

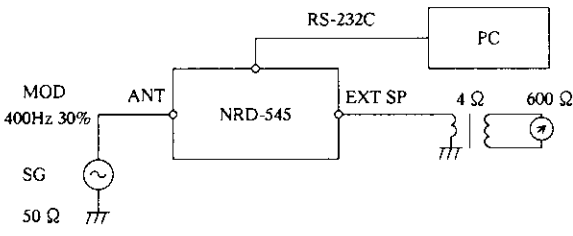
7-8 CFL-356 RF TUNE UNIT

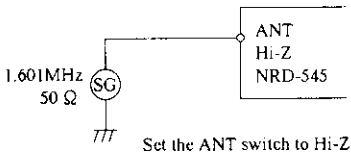
| NO. | ITEM | ADJUSTING PROCEDURE | RATING | | | |
|------------------------------|----------------------|--|----------------------------|----------------------|---------------------|--------------|
| 1 | TUNE adjustment | ① Connect the tracking scope output to the RX ANT, and the tracking scope input to L14 (MODE: AM). | | | | |
| | | ② Adjust the TUNE as shown below. (Make sure that the CDE-860 TUNE voltage has been adjusted.) | | | | |
| | | TUNE type | | Reception frequency | Adjuster | |
| | | 400kHz LPF | | 0.4MHz or less | | |
| | | 0.4~1.6MHz | | SUB 0.8~1.599MHz | 0.8MHz 1.599MHz | T9, 10 -- |
| | | | | MAIN 0.4~0.799MHz | 0.799MHz 0.4MHz | CV5, 6 -- |
| | | 1.6~4.4MHz | | SUB 2.65~4.399MHz | 2.65MHz 4.399MHz | T7, 8 -- |
| | | | | MAIN 1.6~2.649MHz | 2.649MHz 1.6MHz | CV3, 4 -- |
| | | 4.4~12.3MHz | | SUB 7.4~12.299MHz | 7.4MHz 12.299MHz | T5, 6 -- |
| | | | | MAIN 4.4~7.399MHz | 7.399MHz 4.4MHz | CV1, 2 -- |
| 12.3~20.5MHz | 12.3MHz 20.499MHz | T3, 4 -- | | | | |
| 20.5~30MHz | 20.5MHz 29.999MHz | T1, 2 -- | | | | |
| Example: SUB 0.8 to 1.599MHz | | | TUNE mismatch: 3dB or less | | | |
| | | (1) Set the reception frequency to 0.8MHz. (2) Adjust T9 and T10 so that the tuning frequency is 0.8MHz. (3) Check that, when the reception frequency is set to 1.599MHz, the set tunes to 1.599MHz. If there is any TUNE mismatch, repeat step (2). | | | | |
| 2 | ATT check | ① Set the ATT switch ON and check the attenuation. | 15 to 25dB | | | |
| 3 | 1st MIX input level | ① Connect the RF voltmeter to RT2. ② Switch reception frequency between 100kHz and 29.999MHz (in 1MHz steps) and check the level. | 0.5Vrms or more | | | |
| 4 | Signal system tuning | ① Set in 7.4MHz AM sensitivity measuring state. AGC: OFF, bandwidth: INTER ② Connect the RF voltmeter to TP8 of CFH-71. ③ Set the SG output level to 5dBμ, then adjust T12 to set the AF output to maximum. ④ Set the SG output to 60dBμ and measure the voltage at TP8. | 0.45Vrms ± 0.1Vrms | | | |
| 5 | 1st MIX balance | ① Connect the RF voltmeter to P25-1, then adjust RV1 so that the voltmeter reading is minimum. | 0.1Vrms or less | | | |

7-9 INTEGRATED ADJUSTMENTS

| NO. | ITEM | ADJUSTING PROCEDURE | RATING |
|-----|---------------------|---|--------------------------------------|
| 1 | LINE OUT adjustment | <p>① Set up for 7.4MHz USB sensitivity measuring. (SG output: 7.401MHz) AGC: ON SG output level: 60dBμ</p> <p>② Connect the level meter (600 Ω) to the LINE OUT R connector on the rear panel.</p> <p>③ Adjust RV2 on CGK-160 until the level meter indicates -2dBm.</p> <p>④ Now measure the distortion.</p> <p>⑤ Connect the level meter (600 Ω) to the LINE OUT L connector on the rear panel.</p> <p>⑥ Adjust RV1 on CGK-160 until the level meter indicates -2dBm.</p> <p>⑦ Now measure the distortion.</p> | <p>2% or less</p> <p>2% or less</p> |
| 2 | RECORD output check | <p>① Check that the output level is the same as LINE OUT R.</p> | |
| 3 | Total distortion | <p>① Set up for 7.4MHz AM sensitivity measuring. 400Hz, 60% modulation, AGC: ON, AF output: 27dBm</p> <p>② Measure AF output distortion when the SG output level is 60dBμ and 100dBμ .</p> <p>SG 60dBμ</p> <p>SG 100dBμ</p> | <p>3% or less</p> <p>10% or less</p> |
| 4 | Squelch check | <p>① AGC: ON, RF GAIN: fully clockwise, ANT connector: Open</p> <p>② Check for AF output in all modes when the squelch control is fully counterclockwise.</p> <p>③ Check for AF output in all modes when the squelch control is rotated clockwise three points.</p> | |
| 5 | Noise blanker | <p>① Set up for 7.4MHz AM sensitivity measuring. SG output level: 0dBμ to 100dBμ .</p> <p>② Connect the auto keyer.</p> <div data-bbox="582 1467 1141 1646" style="text-align: center;"> </div> <p>③ Set NB-1 ON and check that the noise is blanked when you rotate the NB LEVEL control clockwise.</p> <p>④ Check NB-2 in the same manner.</p> | |

| NO. | ITEM | ADJUSTING PROCEDURE | RATING |
|-----|-----------------|--|--|
| 6 | IF filter check | <p>① Set up for 7.4MHz CW sensitivity measuring. (SG output: 7.4MHz) AGC: OFF, FILTER: WIDE (2.4kHz), SG output level $-10\text{dB}\mu$, TONE control: Fully clockwise.</p> <p>② Connect the level meter to the SP OUT connector on the rear panel. Connect the impedance conversion transformer between the SP OUT connector and level meter.</p> <div data-bbox="746 472 1142 595" style="text-align: center;"> <p style="text-align: center;">Transformer 4 Ω : 600 Ω</p> </div> <p>③ Adjust the AF control until the level meter indicates 0dBm.</p> <p>④ 6dB bandwidth measurement Set the SG output level to $-4\text{dB}\mu$, detune the SG frequency, and measure the detuning frequency when the level meter indicates 0dBm. Note: Detune from 0.9kHz or more on the lower frequency side.</p> <p>⑤ 60dB bandwidth measurement Set the SG output level to $50\text{dB}\mu$, detune the SG frequency, and measure the detuning frequency when the level meter indicates 0dBm. Note: Detune from 0.9kHz or more on the lower frequency side.</p> | <p>6dB bandwidth $\pm 1.2\text{kHz}$ or more</p> <p>60dB bandwidth $\pm 2.5\text{kHz}$ or less</p> |
| 7 | BWC check | <p>① Check the BWC function.</p> | |
| 8 | RTTY check | <p>① Connect a transmitter, code generator, and PC as illustrated below.</p> <div data-bbox="630 1137 1321 1330" style="text-align: center;"> <p style="text-align: center;">Transmitting/receiving frequency: 7MHz Shift width: $\pm 85\text{Hz}$ Baud rate: 45.45</p> </div> <p>② Check that the PC output matches the transmitted code.</p> | |

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|-----|------------------------------|---|-----------------------|----------------------|---------|----------------------|----|----------------------|---------|-----------------------|----|----------------------|---------|-----------------------|---|
| 9 | PBS check | ① Check the PBS function. | | | | | | | | | | | | | |
| 10 | S-meter adjustment and check | <p>① Reception frequency: 0.75MHz, MODE: AM, BW: NARROW (2.4kHz) AGC: ON, NOTCH: OFF, ATT: OFF</p> <p>② Connect measuring instruments and PC as illustrated below.</p>  <p>③ Set the SG output level to 34dBμ, the frequency to 0.75MHz, then send remote control commands "SM99" and "SM" from the PC.</p> <p>④ Set the reception frequency to 1.75MHz and the SG frequency to 1.75MHz, then send remote control command "SM" from the PC.</p> <p>⑤ Raise the reception frequency and SG frequency by 1MHz, send remote control command "SM", and repeat to 29.75MHz.</p> <p>⑥ Set the reception frequency to 145MHz and the SG frequency to 145MHz, then send remote control command "SM" from the PC.</p> <p>⑦ Set the reception frequency to 7.4MHz and SG to 7.4MHz, then measure the AF output change while varying the SG between 10 and 100dBμ. (20dBm standard)</p> <p>⑧ Check the reading on the S meter in relation to the SG output level.</p> <table border="0" data-bbox="582 1198 1165 1310"> <tr> <td>S1</td> <td>10dBμ \pm 3dB</td> <td>S9+20dB</td> <td>54dBμ \pm 5dB</td> </tr> <tr> <td>S5</td> <td>22dBμ \pm 3dB</td> <td>S9+40dB</td> <td>74dBμ \pm 10dB</td> </tr> <tr> <td>S9</td> <td>34dBμ \pm 3dB</td> <td>S9+60dB</td> <td>94dBμ \pm 10dB</td> </tr> </table> <p>⑨ Check the AGC release time constant.</p> | S1 | 10dB μ \pm 3dB | S9+20dB | 54dB μ \pm 5dB | S5 | 22dB μ \pm 3dB | S9+40dB | 74dB μ \pm 10dB | S9 | 34dB μ \pm 3dB | S9+60dB | 94dB μ \pm 10dB | <p>S-meter adjustment for < 1MHz</p> <p>S-meter adjustment for < 2MHz</p> <p>WB converter</p> <p>S-meter adjustment</p> <p>10dB or less</p> |
| S1 | 10dB μ \pm 3dB | S9+20dB | 54dB μ \pm 5dB | | | | | | | | | | | | |
| S5 | 22dB μ \pm 3dB | S9+40dB | 74dB μ \pm 10dB | | | | | | | | | | | | |
| S9 | 34dB μ \pm 3dB | S9+60dB | 94dB μ \pm 10dB | | | | | | | | | | | | |
| 11 | RF GAIN check | <p>① Set up for 7.4MHz USB sensitivity measuring. (SG output 7.401MHz) AGC: OFF RF GAIN control: fully clockwise</p> <p>② Set SG output level to 0dBμ and AF output to 20dBm.</p> <p>③ Set the RF GAIN control fully counterclockwise.</p> <p>④ Determine the SG output level at which the AF output is 20dBm.</p> | 90dB μ or more | | | | | | | | | | | | |
| 12 | NOTCH check | <p>① Set up for 7.4MHz USB sensitivity measuring. (SG output 7.401MHz) AGC: OFF RF GAIN control: fully clockwise</p> <p>② Set SG output level to 30dBμ and AF output to 20dBm.</p> <p>③ Set NOTCH ON and adjust control to notch out the signal.</p> <p>④ Check that the AF output is -20dBm or less.</p> <p>⑤ Check NOTCH tracking.</p> | | | | | | | | | | | | | |

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| 13 | NR/BC check | ① The NR/BC function must be ON. ② Output the beat tone and check that the beat is extinguished when the BC is ON. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Sensitivity | ① Measure the sensitivity at the following frequencies: USB: S/N=10dB AF output=10dBm Bandwidth: INTER (2.4kHz) AM : S/N=10dB AF output=10dBm Bandwidth: NARROW (2.4kHz) MOD=400Hz 30% FM : 12dB SINAD AF output=10dBm MOD=1kHz DEV= ± 3.5kHz The SG output level when measuring sensitivity is with a 50 Ω load. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>Reception frequency</th> <th>USB</th> <th>AM</th> <th>FM</th> </tr> </thead> <tbody> <tr><td>0.106 MHz</td><td>14dB μ or less</td><td>24dB μ or less</td><td>—</td></tr> <tr><td>0.399MHz</td><td>14dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>0.405MHz</td><td>14dB μ or less</td><td>24dB μ or less</td><td>—</td></tr> <tr><td>0.799MHz</td><td>6dB μ or less</td><td>16dB μ or less</td><td>—</td></tr> <tr><td>0.8MHz</td><td>6dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>1.599MHz</td><td>6dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>1.605MHz</td><td>-10dB μ or less</td><td>6dB μ or less</td><td>—</td></tr> <tr><td>2.649MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>2.65 MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>4.399MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>4.4MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>7.399MHz</td><td>-10dB μ or less</td><td>6dB μ or less</td><td>—</td></tr> <tr><td>7.4MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>10.1MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>12.299MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>12.3MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>14.1MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>20.499MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>20.5MHz</td><td>-10dB μ or less</td><td>6dB μ or less</td><td>—</td></tr> <tr><td>21.3MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>28.2MHz</td><td>-10dB μ or less</td><td>—</td><td>—</td></tr> <tr><td>29.99 MHz</td><td>-10dB μ or less</td><td>—</td><td>-6dB μ or less</td></tr> <tr><td>145.04MHz</td><td>—</td><td>—</td><td>-2dB μ or less</td></tr> </tbody> </table> | Reception frequency | USB | AM | FM | 0.106 MHz | 14dB μ or less | 24dB μ or less | — | 0.399MHz | 14dB μ or less | — | — | 0.405MHz | 14dB μ or less | 24dB μ or less | — | 0.799MHz | 6dB μ or less | 16dB μ or less | — | 0.8MHz | 6dB μ or less | — | — | 1.599MHz | 6dB μ or less | — | — | 1.605MHz | -10dB μ or less | 6dB μ or less | — | 2.649MHz | -10dB μ or less | — | — | 2.65 MHz | -10dB μ or less | — | — | 4.399MHz | -10dB μ or less | — | — | 4.4MHz | -10dB μ or less | — | — | 7.399MHz | -10dB μ or less | 6dB μ or less | — | 7.4MHz | -10dB μ or less | — | — | 10.1MHz | -10dB μ or less | — | — | 12.299MHz | -10dB μ or less | — | — | 12.3MHz | -10dB μ or less | — | — | 14.1MHz | -10dB μ or less | — | — | 20.499MHz | -10dB μ or less | — | — | 20.5MHz | -10dB μ or less | 6dB μ or less | — | 21.3MHz | -10dB μ or less | — | — | 28.2MHz | -10dB μ or less | — | — | 29.99 MHz | -10dB μ or less | — | -6dB μ or less | 145.04MHz | — | — | -2dB μ or less | |
| Reception frequency | USB | AM | FM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.106 MHz | 14dB μ or less | 24dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.399MHz | 14dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.405MHz | 14dB μ or less | 24dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.799MHz | 6dB μ or less | 16dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.8MHz | 6dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.599MHz | 6dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.605MHz | -10dB μ or less | 6dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.649MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.65 MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.399MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.4MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.399MHz | -10dB μ or less | 6dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.4MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10.1MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.299MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.3MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14.1MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20.499MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20.5MHz | -10dB μ or less | 6dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21.3MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28.2MHz | -10dB μ or less | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29.99 MHz | -10dB μ or less | — | -6dB μ or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 145.04MHz | — | — | -2dB μ or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Note: — indicates measurements not required. ② Set RF TUNE to "PASS", then measure the 4.4MHz USB sensitivity. Reset RF TUNE to its original position after taking the measurements. ③ Connect the SG as illustrated below, then measure the 1.6MHz USB sensitivity. | -10dB μ or less 3dB μ or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| NO. | ITEM | ADJUSTING PROCEDURE | RATING |
|-----|--|---|--|
| 15 | Interference rejection ratio 1st image interference ratio 2nd image interference ratio 1st IF rejection ratio 2nd IF rejection ratio | ① Set up for 7.4MHz sensitivity measuring. AGC: OFF, MODE: CW ② Set the SG output level to 0dB μ and AF output to 10dBm. ③ Set the SG frequency to 148.31MHz and determine the SG output level at which the AF output is 10dBm. ④ Set the SG frequency to 8.31MHz and determine the SG output level at which the AF output is 10dBm. ⑤ Set the SG frequency to 70.455MHz and determine the SG output level at which the AF output is 10dBm. ⑥ Set the SG frequency to 455kHz and determine the SG output level at which the AF output is 10dBm. | 70dB or more 70dB or more 70dB or more 70dB or more |
| 16 | PHONES jack check | ① Check that, when headphones are connected to the PHONES jack, that the internal speaker and external SP are OFF. Also check that sounds can be heard through the headphones. | |
| 17 | Noise level | ① ANT: open, RF GAIN: fully counterclockwise, AF GAIN: fully counterclockwise, MODE: USB ② Now measure the AF output level. ③ Plug the headphones into the PHONES jack and check that there is no HAM noise. | -40dBm or more |
| 18 | Mute | ① Set up for 7.4MHz sensitivity measuring. AGC: ON, MODE: CW ② Set the SG output level to 120dB μ and AF output to 20dBm. ③ Connect the MUTE terminal on the rear panel to ground, then measure the AF output level. | -40dBm or more |
| 19 | Tone control | ① Set up for 7.4MHz AM sensitivity measuring. AGC: ON, FILTER: WIDE ② Set the SG output level to 40dB μ and modulation frequency to 2kHz 30%. ③ Set the TONE control to the center position. ④ Set the AF output level to 15dBm. ⑤ Measure the output level when the TONE control is fully counterclockwise. | 0dBm or more |

| NO. | ITEM | ADJUSTING PROCEDURE | RATING | | | | | | | | | | | |
|--------------|--|---|---|--------------|---|--|-----------|--|----|--------------|--------------|---------|--------------|-------------|
| 20 | DC OUT | ① Connect a 470 Ω resistor between the DC out terminal on the rear panel and ground, then measure the voltage across the resistor. | 10.8 ± 0.3V | | | | | | | | | | | |
| 21 | EXT SP | ① Insert a pin plug into the EXT SP jack on the rear panel, then check that the internal speaker is switched off. | | | | | | | | | | | | |
| 22 | Timer output | ① Set the timer ON/OFF times as appropriate. ② Set the POWER/TIMER switch to TIMER. ③ Check the timer output contact on the rear panel, and the 10.8V and 5V voltages. ④ Check that, when the timer is operating, the LCD backlighting is OFF. | | | | | | | | | | | | |
| | | | <table border="1"> <tr> <td>Timer ON</td> <td colspan="2">(2) and (3) connected 10.8V and 5V are ON.</td> </tr> <tr> <td>Timer OFF</td> <td colspan="2">(1) and (2) connected 10.8V and 5V are OFF.</td> </tr> </table> | Timer ON | (2) and (3) connected 10.8V and 5V are ON. | | Timer OFF | (1) and (2) connected 10.8V and 5V are OFF. | | | | | | |
| Timer ON | (2) and (3) connected 10.8V and 5V are ON. | | | | | | | | | | | | | |
| Timer OFF | (1) and (2) connected 10.8V and 5V are OFF. | | | | | | | | | | | | | |
| 23 | Scan and sweep | ① Check that the scan and sweep functions perform correctly. | | | | | | | | | | | | |
| 24 | Power dissipation | ① Measure the power dissipation with AC and DC power supplies. AF GAIN: Minimum | | | | | | | | | | | | |
| | | | <table border="1"> <thead> <tr> <th rowspan="2">Power supply</th> <th colspan="2">POWER</th> </tr> <tr> <th>OFF</th> <th>ON</th> </tr> </thead> <tbody> <tr> <td>AC</td> <td>15VA or less</td> <td>40VA or less</td> </tr> <tr> <td>DC13.8V</td> <td>0.1W or less</td> <td>21W or less</td> </tr> </tbody> </table> | Power supply | POWER | | OFF | ON | AC | 15VA or less | 40VA or less | DC13.8V | 0.1W or less | 21W or less |
| Power supply | POWER | | | | | | | | | | | | | |
| | OFF | ON | | | | | | | | | | | | |
| AC | 15VA or less | 40VA or less | | | | | | | | | | | | |
| DC13.8V | 0.1W or less | 21W or less | | | | | | | | | | | | |
| | | ② Check that there is abnormal operation with fluctuation in the supply voltage (rated AC supply ± 10%, or 12V to 16VDC). ③ Check that "DC" is displayed on the panel when using a DC power supply. ④ Check the voltage selector. | | | | | | | | | | | | |
| 25 | RS-232C interface | ① Connect a PC to the RS-232C connector on the rear panel. ② Check that the NRD-545 can be controlled by the test program. | | | | | | | | | | | | |
| 26 | Spurious beat | MODE: CW, FILTER:WIDE, AGC:OFF Reception frequency Fr=0.1745MHz, =24.317MHz, =5.2545MHz, =24.9991MHz, =5.2555MHz, =29.491MHz, =10MHz, =15.9725MHz, =20MHz. | B/N other than at frequencies shown at left are to be 10dB or less | | | | | | | | | | | |

| NO. | ITEM | ADJUSTING PROCEDURE | RATING | | | | | | | | | | | | | | | | | | |
|-----|--|---|--------|-----|-----|---|-----|-----|---|----|-----|---|----|----|---|---|---|---|---|---|---|
| 27 | Final operation check | ① Check the final operation (as per User Manual). | | | | | | | | | | | | | | | | | | | |
| 28 | Shipping reset | ① Press and hold CLR while turning on the power (to clear the RAM). | | | | | | | | | | | | | | | | | | | |
| 29 | Control settings for shipping | NB control : Center POWER switch : Center NOTCH control : Center SQ LEVEL control : Fully counterclockwise RF GAIN control : Fully clockwise PBS control : Center AF GAIN control : Fully counterclockwise TONE control : Center | | | | | | | | | | | | | | | | | | | |
| 30 | NRD-545J, G, U destination settings | Set the NRD-545J, G, U destination as follows. Install R24 and R25 (chip resistors) on the CFQ-8350 motherboard, and, using a black marker, mark the destination table printed on the PCB. ① Installation of R24 and R25 (chip resistors). <table border="1" data-bbox="584 898 1038 1077"> <thead> <tr> <th></th> <th>R24</th> <th>R25</th> </tr> </thead> <tbody> <tr> <td>J</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>G</td> <td>No</td> <td>Yes</td> </tr> <tr> <td>U</td> <td>No</td> <td>No</td> </tr> </tbody> </table> ② Use the black marker to fill the circles as appropriate. <table border="1" data-bbox="584 1151 949 1245"> <thead> <tr> <th>J</th> <th>G</th> <th>U</th> </tr> </thead> <tbody> <tr> <td>○</td> <td>○</td> <td>○</td> </tr> </tbody> </table> | | R24 | R25 | J | Yes | Yes | G | No | Yes | U | No | No | J | G | U | ○ | ○ | ○ | Reception frequency ranges. NRD-545J: 0.1~252.9MHz 255.1~261.9MHz 266.1~270.9MHz 275.1~379.9MHz 382.1~411.9MHz 415.1~809.9MHz 834.1~859.9MHz 889.1~914.9MHz 960.1~1999.999MHz NRD-545G: 0.1~1999.999MHz NRD-545U: 0.1~823.9MHz 849.1~868.9MHz 894.1~1849.9MHz 1910.1~1929.9MHz 1990.1~1999.999MHz |
| | R24 | R25 | | | | | | | | | | | | | | | | | | | |
| J | Yes | Yes | | | | | | | | | | | | | | | | | | | |
| G | No | Yes | | | | | | | | | | | | | | | | | | | |
| U | No | No | | | | | | | | | | | | | | | | | | | |
| J | G | U | | | | | | | | | | | | | | | | | | | |
| ○ | ○ | ○ | | | | | | | | | | | | | | | | | | | |
| 31 | Voltage setting for NRD-545J, G, U destination | Using the voltage selector S1 on the rear panel, select the appropriate voltage for the NRD-545J, G, U according to destination. NRD-545J 100V NRD-545G 220V NRD-545U 120V | | | | | | | | | | | | | | | | | | | |

7-10 CHE-199 WIDEBAND CONVERTER UNIT

| No. | ITEM | ADJUSTING PROCEDURE | | | | RATING | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|---------------------------|---|---|--|--|----------------------------|---------------------|------------------|----------------------|-------|-------------------|----------|---|-------|--------------------|----------|-------|--------------------|----------|-------|---------------------|----------|-------|----------------------|-----|---------------------|-------|----------------------|-----|--------------------|----------------------|-----|--|
| 1 | TUNE adjustment and check | <p>① Connect the output of a tracking scope to RX ANT and the input of the tracking scope to J2. Reception mode: FM Tracking scope output level: -30dBm Frequency SPAN: Must span full frequency range in each band</p> <p>② Tune each point at the low and high frequencies of each band shown below. (Be sure to match the CDE-860 TUNE voltage.)</p> <p>③ After completing tuning, check that in Bands 1 to 4, the tuning frequency moves with the reception frequency.</p> <p>④ The results of the checks in step (3), above, must be as specified in the table below. The final decision should be based on the gain check.</p> <table border="1" data-bbox="528 763 1520 1122"> <thead> <tr> <th data-bbox="528 763 738 806">BAND NO.</th> <th data-bbox="738 763 1077 806">Reception frequency</th> <th data-bbox="1077 763 1275 806">Adjustment point</th> <th data-bbox="1275 763 1520 806">TUNE error, and gain</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 806 738 851">BAND1</td> <td data-bbox="738 806 1077 851">30.00 ~ 107.99MHz</td> <td data-bbox="1077 806 1275 851">RV7, CV9</td> <td data-bbox="1275 806 1520 987" rowspan="4">Peak TUNE error Band low: within 3dB Band high: within 10dB Gain: +5dB or more</td> </tr> <tr> <td data-bbox="528 851 738 896">BAND2</td> <td data-bbox="738 851 1077 896">108.00 ~ 279.99MHz</td> <td data-bbox="1077 851 1275 896">RV6, CV7</td> </tr> <tr> <td data-bbox="528 896 738 940">BAND3</td> <td data-bbox="738 896 1077 940">280.00 ~ 567.39MHz</td> <td data-bbox="1077 896 1275 940">RV5, CV5</td> </tr> <tr> <td data-bbox="528 940 738 985">BAND4</td> <td data-bbox="738 940 1077 985">567.40 ~ 1104.79MHz</td> <td data-bbox="1077 940 1275 985">RV4, CV3</td> </tr> <tr> <td data-bbox="528 985 738 1030">BAND5</td> <td data-bbox="738 985 1077 1030">1104.80 ~ 1239.99MHz</td> <td data-bbox="1077 985 1275 1030">---</td> <td data-bbox="1275 987 1520 1032">Gain: +10dB or more</td> </tr> <tr> <td data-bbox="528 1030 738 1075" rowspan="2">BAND6</td> <td data-bbox="738 1030 1077 1075">1240.00 ~ 1299.99MHz</td> <td data-bbox="1077 1030 1275 1075">---</td> <td data-bbox="1275 1032 1520 1077" rowspan="2">Gain: -5dB or more</td> </tr> <tr> <td data-bbox="738 1075 1077 1122">1300.00 ~ 1999.99MHz</td> <td data-bbox="1077 1075 1275 1122">---</td> </tr> </tbody> </table> <p>Example: Adjusting BAND 1</p> <p>① Set the reception frequency to 30MHz, then adjust the tuning frequency by adjusting the RVs.</p> <p>② Set the reception frequency to 107.9MHz, then adjust the tuning frequency by adjusting the CVs.</p> <p>③ Repeat steps (1) and (2) to complete the adjustment.</p> | | | | BAND NO. | Reception frequency | Adjustment point | TUNE error, and gain | BAND1 | 30.00 ~ 107.99MHz | RV7, CV9 | Peak TUNE error Band low: within 3dB Band high: within 10dB Gain: +5dB or more | BAND2 | 108.00 ~ 279.99MHz | RV6, CV7 | BAND3 | 280.00 ~ 567.39MHz | RV5, CV5 | BAND4 | 567.40 ~ 1104.79MHz | RV4, CV3 | BAND5 | 1104.80 ~ 1239.99MHz | --- | Gain: +10dB or more | BAND6 | 1240.00 ~ 1299.99MHz | --- | Gain: -5dB or more | 1300.00 ~ 1999.99MHz | --- | |
| BAND NO. | Reception frequency | Adjustment point | TUNE error, and gain | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND1 | 30.00 ~ 107.99MHz | RV7, CV9 | Peak TUNE error Band low: within 3dB Band high: within 10dB Gain: +5dB or more | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND2 | 108.00 ~ 279.99MHz | RV6, CV7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND3 | 280.00 ~ 567.39MHz | RV5, CV5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND4 | 567.40 ~ 1104.79MHz | RV4, CV3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND5 | 1104.80 ~ 1239.99MHz | --- | Gain: +10dB or more | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BAND6 | 1240.00 ~ 1299.99MHz | --- | Gain: -5dB or more | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1300.00 ~ 1999.99MHz | --- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | ATT operation check | <p>① Connect the tracking scope as in item 1, above. Tracking scope output level: -30dBm NRD-545 reception frequency: 1295.01MHz</p> <p>② Turn on ATT to measure the attenuation.</p> | | | | Attenuation: 15 to 20dB | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No. | ITEM | ADJUSTING PROCEDURE | RATING | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|-----------------|---|--|------------|--|------|--|------------|--|--------------------|------------|------|--------------------|------------|--|
| 3 | 1st LOCAL (ILO) VCO control voltage | <p>① Connect the digital voltmeter (DCv) to TP10.</p> <p>② Measure the ILO VCO control voltage at the low and high end frequencies of each VCO in the table below.</p> | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>VCO NO.</th> <th>Reception frequency</th> <th>Adjustment part</th> <th>Control voltage</th> </tr> </thead> <tbody> <tr> <td>VCO1</td> <td>30.00 ~ 140.39MHz</td> <td>C226, C227</td> <td rowspan="4">*1 1.0 to 7.0VDC *2 (With shield case installed.)</td> </tr> <tr> <td>VCO2</td> <td>140.40 ~ 265.49MHz</td> <td>C339, C340</td> </tr> <tr> <td>VCO3</td> <td>265.50 ~ 407.09MHz</td> <td>C211, C212</td> </tr> <tr> <td>VCO4</td> <td>407.10 ~ 567.39MHz</td> <td>C326, C327</td> </tr> </tbody> </table> | VCO NO. | Reception frequency | Adjustment part | Control voltage | VCO1 | 30.00 ~ 140.39MHz | C226, C227 | *1 1.0 to 7.0VDC *2 (With shield case installed.) | VCO2 | 140.40 ~ 265.49MHz | C339, C340 | VCO3 | 265.50 ~ 407.09MHz | C211, C212 | VCO4 | 407.10 ~ 567.39MHz | C326, C327 | |
| | | VCO NO. | Reception frequency | Adjustment part | Control voltage | | | | | | | | | | | | | | | |
| | | VCO1 | 30.00 ~ 140.39MHz | C226, C227 | *1 1.0 to 7.0VDC *2 (With shield case installed.) | | | | | | | | | | | | | | | |
| | | VCO2 | 140.40 ~ 265.49MHz | C339, C340 | | | | | | | | | | | | | | | | |
| | | VCO3 | 265.50 ~ 407.09MHz | C211, C212 | | | | | | | | | | | | | | | | |
| VCO4 | 407.10 ~ 567.39MHz | C326, C327 | | | | | | | | | | | | | | | | | | |
| <p>*1 Note that if the above control voltages are not within the specification (rating), replace the above capacitors.</p> <p>To raise the control voltage: Increase the capacitance. (Note, however, that the operating width of the control voltage is decreased.)</p> <p>To lower the control voltage: Decrease the capacitance. (Note, however, that the operating width of the control voltage is increased.)</p> <p>If you alter the capacitance, note that the operating width of the voltage also changes, and it is therefore necessary to check the control voltage at both the low and high end frequencies of the VCO that has been changed.</p> <p>Note that installing the shield case also changes the control voltage. Make sure that, after installing the shield case, the voltage meets the specification (rating).</p> <p>(Installing the shield case lowers the control voltage by about 0.1V.)</p> | | | | | | | | | | | | | | | | | | | | |
| <p>③ Make sure there is no unlocking in the reception frequency range 30 to 1999.999MHz (be sure to check with the shield case installed).</p> <p>④ Make sure CD37 (ILO UNLOCK) lights (and immediately turns OFF again) when the VCO is switched.</p> | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| 4 | 1st LOCAL VCO MIX level | <p>① Connect a spectrum analyzer to J3.</p> <p>② Measure the local signal level and spurious signal level at the low and high end frequencies of the VCOs in the following table.</p> <p>Check the spurious signals at up to two times the local fundamental frequency.</p> <p>③ After check in step ②, check that the local frequency moves with the movement in the reception frequency.</p> | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>VCO NO.</th> <th>Reception frequency (local frequency)</th> <th>(With shield case installed)</th> </tr> </thead> <tbody> <tr> <td>VCO1</td> <td>30.00 ~ 140.39MHz (836.10 ~ 946.49MHz)</td> <td rowspan="4">Local level: 0dBm or more Spurious level: -30dB or less</td> </tr> <tr> <td>VCO2</td> <td>140.40 ~ 265.49MHz (946.50 ~ 1071.59MHz)</td> </tr> <tr> <td>VCO3</td> <td>265.50 ~ 407.09MHz (1071.60 ~ 1213.19MHz)</td> </tr> <tr> <td>VCO4</td> <td>407.10 ~ 567.39MHz (1213.20 ~ 1373.49MHz)</td> </tr> </tbody> </table> | VCO NO. | Reception frequency (local frequency) | (With shield case installed) | VCO1 | 30.00 ~ 140.39MHz (836.10 ~ 946.49MHz) | Local level: 0dBm or more Spurious level: -30dB or less | VCO2 | 140.40 ~ 265.49MHz (946.50 ~ 1071.59MHz) | VCO3 | 265.50 ~ 407.09MHz (1071.60 ~ 1213.19MHz) | VCO4 | 407.10 ~ 567.39MHz (1213.20 ~ 1373.49MHz) | | | | | | |
| | | VCO NO. | Reception frequency (local frequency) | (With shield case installed) | | | | | | | | | | | | | | | | |
| | | VCO1 | 30.00 ~ 140.39MHz (836.10 ~ 946.49MHz) | Local level: 0dBm or more Spurious level: -30dB or less | | | | | | | | | | | | | | | | |
| | | VCO2 | 140.40 ~ 265.49MHz (946.50 ~ 1071.59MHz) | | | | | | | | | | | | | | | | | |
| | | VCO3 | 265.50 ~ 407.09MHz (1071.60 ~ 1213.19MHz) | | | | | | | | | | | | | | | | | |
| VCO4 | 407.10 ~ 567.39MHz (1213.20 ~ 1373.49MHz) | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | |

| No. | ITEM | ADJUSTING PROCEDURE | RATING | | | | | | | | |
|---|--|--|--|--|------------------------------|-------|--------------------------|-------------------------------|-------|--------------------------|--|
| 5 | 2nd LOCAL (2LO) VCO control voltage | <ol style="list-style-type: none"> ① Connect the digital voltmeter (DCv) to TP7. ② Switch the NRD-545 reception frequency as shown below to check the VCO control voltages. | | | | | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">VCO NO.</th> <th style="width: 40%;">Reception frequency</th> <th style="width: 30%;">Control voltage</th> </tr> </thead> <tbody> <tr> <td>VCO H</td> <td>567.39MHz</td> <td rowspan="2">2.0 to 4.0VDC</td> </tr> <tr> <td>VCO L</td> <td>567.40MHz</td> </tr> </tbody> </table> | VCO NO. | Reception frequency | Control voltage | VCO H | 567.39MHz | 2.0 to 4.0VDC | VCO L | 567.40MHz | |
| | | VCO NO. | Reception frequency | Control voltage | | | | | | | |
| | | VCO H | 567.39MHz | 2.0 to 4.0VDC | | | | | | | |
| | | VCO L | 567.40MHz | | | | | | | | |
| <p>*1 Note that installing the shield case also changes the control voltage. Make sure that, after installing the shield case, the voltage meets the specification (rating). (Installing the shield case lowers the control voltage by about 0.1V.)</p> | *1 (With shield case installed) | | | | | | | | | | |
| <ol style="list-style-type: none"> ③ Make sure there is unlocking in the reception frequency range 30 to 1999.999MHz (be sure to check with the shield case installed). ④ Make sure CD36 (2LO UNLOCK) lights (and immediately turns OFF again) when the frequency is switching. | | | | | | | | | | | |
| | | | | | | | | | | | |
| 6 | 2nd LOCAL VCO MIX level | <ol style="list-style-type: none"> ① Connect a spectrum analyzer to J4. ② Measure the local signal level at the following frequencies. | | | | | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">VCO NO.</th> <th style="width: 40%;">Reception frequency (local frequency)</th> <th style="width: 30%;">(With shield case installed)</th> </tr> </thead> <tbody> <tr> <td>VCO H</td> <td>567.39MHz (795.49MHz)</td> <td rowspan="2">Local level: +3dBm or more</td> </tr> <tr> <td>VCO L</td> <td>567.40MHz (258.00MHz)</td> </tr> </tbody> </table> | VCO NO. | Reception frequency (local frequency) | (With shield case installed) | VCO H | 567.39MHz (795.49MHz) | Local level: +3dBm or more | VCO L | 567.40MHz (258.00MHz) | |
| | | VCO NO. | Reception frequency (local frequency) | (With shield case installed) | | | | | | | |
| | | VCO H | 567.39MHz (795.49MHz) | Local level: +3dBm or more | | | | | | | |
| VCO L | 567.40MHz (258.00MHz) | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 7 | AGC 1 adjustment | <ol style="list-style-type: none"> ① Connect the SG RF OUT at the following settings to J1. Frequency: 145.01MHz, Level: 34dBμ (emf), Mod: OFF ② Set the NRD-545 reception frequency to 145.01MHz. Adjust RV1 so that the S-meter indicates 9. (Set where the S-meter changes from S8 to S9.) ③ After adjusting RV1, set the SG RF output OFF and check that the S-meter is S1 or lower. | | | | | | | | | |
| 8 | AGC 2 adjustment | <ol style="list-style-type: none"> ① Connect the SG RF OUT at the following settings to J1. Frequency: 1104.81MHz, Level: 34dBμ (emf), Mod: OFF ② Set the NRD-545 reception frequency to 1104.81MHz. Adjust RV2 so that the S-meter indicates 9. (Set where the S-meter changes from S8 to S9.) ③ After adjusting RV1, set the SG RF output OFF and check that the S-meter is S1 or lower. | | | | | | | | | |

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| 9 | WFM S-meter adjustment | <p>① Connect the SG RF OUT at the following settings to J1. Frequency: 63.00MHz, Level: 100dBμ (emf), Mod: OFF</p> <p>② Set the NRD-545 reception frequency to 63.00MHz. Adjust RV3 so that the S-meter indicates full scale. (Set where the S-meter changes from S9 + 60dB to full scale.)</p> <p>③ After adjusting, check the following operations:</p> <p>-1 At SG FREQ: 63.00MHz, increase the RF input level, then check that the input level is within 21dBμ (emf) \pm 5dB when the S meter indication moves from 8 to 9.</p> <p>-2 At SG FREQ: 1295.01MHz, increase the RF input level, then check that the input level is within 31dBμ (emf) \pm 5dB when the S meter indication moves from 8 to 9.</p> <p>Note: This adjustment is affected by items 7 and 8, above.</p> <ul style="list-style-type: none"> - If you have readjusted the AGC1 (Item 7), recheck all adjustments in item 9. - If you have readjusted the AGC2 (Item 8), recheck adjustment ③ -2 in item 9. | |

| No. | ITEM | ADJUSTING PROCEDURE | RATING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | Sensitivity check | <p>① Measure sensitivity at the following frequencies: AM: S/N = 10dB AF output = 10dBm Bandwidth = NARROW (2.4kHz) MOD = 400Hz 30% FM: 12dB SINAD AF output = 10dBm MOD = 1kHz DEV = ± 3.5kHz WFM: 12dB SINAD AF output = 10dBm MOD = 1kHz DEV = ± 75kHz</p> <p>The SG output level is when it is terminated by 50 Ω while measuring the sensitivity.</p> <p>Because the center reception frequency may shift as a result of changes in the deviation of the local frequency, adjust the tuning dial to determine the optimum point. (Especially when measuring AM sensitivity)</p> <p>The asterisk (*) indicates frequencies to be checked also on the final test bench.</p> <table border="1" data-bbox="550 875 1390 1529"> <thead> <tr> <th>Reception frequency</th> <th>BAND</th> <th>AM</th> <th>FM</th> <th>WFM</th> </tr> </thead> <tbody> <tr> <td>* 30.01 MHz</td> <td rowspan="4">1</td> <td>—</td> <td>0dB μ or less</td> <td>—</td> </tr> <tr> <td>50.01 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 83.00 MHz</td> <td>—</td> <td>—</td> <td>6dB μ or less</td> </tr> <tr> <td>* 107.99 MHz</td> <td>—</td> <td>—</td> <td>- 2dB μ or less</td> </tr> <tr> <td>* 108.01 MHz</td> <td rowspan="3">2</td> <td>10dB μ or less</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 145.01 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 279.99 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 280.01 MHz</td> <td rowspan="3">3</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 433.01 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 567.39 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 567.41 MHz</td> <td rowspan="3">4</td> <td>—</td> <td>0dB μ or less</td> <td>—</td> </tr> <tr> <td>* 999.99 MHz</td> <td>—</td> <td>0dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1104.79 MHz</td> <td>—</td> <td>0dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1104.81 MHz</td> <td rowspan="2">5</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1239.99 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1240.01 MHz</td> <td rowspan="3">6</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1299.99 MHz</td> <td>—</td> <td>- 2dB μ or less</td> <td>—</td> </tr> <tr> <td>* 1999.99 MHz</td> <td>—</td> <td>12dB μ or less</td> <td>—</td> </tr> </tbody> </table> <p>Note: — indicates checking not required.</p> | Reception frequency | BAND | AM | FM | WFM | * 30.01 MHz | 1 | — | 0dB μ or less | — | 50.01 MHz | — | - 2dB μ or less | — | * 83.00 MHz | — | — | 6dB μ or less | * 107.99 MHz | — | — | - 2dB μ or less | * 108.01 MHz | 2 | 10dB μ or less | - 2dB μ or less | — | * 145.01 MHz | — | - 2dB μ or less | — | * 279.99 MHz | — | - 2dB μ or less | — | * 280.01 MHz | 3 | — | - 2dB μ or less | — | * 433.01 MHz | — | - 2dB μ or less | — | * 567.39 MHz | — | - 2dB μ or less | — | * 567.41 MHz | 4 | — | 0dB μ or less | — | * 999.99 MHz | — | 0dB μ or less | — | * 1104.79 MHz | — | 0dB μ or less | — | * 1104.81 MHz | 5 | — | - 2dB μ or less | — | * 1239.99 MHz | — | - 2dB μ or less | — | * 1240.01 MHz | 6 | — | - 2dB μ or less | — | * 1299.99 MHz | — | - 2dB μ or less | — | * 1999.99 MHz | — | 12dB μ or less | — | |
| Reception frequency | BAND | AM | FM | WFM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 30.01 MHz | 1 | — | 0dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50.01 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 83.00 MHz | | — | — | 6dB μ or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 107.99 MHz | | — | — | - 2dB μ or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 108.01 MHz | 2 | 10dB μ or less | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 145.01 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 279.99 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 280.01 MHz | 3 | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 433.01 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 567.39 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 567.41 MHz | 4 | — | 0dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 999.99 MHz | | — | 0dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1104.79 MHz | | — | 0dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1104.81 MHz | 5 | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1239.99 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1240.01 MHz | 6 | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1299.99 MHz | | — | - 2dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 1999.99 MHz | | — | 12dB μ or less | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Overall distortion check (AM) | <p>① Set up for checking AM sensitivity at 145.01MHz. 400Hz 60% modulation, AGC: ON, AF output: 27dBm</p> <p>② Measure the AF output distortion with the SG level at 60dB μ and 100dB μ . SG 60dB μ (emf) SG 100dB μ (emf)</p> <p>Because the center reception frequency may shift as a result of changes in the deviation of the local frequency, adjust the tuning dial to determine the optimum point.</p> | 5% or less 10% or less | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 12 | Overall distortion check (WFM) | <p>① Set up for measuring WFM sensitivity at 83.00MHz. MOD: 1kHz, Dev: ± 75kHz, AF output: 27dBm</p> <p>② Measure the AF output distortion with the SG level at 60dB μ (emf).</p> | 5% or less |
| 13 | Overall level check (WFM) | <p>① Set up for measuring WFM sensitivity at 83.00MHz. SG level: 60dB μ (emf), MOD: 1kHz, Dev: ± 75kHz</p> <p>② Connect a level meter (600 Ω) to the LINE OUT L and R connectors on the back of the NRD-545 to take the readings.</p> | L and R connectors: -8dBm \pm 2dB |
| 14 | WFM stereo operation check | <p>① Set up for 83.00MHz WFM stereo reception. SG level: 60dB μ (emf), MOD: EXT, Dev: ± 75kHz Set the external modulation signal as follows: Stereo modulation mode: R= L 1kHz modulation Modulation level: Set to SG input Pilot signal (19kHz): ON (10%) Preemphasis: 50 μ Sec Subcarrier frequency: 38kHz</p> <p>② Set the 19kHz pilot signal for the external modulation stereo composite signal OFF, then make sure that the "S" stereo indicator is blinking and the reception is in monaural mode.</p> <p>③ Set the 19kHz pilot signal for the external modulation stereo composite signal ON, then make sure that the "S" stereo indicator is ON and the reception is in stereo mode.</p> <p>④ With reception in stereo mode (as in step (3)), connect a level meter (600 Ω) to the LINE OUT L and R connectors on the back of the NRD-545 to take the readings.</p> <p>⑤ With the setup as in step (4), measure the stereo separation and level differential. -1 Set to R only, stereo modulation mode, then measure the L and R differential. -2 Set to L only, stereo modulation mode, then measure the L and R differential. -3 In the above tests, measure the differential between the R signal level in the R only test and the L signal level in the L only test.</p> <p>⑥ On completion, remember to return the set to monaural reception in WFM stereo mode.</p> | <p>Mono: "S" blinks Stereo: "S" ON</p> <p>L and R connectors: -11dBm \pm 2dB</p> <p>Stereo separation: L and R both 16dB or more Level differential: Within 2dB</p> |
| 15 | Squelch operation check | <p>① Reception frequency 145.01MHz, AGC: ON, RF GAIN: fully clockwise SG modulation: OFF, RF output: OFF</p> <p>② Rotate the squelch control fully counterclockwise, then check that there is AF output in AM, FM, and WFM modes.</p> <p>③ Rotate the squelch control 3 steps clockwise, then check that there is no AF output in AM, FM, or WFM mode.</p> <p>④ Set the SG RF level to +20dB μ, then check that there is AF output in AM, FM, and WFM modes.</p> | <p>Within three steps counterclockwise from squelch muting point. 3 steps from fully counterclockwise +20dB or less</p> |

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| 16 | Consumption | ① Measure the NRD-545 current consumption when operating on DC. Supply voltage: 13.8VDC AF GAIN: Min Measuring frequency: 83.00MHz Measuring mode: WFM | DC supply current: 1.8A or less |