

## SECTION 5 ADJUSTMENT PROCEDURES

### 5-1 PREPARATION

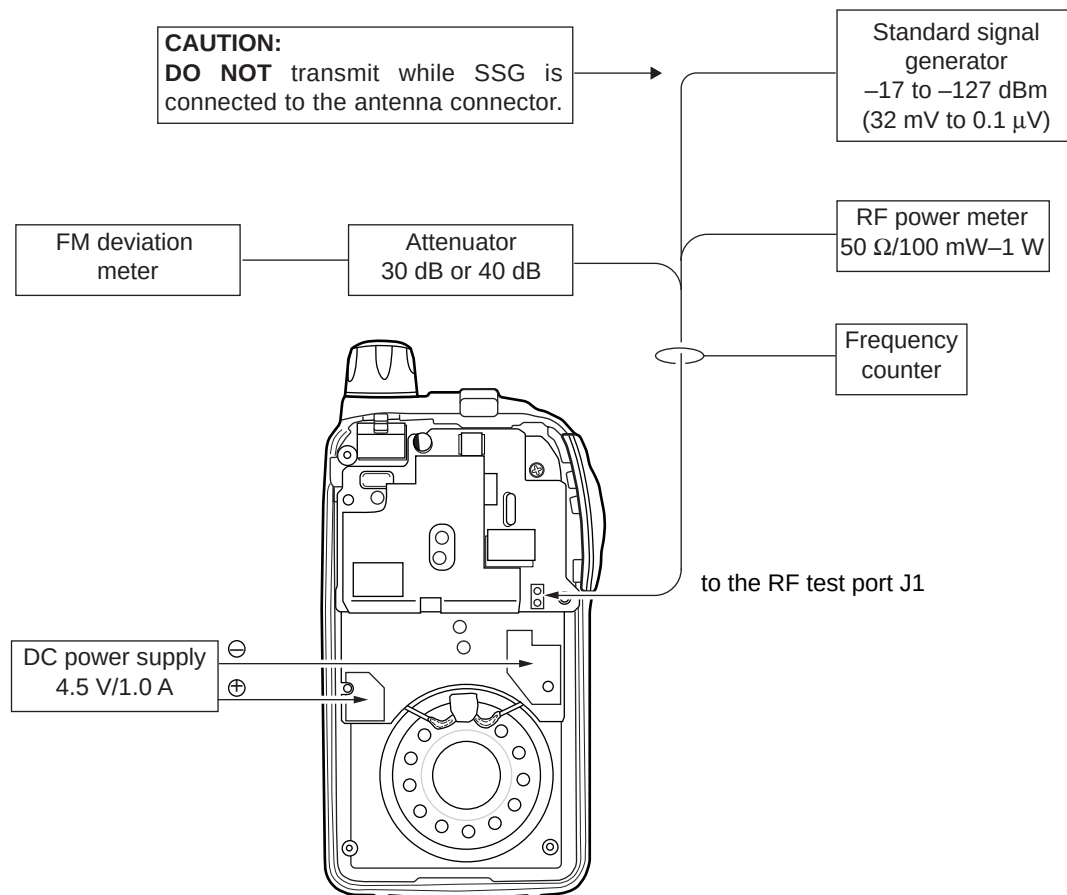
#### ■ REQUIRED TEST EQUIPMENT

| EQUIPMENT                           | GRADE AND RANGE                                                                                                     | EQUIPMENT                       | GRADE AND RANGE                                                                        |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------|
| DC power supply                     | Output voltage : 4.5 V DC<br>Current capacity : 1 A or more                                                         | Audio generator                 | Frequency range : 300–3000 Hz<br>Measuring range : 1–500 mV                            |
| Frequency counter                   | Frequency range : 0.1–600 MHz<br>Frequency accuracy : $\pm 1$ ppm or better<br>Sensitivity : 100 mV or better       | Standard signal generator (SSG) | Frequency range : 0.1–600 MHz<br>Output level : 0.1 $\mu$ V–32 mV<br>(–127 to –17 dBm) |
| FM deviation meter                  | Frequency range : 30–600 MHz<br>Measuring range : 0 to $\pm 10$ kHz                                                 | Oscilloscope                    | Frequency range : DC–20 MHz<br>Measuring range : 0.01–10 V                             |
| DC voltmeter                        | Input impedance : 50 k $\Omega$ /V DC or better                                                                     | AC millivoltmeter               | Measuring range : 10 mV–10 V                                                           |
| RF power meter<br>(terminated type) | Measuring range : 100 mW–1 W<br>Frequency range : 300–600 MHz<br>Impedance : 50 $\Omega$<br>SWR : Less than 1.2 : 1 | External speaker                | Input impedance : 8 $\Omega$<br>Capacity : 300 mW or more                              |
|                                     |                                                                                                                     | Attenuator                      | Power attenuation : 30 or 40 dB<br>Capacity : 1 W or more                              |

#### ■ ENTERING THE ADJUSTMENT MODE

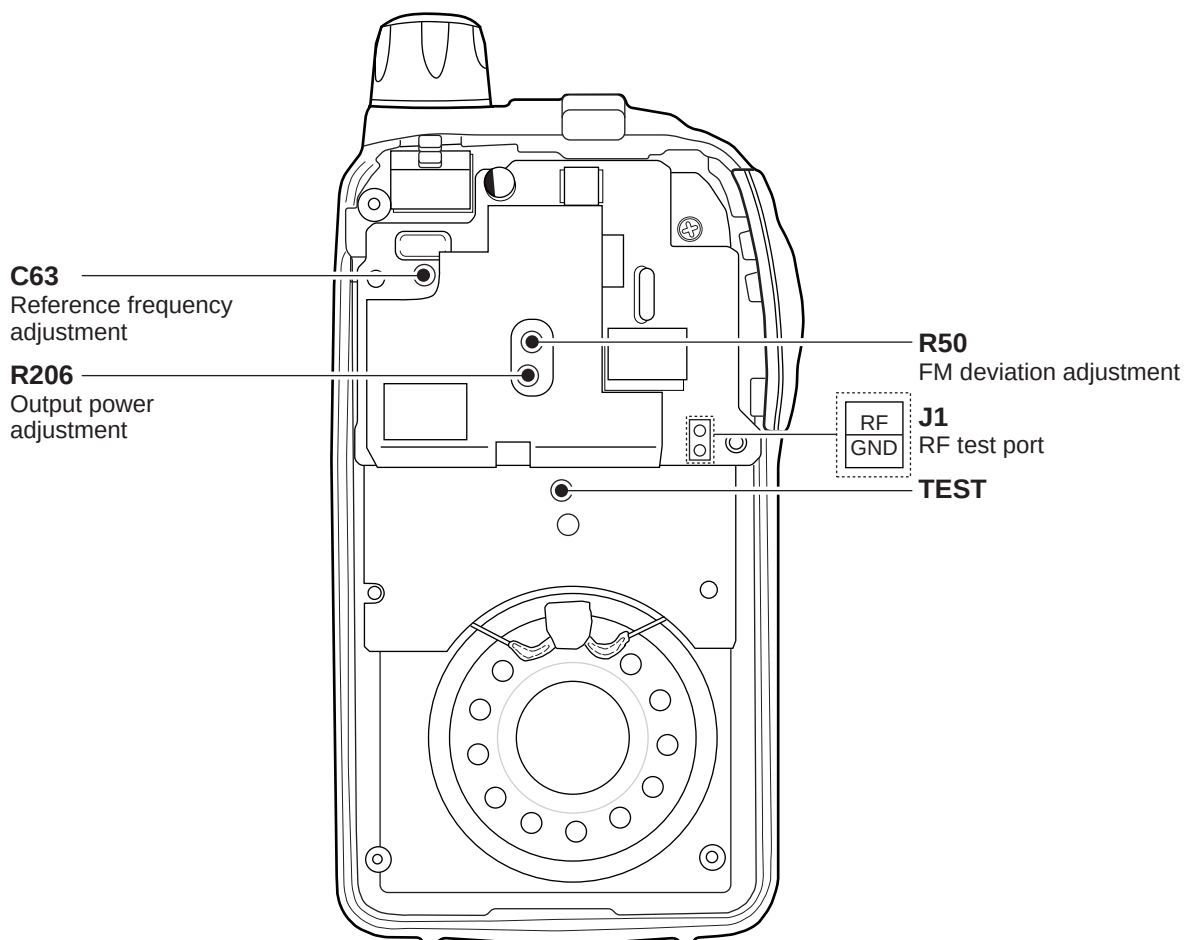
- ① Turn the transceiver power OFF.
- ② While connecting the “TEST” and GND on the MAIN unit, then turn power ON.  
(See location at page 5-3)

#### ■ CONNECTIONS



## 5-2 PLL AND TRANSMITTER ADJUSTMENTS

| ADJUSTMENT          |   | ADJUSTMENT CONDITION                                                                                                                                                                                                                                                                                                                              | MEASUREMENT |                                                       | VALUE         | ADJUSTMENT POINT |        |
|---------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------|---------------|------------------|--------|
|                     |   |                                                                                                                                                                                                                                                                                                                                                   | UNIT        | LOCATION                                              |               | UNIT             | ADJUST |
| REFERENCE FREQUENCY | 1 | <ul style="list-style-type: none"> <li>Operating channel : Ch 01</li> <li>Transmitting</li> </ul>                                                                                                                                                                                                                                                 | Top panel   | Loosely couple a frequency counter to the antenna.    | 466.00625 MHz | RF               | C63    |
| OUTPUT POWER        | 1 | <ul style="list-style-type: none"> <li>Operating channel : Ch 01</li> <li>Transmitting</li> </ul>                                                                                                                                                                                                                                                 | RF          | Connect an RF power meter to the RF test port J1.     | .145W erp     | RF               | R206   |
| FM DEVIATION        | 1 | <ul style="list-style-type: none"> <li>Operating channel : Ch 01</li> <li>Set group No. : 01</li> <li>Connect an audio generator to the [MIC] jack and set as:<br/>1 kHz/100 mV rms</li> <li>Set an FM deviation meter as:<br/>HPF : OFF<br/>LPF : 20 kHz or 15 kHz<br/>De-emphasis : OFF<br/>Detector : (P-P)/2</li> <li>Transmitting</li> </ul> | RF          | Connect an FM deviation meter to the RF test port J1. | ±2.45 kHz     | RF               | R50    |
|                     | 2 | <ul style="list-style-type: none"> <li>Set group No. : OFF (—)</li> <li>Set an audio generator output level until the deviation is ±1.75 kHz.</li> <li>Transmitting</li> </ul>                                                                                                                                                                    |             |                                                       | 10 mV ±3dB    |                  | Verify |



### 5-3 RECEIVER ADJUSTMENT

| ADJUSTMENT |   | ADJUSTMENT CONDITION                                                                                                                                                                                                                                                                                                                       | MEASUREMENT |                  | VALUE                    | ADJUSTMENT                                      |
|------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|--------------------------|-------------------------------------------------|
|            |   |                                                                                                                                                                                                                                                                                                                                            | UNIT        | LOCATION         |                          |                                                 |
| SQUELCH    | 1 | <ul style="list-style-type: none"> <li>• Operating channel : Ch 04</li> <li>• Connect an SSG to J1 on the RF unit and set as:               <ul style="list-style-type: none"> <li>Frequency : 446.04375 MHz</li> <li>Level : 0.14 <math>\mu</math>V*<br/>(-124 dBm)</li> <li>Modulation : OFF</li> </ul> </li> <li>• Receiving</li> </ul> | Front panel |                  |                          | Push and hold [MODE] and [DOWN] keys for 1 sec. |
|            | 2 | <ul style="list-style-type: none"> <li>• Set an SSG as :               <ul style="list-style-type: none"> <li>Level : OFF</li> </ul> </li> <li>• Receiving</li> </ul>                                                                                                                                                                      |             | Internal speaker | Audio signal disappears. | Verify                                          |