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 generater	Frequency range	300-3000Hz
	Current capacity	5A or more		Output level	1-500mV
RF power meter	Mesuring range	1-10W	Attenuator	Power attenuation	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 inpedance	50k /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
	Mesuring range	0 to 5kHz	AC millivoltmeter	Measuring range	10mV-10V
Digital multimeter	Input impedance	10M /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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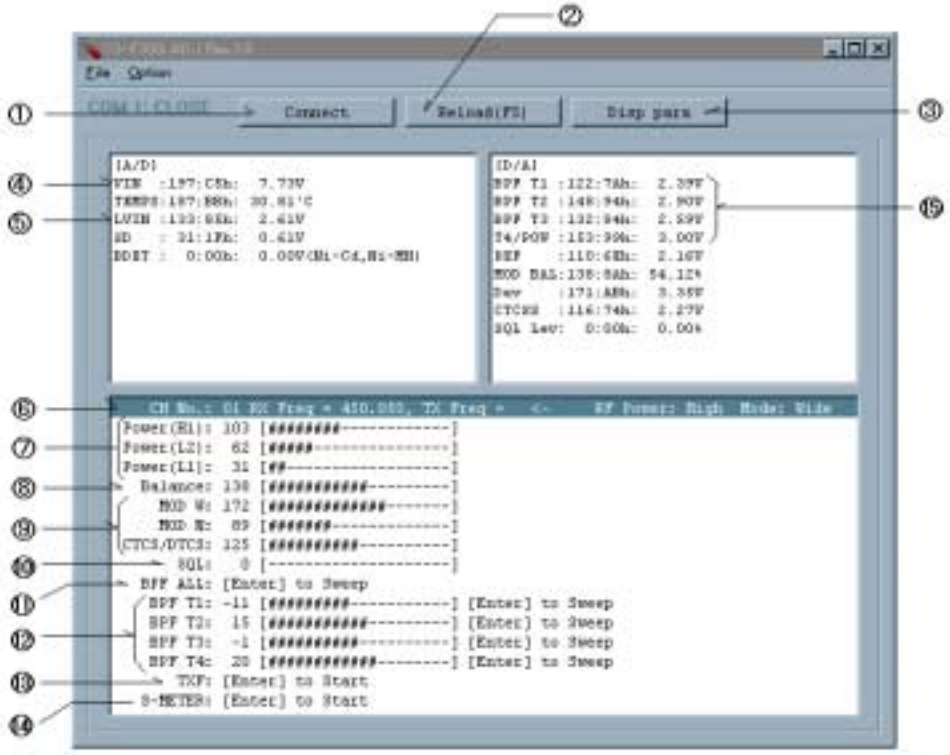
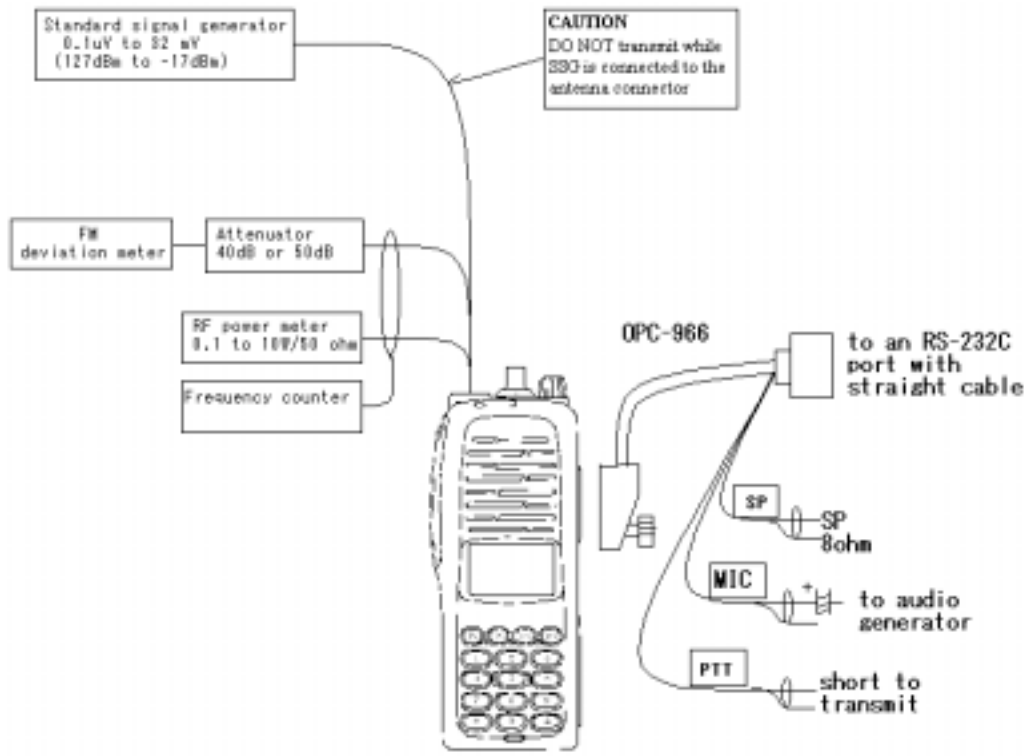


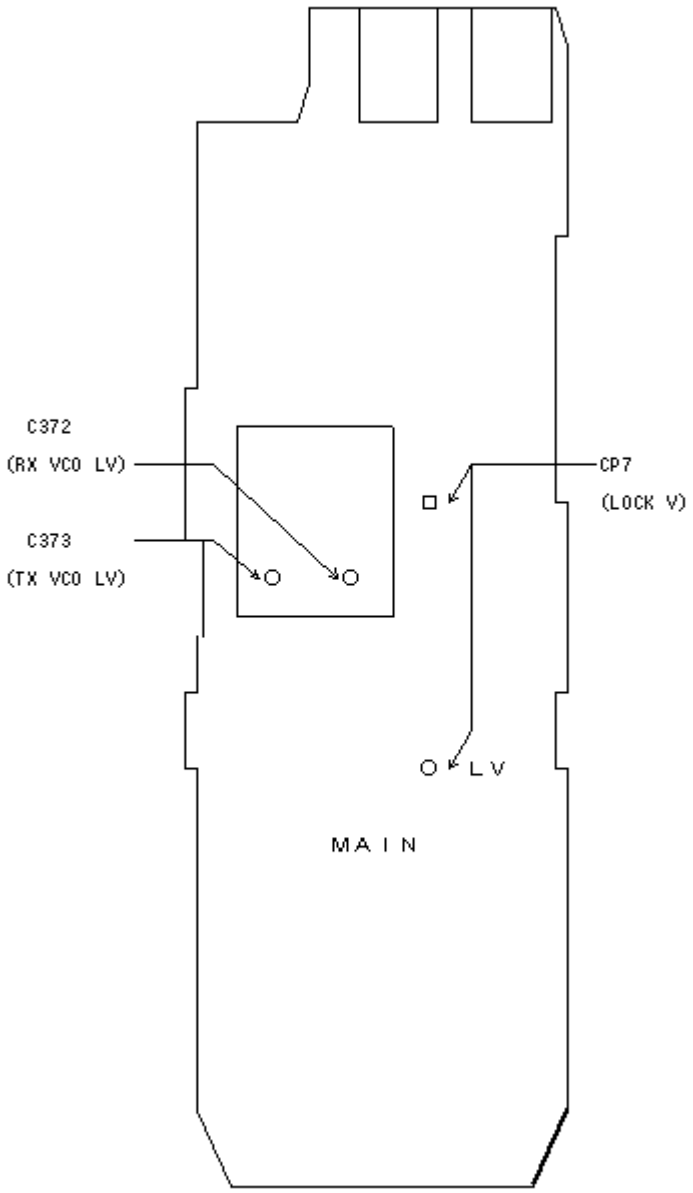
ADJUSTMENT SOFTWARE SCREEN DISPLAY EXAMPLE

NOTE: The above values for settings are example only.
Each transceiver has its own specific values for each setting.

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


Standard signal generator
0.1uV to 32 mV
(127dBm to -17dBm)
CAUTION
DO NOT transmit while
SSG is connected to the
antenna connector
FM
deviation meter
Attenuator
40dB or 50dB
RF power meter
0.1 to 100/50 ohm
Frequency counter
OPC-966
to an RS-232C
port with
straight cable
SP
SP
8ohm
MIC
to audio
generator
PTT
short to
transmit

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 dummy 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] NAR	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]	0 Connect a standard signal generator to the antenna connector and set as: Frequency 400.000MHz Level +20dBu Modulation 1kHz Deviation 3.5kHz Receiving	Top panel	Connect a SINAD meter with an 8 load to PC-966 SP port	Minimum distortion level
	CONVENIENT: The BPF T1 - BPF T4 can be adjusted automatically. 1. Set the cursol 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 cursol 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 PC-966 SP port	12dB SINAD
	Receiving			At the point where the audio signal just appears.