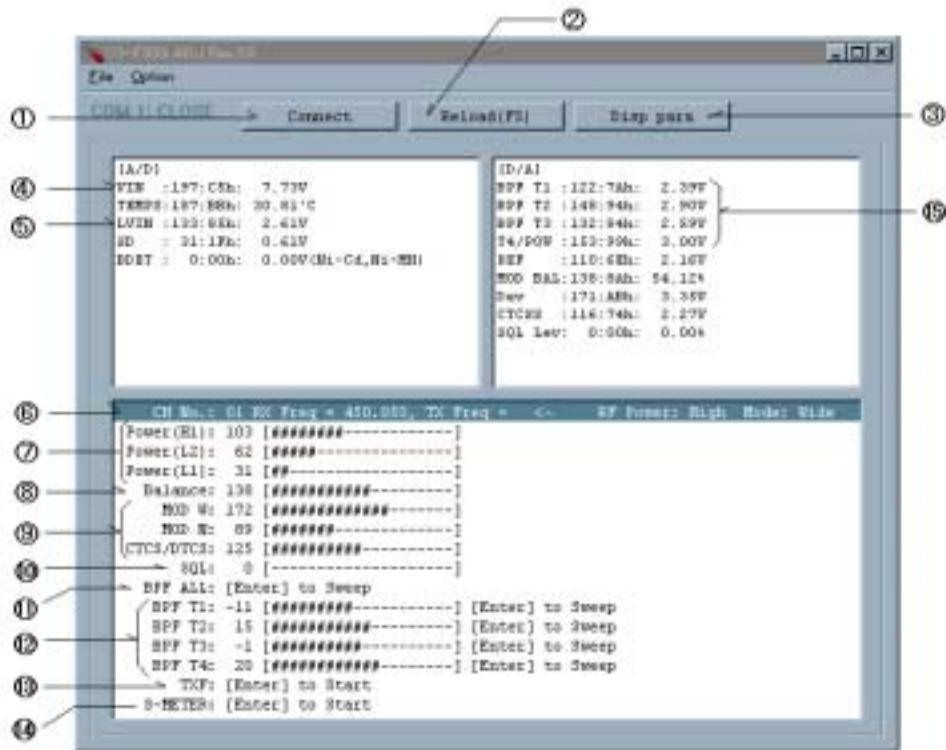
NOTE: Before using the program, make a backup copy of the original disk.
After making a backup copy, keep the original disk in a safe place.

- 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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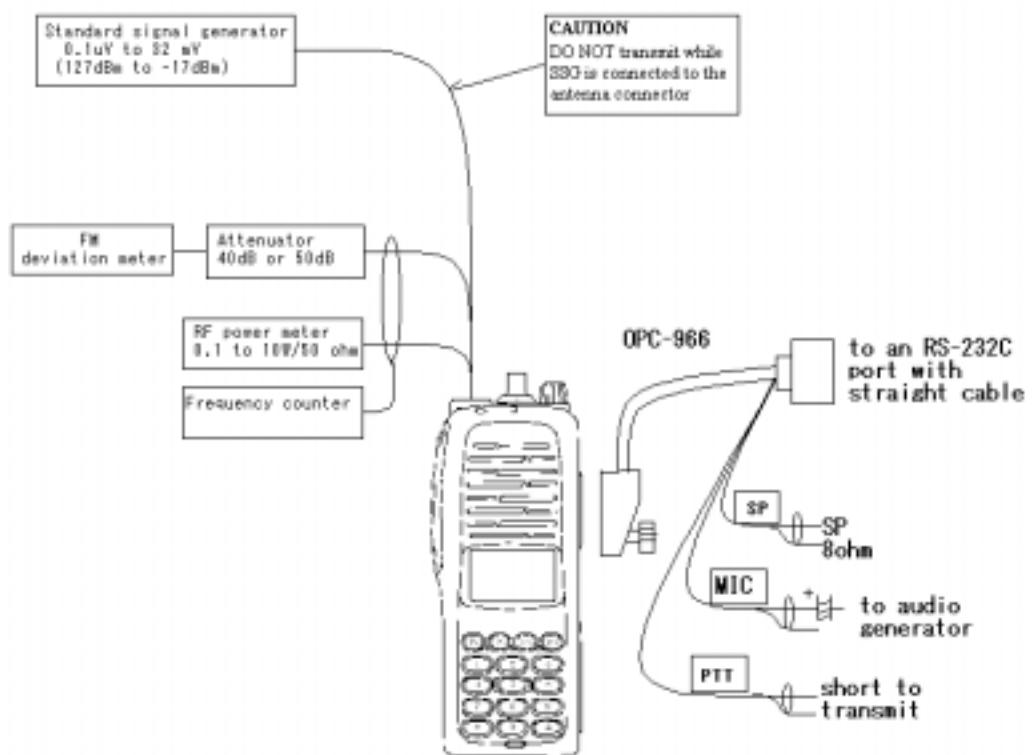


ADJUSTMENT SOFTWARE SCREEN DISPLAY EXAMPLE

NOTE: The above values for settings are example only.

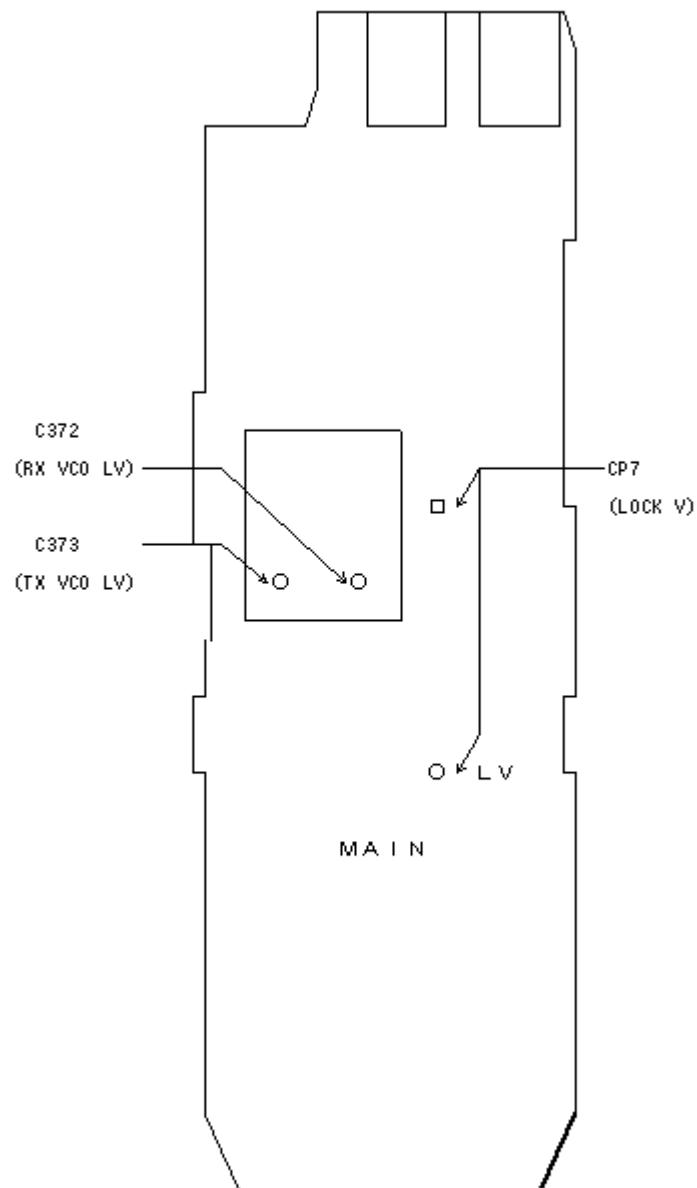
Each transceiver has its own specific values for each setting.

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	MEASUREMENT		VALUE	ADJUSTMENT	
		UNIT	LOCATION		UNIT	ADJUST
PLL LOCK VOLTAGE	Operating frequency: 136.000MHz	MAIN	Connect a digital multimeter to LV		MAIN	
	Receiving			1.2V		C372
	Transmitting			1.0V		C373
	Operating frequency: 174.000MHz					
	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	MEASUREMENT		VALUE
		UNIT	LOCATION	
REFERENCE FREQUENCY	Operating frequency: 174.000MHz High/Low switch: Low1 Connect the RF power meter or 50 ohm load to the antenna connector Transmitting	Top panel	Loosely couple a frequency counter to the antenna connector	174.000MHz
OUTPUT POWER (HI)	Operating frequency: 136.000MHz High/Low switch: High Transmitting	Top panel	Connect an RF power meter to the antenna connector	5.0W
OUTPUT POWER	High/Low switch: Low2 Transmitting			2.0W
OUTPUT POWER	High/Low switch: Low1 Transmitting			1.0W
WAVE FORM BALANCE	Operating frequency: 155.000MHz High/Low switch: Low1 Set the FM deviation meter as: HPF OFF LPF 20kHz De-emphasis OFF Detector (p-p)/2 Wide/Narrow switch: Narrow 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: 155.000MHz 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 MOD1NAR	Wide/Narrow switch: Narrow Transmitting			2.1kHz
CTCSS TONE DEVIATION	Operating frequency: 155.000MHz 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	MEASUREMENT		VALUE												
		UNIT	LOCATION													
RX SENSITIVITY [BPF T1]-[BPF T4]	<p>Operating frequency: 136.000MHz Connect a standard signal generator to the antenna connector and set as:</p> <table> <tr><td>Frequency</td><td>136.000MHz</td></tr> <tr><td>Level</td><td>+20dBu</td></tr> <tr><td>Modulation</td><td>1kHz</td></tr> <tr><td>Deviation</td><td>3.5kHz</td></tr> <tr><td>Receiving</td><td></td></tr> </table> <p>CONVENTION: The BPF T1 - BPF T4 can be adjusted automatically.</p> <p>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.</p> <p>or</p> <p>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 to perform additional BPF tuning.</p>	Frequency	136.000MHz	Level	+20dBu	Modulation	1kHz	Deviation	3.5kHz	Receiving		Top panel	Connect a SINAD meter with an 8 load to OPC-966 SP port	Minimum distortion level		
Frequency	136.000MHz															
Level	+20dBu															
Modulation	1kHz															
Deviation	3.5kHz															
Receiving																
SQUELCH LEVEL	<p>Operating frequency: 136.000MHz Connect a standard signal generator to the antenna connector and set as:</p> <table> <tr><td>Frequency</td><td>136.000MHz</td></tr> <tr><td>Level</td><td>0FF</td></tr> <tr><td>Modulation</td><td>1kHz</td></tr> <tr><td>Deviation</td><td>3.5kHz</td></tr> <tr><td>Receiving</td><td></td></tr> <tr><td>Receiving</td><td></td></tr> </table>	Frequency	136.000MHz	Level	0FF	Modulation	1kHz	Deviation	3.5kHz	Receiving		Receiving		Top panel	Connect a SINAD meter with an 8 load to OPC-966 SP port	12dB SINAD At the point where the audio signals just appears.
Frequency	136.000MHz															
Level	0FF															
Modulation	1kHz															
Deviation	3.5kHz															
Receiving																
Receiving																