

IC-V8 ADJUSTMENT PROCEDURES

5-1 PREPARATION

When adjusting the contents on page 4 or 5, SOFTWARE ADJUSTMENT, a CS-V8 ADJ ADJUSTMENT SOFTWARE (Rev. 1.0 or later), OPC-478 CLONING CABLE and a JIG CABLE are required.

■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 7.2 V DC Current capacity : 5 A or more	Audio generator	Frequency range : 300–3000 Hz Output level : 1–500 mV
RF power meter (terminated type)	Measuring range : 1–10 W Frequency range : 120–500 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Attenuator	Power attenuation : 40 or 50 dB Capacity : 10 W or more
Frequency counter	Frequency range : 0.1–500 MHz Frequency accuracy : ± 1 ppm or better Sensitivity : 100 mV or better	Standard signal generator (SSG)	Frequency range : 120–500 MHz Output level : 0.1 μ V–32 mV (–127 to –17 dBm)
FM deviation meter	Frequency range : DC–500 MHz Measuring range : 0 to ± 5 kHz	DC voltmeter	Input impedance : 50 k Ω /V DC or better
Digital multimeter	Input impedance : 10 M Ω /V DC or better	Oscilloscope	Frequency range : DC–20 MHz Measuring range : 0.01–20 V
		AC millivoltmeter	Measuring range : 10 mV–10 V

■ SYSTEM REQUIREMENTS

- IBM PC compatible computer with an RS -232C serial port (38400 bps or faster).
- Microsoft Windows 95 or Windows 98
- Intel i486DX processor or faster (Pentium 100 MHz or faster recommended)
- At least 16 MB RAM and 10 MB of hard disk space
- 640×480 pixel display (800×600 pixel display recommended)

■ ADJUSTMENT SOFTWARE INSTALLATION

- ① Boot up Windows.
- Quit all applications when Windows is running.
- ② Select 'Run' from the [Start] menu.
- ③ Type the setup program name using the full path name, then push the [Enter] key. (For example; D:\ setup)
- ④ Follow the prompts.
- ⑤ Program group 'CS-V8 ADJ' appears in the 'Programs' folder of the [Start] menu.

■ STARTING SOFTWARE ADJUSTMENT

- ① Connect IC-V8 and PC with the optional OPC-478 and the JIG cable.
- ② Boot up Windows, and turn the transceiver power ON.
- ③ Click the program group 'CS-V8 ADJ' in the 'Programs' folder of the [Start] menu, then CS-V8 ADJ's window is appeared.
- ④ Click 'Connect' on the CS-V8 ADJ's window, then appears IC-V8's up-to-date condition.
- ⑤ Set or modify adjustment data as desired.

WARNING: After finished adjustments, IC-V8 must be operated as follow operation. Otherwise, the transceiver does not work properly.

- ①: Turn power OFF.
- ②: Push and hold the [D] and MONI keys, and then turn power ON.

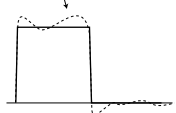
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5-2 PLL ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT	
			UNIT	LOCATION		UNIT	ADJUST
PLL LOCK VOLTAGE	1	- Operating frequency : 145.000 MHz - Receiving	MAIN	Connect a digital multi meter to check point LV.	2.7 V	MAIN	L33

5-3 SOFTWARE ADJUSTMENT

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT		ADJUSTMENT CONDITION	MEASUREMENT		VALUE
			UNIT	LOCATION	
REFERENCE FREQUENCY [TXF]	1	- Operating frequency : 145.000 MHz - High/Low switch : Low - Connect the RF power meter or 50 Ω dummy load to the antenna connector. - Transmitting	Top panel	Loosely couple a frequency counter to the antenna connector.	145.00000 MHz
OUTPUT POWER [POWER(HI)]	1	- Operating frequency : 146.000 MHz - High/Low switch : High - Transmitting	Top panel	Connect an RF power meter to the antenna connector.	5.5 W
NOTE: Low power is adjusted automatically when High power' adjustment is finished.					
FM DEVIATION [MOD]	1	- Operating frequency : 146.000 MHz - High/Low switch : Low - Connect the audio generator to the [MIC] jack and set as: 1.0 kHz/150 mVrms - Set the FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 - Transmitting	Top panel	Connect an FM deviation meter to the antenna connector through the attenuator.	±4.2 kHz
DTCS WAVE FORM [DTCS BAL]	1	- Operating frequency : 146.000 MHz - High/Low switch : Low - No audio applied to the [MIC] jack. - DTCS code : 007 - Transmitting	Top panel	Connect an FM deviation meter with an oscilloscope to the antenna connector through an attenuator.	Set to flat wave form 

SOFTWARE ADJUSTMENT – continued

Select an operation using $\uparrow$ / $\downarrow$ keys, then set specified value using $\leftarrow$ / $\rightarrow$ keys on the connected computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE
		UNIT	LOCATION	
RX SENSITIVITY (BPF T1 – BPF T3) [BPF Low]	1 • Operating frequency : 136.000 MHz • Connect a standard signal generator to the antenna connector and set as: Frequency : 136.000 MHz Level : 1 μV* (–107 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	Top panel	Connect a SINAD meter with an 8Ω load to the [SP] jack.	Minimum distortion level
[BPF Mid]	2 • Operating frequency : 136.000 MHz • Set the SSG's frequency as: 136.000 MHz • Receiving			Minimum distortion level
[BPF High]	3 • Operating frequency : 174.000 MHz • Set the SSG's frequency as: 174.000 MHz • Receiving			Minimum distortion level
CONVENIENT: The BPF T1–BPF T3 can be adjusted automatically. ①-1: Set the cursor to “BPF ALL” on the adjustment program and then push [ENTER] key. ①-2: The connected PC tunes BPF T1–BPF T3 to peak levels. or ②-1: Set the cursor to one of BPF T1, T2, or T3 as desired. ②-2: Push [ENTER] key to start tuning. ②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning.				
SQUELCH LEVEL [SQL]	1 • Operating frequency : 146.000 MHz • Squelch level : 1 • Connect a standard signal generator to the antenna connector and set as: Frequency : 146.000 MHz Level : 0.11 μV* (–126 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	Top panel	Connect a SINAD meter with an 8Ω load to the [SP] jack.	12 dB SINAD
	2 • Receiving			At the point where the audio signals just appears.
S-METER [S-METER]	1 • Operating frequency : 146.000 MHz • Connect a standard signal generator to the antenna connector and set as: Frequency : 146.000 MHz Level : 0.4 μV* (–115 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving	S-METER is adjusted automatically by CS-V8 ADJ.		

*The output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.