IC-2200H ADJUSTMENT PROCEDURES

1 PREPARATION

Need to enter the adjustment mode, and the JIG cable is required when adjusting the IC-2200H.

■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GREDE AND RANGE	EQUIPMENT	GREDE AND RENGE
DC power supply	Output voltage : 13.8 V DC Current capacity : 20 A or more	FM deviation meter	Frequency range : 0–400 MHz Measuring range : 0 to ±5 kHz
RF power meter (terminated type)	Measuring range : 0.1–100 W Frequency range : 50–400 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Oscilloscope	Frequency range : DC–400 MHz Measuring range : 0.01–10 V
		Audio generator	Frequency range : 300–3000 Hz Measuring range : 1–500 mV
Frequency counter	Frequency range : 0.1–400 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	Attenuator	Power attenuation : 50 or 60 dB Capacity : 150 W or more
Standard signal generator (SSG)	Frequency range : 0.1–400 MHz Output level : 0.1 µV–32 mV (–127 to –17 dBm)		

■ ENTERING THE ADJUSTMENT MODE

① Turn the transceiver's power OFF.
② Connect the JIG cable to the [MIC] jack.
③ Push and hold the [SET] and [MONI] keys, and then turn power ON.

***NOTE*:** Exiting from the adjustment mode when the transciever's power is OFF.

■ OPERATING ON THE ADJUSTMENT MODE

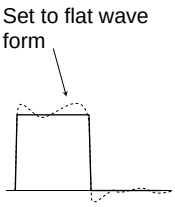
- Change the adjustment value : [DIAL]
- Verifying the adjustment value : [M/CALL] key
- Forward the adjustment item : [BANK] key
- Go back the adjustment item : [V/MHz] key
- Store the adjustment value in the memory : [S.MW] key

***CAUTION*:** Need to push the [S.MW] key when storing the adjustment value in the memory. Otherwise, the transceiver is not adjusted properly.

IMPORTANT!: The transceiver need to be cancelled adjustment mode (as following method) to use normal mode when adjustments are finished, otherwise the transceiver does not work properly.

①: Turn the power OFF.
②: Push and hold [S.MW] and [SET] keys, and then turn the power ON.

5-2 SOFTWARE ADJUSTMENTS (TRANSMITTING AND RECEIVING)

ADJUSTMENT		ADJUSTMENT CONDITION	OPERATION
REFERENCE FREQUENCY [Fr]	1	• Operating frequency : 146.0 MHz • Loosely couple a frequency counter to the antenna connector on the rear panel. • Transmitting	• Turn the [DIAL] to set to 146.0000 MHz. • Push the [S.MW] key.
REFERENCE VOLTAGE [rE]	1	• Operating frequency : 146.0 MHz • Receiving	• Push the [S.MW] key.
VHF OUTPUT POWER (High) [PO]	1	• Operating frequency : 146.0 MHz • Connect an RF power meter to the antenna connector. • Transmitting	• Turn the [DIAL] to set the VHF high power to 67 W. • Push the [S.MW] key.
(Middle) [PO+MID]	2	• Operating frequency : 146.0 MHz • Transmitting	• Turn the [DIAL] to set the VHF middle power to 25 W. • Push the [S.MW] key.
(Middle-Low) [PO+MID+LOW]	3	• Operating frequency : 146.0 MHz • Transmitting	• Turn the [DIAL] to set the VHF low power to 10 W. • Push the [S.MW] key.
(Low) [PO+LOW]	4	• Operating frequency : 146.0 MHz • Transmitting	• Turn the [DIAL] to set the VHF low power to 5 W. • Push the [S.MW] key.
PROTECT VOLTAGE [PU]	1	• Operating frequency : 146.0 MHz • [High]/[Low] switch : High • Connect an RF power meter to the antenna connector. • Transmitting	• Push the [S.MW] key while transmitting.
FREQUENCY DEVIATION (Analog) [dE]	1	• Operating frequency : 146.0 MHz • IF bandwidth : Wide • Connect an audio generator to the [MIC] jack and set as : 1 kHz/80 mV rms • Connect an FM deviation meter to the antenna connector and set as : HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • Transmitting	• Turn the [DIAL] to set to ±4.6 kHz. • Push the [S.MW] key after finish adjustment.
DIGITAL VCO DEVIATION [dE+DIGITAL]	1	• Operating frequency : 146.0 MHz • IF bandwidth : Wide • No audio signal is applied to the [MIC] jack. • Connect an FM deviation meter to the antenna connector and set as : HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • Transmitting	• Turn the [DIAL] to set to ±1.25 kHz. • Push the [S.MW] key after finish adjustment.
DTCS WAVE FORM [dt]	1	• Operating frequency : 146.0 MHz • IF bandwidth : Wide • No audio signal is applied to the [MIC] jack. • DTCS code : 023 • Set an FM deviation meter as: HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • Transmitting	• Turn the [DIAL] to set to flat wave form as shown below. • Push the [S.MW] key after finish adjustment. 

SOFTWARE ADJUSTMENTS (TRANSMITTING AND RECEIVING)–Continued

ADJUSTMENT		ADJUSTMENT CONDITION	OPERATION
DIGITAL REFERENCE DEVIATION [dt+DIGITAL]	1	• Operating frequency : 146.0 MHz • IF bandwidth : Wide • No audio signal is applied to the [MIC] jack. • Connect an FM deviation meter to the antenna connector and set as : HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • Transmitting	• Turn the [DIAL] to set to ±0.85 kHz. • Push the [S.MW] key after finish adjustment.
RECEIVER SENSITIVITY [tr]	1	• Operating frequency : 118.020 MHz • Connect an SSG to the antenna connector and set as Level : 0.5 µV* (–113 dBm) Modulation : 1 kHz Deviation : ± 3.5 kHz • Receiving	• Push the [S.MW] key.
	2	• Operating frequency : 136.020 MHz • Receiving	• Push the [S.MW] key.
	3	• Operating frequency : 147.980 MHz • Receiving	• Push the [S.MW] key.
	4	• Operating frequency : 173.980 MHz • Receiving	• Push the [S.MW] key.
SQUELCH LEVEL (Wide) [Sq]	1	• Operating frequency : 145.020 MHz • Connect an SSG to the antenna connector and set as Level : 0.1 µV* (–127 dBm) Modulation : 1 kHz Deviation : ± 3.5 kHz • Receiving	• Turn the [DIAL] to set to squelch tight point. • Turn the [DIAL] to set to squelch threshold point. • Push the [S.MW] key.
S-METER (FM mode) [Sr]	1	• Operating frequency : 145.020 MHz • Connect an SSG to the antenna connector and set as Level : 1.3 µV* (–105 dBm) Modulation : 1 kHz Deviation : ± 3.5 kHz • Receiving	• Push the [S.MW] key.
(AM mode) [Sr+.]	2	• Operating frequency : 127.020 MHz • Connect an SSG to the antenna connector and set as Level : 1.0 µV* (–107 dBm) Modulation : 1 kHz Deviation : 30 % • Receiving	• Push the [S.MW] key.

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